Could fixed-line networks hold the key to solving one of the mobile industry's biggest challenges in 2011?

Interoute believes the answers are in the network.

As mobile networks come under increasing pressure from the rising costs and capacity demands for rich data and multimedia traffic, can a fixed network operator's business and network model give an insight into how to transform the mobile industry's underlying cost structure for a new world of user content demands.

2010 was a pivotal year for mobile internet access. Smart phones and connected tablets, like Apple's iPad took hold of consumer's attention like never before. As these devices gained notoriety, along with market share, they contributed to acceleration in rich mobile data as users began to exploit the relentless flow of new apps and video content becoming available. For example, when the BBC in the UK made its on-demand catch up service iPlayer available for the iPhone, mobile traffic doubled. The proliferation of connected devices also encouraged a change in the way users accessed and thought about accessing content. Ten years ago the industry was confident that whoever owned the access to the customer owned the value, but within five years opinions and behaviour had begun to change as Information Week noted the startling revelation that "users won't consciously decide how to access the internet".

In 10 short years we have gone from "it's all about access", to not consciously thinking about the access at all and a growing presumption that the internet is always available. The implications of this change are, and will be, profound. In the same way the proliferation of consumer fixed broadband created a revolution in the delivery of content, the unification with mobile broadband will lead us to the next challenge; a world of hyper connected

Figure 1 Increase in traffic vs. the potential increase in mobile data revenues
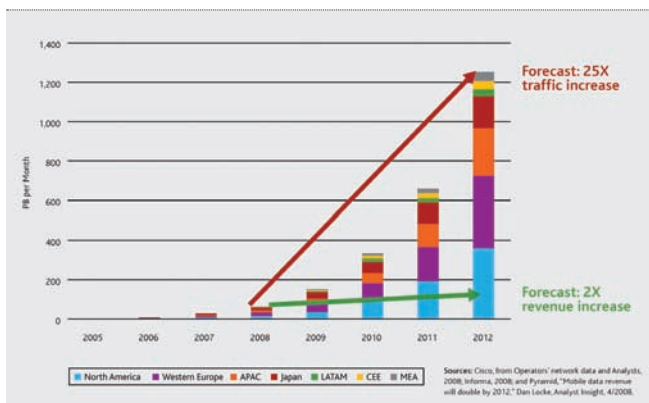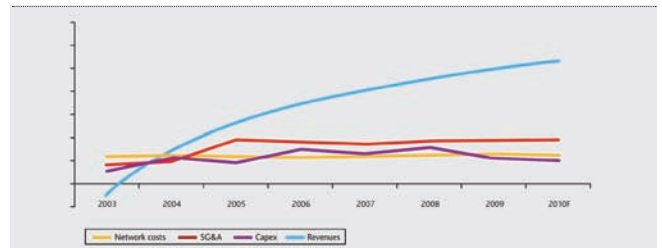

Figure 2 Interoute's operational costs

consumers who expect access, anytime, anywhere, with an increasingly unified consistent service experience.

The challenge for mobile operators in this new world is how to move from a business model that was developed when voice and SMS were the biggest demands on the network to a world of apps, videos and web browsing traffic.

However, with the growth of mobile broadband, driven by the expansion in the use of the internet, this difference, that was once a virtue has become a costly hindrance to progress. According to Yankee Group, the associated costs with data traffic and the need to upgrade mobile backhaul networks account for an overall increase in opex of 30%. The costs are expected to rise with the adoption of long-term evolution (LTE), high-speed packet access (HSPA) and worldwide interoperability for microwave access (Wimax) as capacities to the nodeB increase. In-Stat believes that backhaul capacity in western Europe will more than triple to nearly 60Tbps, requiring operators to increase expenditure on backhaul solutions by 41%. Combine this with an average revenue per user (ARPU) that is predicted to only double while traffic is predicted to increase 25 times and the only conclusion is that the model that worked for voice and SMS needs a serious overhaul.

The challenge for mobile operators is further compounded by the impracticability of building new infrastructure in a market of declining € per service capacity unit[1]. They need to preserve existing services on paid for infrastructure and increase capability and capacity without additional uplift in the costs per service unit. In many cases to support the demand in growth in mobile data they need to dramatically reduce costs.

But the challenge is not just to implement a radical change in cost structure while still enabling new services to be created at a pace that remains competitive; there is also a need to manage the movement of processing and intelligence from the network to the device. Having to defend on multiple fronts, restructure costs and drive new revenue creation is hard at the best of times, let alone in today's tough economic climate.

