

# Tellabs® — A Partner in Telstra's Wireline Network Transformation

Telstra migrates to an IP/MPLS core to deliver triple-play services, improve network efficiency and reduce costs.

## Introduction

The Telstra Next IP™ network is a key component of Telstra's vision to be a fully integrated media communications company. This vision is to be a key supplier of content, transport and distribution. In order to make this vision a reality, Telstra needs networks that integrate seamlessly across all devices and are scalable, secure and robust.

Tellabs is one of 4 key technology partners for this project, supplying professional services and the Tellabs® 8800 Multiservice Router (MSR) Series for deployment in regional and metropolitan networks throughout Australia.

In this case study, we look at Telstra's ongoing wireline network transformation project, with an emphasis on the Tellabs role in it.

## Telstra's Wireline Transformation

In 2005, Telstra announced a plan to transform its core infrastructure into a single IP backbone using Multiprotocol Label Switching (MPLS) to carry virtually any type of voice, video or data traffic. Telstra planned to invest in the best of breed next-generation technologies to improve services to customers and reduce cost and complexity in its networks.

When Telstra commenced this project, the company had multiple overlay networks, including an Asynchronous Transfer Mode (ATM) Frame Relay network, an IP network and an Ethernet network. The network transformation project was designed to provide next-generation services over an integrated and simplified next-generation network.

In April 2007, less than 18 months later, Telstra unveiled the largest fully integrated wireline and wireless national Internet Protocol (IP) network in the world — the Telstra Next IP™ network. Telstra had invested AUD\$1.5 billion to establish this network, which serves over 95% of Australian businesses. Combined with Telstra's Next G™ wireless network, the Telstra Next IP network offers a seamless user experience with one-command simplicity.



Telstra's vision is to be a fully integrated media communications company and key supplier of content, carriage and distribution throughout Australia.

The Telstra Next IP network enables Telstra to offer its customers differentiated, integrated and unique services across multiple devices and platforms. Through this network, Telstra can offer unified communications, virtual meetings and instant collaboration, instant messaging, multimedia Web conferencing and more — all with a single, simple interface across all devices.

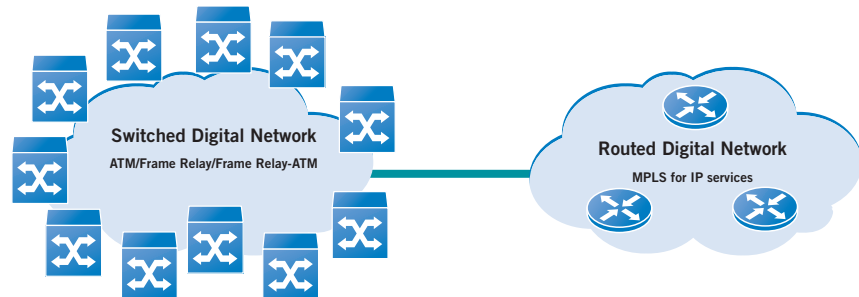
The Telstra Next IP network provides world-class reliability, enhanced security and its IP/MPLS core is scalable up to 92Tbps per node and offers 99.999% reliability.

In February 2008 when releasing its 2008 half year financial results, Telstra announced that its investment in the Telstra Next IP network was delivering results for shareholders and customers. The Telstra Next IP network was driving customer take-up of data services, with IP and data use growing by 6%. This was driven by a strong demand for access services which grew by over 28% against the prior corresponding period.

## BEFORE

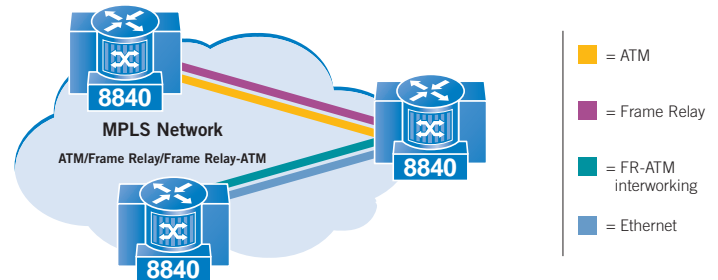
Two separate networks:

- Switched Digital Network for ATM/Frame Relay/Frame Relay-ATM
- Routed Digital Network/MPLS for IP services



## AFTER

- Single MPLS network
- Tellabs 8800 MSR series introduced to enable ATM/Frame Relay/Frame Relay-ATM services to MPLS network



The Telstra network project is designed to transform its core infrastructure into a single IP backbone using MPLS to carry virtually any type of voice, video or data traffic.

## Telstra's Selection of Tellabs

Telstra selected Tellabs as one of several vendors to support its network transformation plans. Telstra wanted to move to an IP/MPLS environment. “The way to move to this environment with confidence was to move into a carrier IP/MPLS core and define services at the service level on an IP/MPLS edge platform,” said Luigi Sorbello, director of network technology for Telstra.

