
Cover story: Riding the waves – and understanding what hit us

By Nathan Hegedus, page 10

► Carlota Perez, a professor of technology and development, says that the current economic crisis is but one phase of a centuries-old pendular rhythm of capitalism. She offers a vision of a golden future, of a broad-based world recovery that harnesses the power of globalization, “green” values and, most importantly, information and communication technologies (ICT). The world has seen five great surges of development since the Industrial Revolution, with the first half of each surge marked by speculation and dominated by new technologies and financial capital; the second half is usually an economic and social “golden age” led by production capital and a more active state.

Perez has focused on studying new technologies and the impact of their diffusion across the economy and society. The business climate shifts with each technological revolution.

The finance-dominated period is marked by speculation, bubbles and a massive experiment in “creative destruction,” in which new technologies replace or modernize older ones. These bubbles are useful, providing capital for the infrastructure associated with that particular surge, even as they cause pain in other parts of the economy and society.

This era of high finance eventually gives way to production-dominated “deployment” periods, marked by prosperity, security and generally regarded as “golden ages.” But the transition – or “turning point” as Perez calls it – between the finance phase and the production phase has never been a smooth one. Instead it has been marked by panics, recessions, and political confrontations, with the Great Depres-

sion the starkest example.

Perez first stepped into the global spotlight with her 2002 book *Technological Revolutions and Financial Capital: the Dynamics of Bubbles and Golden Ages*. The book came out in the wake of the NASDAQ stock market crash and found a ready audience among Silicon Valley “techies” and venture capitalists who wanted to know “what had hit them,” she says. Now in the wake of financial scandals born of what Perez calls “casino finance,” people who advocate the return of a more involved state are flocking to her work.

“The intuition about what is needed is already in people’s minds,” she says. “I happen to express it with a causal explanation and convincing historical parallels. But the terrain is already fertile.”

Perez argues that government action is essential to move the economy away from the short-term bias of the stock market toward a culture of long-term investments.

She says that globalization is unworkable without some degree of supranational monitoring and supervision but that local regulations are equally important, for globalization allows businesses to identify the best locations for maximizing their productivity and profits along their whole value chain. Many businesses – especially in ICT – have also moved away from hierarchical, authoritarian structures towards a more lateral, consultative “network organization.”

Local, regional, and national governments need to recognize and respond to these organizational shifts and adapt their own organizations in order to build a wide societal consensus on what kind of investments each region wants to attract.

But governments are not limited to regulation; they can also build things. During previous technological revolu-

tions, new infrastructures included canals, railroads, steamships, the telegraph, radio, telephony, electricity or highways.

Today, it is the internet. The government must help people get connected, Perez says.

“Universal access creates the most gigantic space for market action for everybody,” she adds. “Companies can use this dynamic demand space.”

Perez believes the current ICT revolution is just the first in a series of technological revolutions that will eventually lead to a “real knowledge society,” one in which many demographic, health and climate change problems will have been solved.

Goodbye to voice as we know it

By Torsten Kongshøj, page 16

► The telephony evolution took a major step forward with the introduction of the Global System for Mobile communications, or GSM. 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 to use fixed copper lines for broadband access.

Fixed-line broadband introduced competition to the existing telephony service from the datacom industry. VoIP solutions can be easily deployed without the cumbersome process of standardization to secure interoperability between operators, and there are now a number of different VoIP solutions on the market.

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, com-

bined with interoperability and roaming agreements, guarantee 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.

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), combining traditional voice service (now based on IP), with real-time video, text messages, file transfer and picture sharing.

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.

Fixed-line operators now show interest in MMTel 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.

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. 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.

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. These services will either be based on the new standards for telephony or embrace unstandardized 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.

Carrying voice into the future

By Peter Jarich, page 20

► The evolution of telecom voice services, as we currently know them, has been going on for years as operators grapple with the popularity of internet telephony and the emergence of new technologies such as unified communications. Some developments have only come to fruition over the past year as operators plan for new technology launches that may or

may not need to support voice. Perhaps the best example is the current debate surrounding voice over Long-Term Evolution, better known as LTE.

The question of how to best deliver voice services over an all-IP network has inspired much hyperbole; some suggest LTE will be doomed if it fails to embrace voice while others say the issues around voice – treated as just another IP service – will sort themselves out. With the commercial launch of the first LTE networks still in the future, it's far too early to know how voice will be rolled out and supported. But conversations with operators and vendors provide some points we can make with a sense of certainty.

