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Yearbook 2008

Future horizons in telecommunications

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Bringing innovation to the telecoms wholesale market

Operators face a number of challenges as the structure and dynamics of the wholesale telecoms market changes and we move to an all IP environment. But it's full of opportunities for those who are ready

What is innovation?

There are many definitions of innovation, for example:

- > the introduction of something new and useful, such as new or altered products and services.
- > The process of making improvements by introducing something new, or simply the act of introducing something new.
- > The successful exploitation of new ideas.
- > The implementation of a technical or organisational improvement, not just its invention.
- > An innovator is somebody or an organisation who is looking for new fields of action.

But what suits best? What is innovation within the international telecom wholesale market? We at ICSS like the idea that innovation is the process of turning an original idea into a completely new valuable product and bringing it successfully to market, new products for new customers for new markets.

With our understanding of customer needs and recognising the fast-changing market conditions and the market shift to value-added, solutions-based services – ICSS has the approach, commitment, and effectiveness to be an excellent provider to the wholesale market.

International wholesale is clearly shifting to value-added, solutions-based services

Market dynamics are changing. ICSS has been reshaping its product portfolio to take account of Web 2.0 developments and developed a new strategy for value-added services, which includes the introduction of new services in the areas of VoIP, internet access, public IP services, content management, and segment-specific service packages within the broad service and portfolio offering. ICSS can draw on its experience in serving customers with advanced services, developing unique offerings, and tailoring high-value service packages for individual and innovative customer needs.

Innovation is the ability to see change as an opportunity, not a threat. Today's disruptive telecoms landscape offers many opportunities to

wholesalers. As a result, ICSS has put innovation at the core of its current and future business and decided to dedicate a specific team to innovations. Our Innovation Projects team is solely and exclusively focussed on screening new trends and technologies in order to develop future innovative services in response to new market drivers in the wholesale business. This will no doubt result in a wider product offering, a product offering which will be targetted and adapted to customers' existing and future requirements, as well as to customer expectations.

The need for additional growth and rapid service innovation

- > The telecommunications industry is seeing a shift in value toward content, entertainment, and multimedia as broadband access is growing at high rates.
- > Carriers and service providers have to consider offering additional and innovative IP-based services to achieve their profitability targets in times of shifting and converging markets.
- > Higher margins will come from services such as wireless email, network games, mobile video/TV, IPTV and enabling services such as clearing, billing, and aggregation.
- > Companies with the infrastructure to offer advanced IP services can resell these services to other service providers that do not have such capabilities in the form of white-label or private-label versions of IP VPN or VoIP services.
- > The focus of international wholesale is clearly shifting from traffic management to platform and application management as the industry moves to an IP environment.
- > Advanced business opportunities for wholesale providers include offering managed data services (IP VPN), including mobile data services (GRX, MMX), and developing international networks, platforms to support mobile data services and content (eg roaming and messaging or clearing and aggregation).

Examples for innovative services:

- > Growth segments such as IP VPN, media and roaming services.
- > System integrators and virtual service providers stimulate the demand for wholesale IP VPN and smaller operators will take



advantage of wholesale managed services.

> Wholesale IP VPN:

Demand grows for flexible any-to-any connectivity and the efficiency of converging data, voice, and video services into single corporate networks increases as corporate users move to broadband.

- VPNs are increasingly the foundation of future-proofed converged networks responding to new performance and QoS requirements as well as those for increased scalability and reliability.

> Content and media enabling services:

- As there is very strong competition at the retail level since many providers want to take part in the growing broadband /multimedia market, there is also increasing wholesale demand for multimedia-enabling wholesale offerings.

- With expected roll-out of more next generation access networks demand for data, value-added and content- and multimedia enabling wholesale services will grow.

> Messaging and roaming services:

Advanced business opportunities for wholesale providers include offering managed data services (IP VPN), including mobile data services (GRX, MMX), and developing international networks, platforms to support mobile data services and content (eg roaming and messaging or clearing and aggregation) .

- Today more and more people are making and receiving international roaming calls. Roamers want access to all the

same voice and data services like voice, email, internet access, content and applications that they have on their home network.

