

IP Signaling Infrastructures: What Can David Learn from Goliath?

The telco signaling world will eventually be IP-networked, but there are major questions over how, or even if, this can be achieved effectively.

Robin Kent, director of European Operations at signaling gateway & solutions provider Adax, believes smaller wireless operators and Multi-Vendor Network Operators (MVNOs) must start to learn from their more progressive wireline counterparts - many of whom have already taken sizeable steps toward an entirely IP based infrastructure - or face the consequences. Unless they act now, infrastructure costs will rise, revenue opportunities will diminish or be missed and their days will be numbered.

Telecom networks are embarking on the most significant and comprehensive design change in their 100-year history, with IP-based services for voice, video, data, images and multimedia being implemented in every aspect of the telco world. This change is sweeping the entire industry; from wireless to wireline; from switches to applications; and from management to billing, creating a challenge for telco companies worldwide.

SS7 has been the gold standard underpinning the world's telecommunications signaling infrastructure for over 20 years, but IP provides operators with the tools to exploit the emerging revenue opportunities and make significant cost savings. This makes the migration from SS7 to IP inevitable, but the ways in which operators are approaching this process are as varied as they are complex. Timing, approach and the business case for making the transition are rarely consistent from one operator to the next, yet these are the vital elements that will determine the extent of the project's long-term success. Get it wrong and they will fall behind the competition.

Business case

Some operators view IP migration simply in terms of current revenue opportunities but, against the "here and now" criteria, the business case for the transition is not compelling. VoIP is just one hot topic being used as a feasibility yardstick. However, the cost vs. benefit ratio is far too low to warrant an infrastructure overhaul. In addition, the increased level of ISP activity in the VoIP space is further weakening revenue generation opportunities.

Smart operators will look beyond such short-term strategies. They will identify those emerging trends that stand to offer the greatest long term revenues and examine how they could accommodate new developments to gain competitive advantage. There is no doubt

that IP offers a more cost-effective infrastructure than SS7 and is better equipped to deal with the demands of the 21st century network. By the same token there are already significant market opportunities for the savvy operator to exploit with this technology in place.

Value-added services are a clear example of a killer revenue opportunity. Staple mobile functionality such as voicemail and SMS has already been complimented by roaming, MMS and, more recently, video calls. Those operators with the most flexible infrastructure will be in a far stronger position to add and develop new services and stay one step ahead of the competition.

Emerging markets also offer huge opportunities. As identified at last year's 3GSM World Congress, the expansion of mobile usage in Brazil, Russia, India and China (BRICs) continues unabated and it is estimated that the second billion global mobile users will accumulate in less than a quarter of the time taken to build the first.

Throughout other parts of the globe mobile usage also continues to grow. A report by technology research group Gartner in November 2005 showed that global mobile phone sales in the third quarter have risen by the greatest proportion for four years (22 per cent). The report also estimates sales will hit 810 million by the end of 2005 and highlighted a 40 per cent growth throughout Eastern Europe, Africa and the Middle East.

The lower cost of implementing and running an IP infrastructure compared to SS7 means that smaller operators are able to take advantage of the new technology and capitalise on these emerging market opportunities before the larger operators have a stranglehold.

Learning from Goliath

The opportunities are clearly there for the taking, but the timing in entering new markets or offering more sophisticated services to established mobile users is critical – not least because much of the competition is already doing it. Large wireline operators have already seen the bigger picture and are rolling-out IP infrastructures to metropolitan, national and international networks. Some larger wireless operators are starting to follow suit but the IP lessons need to be learned by all operators, and fast.

Large operators are putting the IP building blocks in place alongside existing legacy SS7 systems so that SS7 and IP can co-exist within today's Next Generation Network. SS7 will be phased-out but it is unlikely to be replaced altogether for many, many years. This gradual approach enables them to deliver a network that is as dependable, reliable and responsive as

the world has come to expect. Vitaly, they are doing this whilst ensuring consistency of service before, during and after the transition. They are also future-proofing each and every one of the building blocks to the appropriate standard. Failure to do this would leave a piecemeal network constructed of disparate technologies, standards, and nodes incapable of talking to one another – which will cause serious issues in the long term.

However, some operators are naïvely attempting to embark on this migration in one giant leap, whilst others have plans to IP-network only *part* of their global infrastructure. Neither approach will prove successful in the long-term. It is precisely these organisations that must reassess their plans or miss out on the opportunity to build and maintain greater revenues in the future. Failure to do so will result, at best, in them being only marginally better equipped than if they had maintained the original SS7 infrastructure, and probably worse off.

Standards

Five years ago industry pundits prophesised the death of SS7 by now. That was premature. Granted, SS7 is no longer the only signaling protocol in town and there are more efficient ways of supporting new IP opportunities, but attempts to rip-out and replace SS7 in its entirety over-night would be disastrous. There are certain functions that are better fulfilled by SS7, and will continue to be so in the short to medium term, but it is the ongoing evolution of IP, in contrast with the solid but staid SS7, that makes it the signaling technology of the future. Therefore, migrations which seek to preserve the existing network, until such time as it becomes appropriate to transition from SS7 to IP, will fare much better in the long-run.

The most effective mode of transition is open to debate. There are many IP signaling standards to follow, but operators are strongly encouraged to exercise caution before adopting them all wholesale! Operators must assess and use the right standards in the right place and this will vary from one organisation, and even one node, to another. It is fundamental that migration is approached with an open mind, and this means that they must look beyond the black and white view perpetuated by individual standards. The ultimate goal of switching to IP must be to create one common platform capable of supporting an operator's evolutionary development and this requires more than a degree of discretion and flexibility to be adopted in the planning phase – the openness of 'Open Systems' must be used to the full

Counting down the days

The days of relying on SS7 are not over, all will not be for a long time to come, but they are certainly diminishing (see Fig 1.) and that poses real problems for those organisations without

plans to incorporate IP technology into their signaling infrastructure. Operators must think of the long-term opportunities that IP offers and act now to develop an infrastructure capable of supporting their business' evolution.

Whilst some network operators have started to recognise the IP opportunity, the shift to IP infrastructures really stands to benefit those looking to increase their independence, reduce operating costs and increase revenue streams. And they could do worse than follow in the footsteps of their large corporate counterparts where flexibility, co-existence and scalability are keys to success .

It is inevitable that one day it will be the IP-way or the highway for signaling infrastructure, and putting in place the right building blocks to get to this stage will ultimately sort the winning operators from the losers.