


contact

ERICSSON  PUBLICATION FOR EMPLOYEES WORLDWIDE

No.19 • 11 DECEMBER 1997



Photo: NILS SUNDRÖM

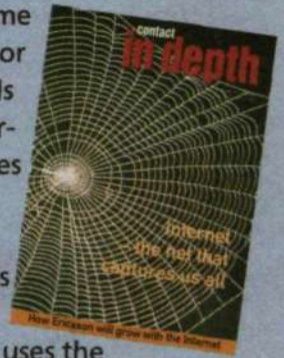
Panama is the first in Central America

Panama is the first country in Central America to privatize its telecom industry. Success in Panama and neighboring countries is decisive for Ericsson in Central America. Today, Ericsson has 100 percent of the mobile telenet market and 80 percent in fixed-wire telephony. However, the market is still small but can grow.

Pages 12-13

Internet and Ericsson

The final theme supplement for the 1997 deals with the Internet. It provides information about what the Internet is about and how Ericsson uses the net internally and the business opportunities it offers. The Internet is relatively new for Ericsson and there are many ideas and projects emerging as well as many finished commercial products and applications.



Which one are you?

Different types of mobile telephone users have contrasting values. When Mobile Phones and Terminals view customer behavior, users are divided into different groups. Are you an Achiever or a Sociable? Traditionalist or Materialist? Read more about the values of users in 24 countries.

Pages 8-9

Change program for Infocom

It is estimated that 10,000 jobs will go in Infocom Systems globally, most of them during 1998. This is the result of the business area's implementation of the major change program that will lead to annual cost savings of at least SEK 2 billion.

Page 3

VACANCIES SEE PAGES 21-23

contact

PUBLICATION FOR ERICSSON
EMPLOYEES WORLD WIDE

Publisher

Lars A. Stålborg,
phone: +46 8 719 3162

Corporate Editor

Lars-Göran Hedin,
phone: +46 8 719 9868,
fax +46 8 681 27 10,
memo: LME.LMELGH

Editorial assistant

Pia Rehnberg,
phone: +46 8 719 7869,
memo: LME.LMEPRG

Editors

Patrik Lindén,
phone: +46 8 719 1801,
memo LME.LMEPALI
Mia Widell Örnung,
phone: +46 8 719 4109
memo: LME.LMEWIDE

Editorial staff

Thord Andersson,
phone: +48 8 422 0316,
memo EBC.EBCTKAN

Inger Björklind Bengtsson,
phone: +46 8 757 4454,
memo EKA.EKAIBE

Anneli Krantz,
phone: +46 8 764 1596,
memo ECS.ECSANKR

Gunilla Tamm,
phone: +46 8 757 2038,
memo ERA.ERAGT

Lena Widegren,
phone: +46 8 719 6943,
memo ETX.ETXLAWN

Britt-Marie Wihdén,
phone: +46 31 747 3662,
memo EMW.EMWBMW

Address

Telefonaktiebolaget LM Ericsson,
HF/LME/I, S-126 25 Stockholm,
Sweden

Fax: +46 8 681 2710

Distribution

Solveig Sjölund,
phone: +46 8 719 4111,
memo: LME.LMEKOCO

Layout

Paues Media in Stockholm AB,
phone: +46 8 665 8072

Printed at

Nerikes Allehanda Tryck, Örebro 1997

Advertising

Display AB phone: +46 90 17 79 50

If you are on a limited assignment in Sweden you may have Contact sent to your home address. Send us your name, home address, and the date you will leave your assignment in Sweden to: LME.LMEKOCO.

During your stay in Sweden, you will continue to receive Kontakten.

If you move, and inform the personnel department of your new address. Kontakten will automatically be sent to your new address. To notify us of a change in address, or to extend your subscription for Contact, please send us a memo with your new address, together with the old one, to LME.LMEKOCO.

The Swedish bank S-E-Banken has played an important role in the administration of Ericsson's convertible program. In some respects, S-E-Banken did not fulfill its commitments. In an open letter to Ericsson employees S-E-banken apologizes for the program not proceeding as planned.

S-E-Banken apologizes

To all Ericsson employees

The largest issue in Sweden of convertibles to employees is now completed. Interest was enormous and despite the high issue amount of SEK 6 billion the program was oversubscribed!

In Sweden, more than 70 percent of the employees subscribed for convertibles. In addition, Ericsson employees in 46 countries and 22 states in the U.S. participated in the issue.

S-E-Banken and Handelsbanken were commissioned by Ericsson to provide financing for the employees and to handle the subscription administration in Sweden and other Nordic countries. S-E-Banken was solely responsible for financing and administration in the rest of the world.

It was apparent from the start that there were many legal issues associated with lending in Swedish kronor to private individuals outside Sweden. And although S-E-Banken, through its Part-Ownership System, has years of experience in the financing of convertible programs to employees in multinational companies, a separate legal review was required for each participating country. Since Ericsson's convertible program was many times larger than any previous issue, this investigation was time consuming, particularly due to the large number of countries.

S-E-Banken temporarily employed an additional 35 persons for the administration of the Ericsson issue. Their main task was to check application forms, debentures, powers of attorney and other documentation. It was necessary to assign a large proportion of these resources to the foreign employees. Based on the legal requirements in each country, S-E-Banken specially developed different foreign promissory notes and application forms.

Against this background, we were forced to focus our resources to a great extent outside Sweden and some of S-E-Banken's routines in Sweden were less than satisfactory. The allotment notices were sent much too late, due to – among other factors – assigning priority to the foreign notices to accommodate the longer post time. To avoid a delay in processing of loans, S-E-Banken provided information about allotment to the head offices of the other banks at an early stage.

Despite being able to handle more than 1,000 calls daily, we have learned that many employees found it difficult to reach us by telephone.

Circumstances beyond S-E-Banken's control also contributed to delays, including:

Withdrawal of payment via the New Autogiro system, conditional upon the funds having been deposited in the account the day prior to the payment date. Some employees who financed their purchase through a bank other than S-E-Banken had the loan amount deposited in the account one currency day too late. As a result S-E-Banken was prevented from debiting these accounts on the subscription date.

In summary, the Ericsson employees who were affected by the delays have every reason to be irritated, and we understand this. Accordingly, we are extending a sincere apology that the program did not proceed as planned.

Our Ericsson team, now comprised of five persons, will be at your service for the next five and a half years with advise and service regarding the convertibles and, for those who selected S-E-Banken for financing, the loan.

In conclusion, we extend a thank you to the Ericsson convertibles group for the support we received, particularly with regard to distribution of information via the Ericsson intranet.

KJELL-OWE WETRING

Head of S-E-Banking Custody Service Part-ownership System

Weekly share price listing in Contact



■ How Ericsson is valued on the stock market is indirectly important to all employees. Now, when nearly half of all employees could be come shareholders through the convertibles program, Contact believes that the interest in the share price will rise.

The Special General Meeting approved the convertible program on September 9. The conversion price was later set at SEK 472 (see diagram). In future issues, Contact will provide a listing of share price movements. The last paid price for the B shares on each Friday will be reported.

The convertible period extends through June 30, 2003.



10,000 people have to leave business area Infocom Systems to improve profitability. This is a result of the changes in the supply flow, the implementation of the so-called Global Supply Chain and because of rationalization in administration. Photo: PRESSENS BILD

One in four affected by Infocom changes

It is estimated that 10,000 jobs will go in Infocom Systems globally, most of them during 1998. This is the result of the business area's implementation of the major change program that will lead to annual cost savings of at least SEK 2 billion.

"We must increase the pace of change in Infocom Systems," says Anders Igel, head of the business area. "What we have done so far has not had a big enough effect."

The main concern is insufficient levels of profitability, increased competition, fast and comprehensive technological change, as well as deep rooted changes on a deregulated market.

"We have to sort out our profitability problem once and for all," continues Anders Igel. "Good profit levels are a precondition if we are to be able to afford to develop the products and solutions necessary for the future and so that we can strengthen our position as one of the leading suppliers of multimedia communications solutions. This requires radical change, which produces major savings and leaves room for future investment."

Greater focus is an important principle in the change process, which means continued outsourcing of manufacturing and other non-core business activities. This strategy was drafted two years ago, but the pace of implementation will now be increased. About 5,000 people are estimated to be affected, which is in line with the previous plan.

Global Supply Chain

The most deep rooted changes are based on the supply flow, i.e. all activities which take place between contract signing, approved installation and getting paid.

"We are concentrating our resources for managing supply to a limited number of locations around the world," says Ove Anebygd, head of Operations within business unit Public Networks.

So called Supply Centers represent the most important part of the supply chain.

"Our customers will get more rapid, guaranteed deliveries on time," says Ove Anebygd. "This will increase their potential to take market share in new, fast growing telecom markets."

Seen from an Ericsson perspective, the changes also mean that the market units can be more efficient at selling.

"At the same time we will make a dramatic cost reduction, with a new industrial operations set-up supported by simplified product handling, pre-equipped system deliveries, fewer product variants and advanced IT methodology, making it possible and necessary to increase further the speed in the ongoing rationalization of the industrial operations worldwide. The consequence is fewer people doing the same job.

Altogether around 5,000 of the 10,000 jobs estimated to go from Infocom Systems will be as a result of the changes in the supply flow, the implementation of the so-called Global Supply Chain and because of rationalization in administration.

Quite a few people will also have to change jobs internally within Ericsson. The Supply Centers will need the skills which currently reside in the local companies, manufacturing, operations and market units.

Closer to the customer

Moves are also possible within the market organization in Stockholm.

"There is a need to be closer to the customer," says Anders Igel. "It is therefore likely that we will move a number of market units away from Stockholm. This will be a gradual process."

We are now carrying out an all-encompassing change program. Altogether savings will be larger than SEK 2 billion when fully implemented.

A major "cash out" cost savings program is also to be implemented called, Trim -98. This will mean multimedia communication instead of traveling where possible, reduced use of consultants and general office costs will also be cut. The Trim program will increase cost awareness among managers and employees, especially those employed by

Ericsson Telecom AB and Ericsson Business Networks AB.

Trim 1998 support measures

The company and the Swedish Unions have started negotiations on the proposed changes, and various types of support measures have been put forward.

"We know that the changes in front of us will be painful for some of our employees," says Anders Igel.

"But we are faced with no other choice but to adapt to the new competitive situation, to adopt new technology and to take the necessary measures to return to acceptable levels of profitability and to increase market share."

"We must do it even quicker than our competitors in order to secure our future as one of the industry's leading companies. We will also do everything which is reasonably possible to act as a responsible employer in those countries where we are active," says Anders Igel. "I understand that many are worried today and it is unfortunate that external newspapers reported on the changes before we were able to explain it internally. We simply have not been ready with all the pieces in this complicated puzzle until now."



Anders Igel.

LENA WIDEGREN
ANDERS LUGN

Five Global Supply Centers will be created

- Asia Pacific – Supply Center Australia
- The Americas – Supply Center Mexico
- Western Europe – Supply Center France
- The Middle East, Africa and Latin America (partly) – Supply Center Spain
- New global operators, Central Europe and other markets – Supply Center Sweden.

news

Doubled mobile capacity on Cyprus

Ericsson has signed a new framework agreement valued at SEK 180 million (USD 24 M) with CYTA, a Cypriot telecom operator. Under terms of the agreement, Ericsson is contracted to supply radio base stations and AXE equipment that will double the capacity of CYTA's GSM network.

Upon completion of deliveries, the GSM 900 network and dual-band GSM 900/1800 on Cyprus will have total capacity to serve 180,000 subscribers. Ericsson has supplied all systems for CYTA's mobile network for both GSM and NMT. The first contract was signed in 1994.

Cooperation with Tellabs broadened

Ericsson's Mobile Systems business area has broadened its strategic cooperation with Tellabs, a system supplier. The program of cooperation is focused on transmission products for mobile networks. Ericsson signed its first cooperation agreement with Tellabs in 1994; the agreement was extended through year-end 2004.

"We are extremely satisfied with the new agreement and the progress of our cooperation with Tellabs," says Kurt Hellström, head of Mobile Systems.

Ericsson leads in Call Centers

Ericsson has strengthened its leading position in the call center sector of the European market, according to the October report published by Gartner Group Dataquest.

For the third consecutive year, Ericsson is Europe's largest supplier of equipment for automatic call distribution (ACD). Its share of the European market has increased to 24 percent in 1997. Dataquest's evaluation includes such factors as systems delivered, the number of agents and total revenues. Ericsson leads in all categories.

Call centers based on business networks can process several thousand agents in the network, while BusinessPhone 250 is used to manage smaller call centers with a maximum of 40 users.

The World needs your Support!



Global Response Center

The Global Response Center plays a strategic and central role in Ericsson's global customer support. GRC is the escalation point for the local support organisation. Through the GRC, Ericsson's top technical expertise is made available worldwide. Today, GRC supports all Public Networks' products, tomorrow, GRC will be a part of an integrated support organisation for the whole Ericsson product portfolio.

Following the sun is the mode of operation for the fast growing GRC organisation. By using three hubs located in different time zones, we provide high level, high quality technical support services to our customers worldwide 24 h a day, 7 days a week.

For more information, please contact:

GRC Dallas
Peter Dicksson
+1 972 583 1356
ECN 800 31356
EUS.EUSDCKN
www.exu.ericsson.se/grc-external

GRC Rijin
Dave Eales
+31 161 249362
ECN 834 9362
ETM.ETMDES
grc.etm.ericsson.se

GRC Melbourne
Andreas Luiga
+61 3 9301 1814
ECN 880 1814
EPA.EPAADL
www.epa.ericsson.se/grc

GRC Recruitment
Thomas Wahlman
+46 8 719 9077
ECN 850 99077
ETXT.ETXTWAH

The *Global Response Center* is looking for experienced
SYSTEM EXPERTS
SUPPORT ENGINEERS
TROUBLE SHOOTERS

Requirements

You will need a broad general knowledge about Ericsson's telecom and datacom solutions, and a highly developed competence within one or several of the areas below:

- IOG 11/IOG20
- APT
- AM Environment
- SDP
- Service Applications
- UNIX
- OSS
- DRA1900
- DIAX
- Voice over IP
- IAS
- APZ
- ISDN
- SMAS
- VPN
- BMX
- TMOS
- XMATE
- Airline
- TCP/IP
- Phone doubler
- ACD

Language skills besides English are welcome, especially Spanish.

If You Appreciate...

- The sweet smell of success when finding and fixing faults
- Learning and building knowledge on the latest products
- Using this knowledge to help other people
- Being at the forefront of Ericsson's global activities
- Working with a lot of customers all over the world
- Working with new types of customers, e.g. global operators
- Working in a fast moving, challenging area
- Working together with highly motivated, flexible and highly competent colleagues
- An international environment where your personal network expands
- A job where competence development is built into the day-by-day work
- Global team working
- The opportunity to travel

...call us NOW!



This is the fourth of six advertisements to be published consecutively in Contact.



MANUFACTURING IS NOT JUST ABOUT MACHINERY. HUMANS AND TECHNOLOGY MUST HARMONIZE.

Most of our 1,000 employees work in production, where visions, plans and ideas become real products. Our staff is well-trained, competent and used to taking responsibility and initiative. The result is a high level of efficiency and optimum utilization of resources.

All company employees are involved in some way in improvement work. We realize the importance of trying to find new solutions, streamlining routines and making sure that our surroundings are always neat and tidy. For us it stands to reason that what was good yesterday is mediocre today, and it will not make the grade tomorrow.

Our production can handle both large and small volumes in varying degrees. Processes are custom-designed and based on each individual product.

The way to success is our ability to adapt to customer needs. We manage this

thanks to our modern machinery in tailor-made factories.

During manufacturing, we work in object-oriented flow groups which take care of planning, administration and analyses – the type of responsibility that leads to better performance.

Flextronics International Ltd has 10,200 employees and facilities in North America, Asia and Europe. We are one of the world's largest contract manufacturers of advanced electronics for the communications, computer, consumer and medical electronics industries. In addition to Ericsson, our customers are among others Cisco Systems, Microsoft, Nokia and Philips Electronics.

Our business concept is simple. We let our customers concentrate on their core operations. Flextronics takes care of the entire manufacturing process from procurement to distribution. A staff of 1,000 works at our European Head Office in Karlskrona, where we manufacture among other things Ericsson business communications products such as the MD110 PBX and Packet/Frame Relay switch family, as well as components for radio-based DECT systems for business cordless and radio access. We deliver directly to customers worldwide.

Flextronics International Sweden AB, PO Box 532,
SE-371 23 Karlskrona, Sweden. Telephone: + 46 455 544 00.
<http://www.flextronics.se>

FI
FLEXTRONICS
INTERNATIONAL
SWEDEN AB

Q and Moneypenny both use Ericsson

Mobile telephones are not the only devices used in the new James Bond film. In the studio, 200 cordless DECT telephones with docking stations and 100 Dialog digital system telephones were utilized when shooting the film. And both Moneypenny and "Q" use them in key scenes in the film.

The Enterprise Networks business unit at Infocom Systems also has a chance to show off its products in the eighteenth James Bond Film, Tomorrow Never Dies.

"We took the opportunity of jumping on the bandwagon with our DECT cordless office telephones and our advanced system telephones," says Harald Simons, who is the business unit's information manager. "It is important for people to realize that the film is not confined to showing off mobile telephones."

The film team wanted desktop telephones, and Harald Simons thought it would be appropriate to offer a system using 200 cordless DT360 DECT telephones. Filming also involved the use of 40 Comfort headsets, a number of docking stations and 100 Dialog 3000 digital system phones.

Since Enterprise Networks' services and products are mainly designed for companies and other organizations, the business unit did not want to employ the same approach used by Mobile Phones and Terminals in the latest Bond film.

"We are focusing to a greater extent on the people around James Bond. And that's why it's good to see both "Q" and Moneypenny using our products."

The project includes global press activities and four completely new ads based



Harald Simons.



Miss Moneypenny in action with an Ericsson Dialog telephone.

on the Enterprise Networks theme, presenting full-coverage communication solutions with a special focus on Call

Center, the personal number service, Personal Mobility, cordless DECT telephones and Dialog 3000 telephones in the PBX portfolio. The advertisements can be used by local subsidiaries all over the world.

In addition to the commercial aspects, Harald Simons thinks that the Bond initiative will also be good for employee motivation.

The campaign will include a competition in which employees have an opportunity to win some of the DECT telephones used in the film. The phones will be modified to enable them to be used at home.

GISELA ZEIME

The Bond film in figures

- It took 23 weeks to make the film
- 720 people were involved
- Shooting took place in the following locations: two weeks in Hamburg, a month in Thailand, three months in Mexico, three weeks in Florida and two months in South Africa
- The most remote phone call was made from James Bond Island (the island of Phuket in Thailand)
- The most bizarre telephone call in the film was made from a Hercules transport aircraft at an altitude of more than 30,000 feet
- The film team's favorite telephone was the black GF788

Ericsson's monitoring system approved

Swedish Telia has approved a computer-based monitoring system for telephone exchange power-supply equipment, recently developed by the Ericsson Components AB Energy Systems Division.

"We have just started monitoring our facility at Jönköping, and now we hope to achieve national coverage," says Tony Thorén, Telia's project manager. A decision regarding launching the system throughout the country will be taken in the next few weeks.

The EnergyMaster monitoring system is used to supervise power equipment

such as distribution panels, batteries, emergency generators, air-conditioning systems and power supply equipment. In simple terms, monitoring means optimum management of operations and maintenance at minimum cost, to ensure that there is no risk that subscriber telephone services will be interrupted. The telecom operator can achieve overall real-time management of power-supply equipment by remote control.

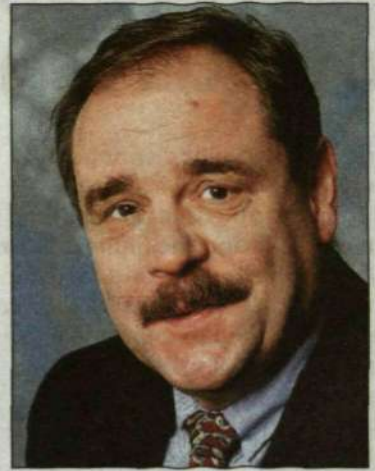
The new monitoring system consists of a limited number of central mainframe computers and local monitoring computers located at facilities in various parts of the country. Operators can monitor on

screen what is happening in facilities all over the country on their mainframe computers. If one of the exchanges indicates a malfunction, the exchange icon changes color and, in addition, an alarm window appears, indicating where the fault is located. Resources can then be dispatched to the right location, enabling supervision and maintenance operations to be planned in a rational, efficient manner. This results in improved reliability and lower costs. Operating statistics and follow-up information are also readily available.

"So far, we are very satisfied," Tony Thorén concludes.

MALIN KUSOFFSKY

hello there!



How does it feel to transfer to Uzbekistan?

Günther Begemann, who previously handled business contacts with Deutsche Telekom at Ericsson in Germany, will be establishing a representative office in Uzbekistan on January 1, 1998.

• How does it feel to be on the way to Tadjkent?

"Change is better than routine I always say. After years of working with Ericsson in Germany, it feels refreshing to try something new. There are not many who know much about Tadjkent, but it is a very nice city with 2.5 million inhabitants in the most stable republic in Central Asia. It will also be interesting to set up a new office. The plan is that we will be a team of six - three locals and three foreigners, including me."

• What are the prospects for Ericsson in Uzbekistan?

"There is a shortage of telephones in Uzbekistan. The density is one fixed-wire connection for each 20 inhabitants. With a population of 23 million, there is a need for expansion of telecommunications. There is also an atmosphere of a willingness to invest which is very promising for the future. Many operators are investing and there are several joint-ventures investing in Uzbekistan. The government is also focusing on an expansion program. It is worth noting that there are two AMPS networks and four GSM licenses already, so there is nothing wrong with the ambition level. Ericsson recently delivered one of the GSM networks."

• What is a representative office?

"The words describe it quite accurately. We provide local representation. We do not conclude contracts directly. I and my future colleagues will provide a local presence and represent Ericsson. We will meet with important business contacts and function somewhat like an embassy. Quite simply, we support Ericsson's business efforts. Many of our competitors are already in place. Alcatel has been here since 1993 and Siemens since 1994. Nokia, Nortel and NEC are also here, among others."

PATRIK LINDÉN

Searching for grains of dust in Lynchburg

Ericsson's mobile telephone production plant in Lynchburg, Virginia has devised a new work method, placing the highest priority on problem areas and correcting them first. Called Yield 95, the project is designed to generate a production yield of at least 95 percent, with spill in the form of claims, material waste and faulty components limited to 5 percent.

In a company as large as Ericsson, problems arise in all project groups and they have to be solved, but priorities are the focal issue.

As part of Yield 95, every project group reviews and defines problems at regular intervals, with particular emphasis on problems that prevent the group from reaching its 95-percent target yield. A central group appraises the project group reviews, and four so-called measurement units – Surface Mount Assembly, Assembly, Test and the Product Repair Center in Texas – decide which areas should be prioritized.

Faster and better

"So far, there has not been an incidence of anyone not doing anything about a high-priority problem from one week to the next. Instead, things are being done faster and better than before," says Thomas Huslak, Production Quality

Manager for Mobile Phones in Lynchburg and the spider that weaves the net comprising Yield 95.

One high-priority problem area identified by Yield 95 is the assembly of windows in mobile telephones.

"When we assemble the covering glass in mobile telephones, it's imperative that not a single grain of dust comes between the LCD display and the covering glass. We have special "vacuum cleaners" for this purpose, but sometimes they're just not good enough. A grain of dust can cause formations of small bubbles in the display, and we've had problems with faulty telephones returned from customers because of the small bubbles.

"As a result, we plan to invest in the same air purification techniques used in surgical theaters. The grain of dust prob-



"During the fall, several new products will compete for time, making it more critical than ever to know exactly which problems need to be prioritized," says Thomas Huslak, Production Quality Manager for Mobile Phones in Lynchburg and project manager of Yield 95.



Bud Gaines and Yvonne Gibson look for bubbles in LCD displays of mobile telephones. The bubbles are so small they are difficult to detect with untrained eye. Bud and Yvonne rely on their eyes, however; magnifying glasses are for amateurs.

Photo: NILS BERGENDAL

lem is our highest priority project within the framework of Yield 95," Mr. Huslak continues.

Diagrams are displayed on bulletin boards throughout the factory. They show changes in the monthly yield in every stage of production. The diagrams also identify problem areas that need to be corrected to increase the plant's overall production yield.

"We have many different products, and every product is available in different variations. We were quite simply forced to organize quality assurance efforts. During the autumn, several new products will compete against the clock, making it more critical than ever to know exactly which problems need to be prioritized," explains Thomas Huslak.

LARS WIRTÉN

On New Year's Day we changed our name from Ericsson to Svensson, and look what happened.

At Segerström & Svensson, Stockholm, we're always finding new ways to make our operation more efficient. Not just for our own sake, but, more importantly, for the sake of our customers.

Less than a year has passed since Ericsson's mechanical engineering unit was outsourced, joining the Segerström Group, a major producer of thin sheet metal components and component systems. Today the Group boasts production units in three countries, and is widely recognised as a reliable supplier to leading companies within the white goods, electronics and automotive industries.

Much has happened these last twelve months. And, as you can see on our checklist, there's still more ground to cover as we strive to provide an even better service. You can count on us to cover that ground in the near future.



- The purchasing and finance functions of the Movex business management application are being implemented.
- EDI system installed, and up and running.
- A more productive production unit. A comprehensive reorganisation has boosted the efficiency of our production unit.
- Small town entrepreneurship adds to big city know-how. When cabinet manufacturer Tryggarp joined the Group, we acquired a partner that will help make our products even more competitive.
- Strategic US alliance. As a result of our joint venture agreement with Mayville Metal Products, we now have access to first rate American production know-how. Yet another step towards "a global company with a local presence".
- New purchasing strategy. In order to cut overall costs, while meeting the highest quality demands, we've selected a number of strategic suppliers.
- Strengthened R&D department. At present, we have fourteen design engineers and specialists within the telecom and electronics business sectors on our staff.
- Increased CAD capacity. We are equipped with 20 Uni Graphics CAD stations with full 3-D modulation.
- New project management model. PROPS applications are now applied to our own investigation, design and industrialization projects.
- New marketing department. Part of a process in which we identify and meet customer needs.
- We've industrialised parts of the new AXE hardware.
- Improved prototype department for speedy customer service in new projects.
- We've constructed an ESD surface for electronic component assembly.
- Widening the customer base.
- Shaken but not stirred. As of Jan 1 1998, we'll acquire a shock and vibration lab to verify that our products can shake off the effects of earthquakes or rough handling.
- Certified in accordance with ISO 9001 in January 1998.
- Recruit expert competence in climatic systems in January 1998.
- The MPS function of the Movex business management system is to be implemented Q1-98.
- New, leading-edge production equipment to be acquired for increased capacity and more efficient manufacture Q2-98.
- Move to new premises at Jordbro industrial estate, Haninge Q3-99.
- Planned ISO 14000 certification at our new premises after Q3-99.