- The use of telecoms services has become part of business and social life and the internet has transformed from a platform where computers simply exchanged information into a dynamic, application-driven medium enabling users to interact with each other, play games online, and communicate in real time.
- With HDTV signals converted into IP packages, television programmes can be transmitted over the telecoms grid.
- In fast next-generation fixed and mobile broadband markets (VDSL, FTTx, and HSDPA), we see an expanding demand for video sharing and downloads
- The emergence of websites highlighting user-generated content has a strong impact on internet traffic patterns and creates a surge in demand for internet capacity from carriers.
- There is pressure for a more competitive wholesale broadband market as broadband becomes mass-market service.
- In the future, competition will therefore increasingly shift to the provision of value-added wholesale services that attract and retain customers with a high, growing demand for bit transport. Revenue creation is centred on the delivery of new multimedia services, but investments in these services can sometimes be large.
- MPLS is having a significant impact on business, as demand grows for flexible any-to-any connectivity and the efficiency of converging data, voice, and video services into single corporate networks increases – corporate users are moving to broadband.

THE MARKET

Market dynamics are changing

- > The structure is changing with an increasing number of providers.
- > New players, many of which are without their own infrastructure from outside telecoms, are becoming important wholesale buyers. Examples: content providers, media companies, brand extenders.
- > With content, media and application services becoming more dominant in the communications market, network capabilities have to be combined with intelligent software to manage these types of services (eg services for content distribution, content aggregation, clearing, billing and other intermediation services).
- > Today there are different types of applications, each demands its own performance levels and has different cost structures, each requires different service level guarantees.
- > Networks must support latency sensitive voice traffic, real-time, interactive online games, high-bandwidth video downloads, and live television broadcasts.
- > There are more applications in use, each with different latency, symmetry, and bandwidth requirements and broadband price strategies should address this fact.

The wholesale market today?

- > Voice revenues are declining but still providing a major part of incumbents' income.

- > The traditional wholesale business as we knew it is clearly slowly becoming a thing of the past.
- > Voice is no longer bringing the revenues it used to.
- > IP has become the norm.
- > Offering just IP, however, cannot fill the gap currently generated by declining voice revenues.
- > The international wholesale market faces shrinking margins and, even decreasing volumes for commodity products.
- > Some wholesale players have given up or reduced their wholesale activities.
- > Others are looking for new revenue streams.
- > In addition, traditional voice services are gradually being threatened by the development of VoIP, and fixed-mobile substitution is jeopardising a large portion of incumbents' revenues.
- > Another phenomenon is the emergence of players such as (M)VNOs. These companies are new to the telecommunications industry, but they can leverage their brand name to sell telecom services. Typical examples are Avon in Poland, MTV in Germany, and Auchan in France. Eventually, these MVNOs will take market share away from existing players, and they will need to rely on managed and hosted services in a much greater extent than traditional telcos.
- > As a result, we see a need to strengthen our business activities with Tier 2 and Tier 3 carriers, be more reactive to market changes by adapting our time-to-market responsiveness, and share hosted services and platforms with other key business partners.

The changing wholesale voice market and the IP market

Voice market

- > Even though voice is still the dominating wholesale business for traditional players in terms of revenues and even though worldwide traffic is still growing, supply conditions have changed dramatically due to increasing globalisation, economic constraints, technology convergence and big shifts in the industry (FMS, VoPSTN-to-VoIP).
- > Increased cost pressure through the emergence of VoIP leads to the need for highly efficient processing and accurate data exchange between carriers in PSTN voice business.
- > Voice is no longer a standalone premium product as new emerging market players are offering low-cost voice minutes as an add-on to information/content-based and multimedia-based services.

Shift in revenues

- > Operators are seeking new revenue streams to replace lost PSTN voice revenues.
- > There is a general shift toward value-added IP-based services and content/multimedia: VoIP replacing VoPSTN, IP VPN replacing IP Transit, the emergence of broadband and increase of bandwidth in access networks is increasingly enabling content and multimedia based services for users, and enabling services such as clearing, billing and aggregation have significant growth potential.

IP market

- > IP is seen as the standard enabling technology for a vast range of new, enriched value-added services, including future voice services, and for long-term cost reduction.

INTERVIEW WITH CARSTEN SCHINDLER, HEAD OF INNOVATION PROJECTS, ICSS

The traditional wholesale business as we knew it is clearly slowly becoming a thing of the past. Voice is no longer bringing the revenues it used to; IP has become the norm. Offering just IP, however, cannot fill the gap currently generated by declining voice revenues. In this changing environment, Carsten Schindler, head of the Innovation Projects team within ICSS, discusses the current market and what innovation means for the wholesale industry in the year to come.

