Advisory Report

NGN Tracker:

Incumbents Play Defense Whilst Challengers Agitate with IMS, SIP and Carrier Ethernet

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Summary

Carrier NGN strategies continue to make progress at varying rates throughout Europe, with adaptations and rollouts driven by several factors, such as market regulation, competition and overall economical conditions. Incumbent operators still face large-scale legacy network retirement processes including the systems that back them, as older PSTN, frame relay, ATM and x.25, equipments make way for modern multi-service platforms and back-office operations administration and maintenance (OAM) and billing.

Another challenge that all operators face is deciding which technology to back. Investments must be future-proof, and interoperability, scalability and standards compliance are all essential aspects to consider for a next-generation network plan. This report looks at the concrete activities and announcements, with additional analysis and commentary on the reasons why service providers have adopted a certain approach in terms of relations with infrastructure vendors and in launching 'NGN-like' services. customers to make the jump into the cloud, which providers are in the best position to capture their business, and what can other companies learn from them?

Current Perspective

For the purpose of this report, the terms NGN and 'NGN-like' refer to equipment and platforms that provide modern and powerful alternatives to legacy platforms that are already in place, for example TDM, FR, and ATM, supporting traditional voice and data. A next-generation platform is a system that removes vertically separated product and billing silos, and one that allows rapid new service time-to-market via a single simplified service delivery platform (SDP). In many cases, the competitive edge is all about reacting quickly and having

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the product development and delivery engine functioning on a shorter time-scale compared to rivals. Moreover, in this report, the term 'NGN-like services' refers to products that take advantage of modern underlying platforms including Layer 2 Ethernet, all-IP backbones, SIP trunking, IMS, and tightly integrated fixed-mobile convergence, including UMA and WiFi-enabled VoIP, as opposed to pure commercial FMC concepts in the form of a single bill for fixed and mobile communications. Part and parcel of this trend is the move away from time-based billing to flat-rate, which needs to spread across fixed-line access for mission-critical business applications, to mobile telephony, mobile broadband, and integration between all the above.

For established carriers, the foremost NGN objective is typically achieving lower operational costs (OpEx), with NGN-like services becoming feasible almost as a by-product. Clearly, existing infrastructure is far too valuable to simply retire; therefore, several carriers continue to offer data WAN services combining the old with the new – such as in Ethernet-over-ATM or gradual deployment of next-generation SDH that supports interoperability with TDM, IP and Ethernet.

In the areas of high-speed access and core network upgrades, there is consistent up-tick activity across Europe at both the core and access. In some cases, FTTx plans are being pursued in collaboration between public and private sectors, such as initiatives underway in Italy and France. Undeniably, such cooperatives take the spotlight off the former telecom monopolies for creating an openly competitive environment. There are several government-backed broadband-for-all programs in place, including, for example, the agreement between Telecom Italia and Fastweb, indentifying that the costs of a national NGN are too high for a single operator to bear and that a pact between several vendors is the only logical workaround. The potential alternative is forced separation between the local incumbent's infrastructure divisions and its retail operations (as in Openreach). Leveraging existing copper pair continues to be explored, as in the example of DT and Vodafone Germany embarking on tests in two German towns. Speeds up to 50 Mbps are possible; meanwhile, for business-class Ethernet in the first mile (EFM), several carriers (e.g., Jazztel [Spain], Easynet and COLT) are turning to the G.SHDSL.bis standard to offer up to 40 Mbps symmetrical bandwidth on up to eight bonded copper pairs.

Core network upgrades for supporting capacities up to 40 Gbps (and there is talk of 100 Gbps upgrades) are intended to meet explosive demand in mobile broadband, and for bandwidth-hungry rich media content distribution for enterprise and residential needs. Both Belgacom and Verizon Business prove this point, with 40 Gbps circuits already provisioned in Europe. Meanwhile, Deutsche Telekom deployed Ericsson's Marconi MHL 3000 40 Gbps multi-haul WDM platform in Germany, in a move designed to support growing broadband traffic demand from business and residential customers.

Incumbent operators, such as BT, have launched Ethernet offers that run on the back of their NGN investments. During mid-2008, the carrier's wholesale division, BT Wholesale, announced a new range of Ethernet services, and this was followed up in October 2008 with its retail Etherflow product. These services, namely the wholesale and retail Ethernet ranges, have been labelled as the first products to roll based on 21CN. This example points towards a reactive process among incumbents to protect existing assets and lower OpEx, while at the same time embracing innovation to remain competitive, because several alternative UK players launched modern Ethernet services ahead of BT.