SEGERSTRÖM 

Segerström & Svensson Stockholm AB
Box 128 • SE-129 23 Stockholm • Sweden
Phone +46(0)8 681 21 00 • Fax +46(0)8 681 21 21
e-mail: sales@segerstrom.se
www.segerstrom.com

portrait

The front line in technology has shifted from space research to telecommunications.

"Because of tactical politics in all parts of the world, space research is steadily losing the lead it once commanded in technology and materials research. During the past five years, space research programs have been reduced to a point of stagnation." The comments were made recently by Rolf Jönsson, Deputy Director of Technology at Ericsson's factory in Gävle, Sweden.

Rolf laments cutbacks in space research

f

rom 1978 to 1995, Rolf Jönsson worked with a variety of space research programs, including materials research focused on weightlessness, for Svenska Rymd AB and the European Space Agency.

There's a look of melancholy in Rolf Jönsson's eyes as he discusses the subject, a man still extremely fascinated

by space and space research. When the technology started to show signs of stagnation, however, he began to look elsewhere for job opportunities.

Absolute cutting edge

The field of radio measurement technologies is a cutting-edge in Ericsson's factory in Gävle, manufacturer of radio base stations for mobile telephony. The speed of tests conducted in Gävle is rising constantly, in parallel with increasingly complex measurement values. The next step will probably be to build tests into the products.

"We have two slogans here: Failure is not an option and Faster, cheaper and better."

"One of my personal objectives is to eliminate my own role as head of test development," says Rolf, only half in jest.

Creative spirit

"About 200 engineers work in the technology unit. A very powerful force is released when these highly skilled technicians develop innovative solutions.

"My job is to stimulate a creative development atmosphere in otherwise fairly conservative production operations. We try to go against conventional wisdom and philosophies, seek new opportunities, find other angles and constantly question established modes of operation.

"I have enjoyed the advantage of experiencing the interplay between my technicians and the world's leading developers of instruments, working in close cooperation to create the next generation of measurement instruments. The only comparison I can make is the blend of lyrics and music at the highest level of art, functioning at its ultimate best. We have about 15 engineers in our unit who are extremely creative and rank among

the very best on a world-class level.

"To reach this degree of creativity, we try to include one or two senior engineers in every technical group. They serve as sounding boards and problem solvers for younger technicians who come to us in a steady stream.

Recruitment difficulties

"Recruitment has been a difficult nut to crack. As a result, we have entered a program of close cooperation with Gävle Sandviken College. A unique radio measurement course is being established at the school to focus on radio measurement techniques and materials technology. We expect to have a professor of electronics in Gävle by year-end 1998. The practical part of the training program for graduate studies will be managed from the factory.

"We are now in the process of establishing a five-credit course, a graduate degree in electronics, for the college. It will be started within the next few weeks. We also hope our own employees will supplement their education by attending the course."

What does the future hold?

"We are constantly looking forward, asking ourselves what will happen with the following generations of radio base stations. It's extremely beneficial to be involved at such an early stage in the development of third-generation mobile systems, and we have established a design unit for the PDC (Personal Digital Cellular) Japanese standard, an area in which we are working on further development and new designs," Rolf Jönsson concludes.

Back to space

A development project that lies at a more remote point in the future will be the design of radio base stations that will transmit radio signals directly to a super-computer after analog/digital conversion, a function not included among the capabilities of today's components.

Beyond the year 2000, accordingly, Rolf Jönsson may find himself back in space via satellites and radio base stations on the ground. An endeavor to enable subscribers to communicate via mobile telephones regardless of where they are at any given time.



Rolf Jönsson is Deputy Director of Technology in Gävle. He worked for many years in space research, with particular emphasis on materials research in weightlessness. In his prime, Rolf Jönsson had more experience in weightlessness than Yuri Gagarin, the famous Russian cosmonaut, but Rolf's states of weightlessness were only 30-second sequences.

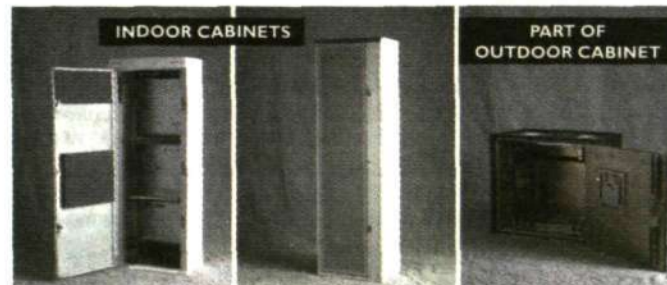
Photo: LEIF JÄDERBERG



LIGHT YEARS AHEAD

Our philosophy of working more closely with our clients than traditional suppliers has proved very successful. This form of collaboration is built on involvement and mutual trust. By being involved right from the start of a project we are able to bring significant benefits in production engineering. These can often be directly translated into savings in time and money. Constant exposure to challenges of this type ensures that we grow stronger all the time. Now we are taking yet another big step out into the world following a joint venture agreement with Kingston Metal Corporation in Pennsylvania, USA, which gives us access to a global market. This brings us close to our customers wherever they are.

Follow us on our journey round the world. You can start by visiting us at the Cebit trade fair in Hannover on 19-25 March. Hall 11, stand G 05.



SWEDFORM

Much more than tube, wire and sheet metal fabrication

Swedform AB, Box 4, S-568 21 Skillingaryd, Sweden. Tel. +46 370 788 00. Fax +46 370 788 20. www.swedform.se
Kingston Metal Corporation, Pennsylvania, USA. Tel. +91 717 288 54 11.

BARBRO ALBREKTSSON

Values shape customer profiles



Sociables are interested in social issues and culture. They are rational and only buy products they think they need. They prefer sophisticated products that are easy to use and have sober design features. They are also loyal customers.

Are you a Pioneer or Acheiver? Values are the focal point of Ericsson's studies into reactions of different customer groups. We can change telephones and life-styles often, but our values usually remain the same. Five categories of customers are used in a so-called segmentation model: Pioneers, Acheivers, Traditionalists, Materialists and Sociables.

W

hat is an accurate reflection of Ericsson mobile telephone customers? How do they think and what do they value most in life? And what sort of telephones might they buy next year? By dividing people into different categories, based on what they feel and how they think, Ericsson is better able to look into the future and forecast development trends – and influence them to some extent.

"If we are able to understand customer values, that knowledge makes it easier to foresee their needs in terms of future telecommunications products, perhaps to a greater extent than they do," says Raila Mörén, a market analyst for the Mobile Phones and Terminals business area.

Sociable Chinese and Acheiver Swedes

Raila Mörén took part in developing a model used to classify customers in five segments that represent different categories of people with different values: pioneers, careerists, traditionalists, materialists and sociable persons.

Traditionalists prefer harmony to change. Product reliability and user-friendliness are the most important factors in their purchasing decisions, and they are generally satisfied with a limited number of functions. Traditionalists also prefer established products and well-known trademarks sold at reasonable prices.

The model is based on background information from annual surveys conducted in 33 countries and biennial surveys in 24 other countries.

The surveys comprise 144 questions in the form of statements that reflect various trends in society. Approximately 2,500–3,000 persons selected randomly are surveyed in each country. The statements refer to general values and more specific issues dealing with mobile telephony.

Results of surveys conducted globally show considerable

variations. Spain, France and the U.S. have a fairly equal percentage of pioneers. Latin America also reflects a strong pioneering outlook. Results in Germany, Japan and Taiwan show a strong majority of traditionalists, with materialists dominating results in the U.K. and the Netherlands.

The strongest element of Sociables is found in China and Finland, while Acheivers represent a high percentage of persons surveyed in Sweden and Australia. Spain and the U.S. show fairly equal representation of all five categories.



Studies of Ericsson customer groups divide them into five different categories



Are you a pioneer? Pioneers are active individualists and explorers, interested in and knowledgeable about advanced technology. Motivated by innovation and intensity. When they buy products, they want leading-edge performance and design. They are impulsive buyers, attracted by strong brands and will pay for quality.



Illustrations: TOMAS LINDELL

According to Raila Mörén, the segmentation model is a very important tool in market planning.

"It enables us to identify target groups with particularly strong potential for profitability, in addition to strong market potential factors in various countries."

Age alone is not a factor

What is important to remember in terms of people's values is that they change very slowly. Discernible changes are seldom noted over a period of five years, for example.

"Since the market for mobile telephones changes so rapidly, it's extremely important to have a segmentation model able to stand the test of time," Raila Mörén continues.

She also believes categorization of people based on age is no longer an accurate yardstick.

"Society has become so individualistic that people today are free to act and react as they wish, regardless of their age. Market analyses based on demographics, accordingly, have become old-fashioned. Life-styles and

Materialists are attracted to strong and trendy trademarks. They look for status and recognition. Group affiliation is important to materialists, and they like to have fun. They are also easy to influence, but not particularly loyal.

Acheivers are hard-working, competitive people who consciously seek success. They readily purchase luxury products marketed as status symbols, products that offer user-friendly and time-saving technologies. They are also willing to pay for quality.

demographics, however, were used as important complements in developing the segmentation model.

"Life-styles change radically from the time a person is 17 years old and hanging around discos until he/she becomes a parent five years later. People simply have to change their life-styles, they have no choice," explains Raila Mörén.

The segmentation model is an important tool in product development, an instrument used to target a company's high-priority customer groups. Do they want fax, modem or Internet access? What designs and colors will offer the greatest appeal?

As regards modes of market communications used by Ericsson to market its mobile telephones, the segmenta-

tion model represents one of many tools used to divide customers into different target groups. It often provides guidance in formulating marketing themes and deciding which media should be used to reach customer target groups.

"Whenever we make media choices, we rely on a wide variety of parameters and models to identify different target groups," says Lars Åberg, manager of market communications in Western Europe within Mobile Phones and Terminals.

"It's very interesting to note that Ericsson has started to think in terms of different customer segments," Lars Åberg concludes.

GISELA ZEIME

ROXSYSTEM

Technologia uszczelniania wielośrednicowych przejść

Roxtec AB • fax: 0455-820 12 • tel: 0455-66700 • info@roxtec.se • http://www.roxtec.se

Ericssons role in a new world



"We want to offer services based on the customer's perspective," says Björn Jonsson, who developed the scenario described in the accompanying article. "We have created a personal agent, situated in an independent node outside all networks, to manage the services requested by users, as opposed to the present situation, whereby users have several terminals and networks with uncoordinated services."

Telecom systems of the future will be broken down, with services separated from actual networks. Services will be provided from nodes, located outside all networks. It's a new scenario that represents a reversal of virtually all present network conditions. The philosophies have been endorsed by researchers in Ericsson's Mobile Systems business area, men and women who specialize in user applications. They also foresee interesting solutions for Ericsson's role in the new world.

Björn Jonsson is a visionary working in the User Application Lab of Mobile Systems. At a recent seminar, he presented the Lab's scenario for future services provided by telecom networks.

In summary, Björn Jonsson believes development is headed toward a radical change in the distribution of roles played by telecom operators, suppliers, service providers and users. The future point of departure will be user needs for various services, not services offered by various networks.

"Ericsson can sit in the back seat and monitor developments, or play possum, but I don't think either method would be the most prudent approach," said Udo Zander, associate professor at the Royal



In reply to her own rhetorical question why companies have not already made services independent of networks and situated them in separate nodes, Winnie Lindroos of the strategic business development staff said they have not wanted to "cannibalize" their own systems.

Photo: ANDERS ANJOU

Institute of Technology in his address. "I believe it will be necessary to sit closer to the windshield and take the wheel if the Company is to have any chance in the future."

New roles

Events now taking place in deregulated telecom markets are highlighted by the emergence of several new players, companies lacking the traditional clout of old, established telecom companies and access to methods they used to plan large, long-term projects. Instead, the new players want results, and they want them quickly.

New market players might lease networks and believe in using whatever was available. In other words, they will work with existing technologies.

New players in the telecom market are also more flexible than their traditionalist counterparts, and focus more on providing services rather than building new systems. Small, gradual investments, rapid penetration into practical application areas, a blend of the old and new, pragmatism and organic growth of networks and systems. A situation in which the expansion of infrastructures is controlled by users, not network planners.

The conditions reviewed above are a synopsis of Björn Jonsson's vision of a solution whereby service-connection nodes will be placed outside all networks and function like personal agents for customers/end-users by utilizing the public, private, fixed and mobile networks of various operators and the Internet.

The solution demonstrated during Björn Jonsson's presentation is based on a node called a Pang Node (Personal Agent Next Generation). He intends to work on continued development of the Pang Node to create a so-called distributed solution, defined as several interactive computers with several nodes situated in several different countries.

Complete independence

Key to the Pang Node is that it will operate outside all fixed and mobile networks, the Internet and similar facilities, providing complete independence from the limitations, new developments and other features of an individual network.

The user will have only one interface to the world of data and telecommunications: his/her personal agent in the Pang



Future network services will be separated from networks, researchers say

Node. The user will specify which services he/she wants to access, and the personal agent will secure their implementation. The user will receive calls on the telephone or network most suitable for the purpose, not necessarily the network used by the called party. If a person sends an e-mail message, for example, and the receiver is in a moving automobile, the receiver can choose to have the message read over the GSM network, for example.

The concept represents mobility in its strongest sense. Users will have complete freedom to move from one environment to another, no longer restricted to a single network.

But, you may ask, what effects would such an Internet solution for all data/telecommunications have on operators and Ericsson?

The roles of operators and suppliers will change. According to most indications, profit margins from future communications networks will be smaller. Streamlined infrastructures, networks, exchanges and peripheral equipment will be needed to compete with lower prices for transmissions restricted exclusively to information. Telecom companies will no longer be able to provide sophisticated network services, in addition to transmissions of information.

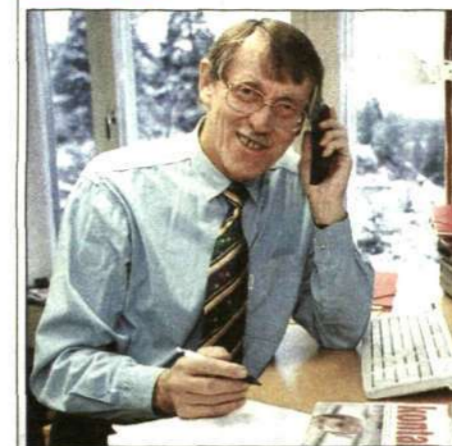


"Established operators have been satisfied with yesterday's products with services built into networks, but new market players need solutions quickly and will probably lease facilities in existing networks," says Philip Nyströmer, manager of the User Application Lab.

One possible role for Ericsson in this scenario would be that of a subcontractor to various middlemen and agencies that will inevitably emerge in the marketplace, new operators, for example. Such a trend would also reduce the potential of network operators to control development.

"It's also possible that Ericsson may have to step outside its traditional role as a supplier and also become involved in

diary



Editor Thord Andersson talks about his first week at Team Building, Ericsson's most modern office building.

Photo: PETER NORDAHL

Office of the future

Thord Andersson is the editor within Enterprise Networks and a member of Contact's editorial staff. He moved recently into Ericsson's most modern office buildings, the Team Building in Nacka Strand.

Saturday: Up at the crack of dawn. Ate breakfast and headed to the office to pack. I'm moving from a modular office environment to the future, the office known as Team Building. I met briefly with Kerstin and Anita, who are preparing an Executive Briefing. Approximately 100 customers arrive Sunday from all parts of the world. My colleagues are excused from the move, but not me. I've been throwing paper away all week. My office looks like a battlefield. All the difficult things to move are still here, with current business in separate files. I'm allowed to bring three cartons of material with me. After packing seven, I'm too tired to continue. Marianne, my companion, and the grandchildren came to lend some moral support, and we all went to a nice Greek restaurant for dinner.

Sunday: Back to the office. I'm assigned a secret file for storage of historical pictures. Throw this away, throw that away, throw something else away. The room was finally empty by lunch. Spent a peaceful afternoon attending Mozart's Requiem at Brännkyrka Church. Then it was off to Stockholm's Grand Hotel, where I hosted one of the tables at the Executive Briefing.

Monday: Customer seminar today with our business partner Flextronics, a company with impressive resources. Arrived at the Team Building after lunch. What a great atmosphere! And a beautiful view of the archipelago. I found my things and filled a designated set of desk drawers with the most important items. I don't know what to do with the rest. There are four people in my group, and we are allocated three work sites. I chose a place with a view over the water. Beautiful! Dock my portable computer. Some very friendly colleagues helped with things I didn't understand. Socially, Team Building is a great place to work, but it was difficult to get anything accomplished today. Rushed off to Stockholm City Hall to host another table at another dinner. The Golden Hall was at its grandest, the food was excellent, atmosphere was great, and the beautiful voices of the Academic Choir entertained our satisfied customers.

Tuesday: Attended some very informative presentations as part of the Executive Briefing. Ericsson is the European market leader in Call Center solutions. Back to the Team Building after lunch. I chose a different place of work today. Rolled out my "desk drawers" and went to work. It's very quiet here. I like to talk on the telephone, but everybody seems to just stare at their PCs, receiving and sending messages. Have they already forgotten the telephone? I haven't, that's for sure. My cordless DECT is getting a workout. I find it difficult to talk in low tones and not listen to the conversations of others.

Wednesday: Editors meeting today at the Head Office. Lars-Göran is in China and Patrik is on vacation. There are quite a few projects in progress. Meeting the deadlines for Contact 19 and 20 almost simultaneously is going to be difficult. Back in Nacka, I chose a work place without a view. Good for my concentration. The thing I miss the most is a "real" telephone. All I have here is a cordless DECT. Sales of Ericsson's Dialog telephones are better than ever, and I don't have one. Ended the day attending at a meeting of the share savings association. I wonder if Lundin Oil stock will take off.

Thursday: I stayed at home and worked a few hours in the morning. Had to develop some pictures from CeBIT for the next edition of Connexion. Quiet afternoon at Team Building, and I actually got a lot of work done. I like to work standing up. Made several phone calls. The lightweight DECT is really a great telephone with excellent sound quality. But what happened to ergonomic considerations? I have to press five buttons to turn it off. Does anybody know why? I spent the evening with some steamboat enthusiast acquaintances looking at nostalgic pictures from the 1920s.

Friday: I changed places of work every day this week. I like the concept. I'm a sort of restless soul. But I have to get used to establishing an overview of what's going on without a bulletin board. I also seem to have collected a rather alarming amount of paper during my first week in a paperless office.

However, I gained access to more information here in one week than I used to learn in a month in the modular office. In the evening, my thoughts drifted back to the beauty of Metamorfosis, a small Greek village, when I was helping Marianne hang some water colors at Galleri Agueli as we prepared for Saturday's exhibition.

the packaging and distribution of services," speculated Udo Zander. Whatever the circumstances, Ericsson will have to assume an active role and narrow the gap to end-users. It would be very risky to just sit and wait, and Ericsson has a clear advantage today based on its comprehensive technical know-how and strong brand name.

Already in progress

But will development really go in this direction? Is this not just one more among many future scenarios?

The answer is that changes in this direction are already in progress and, as Winnie Lindroos of the strategic business development staff of Mobile Systems said: "if it's technically possible to implement, somebody - some company - will do it." The reason it hasn't already happened is quite simply that telecom operators and suppliers have been extremely reluctant to "cannibalize" their own systems as long as they function satisfactorily and make money. Many of the market's new players, quite naturally, have no scruples at all, however. And that's why it's essential to take the lead, to be the first company to face the future.

The research unit at Ericsson's User Application Lab has already developed a concept and first version of a solution.

"We initiated the project about 18 months ago," says Philip Nyströmer, manager of the User Application Lab. "We tried from the outset to find a partner in various units of the Mobile

Seeking contact

The person on the left in the illustration above is trying to contact the person on the right. He/she does not know and does not need to know which network the receiving party is using at this particular moment. The user, or calling party, sends a message via his/her personal agent, or electronic secretary. From its base in an independent node outside the network, the agent seeks the receiving party via various networks - the Internet, fixed and mobile networks - establishing contact in this case via the mobile network. The receiving party replies to the agent, who establishes contact with the user. For the sake of demonstration clarity, we used only one agent to manage the connection. In reality, the receiving party's personal agent would communicate with the user's personal agent.

Illustration: LEIF ÅBJÖRNSSON

Systems business area, and established cooperation just over a year ago with the mobile telephone unit for GSM, TACS and NMT. Our progress has already reached a point at which it's now time to forge ahead and seek various forms of commercial activity. Maybe in cooperation with a customer," Phillip Nyströmer concludes.

LARS CEDERQUIST

Commerce is flourishing again in Panama, seven years after the fall of former dictator General Noriega. Panama City, the capital, has become the Hong Kong of Central America, an international banking center still characterized by vital transports on the Panama Canal. The proud waterway has been augmented by new channels for communication in the form of Ericsson's mobile telephony.



Commerce opening new channels in Panama

Panama has been one of the world's most important hubs for transports and commerce since the 16th century. Spanish conquistadors transported Inca gold and silver over the Isthmus of Panama to Europe. A railroad was built much later and, in 1914, construction of the Panama Canal was completed, an 80-km link between the Atlantic and Pacific Oceans.

Economically healthy

The country's economy has been strongly dependent throughout the 1900s on the service sector and revenues from the canal, the growing international banking center with over 100 banks, and the Colón Free Zone, at the Atlantic mouth of the Panama Canal. Economic and political crises during the 1980s culminated in the invasion of Panama by U.S. military forces in 1989. Today, the country's prosperity has been restored, and its healthy economy is reflected in substantial investments in telecommunications.

"Panama is characterized by optimism today. The country's former military regime invested nothing in telecommunications, which created the tremendous need we see today for data and telecommunications," says Julio Spiegel, Ericsson's agent in Panama for 27 years through the Sonitel company.

Ericsson has conducted operations in the country since 1948 and, after booking several new orders, recently established a subsidiary in Panama.

"Our share of the Panamanian market for fixed networks is about 80 percent, and we command 100 percent of the market for mobile telephony," says Lars Birging, president of Ericsson's new subsidiary in Panama.

Both of the competing mobile telecom operators, Bell South and Cable & Wireless, have chosen Ericsson as their system supplier. Ericsson also has substantial sales of mobile telephones in the country, with a market share of 65 percent.

"We are highly pleased with our accomplishments,



Spiraling optimism. In Panama City, there is a statue of Balboa the Conquistador, the first European to traverse the jungle and reach the Pacific Ocean in 1513. Today, all the conquering that's being done is in the mobile telephony market. Ericsson is the dominant telecom supplier and Sandra González is one of the many new employees. Photo: NILS SUNDRÖM

but we must also remember that mobile telephony in Panama is still in its infancy and several system suppliers are trying to penetrate the market," continues Lars Birging. "From our present position, it may be difficult to maintain the same market shares we enjoy today, but I also believe we can increase overall business as the entire market grows. It will also become increasingly important for Ericsson to sell services, such as system support, and help customers increase their market penetration."

Growth in mobile telephony

About 14 percent of Panama's 2.6 million inhabitants have fixed telephones today, with a virtually negligible fraction having access to mobile telephony. Approximately 15,000 persons are linked to Bell South's mobile network, and Cable & Wireless will open its network to commercial traffic next spring.

"We will see a very strong increase in mobile telephone density during the next few years, based primarily on the strength of Panama's new competitive situation. Growth will also depend, naturally, on our ability to work with customers and market the advantages and various services provided by our systems," Lars Birging explains.

Ericsson in Panama has about 50 employees today, but the ranks will temporarily double following contracts signed with Cable & Wireless in September. The telecom company booked an order valued at USD 15 million for construction of a mobile telephone system and another valued at USD 3 million for expansion of the fixed network. New personnel will also be needed to work on the expansion contract booked by Bell South, a company under strong expansion throughout all of Latin America.

NILS SUNDRÖM

The link between two worlds

A small ship heads toward the Pacific Ocean through the narrow locks at Miraflores. Officially opened in 1914, the Panama Canal has been called an engineering masterpiece of the 20th century. Ten years of hard work by 75,000 men and women eventually led to realization of the dream under the supervision of American engineers. Earlier efforts by Ferdinand de Lesseps, the Frenchman who engineered construction of the Suez Canal, had failed in the struggle against tropical disease and financial problems.

Today, about 40 ships travel daily along the 80-kilometer waterway between the Atlantic and Pacific Oceans. Water for the Canal's three systems of locks comes from the huge, man-made Gatun Lake.

Among other transports, half of all Japanese cars bound for the American market pass through the Panama Canal. The United States has utilization rights to the Canal through year-end 1999, when Panama will assume total responsibility for all management and defense of the Canal.



Manuel de Mello is responsible for the mobile telephone operations of Cable & Wireless in Panama.

Privatization triggered heavy investments

Panama was the first Central American country to privatize its telecom sector. Several other nations, including Guatemala and El Salvador, will soon follow suit. Market development in Panama will be critical to the success of Ericsson operations in the region.

Intel, Panama's government-owned telecom company, was privatized in the spring of 1997. Cable & Wireless, a British operator, became the majority owner. As part of plans to solidify its very strong position in the Caribbean, Cable & Wireless plans to invest USD 572 million in Panama over the next five years. All of the country's telephone lines will be digitized during 1998, for example.

"We expect a boom of sophisticated data services for the fixed network, initially in Panama City and later in the Colón Free Zone. With all its banks and service companies, Panama is a major market for ISDN and other services," says Luis Antonio Morales, who is responsible for Ericsson's Infocom Systems business area activities in the country.

"In view of its standing as an economic hub in Central America, it's important that we succeed in Panama. We are now conducting market analyses in preparation for plans to also address private customers and end-users."

Network in two months

The privatization process in Panama was triggered by mobile telephony. The A-band for the country's D-AMPS system was opened to bids in the spring of 1996, and the license was awarded to Bell South, a major American operator.

Bell South first selected Nortel of Canada as its system supplier. Nortel was forced to withdraw, however, when it was unable to meet specified delivery times for equipment supplies. Ericsson accepted the assignment, which involved construction of a mobile network in just two months.

"We experienced some initial implementation problems, but we now have a good, stable system. We expect coverage to be established in all major cities by

February 1998," says Guillermo Inchausti, President of Bell South in Panama.

As former Privatization General of Panama's government-owned Intel company, Mr. Inchausti has an excellent overview of Panamanian market conditions. He is not worried by future competition from Cable & Wireless.

