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FITCE Belgium discusses local access unbundling

by **Dr. ir. Jacques Tiberghien**
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A series of luncheon talks, organised by FITCE Belgium, in cooperation with the KVIV Technology Institute, gave the opportunity to four important telecommunications players in Belgium to present their point of view about the technical and business issues related to the unbundling of the local access for high bandwidth services.

Belgacom opened the series, describing its evolving access network and giving an overview of the technical and organisational issues an operator has to face when opening its infrastructure to competition. This was followed by three alternative operators—Versatel, Telenet and KPN Belgium—who talked about the challenges they had to face to build and operate competing broadband infrastructures.

The large attendance and the many questions asked during these lunchtime sessions prove that broadband local access unbundling is a hot topic in Belgium. Considering the success of this formula, FITCE Belgium intends to organise another series of lunch sessions with the universal mobile telecommunications system (UMTS) as the likely subject.

For almost a century, telephony and other utilities like electricity, water and sewerage have been considered as 'natural monopolies' because it was considered a waste of resources to build competing networks, especially for the access to the end-users. Recently, this attitude has fundamentally changed: as the traditional sectors of industry were no longer sufficiently rewarding for entrepreneurs, pressure built up for opening the natural monopolies to unrestricted competition. The 1983 break-up of the Bell system in the USA by judge Green was the starting signal for a worldwide wave of liberalisation of telecommunication services, opening up the sheltered markets of almost all the PTTs in the world. In Belgium, over 40 licensed operators are trying to grab a part of the former RTT monopoly. All over the world, however, new telecommunications operators face a formidable challenge in their attempt to take over a large part of the business of the 'historical' operators: not only do they have to offer an attractive set of services, but, in addition, they have to find a way to bring these services to the end-users' premises. As this challenge seemed to keep down competition, throughout Europe legislative measures were taken to force the historical operators to allow their competitors to access customers through their existing users' access networks.

Lunchtime talks: discussing access issues

Broadband local access—residential and small business subscribers

For bringing broadband telecommunication services to the residential and small business subscribers, the use of existing infrastructures like the telephone network and the cable television network is a must to keep the initial costs down.

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FITCE Forum

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A plea from the editor

As this edition of the *Forum* is being prepared, arrangements for the FITCE Congress in Barcelona—the 40th European Telecommunications Congress—are in full swing. In the next edition we hope to include reports from the Congress. If you are one of the participants, do please write and tell us about your experiences of the Congress—we will consider printing suitable contributions within these pages.

Unfortunately, we have not had enough contributions for this edition to make the full eight pages that we would expect to publish.

Members tell us that they value the new style *Forum* but for it to flourish it must have plenty of contributions from FITCE members.

Our vision is to see the *Forum* develop into a lively forum for discusssion among members. So do please send us articles that you feel would be of interest to your colleagues in FITCE. News of developments and activities within your national association and discussion on industry issues would be very welcome. Other suggestions you might like to consider are, for example, news about the achievements of members; recommendations about good web sites, telecommunications-related books and training materials; explanations of industry terms, and so on.

Please remember that only short articles are required, and it would be excellent if they can be accompanied by photographs wherever possible. Send your articles to me. My contact details are printed in the panel opposite.

I look forward to hearing from many of you in the near future.

Best regards,
Paul Nichols
Editor

2 ➡ *Digital subscribers lines*

With digital subscribers line (DSL) technology, both plain old telephony service (POTS) and broadband data services can be brought to the vast majority of residential telephone subscribers at a very low cost via the existing local telephone lines. Such lines have a bandwidth that can reach several megahertz for recent cables no longer than one or two kilometers. By means of frequency domain multiplexing, the lower part of this bandwidth is used for normal POTS or integrated services digital network (ISDN), while the higher frequencies are used for data transmission. Typically, asymmetric capacities (ADSL) are assigned to the down- (< 8 Mbit/s) and up-stream (< 800 kbit/s) channels because this is adequate for normal Internet clients. Symmetric transmission protocols (SDSL) are also available for connecting servers to the Internet or for bringing digital leased lines to the customers' premises.