Carsten, how would you describe the wholesale market today?

CS: The international wholesale market is facing shrinking margins and, in some cases even decreasing volumes as far as commodity products are concerned. Some wholesale players have given up or reduced their wholesale activities. Others are looking for new revenue streams. In addition, traditional voice services are gradually being threatened by the development of VoIP, and the fixed-mobile substitution is jeopardising a large portion of incumbents' revenues. These are issues which need to be addressed.

Another phenomenon we see is the emergence of new players such

as (M)VNOs in the telecommunications market. These companies are new to the telecommunications industry, but they can leverage on their brand name to sell telecom services. Typical examples are Avon in Poland, MTV in Germany, and Auchan in France. Eventually, these MVNOs will take market share away from the existing players, and they will also need to rely on managed and hosted services in a much greater extent than traditional telcos. As a direct answer to this development, we see a need to strengthen our business activities with Tier 2 and Tier 3 carriers, be more reactive to market changes by adapting our time-to-market responsiveness, and share hosted services and platforms with other key business partners.

What are the major challenges that wholesale operators face?

CS: The challenge is to find a sustainable business, which is a tricky challenge in today's wholesale landscape. There are several ways of doing it: find a lucrative niche market, develop services which bring higher added value than commodity products and which can be sold to nearly everybody, and enter into new market segments.

- > Examples for new services include wireless email, networked games, video telephony, gambling, security, video-on-demand, IPTV, mobile TV, hosted personal applications and domestic systems integration.
- > Many different types of service providers could offer these services.
- > Today, the move towards all IP and the migration to NGNs are important for two reasons, to make the portfolio flexible and innovative in order to generate additional revenues and to return to the market with a reduced capex and opex in the long term.
- > Operators are increasingly implementing their NGNs, especially in access networks (eg VDSL, Wimax, 3G).
- > The NGN has to offer extensive control and managed features required to support the variety and quality of service end users might expect today or at least in the near future, as well as on-demand delivery of bandwidth, security features, and reliability.
- > All IP means: one single IP-centric network. The separation of the network control layer and the service layer allows the rapid development of new services.

How is the customer base changing?

What is the impact on services offered?

The demands of new players means a new role for wholesale.

ICSS prepares itself to respond to the specific requirements of MVNOs, VNOs, content, application and media providers requirements by:

- > Offering an increased portfolio and coverage flexibility (including third-party product development and horizontal partnering).

- > By offering application-tailored QoS parameters and scalable interfaces; through a customer-oriented upgrading of its IP network.
- > By broadening the range of value-added IP services beneficial to wholesale and retail (eg Bill-it-Easy, improved CMNS solutions, VoIP Reselling International, VoIP Bridging, VoIP VPN Services).
- > Core requirements of customers: ubiquity, connectivity, convenience and buying criteria of customers: price, capacity, QoS, stability.
- > Matching end users' needs: wholesale buyers expect an understanding of their business, their end users' ever-growing requirements, and the pressures they go through.

The market should be ready for a new world, new customers and competitors – we need to “think in a different way”

- > With ongoing proliferation of business segments, convergent wholesale products are gaining in importance, including wireless, broadband, and, at times, mobile as key requirements.
- > Human touch: people and communication are what counts in their relationship with suppliers.
- > Special requirements in voice business: QoS, transparent pricing, time-to-market, real-time business decisions, and automation of repetitive elements in the purchasing and deployment cycle.
- > Special requirements in IP-based business: service availability, broad

How should the wholesale market react to be innovative?

CS: The market should be ready for a new world, new customers, and new competitors. As Albert Einstein used to say, we need to “think in a different way”.

What kind of innovations do you see developing in the year to come?

CS: Innovations will shape up in many different ways throughout the telecommunications industry. It is becoming clear that the fixed-mobile convergence is set to grow significantly over the next year. New players such as virtual carrier service providers and (M)VNOs will enter the wholesale market. New services will emerge, such as content distribution and enhanced applications. Second-generation VoIP, including video usage and non-geographical numbers, will be a trend to follow.

What is the approach of ICSS towards innovation?