"We both stand to win as the market is activated. The largest problem we have today in generating growth is the lack of inexpensive digital D-AMPS telephones, and by that I mean simple telephones that cost USD 100 without subsidies. Ericsson's 318 model is the least expensive telephone on the market, but we have to reduce the price even more," says Guillermo Inchausti.

Private radio to cellular

Another important issue, he says, will be the success of efforts to convert present users of communications radio to mobile telephony.

"Private radio systems in Panama constitute a relatively large sector with about 15,000 subscribers. Many users are businessmen who use communications radio to connect with the telecom network. Naturally, they are a primary target group of customers for mobile telephony," continues Guillermo Inchausti.

Cable & Wireless also sees expensive D-AMPS telephones as the greatest threat to strong expansion in mobile telephony.

"In the long term, our mobile telephone subsidies will undermine the entire cellular business sector, and I'm not referring only to operations in this market," says Manuel de Mello, manager of mobile telephone operations in Panama for Cable & Wireless.

Central America today has approximately 86,000 mobile telephone subscribers, of which about 45 percent are connected to Ericsson systems. Marketing efforts in Central America and the Caribbean are coordinated by Ericsson from Mexico, with sales of mobile telephones managed from its Miami office in the U.S.

NILS SUNDRÖM



Market leader. Lars Birging, president of Ericsson's new subsidiary in Panama, is seen outside the company's office in Panama City. Mr. Birging was previously in charge of ongoing mobile telephone business and technical support for Ericsson in Brazil.



Guillermo Inchausti is president of Bell South in Panama, the country's first mobile telephone operator.

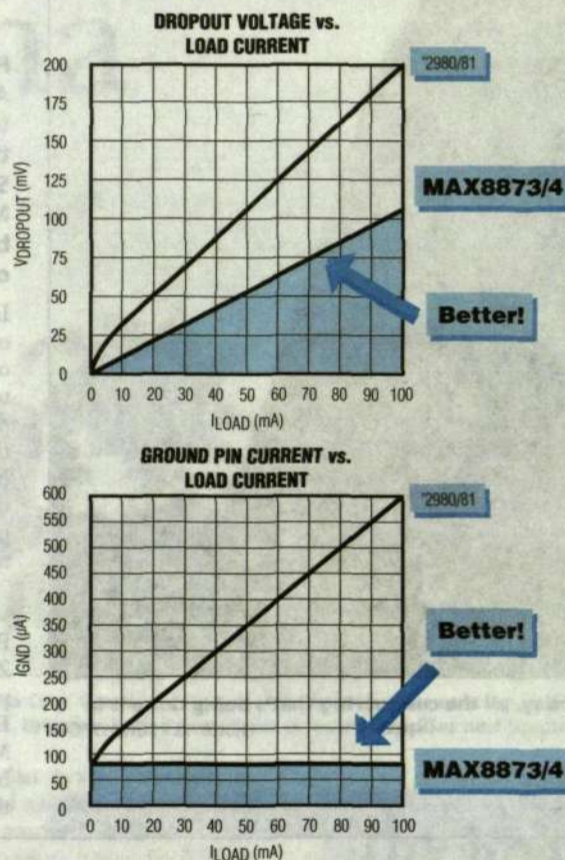
REGULATOR REPLACES '2980 WITH 2-TIMES LOWER DROPOUT!

120mA SOT23 Linear Regulators Have Industry-Standard Pinout

The MAX8873 and MAX8874 low-dropout linear regulators take advantage of a low-voltage CMOS process to give better dropout voltage and lower supply currents than their bipolar equivalents. The MAX8873 and MAX8874 are lower voltage (6V) second sources for the '2980/'2981. Dropout is 108mV at 100mA output (vs. 200mV for the '2981). Supply current is only 82µA at 120mA output (vs. 720µA for the '2981). Other Maxim advantages include adjustable output voltage and reverse battery protection. The MAX8874 also actively clamps the output voltage to ground when the device is placed in shutdown. Short-circuit and thermal-overload protection are also included.

- ◆ Lower Dropout Voltage:
108mV at 100mA
- ◆ Adjustable Output Voltage
(1.25V to 5.5V)
- ◆ 120mA Output Current
- ◆ Lower Supply Current:
82µA Even at 120mA
- ◆ 1µA Shutdown Current
- ◆ ±3.5% Output Voltage
Accuracy Over Load, Line &
Temperature

CMOS Linear Regulators Have Lower Dropout and Lower Supply Current for Longer Battery Life



FREE Power Supply Design Guide – Sent Within 24 Hours!
Includes: Data Sheets and Cards for Free Samples

Call For a Design Guide or Free Sample
U.K. (44) 118 9303388

Toll-Free in the U.S. 1-800-998-8800
<http://www.maxim-ic.com>

MAXIM

NOW AVAILABLE!
FREE FULL LINE DATA CATALOG
ON CD-ROM



Distributed by Allied, Arrow, Bell, CAM RPC, Digi-Key, Elmo, Hamilton Hallmark, Nu Horizons, and Zeus. Distributed in Canada by Arrow.
Austria, Maxim GmbH (Deutschland); Belgium, Master Chips; Czech Republic, Spezial-Electronic KG; Denmark, Arrow-Exatec A/S; Finland, Yleiselektronikka Oy; France, Maxim France, Distributors: Maxim Distribution, ASAP; Germany, Maxim GmbH, Distributors: Maxim Distribution, Spezial Electronic GmbH; Ireland, FMG Electronics; Italy, Maxim Italy, Distributor: Esco Italiana Electronics Supply; Netherlands, Koning En Hartman; Norway, Berendsen Electronics; Poland, Uniproduct, Ltd.; Portugal, ADM Electronics, S.A.; Russia, Spezial-Electronic KG; Spain, Maxim Distribución, ADM Electronics S.A.; Sweden, Egevo AB; Switzerland, Maxim Switzerland, Laser & Electronics AG; Turkey, Interex (U.S.A.); U.K., Maxim Integrated Products (U.K.), Ltd., Distributors: Maxim Distribution (U.K.), Ltd., 2001 Electronic Components, Eurodis HB Electronics; Ukraine, Spezial-Electronic KG.



Fiber optic cable links Sweden and Lithuania

A fiber-optic submarine cable link between Sweden and Lithuania was officially inaugurated in late-November during ceremonies held simultaneously in Sweden's House of Parliament and the office of Lietuvos Telekomas, Lithuania's telephone company.

The communications ministers and telephone company directors of both countries and several persons responsible for installation of the link took part in the video-conferenced inauguration ceremony. Assisted by interpreters, officials from both countries expressed their gratitude for rapid implementation of the project, which now makes it possible for subscribers to talk and see telephony parties on both sides of the Baltic Sea.

Beneath the rolling waves of the Baltic, a 219-kilometer, 16-fiber optic cable submarine link was installed to handle transmission speeds up to 2.5 gigabits per second. The first contact concerning the project was made as recently as July 13,

1996. Installation costs totaled SEK 38 million, and the project was managed by Telia of Sweden and Lietuvos Telekomas. The optical cable was supplied by Ericsson Cables in Hudiksvall.

"Lithuania now has a direct link to Western Europe, a service sorely lacking in the past, and Lietuvos Telekomas can offer its customers the same data transmission service as Telia in Sweden," announced Lars Berg, president of Telia, who also expressed his admiration of Lithuania's economic growth and determined strategies.

"With today's information technology, open frontiers and the diminishing importance of distance, our imagination is the only factor today that limits opportunities," said Ines Uusman, Sweden's Minister of Communications.

"My ambition is to establish programs of cooperation that will provide access to technical skills and expertise in both countries," declared Ines Uusman.

INGER BJÖRKLIND BENGTSOON



Sweden's communications minister and the president of Telia were all smiles at the inauguration of the Baltic Sea submarine cable link. Photo: PETER NORDAHL

Focus on WCDMA in Japan

Third-generation mobile telephony, or WCDMA, was the focal point of Com Japan, a new regional infocom exhibition held November 4-7 in Tokyo. The exhibition attracted more than 100,000 visitors.

Com Japan represents a merger of three former exhibitions held separately in the fields of data, telecom and electronics. Several participating companies, including Ericsson, underlined the importance of WCDMA technologies in their displays.

Ericsson's 200-square meter stand

included various demonstrations of the Company's investments in WCDMA, and illustrated clearly the common approach shared by Ericsson and Japanese telecom companies to the new IMT 2000 standard for mobile telephony.

Among a broad range of other products, Ericsson displayed a microbase station developed specifically for NTT DoCoMo - the Japanese telecom giant - a picobase station, packet data applications and MiniLink. A satellite telephone was also introduced at Com Japan, as well as international telephones for D-AMPS and GSM, broadband access via copper, IN solutions, a new AXE cabinet and other products and equipment.

In parallel with the exhibition, a saturation TV and newspaper advertising campaign was conducted by Ericsson to strengthen general awareness of the company's brand name in the Japanese market.

Ericsson displayed a broad product portfolio at the inaugural Com Japan exhibition held recently in Tokyo.

Photo: ISABELLA LAIHORINNE-SMEDH



One millionth Brit on message service

■ Vodafone, a leading British mobile operator, has registered the one millionth subscriber to its voice-based message service, which is supplied through Ericsson's MXE system in the U.K. Vodafone has been named the best business network operator in the country, based on coverage, quality and customer service. Ericsson and Vodafone recently extended their cooperation agreement for another seven years.

Ericsson entered the original partnership agreement with Vodafone Value Added Services in 1994.

Quality award to Ericsson in Austria

■ Ericsson in Austria was recently presented the prestigious Austrian Quality Award. The prize is awarded annually to the organization considered by the jury to be the most outstanding in terms of compliance with European Quality Foundation Management, a quality prize model in Europe.

"First and foremost, I consider the prize a form of encouragement to our employees and myself to further improve our quality and to integrate quality philosophies in our everyday work," said Rolf Nordström, head of Ericsson in Austria.

Ericsson and AT&T helping schools

■ The mobile telephone sector of Ericsson in the U.S. and AT&T, a major American telecom operator, are helping 1,000 schools in the U.S. improve safety and educational facilities.

The program was announced during an official Education Week held recently in the U.S. Ericsson will contribute

the telephones, and AT&T will offer free time on its mobile telephone network.

Ericsson's telephones will be used for a variety of different purposes, for example by adults who work in school yards or monitor trips and outings. The offer was extended to 1,000 schools in all parts of the U.S.

Component captured president

■ "This has been the most interesting part of my visit," announced President Guntis Ulmanis of Latvia, when he toured the silicon chip production facilities of Ericsson Components in Kista. The tour was part of the Latvian president's two-day state visit to Sweden in late November.

Prior to his visit, President Ulmanis had expressed his wish to visit a leading Swedish industry, and Ericsson was the company of choice. President and CEO Lars Ramqvist welcomed the Latvian statesman to Kista and described Ericsson's operations during a tour of the production plant.

INGER BJÖRKLIND BENGTSOON



Latvian President Guntis Ulmanis was fascinated by his visit to Ericsson Components in Kista. Photo: ANDERS ANJOU

CyberLab inaugurated in Silicon Valley

■ CyberLab in Menlo Park, California was officially inaugurated on November 12. In cooperation with customers and business partners, Ericsson plans to use the Lab as a research and development center for Internet products and services.

"The CyberLab will help Ericsson create an atmosphere in which leading companies in the telecom sector can cooperate and develop spearhead technologies in the Internet sector," said Bo Hedfors, head of Ericsson in the U.S. Ericsson also controls part of a

CyberLab in the Silicon Alley district of Manhattan, in New York City.



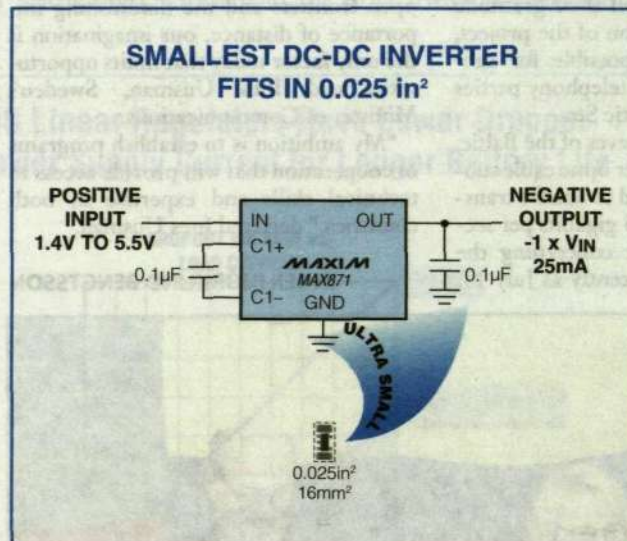
Ash Ashbaugh and Gary Pinkham cut the ribbon.

SMALLEST CHARGE-PUMP INVERTERS USE 0.1µF CAPACITORS

Bias GaAsFET Power Amps with 0.025 in² SOT23 Circuit

Use the MAX871 to convert positive voltages to negative voltages in the smallest board area. It requires only two 0.1µF capacitors to deliver 25mA. Use 0.33µF capacitors to reduce dropout. The entire MAX871 circuit is composed of a SOT23 package and two 0805-size ceramic capacitors. It fits into less than 0.025in² (16mm²) of board area.

- ◆ **Smallest Circuit:**
0.025 in² (16mm²)
SOT23 Package
0.1µF Capacitors
- ◆ **25mA Output Current**
- ◆ **20Ω Output Impedance**
- ◆ **0.5MHz Switching Frequency**
- ◆ **1.4V to 5.5V Input Range**
- ◆ **-40°C to +85°C Temperature Range**
- ◆ **Shutdown Mode**



The MAX871 comes in a 5-pin SOT23 package, which is 1/4 the size of the 8-pin SOIC that houses the industry-standard '7660. It also uses 0.1µF capacitors, rather than the 10µF capacitors used by the '7660.

Save Space and Power Over the '7660

PARAMETER	'7660	MAX828	MAX829	MAX870	MAX871
Package	8-SOIC	SOT23-5	SOT23-5	SOT23-5	SOT23-5
Output Impedance (Ω)	55	20	20	20	20
Oscillator Frequency (kHz)	10	12	35	125	500
Capacitors (µF)	10 (for 55Ω)	10 (for 20Ω)	3.3 (for 20Ω)	1 (for 20Ω)	0.1 (for 35Ω), 0.33 (for 20Ω)



FREE Power Supply Design Guide – Sent Within 24 Hours!
Includes: Data Sheets and Cards for Free Samples

Call For a Design Guide or Free Sample
U.K. (44) 118 9303388
Toll-Free in the U.S. 1-800-998-8800
<http://www.maxim-ic.com>

NOW AVAILABLE!
FREE FULL LINE DATA CATALOG
ON CD-ROM



Distributed by Allied, Arrow, Bell, CAM RPC, Digi-Key, Elmo, Hamilton Hallmark, Nu Horizons, and Zeus. Distributed in Canada by Arrow.

Austria, Maxim GmbH (Deutschland); **Belgium**, Master Chips; **Czech Republic**, Spezial-Electronic KG; **Denmark**, Arrow-Exatec A/S; **Finland**, Yleiselektroniikka Oy; **France**, Maxim France, Distributors: Maxim Distribution, ASAP; **Germany**, Maxim GmbH, Distributors: Maxim Distribution, Spezial Electronic GmbH; **Ireland**, FMG Electronics; **Italy**, Maxim Italy, Distributor: Esco Italiana Electronics Supply; **Netherlands**, Koning En Hartman; **Norway**, Berendsen Electronics; **Poland**, Uniproduct, Ltd.; **Portugal**, ADM Electronics, S.A.; **Russia**, Spezial-Electronic KG; **Spain**, Maxim Distribución, ADM Electronics S.A.; **Sweden**, Egevo AB; **Switzerland**, Maxim Switzerland, Laser & Electronics AG; **Turkey**, Interex (U.S.A.); **U.K.**, Maxim Integrated Products (U.K.), Ltd., Distributors: Maxim Distribution (U.K.), Ltd., 2001 Electronic Components, Eurodis HB Electronics; **Ukraine**, Spezial-Electronic KG.



Two new design centers in the U.S.

Ericsson in the U.S. has opened two new design and development centers for components. One of the centers, situated in Richardson, Texas, will concentrate on power systems, and the other, in Philadelphia, will focus on high-power transistors (RP Power).

Most power products manufactured by Ericsson today are developed in Sweden. Products for the American market will now be developed at the new Energy Systems Design Center in Richardson, Texas, thereby reducing development times.

Ericsson in the U.S. will also establish a components design center in Philadelphia. The metropolitan Pennsylvania city was chosen on the strength of rich access to skilled engineers in the field of RF Power. The new design center will complement Ericsson Components' present assembly and development center for RF Power circuits in Morgan Hill, California.

The primary objective of the design center will be to develop high-power transistors, (RF Power Hybrids) based on LDMOS technology. During the first year of operations, products developed in Philadelphia will be manufactured in Morgan Hill. Ericsson's new operations in Philadelphia will be established as an important manufacturing and development center for future RF Power products.

"Bringing our development resources closer to customers will enhance business opportunities and improve our ability to meet customer needs," says Torbjörn Folkebrant, President of Ericsson Inc. Components in the U.S.



Torbjörn Folkebrant

Electronic Distribution celebrates one billion

On November 21, Ericsson Electronic Distribution exceeded SEK 1 billion in sales. Today, the Ericsson company is the largest distributor of electronic components in the Nordic region. In 1992, sales were SEK 169 million. Shortly thereafter, the well-known Swedish distribution company Gösta Bäckström was

acquired. This was followed by several very expansive years, which resulted in the current achievement of SEK 1 billion. The next step is a European office in Germany and the company's president Janåke Viklund contends that the second billion will follow soon after.



Janåke Viklund, president of Ericsson Distribution and Bitte Rutberg, personnel director, celebrate the first billion with company employees.

Photo: ANDERS ANJOU

Ericsson Radar in Norwegian merger

Ericsson Radar, the Norwegian subsidiary of Ericsson Microwave, has established a new company with four other military defense companies in Norway.

Alcatel Telecom Norway, Ericsson Radar, Kongsberg Defence & Aerospace, Kongsberg Ericsson Communications and Siemens received an order valued at more than SEK 1 billion in November from Hærens forsyningkommando, the Norwegian defense material authority. The five-company consortium has been contracted to initiate

studies of a command and control intelligence system, so-called CCI, for the Norwegian Army. Depending on project development, the agreement could lead to orders valued from NOK 1 billion to NOK 10 billion over the next ten years.

On the same day the CCI contract was signed with Hærens forsyningkommando, the five Norwegian defense companies signed a mutual agreement with each other. Under terms of the agreement, they will establish a joint company to function as a contract partner in eventual future business transactions.

ULRIKA NYBÄCK

Surfing the Net for business and pleasure

This edition of Contact includes a Theme supplement on the Internet. Don't miss it! On the same theme, we asked employees in different

parts of Ericsson about their favorite web sites and how they use the Internet.

Jack Radgowski, Internal information manager at Ericsson in the U.S.



www.exu.ericsson.se The international web site for Ericsson in the U.S. is called the E-net. It's upgraded continuously with important and entertaining information about Ericsson in the U.S.

cbs.sportsline.com/u/golf/index.html After my wife and children, golf is my greatest passion. The CBS web site is news-oriented and faster than PGA's web site.

www.unitedmedia.com/comics/dilbert/ I think all management personnel in Ericsson should attend a course on "Dilbertism" as part of new skills development in preparation for our Wanted Position in the year 2000.

Tuwe Ohlson, sales manager for Germany and Austria in Enterprise Networks, Sweden.



www.wildfire.com One of my absolute favorites, Wildfire sells Internet-based communication services. I am also able to communicate interactively with the web site's highly creative home page.

Steffan Elmhagen produces instruction manuals for MD110 systems telephones in Sweden.



www.orientering.se I access the site for advance information about orienteering competitions I might want to enter or to get my starting time if I'm already entered. Final results are also available the day after every race.

Britt Ocklind, manager of the Office Information Systems unit of Enterprise Networks, Sweden.



www.citynavigator.se An excellent source of information for people who are not familiar with Stockholm. Also very useful for checking expense accounts when you haven't made a note of the distance.

Tommy Hall works with development of support systems for large international projects conducted by Infocom Systems, Sweden.



<http://www.distansforum.se>
<http://www.leader-values.com> I visit this web site for information and inspiration in preparation for my lectures, both at home and abroad, on the subject of Flexible work methods.

Philip Canfield, MD110 Service Manager at Beijing Communication Systems Co. Ltd. in China



I read the Los Angeles Times and Boston Globe on the Internet, but I think the most interesting thing that's happened to us was when my wife, Lin, bought a summer home in the U.S. while we were living here in Beijing. We started to shop around by visiting [//altavista.digital.com/cgl-bin/query](http://altavista.digital.com/cgl-bin/query).

After we decided in which part of the country we wanted to buy, we continued our search at www.realtor.com, which offered the best prices. Another web site, www.qti.net/mls provided detailed information about three homes that met all our specifications. We

found a nice piece of property and even arranged financing over the Net.

Lin went to the U.S. later and took some pictures that she e-mailed to me. Broker contacts were also handled by e-mail. We are now the proud owners of a 10-room farmhouse in Corinth, Maine. I think you can probably imagine how much time and money we saved buying the property through the Internet.

Mats Pelbäck-Sharp is in charge of environmental control for Mobile Phones and Terminals in Sweden.



I visit <http://inside.ericsson> for current news. Some of my other favorite sites are <http://lme.miljö>; <http://lme.ericsson.se/lmedtg/Environm.html> and <http://www.rmoj.ericsson.se/environment>. My environmental coordinators and I also have our own web site for reports and discussions. Speed is the main advantage.

Malin Brolin develops training courses and certifies teachers for Enterprise Networks, Sweden



www.competence.ericsson.se I work in skills development and cooperate with colleagues on various questions dealing with teacher certification. The web site provides a continuous flow of information in my main area of interest.

John Pragnell is head of Ericsson Intracom Ltd. in Leicester, England.



<http://people.ericsson.se> The Global Directory is an extremely useful tool in my work, since I communicate almost daily with Ericsson employees in all parts of the world.

Java and Tacos cooperate – and cut costs in half

Björn Östman is a pioneer in the use of the Java programming language within Ericsson. By creating a new client platform with Java for Tacos (TAsk Control System) he was able to replace two other platforms, one for the PC and one for Unix.

Björn Östman is a development engineer within the IT Services Department at the Enterprise Network business unit in Nacka Strand, Stockholm. He serves as project leader for a five-man team which has been working with Tacos for the past two years. It is a system for task administration which, among other applications, is used for fault reporting of telephone switches.

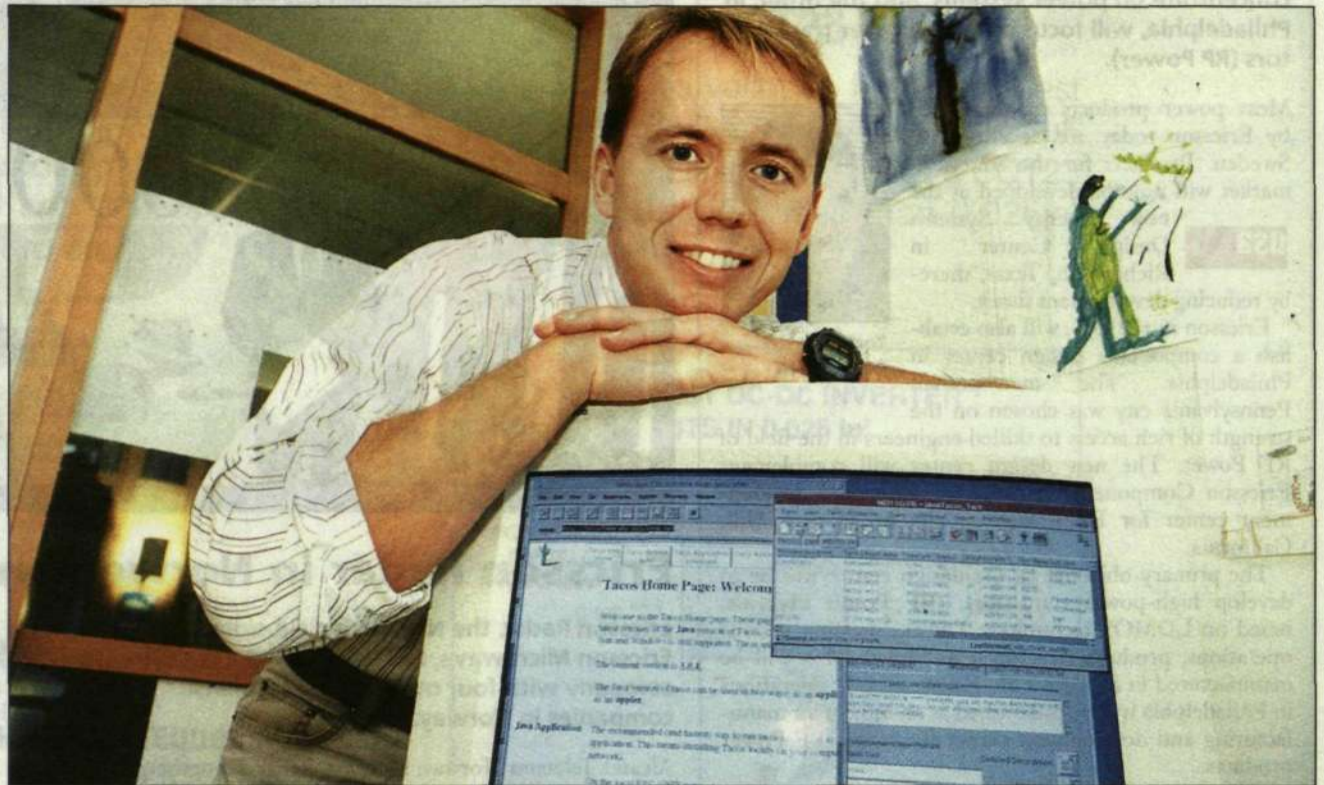
"Operating two platforms simultaneously is expensive, difficult and time-consuming," says Björn Östman. "By using Java as the platform, we have cut development costs in half and still achieve higher performance due to reduced network traffic. This is particularly beneficial for remote users with a poor bandwidth."

More than 1,700 Tacos users

There are already more than 1,700 Tacos users within Ericsson worldwide. They are linked using Ericsson's global network ECN (Ericsson Corporate Network).

"It is important to emphasize that we have not solely created a new web client, but have replaced earlier versions with a complete tool on a totally new platform," says Björn Östman. "It is standard for all users wherever they are in the world and independent of the user's operating system."

The client segment comprises two parts: an end-user tool and a tool for administrators.



Björn Östman displaying the Tacos home page. The tools are shown on the monitor.