Opening the existing local access lines for giving access to the services of competing operators can be done in three different ways:

- The conceptually most primitive way (called *raw copper*) consists in making the copper pair between end-user and the exchange (or concentration point) of the historical operator available to third parties who could use it for offering POTS or ISDN services and the full range of services available through DSL. As lines to many subscribers are bundled in a single cable, this approach could result in interference between signals generated by equipment belonging to different operators, a source of nightmares for troubleshooters and business for lawyers. This is compounded by the need to collocate equipment that belongs to different operators next to the exchanges of the historical operator.
- In a second approach (called *shared pair*) the historical operator keeps the lower frequencies to offer POTS and allows other operators to use, with their own equipment, the higher frequencies for digital services. This would typically be used by an Internet service provider (ISP) but could also be used by an alternative telephony operator for voice services. Just as with raw copper, collocation problems exist, and as various signals managed by different operators will not only be present in the same cable but also on a single pair, even more technical difficulties are to be feared.
- With the third approach, the historical operator manages the multiplexing gear at both ends of the local line and offers, in fact, a digital leased line between the subscriber's premises and the access points of the infrastructures of the other operators. This last approach minimises potential sources of conflicts, but the alternative operators might resent the historical operator keeping a too large part of the business for itself.

Cable TV

The traditional cable TV networks (CATV) are tree-like coaxial cable networks with a head-end station at the root and amplifiers in each branch. The TV programmes are received at the head-end from the air, from satellites or directly via microwave links from the producers. Analogue frequency domain multiplexing is used to carry several tens of different TV channels over the cable.

Enabling such a network for two-way communications required for data and for telephony is a huge enterprise:

- separate frequency bands have to be reserved for data and voice traffic in both directions;
- in order to prevent interference and waste of transmission capacity when several users send data on the upstream channel, fairly sophisticated medium access protocols are needed;
- to limit contention on the coaxial cable segments, the network has to be broken up in segments with no more than 1000 subscribers each;
- in each coaxial segment, the original one-way amplifiers have to be replaced by two-way amplifiers;
- the different cable segments have to be connected to the head-end through local backbones using optical fibre rings, because this technology offers high bandwidth and good reliability at reasonable cost;
- the different head-ends and interfaces with the traditional telephone networks and the Internet have to be themselves interconnected by means of a regional backbone also based on optical fibre rings. This backbone is essentially needed for the data and telephony traffic, as most TV traffic can be inserted at the head-ends.

Once these adaptations have been made, the cable TV networks can offer, through so-called *cable modems,* broadband data and telephony services similar to those attainable through ADSL.

As CATV has been deployed in a monopolistic environment, well before the opening of the telecommunications market, some people argue that this infrastructure should also be opened to the competition so that other operators could equally offer their services through CATV.

Broadband local access—medium and large business subscribers

For medium and large business subscribers, the local access issues are quite different. While DSL and CATV technologies offer enough bandwidth for all data and telephony needs of small businesses, this is certainly not true when more than 30 telephone lines and/or tens of Mbit/s bandwidth for data is required. Similar high bandwidth access requirements exist for the sites where local subscribers lines using DSL technology converge. Fortunately, these sites tend to cluster in cities and in business parks making the investments in optical high bandwidth backbones cost-effective. Typically, operators install fibre optic rings that connect all the major business areas in a country and that are themselves interconnected by means of continent, and even worldwide, rings. The transmission capacity of these rings is quite impressive and has a tremendous growth potential: not only are several empty ducts systematically buried together with the used ones, but the transmission capacity of each fibre can still be increased tremendously by using different 'colours' of light in a single fibre (dense wave-division multiplexing (DWDM)), making total capacities as high as 250 terabit/s practical in the near future and promising much more in a few years from now.

Connecting businesses to these backbones is another issue. In business parks or in industrialised neighbourhoods the installation of optical customer access rings can be justified. In other places, wireless local loops, allowing 34 Mbit/s over 15 km and 10 Gbit/s over 5 km could offer an interesting alternative, but the timing and the difficulties of the licensing process in Belgium still has a strong negative impact on the deployment of this technology.