Operators will want to roll out voice services over their shiny new LTE networks. Voice, however, isn't the driving force for LTE deployments – an overload of voice traffic isn't at the heart of operator thinking around 4G upgrades. LTE is all about data. Initial device launches will include dongles and notebooks – not voice-oriented clients. Those devices won't be broadly launched until 2010.

Where cost trimming (efficient service delivery) is a major driver of LTE deployments, it's no surprise that so many vendors and operators have gotten caught up in voice over LTE strategizing. It also explains why the search for a LTE strategy will remain a priority, whether or not there is a need for a voice over LTE solution in the near-term.

The demand for one convergent mobile broadband network is understandable; it's cheaper than running either separate networks for voice and data or multiple networks that support voice and data independently. But is it really cheaper? In the long term, certainly. In the near term, there could be revenue

loss if attempts to deliver bread-and-butter voice services over an LTE network result in questionable quality.

Few operators see the future of voice services limited to basic phone calls. In other words, we're not talking about LTE supporting legacy voice services, but "rich voice" services such as presence, Web 2.0 integrated contact management and web-based call initiation. This is why nearly every operator will tell you that long-term plans for voice over LTE include IMS and Rich Communications Suite, or RCS, standards. The true value of voice over IP (with LTE being an all-IP network) isn't about cost savings – particularly in a world where circuit voice investments have been paid off. It's about the applications IP enables.

Based on differing business demands, the multitude of solutions for delivering voice over LTE will likely coexist for some time. The end goal may be an integration of voice and data applications, and the delivery of rich voice services. But every operator will have different priorities in terms of protecting current voice investments, differentiating themselves in the market and focusing on little more than vanilla data in the near-term.

A plethora of solutions is bad for engineering interoperability or developing solution scale. It's even worse for any vendor hoping to keep divergent R&D efforts in check or to see substantial revenue from any one solution. Vendors should fight the urge to hype the need for voice over LTE in the near-term. At the same time, the value of long-term solutions – such as IMS-based RCS – needs to be proven with real-world examples, such as leveraging 3G networks. The developers of competing solutions will be more than ready with their own demos and trials.

Find and Connect in the internet age

By Jan Gabrielsson, page 24

► Today, instead of just making phone calls, we send texts, talk on Skype and write on Twitter. We send e-mails, share files, sell and buy things on eBay, socialize on Facebook and play World of Warcraft online. Any internet service that connects two or more users can be treated as a communication service, whether it is a business application running over the internet or a more personal contact fostered by social networking.

Traditional telephony is different from internet services in general. Telephony is a standardized mass market service that is heavily regulated and regarded as a community service – associated with trust and quality of service.

Two of the fundamental concepts in any communication service are Find and Connect.

Find is the mechanism that allows communicating parties to discover each other and acquire the address of their respective end-points. Think Yellow Pages and phone numbers, but, Find can be solved in many other ways too.

Connect, on the other hand, is the mechanism that takes the end-point addresses and sets up the actual communication channel that allows the parties to exchange information. For telephony, things such as standardized codecs and signaling and bearer protocols ensure that people can talk to each other wherever in the world they happen to be.

The telecommunications industry managed to standardize Find and Connect, which allowed telephony to evolve into the global mass market service we take for granted today. It is noteworthy, though, that Find is not all that highly evolved, and



»»»» we still rely on many proprietary methods to find phone numbers.

The attractiveness, at least partially, of internet services comes from the proprietary Find that they provide. For example, a large part of using Facebook is about finding people. On the other hand, companies' laissez-faire approach to connecting (you can connect when and how you choose) allows Facebook to cost effectively create great agility and reach with their service, though they will not be able to create a trillion-and-a-half dollar market like the telephony one.

Expanding on the uses of Find and Connect by internet communication services will give us some insights into how these services provide consumer values and business agility.

For any given service, it may not be worth spending too much time on the connect mechanism itself. Building special devices or trying to get a large group of providers to agree on a common connection standard for a specific service may simply be too costly. In fact, if the underlying network is good enough and devices are powerful enough to download clients, this may be sufficient.

