

Esophagus

Uvula

Larynx

Fauces

Trachea



Concha media
Middle meatus
Concha inferior
Inferior meatus

Vestibule

Hard palate

Orifice of
auditory
tube

Soft palate

Tongue

Genio-Glossus

Hyoid bone

Genio-Hyoideus

Thyroideus

Thyroid cartilage

Esophagus

Larynx



The human voice is one of the most basic forms of communication, and the telecom industry has based a **hundred years of steady growth** on this fact. But although voice as a service is expanding rapidly in terms of volume, revenues are going **in the other direction.**

Here we take a look at some ideas on how to shape the **future of voice** and how they will change the business.

Goodbye to voice

ILLUSTRATIONS Svenska Grafikbyrån

... as we know it – Telephony may be the next big thing

It all started with voice, which remains **a tremendous business**. But broadband has opened the business to new players that provide advanced voice services **for free**. In the face of shrinking revenues, operators must rethink telephony, and **the answer may be multimedia telephony**.

DURING THE FIRST hundred years of telephony evolution, fixed telephony went from a manually managed service for the rich to a global computer-controlled switching service that connects more than 1 billion households and offices. This mass market was built around standardized, interoperable communication protocols.

In the beginning of the 1990s, the telephony evolution took a major step forward with the introduction of the Global System for Mobile commu-

nications, or GSM. In the last 20 years, the mobile market has grown to more than 4 billion subscriptions. The build-out of mobile telephony will continue, and for millions of people in developing countries, mobile phones will be their first contact with telephony.

At the same time as GSM was introduced, attempts were made to incorporate data communication into the telecom business. These efforts gained momentum when it became possible ▶

Theme in short

▶ Network operators have some tough strategy decisions to make ▶ It is crucial to understand how internet players are changing the dynamics in the market ▶ The market for voice in a multimedia context looks promising **CONCLUSIONS** ▶ Voice over IP has not damaged the industry but rather has opened new opportunities to add value to voice ▶ Understanding the need for interoperability will make things clearer ▶ The best way forward is to build on the industry tradition of collaborating on standards

Over time, when the new LTE networks are deployed, MMTel voice will be used *instead of GSM* as the legacy telephony service, since LTE only supports the IP protocol.

► to use fixed copper lines for broadband access. Broadband over copper lines started with data rates of 144 kilobits per second (kbps), and today 24 megabits per second (Mbps) downstream is available. Even higher rates, typically 100 Mbps, are now possible, which means that speeds have increased 1000 times in 25 years. These bandwidths allow for new services over the telephony network such as video, data, high definition television and interactive gaming.

Fixed-line broadband also introduced competition to the existing telephony service from the datacom industry. Voice over Internet Protocol (VoIP) solutions can be easily deployed without the cumbersome process of standardization to secure interoperability between operators. Instead, a telephony service can be deployed globally from central servers just by following the rules of the internet protocol (IP). Now there are a number of different VoIP solutions on the market, Skype being the most prominent. But there are restraints on these types of VoIP services; they are community based and not directly interoperable, making it more difficult for them to reach a true mass market, and they have limitations when it comes to supporting emergency calls and support for lawful interception by authorities.

The simple introduction of services on the internet can be compared to the traditional telephony business, with independent operators and vendors competing based on commonly agreed standards. These standards combined with interoperability and roaming agreements guarantees the user that services will work outside their network, creating the foundation for a true global community and a mass market. This avoids market fragmentation, which is especially important for terminal vendors that build their business on scale.

WHY VOICE NEEDS TO BE STANDARDIZED – AGAIN

The introduction of internet access through telephony networks inspired many in the industry to embrace VoIP technology and see the possibilities of enriching telephony with new multimedia services. An architectural framework, the IP Multimedia Subsystem (IMS), was defined earlier this decade by the wireless standards body, 3rd Generation Partnership Project (3GPP). With IMS, the limitations of the existing VoIP solutions were overcome, making it possible once again to define standards to support a mass market for advanced telephony.

This new standardized enriched telephony service, with IMS as a base, is called Multimedia Telephony Service (MMTel). MMTel combines the traditional voice service (now based on IP), with real-time video, text messages, file transfer and picture sharing. These services are tied to-

gether with an active phone book that shows availability and status of friends and colleagues, and provides an easy interface for different media services.

Today, the MMTel standard is the only global one that defines an evolved telephony service that enables real-time multimedia communication with the characteristics of a service with fixed and mobile access. In other words it is a fully converged service. MMTel also opens up possibilities for operators to add new advanced services via next generation intelligent networks (NGIN) and interact with existing web services such as MSN and Facebook.

A FRESH START FOR TELEPHONY

Fixed-line operators now show the greatest interest in MMTel, seeing it as a way to modernize their legacy telephony networks. With a declining fixed public-switched telephony business, there is less willingness to invest in new equipment, leading to networks with increasing cost of ownership. At the same time the build-out of fixed broadband with IP access gives operators an opportunity to replace the legacy telephony network with a future-proof converged solution at a limited cost. Given a fixed broadband penetration of about 30 percent in a network, there is a positive business case to replace the legacy service with MMTel for all subscribers. However, it will be difficult to manage all operator-specific legacy adaptations made on the existing networks.

On the mobile side, networks have been continuously updated to handle the increased number of subscribers and consumers' growing need for capacity. In contrast, the focus of MMTel is to improve the user experience with enriched services. MMTel implies replacing current GSM voice services, a major step toward introducing new services. This hurdle has inspired an industry initiative to specify multimedia enrichment combined with the existing GSM telephony leading to the Rich Communication Suite (RCS). Over time, when the new LTE networks are deployed, MMTel voice will be used instead of GSM as the legacy telephony service, since LTE only supports the IP protocol.