CS: The starting point is our core competence, which obviously is the basis of all our new services. These can either be fuelled by Deutsche

Telekom's know-how, like Wifi roaming, or stem from third-party initiatives, such as Bill-it-Easy or our VoIP Reselling International product. All our new services have synergies with the existing portfolio, and are targeted at specific customer segments. When addressing MVNOs, for example, we know that they will not only need a platform for billing, CRM, and other similar services, but also for voice termination and bandwidth. Overall, our approach is very straightforward: we aim at extending our existing portfolio, providing our customers with end-to-end services, and delivering fully-tailored solutions to them.

What are the current activities of ICSS in the area of innovation?

CS: Our objective is to dedicate more resources to develop, launch, and sell value-added services. We are currently working on several projects in the areas of market and content enabling solutions, fixed-mobile convergence, and VoIP solutions. We will be addressing new market players such as MVNOs with adequate product offering. IMS is also a priority. ■

DEUTSCHE TELEKOM ICSS

Strong positioning and enhanced offering in voice and IP

- Excellent position in voice and IP in Europe
- 14,4 billion PSTN voice minutes until October 2007
- 140 petabyte IP throughput a month
- More than 430 Gbps total peering capacity
- Over 110 Gbps of trans-Atlantic IP backbone capacity
- Sophisticated international network operations
- Flexible access to an enhanced/comprehensive portfolio

Solid customer and business partner base

- Serving the wholesale requirements of the Deutsche Telekom Group entities (e.g. T-Mobile)
- Contracts with more than 700 carriers and service providers worldwide
- Business partnerships with key customers in Europe, the Americas and Asia

Financial stability and international presence

- Customer proximity through 4 regional and 18 international branch offices with local expertise
- Worldwide staff covering 20 nationalities
- Technical presence in all major business centers
- Financial stability via Deutsche Telekom Group

Source: Deutsche Telekom, ICSS

range of interfaces, on-demand capacities, flexible service options, global coverage, broad offering of IP services, and interconnection to the right partners, platforms, and markets.

- > Increased need for customised solutions and capability to adapt service parameters when needs arise.
- > The wholesale buyers want prepared services packages aimed at their subscribers' communications trends, eg high-speed internet access bundled with value-added services such as VoIP soft-client solutions, content online-payment, and multimedia messaging services on a global scale.

ICSS's REACTION TO THE MARKET

We understand the market change as an opportunity

ICSS aims to adapt to the changing market dynamics such as Web 2.0 and All-IP proactively. It has therefore reshaped its portfolio. Its objectives include being customer-oriented and time-to-market, focussing on primary demand, and covering new areas from media and applications intermediation to the facilitation of Web 2.0 services. ICSS's new wholesale role focusses on new services and business models to serve the customer with IP-based services and applications.

Our customers need a provider who understands their specific wholesale and retail business needs

ICSS offers its customers the quality, stability and reliability of service that is a critical requirement, while its innovative sales and marketing strategy gives it flexibility to adjust constantly to evolving and dynamic requirements, while being tailored to focus on a customer-segmented market approach. ICSS's best-in-class, innovative wholesale services are aligned to customer needs and those of their end users.

ICSS's segmented approach

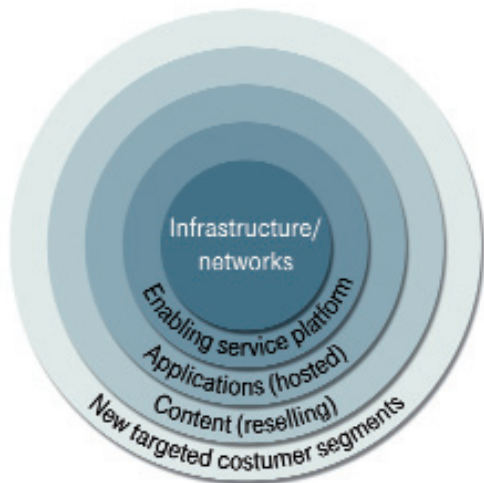
ICSS has six target segments: Fixed Voice SPs, Mobile SPs, Broadband (xISPs, VoIPs), Corporate Data SPs, Content/Apps /Multimedia SPs, and Carriers' Carriers. Besides the traditional segments, Content/Apps/Multimedia SPs is gaining more importance in terms of new generation services and delivery, while Mobile SPs and Broadband show a great potential for growth, revenues, and demand for new services.