Photo: PETER NORDAHL

"The end-user tool was placed in service this at mid-year. The entire system became operational just recently and is functioning satisfactorily," according to Björn Östman.

Half of the work is new development and the rest further development of existing functions. The development work started in earnest a year ago. Seven programmers have been working intensively on the project full time.

In addition to fault reporting of tele-

phone switches, Tacos is also used for software licenses for the MD110.

A special Tacos application is designated Acos. This solution contains the market approvals for virtually all products in Enterprise Networks.

By applying Tacos for the MD110 documents, the time for preparing MD110 documentation has been reduced by several weeks.

"We are increasingly receiving inquiries from other Ericsson units about

what Tacos can do in other contexts," relates Björn Östman. "As a result, Ericsson Radio Messaging and Ericsson Utvecklings AB are now our customers. We have received external inquiries from Volvo, for example."

THORD ANDERSSON

■ For more information about Tacos, visit the Internet address: <http://tacos-www.ebc.ericsson.se>.

Easier to use cellular on trains

A solution to make it easier to use mobile telephones on trains has been developed in Sweden. At the same time, the railway has designated "no telephoning" seats on the train for those who wish to escape from talkative passengers.

"We have made it easier for those who wish to use their telephones and shown consideration to passengers who are disturbed by all the calling," says Stig Larsson, Director General of the Swedish Rail Administration (SJ).

SJ has installed antennas on the trains which receive base-station signals and transmit them to a so-called leaking cable inside the car. The system is compatible with all operator networks. Previously, it was difficult to maintain telephone contact on trains due to the shielding effect of the metal body of the railcar. In addition, a thin metal film in the tinted windows further blocked contact with the network.

"We have tested reception with the new system along virtually the entire rail system in Sweden. There are still a few white spots on certain lines in northern Sweden," relates Stig Larsson.



The system with signal amplification on trains will be installed X-2000 trains first.

Photo: PRESSENS BILD

In addition to improving telephone reception, there are now 12 seats on each X-2000 high-speed train which are guaranteed telephone-free. A section in first class is reserved for those who do not want to be disturbed by ringing telephones and listening to one-sided conversations.

"The silent area has been in use since

August 1 and is greatly appreciated," says Stig Larsson. "We used to receive some complaints from passengers who did not like being disturbed by mobile phones."

The system with signal amplification on trains will be fully installed in first class on all X-2000 trains by year-end 1997 and will then be extended succes-

sively to all other X-2000 cars and on other inter-city trains.

SJ has also added other comfort features. The train between Stockholm and Uppsala is equipped with TV monitors attached to the armrests for direct TV reception.

PATRIK LINDÉN

vacancies

AT ERICSSON

■ This is a selection of vacancies within the Ericsson corporation. They are published in the electronic News system, which is being updated once a week.

For further information about advertising here, send a memo to LME.LMEJOB.

Contact no. 19 1997

Updated December 1

Ericsson Hewlett-Packard Telecommunications AB

VICE PRESIDENT AND GENERAL MANAGER – BUSINESS LINE EXCHANGE MANAGEMENT

● As Vice President for Business Line Exchange Management you lead a multifunctional organization with 800 MSEK in turnover and 150 employees. You work closely in a strategic supplier role with key Business Units & Major Local Companies in Ericsson. The products you provide give the telecom operators the benefit of doing centralized operations and maintenance of different types of exchanges/switches. Your customers are cellular and fixed telecom operators all around the world. The installed base is around 320 management systems for 140 operators in 50 countries.

As a candidate, you are most likely already familiar with working with management systems for telecom operators. You enjoy and are capable of driving change in a dynamic market place (price pressures, NT wave versus Unix, new operator needs, etc). You have a background from software R&D (Unix and NT) as well as marketing and product management. You are a good listener and strong communicator, as the experience and competence level is high within the Business Line, and as the strategic relationship with Ericsson has to be managed well.

The position will preferably be located in Gothenburg. We are an equal opportunity employer. EHPT is a fast growing company with great career opportunities.

Contact: Thomas Ivarson, VK/EHS/D, Tel. +46 8-685 2360 Eric Buatois, MÖ/EHS/X, +46 31-746 2747 Lena Friberg, MÖ/EHS/FP, +46 31-746 2217

MANAGER FOR IMPLEMENTATION

The unit Implementation, EHSISK, is responsible for implementation of customer solutions and bringing them

into operation at customer systems. This includes project management to design specific market adaptations, configurations, test, roll out and on-site introduction world wide. It also means to support our services regions and channels in these aspects.

● Your responsibilities will be to lead and develop the organisation and people as well as to develop the implementation service business and portfolio.

You should have technical education, preferably on MSC level. You are supposed to have experiences of Telecom or IS/IT industry, preferably in services, building solutions and taking them into operation and/or technical consultancy. Proven leadership capability in developing business and people as well as experiences of customer relations is required. The person we are looking for must be able to give direction in goals and strategies, to stimulate a good working climate promoting career development and creativity to drive results.

Contact: Håkan Bolmsjö MÖ/EHS/SK Tel.031-746 2152 Memo: EHSBOL or Anna Lexén Larsen MÖ/EHS/FP 031-746 2311 EHSANNA. Application latest 971212: Lena Friberg, Human Resources, Box 333, 431 24 Mölndal.

LM Ericsson Ltd, Ireland

CELLULAR SYSTEMS SPECIALISTS,

As the Mobile Telephony Industry in Ireland experiences rapid growth and development, there are new opportunities for Cellular Systems Specialists in Business Area Ireland, Cellular System Unit as well as supporting Product Management and Marketing functions the successful candidates will assume responsibility for ensuring Ericsson delivers first class solutions and services to its prime customer to enable best in class service quality for the GSM and TACS networks.

● Having a strong technical background in Telecommunications and Cellular Technology and expe-

rience of In Service performance measures, the successful candidates will be highly motivated, customer focused, professional, innovative and adaptable to a rapidly evolving and exciting industry.

Excellent communication skills both written and verbal are essential ingredients for effectively meeting the customers needs through the internal Ericsson organisation and third party suppliers.

The ideal candidate should have a degree in Engineering / Telecommunications or related discipline and / or have acquired through experience a sufficient technical and business expertise in the areas outlined to be able to function independently at an appropriate professional level on specific projects.

We invite applications from personnel internally and externally who believe that they have acquired sufficient expertise in the relevant areas to undertake this task. The position may involve a certain amount of foreign travel.

As a screening process based on applications received will take place, it may not be necessary to interview all candidates.

Applications are invited from those who consider that they can meet the above criteria. Applicants should apply in writing enclosing a comprehensive Curriculum Vitae to the undersigned

Application: Margaret Gaffney Employee Relations Manager LM Ericsson Limited Beech Hill Clonskeagh Dublin 4 Memo ID LMIMGY

Ericsson Messaging Systems Inc. (EMX) Long Island, New York

NETWORK INTEGRATION ENGINEERS – SEVERAL POSITIONS AVAILABLE

● These positions support our system integration team and tasks include, but are not limited to, telecom testing based on a UNIX platform and connected to the AXE via different networks. System integration includes

system test, regression testing, network integration testing on CME20, CMS30, CMS40, CMS8800 and FOA support and test documentation, reporting and executing.

Requirements: Prior experience on Ericsson Mobile Networks, basic knowledge of UNIX and familiarity with FrameMaker for documentation purposes. Testing is conducted locally and internationally as well.

Contact: Robin McConnell at emx.emxrobin@memo-usa.exu.ericsson.se

Ericsson, Turkey, Istanbul

Ericsson, Turkey is growing at a rapid pace. Our customer Turkcell has a network consisting of 11MSCJ BSC, 2SAHLR, 2 GMSC, 1125BTS and a total number of 1 200 000 subscribers. In order to work with the expansions in this project, we need the following personnel on long term contract basis:

SENIOR OPERATIONS MANAGER

● Responsibilities: You will be responsible for the following areas, Engineering, Data Transcript, Testing and Integration, System Support, RBS Implementation and Commissioning. A total staff of about 120 will be under your supervision.

Requirements: Long technical experience within operations as well as excellent management and business skills. Ericsson experience is a must. Experience from other longterm assignments in management position is a plus.

SUPPORT ENGINEERS

2 SS & 1 BSS Support engineer

● Responsibility: Correction Handling, AC-A, CN-A, trouble shooting and trouble report handling at the FSC

Requirements: A minimum of 3 years of GSM experience in support. You should be flexible, communicative, able to work under pressure, show initiative.

Contact: Sören Ahlstedt, phone +90 212 6544750, ENK.ENKERASA or Muhammad Khattab, phone+90 212 6544750, ENK.ENKMOKA Application: RMOG Resource Agency, Lars Ander, ERAC.ERALSAR, Phone +46 8 4045252

Ericsson Ltd, Guildford, UK

4 DATA TRANSCRIPT ENGINEERS (ESO, OPERATIONS)

● Responsibilities: The role holder will have two areas of responsibility- switching(physical), cellular (logical). They will be responsible for the creation and adaptation of loadable exchange dependent data files for AXE systems by taking input requirements and translating them into MML data outputs.

Competency Technical:-Knowledge of radio principles, exchange data principles, UNIX based applications and generation small script, Ericsson procedures.

"Access 910 – Manager wanted"

Ericsson Telecom AB are looking for new employees.

Product Unit Access within Switching is now being created to meet the need for future Access solutions. Our new line manager will be responsible for a new product type called Access 910 (AXESS-M).

Accept the challenge and join the team that will secure and further develop the success story of AXE 10, and take the lead in the creation of new Access products. Future Access products must meet demands for large bandwidth, Internet compatibility and modern services.

The Access area is today the largest product provisioning area with more than 700 employees at 11 Local Design Centres, 9 of which are located outside Sweden.

Your role as manager of Access 910 will be to have end-to-end and total life cycle responsibility for the whole product family. By end-to-end we mean responsibility from idea to implementation of a product in a network. The resources needed for this task will be controlled by you, and you will also have responsibility for the economical result. You will be a part of the management team of the Product Unit Access. The central management team is stationed in Stockholm.

To be suitable for this position you should have management experience in business-oriented product development. You should have an understanding of our customers' needs in terms of functionality, quality, in-service performance, partnership, speed from idea to delivered product and

cost. Experience in commercial customer relations will be an asset.

You should have an outgoing personality, adapt easily to teamwork, and be able to handle international contacts at a high level.

For more information, please contact Kjell Nilsson, phone, +46 (0)70 519 55 79 memoid: ETXT.ETXTKNIL
Kent Eriksson, phone: +46 8 719 93 25, memoid: ETXT.ETXKKER

Please send your application and references to:

Ericsson Telecom AB
TN/ETX/PN/XC Monica Värning
126 25 STOCKHOLM

Ericsson's 100,000 employees are active in more than 130 countries. Their combined expertise in fixed and mobile networks, mobile phones and infocom systems makes Ericsson the world-leading supplier in telecommunications. www.ericsson.se/SE/

ERICSSON 

Business/Human: Must have a flexible approach to change, good interpersonal skills within the team environment, with other Ericsson departments and with the customer, needs strong analytical and problem solving skills and a focus on quality.

Ideal background/experience: 2 years experience of Data Transcript AXE 10 environment, or proven testing/support/switching experience. Computer literate. Willing to travel in UK or abroad if required.

Contact: Michael Chance

Ericsson Corporatia AO, ECR, Moscow, Russia

SENIOR SUPPORT ENGINEER

● To strengthen our support activities at Ericsson Corporatia in Russia we are looking for experienced support engineers to our Customer Support Office in Moscow.

You will work with technical support and troubleshooting. The work also includes tasks like disturbance investigations, introduction of upgrade/update packages and perform AS changes from 08R5 based to 12.3 based.

Do you have a technical experience in AXE support environment and experience of FMP3 (12.3) is this a good opportunity for you to develop yourself in a new environment. You have good ISDN/SUP and it's an advantage if you have IN skills but not necessary. You are interested in working in a team and in transferring your skills to our new employees. You have to have good knowledge in English and are prepared to travel within Russia. Start: Mid of January-Beginning of February Duration: 1 year

Contact: Matts Kangas, ECR.ECRMAKA, phone no: +7 095 247 6211 Application latest 971215; memo ECR.ECRMAKA, fax +7 095 258 4083.

The Research and Development centre Nuremberg, Germany, Radio Communication

QUALITY MANAGER

● The general responsibility of the Quality Manager is to support EED/N in quality matters, such as training and support in quality technical tools and methods. We are aiming for an ISO 9001 certification during 1998 and the next step will be to continue the improvement. New challenge tasks will be process management and TQM. The quality function works very close to the development projects to secure that the activities carried out are a help for the business and the daily work in the organization. You will be a member of the management team at EED/N and will report directly to the president of EED/N. The development and research departments work towards the business units BR and BT.

The emphasis of your tasks is that Quality support is given to our development projects. You will act as a customer representative in EED/N. You are responsible that the operation works according to the requirements as stated (Tex. ISO 9001, EQM and customer specific).

For this key position we expect an engineer with Diploma or Master degree or equivalent in the field of communication engineering. Due to the international status of our company good spoken and written English is prerequisite. You should have at least three years of industrial experience, preferably within research and development, at least one year of experience in quality assurance or training in quality techniques within Ericsson. You should also be certified as leadauditor. An analytical skill and the ability to listen and communicate efficiently with people is required.

Contact: R & D Centre Nuremberg, Radio Communication Norbert Lechner, Human Resources, Dial: 0911/5217-111, Memo: EED.EEDNLE or R% & D Centre Nuremberg Radio Communication, Anna Hawkins, Human Resources Manager Quality, 0911/5217-130 Memo: EED.EEDAHA

LM Ericsson Ltd, Ireland

TECHNICAL EXPERTS

● If you have then you know you want to work in Dublin and we are ready to offer you this opportunity.

LM Ericsson Limited, LMI is currently seeking applications from experienced Telecommunications Engineers to fill a number of vacancies both now and in the future.

Vacancies exist in a number of areas within Technical Support and applications are invited from personnel wishing to work in the following areas;

The verification, implementation support, maintenance and trouble-shooting of TACS, AMPS/D-AMPS and GSM systems. Experienced Cell Planners are required to work in the Radio Network Engineering area. Familiarity with cell planning tools is desirable.

Conducting product line maintenance for Ericsson fixed-network local (12.3/4.1/Helios/Sirus) and transit (Transgate) switching products. The verification, the implementation support, and trouble shooting of MAS based systems for Africa and the Middle East.

Successful candidates will have a working knowledge of Ericsson products and will have demonstrated a high standard of technical expertise to date.

Interpersonal skills, team work and leadership competencies will be a requirement as well as the ability to represent the company to a high standard of customer awareness.

Positions will be offered on a foreign or local contract basis.

Contact: HR-97-0765, Paul Hennessy, Technical Support Manager, LM Ericsson Limited, Beech Hill, Clonskeagh, Dublin 4, Memo ID LMI.LMIPHEY, E.MAIL LMIPHEY@EEL.ERICSSON.SE

If you have an interest in working in other areas such as Product Management, Service Design, Business Communication Services, please contact the following stating your area of expertise and interest.

Application: Margaret Gaffney Employee Relations Manager LM Ericsson Limited Beech Hill Clonskeagh Dublin 4 MEMO LMI.LMIMGY

Ericsson GmbH, Division Business Networks, Germany

CUSTOMER SOLUTION SUPPORTER

for our new unit Dedicated Networks within the Division Sales & Marketing in Düsseldorf. Dedicated Networks stand for turn key projects for new business customers based on products and solutions of the overall Ericsson portfolio.

● The main tasks of the above mentioned position are: to act as service sales support within the new unit to design new concepts for customer solutions, to discuss possible customer solutions with international project groups, to present the customer new concepts/solutions, to be pro-active member of the project teams within the new unit.

To fulfil these main tasks you: studied engineering (or similar), have 1-2 years successful working experiences in the IT/telecom industries supporting a sales team selling solutions/products to major corporate customers on high and expert management level and complex project planning, good presentation and communication skills, are very customer- and business oriented, have very good knowledge of German and English language.

CUSTOMER SOLUTION MANAGER

● The main tasks of the above mentioned position are: to establish the actions of the service sales support within the new unit to design new concepts for customer solutions, to discuss possible customer solutions with international project groups, to present the customer new concepts/solutions, to be active member of the project teams within the new unit, to negotiate customer needs and requests within the Ericsson groups or with external partners.

To fulfil these main tasks you: studied business engineering (or similar), have 3-5 years successful working experiences in the IT/telecom industries supporting a sales team selling solutions/products to major corporate customers on high and expert management level and complex project planning, have excellent presentation and communication skills, are very customer- and business oriented, have very good knowledge of German and English language.

(SENIOR) ACCOUNT MANAGERS

● The main tasks of the above mentioned position are: new customer acquisition, sales activities and customer support incl. presentations on top management level and successful contract negotiations in agreement with international project groups, responsibility for the account within complex turn key projects.

To fulfil these main tasks you: studied economics or business engineering, have 3-5 years successful working experiences in the IT/telecom industries selling solutions/products to major corporate customers on top management level, have excellent presentation and communication skills, are very customer- and business oriented, have very good knowledge of German and English language.

MANAGER DEDICATED NETWORKS

● The main tasks of the above mentioned position are: leadership responsibility, establishment of this new function within Marketing & Sales, set-up of new business processes, responsibility for budget and project profitability, customer presentations and negotiations on top management level, realisation of customer needs and -requests at the Ericsson groups or other external partners.

To fulfil these main tasks you: studied business engineering (or similar), have 3-5 years successful working experiences in the IT/telecom industries, especially in the project business, on top management level, have experience in leading a group of staff members, have excellent presentation and communication skills, are very customer- and business oriented, have very good knowledge of German and English language.

We are looking for a person who has very good communication skills, is open minded, flexible and who enjoys building up and working in a team. If you are interested, please send your application to:

Contact: Dr. Winterhalter (Sales & Marketing Manager), Phone: ++49-211-534-4180 or Jutta Hartmann (Human Resources), Phone: ++49-211-534-4342 Application: Ericsson GmbH, Division Business Networks Heerdter Landstraße 193, 40549 Düsseldorf, Germany

Ericsson GmbH, Division Business Networks, Düsseldorf, Germany

We are urgently looking for an experienced

(SENIOR) PROJECT MANAGER

for our new unit Dedicated Networks within the Division Sales & Marketing in Düsseldorf. Dedicated Networks stand for turn key projects for new business customers based on products and solutions of the overall Ericsson portfolio.

● The main tasks of the above mentioned position are: to manage and control complex project plan-, design- and implementation phases, to lead the project teams, to act as technical and commercial advisor to design, correspond and realise new concepts for customer solutions with focus on project costs and risks, customer presentations of new technical concepts/solutions.

To fulfil these main tasks you: studied business engineering (or similar), have 3-5 years successful complex project planning and implementation experiences in the IT/telecom industries, worked 2 years as responsible project manager for complex projects, have good presentation and communication skills, are very customer- and business oriented, have good knowledge of German and English language.

We are looking for a person who is open minded, flexible and who enjoys working and sharing experiences in a starting-up team. If you are interested, please send your application to:

Contact: Dr. Winterhalter (Sales & Marketing Manager), Phone: ++49-211-534-4180 or Jutta Hartmann (Human Resources), Phone: ++49-211-534-4342

CUSTOMER SOLUTION MANAGERS

for our new division Service Business Development in Düsseldorf. Service Business Development will in close co-operation with local branches of EDD/B define, market and sell Managed Services, Third-Part-Services and Consulting, targeting mainly business customers wanting to outsource whole or parts of their communication network operations.

● The main tasks of the above mentioned position are: to "import" international experiences and concepts for Managed Services and adjust and develop them for the German market, support the direct sales organisation in developing new service business, design the customer service solution (together with the delivering organisations Operation and Field Support), act as project manager during implementation, follow-up together with customers and feed back results to home organisation.

To fulfil these tasks you: studied business engineering (or similar experiences), have 3-5 years working experiences in the IT/telecom industries marketing and/or delivering high level services to corporate customers, enjoy working and sharing experiences in a starting-up team, are very customer- and business oriented, have very good knowledge of German and English language and MS Office.

(SENIOR) ACCOUNT MANAGERS

for our new division Service Business Development in Düsseldorf. Service Business Development will define, market and sell Managed Services, Third-Part-Services and Consulting, targeting mainly business customers wanting to outsource whole or parts of their communication network operations.

● The main tasks of the above mentioned position are: to generate and qualify prospects for the service offering, to build customer relationships together with the existing direct sales organisation, successful contract negotiations, to develop the customer continuously.

To fulfil these tasks you: studied business engineering (or similar experiences), have 3-5 years working experiences in the IT/telecom industries selling solutions to corporate customers on high management level, enjoy working and sharing experiences in a starting-up team, are very customer- and business oriented, have very good knowledge of German and English language.

(SENIOR) CONSULTANT

for our new division Service Business Development in Düsseldorf. Service Business Development will in close co-operation with local branches of EDD/B define, market and sell Managed Services, Third-Part-Services and Consulting, targeting mainly business customers wanting to outsource whole or parts of their communication network operations.

● The main tasks of the above mentioned position are: to plan and perform analysing and re-engineering projects for customers and prospects related to our solution areas Call Centre Personal Mobility and Networking, autonomously plan and perform customer workshops, document the result of the analysis, the conclusions and the recommendations for further usage by customer, secure internal re-usage of experiences made, develop new consulting services in a structured way.

To fulfil these tasks you: studied economics or business engineering (or similar education), have 1-2 years working experiences from consulting (call centre consulting experience is an advantage), self confident presentation, have very good knowledge of German and

English language and MS Office, driving license (level III), enjoy working and sharing experiences in a start-up team.

We are looking for a person who has very good communication and presentation skills, is open minded and flexible.

Contact: Olle Isaksson (SBD Manager), Phone: ++49-211-534-4131 or Jutta Hartmann (Human Resources), Phone: ++49-211-534-4342 Application: Ericsson GmbH, Division Business Networks Heerdter Landstraße 193, 40549 Düsseldorf, Germany

Ericsson Australia Pty. Ltd.

GSM SUPPORT ENGINEERS

EPA is now one of four Application Supply Offices and four Regional Service Offices in the Ericsson Globe. EPA in Australia will SUPPLY to the whole ASIA/PACIFIC region and SUPPORT the South East Asia and Pacific Rim commencing Jan 98.

● As a result of these changes ASO & RSO are looking to appoint a number of support engineers NOW. (with a total of 8 positions to be filled). Our positions range from Experienced through to Specialist level with both contract and local staff available. Be a part of this dynamic organisation and stay at the forefront of mobile technology.

KEY RESPONSIBILITIES AS Verification, Correction Handling, AC-A, CN-A, Trouble Report Handling, Troubleshooting, Testing, Operations and Maintenance, Consultation.

SKILLS: GSM EXPERIENCE CME20, AXE EXPERIENCE Familiar with AXE Software PLEX and ASA programming, **SUPPORT EXPERIENCE TR handling Correction Handling, TESTING EXPERIENCE, TEAM PLAYER.**

Don't miss this opportunity to work as a part of the Regional Centre, one of the most exciting business ventures at Ericsson Australia.

Contact: ASO RSO Manager Wayne Bowring (EPAWAB), Application: EPA Employee Services Sue Holman (EPA.EPASMH).

Ericsson Australia Pty. Ltd

BE A PART OF EPA'S FASTEST GROWING BUSINESS THE REGIONAL CENTRE

TEST LEADERS

We are looking for contractors and local staff. EPA's Software Support Centre is one of the fastest growing parts of the Regional Centre. The growth in demand has been phenomenal. Many people have been appointed, but we are still in need of experienced test leaders.

● You will be working in the Fixed network, carrying out AS verification and providing software updates and some on site support to our operators locally and within the Asia Pacific Region. You will have the opportunity to grow with our newly formed organisation.

Requirements: Good AXE knowledge or IN knowledge, Test Leading experience, Trouble shooting skills, On site experience, Strong customer focus, Cultural awareness, Ability to travel regularly, Demonstrated track record as a team player.

Contact: SSC Manager Susan Hicks (EPASNH), Application: EPA Employee Services Sue Holman (EPA.EPASMH).

Ericsson Eurolab Deutschland GmbH, Aachen

The EEDIX/ISO section within our PAX system house is responsible for Product Line Configuration Management for CME20 Switching Systems. We provide test configuration management for CME20 design projects from feasibility through GA and support of testing in the simulated environment for CME20 test and design maintenance activities. To support our activities within the Simulated Test Environment Coordination Group we are looking for a

SENIOR TESTER

The STE Coordination Group is responsible for helping EED to implement the PAX and AMC test strategy to move testing from a target machine environment towards testing in a Simulator based Test Environment. (STE)

This central STE support group will satisfy the local support needs at EED (direct support) but also work towards local STE support groups outside EED (indirect support) at organizations that perform CME20 SS related test and maintenance activities of PAX and AMC products.

● As a suitable candidate, you are an Ericsson employee and should have experience in AXE function testing. You should be familiar in working in projects and have the ability to work well on a highly motivated team and under strict time pressure.

Responsibilities: Investigating new simulation techniques in CME20. We need to full fill 90% of function testing in STE in 1998. This requires new approaches and better performance of the tools surrounding STE. Performing acceptance testing of the latest tools for STE. Examples, we have initiated studies in software

mobiles for CME20 and an enhanced debugging platform for the APZ emulator. Introducing new requirements in STE. Our STE group represents RMOG CME20 SS interests in the area of STE. Through the BR STE Reference Group we can influence new APZ emulator development.

Our costumers include: - overall CME20 Function Test, currently R7 project (included subsidiaries ERA, IXG, EUS) - TCS subsystem in AMC Function Test, currently AMC phase 5 - all other STE related activities at EED

If you have questions and/or are interested please refer to

Contact: EED/H/R Doerte Kaulard, Memo-Id: EED.EEDD-KA, Tel.:+49-2407-575-163 EED/X/SOC Charles (Dan) Grinstead, Memo-Id:EED.EEDCGR, Tel:+49-2407-575-341 EED/X/SOZC Jan Lindquist, Memo-Id:EED.EEDJLI, Tel.:+49-2407-575-460

The System Test & Support Department EEDIXIS within our PAX System House is responsible for the central Product Line Maintenance of the CME20 Switching System software releases which are currently delivered to 80 operators. The activities of the department include CME20 SS Maintenance and Customer Support, Industrialization of CME20 SS releases, Test Configuration Management and Methods & Tools development. As EEDIXIS section takes the responsibility to meet the growing demand on Load, Stress and Performance testing in our Industrialization projects, we are building a new team to support those activities. Therefore we are looking for a new team member as

SYSTEM TESTER, LOAD AND PERFORMANCE TEST SUPPORT

The System Tester, Load and Performance Test Support, is mainly responsible for planning, implementing and supporting load/stress tests and traffic simulations as well as consulting Industrialisation projects in an early phase about needed resources and tools for executing such tests.

