Thinking About Enabling Convergence
Transitioning to an MPLS Network

AT&T’s Four Points of Convergence

Business leaders are quickly recognizing that a converged environment strategy can enhance performance across all of their operations. Converged communications can help strengthen organizational performance, increase the speed and agility of the enterprise, increase management’s ability to control operations and enhance the organization’s resilience while maintaining security.

No wonder that in a 2005 global survey of business executives, 45 percent of respondents considered convergence “important” or “critical” to achieving their strategic IT and business objectives, and 60 percent said they would deploy converged networks across most or all of their organizations by 2008.1

As organizations extend convergence into new areas, the value grows. Four distinct but interrelated opportunities for convergence are:

• Integrating on-net options for mobile and fixed access
• Enabling networks with multi-protocol label switching (MPLS) and virtual private networks
• Optimizing their applications infrastructure to create a more integrated operating environment
• Utilizing IP-enabled services, such as voice, video, conferencing and messaging services

Each convergence area holds both opportunity and challenge. To maximize the benefits and overcome the challenges, you must know how to use convergence in your organization, understand the steps required to make convergence a success, and carefully choose a partner to help plan and carry out the move to convergence.

This is one in a series of five papers AT&T has developed to help – to provide insight into the “how to” of convergence and examine the practical issues your organization must overcome as you integrate converged communications into your business operations. Of the Four Points of Convergence, this paper will explore MPLS-enabled networks in detail.

Introduction to MPLS Networking

The growing numbers of companies turning to MPLS-based Internet Protocol (IP) networks want it all. They seek to gain simplicity, flexibility, worldwide any-to-any connectivity and increased return on investment. Yet they want to keep the security of legacy private line or Frame Relay/ATM data networks, and the clarity of the public voice network. In this case, those who do it right can have it all.

To ensure quality, MPLS-based IP networks make it possible to manage end-to-end quality of service (QoS) levels required for high performance video and voice. To provide security, multi-protocol label switching (MPLS) networks are based on standardized mechanisms that keep traffic on individual virtual private networks (VPNs) entirely separate, even as the data travels over a shared infrastructure.

As IT leaders design and deploy MPLS networks, they understand that successful implementation will give them a single multi-service network capable of serving potentially dozens of applications and hundreds of locations globally. As more and more companies are learning, the investment in MPLS networks provides real dividends.

MPLS Networking Today

Enterprises implement converged networks with clear goals in mind. Nearly three executives in four surveyed in 2005 said better collaboration with customers, suppliers and partners is a critical or very important goal, while 70 percent named improved service for customers. Reducing the cost of voice calls was named as a primary goal by 60 percent.2
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Other benefits of converged multi-service MPLS networks, such as less costly network management, simplified network management, better quality communications and better collaboration among employees, were important but not as crucial as customer service and outward-directed collaboration.

With MPLS technology firmly established in Europe, the Middle East and Asia and being deployed rapidly in the Americas, the vision of worldwide, consistent any-to-any connectivity is getting closer to reality.

Implementing a converged network offers several benefits. Applications in use today, such as voice and audio conferencing (now on the public switched network), data communication and enterprise management systems (now ATM or FR over dedicated circuits) and video (ISDN) can be migrated from legacy networks onto a single MPLS IP network.

The benefits for customers – benefits not limited to mega-corporations – include increased flexibility, any-to-any connectivity and a network that can be managed through a Web portal in minutes. An additional benefit for many enterprises is reduced networking costs.

Clearly, MPLS-based multi-service IP networking is paying off for customers. One example is Whirlpool Corp. (see page 3), where a global MPLS network is integrating the efforts of tens of thousands of employees and multiple R&D centers, manufacturing sites, distribution facilities and retailers in a united effort to provide the world’s finest home appliances.

Customers of all sizes use AT&T’s MPLS backbone with a myriad of access methodologies including Managed Internet Service, Digital Subscriber Line (DSL) service and dial services. This is in addition to the IP VPN MPLS-based services such as IP-enabled Frame Relay, enhanced VPN and Private Network Transport Services that are growing in popularity.

Emerging Capabilities

Engineers continue to develop new MPLS network enhancements.

Future MPLS networks will use next-generation traffic engineering to deliver increased network availability and reliability. Using "traffic shaping" technologies, MPLS networks will be able to dynamically adjust capacity and prioritize specific applications as demands on the network change. For instance, a high-priority video broadcast could be temporarily given precedence over normal voice and data traffic. After the broadcast, the network would return to normal mode, with VoIP traffic in priority position.

And future MPLS networks will use network-based application intelligence that makes the network itself "aware" of the kinds of applications moving across the network. The network will then automatically adjust its behavior to optimize application performance.