So instead of standardizing Connect, many services rely on a bootstrap mechanism to do an on-demand provisioning of the end-point clients, that is, you potentially get a new upgraded client every time you access the service.

This is actually a reasonable approach and an increasingly viable strategy with the emergence of both de-facto device platforms such as Linux, the iPhone, Microsoft Windows and the Linux-based Android mobile operating system, as well as common software platforms such as Java, HTML 5 and Adobe Flash Player.

The client approach is familiar from the PC industry,

and as mobile terminals and networks become more powerful and open, we increasingly see it adopted for mobile applications too.

To summarize, at the extreme, Find becomes an application-specific mechanism and Connect becomes a software download mechanism.

The ease and relatively low cost with which it is possible to create and launch an overlay service creates a large competitive space as well as driving down the prices of services to a point where they are in many cases given away for free or financed with alternative business models. This is important to understand when comparing them with the traditional telecommunications market.

The above observations partially explain the drive behind the decoupling of services from networks because there is also a decoupling of business models and markets. Such market shifts are always difficult, but this decoupling will ultimately drive the network business to the next level because it will serve as the catapult for the explosion of internet services currently taking place.

The disrupter speaks out: Be prepared to give it away

By Nathan Hegedus, page 28

► Skype was no mistake. Niklas Zennström and his partner Janus Friis did not stumble upon success with their peer-to-peer telephony giant. They had a vision.

"We lived in a world where you were charged by the minute for phone calls, and long distance meant higher prices," Zennström says.

They saw the possibility for people to talk much more, and this mission is accomplished. Skype now has 483 million user accounts, with users taking advantage of a combination of free and

unlimited voice, video, messaging and file transfer services, among others.

But it is not just Skype that is driving the market. Voice and video services have become integral parts of messaging services such as Yahoo! Messenger and Windows Live Messenger, changing voice services irrevocably, becoming part of a wider conversation, one conducted by text, photo and video conferencing.

"With the internet becoming the common carrier for communication, the way we communicate is much more integrated," Zennström says.

"We don't have a voice conversation or a text conversation; we just have a conversation.

Sometimes we use voice, sometimes text, sometimes a combination. And we are able to integrate all this if we treat voice as just another application, not a separate network."

Zennström says that the gloom and doom predictions about the effect on traditional operators of Skype specifically – and Voice over Internet Protocol (VoIP) in general – were overblown.

VoIP was a typical "classic disruptive technology," he says, creating serious competition for leading operators from an unexpected direction.

But the VoIP revolution was not as disruptive as predicted, Zennström says. Once seen as a force of creative destruction that could mean the end of traditional operators, stand-alone VoIP companies such as Vonage and Primus Telecom are struggling. Meanwhile, traditional operators have survived just fine.

The problem for the stand-alone VoIP companies, Zennström says, is that they are trying to provide fixed-line-like services but at a relatively high cost compared to both fixed-line operators and companies like Skype. Because even though their

technology and operating costs are low, it costs a lot of money to pry customers away from incumbent operators through marketing.

But this does not mean that fixed-line operators can sit back. They cannot be afraid to "cannibalize" voice revenue, he says, in order to move forward.

"They have to make broadband as attractive as possible, even giving away voice with broadband," he says.

"Four years ago, no one saw Apple's iPhone coming," he adds. "And that changed everything on the handset market. We have to have an open mind to continued innovation."

Zennström also sees a "quite interesting" crossroads ahead as the long-term infrastructure-based timelines for most telecom companies potentially clash with "disruptive" fast-moving action on the consumer level.

Standardization has historically been the key to telecom success but it is not always necessary, Zennström says, as it can complicate things. Standardization also takes time, which many start-ups do not have. Skype did not wait for standards in its field to develop. Other companies did, and while they waited, Skype grabbed enough of the market that its lack of standards did not matter; to some degree Skype systems became the standard.

But standards are still useful, Zennström says, and Skype did eventually start working with them, particularly when the company tried to connect its services to the public switched telephone network. And standalone VoIP companies are often hurt by the absence of a common standard, as they have little to no interconnection between their respective services.

The recipe for mobile broadband profitability

By Greger Blennerud, page 46

► Over the past two to three years, Ericsson has compiled – with operators from around the world – close to 30 detailed case studies. The results have been encouraging, and most cases show strikingly similar results in terms of profitability.