For new market entrants, the decision to leverage innovative technologies, such as IP/MPLS, native Ethernet, SIP trunking and unified communications (UC) and IMS, is less crucial for lower OpEx (although this is clearly a factor that cannot be ignored) and more designed to gain differentiation in the market via unique pricing, features and performance. Examples of aggressive market plays can be drawn from Exponential-e in the UK, which leverages MPLS and uncontended fibre access to deliver Ethernet services in a site-to-cloud topology backed by virtual private LAN services (VPLS). Secondly, Vodafone Spain and Portugal made recent product announcements leveraging the Ericsson IMS platform combined with a fixed-line backbone and LLU-based DSL to offer fixed-mobile convergence. Vodafone's local market plays in Southern Europe are aimed at mass SME markets and offer the possibility of a single number so that, if the fixed office number is dialled, it will automatically forward calls to a mobile. The company intends to replicate these offers throughout its footprint.

Another example of a carrier seeking to pursue a modern technology strategy to garner market share is that of Danish operator ELRO, which recently entered a three-year framework agreement with ECI for the deployment of a multi-vendor nationwide WiMAX network across Denmark based on platforms from ECI (optical transmission and network management), Alvarion (WiMAX) and Ceragon Networks (wireless backhaul). Bypassing the incumbent's fixed-line infrastructure via technological innovation presents a means to carve out market share in telecommunications, but attention must be paid to ROI and establishing brand awareness.

To respond to competitive pressure in a market that increasingly demands fixed and mobile services in a single contract, Cable & Wireless UK selected Ericsson to supply and operate a GSM mobile network. As the managed services partner, Ericsson will also be responsible for running C&W's mobile network for five years. Ericsson is to supply solutions for service provisioning, SMS and voicemail. This type of relationship demonstrates how traditional fixed-line operators can leverage partners to focus more intensely on sales and marketing and to mitigate long-term OpEx concerns by outsourcing non-core activities. KPN's decision to work with Logica has similar intentions in mind: in other words, to lower risk and streamline IT and networks within the carrier environment. KPN signed a five-year outsourcing contract with Logica for application management of KPN's network information systems, with the integrator taking over some staff and moving some functions to its offshore service centre in India. Logica is responsible for the management of more than 50 IT applications for network administration and geographical information on network elements in the operator's wholesale and operations domain, including both legacy systems and new network information systems.

To summarize, carrier NGN plans are still very much underway throughout Europe, and they are an important aspect on the service provider agenda. Some areas are not moving as quickly as was previously thought, such as FTTx projects, which are moving quickly in some countries such as France and Holland and slower in others such as Spain. Incumbents are erring towards a conservative overlay approach, whilst alternative carriers are selling the terms 'innovation' and 'NGN' to customers as a point of differentiation from more established rivals. In some cases, the pace has been slowed down by uncertainty on the impact of regulations. Finally, there is a large amount of cooperation and collaboration in place, not just between carriers for reducing the investment load, but also with carriers outsourcing entire aspects of infrastructure deployment and ongoing management to equipment vendors.

The table on the following page details carrier initiatives in the previous six months relating to the areas outlined above.

NGN Rollout and Services Announcements

Carrier	Event Date	Event Summary	Analysis
BT	Oct 2, 2008	BT's 'first' 21CN product, Etherflow, is launched. Etherflow is a L2 Ethernet service available in the UK. It supports port speeds from 10 Mbps to 1 Gbps. As of the launch date, 106 new core and access nodes based on Alcatel 7750 support the rollout, and this figure is expected to reach 1,000 21CN nodes by the end of 2009.	This positive move brought BT in line with competitors in the area of L2 native Ethernet data WAN services. Previously, BT's offer (Megastream) relied on older and less effective ATM. However, alternative operators in the UK still enjoy certain unique selling points, such as multiple CoS and online monitoring. Etherflow will move from strength to strength in 2009 as more 21CN nodes are deployed.
Vodafone Portugal	Oct 27, 2008	Three new fixed/mobile converged SME bundles launched: 'PABX,' 'Voz Fixa Plus' and 'Rede Privada'	A one-stop shop for services and a fixed monthly spend will appeal to SMEs; however, Vodafone will have to prove itself in a new environment.
BT Ribbit	Nov 18, 2008	Ribbit made available its developer platform, opening the doors to software developers, integrators and carriers.	BT is determined to combine 21CN investments with complementary Web 2.0 tools. Access to a large pool of application developers is healthy, as progress on the Ribbit platform should give BT a hook into innovation. However, BT needs to convert its NGN and Web 2.0 ecosystem into concrete revenues.
Swisscom	Dec 9, 2008	Swisscom's FTTH plan involves hooking up 100,000 homes by end-2009, as well as the provision of fibre for competitors to avoid a monopoly. Swisscom will connect 100,000 households in Bern Fribourg, Lausanne and St. Gallen with FTTH by the end of 2009.	The move goes some way to levelling the playing field with Cablecom's 100 Mbps DOCSIS 3 services, announced in August 2008. While Swisscom stands to gain a great deal from FTTH infrastructure, and it has already seen demand for FTTN from small businesses, the company is spending a great deal in infrastructure and product price points may prove expensive for consumers during the current recession.
Orange, Numericable, SFR	Dec 18, 2008	Orange, Numericable and SFR agreed to work together to roll out FTTx.	This three-way pact has a number of advantages for its participants; for example, it helps spread the high costs associated with fibre deployments and at the same time takes some pressure off France Telecom from the regulator. The news is good for French end users, as the cooperation should speed up the pace of fibre rollouts, meaning more widely available very-high-speed broadband.
KPN/ Reggefiber	Dec 19, 2008	KPN and Reggefiber gained clearance for their FTTH joint venture from the Dutch Competition Authority. Reggefiber will pick areas ripe for rollouts – in other words where fibre and high-performance (DOCSIS 3.0) are lacking. KPN will proceed with its current FTTH pilots in five Dutch cities.	KPN continues to roll fibre, and being the first into new locations gives a strong advantage. The concern on fibre rollouts is achieving a return on the investment within a realistic time-frame. KPN needed to take advantage of its shareholder status (41%) in Reggefiber and respond to aggressive rival operators, such as BBNed and Tele2 Zakelijk.
Vodafone/DT	Dec 23, 2008	DT and Vodafone will collaborate on VDSL pilots in Germany. Deutsche Telekom and Vodafone intend to jointly deploy VDSL access to Wurzburg and Heilbronn to offer end users up to 50 Mbps access speeds. Passing VDSL-based access to approximately 50,000 households is proposed in at least one of these two towns in the near-term.	Cooperation in NGN rollout is sensible, as risk is reduced and replication of infrastructure avoided. DT has to meet its commitment to broadband-enabling the national market and at the same time staying on the right side of the local regulator. Meanwhile, this pact is useful to Vodafone Germany, as it needs to push broadband and IPTV following its acquisition of Arcor AG in 2008.

