An INS White Paper

Multi-protocol Label Switching
An economic way to deliver integrated voice, video and data traffic

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The INS Family of Companies
Run your business on one network

Multi-protocol Label Switching (MPLS) is a modern implementation of a packet switching network, capable of carrying a mix of voice, video and data traffic. An MPLS network can take the place of your current telecommunications and information technology infrastructure, resulting in less overhead, simpler administration and improved performance.

In an MPLS network, each packet of data carries a label. The network routes the data based upon the label instead of having to read the entire packet. It’s a fast, flexible way to configure a network.

As business networks increasingly carry converged traffic (Voice over Internet Protocol [VoIP], video, data), MPLS has emerged as the best way to meet the special delivery needs of each type of data. This is done through QoS (Quality of Service) management, which allows you to prioritize how data flows through your business.

One network, serving all locations

MPLS service puts your network in the cloud, where every employee has appropriate access to company intelligence. With MPLS, physical location no longer limits employees’ ability to obtain information and communicate. Instead, on an MPLS network, everyone can easily communicate with colleagues and get resources and data they need in one virtual location.

The network is transport agnostic, so you can seamlessly join together locations using technologies such as TDM circuits, frame relay, Ethernet or broadband access. This enables businesses with a cost-effective means to implement MPLS by leveraging their current network technology or finding lower cost means of connectivity.

The MPLS service utilizes a mesh topology, passing data from one node to another on route to its destination. If there are network interruptions, the network is self-healing and will re-route your data. The mesh network also mitigates data congestion and bandwidth limits at the hub.

Business benefits from MPLS

- transparently connects multiple locations
- provides a flexible migration path to connect diverse transport technologies
- enables you to better manage rapidly changing technology needs
- leverages economies from integrating voice, video and data
- reduces IT costs and time
- offloads network management
- improves voice and data performance by prioritizing network traffic with QoS
MPLS also offers these advantages:
- simple access for end users
- only one network to manage
- equal access to information for remote workers and locations
- efficient use of bandwidth
- scalable, flexible configuration
- improved access to cloud-based applications and free Internet applications
- reduced overall costs

INS MPLS solution saves time and improves efficiency through network oversight and management:
- single source for acquisition of necessary connectivity
- support oversight for entire solution, no need to call the DSL provider in one town and the T1 provider in the other

Voice is data, too
As more of our communication infrastructure has moved to the digital domain, Voice over Internet Protocol (VoIP) has become a compelling solution for businesses. The idea is simple: why not treat voice as yet another part of your data network?

VoIP does more than help you leverage your existing network and save money on long distance. With VoIP, you can supercharge voice communication, creating new ways to do business - checking voice-mails via email, forwarding calls or messages to a cell phone or even creating a virtual call center. “With VoIP, a worker in West Des Moines can reach a colleague in Cedar Rapids on a three or four-digit extension,” said Chris Williams, INS Internet Products Manager. “And all offices can offer customers local numbers, even if the person handling the calls works in another city.”

While VoIP calls are digital, like your other data, voice packets have their own special needs. To avoid distortion or dropped calls, they require high bandwidth and low latency. MPLS with QoS gives you the tools to make sure your voice network performs its best, minimizing annoyance of jerky calls and disappearing connections.

“It sounds like alphabet soup – MPLS, QoS, VoIP – but the end result is one flexible, high performing network for all of your voice, video and data needs. These technologies were made to be implemented together.”

Chris Williams,
INS Internet Products Manager
Direct your network traffic with QoS

Improve performance. Save Costs.

End users don’t think much about bandwidth – they just expect it to be there when they need it. But someone has to manage that bandwidth. Quality of Service (QoS) gives you the tools to leverage your network.

You decide which traffic is most important and needs to go fastest. You may choose to give highest priority to voice, since lost packets may result in garbled calls. Video may also be a high priority, since it requires a fast real-time connection to avoid dropped frames. In the middle, you may place e-commerce, credit card transactions and other business applications. At the bottom, perhaps email, employee web browsing or online backup.

With Iowa Network Services’ QoS service, you choose four levels of priority. This approach not only assures the most important traffic is delivered first, it helps you squeeze the best value from your bandwidth investment.

We’ll help assess your traffic so you can set priorities that make sense for your business. You can assign traffic by:

- source or destination IP
- source or destination protocol port, or
- protocol

You may assign bandwidth as a percentage, or on an absolute level.

We’ll offer tools so you can monitor bandwidth changes over time, and adjust priorities. You’re always in control.

VOIP advantages

- Lower cost implementation
- Greatly decreased long distance charges
- Superior voice quality
- Easily reconfigured from a simple web portal
- Enhanced voice-to-email and other workflow services
- Seamlessly link locations
**Simple, secure access for remote staff**

**MPLS Virtual Private Network**

Offsite workers and satellite branches can seamlessly join your network through a web-based Virtual Private Network. Using any access technology, such as DSL or cable modem service, your employees can securely send and receive data, use applications, and take full advantage of company resources, as specified by you.

Web-based VPN access, a component of a fully developed MPLS solution, is more efficient than a leased private circuit. Due to the nature of traffic on the circuit (occasional bursts of data with long periods of no activity), most bandwidth is wasted.

**INS MPLS Remote Worker Access** travels with your employees; they can use it from their home or on the road since authentication and installation of the private connectivity is initiated through the web. You’re able to maintain staff productivity by easily and quickly connecting new locations and accommodating access.

**Putting it all together**

Today a company can run its entire communication infrastructure on one network. MPLS bridges remote locations, helps you manage traffic to realize the most value from your network, and makes possible new ways of doing business. Because your network effectively runs “in the cloud,” you benefit from professional management, advanced security and unparalleled flexibility.

More than ever, distance barriers are shattered when your employees and customers communicate on one network.
About Iowa Network Services

INS is your home team, end-to-end communications technology solutions provider. We offer voice and data communications, Internet and network management solutions that minimize risk, maximize business value of technology and enhance your ability to effectively connect to and serve your customers, employees and partners. Connecting Iowa to voice, data and information services is top priority. Our self-healing statewide fiber optic network is carrier-class — engineered and continuously upgraded to minimize service interruptions and provide industry-leading reliability and performance.

As an Iowa-owned company, ALL support is directed and provided from in-state and the network is managed 24/7/365. This means fewer calls and hassles for you. Our highly skilled technicians are dedicated to customer service. Team INS installs and turns up solutions and resolves connectivity and equipment issues more quickly and reliably than other providers.

We have experience in serving Iowa as well as integrating locations outside of the state through affiliate companies.
IP MPLS Cloud
This diagram illustrates the connection branch sites and remote worker locations to the cloud. The connection from each site to the cloud utilizes a standard TDM circuit, such as T-1s, DS-3s and OC-3s. Those circuits could be entirely delivered over the INS network or could utilize a connection from other carriers as needed.