● The main activities of this person are: Design load test scripts and databases for different test tool platforms. Test and troubleshoot new scripts, databases and test configurations. Investigate new system features and check the impacts on load testing. Plan, implement and support Industrialisation load test activities. Issue

and follow up requirements for test configuration and simulation tools.

As a suitable candidate you are an Ericsson employee with profound testing experience, preferably in the GSM area. Any experience with load testing, protocol simulation or progressive test methodologies is an advantage.

In this position you will need strong analytical and communication skills as well as a good understanding of the GSM switching system with its neighbouring nodes. You will have to be flexible, team oriented and the ability to work under time pressure.

The start would be in December 1997.

Contact latest 971215: EED/H/R Doerte Kaulard, Memo-Id:EED.EEDDKA, Tel:+49-2407-575-163 EED/X/STC Klaus Boeckers, Memo-Id:EED.EEDKLB, Tel:+49-2407-575-181 For more information please visit our EED/X/S home page: <http://www.eed.ericsson.se/services/eed-x-s/Welcom.html>.

The AXE Mobile Network department, within our AMC System House, will reinforce our System Integration unit for the AXE Mobile Core (AMC). The AMC consists of the core subsystems that are common to the mobile applications CME20, CMS30, CMS40 and CMS88. For more information see: <http://www.eed.ericsson.se/inter-national/amc/>

The system Integration unit will have as main responsibilities to perform integration verification of the AMC product components and have an active role in AMC customer support activities. The unit will furthermore also be responsible for integration verification project both on main (AMC) as well as subproject level. These projects perform in an international and intraculture environment and is covering a vast range of development areas at the leading edge of technology, such as ISDN and Internet accesses. To strengthen our activities we are looking for

SYSTEM INTEGRATION & CUSTOMER SUPPORT ENGINEERS

● Your main authorities and tasks are: Definition of the prerequisites to perform a verification of the test object on AMC level in both target and simulated environment. Performance of the System Integration execution and reporting of the result verification. Trouble shooting.

As a suitable candidate you have good knowledge of

mobile telephone systems, you are flexible, show initiative and have good communication & cooperation skills. The ability to work under pressure is also an important personal quality.

Furthermore, fluency in written and spoken English is required. Experiences from System Verification/Test and/or Customer Support is a clear advantage.

Contact: EED/H/R Doerte Kaulard, Memo-Id:EED.EEDD-KA, Tel:+49-2407-575-163 EED/U/TV Mats Erlandsson, Memo-Id EED.EEDMERL, Tel:+49-2407-575-635

SYSTEM INTEGRATION TEST LEADERS

● Your main authorities and tasks are: Plan, control and report System Integration activities for AMC projects. Initiation and coordination of subproject planning and reporting. Initiation of reviews of the System Integration document. Technical approval of the sub-projects System Integration plans and reports. Selection of test environment (simulated or target). Performance entry and exit criteria checks. Coach the team.

As a suitable candidate you have good knowledge of mobile telephone systems, you are flexible, show initiative and have good communication & cooperation skills. The ability to work under pressure is also an important personal quality.

Furthermore, fluency in written and spoken English is required. You should be familiar with System Verification/Test and/or Customer Support. Previous managerial experience, e.g. as Project leader/Testleader is a clear advantage.

Contact: EED/H/R Doerte Kaulard, Memo-Id:EED.EEDD-KA, Tel:+49-2407-575-163 EED/U/TV Mats Erlandsson, Memo-Id EED.EEDMERL, Tel:+49-2407-575-635

Ericsson Ltd, Guildford, UK

IVA SUPPORT ENGINEER

● Key Responsibilities: Working as part of a team, the IVA Test Engineer specialises in integration, Verification and Acceptance test of the CME20 product. Write new/modify existing Test Specifications and Test Instructions. Carry out testing according to the applicable testing documentation. Participate in design reviews of Test Specifications and Test Instructions. Participate in trouble report reviews during test phase. Write TRs to report deficiencies in hardware, software and docware as per set procedures. Test corrections

and implement correction packages. Develop and write internal processes related to testing activities. Maintain up-to-date knowledge of the AXE product and of the status of the builds in-service mainly concentrating on CME20.

Qualifications/Experience: Technical: - Higher technical qualification in telecoms or software related subject Completed the CME20 Testing 1 course or equivalent courses Working knowledge of Ericsson procedures. Business/Human:-Flexible approach to change, Customer Focus, Influencing, Team Working, Communication, Analysis and Problem Solving, Drive to Deliver, Planning, Positive Learning and Quality Focus.

Skills/Competencies: Ideal background/experience:- At least 2 years' experience of testing in the relevant product area or other relevant testing experience Able to travel within the UK and overseas on occasion Willing to work outside normal working hours on occasion Degree or equivalent qualification in appropriate technical subject.

Contact: Anna Asplund (anna.asplund@po7.tl.ericsson.se)

Ericsson Radio Systems AB, Sundbyberg

NEXT CHALLENGE - UKRAINE

RMOG have a new customer in Ukraine. We therefore preparing the future RMOG organisation in our local company UKR. Following positions are open and on long-term conditions based in Kiev.

OPERATIONS MANAGER

● A key position will be the Operations Manager. The Operations Manager will build up the organisation for implementation. He reports directly to the UKR president. At least initially, the Operations Manager will also handle some commercial matters, so a good understanding in this area will certainly be beneficial.

Preferably you should have an M.Sc. in Engineering and you should have at least five years experience from some of the following areas; AXE, cellular, project management, implementation and SW support. Earlier management experience as Operations Manager inside Ericsson and speaking Russian will be a benefit.

To be successful in your position you need a lot of drive and determination combined with a humble attitude to local habits. You need to be a good official representative of your company.

"You know standard GSM? Then you are ready to move on and work with Satellite Communication."

Ericsson Radio Systems AB, Kista

If you are looking for a real challenge in the new and exciting field of GSM based cellular satellite communication, then we can offer you an interesting position.

To be able to support and provide the satellite operators with a total satellite system we are working closely with several satellite companies. A satellite system can be global or regional. The satellite "footprint" for one of our regional projects, Thuraya, covers 49 countries. The first phase for Thuraya includes approx. 6-7 gateways.

The implementation schedule for Thuraya is 36 months. During this time we will support our partner in the US and of course the satellite operator in UAE, work on the development of new satellite features within CME 20, coordinate our local companies.

Ericsson's role is within the ground segment and to provide the MSC/VLR/HLR/AUC.

We are looking for:

Sales/Marketing Support

The candidate should have:

- Ability to build and maintain good customer relations.
- Experience from several markets/regions.
- Strong sales & leadership skills.

Ericsson's 100,000 employees are active in more than 130 countries. Their combined expertise in fixed and mobile networks, mobile phones and infocom systems makes Ericsson the world-leading supplier in telecommunications. You can get more information about us on our homepage www.ericsson.se/SE/

Technical Sales Support

The candidate should have:

- At least 5 years of experience in CME 20 with the main focus on switching, AXE 10.
- Ability to build and maintain good customer relations.
- Knowledge of development processes is appreciated.

Total Project Manager (Program Manager)

The candidate should have:

- At least 5 years of experience in CME 20 with the main focus on switching, AXE 10.
- Minimum of 5 years of experience of project management.
- Ability to build and maintain good customer relations.
- Knowledge of development processes.
- An analytic and creative mind and also have a customer oriented way of thinking.
- Experience from several markets/regions.
- Strong sales & leadership skills.

Project Manager (Implementation Manager)

The candidate should have:

- Minimum of 5 years of experience of project management.

- An analytic and creative mind and also have a customer oriented way of thinking.
- Experience from several markets/regions is appreciated.
- Strong sales & leadership skills.

All candidates should have:

- Master of Science or similar.
- Good written and oral skills in English.
- Be well organized, independent, service-minded and team oriented.
- Experience in tender preparations.
- Excellent presentation skills.

We are looking for resources to be located both in Stockholm and in the US.

For further information please contact:

Catharina Jedberger, phone +46 8 404 44 64, memoid ERAC.ERACAJE
Mats Storsten, phone +46 8 705 90 20 39.

Please send your application to:

Ericsson Radio Systems AB
LP/H Anita Malmström Wallner
164 80 Stockholm

ERICSSON 

KAM - KEY ACCOUNT MANAGER

● As an Account Manager you will work with the sales and customer order flow and be responsible for fulfilling the customers high expectations. You will be a part of the marketing and sales team towards the customer account. Create and maintain Market Plans, responsible for meeting or exceeding sales booking objectives, billing quotas and consolidated profitability targets, maintain and negotiate contracts. Responsible for budgets and forecasts and establish long-term partnerships between our customer and Ericsson.

Preferably you should have an M.Sc. in Engineering and you should have at least five years working experience and desirably 2 years with Cellular communications and preferably with GSM experience. Ability to build excellent relations and drive for results. It will be a benefit if you speaks Russian.

CUSTOMER SUPPORT MANAGER

● Customer support is responsible for delivery of customer support services. Customer Support works closely with the customer, the local company and the project managers in order to secure that support services are delivered to high customer satisfaction.

We need a manager that can take the responsibility for the unit. You will report directly to the president. You should have a strong customer focus and several years of experience in the field of AXE and/or cellular operations & maintenance or other relevant fields. Management experience is required as well as an ability to organise, get things done and a desire to achieve high results. It will be a benefit if you speaks Russian.

Contact: Leif Edvall, phone +380 44 462 5220, fax +380 44 462 5221 Joakim Cerwall, phone +46 8 757 3929 Göte Hedblom, Human Resources, +46 8 585 31479 Application: Ericsson Radio Systems AB SG/ERA/LP/HA Siw-Britt Johansson, 164 80 STOCKHOLM

Ericsson Telecommunicatie B.V., Rijen, Netherlands

PRODUCT MARKETING MANAGERS

The Global responsibility within the area of Charging, Accounting and Billing Services is allocated to the Netherlands.

The scope of the new Product Unit organisation includes the total solution portfolio for the whole value chain of Charging - Billing services. Based on our Real-time Charging and Billing competence the Product Unit will expand very rapidly into the billing market of the infocoms society. To reinforce the new organisation we will expand our group of Product Area-, Product Marketing Area managers.

● The position as product marketing manager requires both commercial and technical competence. The successful candidate should be able to translate the technical functionality of the products into clear, commercial arguments which highlight our customer needs and product value.

As a product marketing manager you will be responsible for both the introduction of new products as well as for the longer term. Marketing messages and support to sales of our products will be carried out through both internal as well as external product presentation events. In order to accomplish this you should enjoy traveling, building relationship on a high level and working in an international environment.

The positions require co-ordination of different functions, both within the parent company and subsidiaries. It is therefore essential that you are outgoing, independent, creative and self motivated. Your interpersonal and communicative skills will allow you to convey a very positive and professional image in this highly visible position. You should have several years experience working in an international business environment preferably in the telecom or computer industry. Fluency in English is required. For the right person the future is bright.

PRODUCT AREA MANAGEMENT

● To reinforce the new organisation we will expand our group of Product Area-, Product Marketing Area managers.

As product manager you are responsible for the planning for your Product/Service portfolio, which means that you define the direction of the development of the Charging, Accounting & Billing products Services based on your assessment of the competitiveness and economical performance over the entire life-cycle. You write and inspect detailed Requirement Specifications and you approve Functional Specifications.

You will also make customer presentations and support product introduction of new solutions and products. The main tasks are to identify, develop, drive and retain business challenges and opportunities through marketing strategies as well as operations in close contact with the market.

You should be familiar with Charging, Accounting and/or Billing products. Fluency in English is required. As a suitable candidate you have worked with front-end activities and have a Telecom or IT background. We are looking for colleagues with good inter personal and presentation skills, adaptability to different cultures, selfmotivation, ambition and professionalism.

Contact: Ericsson Telecommunicatie BV Rijen The Netherlands Ton Keppel (+31 161 - 249790) e-mail etm-

toke@etm.ericsson.se or Per-Ivan Selinder (+31 161 - 242964) e-mail etmpise@etm.ericsson.se

Ericsson Data Australia

The WorldWide ESOE team has immediate vacancies for highly skilled, experience applicants in the following areas:

APPLICATION DEVELOPERS, NETWARE ENTERPRISE DEVELOPERS AND OPERATING SYSTEM/HARDWARE INTEGRATORS

● These positions are based in Stockholm. Applicants must be fluent in English.

The World Wide ESOE team, as a group within EDT, develops and supports the Ericsson Standard Office Environment which is a global personal computing system currently being implemented within Ericsson Worldwide.

Contact: Dennis Beilby, Telephone +46 8 72 17522, Memo eea.eadmb, E-mail Dennis.Beilby@ericsson.com or Jonas Torell, Telephone +46 8 72 62239, Memo edt.edtasto, E-mail Jonas.Torell@edt.ericsson.se

Ericsson Telecommunicacoes S.A Brazil - EDB

Take the opportunity to increase your professional skills while working under demanding, exiting and challenging conditions by applying for a position in our local company in Sao Paulo, Brazil - 'The fastest growing Latin American Market'.

SYSTEM SUPPORT ENGINEER

● As System Support Engineer you will be responsible for the development procedures in field support, investigate and solve problems of complex nature in both hardware and software. You will also provide technical expert support to Ericsson's customers and transfer knowledge within the OSS Field Support Center.

You should have a degree in Electrical engineering/ telecommunications or equivalent. A minimum of 5 years work experience in the telecommunication or computer industry. You should also have a minimum of 3 years experience working with Ericsson Customer Support for CMOS/TMOS/SMAS. Other assets are good knowledge of CM588, Data communication protocols and some knowledge in Cell Planning Statistics. Fluency in English, Spanish and/or Portuguese is a must.

Contact persons EDB, Brazil: Operations Customer Support: Albert Beets - BRA.EDBAB or Human Resources: Jacira Gomes - BRA.EDBJRFG Application: EDB Brazil: BRA.EDBAB

Ericsson Eurolab, our young research & development centre in Herzogenrath, near Aachen offers the following challenging positions:

PROGRAM PRODUCER

The XISO section within our PAX system house is responsible for Product Line Configuration Management for CME20 Switching Systems. We provide test configuration management for CME20 design projects from feasibility through GA. Additionally, the section is responsible for support of testing in the simulated environment for CME20 test and design maintenance activities. The AS Handling group is responsible for AS Specification, Program Production, Parameter Administration and Library Specification for Product Area Switching (PAX) and AXE Mobile Core (AMC) development projects. In addition, AS handling activities support Product Line Maintenance Projects for the CME20 Switching Systems (CNP packages) as well as Market TSS productions for the CME20 markets.

● The program production activities will mainly consist of SWAXE testbed productions and production of CNIs or lifted products with PRODAX. Deliveries from program production will be objectfiles, emuitfiles, plexview and furaxtables for CME20 development projects. Market TSS productions will have to be performed upon request from the ASOs. AD support and release support will have to be provided to design projects. Suitable candidates should be familiar with the SWAXE program production environment. Experience with HLPLEX and RPD software production, with PRODAX production environment and with FURAX production is advantageous, but not absolutely necessary.

Good cooperation and communication skills are as important as good networking in the Ericsson Program Production world. You should be good team worker and have the ability to work under high time pressure. Good analytical skills are essential. The position is to be filled by 1.1.1998.

Contact/Application: Doerte Kaulard, Memo-id: EED.EEDDKA, Tel.:+49-2407-575-163 or EED/X/SOL Elke Busch, Memo-id: EED.EEDEL, Tel.:+49-2407-575-357

SYSTEM MANAGEMENT ENGINEERS, PRODUCT AREA SWITCHING

● If you enjoy demanding work and can respond well to significant challenges, why not become a member of our team? Here at EED we have the overall Product Area Switching responsibility for CME20 & CMS40 and we are looking for people to work in system management.

We are working with the following mobile applications: GSM 900, 1800 & 1900 systems. Global and re-

gional satellite network applications. Studies about GSM MSC evolution. UMTS.

System Management focuses on a range of system level tasks which are necessary to ensure progressive development of Ericsson's CME20 & CMS40 switching nodes. This work involves a broad range of activities including RS writing, system investigations, standardisation and system level tasks related to dimensioning and platform management.

Suitable candidates possess a relevant engineering degree (eg telecommunications, electrical, or software engineering) with a minimum of 3-5 years of AXE development or testing experience, and preferably at least 2-3 years of experience in system-level technical development or testing. Experience with GSM or other mobile telephony development is advantageous, but not absolutely necessary. Good analytical skills are essential.

Good cooperation, verbal and written communication skills are important human skills. Experience in working in close customer relations would be advantageous.

Contact/Application: Human Resources: Doerte Kaulard, Memo:EED.EEDDKA, Dial:+49-2407-575-163 PAX System & Product Management Andreas Thuellig, Memo:EED.EEDANT, Dial:+49-2407-575-246 Pieter van Rijnsoever, Memo:EED.EEDPVR, Dial:+49-2407-575-172

Ericsson Radio Systems AB, Kista

BUSINESS SUPPORT SYSTEM PROJECT MANAGERS

Business unit Cellular Systems - American Standards (RMOA) is under heavy expansion. A major challenge is to streamline the processes and business support systems. To focus on the business issues and processes we are building a new type of business and process-oriented information systems unit. Our mission is to provide business applications to facilitate world-class IS support for the global RMOA TTC (Time To Customer) process.

● We therefore seek two skilled people who can join the group. You will be working with the process teams and the users in identifying the most critical information management needs and run projects aimed at implementing new and improved systems. We work with internal and external IS/IT units in the development projects and for maintenance of our systems.

We are looking for project managers with a university degree and at least two years experience from project management, business analysis and system development. You must have an MSc or MBA, be able to drive projects under tight time schedules and maintain excellent relationships with project members and management and speak and write good English.

Contact: Andreas Åström, phone +46 8 404 7316, memoid ERA.ERAASAM, e-mail andreas.astrom@era.ericsson.se Application: Ericsson Radio Systems AB KI/ERA/AH/H Birgitta Stavenow, 164 80 STOCKHOLM

Ericsson Business Networks AB, Enterprise Networks, Nacka Strand

Services is a rapidly growing area within Business Unit Enterprise Networks. In the 2005 scenario, Service Revenue will be equal to "product" revenue. Now you can take part of this challenging development!

MANAGER OF PROFESSIONAL & MANAGED SERVICES

● The unit Enterprise Networks is looking for a Manager for Professional Services.

In this position you are responsible for leading the function Professional Services Globally. The work consist of several areas.

Develop Professional Services. Developing a competitive Service portfolio. Implementing the portfolio and the function in the local companies.

Control and Co-ordinate resources. Development of Project managers.

Securing profitability in large projects.

Competence development programs of employees. Securing revenue growth.

Be part of strategic planning within the business unit.

Leading different programs.

You have; Several years experience in the area of Consulting and Professional Services. Understanding of Managed Services (Outsourcing). IT and Datacom background is wanted. Budget responsibility with proven result. University degree.

Contact: Bert Nordberg, Manager Enterprise Services, +46 8 422 22 10, EBC.EBCNORD, bert.nordberg@ebc.ericsson.se Application: jessica.pihlblad@ebc.ericsson.se or Ericsson Business Networks AB, Human Resources, Jessica Pihlblad, 131 89 Stockholm.

Ericsson Radio Systems AB, Kista

MANAGER**- ACCOUNT MANAGEMENT**

● JM/F SALES within RMOJ has as from 97.10.01 the responsibility for Account Management, Order Management and Supply & Engineering. In order to meet the requirements at the Japanese market, we will in co-operation with RMOG and RMOA implement CORE 3, a way of managing our marketing and sales

projects from start to completion.

In order to seize the opportunities at the Japanese market, we look for a MANAGER - ACCOUNT MANAGEMENT. As the ideal candidate, you will have both commercial and technical competence relating to switching and radio products. With regards to marketing and sales, you will be responsible for the co-ordination of all sales activities, contract care, support to the regional offices and co-ordination of prices structures, etc.

You are an outgoing, independent, self-motivated individual with strong inter-personal and communication skills. You should have a university degree, preferably M.Sc. or MBA along with three to five years telecom or datacom industry experience ideally from a similar position or in a position closer to the customer. Fluency in English is required.

Contact: Stefan Karlsson, phone +46 8 404 7729 Application: Ericsson Radio Systems AB J/HS Ann Beer, 164 80 STOCKHOLM

Ericsson Telecom AB, Telefonplan

SOURCING COMPETENCE

Within Public Networks our Sourcing Unit is responsible for purchasing and vendor relations for externally sourced products in the area of OEM and software.

We work in a network with other sourcing units within Ericsson. To improve our operation within Infocoms Systems it has been decided that we shall build strong sourcing organizations that work close with the internal Ericsson customers.

Today we are a small team within Public Networks that need to grow to be able to meet the demands of our customers and future operations.

● We need personnel with experience from different areas. Your background could be from different competence fields like legal, purchasing or selling.

It is of additional value if you have a background from the computer industry and are aware of some of the specifics regarding SW Purchasing and SW Licensing.

Kontakta: Ingvar Persson +46 8 7191587 ETXT.ETXIERE@MESMTPSE.ERICSSON.SE Ansökans markt Sourcing: Ericsson Telecom AB TN/ETX/PN/XO 125 25 Stockholm

Ericsson Telecom AB, Public Networks Switching, Systems Roll Out, Performance Improvements

PROJECT QUALITY MANAGER

The unit Systems Roll Out is running a number of big multinational development projects aimed at generating new products for Public Networks applications. Our aim is to be No 1 in our area. Within Systems Roll Out the unit Performance Improvements(Pi) is responsible for Quality Management(QM), as well as Process Improvements and Software Metrics. We are 19 persons in the unit Pi, whereof 9 are in charge for QM.

● We are now looking for persons to join the QM function as Project Quality Manager.

The main objective of the QM function is to ensure that the right quality is achieved within our total projects. You will be part of a group working actively in total projects to set new and higher standards for the quality.

Your tasks will be to: plan, manage and follow up quality activities in the project, e.g. prepare the Quality Plan, conduct audits, prepare quality predictions based on measurements (PQT and others) etc. realise the Opportunity For Improvements (OFI) process within the project, plan and perform risk analyses in the project, improve our way of working.

You are expected to be a Master of Science (or similar) in CS/EE, with knowledge of Statistics and/or Quality Practices, as well as of Ericsson SW methods. You have 3-5 years of experience in Project Management within the Ericsson organisation as well as experience with , international work.

Furthermore, you should have good communication skills and have natural abilities for team work.

We offer you a challenging work in an international environment with opportunities to get future engagement within the improvement and project management area. We are located at Telefonplan (TN building) in the beautiful Stockholm.

We invite both ETX internal applicants and applicants from Ericsson abroad.

Contact/Application: Stig Leitner +46 8 719 20 77 ETXT.ETXSLR QM team, Nils-Johnny Kristensson +46 8 719 32 14 ETXT.ETXNJK PI Manager, Susanne Norström +46 8 719 06 59 ETXT.ETXSUNO Human Resources, Göran Lönnqvist +46 8 719 56 75 ETXT.ETXGLQ CF representative, Miguel Romero +46 8 719 13 45 ETXT.ETX-MAR SIF representative.

Contact on the web!

You can read this and previous issues of Contact on the web.

Visit Inside.Ericsson.se!

Ericsson Radio Systems AB, Kista

PRODUCT MARKETING MANAGERS

The business unit Cellular Systems-American Standards (RMOA) has recently organized itself around product units. Among the many gains of the new product units the clearest for us in marketing is a strong focus towards bringing the market and business solution positionings closer to the customer needs and values.

We are looking for competent product marketing managers within the marketing group for the Product Unit Wireless Networks. The Product Unit stands today for the greater part of the invoicing within RMOA.

● The position as product marketing manager requires both commercial and technical competence.

The successful candidate will be able to translate the technical functionality of the products into clear, concise commercial arguments which highlight our customer needs and product value.

As a product marketing manager you will be responsible for both the introduction of new products as well as for the longer term marketing messages and support. An extensive and successful product launch requires clear marketing messages, attractive packaging, good pricing strategies and a well-thought marketing campaign consisting of press releases, trade press articles and promotional material.

The actual launch of the product will be carried out through both internal as well as external product presentation events.

After the actual launch the longer term marketing messages and co-ordination of arguments and strategies to support the sales of our products takes over. In order to accomplish this you should enjoy travelling, building relationships on a high level and working in an international environment.

These positions require co-ordination of different functions, both within the parent company and subsidiaries.

It is therefore essential that you are outgoing, independent, creative and self motivated.

Your interpersonal and communication skills will allow you to convey a very positive and professional image in this highly visible position. You should have several years experience working in an international business environment preferably in the telecom or computer industry.

Fluency in English is required. For the right person the future is bright!

Contact: Martina Breitenstein, phone +46 8 404 4628, memoid ERA.ERAMARB or Gregory Rogers, phone +46 8 404 7208, memoid ERA.ERAGRO Application: Ericsson Radio Systems AB, AH/H Anette Spångberg, 164 80 Stockholm.

"LANscaper's WANTED for Ericsson's Fun and Challenging Datacom Field!"

Ericsson Utvecklings AB are looking for...

UAB has total responsibility for the continuing development of AXE as a core platform product for public networks, fixed and mobile. It is the task of UAB to supply Ericsson and its customers with competitive telecommunication platform products, service and support to enhance their profitability. UAB is the company with responsibility for integrated AXE subsystems, including technology, engineering, software, methods, tools and training. The company employs about 2.000 highly qualified professionals. Design, development and production is mainly performed at company units in Stockholm and Östersund but also a number of Ericsson design centers around the world.

What we need you to do

We are currently working with a number of AXE products that will address the convergence between the traditional Circuit switched- and Datacom networks, both on the fixed and on the mobile side. The use of Internet is growing which puts new demands on the traditional telephony network. This activity is new (as well as the products) and crucial for Ericsson and since we are in an build-up phase your opportunities are unlimited. You will work in the team that design, integrate and verify these products as an integral part of the AXE as well as stand-alone in a datacom network with routers and servers from other vendors. We really need some strong, confident individuals with the right mix of knowledge and workmanship to help us fight the battle against our competitors.

The positions are divided in three general categories:

- Integration and Verification of the products integrated with different AXE and packet nodes,
- Interoperability tests of our own and other vendors products and
- LSA - Local System Administrator for the Datacom/Interoperability lab.

Integration and Verification

In the Integrations and Verification part you will start in the design phase with requirement validation and then on to

Integration planning where increments of the design are defined and documented. These increments are then built upon until Function and System tests of the complete application can be performed. The application in this case includes traditional AXE and data components. Your contacts and counterparts will be the complete Design and Verification organisation for AXE since the platforms that we are developing will be used for application design by several Design Centers and included in products used on all markets.