Recommended Actions

Recommended Vendor Actions

• There is considerable evidence of two or more service providers collaborating on the rollout of national NGN platforms. Examples include Orange/SFR/Numericable, Vodafone Germany/DT and Telecom Italia/FASTWEB. There are a number of advantages that carriers should consider in adopting this tactic, such as reducing investment risk, sharing expertise and experience and avoiding replication of infrastructure in any given geography. For incumbents, such cooperation with alternative providers reduces the severity of any interference and rulings by local telecom market regulators.

• Fixed-line operators that face competition from cable operators adopting the DOCSIS 3.0 implementation have opportunities to respond with FTTx and VDSL programs. There is consistent ongoing activity (notably in the Netherlands and France) for deploying fibre, whilst Swisscom also considers direct fibre a potential response to aggressive cable players offering 100 Mbps broadband. Carriers' main focus should be achieving tenable returns on fibre investments, and the pricing points and business plan must be carefully thought out to prevent cash problems further down the line.

• Fixed-line service providers must be aware of the progress Vodafone is making in the area of FMC supported by IMS deployments. Launches have been made in Spain and Portugal, and more Vodafone countries are expected to follow. Carriers need to be communicating their FMC plans, including IMS rollouts to prospects, whilst operators that provide mobile services through partners under MVNO must be in close negotiations for tightly integrated offerings with convergence capabilities or face competing on a weaker footing.

• Leveraging existing copper pair continues to be explored, as in the example of DT and Vodafone Germany embarking on tests in two German towns. Speeds up to 50 Mbps are possible; meanwhile, for business-class Ethernet in the first mile (EFM), several carriers are turning to G.SHDSL.bis standard to offer up to 40 Mbps symmetrical bandwidth on eight bonded copper pairs. Offering economical Layer 2 Ethernet end-to-end circuits leveraging EFM is a sensible approach for targeting mass domestic SME markets with such products. COLT is a strong pioneer in this area, currently offering EFM in 12 European countries.

• Several carriers are outsourcing network management and maintenance activities to infrastructure vendors. Operators should consider such services as a means to reduce HR spend on non-core functions, leaving the provider to focus greater efforts and resources on, for example, marketing and sales.capital and operational savings. These models should also highlight data points around savings on power and cooling and other data center facilities costs. Also, SaaS providers need to emphasize the security controls they have in place to protect customer data.

Recommended User Actions

• Business prospects should be monitoring their service providers' messages and progress reports concerning NGN rollouts. Investments in core equipment should deliver OpEx cost-savings, which should filter down to the end user. Furthermore, carriers should be questioned on plans to increase access speeds leveraging new technologies. In some cases, a more costly access (based on fibre, for example) will offer other paybacks by converging multiple applications and services onto a single pipe, such as SIP trunking for VoIP, L2 Ethernet data WANs, video and mission-critical low-latency applications.

• End users can also measure the progress of a carrier's NGN plan by checking whether convergence is possible between fixed and mobile devices, such as single-number services and access to voicemail on mobile devices as well as on the fixed office phone line. Other areas indicating good NGN progress would be the ability to provision additional circuits within a rapid turnaround time and new possibilities for scaling bandwidth up and down in fine increments according to needs.

• Customers should be pressing vendors for evidence of improvements in the overall service experience thanks to NGN investments, such as faster provisioning, improved billing, and more rapid fault resolution. It must be made clear to carriers that such aspects are an important part for identifying a suitable carrier.