Multiplexing techniques

A broad range of technologies is available for giving all telecommunications users, ranging from the multinational corporation to the private Internet surfer, enough bandwidth (or at least, almost enough bandwidth, because it is well known that appetite comes while eating). Most of the operators use synchronous digital hierarchy (SDH) because POTS still generates an important part of the traffic and an even more important part of the revenues. These operators further fine-tune the sharing of bandwidth between their data customers by means of protocols such as frame relay or asynchronous transfer mode (ATM). This superposition of multiplexing techniques is fairly costly. As the absolute majority of data applications is designed to use the Internet protocol and as data traffic continues to grow much faster than telephony, it is not unlikely that DWDM fibres directly interconnecting IP routers will become the rule.

CD meeting in Athens, May 2001

The Comité de Direction met in Athens on 11 and 12 May 2001 with participants from all national associations, except Luxembourg.

The President welcomed Alcibiade Zaganiaris, the new President of the French FITCE Association.

Belgium nominated José Van Ooteghem as the Belgian candidate for the next FITCE Presidency (2001–2003). The CD members present fully supported this nomination.

Next, the discussion turned to the accounts of 2000 and the budget for 2001, which were discussed at great length before their approval in August by the General Meeting in Barcelona.

The CD agreed that efforts would be made soon with extending FITCE coverage to Central Europe, Scandinavia and Portugal.

The Greek National Association has adopted the Belgian 'model' (that is, open to engineers and experts, open to corporate members).

The CD confirmed that the new communications means, the new-style Forum, had started successfully.

Rudy Kusse, Change Manager, suggested evaluating the work done for our web site and better controlling the process of maintaining it.

The general expectation is that the Congress in Barcelona will be surely a success, thanks to the all-out effort and commitment of our Spanish colleagues.

Our Italian colleagues confirmed their commitment to organise the Congress in 2002 in Genoa (11–14 September 2002).

The Comité de Direction's meeting in Athens, 11 and 12 May 2001, took place at Divani Acropolis Hotel, at the foot of the hill of Acropolis under the shadow of Parthenon. The meeting had been organised by the Hellenic Branch of FITCE under the personal care of the Secretary-General Miltiadis Goumas.

CD worked fruitfully in a nice environment on current matters and made decisions as appropriate.

CD members were able to visit the plant of INTRACOM S.A., one of the two sponsors, where the profile of the company was presented by its Vice-Chairman Mr. Tsoukalidis, in the presence of Directors General Messrs. Anninos and Tzavaras and R&D Department Director Mr. Pronios. CD members received an illustrated volume about Aegean Sea Islands as a souvenir of the visit.

Gifts were offered to CD members, characterised by high quality and good taste, being a kind offer of the sponsors (in alphabetical order), INTRACOM, INTRASOFT, OTE, PANAFON, SIEMENS, and TELESTET.

Two official dinners and a lunch were offered to CD members and their accompanying persons. The first dinner, sponsored by INTRACOM S.A., was given on Friday evening, 11 May, at Dionyssos Restaurant, and guests enjoyed a night view of the holy rock of Acropolis of Athens. Lunch, sponsored by INTRACOM S.A. was offered on Saturday 12 May, at Vouliagmeni, at Lambros Restaurant, by the sea and next to the famous lake of Vouliagmeni. The second dinner, sponsored by OTE S.A., the second main sponsor, was offered at Vouliagmeni, at Mythos Restaurant.

The accompanying persons, led by the representative of Hellenic Branch of FITCE, George Tsiamas, assisted by Niki, participated in a number of cultural events, offered by Hellenic Branch of FITCE. For Friday 11 May, the programme included a guided city tour, a guided visit to the Archaeological Museum of Athens, and a gastronomy seminar about the Greek kitchen in the form of a delicious lunch at Lycabettus hill having a panoramic view of the city of Athens. It finished with an excellent gift from the sponsor INTRACOM. On Saturday 12 May, accompanying persons enjoyed a guided visit to the holy rock of Acropolis (Propylaea, Parthenon, Erechtheon, Karyatides, Odeon) together with thousands of other people, under the Attica sun.