Interoperability Lab

The Interoperability Lab is on the drawing table and we will soon start to build a complete network scenario with AXE switches and datacom equipment as it is used in real life by our customers. It is important to know that all nodes in a network are working as intended, both from capacity and functionality point of view. There are certain requirements that these types of products must fulfill and the goal is to set a conformance certification stamp on the products after the tests. The operation and Maintenance aspect is also something that will be addressed in the lab since the converging networks traditionally have separate systems (and organisations) for the task.

Local System Administrator

In the role as LSA you will be responsible for the datacom equipment in the lab e.g. Routers, Ethernet Switches, Frame Relay Switches and Access equipment. It is extremely important that you can organise the equipment to be as flexible as possible and have full control over the installation, which initially will be a lot of hard, hands-on work and management later on when the lab is up and running. The lab must be neat since we plan to invite our customers and counterparts.

What you need to know

Common requirements that we want to see in you for all positions are that you should

be an entrepreneur, open minded, independent, result oriented and not afraid to dive in and take initiatives and contacts to get things moving. You should be able to handle the theory behind data communication networks and real time systems as well as work hands on with the equipment.

If you think you have the right personality and ambition for one or more of the positions, and furthermore fulfill some of the requirements listed below, don't hesitate to apply:

- Ability to communicate in English, both written and spoken,
- Test experience with TCP/IP and Networking
- Know data communication in general e.g. LAN, WAN, interface and protocols,
- Know integration and Verification theory and tools, preferably from a real time system environment,
- Knowledge of UNIX and Windows NT,
- Programming skills in C/C++ and real time Operating Systems or embedded systems,
- Good understanding of internet/intranet applications,
- Have basic knowledge of O&M and protocols e.g. SNMP and
- AXE 10 experience from design and/or verification.

If you have come this far and think it sounds interesting but still have a few questions to ask, you can contact either of:

Lennart Axelsson
08-727 35 76
lennart.j.axelsson@uab.ericsson.se
Richard Bruvik
08-727 35 55
richard.bruvik@uab.ericsson.se

Skicka ansökan märkt "Datacom" till:
Ericsson Utvecklings AB
P/A Annelie Josefsson
Box 1505
125 25 Älvsjö

Ericsson's 100 000 employees are active in more than 130 countries. Their combined expertise in fixed and mobile networks, mobile phones and infocom systems makes Ericsson a world-leading supplier in telecommunications. www.ericsson.se/SE/

ERICSSON 

contact

Ericsson, HF/LME/I, Rum 811023, 126 25 Stockholm

The transistor – cornerstone in all modern electronics – is celebrating its 50th birthday this year. Without the ingenious discovery, the world would be a different place. The Museum of Telecommunications in Stockholm is staging an exhibition to honor the little 50-year old, its significance through the years and its critical role as the foundation of today's information soci-



The transistor changed the world. Mats Lindoff (left), Chief of Research and Development at Ericsson Mobile Communications in Lund, and Åke Lundqvist, a pioneer in Ericsson's mobile telephony, show an enlarged model of the first point contact transistor from 1947 at the Museum of Telecommunications in Stockholm.

Photo: NILS SUNDSTRÖM

50 years with the transistor

It's almost invisible. But the transistor is all around us. Electronics in cars, calculators, CD players, hearing aids and household appliances are all based on the microscopic component. In brief, it laid the groundwork for today's entire industrial society.

Nobel Prize

It all started the day before Christmas Eve in 1947, when three researchers named John Bardeen, Walter Brattain and William Shockley successfully completed an experiment at Bell Laboratories in New Jersey. Their discovery showed that bits of semiconductor materials placed correctly on silicon, for example, would function

like vacuum tubes and strengthen weak electrical signals.

The difference between transistors and the hot, fragile vacuum tubes of 50 years ago was enormous. Transistors had much longer life spans, consumed much less electrical power and required less space. In 1956, the three Americans were awarded the Nobel Prize in Physics for their discovery of the transistor effect. The outstanding qualities of their discovery became common knowledge, perhaps most notably through portable radios – appropriately called transistor radios.

The Museum of Telecommunications and the Swedish Association of Electrical Engineers (SER) have worked in cooperation to arrange a "wonders of our age" exhibition. Their efforts have produced an educational presentation that traces history from the days before the transistor through its fantastic breakthrough in modern society. Ericsson is the largest corporate sponsor and, as usual, all Ericsson employees may visit the Museum free of charge to see the exhibition.

Ability to propagate

Åke Lundqvist, a pioneer in mobile telephony and then President of Ericsson Radio, was one of the keynote speakers at a jubilee symposium held in conjunction with the opening of the exhibition. He was particularly pleased with the transistor's ability to propagate, an instinctive reproducibility "that may be likened to that of bacteria."

"Just imagine what your mobile telephone would look like if it were

equipped with vacuum tubes. Today, approximately 15 million transistors are needed for just one mobile telephone. I extend my heartfelt congratulations to the 50-year old transistor and all its children and grandchildren in the form of integrated circuits and microchips," declared Åke Lundqvist.

Miniaturization continues

Mats Lindoff, head of Research and Development at Ericsson Mobile Communications in Lund, talked about ongoing technological evolution, highlighted by continued miniaturization of transistors and the growing intelligence of microchips.

"We have been able to reduce the size of mobile telephones, but with today's technology, our creativity is the only limit on functionality," Mr. Lindoff said. The main question revolves around what people want, within reason for what's humanly possible.

How about the prospect, for example, of storing everything a person sees during the course of one year on 12 microchips? The potential of tomorrow's transistor applications are staggering, to say the least.

NILS SUNDSTRÖM

■ The exhibition in Stockholm will continue through fall 1998. Additional information about the exhibition is available at the museum's web site: <http://www.telemuseum.se>. See also the history of Bell Labs and the transistor at <http://www.lucent.com/ideas2/heritage/transistor/index.html>



The transistor radio demonstrated the new technology's excellence and practicality in everyday applications. The original transistor radio, a Regency from 1954, is pictured above.

end line

Slow yet savory appetizer

Our last theme issue for the year is dedicated to the Internet, which is still as hot as ever. It's a topic that was difficult to evade, despite the fact that Ericsson still doesn't seem to have a great deal to present in this area. Or, to be more precise, nothing that we can present openly in a medium such as Contact. To my understanding – received through channels such as upbeat internal marketing brochures – Ericsson has a great deal in store in the upcoming months. However, there is a measure of uncertainty regarding when and how we should inform the market of our new and exciting products. Hesitancy in revealing information about new products is not a trait common to the IT industry. The prevailing culture more likely dictates that news be belted out long before the products or services are ready for delivery. Ericsson undoubtedly has a lot to learn from its new competitors when it comes to communicating with prospective customers.

So much for that. As a user of Internet and intranet, I'm still a bit uncertain. I can't decide if I should love or hate this informational tool.

The World Wide Web is fabulous when you need various types of information, such as what the weather is like in a faraway destination, or what exactly distinguishes Scotch whisky from bourbon, other than the taste. But surfing on the Internet is still a very long, drawn-out process to say the least! The "information superhighway" has a speed limit that belies its name. While state and local governments debate reducing speed limits on roads – to the great dismay of stressed-out motorists – we nevertheless accept having to stare at an hour-glass or wristwatch on the screen while the pieces of a web site slowly fall into place.

The slow speed of the Internet and the difficulty in taking in information one screen page at a time are two factors that limit the usefulness of electronic media for the time being. That's why the Web feels more like an appetizer for me. There are lots of exciting things you can order via the Internet for closer examination. Those of us working on the editorial staff receive hundreds of orders for our magazines from people who have seen them on the Web, but who want "the real thing."

Contact has been on the intranet for nearly six months now, and we have received much positive response with regard to this. We are now working on creating a text archive, in which all articles from previous issues will be available. Efforts are also under way to create a photo database, which will also be accessible via the intranet. Next year, we will also be introducing "Contact Direct," with news articles in almost-real time. Any other suggestions as to how we can present material from Contact is greatly appreciated!



LARS-GÖRAN HEDIN



contact
in depth

A THEME SUPPLEMENT
TO CONTACT NO. 19 1997

Internet
– the net that
captures us all

How Ericsson will grow with the Internet

A world of opportunities

THE INTERNET IS THE FASTEST-growing communications medium in history. Traffic in the global network is increasing ten times faster than international telecommunications traffic. Considering that the Internet was unknown to most people only four or five years ago, this is a dizzying rate of growth. It is so rapid that it is difficult – not to say impossible – to survey the industry. On the other hand, hardly anyone still believes that what is happening in our industry could pose a threat to traditional telecommunications suppliers. Rather, it is becoming increasingly clear that a world of new opportunities has opened up for Ericsson.

BUT THERE ARE AS YET NO CLEAR AND well-defined paths to success in the “info-com” industry. It is, indeed, impossible to make forecasts covering periods longer than one to one-and-a-half years. Acquisitions, alliances and joint ventures involving various players follow one after another and are constantly changing conditions in the market.

FOR ERICSSON, WHICH WILL GRADUALLY become one of the large players in IP-based multimedia communications, it is now a matter of keeping many doors open until distinct trends can be identified. It is a matter of becoming familiar with the market – the Internet users – and creating a flexible company that can change course quickly when the wind begins to blow strongly in either direction.

FOR US WHO WORK WITHIN ERICSSON, THIS trend and the new conditions facing the company mean major changes. We must be leaders in using the new technology, begin to think in new ways, and create other, more effective routines. But, above all, we have to understand the opportunities offered by the Internet and by intranets – and what Ericsson can achieve in these areas.

THIS SUPPLEMENT IS NOT AN INVENTORY OF the products Ericsson is developing or selling at the present time. That would make Contact out-of-date before the next issue was published. But we do hope that most Ericssonians, regardless of their experience with – or knowledge of – it, will find something that gives them new insight into the phenomenon known as the Internet.

LENA WIDEGREN
THEME SUPPLEMENT EDITOR

contact in depth

A Supplement of
Contact, a newspaper
for Ericsson employees

Publisher: Lars A. Ståhlberg, tel +46 8 719 31 62.
Theme editor: Lena Widegren,
tel +46 8 719 69 43
Layout: Helena Törnblom, Paues Media AB, tel
+46 8 665 80 72.
Printing: Nerikes Allehanda Tryck, Örebro 1997.
Translated by: The Bugli Company AB
For additional copies, contact Solveig Sjöund,
memo LME.LMEKOCO

The Internet can be used for many purposes and the companies that are quickest to understand and take advantage of all the opportunities that the worldwide network offers will strengthen their competitiveness.

Rolf Skoglund, 44, is Ericsson's new Internet strategist. His job is to make Ericsson one of the world's leading Internet users.

An IT general with a mission

BY JOHAN LUNDBERG

IN MID-OCTOBER ROLF SKOGLUND BADE farewell to Microsoft, the data giant whose Nordic and European operations he had helped to build up, and began to work at Ericsson. Among other things, his job is to make Ericsson one of the world's leading Internet users. It's a big challenge – and an exciting one.

“The Internet is opening up many new opportunities for Ericsson's employees and for Ericsson as a company,” Rolf Skoglund says. “This is already the case today but it will perhaps be true to an even greater degree within a few years, when more of the multimedia Internet traffic will be carried over mobile networks. Within three to five years we will have transmission speeds of 384 kBit per second in mobile networks. This means in principle that you will be able to speak using a mobile telephone at the same time that you can receive video signals in a pocket computer and search for information on the Internet, or take advantage of some other service. The Internet is laying the foundation for new ways of working in many areas of operation. We are determined to take advantage of these opportunities. Ericsson will be one of the world's most dynamic and exciting companies in which to work and to do business with,” Rolf Skoglund declares.

HE NOTES THAT ERICSSON and its employees are currently working under heavy pressure of time. The razor-sharp competition requires ever-shorter lead times in product-development and deliveries to customers, for example. The Internet and other information-technology tools make it possible for us to work more efficiently, at a faster pace, and at the same time eliminate frustrating stress factors. The more skilled each of us becomes at using the new technology and developing new ways to work, the more competitive Ericsson will become as a company.

“For example, today in Ericsson there is an

opportunity to confer via the intranet, but few persons are taking advantage of this opportunity despite the fact that it would in many cases save time for them. Why? Probably because many people still feel that it is a strange way to communicate, and so it's difficult to change established routines.”

“It's easier to plod along in the traditional way and perform as people have always been performing,” says Rolf Skoglund, who thinks that Ericsson's young employees have a great deal to teach the elders in this respect. They are already heavy users of the intranet and Internet.

“Let these few young people be enthusiastic and let them demonstrate how they work,” Rolf Skoglund says challengingly. “Don't kill their creativity. Instead, encourage them.”

UP TO NOW ERICSSON HAS REALLY NOT MADE MORE progress in the use of the Internet and intranet than most other large companies. Ericsson is in development stage 1: the information level. The company has developed home pages and has built up an intranet with a link to the Internet as a means of facilitating the dissemination and collection of information. And employees are able to communicate via e-mail. The next stage, according to Rolf Skoglund, is to develop useful and interactive Internet and intranet services for customers, employees, suppliers, partners, resellers

and other interest groups. For example, customers should be able to obtain product presentations, download new software programs, place orders, and find out how far we have come in handling an order, etc. We should develop services for employees that will help them do their jobs better and more efficiently.

“THESE SERVICES WILL BECOME AVAILABLE ON THE Internet 24 hours a day throughout the world, which will be a practical and efficient way for both Ericsson and its customers to operate,” Rolf Skoglund says. “But if services of this type are to fulfill their purpose and be used, they have to be designed attractively, be easy to use, and deliver a quick, high-grade feedback.”

Rolf will make Ericssonians good “IT citizens”

InternetTips
InternetTips
InternetTips



Ewa Lundberg. Responsible for customer relations with Telia International. Ericsson Telecom Sweden. <http://www.telia.se> “For updates on the Swedish telecom operator Telia.”

This is Rolf

- Rolf Skoglund
Ericsson's Senior Vice President, Information Technology
- Age: 44.
- Family: Wife and three children.
- Grew up in a small city.
- Career: Disc jockey. Degree in engineering from Linköping Technical Institute. Sales manager, Texas Instruments. Intel. Manager, Nordic Region, Microsoft. Persuaded Gates to focus on Sweden as the fourth market in Europe. European Manager, Microsoft. Responsible for business development of new consumer services for the Internet ("Expedia" travel agency, "Sidewalk" city guide, "Carpoint" automobile shop, etc.)
- Leisure-time interests: Exercising, skiing. "My MGB 63 that I am renovating has now been idle in the garage for five years."
- Favorite spot on the Web: None in particular. Often uses different search engines.



Photo: ELISABETH OLSSON

"In a third stage, Ericsson has to learn how to use the Internet as a marketplace. Trading on and via the Internet is still limited, but it is generally foreseen that it will increase substantially during the years ahead. We have to become skilled at procuring goods and services electronically, but we also have to investigate whether we should begin to sell products over the network – and if so, to what extent. Computer companies like Dell and Apple

are selling via the network today. You can order your computer and even configure it yourself.

"Ericsson should be able to sell mobile telephones via the network right now – and maybe also business exchanges that customers can configure themselves," Rolf Skoglund declares. And he issues a challenge to everyone in the Ericsson organization worldwide:

"Let me hear from all of you who have ideas

about the services that Ericsson should develop on the intranet and Internet, or who have suggestions for new ways of working in different operating sectors. I would like to organize you immediately in virtual "idea and test teams" that would also serve as pilot groups for new work methods. Send an e-mail!" ■

◆ Address: rolf.skoglund@lme.ericsson.se



Anna-Leena Forsberg, Infotech at Ericsson Microwave SYstems, Sweden: <http://www.hotbot.com/> "A search engine that is a strong competitor to the most widely used search engine: AltaVista. With the aid of HotBot, it is possible to conduct a very specific search and thereby limit the number of "hits." Among other features, it is possible to see who has accessed a specific home page."

The answer to the question "What is the Internet?" depends on whom you are asking. It is hard to find anyone who claims to know the answer. If you do, there is a great risk that you will become more confused, rather than enlightened. So join Contact's basic course that explains what this Internet that everyone is talking about really is.

Internet links all the world

BY PATRIK LINDÉN

What is the Internet?

STATED VERY BRIEFLY, THE INTERNET IS a computer network that consists of many smaller individual networks that are connected in various ways. It is able to function because the different networks speak the same language or can use the same "protocol," which is the term used when computers talk with one another. The protocol is called "IP," the abbreviation for Internet Protocol. Today, there are nearly 100 million persons (depending on whom you ask) who are in some way connected to a network that, in turn, is connected to other networks via the Internet. That the Internet works is due to the fact that everyone has accepted IP as the protocol to be used when information is sent over the network. For additional precision, other protocols that, in a manner of speaking, "lie above the IP" are also used. The Transmission Control Protocol (TCP) is one. It is so commonly used with the IP that "TCP/IP" has become a single term.

Companies have their own computer networks. These networks are linked, at one or more locations, to an Internet operator who operates a large network. This Internet operator, in turn, has connections and contracts with other networks and operators. In this way the entire world is linked with, or to, the Internet which is the sum of all the component networks.

EACH NETWORK THAT IS CONNECTED IS GIVEN A "mail number," or address. Various users can then obtain their own addresses within the company network (mail number). These are called IP addresses and consist of a number of figures that no one learns by heart. The Internet contains a number of servers ("help computers") that simply keep track of who has which IP address and translate the figures to an understandable address. This is called the Domain Name System (DNS). Each company or subnetwork has its own domain, with its own name. Ericsson's domain name is "ericsson.se."

The name system's task is to keep track of where, for example, "ericsson.se" is located in the network so that the right data packet can be routed to that address.

The information that is sent back and forth in the network is divided into small parts, packets. Each packet is equipped with an electronic address tag showing the destination and sender and the number of packets into which the information has been divided. The packets are sent separately. When all the packets have arrived at their computer-destinations, they are arranged in the proper order to once more form a total unit. This is the process that can test one's patience when a home page is being downloaded.

THERE ARE MANY SIMILARITIES WITH CONVENTIONAL telephone traffic. When a telephone call is made, the exchanges first create a route through the telecommunications network. This route is then kept open during the entire call and the call takes up the same amount of space in the network – the same bandwidth – as long as the connection is maintained, even if the caller should choose to remain silent. With the Internet, the data packets are packed tighter and divided and do not necessarily have to be transmitted in their proper sequence. As a result, the network is used more efficiently. Different data packets (IP packets) can even be transmitted by different routes. It is entirely possible to operate IP traffic over the telephone network, but this would mean making poor use of the network since the opportunity to "pack" the IP traffic efficiently is not being exploited.

Various ways in which the network is used

THERE ARE THREE MAIN AREAS OF USE FOR THE Internet: electronic mail ("e-mail"), the World Wide Web, and news and so-called "chat groups." The simple transfer of files could be added to this list, even though all use of the



Photo: GREAT SHOTS

Internet involves transfers of files between computers.

Electronic mail was the first – and is still the most common – way in which the Internet is used. With the aid of the ingenious address system, anyone who is connected to the network can send e-mail to anyone else who is linked to the Internet.

During the past two years the World Wide Web has begun to take up more and more space on the Internet. It comprises all the web sites that individuals, companies and organizations store on servers that are connected to the Internet. When you, with your web scanner, click on a link, it is as if your computer were searching for certain information or for a file that is then sent to your computer in the form of IP packets and rearranged in its original form. The number of WWW servers is increasing at an explosive rate.

News and chat groups function as a sort of collective e-mail. In these groups, persons who have the same interests can carry on discussions on a given subject. This can take place in real time and is then referred to as "chatting."

Who makes up the Internet?

A NUMBER OF PLAYERS ARE REQUIRED IF AN INTERNET is to function. In the beginning, universities played all the roles on the Internet stage. Today, there are more clearly defined groups of players. First of all, there are the users – you and me and all the others who have access to the Internet.

The Internet operators – sometimes referred to as Internet Service Providers (ISP) – operate large networks ("trunk networks") to which company networks or private individuals can be connected.

The classic telecommunications operators often function as Internet operators but there are also many who operate networks for the Internet exclusively. If the Internet is to be attractive for services other than e-mail, someone has to be responsible for the content. These parties are known as content providers. They may be news

services, for example. A fourth group of players consists of software and equipment suppliers.

Someone has to produce the software that is required and the servers and Internet exchanges (routers) that are needed to keep the Internet going. This is where Ericsson wants to play a role – and make money.

How it all began

AT THE END OF THE 1960S, DURING THE STONE AGE of computers, researchers in the American defense establishment were pondering how a reliable, rugged and "manufacturer-independent" data network could be built up. In December 1969 four universities in the southwestern part of the United States were linked together in an initial experimental network. It was called Arpanet and constituted the foundation for what we today called the Internet.

The network emerged from the experimental stage in 1975, the year in which the TCP/IP

Links that make you a little wiser about the Internet

- Internetsociety. An organization that attempts to maintain control and coordinate the Internet.
- For links to the Internet: <http://www.yahoo.com/Computers/Internet/>
- For histories of the Internet and World Wide Web: <http://www.internetvalley.com/intval.html>

communications protocol was developed. This protocol is today the de facto standard throughout the world. The "Internet" term began to be used during the 1980s. The Internet was used almost exclusively in the university and research world. The universities were also the entities that built up and maintained networks. During the 1990s, when personal computers became available to more people, the Internet began to grow.

What enabled the Internet to emerge from the researchers' world and become Everyman's tool was the World Wide Web. That's the source of the three W's that pop up in all Internet contexts. The idea for the World Wide Web came from the CERN nuclear physics laboratory in Switzerland.

Prior to the Web era, you had to know the exact designation and search route of the file you wanted to access. The World Wide Web made this information easier to handle. A single click on a heading was enough to enable the system to set up the search route. A prototype for the World Wide Web was demonstrated in 1991 and the first large web reader was distributed in 1993.

With Mosaic, the Internet became simple. Not easier to understand, perhaps, but simple to use.

Internet operators turned to the home market in 1994. The Netscape company was started in the same year. This firm manufactures a simpler, more highly developed web reader that acts with fantastic speed to reach computers connected to networks that are linked to the Internet.

Unmanageably large

BECAUSE THE INTERNET IS GROWING SO RAPIDLY – the number of users is doubling every year at the present time – it is becoming increasingly difficult to survey.

It is not wrong to say that it lives its own life. No one has authority over the Internet. Everything is based on the fact that the different data networks agree on the IP protocol that is used when data packets are transmitted. The virtually unlimited access to information also makes it difficult to find precisely the information one is seeking. Some people say that attempting to extract usable information from the Internet is like trying to drink from a fire hose. "Surfing the Web" is a well-known term; it suggests that finding what you are looking for should be an easy and speedy matter. An unknown thinker says that instead of surfing the web on the electronic highways, it is more a matter of swimming against the current in an information sewer. Judge for yourself. ■

InternetTips
InternetTips
InternetTips



Bo Hedfors, head of Ericsson, the U.S.: <http://www.aftonbladet.se>
"Have read this page on my terminal in Dallas for many years. It's a fine, easy way to keep up to date on what is happening back home in Sweden."



Riad Daher, Ericsson's Manager in Lebanon. "Unfortunately not yet an Internet user. Don't not have access to equipment."

At Ericsson, the customer doesn't have to be

A JACK OF ALL TRADES



The work of bridging the gap between telecommunications technology and data communications technology currently accounts for a large part of Ericsson's program involving the Internet. The emphasis is still on the "hidden work" of improving accessibility in existing networks. Over time, however, Ericsson will have to move upward in the value chain, from the development of network solutions to attractive user services.

BY LENA WIDEGREN

MOST PEOPLE ARE CONVINCED THAT THE Internet will restructure the entire society, bringing with it new patterns of human behavior. Already today an estimated hundred million personal computers are linked to the Internet. And this is probably only the beginning. The smoother the path to the network becomes, the easier it becomes to use the Web, and the more groups of people who discover the benefits of the Internet, the greater will be the demand for accessibility in networks.

"This trend represents great opportunities for companies that, like Ericsson, offer products and systems that support the Internet and intranets," says Claes Rickeby, who works in the company's business development sector. "We have good prospects to be one of the major players in this field. There are many signs that Ericsson has both the will and the knowledge, and many individuals have already demonstrated the self-confidence required to establish a position for us in this area. We have developed a large number of products in a short period and we have many new ones to introduce on the market next year. We should be proud of this."

The attempt to bridge the gap between telecommunications technology and data communications technology is a central part of Ericsson's activity involving the Internet and is being carried out on three levels. It is a matter of reducing the gap between telecommunications and data, of

"shifting" services from a telecommunications environment to an Internet environment, and of creating applications for use of the Internet.

IF YOU DIVIDE THE INTERNET'S INFRASTRUCTURE into different layers, there are three distinct areas. There is the fundamental carrier layer that creates the connectivity, the glamorous user layer (the World Wide Web) and the important middle layer containing the products that make it possible to apply services via the Internet. This is where Ericsson should be able to do a great deal.

Ericsson's product portfolio already contains a broad range of products, systems and services. The portfolio will be expanded substantially next year. These products and services support network operators and Internet operators when they want to develop their offering and their service to private and corporate subscribers. A striking example of this occurs in the ATM (Asynchronous Transfer Mode) area. ATM is a technology for the transmission of packets of data. Ericsson has been working in this area for several years to

develop an ATM selector adapted to the special requirements of telecom operators in terms of reliability and upgradeability. The portfolio also involves all the necessary "building blocks" for the network structure that is required for IP traffic: from customer-support services to transport network products.

Another example occurs in the Frame Relay area, which is a technology for packet data transmission. Ericsson's sales of this technology already amount to hundreds of millions of kronor per year.

ONE AREA IN WHICH ERICSSON IS A STEP AHEAD OF its competitors is WDM (Wavelength Division Multiplexing) technology. Ericsson's solution, "Erion," can be used to upgrade the high-speed capacity of existing fiber networks and thus increase accessibility in networks. WDM offers many benefits for customers; these include cost-savings, since new and modern network structures that as yet have not been standardized can be created.

"Joint ventures with other companies are another important part of our strategy," Claes Rickeby says. "This is an effective way of bringing new expertise into the company. It is also essential in order to be able to keep pace with, or preferably be a step ahead of, our competitors. With the industry the way it is today, there is not the slightest possibility of being able to do everything ourselves. We don't have the time.

"Instead, we have to step up the pace in all parts of our operations. Being the best no longer offers security. Being first in the field is by far the most important factor. It's necessary in order to ensure our position with the 50-percent market shares that are required for profitability in the new segments."