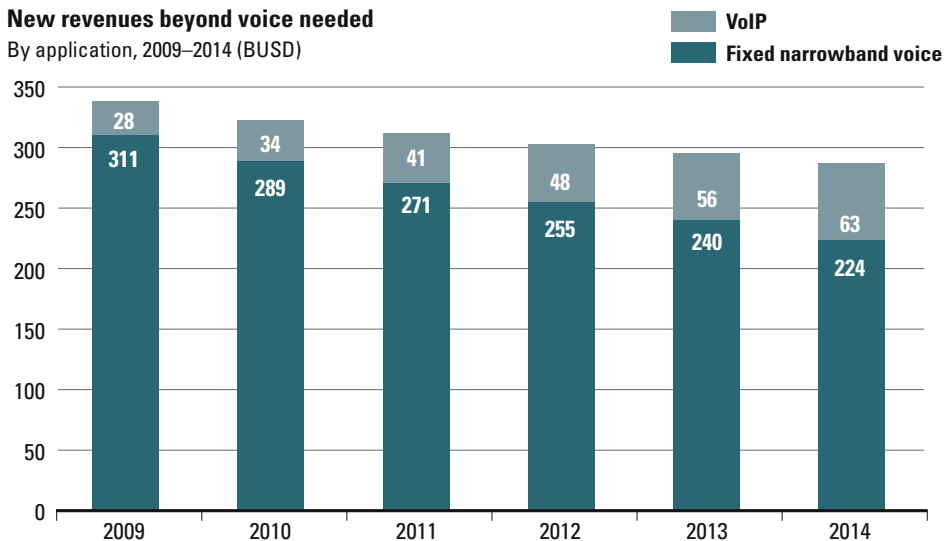
MMTel has had problems gaining momentum in the mobile market for a variety of reasons. First of all, the enrichment of telephony requires modern feature phones or smartphones with embedded IMS support, which should become available in 2010. But it will take years before the terminals are updated properly, something we learned during the introduction of 3G. Secondly, a lot of operators today are focusing on providing mobile broadband. Together with mobile broadband comes of course also the opportunity to access



Fixed operator revenues

New revenues beyond voice needed

By application, 2009–2014 (BUSD)



Source: Pyramid, MRG and Ericsson

Graph includes BB and VoIP revenues from fixed, cable and alternative providers

Voice market in contraction

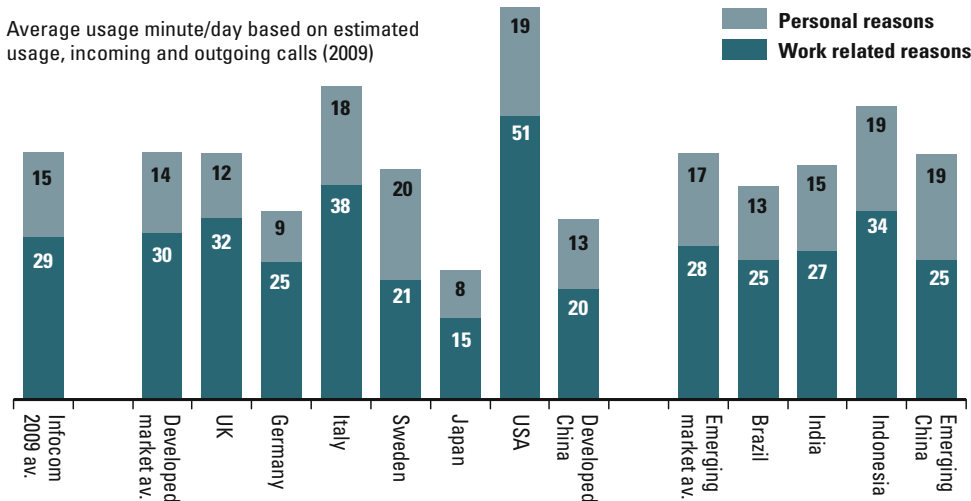
► The telecom services market will generate USD 1.4 trillion in 2009, growing by only 1 percent year-on-year (compared to the 10-11 percent annual growth rates over recent years), according to Pyramid Research. The research firm projects that voice services will be hardest hit in 2009, contracting by 3 percent, compared with a 6 percent expansion in 2008.

Mobile phone usage by country

People tend to use the mobile phone longer for personal reasons, in all countries

On average, how much per day do you spend talking on your mobile phone(s) for personal/work-related reasons? (Average usage minute/day based on estimated usage, incoming and outgoing calls).

Average usage minute/day based on estimated usage, incoming and outgoing calls (2009)



Source: Global Infocom study 2009, Ericson ConsumerLab

Base: Main user of mobile phone

internet and make use of web based services.

Legacy telephony will continue to grow for traditional operators even though telephony in general will evolve into a converged service through its adoption of IP technology and will develop into a base for more advanced services. But it is unclear if these services will be based on the new standards for telephony or will embrace un-standardized web-based services from the internet. We will probably see different approaches from operators on how to enrich legacy telephony with new attractive services, in order to counteract the threat from over-the-top internet players. ●

AUTHOR



► **TORSTEN KONGSHÖJ** drives portfolio strategies across the Ericsson Core and IMS area with a focus on telephony evolution. He previously worked with R&D

as well as strategic product management. He has also worked at leading design organizations in Sweden and in Germany and has managed large international development projects. He holds a Master of Science in Engineering Physics from the Royal Institute of Technology in Stockholm, Sweden.

(torsten.kongshoj@ericsson.com)