Visit to sponsor's installation

At the National Museum of Athens

Athens CD meeting

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The FITCE web site (www.fitce.org) continues to grow with more features, news, articles and facilities for both FITCE members and potential members alike.

The most significant development recently is that members now have access to their own private members area, unavailable to anyone outside of FITCE. The new members area contains news, events, and information—all the things that were available before plus exclusive features such as 'Online Networking', the tool for meeting people with similar skills, and 'Members on the Move', which keeps others informed about your whereabouts.

Searching for Congress papers included in the web site is now easier, thanks to a new 'Paper Search' facility. Type in a keyword and the search engine will pick out papers that are relevant to your request—no more trawling through long lists.

To access the members area, simply bookmark the URL www.fitce.org/members. You'll need the members' username and password, available from your National Association.

We hope to be featuring news and photographs from the Barlecona Congress, and the papers will be included in .pdf format for members to download.

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The death of fixed mobile convergence?

For a long time the telecommunications industry was expecting lots of revenue from the convergence of fixed and mobile telephony. The basic idea behind this service was that somebody could be reached under one number no matter where he/she would be, and that he/she would use his/her GSM phone as the basic access device. Different variants were considered. In the mobile operators approach you would have a home-zone where the local fixed rate is valid. The fixed operators approach is one where you would have a GSM base station and a GSM phone or a DECT base station connected to the fixed network and a dual mode (GSM/DECT) phone. This enables the user when at home to use the fixed network and the mobile network when outside the reach of his/her base station. The latter solution would still need a lot of development on the issue of location management and the interworking between the home base station and the public network.

Both solutions are based on the fact that there is a tariff difference between fixed and mobile telephony. They offer customers mobile flexibility at home at fixed rate prices. However, times they are changing. The prices of mobile telephony are coming down at such a rapid pace that the difference between fixed and mobile services is becoming smaller and smaller. The big question is if they will reach the same level in the end. In a study performed by Columbi Consulting Group in The Netherlands it became evident that, based on the cost of the technology and the licences, no major price difference is justified between fixed and mobile voice services. This would imply that it is possible that the prices of mobile and fixed voice services will converge. In that case, since mobile clearly offers added functionality, the standard for voice would become mobile. This would indeed lead to the death of fixed mobile convergence of voice services.

Does this lead to the death of the fixed network? I believe that this is not the case. The already mentioned study shows that the cost of the fixed access network is almost independent of the bandwidth that it supplies, whereas in a mobile network the cost of bandwidth is almost linear to the amount of bandwidth required. Also the mobile network, even with UMTS technology, will only be able to cater for relatively low bandwidth. The theoretical maximum is 2 Mbit/s, whereas the practical bandwidth is more in the order of 284 kbit/s. So the fixed network would be the logical choice for applications requiring higher bandwidth and no mobility requirements. Of course the mobile network would be the network of choice in those cases where the practical bandwidth requirements are limited, and this is quite often the case, and where mobility is essential. Do we need fixed mobile conversion products for data? The answer is simply no, because the relevant applications are developed in such a way that they are network independent and therefore these applications already take care of the required convergence.

My conclusion is that the mobile networks will be the networks of choice for voice services and mobile data services, while the fixed network is the one of choice for heavy data applications. So indeed fixed mobile convergence is dead.

Frans Heitkamp
(Columbi, The Netherlands)

The pendulum swings back

If we look at the history of telephony, in many countries it started as a private enterprise during the last half of the nineteenth century. Governments simply thought it was not important enough for them to bother at all about it. Telegraphy, nowadays we call this *data*, was important. Regulations were made so that landowners had to allow that the lines of telegraph operators pass over their territory. It was not at all clear if lines carrying telephony had the same right of way. After all, telephony was a very expensive service for the rich. The most important application of telephony was that someone could read telegrams at one end of the line and at the other end someone else could write down these messages. In this way no highly trained, but expensive and hard to find, telegraphers were necessary. Inthis way, telephony solved the staffing problems of telegraph operators.