However these challenges are not new in the telecoms

Figure 3 Unified Connectivity multi-service capability for mobile backhaul
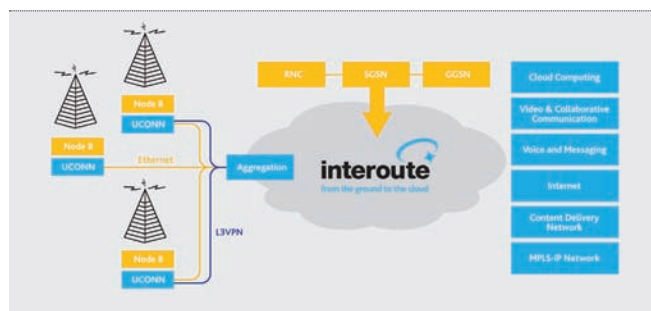
industry; fixed network operators faced a similar challenge 10 years ago, when unsustainable investment and declining prices forced many operators to rethink the way they operated.

Interoute radically changed its business model at this time leveraging the benefits of its next-generation network platform to increase efficiencies and drive down operation costs while innovating new services and deploying a platform-based approach to voice and data content delivery.

This has led to an operational business model where network costs remain almost static year-on-year-on-year, despite significant growth in customers, voice and data traffic and of course revenues.

It is this operational model and network platform approach that can provide the basis for a new content delivery model for the mobile operators.

Over the past eight years, Interoute has built a common services model that has enabled it to grow rapidly in both the enterprise and service provider sectors. This model focusses on optimising the delivery and management of services across diverse geographic markets and access technologies.

The Interoute physical footprint is the largest in Europe and hosts many of the world's network operators' infrastructure and services.

This constant evolution of the service creation and delivery environment abstracts our customers away from the changes in technology, vendors and supply chain and allows us to create customer-focussed environments based on the target solution, not the limitations of a single technology.

The goal of Interoute's combined footprint and service capability is to create an on-demand and integrated Mobile NetCo that can "plug" into the mobile ServCo through a sophisticated e-bonding approach. This allows the ServCo to retain intellectual control of the service creation and direction, but leverage costs, shortening the time to market and improving cross-market competitiveness.

Interoute has developed its product portfolio in three key areas to support its mobile customers:

● Mobile backhaul – based on Interoute's Unified Connectivity approach
● Service creation and delivery platform development
● Logistics and service management.

Mobile Backhaul: The creation of an access technology solution reducing the number of CPEs and giving "zero impact" instant uplift to existing 3G capacity whilst offering native IP at the nodeB.

The key advantages of Interoute's Unified Connectivity approach to mobile backhaul are that it uses MPLS to separate the service from the access technology. This means that the connectivity can be made uniform across all environments regardless of the availability of access technologies. Unified Connectivity has been successfully deployed over varied access types from digital subscriber line (DSL) to fibre proving that it has the price point to work with very low cost access technologies, but the sophistication to run multiple services over high capacity links. Figure 3 illustrates how the use of Unified Connectivity at the nodeB enables an immediate capacity uplift for existing services whilst enabling inter-cell routing. Unified Connectivity can be changed dynamically without the need for expensive site visits, new CPE deployment or lengthy project management, allowing for cell-by-cell migration strategies and smooth phasing of legacy to LTE services.

Service creation and delivery platform development: Interoute is Europe's largest carrier's carrier running more capacity and infrastructure for global carriers than any other operator. Its unparalleled fibre and space reserves[2] enable Interoute to constantly capitalise on silicon and software innovation to increase functionality whilst maintaining costs. Interoute has created seven service platforms that can be integrated into an existing operating model or Interoute can provide a build, operate and transfer model (that it is tried and tested for operational efficiency 24/7, 365 days a year, across 3,000 different customers and 26,000 different services).