“In building the IP/MPLS environment, one of the elements we were looking at was the capability not only to do Ethernet aggregation but also to deliver ATM, Frame Relay and E1 capability over what we call the Multiservice Edge, or MSE,” Sorbello noted.

“The difficulty was finding a next-generation platform that would deliver all of those services over one box and one chassis. That capability didn't exist with anyone, but Tellabs stepped up to deliver the platform that would meet our requirements.”

Telstra is moving to all next-generation networks, including more efficient services based on IP/MPLS virtual private networks. Telstra needs to be able to deliver ATM and Frame Relay services as customers migrate to next-generation services. This decision will eventually see the exit of ATM and Frame Relay services. While Telstra is seeing a large number of customers taking up IP services, as evidenced through the increase in access services announced at Telstra half year financial results, there are some key customers, particularly in government and financial sectors, who currently use ATM and Frame Relay services. These customers have significant enterprise infrastructure that will need to be upgraded over time, based on their own investment cycles.

Product capabilities had to be considered in great detail, Sorbello noted. “When you're talking about existing products and an embedded base of key corporate and defense customers that had used ATM and Frame Relay for 10 years-plus, you need to be sure that you're delivering features as specified and that they operate in the same kind of way.”

Telstra liked the fact that Tellabs could support Virtual Private LAN Service (VPLS) and Pseudowire Emulation Edge-to-Edge (PWE3) services, added Tibor Latorcai, ATM network architect for Telstra. “Tellabs was the only vendor that supported the ATM routing protocol Private Network-to-Network Interface (PNNI) over MPLS and one of only a few vendor solutions that offered hitless software upgrades.”

## What is Tellabs Delivering?

Tellabs is supplying the Tellabs® 8800 MSR series for deployment in networks throughout Australia. Telstra chose Tellabs because of the company's willingness to accelerate a portion of its development program to match Telstra's needs, noted Sorbello. Telstra wanted to purchase a standard product; it did not want custom code. One of the guiding principles of Telstra's network transformation is simplification of networks, not in customizing existing solutions and adding layers of complexity. The network operator's demands were in line with the Tellabs product roadmap — the key was to closely coordinate the timing of new software releases to correspond with the various phases of Telstra's deployment plans.

**“Tellabs stepped up to deliver the platform that would meet our requirements.”**

– Luigi Sorbello, Director of Network Technology — Telstra



	TASK	OUTCOME(S)	CURRENT STATUS
PHASE ONE	Introduce Tellabs 8800 MSR series into the core of Telstra's existing ATM network	Alleviated capacity constraints; capped investment in legacy infrastructure	Replaced 16 core ATM switches with 12 Tellabs 8800 MSR series nodes; "flawless" operation since November 2007
PHASE TWO	Create regional and metropolitan Ethernet networks	Provided aggregation for DSL high-speed access networks	Equipment in place; traffic migration underway
PHASE THREE	Move all ATM/FR traffic from legacy switches to new IP/MPLS core network via a user-to-network interface	Change will be transparent to customers; may continue to use existing ATM/FR premises equipment	Node upgrade to support new loads underway; once Phase 3 is completed, 220 Tellabs 8800 MSR series nodes will replace 856 existing nodes

**Table 1.** Telstra's phased wireline network transformation is designed to deliver new services and functionality while streamlining the network infrastructure to maximize efficiency and reduce OpEx.

Telstra had a level of confidence that IP/MPLS technology was mature enough to emulate ATM and Frame Relay services without impacting service quality, functionality or features. The company recognizes that Pseudowire emulation technology is still evolving and is working closely with Telabs to ensure that deployment strategies are closely aligned with industry standards. Telstra also recognizes that Tellabs has a strong commitment to alignment with industry standards.

The multiservice edge that the Tellabs device has enabled is a critical element of Telstra's transformation project because it will help reduce the number of platform technologies that need to be deployed by enabling legacy and next-generation services to run through the same edge platform. This in turn will support future OpEx savings by having a single multiskilled workforce, rather than specific work groups that are dedicated to particular platforms, Telstra says.

In addition, due to its wide breadth of multiservice features and functions, the Tellabs 8800 MSR series is well-positioned to provide Telstra with the ability to offer a wide variety of future services beyond its current applications, including mobile backhaul and Carrier Ethernet.

### A Phased Approach

Transformation of Telstra's multiservice edge was planned in 3 phases. The first phase, undertaken in 2006, introduced the Tellabs 8800 MSR series into the core of the existing ATM network, which served to alleviate capacity constraints and cap investment in legacy infrastructure. Initially, customers' ATM and Frame Relay traffic fed onto the ATM backbone, but today that traffic has moved onto the IP/MPLS backbone via the unique Tellabs PNNI capabilities.

Thorough testing prior to implementation ensured that the transition to the IP/MPLS core was successful. "We replaced 16 core ATM switches with 12 Tellabs 8800 MSR series nodes and they have performed flawlessly since November 30, 2007," Sorbello said.