In some countries earlier than in others, local and national governments took possession of the telephony networks, as they became aware of the strategic importance of telephony and especially long-distance telephony. The nationalisation was also necessary for international traffic. Many governments simply did not allow private companies to service this kind of traffic. For decades it looked as if the natural situation of a monopoly had established itself. In Europe we had to wait for Margaret Thatcher to show that a duopoly was feasible and not as destructive as many people predicted. With hindsight one can say that these steps were perhaps not as firm as the reputation of Mrs. Thatcher but they were made. At that time I told an English colleague that in my opinion the UK was perhaps too big as a country to experiment in this way.

The fact that Thatcher did something that until that moment seemed impossible, that is to show that a natural monopoly is perhaps not as natural as many believed, cleared the way for the European Commission to publish its famous Greenbook in 1987. It set the way forward to complete liberalisation of the telecommunications sector.

We now have almost reached this. In my view we will never reach it completely, because the pendulum has already begun to swing back. One can consider the Open Network Provisioning (ONP) rules as the first indication. These rules are a method to give to private property the character of a public good. The owner must act as if it was a perfect government instead of a profit-making organisation. The ONP rules were meant to deal with the transition from monopoly to full competition. Once achieved they could and should be abolished. In some instances it worked and competition is alive like in GSM or long-distance glass fibre networks, but if we look at fixed telephony for instance, there are many areas in which market shares are still very uneven; that is, the incumbent still has ninety percent or more. The last mile in non-business areas is a good example. Nowadays we observe tendencies to re-nationalise infrastructures. It is in fact the recognition that perhaps natural monopolies do exist and we better try to live with them than to deny them. The initiative in Germany to combine the network of the UMTS operators can be seen as going this way. In The Netherlands suggestions are being made to the government to buy back the basic fixed local infrastructure of KPN. A new situation will then slowly emerge in which the main infrastructures are operated by independent, largely state-controlled organisations and the services are delivered by commercial organisations who all have equal right of access to the networks. Perhaps not a bad outcome after all, or will the pendulum go on swinging?

Ton de Liefde (Columbi, The Netherlands)

Scientific networks

Between the laws of collision of Christiaan Huygens (29 October 1652), probably the first physical formulas that have been written down, and the *Theory of Everything* of Edward Witten (13–18 March 1995), about a possible framework for an eleven-dimensional world, lies a scientific network. To this scientific network we owe the emergence of many others. While Huygens travelled by carriage and sailing ship, we travel by train, telegraph, car, telephone, aeroplane and e-mail.

Thanks to the *warriors of the mind* we can create our own worldwide networks. An option that quite a lot of people are exploring. Many special networks exist. The nicest network I have heard of is that of a scientist who built up a network of acquaintances in different cities using his telephone number. Whenever he visits a city he dials his number in that city, introduces himself to the surprised owner of 'his telephone number', and after explaining the reason behind his call suggests having a drink somewhere. Many people accepted his invitation and in this way he made friends all over the world.

To wander about in a scientific network requires a fearless mind. It seems paradoxical but the collision of ideas is often the best and fastest way to move forward. 'It is hard', the logician Gottlob Frege wrote to Bertrand Russell, 'to see my work of 10 years destroyed by your letter of 14 lines that I received yesterday.' Huygens disputed with Newton about the nature of light. Waves or particles? A frontal collision followed. According to Richard Feynman, Newton was right. Feynman wrote in 1985 in QED, his booklet about the strange theory of light and matter: 'It is very important to know that light behaves like particles, especially for those of you who have gone to school, where you were probably told something about light behaving like waves. I'm telling you the way it *does* behave—like particles.' Obviously he wasn't joking. On the contrary the purpose of his book was to tell how the 'wave-particle duality' puzzle was finally 'resolved'.

Scientist	Year	What is light?
Isaac Newton	1672	Particles
Christiaan Huygens	1678	Waves
James Clerk Maxwell	1873	Waves
Albert Einstein	1905	Particles
Louis-Victor de Broglie	1924	Both
Werner Heisenberg Erwin Schrödinger Paul Dirac	1926	Both
Richard Feynman Julian Schwinger Sin-Itiro Tomonaga	1948	Particles
Edward Witten	1995	Strings

That scientists can use better and faster networks to their advantage for the exchange of ideas and discoveries is obvious. In some higher sense it was fitting that Tim Berners-Lee invented the World Wide Web at CERN, the world-famous laboratory for particle physics in Geneva, Switzerland. Thanks to the World Wide Web we all can now easily participate in a scientific adventure. Interested in becoming world-famous? If that is the case you can join the hunt for the largest prime number in the *Great Internet Mersenne Prime Search* and with some luck you will be the next holder of the world-record. What to do? Tune in, log on and dig gold.