In some cases the internal cost structure was such that the transport unit was internally charging product owners on a per MB basis. Shortly after launching mobile broadband, some operators noted two trends; broadband looked to be unprofitable, and the unit responsible for transport was rapidly growing and drastically improving margins.

In the current software release for HSPA, there is a difference in capacity (spectrum efficiency) of roughly 10 to 12 times when comparing the voice and HSPA bearer on a 5 MHz carrier. This means a voice byte is about 12 times more costly than a mobile broadband byte. This relation will change as high speed data evolves, and even more so if voice is moved over to packet networks.

If this uneven cost relationship is not taken into account – and in most current studies it is not, as the cost allocation is done on an equal basis – mobile broadband will be overloaded with cost by a factor of at least 10 times. A better way is to let each service carry its own costs first, and then distribute the common costs. Investments made to specifically enable mobile broadband, on top of the already existing network, should be allocated. Think of it as an investment in a whole new channel on the 5 MHz spectrum, which is 12 times more efficient to run data over than the circuit channel used for voice.

There is no single way of allocating costs, but it is

important to strive for fairness between services, and minimize the risk of promoting unprofitable services or penalizing profitable ones. The best way to effectively handle the traffic load may differ significantly from operator to operator. Even in markets where operators may have similar packaging and pricing, we see great differences in the average consumption per user and per month. In some markets we could see differences as big as a factor of five to 10 times. This is true for both fixed and mobile broadband networks and only shows it is dependent on how each operator positions themselves in the market.

There are two main drivers for high data consumption today: peer-to-peer file sharing and video streaming. The operator needs to find a balance between addressing traffic issues that drive costs and limiting end users too much, which may impact uptake. To the end user, there is virtually no correlation between volume and value.

Traffic handling priority allows the network to lower the priority of traffic for certain users, for example, when the usage level reaches a certain limit. The “fair use level” set by the operator is then the level at which the cost is “capped.” A pricing and packaging principle that allows end users to download as much as they can is the most attractive. This poses a dilemma for the operator, since traffic is a cost-driver in the network, at least during the busiest hours. Over time operators must be able to raise prices to invest in the network and keep up with increasing demand. Bucket pricing may appear to solve the issues of traffic management and increased fees for users who consume more.

The downside of traffic-handling priority is that it does not motivate a user to

pay more, even if consumption increases. The main purpose of traffic prioritization is that the operator will not be forced to upgrade to cater to a small number of heavy users. A downside of bucket pricing that is rarely considered is an expectation that the operator has to deliver on this volume offering. The market trend has been to offer larger buckets in the hunt for market share. If bucket sizes are increased without a change in price, then this method can prove to be more costly than one with no limits and intelligent management mechanisms.

We are beginning to see evidence in operator reporting that mobile broadband is profitable, even in the worst case bit-pipe situation. We have looked at the importance of doing the internal cost-calculation exercises correctly, and have seen it is possible to put a “cap” on the cost per subscriber by using intelligent functions in the network.

The battle for a unified media market

By Helene H Miksche, Fabian Niemann and Morten Nissen, page 34

► As different media converge, the market rules change. The question is: Who is in the driver’s seat? The European Commission has both strengthened the position of copyright holders and worked against their interests when wanting to improve the right to access content online across international borders.

The introduction of the Information Society Directive in 2001 strengthened both rights holders’ copyrights and similar rights in the new digital environment. The directive’s aim was to create a harmonized legal framework on copyright and related rights through increased legal certainty, and foster investment in creativity and innovation – including network infrastruc-

ture – while providing protection for intellectual property.

This directive was followed by the Enforcement Directive, which improved the rights holders’ abilities to enforce their rights and act against illegal digital use. However, another directive, the Electronic Commerce Directive, limits the responsibility of internet service providers (ISPs) and their ability to enforce copyright in situations such as identifying and acting against illegal downloaders.

The resulting fragmented interpretation of Commission rules is also due to the “host defense” (protecting the secrecy of individual internet users’ identities) in the Electronic Commerce Directive, and attempts to create a balance of interest between efficient enforcement tools and consumers’ right to integrity and privacy.

The Commission published a recommendation in 2005 on management of online rights in musical work. Following the recommendation, a variety of licensing initiatives and collecting society cooperation agreements were announced, and these affected the entire media industry, as the broadcasting and film industries use background music in their online content. The broadcasters argued for abolishing territorial restrictions.