Figure 4 Interoute's operational platform as a service
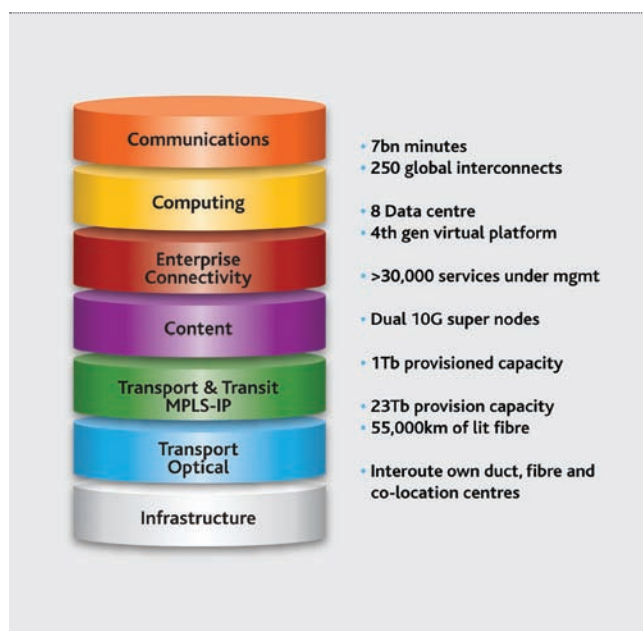
1. *€ Service capacity unit – refers to the cost on a per service from a network capacity and capability perspective. It makes the assumption that with packet networks the cost of delivering a packet is the same regardless whether it's carrying a conversation or a YouTube video.*

2. *Despite being the largest carrier's carrier in Europe Interoute only consumes 7% of its fibre reserves and less than 20% of available space.*

Figure 5 The Interoute infrastructure and footprint

All Interoute service platforms are designed to offer operators complete control and visibility so that the customer has complete control through partitioning of the underlying network platform and also the operational support system (OSS) and business support system (BSS) elements, ensuring complete service integration.

● **Transport services:** Interoute is Europe's largest provider of transmission services with presence in over 200 cities. Its carrier transport platform offers a wide variety of transport connectivity services enabling the creation of virtual points of presence (PoPs) in any combination of optical transport network (OTN) or Ethernet-based services.

  ● OTN transport – complete transparency through the Interoute network allowing mobile operators to leverage the Interoute network capacity and geographic growth without having to build and operate a network themselves.

  ● Packet transport services – Interoute on Net (ION) – Interoute leads in the development of packet transport services that allow customers to aggregate carrier Ethernet services into Interoute whilst connecting 100Gs at a time and enables the provision of 1xGbE and 10GbE services.

● **MPLS/IP services:** native IPv6 and VPLS

● **Voice and messaging:** services though Interoute's Virtual Voice Network (VVN).

● **Enterprise services:** Interoute has 34 major operators as customers of its carrier enterprise services which enables an operator to offer enterprise services across Interoute's full MPLS network footprint and its partners' networks which cover over 70 countries globally at present. Interoute's Unified Information and Communications Technology (ICT) strategy integrates services into its connectivity platform.

● **Mobile CDN and internet services:** Interoute has complimented its deep connectivity to Europe's major access networks with one of the most operationally mature CDNs in Europe. Serving media companies for over eight years, Interoute offers CDN connectivity supporting all major handheld formats with full adaptive bit-rate capability and content protection through SSL encryption and tokenisation per packet.

Logistics and service management: One of the critical aspects of any discussion surrounding the outsourcing of services or using any third party supplier is how to integrate a company's business processes and models into your own so that they become an extension of your organisation and your thinking.

It's essential that an outsourcing partner has the scale to absorb the requirements of the customer and above all the proven operational, systems and process experience to make it cost, time and resource efficient.

Interoute operates a pan-European logistics and operational environment with 25 maintenance centres serving nine different platform technology groupings with everything from the infrastructure to cloud services. Of the world's largest 20 global carriers, 18 use Interoute in a substantial way and many use more than one of Interoute's platform.

Interoute has built its carrier business not only on its ability to absorb even the largest requirements, but also on an innate understanding of the optimal integration model for an operationally smart organisation. This has been systemised so that the customer can 'plug' Interoute into their operational management processes from fulfillment and implementation through to service assurance and management. Interoute's portal services for direct customer ordering and management of third party tail services can be adapted to query Interoute's 250 suppliers globally, obtain a price and place an order.

Conclusion

Put simply, the challenges facing the mobile industry today are the challenges that faced Interoute in 2003. Operating in an industry that is subject to year-on-year bandwidth price decline coupled with aggressive growth in capacity demand to support new services and rich media content, Interoute developed a business model that could offer complex multi-service all-IP networks to customers through the creation of central service platforms.