Johannes W. Meijer (KPN, The Netherlands)

Studies on performance criteria for Internet access

Studies have been undertaken on behalf of the European Commission to identify performance criteria for accessing Internet-based services. A study was completed by a consulting company (Bannock) and the report was published in August 2000. The following performance criteria were identified as being possibly relevant:

1 Number of attempts required to achieve connection.
2 Time to connect.
3 Time to connect during the busiest hour of the week.
4 Frequency of connection termination.
5 Frequency and duration of ISP 'outages'.
6 Theoretical maximum speed of connection.
7 Connection speed achieved.
8 Latency, jitter and packet loss statistics communicating with the ISP.
9 Speed of download from ISP's server(s).
10 Speed of download from ISP's mail server.
11 Ratio of ISPs' bandwidth to product of number of customers able to achieve simultaneous connection and the maximum bandwidth of those connections.
12 Proportion of packets travelling through the ISP's routers which are lost.
13 Proportion of designated sites connected to: (a) the ISP's own backbone/backbone provider(s); (b) to the ISP through private peering arrangements; and (c) through public NAPs/IXPs.
14 Proportion of time which designated sites are unreachable.
15 Latency, jitter and packet loss statistics for designated sites.
16 Number of NAPs connected to and the bandwidth of the connections.
17 What are the bandwidth utilisation figures for the ISP's NAP connections and how congested are the NAPs at which the ISP peers?
18 Cost of Internet access.
19 Cost of web-site hosting.
20 Annual supplemental cost for domain management.
21 Cost of technical support.

Even though these criteria have not been validated on a population to check for its statistical significance or the order of priority, these look amenable enough to be considered for specifying performance of access to the Internet. The full report is available on the Web and it is recommended that those interested in this area download the document and read it. The URL is: http://europa.eu.int/ISPO/eif/InternetPoliciesSite/QoS/FinalReport.pdf

Another study initiated by the standards body CEN is in the final stages and the report is expected any time now. It will deal with recommended performance criteria on which the ISPs will rate their design performance against suitability for home, leisure or business use. It is hoped that this document will form the basis of a voluntary code for ISPs to conform to in specifying their own goods for the various requirements of the three sectors; that is, home, leisure and business community. The final report, 'Quality of Internet Services' will not be available on the Web but will have to be acquired from the national standards body of the respective countries.

Antony P. Oodan
(Telecommunications Quality Consultancy; FITCE UK)

IP-VPN market set to soar

The Western Europe market for IP virtual private network (IP-VPN) services is set to increase seven-fold in the next five years to US$6.6 billion, despite service providers paying insufficient attention to user requirements. This is one of the major conclusions of *Market Realities of IP-VPNs*, a report and survey published in July by Analysys, the global advisors in telecommunications, IT and new media.

Margaret Hopkins, lead author of the report, commented, 'When service providers are desparate for revenues, we found it surprising that they were not putting more effort into attracting users—especially SMEs—to the obvious benefits of this developing network technology and in matching users' requirements.'

An in-depth survey of more than 50 companies in the USA and Europe was commissioned for the report. The companies surveyed ranged from those with 50 employees to multinational corporates with thousands of employees and covered a wide range of industries. The survey reveals that IP-VPNs are attractive to a wide spectrum of industries, irrespective of geographical location, the number and distribution of its sites, communications environment, or a company's spend on communications.

The survey indicated that users are drawn to IP-VPNs by the imperatives of cost effectiveness, competitive strategy, the dynamics of their own industry and technological attractiveness. It revealed that service providers have virtually no influence on users' interest in the technology.