In 2003, Music Choice Europe filed a complaint against the collecting societies’ umbrella association, the International Confederation of Societies of Authors and Composers (CISAC), claiming the collecting societies’ territorial model (i.e. that collecting societies only grant mandates to licenses within the domestic territory of another collecting society) is in breach of the prohibition against anti-competitive agreements.

These cases were merged in the “CISAC case” against all >>>>

»»»» European performance right collecting societies. After a hearing in 2006 and a failed offer of “commitments” in 2007 by the collecting societies, the Commission ruled against all the European collecting societies in 2008, saying they had made concerted efforts to limit the territorial scope of reciprocal mandates to license each others’ rights to national borders. The Commission decision imposed certain compliance measures on the collecting societies and is currently under appeal before the European Court of First Instance.

At the end of 2008, the Commission created a stakeholders discussion and cooperation platform – the “Content Online Platform.” The Commission has assigned KEA European Affairs, a Brussels-based strategic consulting firm, to study multi-territory licensing for the online distribution of audiovisual works. The study, to be published in early 2010, will describe possible policy options to foster the development of multi-territory distribution mechanisms and business models for online distribution of audiovisual works.

The clear result of the Commission’s actions is that the rights that music users need to secure have become more fragmented than before.

Despite the Commission’s efforts at harmonization, national interpretations of the EU regulation also differ on other issues, such as private copying. The private copying exemption in some countries can be used to launch on-demand services such as online digital video recorders or downloading services. It remains to be seen how and with what tools the Commission, national regulators and the courts will balance copyright in the new digital environment.

Keeping the internet open

By Rene Summer and Walter van der Weiden, page 40

► The internet was created in an academic environment where basic knowledge transfer was the “killer app,” and not in a dynamic commercial world where real-time video and gaming are highly valued. Given its genesis, it is not surprising that the system was designed without any guarantees that data is delivered or that a user is given a guaranteed quality of service level or a certain priority. This “best-effort” delivery means that when there is congestion in the network some packets are randomly queued or dropped; the importance of any one packet is irrelevant. The fact that packet importance is never considered is often touted as the crucial virtue of the internet.

Some say that preserving the best-effort character of the internet is critical to maintaining openness and to ensuring that consumers have access to the content they desire. Meanwhile, those looking ahead want to mitigate what they perceive as an increasing imbalance in the risk/reward ratio that undermines network modernization and capacity expansion projects. They feel that the best effort paradigm must change, arguing that traffic management is needed and should also permit prioritization. Packets can be divided into degrees of importance based on the source, content, and purpose of the information being transmitted. A system of prioritization that addresses these needs is in the best interest of consumers.

The prioritization of voice, video conferencing, and IPTV services to eliminate packet loss, latency, and jitter enables operators to maintain the quality of these services. This is why these applications are designed for an end-to-end managed environment, i.e.

packets created by these applications obtain specified bit rate and delivery time, independent of the current traffic load in the best-effort internet delivery mechanism. Not all services are as sensitive and can be assigned different classes of prioritization. Similarly, information from certain sources may be of higher value than other information. Emergency call services and remote health monitoring can generate packets that are a matter of life and death.

There may also be legitimate commercial reasons to justify managing traffic. The commercial freedom to deliver the best service possible is a cornerstone of competition. A prohibition of all traffic management at the access level is arguably an expropriation of network assets: Investors in network infrastructure and capabilities cannot differentiate their service quality beyond best effort so they cannot maximize the value of the time, money, and effort they have invested in their networks. By ensuring that operators have the incentive to invest in their networks, prioritization will continue to promote competition and innovation.

To cope with growth in traffic, large-scale investments are unavoidable. This challenge must be faced in many ways: by device vendors, by those working with services and network components, and in the highly competitive and innovative global R&D process (undertaken by various market players, such as the chip, software, and hardware players).

The next vital step is putting these networks and devices in place and operating them on a daily basis, thereby making them available to end users. The first question is not who will do that – but rather what are the investment conditions under which any organization is

willing to commit to these expenditures?

This is what the net neutrality debate is really about: the conflict of business interests that arises from prevailing business models in content, internet applications and network operator markets.