The second phase of Telstra's network transformation involved creating regional and metropolitan Ethernet networks to provide aggregation for Digital Subscriber Line (DSL) high-speed access networks, which were traditionally based on ATM. The equipment is in place with traffic migration underway.

In the third phase its IP/MPLS network transformation initiative, Telstra plans to move all customer ATM and Frame Relay traffic off legacy ATM switches and, through a user-to-network interface, onto the IP/MPLS network. The change will be transparent to customers, who may continue to use their existing ATM and Frame Relay premises equipment.

As of mid-2008, Tellabs was preparing to upgrade the Tellabs 8800 MSR series nodes installed in Telstra's network to the first of several new software loads to support Phase 3. When Phase 3 is completed, the network topography will be simplified, with 220 Tellabs 8800 MSR series nodes replacing the 856 nodes that existed previously — a 74.3% decrease in infrastructure that will contribute to Telstra's improved network efficiencies.

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↓  
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Throughout the project, Tellabs personnel have worked closely with Telstra personnel to ensure that the development cycles of new software loads for the Tellabs 8800 MSR series nodes corresponded with Telstra's deployment schedule.

Installation of the new multiservice edge across Telstra's national wireline network is a large and complex project. As with any project of this size and scale, it has not occurred without some challenges. Tellabs put extra resources into the project to maintain Telstra's time frames, Sorbello said.

"The fact that we had both organizations step up to do whatever it took to deliver against Telstra's original expectations and that we had full executive support was one of the contributing success factors that we should not ignore," added Sorbello.



## Tellabs Global Support and Experience

To meet its aggressive rollout plan, Telstra enlisted the Tellabs® Global Services group to ensure that the Tellabs products would be fully integrated with equipment from other vendors used in the IP/MPLS network. “In terms of integration, it was not just about the network elements but also the network element layer,” noted Sorbello. “The operations support system piece is as important to us. We needed interface documentation to ensure that the Tellabs product would work with our existing domain manager. That’s very specialized knowledge and that’s why we enlisted Tellabs.”

Understanding the importance of capability and experience to ensure that Telstra recognizes the best possible value of its investment in the Tellabs 8800 MSR series, Tellabs Global Services has a dedicated team of network consultants, engineers and services program staff devoted to Telstra’s network transformation project. This team works in partnership with Telstra’s architecture and design group, collaborating in the development of network architecture, detailed network design and the creation of engineering documents to support the overall network transformation.

**“Tellabs showed a true commitment, not just from senior management, but at all levels.”**

– David Robertson, General Manager,  
Next Generation Core and Edge Networks — Telstra

Additionally Tellabs Global Services has teams of experts partnering with Telstra personnel in the pre-deployment testing program and in integrating the Tellabs 8800 MSR series management system and Telstra operations support systems.

Telstra’s objectives in partnering with Tellabs Global Services were two-fold, Sorbello said. “We needed to engage at multiple levels around the roadmap and deliver the right features and capabilities. It was not just about the roadmap but also about growing the knowledge and skillset within Telstra around this product.

“The benefit is, if we have the right skillset and the right tools for the job often we get well ahead. If you don’t, you have to learn as you grow. Tellabs Global Services helped us understand the features we needed and secondly, they helped us understand how we could migrate in an almost like-for-like manner.”

Telstra’s collaborative work with the Tellabs services team was a key success factor, said David Robertson, general manager of next-generation core and edge networks for Telstra. “We needed a certain delivery time frame and to meet it, we had two teams that collectively came together. Tellabs showed a true commitment, not just from senior management, but at all levels, through their engineering and testing arms right down to the operations level, where they had been forming close relationships with the operations arm of our company. None of us could have done this individually. We had to do it together.”

## About Tellabs

Tellabs innovations advance the mobile Internet and help our customers succeed. That’s why 43 of the top 50 global communications service providers choose our mobile, optical, business and services solutions. We help them get ahead by adding revenue, reducing expenses and optimizing networks.

Tellabs (Nasdaq: TLAB) is part of the NASDAQ Global Select Market, Ocean Tomo 300™ Patent Index, the S&P 500 and several corporate responsibility indexes including the Maplecroft Climate Innovation Index, FTSE4Good and eight FTSE KLD indexes. [www.tellabs.com](http://www.tellabs.com)

## About Telstra

Telstra is Australia’s leading telecommunications and information services company, with one of the best known brands in the country. Telstra offers a full range of services and competes in all telecommunications markets throughout Australia, providing more than 9.6 million Australian fixed line and more than 9.3 million mobile services, including 3.3 million 3G services. One of Telstra’s major strengths is providing integrated telecommunications services across a vast geographical coverage through both fixed and mobile network infrastructure. This network and systems infrastructure underpins the carriage and termination of the majority of Australia’s domestic and international voice and data telephony traffic.

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