ICSS provides

The new product modules are as follows: Transport, Voice (VoIP), Internet Access, Public IP Services, Electronic Goods (with content clearing, aggregation, mobile content, and community services with the necessary AAA and clearing), Mobility (with all the roaming and messaging exchange services from SMX, MMX, GRX, and Wifi Roaming that will all merge onto an IPX platform soon) and an extra module with segment-specific, tailored bundles, which address a primary demand in a more complex manner through a package of services, as well as product segments such as hosted applications.

ICSS has a range of USPs, from premium quality in voice and network services, excellent partners for network coverage and VPN services, innovation time-to-market, ready-to-sell applications and enabling platforms, cutting-edge VoIP offerings, and an innovative roaming and messaging portfolio, to far-reaching network and sales channel coverage combined with stability, expertise, and a strong brand. Together with new service modules, this segmentation helps ICSS tailor its offerings to the needs of its traditional and new customers.

GLOBAL INNOVATION MARKET



Close to our customers

Our customers are core to our strategy, as seen by our best-in-class customer care. The Innovation Projects team of ICSS is solely focussed on screening new trends and technologies to develop future innovative services in response to new market drivers in the wholesale business.

How does ICSS turn innovation into action?

In a market where revenues are declining but still providing a major part of incumbent income, ICSS has revisited the way it handles its voice activities, bringing many innovations into its business bloodstream.

The set-up of Voice Trading services has enhanced the buying and selling processes of ICSS, resulting in more efficient exchanges and a faster reaction to market changes. This process-optimisation approach was recently reinforced by the involvement of ICSS in the co-founding of iXLink, a global electronic business network for the telecommunications industry. iXLink is a secure, reliable business-to-business information exchange platform that enables ICSS to access and share data and business documents with its trading partners in a quick, efficient manner to guarantee optimum speed of service.

ICSS has also put a strong emphasis on its voice product portfolio with the development of outsourcing services. In response to market conditions, ICSS has developed a total Voice Outsourcing solution that enables you as a carrier or service provider to outsource your entire international voice services to ICSS. The solution was successfully sold and implemented for Gamma Telecom in 2006, and this solution is set to experience significant growth in the near future.

In response to the increasing need for IP and the boom of multimedia and content-driven services, ICSS has recently reshaped its portfolio towards new wholesale services, an approach which clearly reflects the

ABOUT DEUTSCHE TELEKOM INTERNATIONAL CARRIER SALES & SOLUTIONS (ICSS).

ICSS, the international wholesale arm of Deutsche Telekom Group, is one of the biggest voice carriers worldwide and an increasingly important IP player across a growing European market with excellent interregional connections between Europe and the Americas and Asia. With continuously changing markets, ICSS has redesigned its portfolio from traditional voice and transport services to advanced innovative wholesale services and customised IP solutions. The business activities and efforts of ICSS focus on serving the following market segments: broadband operators (ISPs, WISPs, and VoIP SPs), mobile operators and MVNOs, content, application and media providers, corporate service providers and VNOs, fixed voice carriers, and carriers' carriers, and their customers through a worldwide sales network.

The basis for the delivery of the services of ICSS is an expanding ultramodern infrastructure – Deutsche Telekom's international network. ■

decline of traditional wholesale services, and the development of new segments. The targeted services mainly include IP (Layer 2 and Layer 3 VPN), electronic goods (content, multimedia applications, and intermediation), and mobility services (roaming and messaging).

In addition, ICSS has carefully chosen strategic partners to support its business in the delivery of a number of innovative solutions that target new and existing market segments. ICSS has recently teamed up with GoIP to provide the wholesale market with a personalised and advanced Voice over IP service. VoIP Reselling International is a standalone, white-label turnkey VoIP solution that enables our customers who wish to enter the VoIP market at limited expenditure to offer their end users a feature-rich solution.

ICSS is now also able to offer a content payment solution to its ISP providers who wish to reap the benefits of the paid online content market. Bill-it-Easy is a content clearing platform that allows you as an Internet service provide or mobile operator to offer your customers a secure, convenient, and easy way to purchase online content, while you get a revenue share of the online content they purchase. ■

Contact:



Birgit Kempe

Head of International Marketing Communications
International Carrier Sales & Solutions (ICSS) Deutsche Telekom
tel: +49 228 181 13342
email: birgit.kempe@telekom.de