Network investments require a policy environment that fosters innovation both as it exists today and in future, yet unimagined, ways. For this reason, policy makers must be receptive to innovations in their policies. After all, what worked in the past, may not work in the future. Policy makers need to adopt policies that support a competitive and dynamic environment for content, applications, search engines, and networks.

Moreover, policy makers should accept traffic management practices that are reasonable, transparent, and that permit competitively neutral prioritization of content according to a system of classification. To ensure that network operators have the incentive to continually upgrade network capacity, those operators need to be certain that investments can achieve their highest value. Overly restrictive rules regarding network management can thwart operators’ willingness to put money into network expansion.

Forget network neutrality

By Alastair Macpherson and Darren Waterman, page 52

► It is impossible to know what new services may emerge and how they will change the way we do business, consume media and communicate. But we are beginning to glimpse what might be possible in “cloud computing” and digital content delivery, which both require high-quality internet access.

Network neutrality sounds

like a benign protection of freedom but it is, at its core, an extremely intrusive regulatory restriction on business models for the internet:

whether or not network operators and internet service providers (ISPs) should be allowed to offer various prices for differentiated service.

If the same restriction were to apply in other sectors, we would not benefit from the choice between first and second class mail or different highway toll charges for motorcycles or semi-trailer trucks. Ironically it is in the US, which we might have expected to be a natural advocate of entrepreneurial freedom, where we find the greatest support for network neutrality regulation.

The internet has reduced barriers to market entry, and fostered an environment of innovation and risk taking. This has created a new breed of content creators and broadcasters, often accused of “free riding” on investments made by network operators and ISPs. However, operators and ISPs are responsible for stimulating the demand for internet access and increasing consumers’ willingness to pay for access.

The key issue in the debate is the equitable sharing of value from delivering services over the internet between publishers and internet application developers on the one hand, and the network operators and ISPs on the other. Both parties are making risky investments and looking for ways to innovate their services. This drives consumers’ overall willingness to pay for the internet.

The critical factor is how much of consumers’ overall willingness to pay is appropriated by each party: Network operators and ISPs are used to an old world where they both provided access and services (e.g. telephony), while internet publishers and application developers never

had to consider the resource cost of bandwidth because capacity has always been plentiful with consumer demand below supply.

Aligning these interests is a difficult problem to solve and one that could require careful consideration and regulation. However, it is no different from a commercial negotiation. We can learn lessons from a similar set of relationships that have evolved in the pay TV market, in which the interests of access providers and service providers are aligned to deliver a compelling range of services, differentiated for the varying demands of consumers.

Let consumers be the judge

By Fredrik Gunnarsson and Karl Bjurström, page 54

► The heated debate of recent years about network neutrality mixes several very separate questions into one blurred argument. To start, no telecom networks are “neutral.” Telecom is about creating a business environment that fulfils consumers’ needs, enables innovation and attracts investments.

We believe the end-consumers will determine the optimal business models for the future. In most industries, but especially in the online world, the verdict for players who don’t fulfil consumers’ needs is harsh. The key question is: From a consumer standpoint, should operators take advantage of their access to the consumer, and if so, under what circumstances?

A decade of experience in online consumer behavior has taught us a great deal about their needs and preferences. Consumers want to be able to control and choose their experience. So, when debating the operators’ role and how they should take advantage of their position, consumer desires should be used to set the boundaries, instead of

ideological arguments such as neutrality, right to access, and democracy, which are used to draw attention away from end-consumers.

Two models must coexist: free and open access to anything on the internet, and managed access to provide end-to-end services, packaged and quality-ensured by the operator. Operators cannot shut down or throttle services available on the web just because they have capacity issues or the services compete with their own. This means they cannot force content providers to pay a “toll fee” to be granted a route to consumers, because end consumers will demand full access to the internet and will leave the relationship if they do not get it.

The proponents of network neutrality believe regulation is needed in order to sustain innovation, and to preserve the free spirit of the internet, transparency and choice. We believe regulations should not be necessary. Instead, we recommend that regulators set and enforce policies and laws to avoid anti-competitive activities, and to ensure that consumers can switch easily between access providers.

However any change or implementation of traffic shaping would need to be communicated. If their access provider makes changes to its traffic-shaping policy, consumers should be free to change their service providers without incurring any penalty. And before operators are allowed to make significant traffic-shaping decisions, there must be enough competition in the market that users have options if they want to switch providers.