ERICSSON HAS TO BECOME MORE SKILLED IN GETTING new products out on the market early. In this area, we should have good prospects with data communications and broadband by being able to capitalize on the company's admittedly very strong position in radio. But established patterns and routines will have to be reexamined.

"In this area we have much to learn from the corporate culture in the data communications world, notably in the United States, and from the end-user expertise that has been accumulated in the Mobile Phones and Terminals Business Area," Claes Rickeby notes. "We can learn a great deal by developing joint ventures of this type."

Attractive user services can become part of Ericsson's program on the Internet

Ericsson is an attractive joint venture partner. Its global market presence is highly valuable. The company has a strong brand name. And its long experience with fixed-wire and mobile telecommunications represents sought-after expertise.

"We now have a number of vital joint ventures and partnerships with major companies in the industry," Claes Rickeby points out.

"Ericsson has many important corporation agreements in the infocom sector, with among others Bay Networks and Cisco, which supply Ericsson with routers (Internet exchanges), access servers and LAN products. ACC has developed a software stack for routers that are included in the "total solution" products that Ericsson delivers. ACC also produces access servers. GDC is working with Ericsson in the fields of access products and ATM selectors. In addition, Kentrox makes ATM multiplexers that are included in some of Ericsson's systems. We have elected to become a joint owner of Juniper Networks as a way of obtaining a more effective exchange of technologies during the development phase of new products.

Cooperation with leading American data communications companies is a necessity. Such cooperation is being created through a presence in Sil-

icon Valley, but this is not enough. Ericsson is preparing a further expansion of its operations in the United States. The "design hotels"—so-called Cyberlabs—that Ericsson has built in Menlo Park in California and on Broad Street in New York City are additional examples of cooperation.

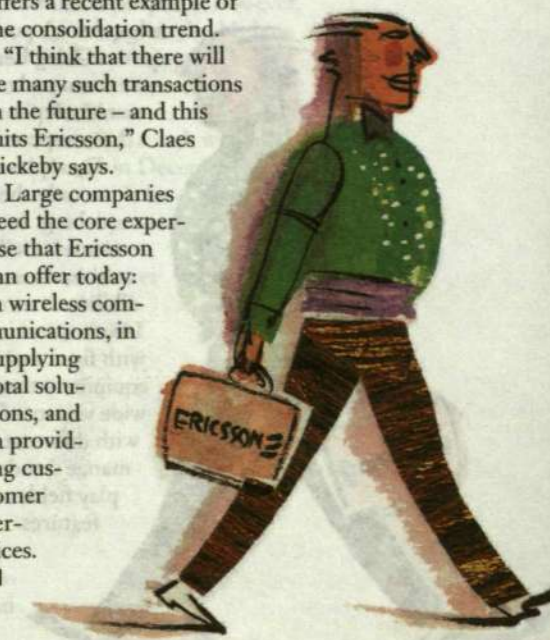
Anyone who wants to participate in the development of the Internet market has to be familiar with the behavior patterns and needs of end-users. This is the customer group that is controlling the development and growth of the Internet. Accordingly, Ericsson must gradually begin to develop attractive user services. Many laboratory projects within the organization today are based exclusively on recognizing trends.

"ERICSSON IS COOPERATING WITH MARIMBA, OZ and Moonfire, all of which are companies that represent state-of-the-art Internet technology—applications and modern Web handling," Claes Rickeby points out. "This cooperation has yielded exciting results so far and is expanding Ericsson's knowledge of the areas of use and potentials in the Internet."

At the present time, however, network operators and Internet operators (Internet Service Providers, ISP) constitute Ericsson's most distinct target group. The trend up to now has been for many small operators to fight for space in the infocom market. Now, however, the number of players in this area seems to be decreasing. This is taking place through consolidations that are creating larger operators, a trend that is extremely favorable to Ericsson. Ameritech, the Bell company in the U.S. that recently acquired a 40-percent interest in TeleDanmark, offers a recent example of the consolidation trend.

"I think that there will be many such transactions in the future—and this suits Ericsson," Claes Rickeby says.

Large companies need the core expertise that Ericsson can offer today: in wireless communications, in supplying total solutions, and in providing customer services. ■



InternetTips
InternetTips
InternetTips



Max Jacobson works at WISE—Web & Internet Services, Ericsson Data, Sweden. <http://mail.yahoo.com>. "One of the world's best-known Internet sites. Yahoo! now also offers and maintains free e-mail addresses. <http://hotelbar.norweb.se> is a guide to Stockholm's hotel bars. Neat tips on how to spend a "different" evening in town."



Per Scherman works with data processing for radar applications in the Ground Systems Division at Ericsson Microwave Systems, Sweden. www.reab.com/weather.html. Displays weather maps, among other things. "If the weather appears to be unsettled, I check to see how I should dress when I bike to the job. If I am going sailing, I check to see if a thunderstorm is in progress."

Telephones for all lifestyles

BY PER STEIN

INSTEAD OF DISCUSSING MOBILE TELEPHONES and the Internet, we should really be talking about mobile telephones and our need to access the intranet. People who travel extensively on business have the greatest need today for wireless data communications. They need to access information systems at their home offices at various times in different situations, from trains, hotels and other sites. Calls to computers by modem represent the most common means of access for people working in remote areas. Computers can also be accessed over mobile telephones today, but the waiting time can be quite long. It may take more than a minute to establish the connection, which is a long time for people who only want to check their e-mail. The situation will improve, however, with the introduction of new packet switch networks that will allow users to remain logged-on all day, at no extra cost.

The main problem for mobile data lies in providing the wireless, narrow-band link with the same quality and short reply times that characterize fixed networks and their very high data transmission speeds. Ericsson is trying to solve the problem by applying various new techniques, including a new software program called Ericsson Virtual Office (EVO), which provides users working in Microsoft Exchange environments with optimal quality during wireless communications with their company server.

The average user, according to studies conducted by Ericsson, has more than one telephone. Sales personnel, for example, will not accept any form of compromise during working hours; they bring everything with them, including a notebook and similar equipment. In the evening, however, a simpler solution is acceptable, provided it meets pocket dimensions.

Ericsson has solutions for most requirements. Sales personnel can connect their portable computers and telephones to Ericsson's DC23 modem, for example, which provides functions for reliable and fast file transfers as well as particular suitability for processing sensitive information. If they do not wish to connect a separate modem to their computers or telephones, they can use GS18, a telephone with a built-in modem. GC25 is another alternative, a modem with a complete, built-in mobile telephone that can be inserted into the salesperson's portable computer. Using headsets, users can make conventional telephone calls via the computer software.

Examples cited above are only the tip of the iceberg. In the near future, it will be well within the realm of possibility to access the Internet and intranet with fixed and wireless equipment through a wide variety of products with different performance standards, display fields and other features. ■



Mobile telephony today is making the conversion from voice to data communications, an area in which the Internet plays a vital role. Mobile networks of the future, for example, often called third-generation mobile telephony with multimedia, will operate as pure data-com systems that will transmit all information as packet data through small unoccupied packets in the system, rather than a circuit switched channel held open throughout the entire call.

Mobile telephony and compatibility with the Internet

BY LARS CEDERQUIST

"THE INTERNET REVOLUTION" DOMINATES a large part of development today, but strong emphasis is still focused on unglamorous, behind-the-scenes efforts to improve accessibility in existing networks.

Direct access to the Internet from mobile telephones is one such method. Until now, signal have been transmitted from the mobile network via an InterWorking Unit (IWO) that translates the transmission by modem to the fixed network, and sends the signal further via a modem pool to the Internet. To replace IWO, Ericsson is developing its own solution based on an access server that will transmit the digital signal directly from a GSM network, for example, to the Internet. The main difference for users will be faster access times.

Another area of carrier services in mobile networks today is focused on faster transmission speeds by using more time slots for channels in TDMA systems, so-called multislots, a development that will be ready for installation in GSM networks next year.

Mobile data standards customized specifically with the Internet in strong focus are now also being developed for existing digital mobile systems. Cellular Digital Packet Data (CDPD) is already available for the American D-AMPS standard, and General Packet Radio Services (GPRS) is a packet standard now under development for GSM. The standard is expected to be ready for commercial applications in 1999. PPDC standards are also under development for the Japanese PDC system.

THE GREATEST PROGRESS TO DATE HAS BEEN MADE WITH CDPD in the U.S., which is marketed today by American operators as a Wireless Internet. AT&T recently launched a new service called PocketNet, which requires new telephones. Although Ericsson has not developed a finished product, there are models available that allow users to pick up and scroll through sim-

ple web pages in the display using the arrow keys. (An Organizer with a larger display and CDPD modem can also be used.) Users who subscribe to AT&T receive personal web pages with access to almanac information, telephone books and bookmarks. The transmission speed for CDPD is 19.2 kbps, both to and from the telephone, but the speed is more than adequate since the PocketNet deletes all graphic art and color. CDPD is also used in a wide variety of other applications, particularly in vertical services such as credit card processing and supervision of equipment.

Ericsson was one of the first companies to enter a forum for development of CDPD specifications, and now offers an integrated solution for its own D-AMPS system. Operators already equipped with Ericsson's system can install their Wireless Internet quickly at relatively low costs, since the radio network is the same. The exchange network, in turn, is complemented by new nodes optimized for IP-routing. Development work on further improvements in CDPD is now in progress and, within the next few years, Ericsson will offer transmission speeds up to 50 kbps, and even faster in the years beyond.

WHEN THE GPRS PACKET DATA STANDARD FOR GSM is complete (first phase is scheduled for completion in December 1997), it will precipitate revolutionary change in the GSM world. GPRS will offer high-speed data transmissions up to 115 kbps, and even higher speeds when the new EDGE modularization method makes its breakthrough, thereby facilitating transmissions of motion pictures and multimedia. GPRS will create opportunities for a broad range of services, not only Internet applications, but also vertical services similar to CDPD capabilities and, eventually, point to multipoint services provided today by private radio networks for taxi dispatch services, for example.

GPRS will require upgrades of software used in mobile switching centers and base stations, as well as two new nodes for IP-routing to process incoming traffic through the mobile and public data networks.



New GSM telephones will also be needed. Ericsson is concentrating now on development of the new IP-nodes and terminals, in parallel with concerted efforts to update existing nodes, with plans to introduce GPRS in a new GSM release scheduled for 1999.

ERICSSON ALSO TOOK THE INITIATIVE FOR AN OPEN PROTOCOL to support today's (and tomorrow's) mobile telephone standards, providing the mobile telephone, with its small display and low transmission speed, Internet services in addition to creating opportunities for new telephone services. (In the past, users had to connect their telephones to a powerful laptop or PDA to access the Internet.) Called WAP, or Wireless Application Protocol, the new solution is described as a direct link between the Internet and a mobile system with WAP applications written in WML (WAP Mark-up Language), which was developed from HTML.

Ericsson, Nokia and Unwired Planet, the latter an American that developed the technique used in PocketNet, worked individually to develop their own solutions until last spring, when the three companies and Motorola joined forces to develop a new standard, the first of version of which will be completed toward year-end 1997. ■



Internet news for fixed networks

BY LOTTA MUTH

Home internet Solution is a self-explanatory access product that combines telephone and data on the same line, simultaneously. No modems or new hardware are required. The only product end-users have to buy is a network terminal to connect with the telephone network.

In simplified terms, the Home internet Solution has two parts: a telephone and a computer, both of which function independently. An access server placed ahead of the network circuit board detours data traffic to a separate channel, thereby dividing telephone traffic from data transmissions, sending them in different directions. Telephone traffic is processed through the telephone network, and data traffic uses a digital packet-transmission network with separate routes from the beginning of the solution. One concrete result is better Internet quality and higher transmission speeds. Maximum speed of the system's computer part is 115 kbit/s, four times faster than today's modems. Connection time is a maximum of 10 seconds, about the same time needed to log on with a conventional PC.

One of the unique features of Home internet Solution is the on-line computer connection, whereby users are constantly logged on, as opposed to limited-time modem connections. It's like a tube open on both ends, a function that paves the way for open two-way communications and enables the Internet to approach the user-friendly qualities of telephony.

Home internet Solution is based on copper wire, a feature that provides traditional operators, many of which have large copper networks, with a competitive edge.

"It affords them opportunities to make easy money quickly by utilizing their copper networks right down to the end-customer. It also enables them to project a different image in comparison with new operators, since traditional operators will be the primary providers with capabilities needed to offer Home internet Solution services," explains Stefan Sjöberg, marketing manager for the new product, which belongs to the Public Networks unit of Infocom Systems.

Other advantages of the solution from an operator's viewpoint include the generic nature of Home internet Solution, and its inherent independence on switching systems, as well as its broad coverage range - up to 10 kilometers - and reduced load impact on telephone networks.

Home internet Solution was developed to meet the needs of today's data networks and protocol.

"We wanted a product that would quickly solve Internet application problems in private homes, in networks and in services offered by operators. We cannot expect our customers to wait for networks of the future; they need a solution that can be implemented now in all fixed access networks," Stefan Sjöberg says.

"There is very little direct competition for this type of solution. The computer industry has virtually no similar solutions, mainly because it lacks Ericsson's command of telecommunications. Telephony is what generates telecom operator revenues, not the Internet, and that's why I believe Ericsson has very strong potential for success in this area," he continues.

Home internet Solutions has four primary application areas.

The first is conventional Internet surfing, with home telephones available for incoming and outgoing calls, as in the past. The second area is focused on remote work operations. The on-line function in parallel with telephony increases the efficiency of people working out of their homes. They can also connect to employer networks, working as efficiently as if they were in the office, without any loss of accessibility or speed. Remote educational training is the focal point of Home internet Solution's third application, an area particularly well-suited for advanced studies in the form of adult education pursuits, for example, or language courses. Home internet Solution's fourth application area is Remote Control, which makes it possible to supervise various operations from remote control areas, whether it be a paper mill manufacturing process or an AXE exchange system.

Home internet Solution was developed in New Zealand. For organizational purposes, however, it belongs to the Multi-Service Access product unit of Public Networks. Commercial launch will begin in December, with finished products for sale on the market in March 1998. ■



InternetTips
InternetTips
InternetTips



Birgitta Hiller, company nurse, Ericsson Telecom, Sweden:
"http://www.lonelyplanet.com
For travel information. Details about various cities/countries.
May be used for business purposes and privately."



Helena Lindblad, Ericsson Radio Systems, Sweden: <http://www.magnus.se>
"Magazine Magnus is my favorite web site. It has a little bit of everything, interesting, light news from around the world, quotations and stories."

IP Telephony – threat or opportunity?

Will the breakthrough of IP Telephony spell the definitive collapse of what we know as traditional telecom? Will public switching systems like AXE, or business exchange systems like MD110, become telecom dinosaurs relegated to graveyards and forgotten forever? If so, how will Ericsson cope with such new development? By going with the flow, naturally!

BY KARI MALMSTRÖM

Nobody really subscribes to the notion of a sudden demise for all existing telecom equipment, but IP Telephony will probably dominate future telecom trends and growth. All of Ericsson's present customers will also probably be part of the Company's future customer base for IP Telephony, in addition to countless numbers of new customers. In what area does Ericsson have the capability to excel in competition with the entire computer industry if not telecommunications?

Ericsson has a natural understanding of voice transmission and its conditions. Reliability is a word of honor.

"We should look at IP Telephony as another variation of telecom, Ericsson's key area of competence," says Staffan Lindholm, manager of the Internet program of the Infocom Systems business area's Public Networks unit. "Our task is to supply effective telephony solutions, regardless of whether they are based on traditional or new technologies."

IP Telephony is a new sector that attracts new inventors. Concepts are emerging and reaching fruition in all parts of Ericsson's vast organization, as exemplified by LANPhone, developed by Ericsson in cooperation with Telecom Finland, a Finnish operator that offers IP telephone service to business customers. LANPhone is based on a gateway/gatekeeper concept that links telecom networks with business LAN. Telephony is managed by IP transports over the LAN – either directly via PCs or coordinated with mobile telephones for personal telephony.

Phone Doubler, a concept developed by Staffan Lindholm's Internet program, enables users to establish simultaneous Internet connections and telephony over one subscriber line. The anchor product in Phone Doubler is "Voice Gateway," a solution developed in-house for installation by Internet providers. Ericsson's "gateway" applies voice coding techniques used in the GSM standard, an area in which Ericsson's commands total expertise, for IP transmissions of voice communications.

The gateway has strong potential to become a golden egg in Ericsson's product portfolio. With only marginal modifications, it can be used for several new applications. It serves as the link between companies and employees working from remote sites in Phone Doubler at Work, placed in the company's LAN.

It is also a fundamental component in Scanmac, a new product family that comprises two strong elements.

Scanmac Carrier was developed for remote applications, while Scanmac 800 was designed as the contact point between a company's web site and Call Center (telephone-based customer service). The same gateway is included in Multimedia Telephony System, which offers multimedia applications and high-quality video as well as IP Telephony, all in compliance with ITU Standard H.323. One of the system's key components is a gatekeeper developed by Ericsson in Norway. Multimedia Telephony System is part of the Public Intranet service platform, which is managed by Datacom Networks and IP Services business unit.

The system is a generic solution that can be used in combination with all IP networks. Customer target groups include Internet Service Providers that want to make more money from their networks by offering new services with high security and reliability standards, says Lars Lundgren, business strategy manager for the unit's range of IP service products.

Enterprise Networks maintains close contact with tens of thousands of business customers. For the time being, demand for IP Telephony remains moderate at best.

"We will be prepared, however, to help our customers as soon as demand starts to accelerate. We are investing now in development of an IP exchange for smaller companies, and we have the capability to adapt present systems to new demands," says Göran Ahlform, head of the business unit's research and development staff.

"Step One could involve connections of business exchange systems with the help of IP, followed by pure IP facilities to connect satellite offices," says Per Blomquist, manager of the business unit's Internet program focused on MD110. Blomquist believes a large percentage of all MD110s will be based on IP Telephony by the year 2005.

Even in comparison with the giants of today's computer industry, Ericsson is a name to be reckoned with in the future of IP Telephony.

Link tips:
<http://pn.ericsson.se/internet>
<http://bn.dnip.ericsson.se>



Phone Doubler has strong potential to become a golden egg in Ericsson's product portfolio. Photo: GREAT SHOTS

Two tracks – the same solution

IP Telephony is divided roughly into two main tracks, or product lines: gateway products and user programs. New IP terminals may eventually become another interesting line.

Gateway products comprise infrastructure and network solutions. A gateway is defined as a server that allows IP networks and telecom networks to talk with each other. Gatekeepers comprise another network product, described best as an intelligent node. The gateway manages addressing, numbering and accounting, among other functions. IP Telephony networks for long-distance applications are based on local gateways accessed by telephone at local call charges. The gateway repacks the call for IP and sends it through the Internet to the gateway closest to the number called, where it is repacked again to accommodate "conventional" telephony.

VocalTec, an Israeli company and a true pioneer in IP Telephony, has delivered the lion's share of all gateways now installed throughout the world. The company supplied equipment used in Deutsche Telekom's pilot program that offers about 1,000 selected customers global IP Telephony. In parallel with the contract, Deutsche Telekom acquired a 20-percent interest in VocalTec.

From evolution to revolution...

After 120 years of evolution, classic voice transmission is now in the throes of revolution. Voice transmissions via IP has become a possible heir to circuit-switching telephony as we know it today. But questions surround such issues as quality and reliability. Will IP be able to meet the requirements of real-time communications? The answer, by all accounts, is yes, given a little more time to mature.

Estimates by telecom industry pundits forecast annual sales of IP Telephony equipment in the range of USD 2 billion by the year 2000. Compared with projected sales of USD 85 billion for traditional telecom products, threats posed by IP Telephony may not appear particularly dramatic, but the scales of balance still favor the telecom world – for the time being. Approximately 700 million telephone lines are installed in all parts of the world today, with an estimated 50 million personal computers connected to the Internet.

One of the main attractions of IP Telephony, however, is that it does not lock subscribers into their computers. Telephone to telephone services can already be created. Addressing IP protocol is the basic requirement for IP Telephony, whereby IP addressing is associated with telephone numbers, for example.

The Internet has still not reached a stage of maturity that allows it transport large amounts of voice with acceptable quality, but it will – sooner or later.

Voice quality is the major obstacle, a stumbling block focused mainly on gaining

control of time delays. Engineers are expected to make significant improvements in voice quality within the next year or two.

Many observers believe the technologies of IP Telephony offer optimal conditions for intranet applications, since control of intranet network capacity is much more efficient than the public Internet. New services, including multimedia applications, are expected to be a major factor behind future development. On the other hand, many companies are reluctant to serve as guinea pigs for new technology.

In parallel with maturity of new technologies, IP-based LAN will be used to a greater extent to process voice transmissions, due to the obvious advantages of a common infrastructure for all communications.

For public users, price is a major force behind new development trends. Long-distance international teletraffic is the first factor exposed to competition. Lower prices for IP Telephony make it easier for users to accept lower audio quality standards.

But the question arises, is the Internet "free" and will it always be free? It seems reasonable to assume that IP telephone calls may start with, or be interrupted by, commercial messages, or that prices will eventually find a form of parity. Several IP Telephony operators have already established telecom operations. Competition in the U.S. market is already a fact of life. And other pioneering projects focused on global operations are making major headway.

Since no standards have been established for IP Telephony, the products of different suppliers are not compatible with each other. In April 1997, however, ETSI, the European standardization authority, initiated a new project called Tiphon, with Ericsson assuming a major role in the initiative. The project is intended to create and establish standards for coordinated operation of IP networks with PSTN, ISDN and GSM.

Standards in the pipeline

The affiliation of other telecom industry companies has been virtually 100 percent. Although the initiative was started in Europe, the U.S. is also strongly represented. All major companies have joined the endeavor, and Microsoft became a member of ETSI for the express purpose of taking part in the standardization process.

In phase one, Tiphon will establish standards for IP Telephony from computer to telephone, followed by standards from telephone to computer in phase two and telephone to telephone with IP networks as the transport medium in phase three. We assume Standard H.323 adopted by the ITU (International Telecommunications Union) and standardized profiles will supplement Tiphon standards.

TiphonNet, a global test network, is now under construction between several companies affiliated with Project Tiphon. The test network represents a new approach that reflects the importance of IP Telephony to the entire telecom industry. Ericsson's Point of Presence in the network is situated in Älvsjö. The gateway, naturally, was supplied by Ericsson – the first gateway in TiphonNet not supplied by VocalTec.

The first phase of Project Tiphon is expected to be finished early in 1998, with phases two and three scheduled for completion at mid-year and year-end 1998, respectively.

Link tips:
<http://www.ip.ericsson.se>: information on the global laboratory of Ericsson Radio Systems for applied research, which includes IP Telephony activities.
<http://www.pulver.com>: information on Jeff Pulver, who took the initiative in establishing Free World Dialup II, founded the Internet-based consultants Pulver.com, and created Voice on the Net (VON).

The core component in Phone Doubler is a Voice Gateway which is installed, for example, at an Internet operator. This solution was developed by Johan Svedberg, Jan Berglund and others at the Internet program within Public Networks.

Photo: GUNNAR ASK

InternetTips
InternetTips
InternetTips



Anders Igel, Executive Vice President, Infocom Systems.
<http://www.sebank.se>
"The bank service page of Sesam is my favorite web site on the Internet."



Christer Elmquist, Ericsson Toshiba Telecommunication Systems K.K., Japan.
<http://www.erj.ericsson.se/inside/operation/erjvt/system.html>
"The web site has valuable information about Ericsson operations, and is updated regularly. The home page is an excellent tool I use often in my work."

Electronic trading via the Internet is a giant market for information technology (IT) companies in particular. The expectations with respect to bringing merchandise and persons together in this way are substantial. But changes in legislation as well as standardized methods of payment are required if this type of trading is to accelerate. A number of projects for the transfer of funds over mobile and fixed-wire networks are under way within Ericsson.

Questions surrounding electronic trading

BY NILS SUNDRÖM

MUCH OF THE ELECTRONIC TRADING TO date has consisted of mail order business on the network. Companies in industries throughout the world are keeping their "virtual stores" open around the clock, while invoicing and payments are being handled in the traditional manner. Now, however, increasingly advanced systems are being used for the electronic transfer of both orders and payments – as well as the electronic delivery of services and software.

Ericsson currently has a number of development projects related to electronic trading under way throughout the world. The core unit for Research within business area Mobile Systems is working on the Wireless Wallet project, involving use of a mobile telephone as a wallet. From a purely technical standpoint, electronic funds can be "stored" directly in the SIM card of a GSM telephone, or in a built-in card reader or via an external terminal, using a card reader.

"Imagine that you have your own ATM (Automatic Teller Machine) in your mobile telephone, providing access to your money for payments in a restaurant or for making transfers," says Project Manager Hans Beckman, who is working closely with both banks and telecom operators on this research project.

The new IP-based Public Intranet service platform – developed by the Datacom Networks and IP-services business unit within Infocom Systems – is another commercial concept. With this technology, small companies can share an intranet – which is provided by an operator – in a cost-

effective manner. The companies use the same physical network and the same servers, but an Ericsson system based on "smart card" technology and electronic certificates makes it possible for companies to have complete security.

"The security technology also makes it possible for us to deliver applications for electronic trading," says Lars Lundgren, who is responsible for business development of the product line. "This is one of the areas we will concentrate on in 1998."

Estimates of the actual size of the market for electronic trading vary from one report to another. The one thing that all players agree on is that the market is growing – and that it can grow very rapidly. Above all, it involves trading between companies, so-called business-to-business transactions.

COMPANIES HAVE LONG CONDUCTED BUSINESS USING such standardized electronic tools as the Electronic Data Interchange (EDI). Now, new solutions are being developed. In 1998, for example, Microsoft and First Data are jointly introducing a service that enables companies to distribute invoices efficiently, and receive payments from customers, via the Internet.

IBM, the computer giant, estimates that electronic trading of hardware, software and services will amount to USD 380 billion in the year 2000. For its part, Morgan Stanley, the investment bank, estimates that approximately five percent of all retail trading – and eleven percent of business-to-business trading will take place via the Internet within five to eight years.