Interoute has demonstrated over the past eight years that it can run critical infrastructure for many of the world's largest service providers and enterprises. Its innovation in service creation and delivery set it apart as a fresh thinker in the development of mobile services. The crossover of highly cost-effective fixed telecommunications platforms being applied to core mobile infrastructure accelerates mobile operators' time to market with a proven cost and operational model.

Mobile operators can benefit from this hands-on experience to help solve the same challenges they face today. ⊟

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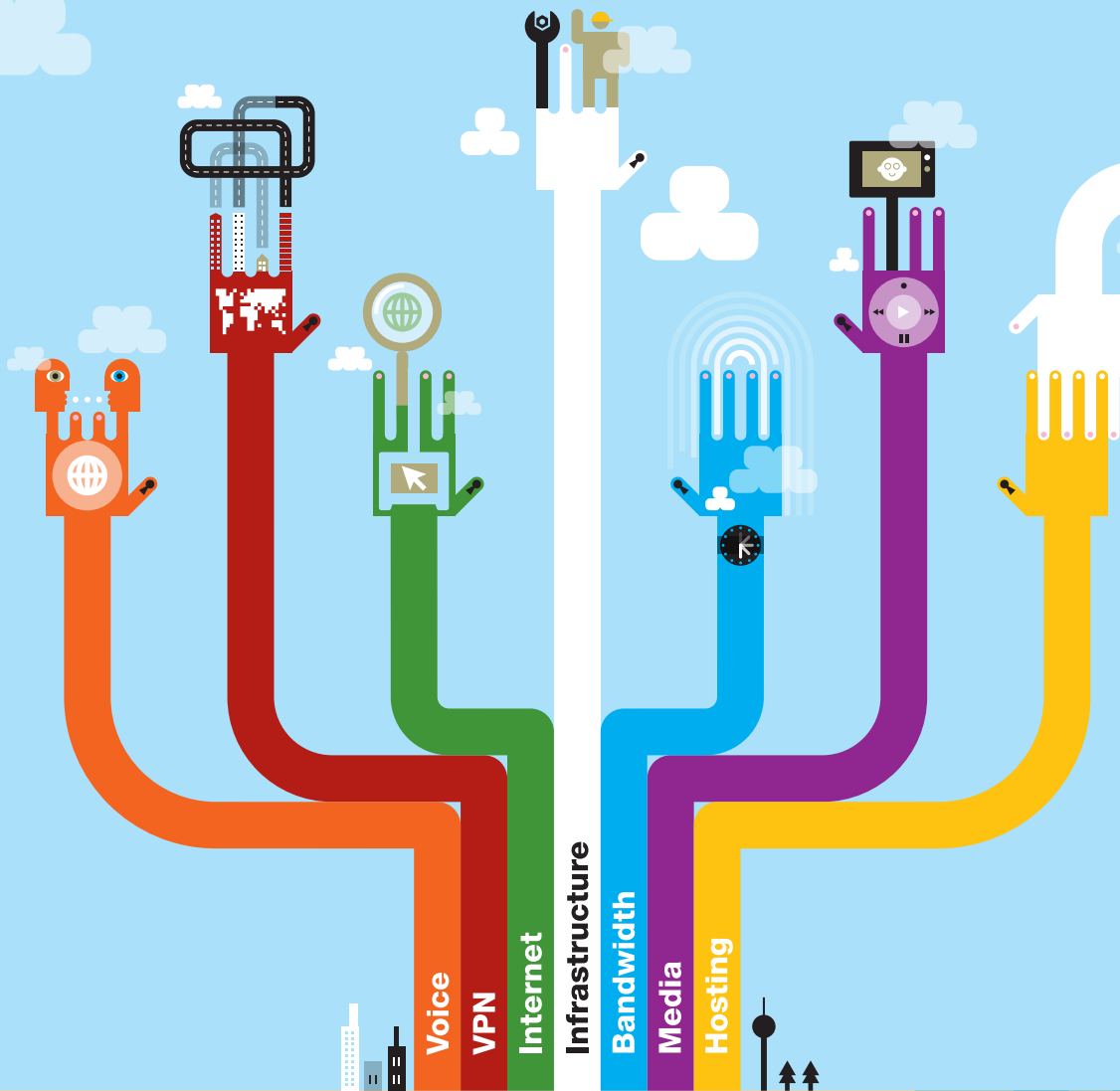from the ground to the cloud

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The advantage is in the network

Voice

VPN

Internet

Infrastructure

Bandwidth

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