In essence, the ISPs should be allowed to act, and market conditions will ensure those actions are in line with customer desires. If they don’t, customers can voice their dissatisfaction by switching providers. Moreover, even if net-

work neutrality regulation is passed, it will be hard to formulate and even harder to enforce. It will be very tough to prove that an ISP is deliberately discriminating against a particular service. Networks are not neutral, and never will be, even if we try to think of them as such.

We believe a regulation that forces network neutrality will have a negative impact on the already tough climate in the telecom, media and entertainment (TME) industries. While legislating transparency and commoditization might be a good thing for consumers in the short term, it could be devastating for network investments and for the overall market in the long-term.

Broadband: the four strategic questions

By Wally Swain, page 38

► Mobile broadband is currently the great hope for mobile operators. In places where basic broadband growth has slowed because of approaching saturation, mobile broadband is a way to open new markets. Simultaneously, mobile broadband is a way to increase ARPU – sometimes dramatically. If it is clear why operators are falling in love with mobile broadband, the strategy questions are all about to whom, where, when and how?

To answer these questions, it is important to keep in mind that much of mobile broadband isn’t mobile at all. Although there are enterprise mobile data applications, and high-end smart phones that have GPS (which needs to be fed detailed maps while in motion), mobile connectivity for laptops and netbooks is also an extremely compelling proposition. These uses are often nomadic or even fixed, and they compete with offers from traditional fixed telecom operators as much or



»»»» more than with offers from other mobile operators.

The winning “To Whom” strategies concentrate on capturing high-growth segments such as netbook buyers at the point of sale. A netbook without connectivity is just a low-powered PC incapable of supporting most entertainment or productivity applications. Connected it becomes a powerful tool.

For voice services, “Where” has simply been a question of coverage, tempered by consumers’ ability to pay. But for mobile broadband, operators should concentrate on markets that are poorly served by fixed telecom operators.

Especially in emerging markets, many poor rural or fringe urban neighborhoods are still without fixed broadband.

“When” would seem to be obvious: now and as fast as possible. But mobile broadband’s runaway success is also its weakness. Although mobile broadband penetration may only be a few percentage points in terms of the overall percentage of subscribers, it can represent an enormous percentage of network load, putting stress on network capacity from the cell to backhaul, from connection to the broader internet. Mobile operators must manage their marketing with subtlety. Move too slow, and they may lose an opportunity (like the netbook explosion) or lose share to more aggressive operators. Move too fast, and they risk clogging the network and degrading important measures like effective download speed.

“How” will be specific to each market situation but some ideas are to:

1. Form partnerships with laptop and netbook retailers. As above, laptop and netbook growth will drive mobile broadband adoption. However, consumers will think about the device first and connectivity second.

2. Map fixed operators’ “coverage areas” and target neighborhoods where they are deficient. Knowing where the holes are in mobile competitors’ coverage maps is the job of any decent chief technical officer. But since mobile broadband competes with fixed broadband, knowing the holes in the networks of fixed telecom and cable operators is equally, if not more, important.

This last strategy steals a page from fixed operators as salespeople from mobile operators go from house-to-house. The goal is obviously to sell, but also to build word of mouth. A few key early adopters can draw lots of attention and referrals.

Having the customer walk out of the shop with their netbook or laptop already connected is the best way of ensuring minimal hassles when they get home, as well as reducing the chance that they will have to return to the store. In the house-to-house guerrilla marketing situation, it is the salesperson who must “walk out” with the connection working.

3. Develop alternative payment models, especially pay-as-you-go models. While this is crucial in emerging markets, many nomadic users in developing markets may foresee only intermittent use and so prefer more flexible options. More importantly perhaps, if flat-rate models are under pressure in the fixed broadband world because of exponential traffic growth, the problem is even more acute in wireless broadband networks. Start now to make sure you match economic reality to engineering reality.

Mobile operators have a huge opportunity to increase revenue by leveraging their HSPA networks to sell broadband. But while many smartphone subscriptions will be

sold through traditional channels, selling mobile broadband for fixed or nomadic use opens up new markets. This demands new sales strategies and non-traditional channels and pricing models in order to keep both the customers and the mobile operator’s shareholders happy.