Not everything can be sold profitably on the

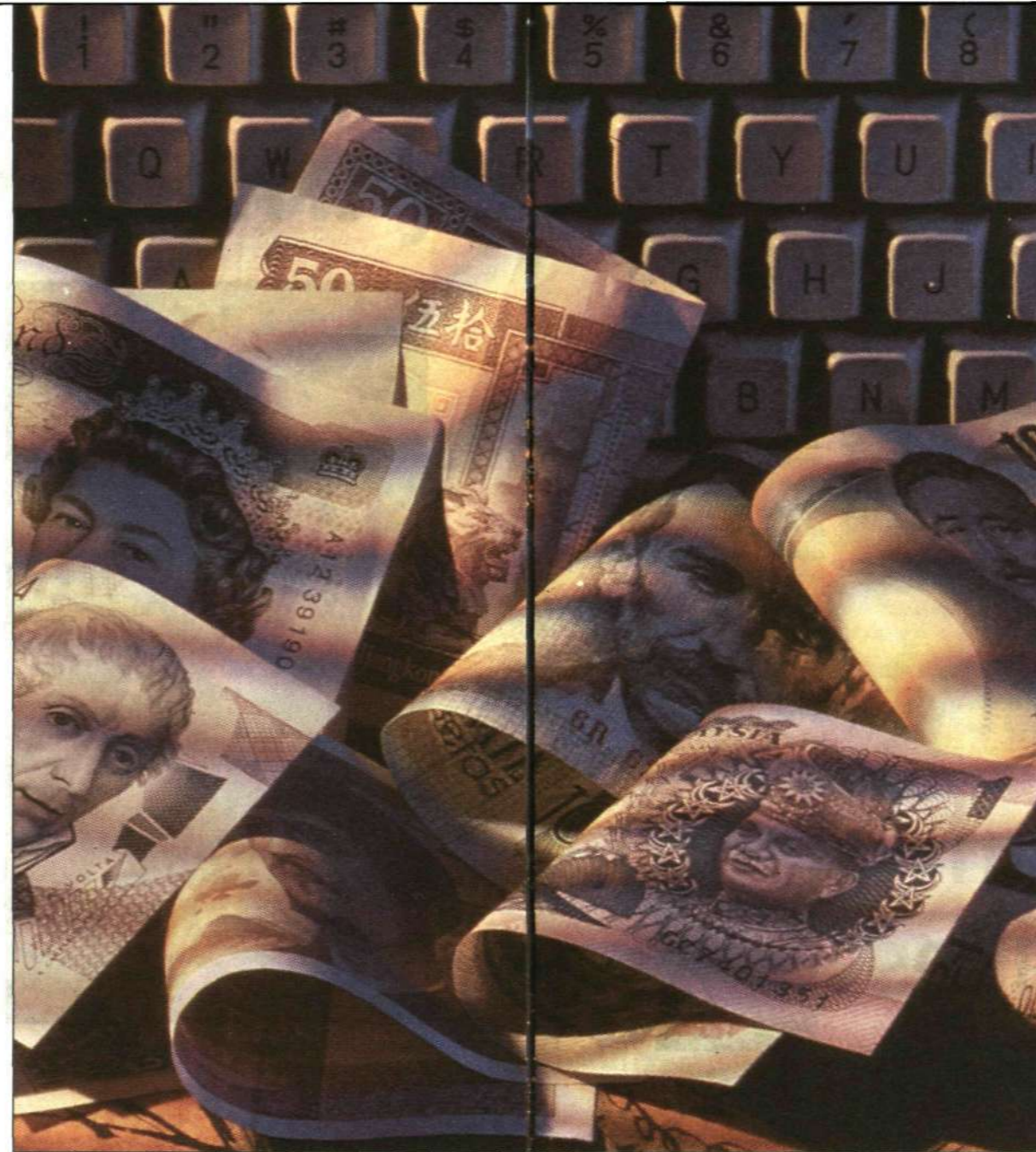


Photo: JOHN W. BANAGAN/IMAGE BANK

network, however. The companies that are successful today are mainly book dealers, travel agencies, firms offering financial services, and sellers of cars, computer products, music and video films.

IF TRADING IS TO REALLY ACCELERATE, A NUMBER OF legal questions have to be settled between countries. This applies, for example, to sales taxes and the matter of where a trade actually takes place. But the key issue pertains to security.

"Systems must be able to establish who is 'talking about' a business transaction, that funds for the transaction are available, and that the goods that have been paid for are delivered as they should be," says Jan Snygg, who is coordinating Ericsson's product portfolio within such strategically important new areas as electronic trading.

The market today is fragmented. There are many different systems for electronic payments in various countries. For example, electronic payments can be made directly in stores, on buses, by telephone or via data networks. The systems are based on charge cards, on many different types of smart cards, and on Digidash, Cybercash or other electronic funds.

"The technical systems must be harmonized," Jan Snygg emphasizes. "The players who control this market come from many different environments. If the market is to become mature, there

must be agreement on common standards and concepts. That is why, today, we cannot say how large our business potential will be. Our objective is to produce a 'white paper' covering Ericsson's view of the overall situation during the spring of 1998."

MICROSOFT, VISA, MASTERCARD, NETSCAPE AND IBM are a few of the companies that have agreed to back SET (Secure Electronic Transactions), a standard for the secure transfer of charge-card transactions over the Internet. Ericsson is participating in this venture and is developing payment routines as part of the W3C industrial consortium that is preparing standards for World Wide Web technology.

Ericsson is also a member of the new Global Mobile Commerce Forum, which was started on the initiative of companies in the "GSM world."

"The primary purpose is not standardization but the development and promotion of cooperation in the area of mobile electronic trading across industrial borders," says Märten Carlsson, in the business unit for GSM, NMT and TACS systems, who represents Ericsson in the Forum.

The Forum is an excellent place in which to make contacts and identify potential joint-venture partners for field tests and commercial projects.

New business methods in a new marketplace

BY NILS SUNDRÖM

DIRECT CONTACTS IN THE NETWORK have created a new, electronic marketplace. The trading involves a change in business logistics – with benefits for both suppliers and customers.

For customers, trading via the Internet and intranets means, above all, simplified administrative routines, short-cuts to suppliers and an increased flow of information internally and to customers and suppliers. For consumers, the new technology means, among other things, being able to compare the goods and prices of various companies in a simple manner.

A number of Ericsson units are offering their goods and services via Internet and intranet systems these days.

Claes Broström, Manager of Information Technology and Business Development in the Infocom Systems business area, is working on a

concept to use the electronic marketplace efficiently. It is applicable internally as well as to customers, partners and suppliers.

"Web-based systems are highly suitable for small amounts of information being distributed to a large target group," Claes Broström says. "But we will also use other channels, such as EDI and 'Public Intranet' systems."

He points out that new work methods are required in order to handle all electronic information efficiently. When this occurs, the potential for savings will be substantial.

"With new ways of working, it should be possible to reduce sales costs by between 30 and 50 percent by the year 2000. We expect to be able to reduce the administrative costs in dealing with subcontractors by half," Claes Broström declares.

"Internally, we should be able to save the equivalent of 10 to 20 percent of the volume of our consumable goods as a result of favorable price agreements and reduced administration."

Advantages for both customers and suppliers

BY LARS BÄCK

Log in on the Internet. Type "http://electronicscatalogue.ericsson.se"

Fill in the electronic order form. The integrated circuit that was ordered arrives the next day. That's how easy it is for Leif Karlsson, at ICL Sorbus in Växjö, to procure components from Ericsson Electronic Distribution in Bredden, in Upplands Väsby.

"Sometimes I have to look in the catalog to check the article number," says Leif, who is a buyer at ICL Sorbus.

He now places orders via the Internet for the components needed by the ICL Repair Center for the service it performs for a number of well-known companies such as AST, Canon, Dell, Hewlett-Packard, Sun and others.

Earlier, Leif placed his orders via fax or telephone.

"The articles I have ordered are here in Växjö the next day," he says. "I feel that purchasing via the network is a safe, efficient way to do business; besides, it saves paper."

"I order mainly transistors, capacitors and circuits, but sometimes some cables and cable ties as well."

Ericsson Electronic Distribution receives approximately 600 lines of orders per month via the Internet. The warehouse is close to the E4 highway, which facilitates rapid shipments by land or via the Arlanda Airport.

"We have both external as well as internal customers and have been cited in the trade press as a well-stocked and reliable supplier," says Lennart Stjernström, who is responsible for Ericsson's distribution of catalogs.

The internal customers include Ericsson Mobile Communications in Lund.

"But production units within Ericsson also place orders when external deliveries of a 'volume product' are delayed," Lennart Stjernström notes.

► The catalog is available in Swedish: <http://elektronkatalogen.ericsson.se>

For more information on electronic trading:

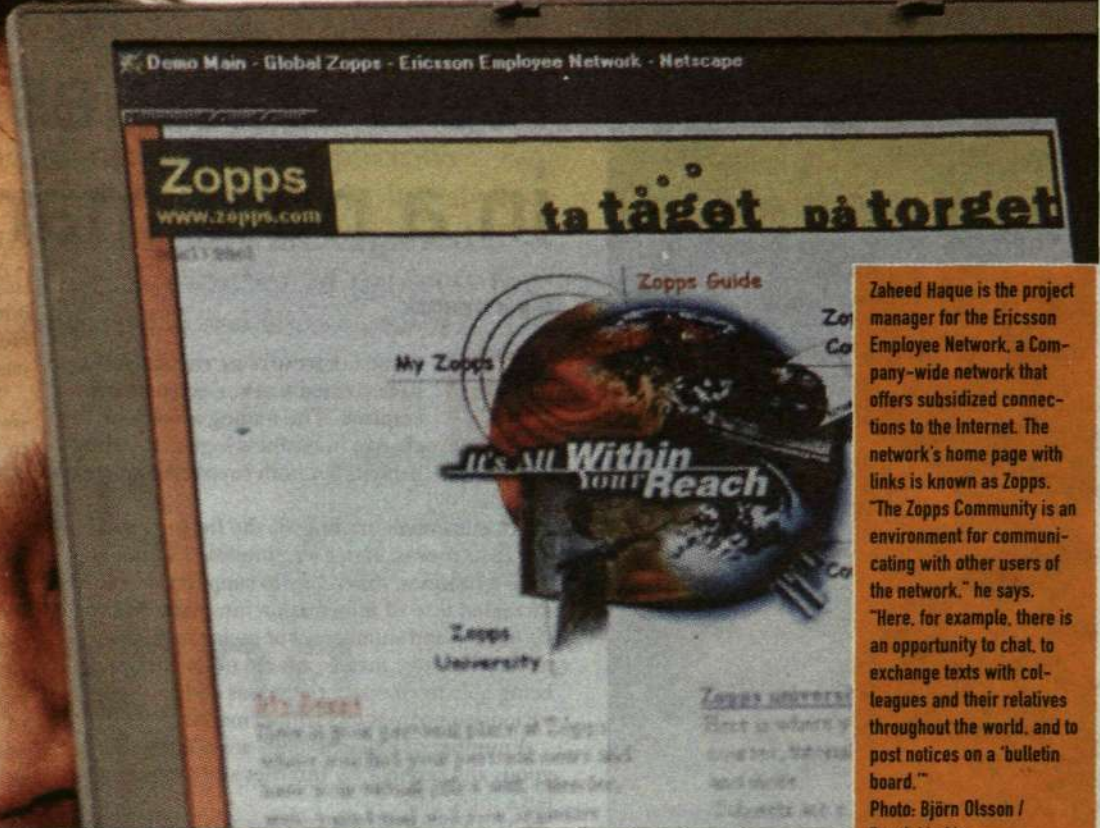
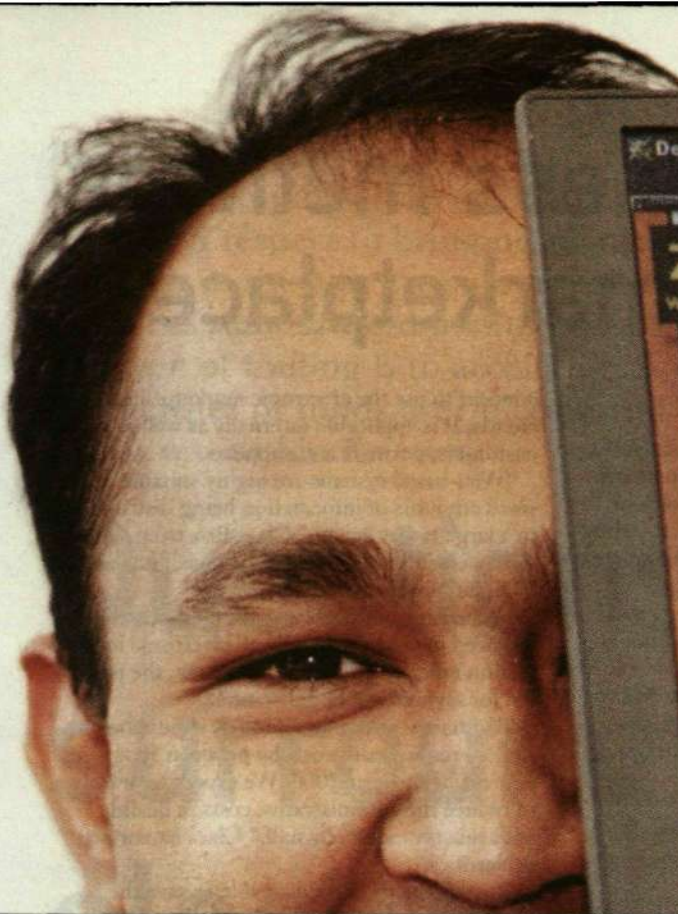
- <http://public.logica.com/~mcommerce/global.htm> (Global Mobile Commerce Forum)
- <http://www.w3.org/Payments/> (W3C industrial consortium for development of trading on the WWW)
- <http://www.commerce.net/> (CommerceNet industrial consortium on the electronic marketplace)
- <http://paywatch.sisu.se> (Newspaper publishers' home page dealing with payment systems on the Internet. In Swedish. Membership required.)



Fred Skogli, responsible for Internet applications in the Public Networks business unit, Ericsson Telecom, Sweden. <http://www.webproforum.com> "To keep informed on competitors products used in telecommunications and Internet systems."



Conni Simonsen, Manager, Ericsson Lithuania. <http://nytt.ericsson.se> "I'm not a diligent network surfer but I usually begin the day by checking the News page for an update on the latest developments. Ericsson's employees in Lithuania use the network 95 percent of the time to obtain technical information of various types, mainly within Ericsson."



Zaheed Haque is the project manager for the Ericsson Employee Network, a Company-wide network that offers subsidized connections to the Internet. The network's home page with links is known as Zopps. "The Zopps Community is an environment for communicating with other users of the network," he says. "Here, for example, there is an opportunity to chat, to exchange texts with colleagues and their relatives throughout the world, and to post notices on a 'bulletin board.'" Photo: Björn Olsson / Patrik Lindén.



"We chose the name Zopps because we can use it everywhere — it's neither typically European nor typically American," explains Åsa Eriksson, who is responsible for the contents of Zopps, Ericsson Employee Network's start page.

Zopps focuses sights on the Ericsson families

BY NICLAS HENNINGSSON

With the Ericsson Employee Network, employees and their families are being offered subsidized Internet connections from their homes. The path to the Internet is via "Zopps", a clever guide and "signpost" showing the entire family the way to the Internet.

Ericsson Employee Network is increasing the employees' knowledge of the Internet and the multimedia world, while the Company is gaining a unique opportunity to test Internet products before they are introduced on the market.

In its statement of "Position wanted in the year 2000," it is firmly declared that Ericsson should be characterized by a corporate culture that promotes life-long learning on the part of its employees. During his or her time with the company each employee should be offered abundant opportunities for continuing training and personal development. Ericsson should also be among the leaders where the use of information technology (IT) in daily work is concerned.

The establishment of the Ericsson Employee Network, in which all employees throughout the world will be offered subsidized links to the Internet, is a step toward achieving the company's objectives. With this program, Ericsson is assuming the role of a supplier of Internet services, and there are many benefits, says Zaheed Haque, project manager.

"With the Ericsson Employee Network, we are learning more about the conditions facing suppliers of Internet services and we are increasing our

understanding of the actions of these important customers. The network is also providing our employees with knowledge of the Internet and multimedia at the same time that Ericsson gains an opportunity to test Internet products before they are introduced on the market."

Physically, the Ericsson Employee Network will consist of a network of so-called Internet Service Provider (ISP) sites. The objective is to have ten sites, located in different parts of the world, in operation before the end of 1998. The first two, in Spain and Australia, are virtually complete and the first employees in these countries will be able to be connected in January. And there is a great deal of interest; more than 600 employees in Spain have signed up for the service.

LOCAL COMPANIES THAT DO NOT WISH TO INVEST in their own ISP sites, will be able to offer their employees access to the network via one of the internet suppliers already in the market. Telia and Tele2 are readily available in Sweden and an employee who wants access to the network from various places throughout the world can be connected via the IBM Global Network or CompuServe, which have sites in most countries. It is up to each company to determine which solution is to be offered its employees, and how the connection to Ericsson Employee Network is to be financed.

When an employee logs on to the Ericsson Employee Network, he or she encounters the Zopps start page, a powerful tool that serves as the user's guide to the Internet. Zopps is a "family," with a mother, father and children. The concept is that each member of the employee's family should have a "companion" who knows what the user

prefers to do and read about on the network. Zopps will be available as a global site in English, as well as in local versions in the language of each country.

"Perhaps the greatest benefits of the Ericsson Employee Network and Zopps are that the network will increase the contacts between Ericsson employees and contribute to the development of a corporate culture," according to Åsa Eriksson, who is responsible for Zopps' content. "For example, the site can be used by employees to exchange services with each other. A person who is being assigned to work outside Sweden for a period can find someone with whom to exchange houses. And instead of sending children on a language course abroad, employees can use Zopps to offer to accept children of foreign colleagues in their own homes for a period."

Zopps Corner offers network-based games and an opportunity to test Ericsson's network products. Zoppsware includes programs that can be downloaded to the employee's computer.

"The basic concept with Zopps is to create an environment in which it will be exciting and fun to search the Internet," Zaheed Haque points out. "Employees will be stimulated to learn to use this tool by their own curiosity, and by their family's."

Web address:
<http://www.zopps.com>
<http://een.ericsson.se>

InternetTips
 InternetTips
 InternetTips



Diarmuid O'Colmain, head of Ericsson Ireland.
<http://inside.ericsson.se>
<http://www.ericsson.se>
 "Ericsson's internal and external web pages are my favorites. I find both sets highly valuable tools in my work."

'One face in cyberspace'

BY ANNETTE BODINGER

THE WEB IS ERICSSON'S FACE TO THE new market and it is important that its web pages project the same message and have a common profile, regardless of where in the world they are produced. The objective is to have "one face in cyberspace," as Ken Ryan and Jeremy Bennett put it. They are the ones jointly responsible for Ericsson's external and internal home pages.

Jeremy Bennett is responsible for content and coordination, while Ken Ryan concentrates on developing the infrastructure and technology. They work side by side, since content and structure go together. In addition to development of content and structure and coordination of the activity, one of their important tasks is to encourage and guide other Ericsson companies that are on their way into cyberspace.

"Ericsson has historically always been a pioneer in telecommunications technology," Jeremy Bennett notes. "To be credible in the future, the Company also has to be a pioneer on the Web.

"Our motto is 'One Face in Cyberspace,' which means that all Ericsson companies should display a common profile on their Web pages. But the local customers are responsible for customer relations; they know their markets and they know what their customers want to see on Ericsson's home pages. The Ericsson trademark and what it stands for is, of course, the basic element determining the manner in which the Company is presented on the Web."

An important message to all local companies that are about to develop their own Web pages is that they should not present themselves, but rather what the customer wants. Another message is that they should not assign too much responsibility to Web designers and suppliers.

"We would like to see local companies reassert control over their Web pages," Jeremy Bennett says. "A few years ago we did not have the necessary Web expertise within Ericsson. But today we have a great deal of internal knowledge about the Web, and it is both cheaper and easier to maintain a common company profile and update information if we do as much as possible within Ericsson."

Short downloading times have been assigned priority over elegant graphic design on Ericsson's Web pages. This is because the pages are adapted to the needs of a prospective user somewhere in the world. Fine networks are available in Scandinavia and the U.S. – but Ericsson is active in more than 130 countries. In most locations, users by no means have the same conditions in terms of rapid transmission speeds.

"Our greatest challenge is to ensure growth and user-friendliness," Ken Ryan says. "To accomplish this, we have created a virtual organization, with information providers throughout Ericsson. Growth on the Web is a team job. Working together, we can achieve our basic objective: continuous improvement."

▶ **Web addresses:**
<http://inside.ericsson.se>
<http://www.ericsson.se>

The goal is to have a site for each market

■ The design and layout of Web pages is the smallest problem when it comes to presenting product information on the network. It is much more important to spend time on structure and 'navigation.' Those are the views of Katarina Granstedt, project manager for the Ericsson Mobile Communications Internet program.

Katarina Granstedt has worked on the Internet program of the Mobile Phones and Terminals business area since February. A great deal of information from many parts of the world has to be coordinated and organized. The solution is called "decentralization."

"Today we have information providers in Stockholm and Lund in Sweden, as well as in North Carolina in the United States. Their job is to store and maintain product information in the data base that is linked to the global Web site.

"The objective is to have Web sites for all local markets in the business area. Guidelines are available, but the local companies have substantial freedom to apply concepts that are adapted to their particular customers. The most important thing is to project "Ericsson," and to ensure that all within the business area have a way to navigate in the network – that is to say, to use the same set-up to pilot users around the links.

Katarina Granstedt thinks that more and more will happen on the Web as the technology improves.

"Early next year," she says, "we are starting up the Ericsson Partner Network, which focuses on our retailers. Other target groups that may need special information on Ericsson include journalists, as one example."

▶ **Web address:** <http://www-rmot.ericsson.se>

The Web as a marketplace

■ We have used the Web to put Ericsson on the map in the Netherlands," says Tom Paffen, who is responsible for business development at Ericsson in that country. "Among many other things, we use it to present our products and to fill positions."

The Dutch company has a well-filled and well-conceived local Web page. Here one can find information on just about everything worth knowing about the Company in general and about Ericsson in the Netherlands.

– On the Web page one can also find links to other

attractive sites throughout the world. Direct transmissions from trade fairs and special events are sometimes offered. There is also Telexicon, a reference work containing explanations of difficult words and abbreviations used in the telecommunications industry.

And Tom Paffen assures us that we have seen only a fraction of all that the network will be used for in the future.

▶ **Web address:**
<http://www-etm.ericsson.se/ETM/>



Ericsson's three shared values – professionalism, respect and perseverance – should permeate all company activities, including those in cyberspace.



Ericsson's Web pages are available in nine different languages in 15 countries – and more versions are on the way. One objective is for all Ericsson units to be represented on the net; another is to cover the major language areas throughout the world.



Information today is being adapted to the "average" user. In the future different target groups will have more choices and will have access to exclusive Ericsson information that meets their specific objectives.



Ericsson's Web in the Netherlands is performing more and more functions. There are already a number of special pages that are used solely to communicate with large customers.



Britt-Marie Swärd, manager of marketing and sales of training in Marievik, Ericsson Telecom, Sweden:
<http://www.bovision.se> "A well organized site and easy to use."
<http://www.freja.ericsson.se> "To see the full range of courses available in Marievik and the number of course openings still available. This figure is updated daily."

Ericsson's home pages on the network

Visitors to Ericsson's Web site on the Internet can use a search engine to find the information they are seeking. The information sought changes every day, depending on promotional campaigns and other factors. The top-ranked subjects in October and September were as follows.

TOP 15 searchwords in October:

- 1 dect
- 2 mc12
- 3 md110
- 4 dc23
- 5 modem
- 6 phone doubler
- 7 gh688
- 8 768
- 9 axe
- 10 cdma and gf768
- 12 adsl
- 13 gf788
- 14 atm
- 15 training

TOP 15 search words in September

- 1 modem
- 2 dect and mc12
- 4 cdma
- 5 768
- 6 dc23
- 7 md110
- 8 gf768 and gh688
- 10 phone doubler
- 11 training
- 12 axe
- 13 adsl, jobs
- 15 atm

Make reality more like a network

For severely addicted Internet persons, the real world far from a terminal screen can be depressing. The network publication "Darling" (<http://drrling.se>) offers the following tips on how to make reality more like a network.

- Double-click the light buttons in your home.
- Spray glue between the pages of your newspaper so that it will take longer to leaf through it.
- Watch out for viruses when you download things.
- Place bookmarks on your favorite spots.
- Check your mailbox every ten minutes.
- Start chat groups on the bulletin board of your food store.
- Retrieve old items that you regret dumping in the waste basket.
- Set up a clock and hour glass when you are working really hard.
- When you want to express your feelings strongly, put your head in a vertical position and make faces.
- Begin all conversations with a "subject" line.
- Paper the walls of your home with desk top patterns.
- When something goes wrong during the day, go to "restart," go home, lie down and start all over again.



What countries visit Ericsson's web sites?

■ Ericsson's Web servers for the "general" pages on the Internet are visited by computers and users from more than a hundred countries. The largest number of visits – approximately 16 percent – originate within Ericsson. The home countries of "outside" visitors rank as follows:

1. United States
2. Sweden
3. Finland
4. U.K.
5. Netherlands
6. Germany
7. Australia
8. Denmark
9. Norway
10. Italy



If one examines the list from the bottom up, one finds that the countries represented most often are not quite as large as the others.

- Cambodia
- Swaziland
- Benin
- Micronesia
- Nepal
- Cuba

"Smileys" are the small greetings often used at the end of e-mail messages. With their help you can indicate nuances of feeling that are difficult to produce in a "conventional" message. Tilt your head 90 degrees to the left and see what you can create with a few quick clicks of the keys.

- | | | | |
|-----------|------------------------------|----------|------------------------------------|
| :-) | = I am happy | :-? | = I'm smacking my lips |
| :-)) | = I am really happy | %-) | = My eyeglasses are broken |
| ;-) | = A little flirt | *<{:-)}> | = Merry Christmas from Santa Claus |
| ;-) | = A more sophisticated flirt | :o) | = Happy as a clown |
| :-X | = Nothing to say | | |
| = A devil | | | |
| :-o | = Shriek | | |
| :-0 | = A louder shriek | | |
| = :-)= | = Uncle Sam | | |
| :-(| = I'm sad | | |
| ;-(- | = I'm really sad | | |
| :-C | = I'm very sad | | |

Smileys



The typical surfer

The typical Scandinavian Web surfer is an unmarried man between the ages of 20 and 30, with no children, and who either earns less than SEK 100,000 per year or between 200,000 and 300,000 – who surfs the Web pages with a search engine or via links. Those are the findings of the Scandinavian Internet Survey conducted for the Copenhagen School of Business by two students, Claudio Scalamonti and Jörgen Nicolaisen. The survey was conducted during the autumn this year. In all, 386 persons in Denmark, Norway and Sweden were interviewed. Eighty-three percent were men and more than half were between the ages of 20 and 29. Seventy percent were unmarried, 22 percent were married and 8 percent answered "Other" when queried about their marital status.

...a natural web-user



Photo: NATURBILD



Photo: GREAT SHOTS