

Economics is driving the pace of change from traditional TDM services to voice over IP. The growth of mobile voice services is giving a late boost to TDM, but reliability and availability will continue to be priorities as IP services develop

TDM to VoIP migration: the unpredictable pace of change



Backhaul for wireless networks is creating continued demand for TDM as more people use mobile devices

Today, IP and TDM co-exist. Although IP is already pervasive throughout the telecommunications industry, TDM is still an integral part of most large carriers' business plans. While TDM may eventually go the way of the manual typewriter, the pundits suggest that it will be around for quite some time.

Analyst firm IDC reported in May 2009: "While the transition to all IP networks for the voice infrastructure is progressing, price-based competition increased noticeably in 2008. Service providers' business concerns continue to drive conservative approaches to spending on IP-based voice infrastructures, resulting in a continued hybrid TDM-IP environment."

Marketplace demand and economic considerations will set the pace

The pace at which TDM revenues will slow, flatten or taper off is tough to predict. Analyst assessments vary, but all agree that there will be a crossover point at which time IP voice will surpass TDM in both volume and revenue.

However, few agree on the timing. Several forecast that TDM will continue to generate the majority of voice revenue well into the next decade — even as technology replacement continues. This is due, in great part, to the continuing movement

from wired to mobile services, which are typically TDM-based.

Wireless devices and applications are increasingly displacing traditional wireline methods, creating an immediate need for more and more wireless backhaul and long-haul capacity. This explains the continued demand for TDM and the persistent strength of TDM revenues.

Although this will change over time in favour of IP, our increasingly mobile society isn't waiting for the technology shift to be complete. Today's TDM-based global telecommunications networks are bearing the added load of new traffic generated by wireless voice and data applications.

Economics, more than innovation, will ultimately determine the longevity of TDM

Essentially, it is still a TDM world if you look at volumes, yet, it is an IP world when you look at new service innovation. The investment that has been made in the TDM network over the last century continues to return value over and above the expense of maintaining the global TDM infrastructure. It would be premature to dismantle it now. Also, complex inter-carrier relationships governing interoperability and settlements for TDM-based services are not easily unwound.

The same May 2009 report from IDC says: "The cost to fully migrate away from the legacy TDM systems has not yet dropped low enough to force full-scale migration from TDM to IP. Operational cost to change infrastructure systems remains high, but the higher barrier is that vendor pricing for TDM switch maintenance is still more attractive than most softswitch and media gateway options."

Still, the expectation is that growth in voice revenue will stem from IP-based services, presenting new business opportunities for the industry. Each company's IP investments will gain in value as more providers worldwide develop and deploy their own all-IP capabilities.

Either way, people aren't going to stop talking. Voice will continue to be among the highest used services for the foreseeable future. Already a valuable wholesale offer, voice services have also become part of something bigger.

They are embedded in unified communications solutions, which are often defined as collaboration

tools plus fixed or wireless voice. The rise in unified communications applications provides evidence that voice-based services, such as teleconferencing and telepresence, will remain in high demand for a long time to come.

The good news is that, regardless of the underlying network protocol — be it TDM or IP — upon which voice offers are based, service providers that deliver value to customers will be rewarded.

Complete technology replacement requires cooperation among network operators

Every industry participant is probably engaged in some stage of transitioning services to IP. But not all customers — nor all carriers — are migrating at the same pace. Reliability and availability, always a top priority in the TDM world, are just as important now — as more and more traffic migrates to IP and converged applications place demanding network performance requirements on the new IP platforms.

To maintain the highest standards of quality and service, global wholesale service providers need to support both native IP and TDM capabilities in order to deliver carrier-grade voice to customers throughout every phase of network evolution.

Now that the technology has been defined, operators need to work toward seamless interoperability before IP overtakes TDM. The industry will need to overcome technical and interoperability challenges, refine standards, and agree upon best practices as operators become as fluent in IP as they currently are in TDM.

There are many factors to consider, including the increasing presence of IP technology in the network core and the end user services that wholesale customers are maintaining and launching.

Collectively, carriers need to define standard interfaces at various layers:

- transport, which enables basic quality connections;
- call control, which enables VoIP and establishes the basis for multimedia; and
- service, which enhances the roaming experience of users.

To operate and pay for these capabilities, associated operations and billing mechanisms are needed for each element.

Some possibilities include new types of peering relationships and even interoperability agreements or settlements processes reminiscent of the TDM world. Ideally, these new relationships could lead to agreements on class of service settings across network boundaries.

Widely accepted operating principles will help make certain that services are handled consistently across carriers and networks. This will enable carriers to deliver the quality required on a carrier and inter-carrier basis to support IP convergence and new applications.

The same rigour that has come to be the norm for the existing worldwide inter-carrier TDM infrastructure can serve as a model for establishing inter-carrier IP network performance standards.

In an industry as interconnected — figuratively and literally — as the telecommunications indus-

try, no single carrier, or even single group of carriers, can take advantage of the full value of an IP evolution without widespread cooperation and support.

Industry forums are providing guidance and shaping new standards for IP-based communications

Several industry associations, for example the Alliance of Telecommunications Industry Solutions or ATIS, are striving to shape new standards for IP-based communications and applications.

Groups such as the i3 Forum and the IP Interworking Alliance or IPIA are working to establish clear guidance and strategies for worldwide IP adoption and interconnections among carriers.

To help foster the creation of implementation roadmaps that address end-to-end quality of service, AT&T is active in these groups and others.

AT&T is helping wholesale customers journey successfully from TDM to IP

AT&T strives to be the provider of choice to help wholesale customers migrate to IP according to their own timeframe and their own return-on-investment projections. While TDM remains an important part of our business, we are investing in IP-based innovation and the continuing development of NGNs.

These forward-looking network investments will foster new business models, achieve greater network efficiencies and enable us to respond to changing customer demands without compromising existing voice functionality and quality.

We recognise that many wholesale customers need to support both native IP and TDM capabilities. To help them take advantage of technological innovations while maintaining business processes that require TDM services, AT&T offers hybrid solutions, such as a combination of our flagship TDM voice platform AT&T Network Connection (ANC) with one or more of our VoIP offers, such as AT&T Global Hubbing IP Access (GHIA) and AT&T Voice over IP Connect Service (AVOICS).

Hybrid solutions enable wholesale customers to depend on the quality, reliability and security of the AT&T global network during every phase of their network and services evolution.

Throughout the challenging migration period, AT&T consulting and professional services can help facilitate strategic decision making, implement industry best practices, and improve and automate processes,

As times and technologies change, so do the needs of service providers. AT&T will continue to anticipate and respond to changes through innovation, industry leadership and ongoing improvements to our wholesale offers and in the way we do business. We are here now to help your organization journey to the next generation of business communications. ■

The IDC report quoted in this article is number 218316, Worldwide NGN Voice Infrastructure 2009-2013, published in May 2009, by Elisabeth Rainge