Another trend is the implementation of VPNs on the MPLS-based IP infrastructure. VPNs give customers private line-level security on a shared network backbone. Customers use them for their security, multi-service capability, “any to any” connectivity and QoS controls. In addition, VPNs can be provisioned far faster than dedicated circuits, which can take weeks.

Is MPLS Networking Right for Your Enterprise?

Capabilities such as these have produced a clear movement toward MPLS networks, and the pace is accelerating. According to Robert Whitely of Forrester Research, “Enterprises will increasingly turn to MPLS as carriers merge and provide larger, more stable IP/MPLS networks as foundations for valuable services such as network-based VoIP.”

Key Considerations for CIOs

- Speed of deployment vs. capex constraints
- Redundancy and continuity
- Application volumes and usage patterns
- Edge technology inventory
In a multinational enterprise, you should be especially wary about using a single network. In the Economist Intelligence Unit/AT&T survey, almost half of the companies surveyed said they would prefer to have multiple networks.

Planning for MPLS networks begins with a detailed analysis of which applications require the network, how much bandwidth they will require and the usage patterns and enterprise locations the network must accommodate. Other initial considerations include provisions for redundancy and business continuity and understanding the kinds of edge devices and access technologies to be used.

Q: What’s my first planning step?
A: Planning for MPLS networks begins with a detailed analysis of which applications will use the network, how much bandwidth they will require and the usage patterns and enterprise locations the network must accommodate. Other initial considerations include provisions for redundancy and business continuity and understanding the kinds of edge devices and access technologies to be used.

Q: My organization operates globally. Are there special considerations for me?
A: In a multinational enterprise, you should be especially wary about cost and complexity. The high cost of international circuits makes it particularly important to provision the right network capacity – not too little, yet not too much. The ability of MPLS networks to adjust bandwidth as demand changes can provide significant savings. In addition, inconsistent local network standards from country to country can create a complex operating environment – exactly what enterprises want to avoid by switching to MPLS.

A networking partner with global experience can smooth out much of this complexity. We look to MPLS to bring the same network, says Rick Perrotta, Global Director of Network and Engineering Services. “It’s a complicated picture with many moving parts. We look to MPLS to bring order to this complexity.”

Whirlpool Uses an AT&T MPLS Network to Build its Global Success

With 68,000 employees and 150 locations on four continents, Whirlpool Corp. marshals design and manufacturing resources from across the globe to lead the appliance market. That global strategy has turned the company’s AT&T MPLS network into a vital 24x7 channel for sharing design, sales, supply chain and results information – and a key corporate resource.

“We use networking to eliminate the gap of time and space and create a longer, more productive work day,” says Gil Urban, Director of the Office of the CIO. “This helps us generate a lower cost point, gives us more room for margin and creates resources for us to further our investment in innovation.”

Without the right approach, however, Whirlpool’s span and size could make its network a nightmare of complexity. “It’s not just the convergence of voice and data, but also of wireless and wire-line that have to share the same network,” says Rick Perrotta, Global Director of Network and Engineering Services. “It’s a complicated picture with many moving parts. We look to MPLS to bring order to this complexity.”

“The MPLS environment allows the design and development work to be done in a much more real-time, collaborative way,” Perrotta adds. “The network evolution also supports the unprecedented mobility of the worker who is able to access the network anytime, anywhere with any device.”

The MPLS network also delivers the flexibility and rapid disaster recovery Whirlpool demands. “Every time you turn on CNN you see something happening in the world that could affect part of our business;” says Perrotta. “The disaster recovery capability of our network is substantial in keeping the business running.”

“We recognize that networking is not our core competency,” says Perrotta. “More than ever we are working with strategic technology partners to provide that service for us. Part of that strategy is to take advantage of AT&T, the best networking partner in the industry, to provide the global network.”
The AT&T Difference

Performance
Traffic analysis tools and design. Industry-leading service-level agreements (SLAs) to back up the lowest latency and packet delay in the industry.

Agility
CoS by application. Hybrid solutions that integrate legacy and leading-edge technologies without stranding sunk investments.

Control
Award-winning AT&T BusinessDirect® portal with consistent global user interface.

Security
Inherent network security; network-based and personal firewalls, Internet Protect®

Conclusion
Convergence is proving its value every day. For many IT leaders, the question is not whether convergence is a sound investment, but where to start and how fast to proceed.

As you set directions for your organization, consider the four vectors of convergence. Think of them not as sequential steps, but as headings on a compass of opportunity.

This series of papers is written to help you with your convergence decisions, provide insight into the “how to” of convergence and examine the practical questions you will encounter as you build converged communications into your business operations.

We hope that these perspectives will help you guide your organization toward the opportunities of the future, as you seize the power of convergence.

References
1. “Competing through Convergence,” AT&T survey and white paper in cooperation with the Economist Intelligence Unit, Page 1, ©2005 AT&T
4. “Competing through Convergence,” p. 6

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