Despite the many positive aspects of IP-VPNs, under 60% of survey respondents felt that all their expectations of the technology had been met. Concerns included the failure to obtain expected cost benefits, and performance issues such as network latency, bandwidth and security. According to the report, there is an evident tension between the perceived virtues of IP with the realities of business networking and IP service provision.

Existing and potential users of IP-VPNs emphasise the desirability for a relatively small number of basic applications and network uses—such as e-mail, web browsing, remote database access, remote network access and intranets. They gave a low priority to voice and data integration, and many stated they were not convinced of the maturity of the technology or its benefits. Extranets also appear to be a minority interest, despite the substantial attention given to them by the telecommunications industry itself.

'Many service providers are currently concentrating on tailored IP-VPN solutions for large companies—where the emphasis is on quality of service (QoS) and added value—rather than on simple service packages for SMEs,' says Hopkins. 'Multi-site SMEs, and those with teleworkers or mobile staff, are enthusiastic about IP-VPNs, and as a result offer service providers a potentially lucrative market which remains relatively untapped.' However the report stresses that the coverage of broadband access is still a critical factor in offering IP-VPNs to the SME market.

The report concludes that there is large scope for rapid growth in the market even though, on current projections, IP-VPNs will still have only 10% of the data market by 2006. In the longer term they have the potential to take a significant part of the business datacommunications market, but service providers will need to turn their attention to the requirements and demands of SMEs more so than they have done so far.

The report establishes a clear understanding of the technical issues by identifying the varieties of VPNs. It explains the operation of IP-VPNs, the relevant standards, the features and capabilities supported, and their role in service-provider network infastructures. The report also examines the product strategies of leading IP-VPN vendors and analyses the recent roll-out of IP-VPNs by service providers.

Anaysys—www.analysys.com

Application service providers —a new business model

The telecommunications market has always shown activity that seems to shorten the value chain. In the mid-1990s, we all began to recognise the tendency for pure network operators to climb the value ladder by providing such services in their portfolio, while organisations at the top of this value chain (such as service integrators) tried to get into the networking space. The reasons for these movements are easy to explain.

Where network provision was a very profitable area in the monopoly world, it has now turned into high-volume, low/no-profit business and the companies involved seek activities that generate better profit percentages.

At the top-end of the chain, the value added tax model (VAT) applies, meaning that the last link in the chain bears all the costs (which equals accumulated profits) from the previous links in that chain. Getting control over more links in the chain reduces the cost as accumulated profits disappear.

The result of these opposite movements is that the battle is fought in the middle regions where two meet or clash. This is illustrated with statements from the big consortia some years ago that you could not provide profitable services if you did not own a substantial network to deliver those services.

The Internet has facilitated a new breed of companies, the application service providers (ASPs). ASPs are in the business of what is called today SAAS (Software As A Service), and it is largely about hosted services and applications in the office, planning and financial environment.

Since ASPs address the market of SMEs (small and medium size enterprises) and SOHOs (small office, home office) they have to be near or at the end of the value chain, which is the customer-facing or the 'sharp' end of the business. Almost by default ASPs work in a business model that involves ISPs (Internet service suppliers), network operators and application developers and, increasingly, the mobile operators. The latter group in particular is very eager to create revenues and make money out of the highly overpaid licensces. They are therefore regarded as fitting within the VAT model of cost/profit aggregation. Customer ownership is one of the big hurdles to take when utilising this model.

With shortening service lifetimes, caused by fierce competition and rapid innovation, the life span of an application and its ASP could be relatively short unless it can cover a multi-link piece of the value chain in the traditional model and/or is able to keep up with the development and innovation. This requires a financial structure that allows for money to be spent on developments, which in the current state of ITC is not as easy as it used to be.

A new way to think about Internet business modelling is to step away from the chain model and move towards networked relation models. Each one of the participants works in a bilateral relation but with a multiple number of them. Costs, pricing and performance and the added value determine who will be successful and who will drop out. Combining or integrating activities into one entity will make it stronger and most likely more future proof. The fact that this model matches with the concept of IP-based extranets for virtual business communities seems too good to be true and is at least a positive omen.

Jos Gerrese
(The Netherlands)