

Cisco Remote Access to Multiprotocol Label Switching Virtual Private Network Solution

Q. What is the Cisco Remote Access to Multiprotocol Label Switching (MPLS) Virtual Private Network (VPN) solution?

A. The Cisco Remote Access to MPLS VPN solution is an end-to-end solution developed by Cisco Systems that enables service providers to extend MPLS VPN services to the last mile using a broad range of access options, including dial, DSL, and cable technologies.

Q. What are the market drivers behind this solution?

A. More than 30 percent of all VPN services offered today can be categorized as “access VPN.” Service providers can broaden their MPLS VPN service umbrella by extending managed VPN service to the last mile through a broad range of access options, such as dial, DSL, and cable access. Managed remote access VPN services are in high demand by the increasing numbers of telecommuters and mobile users from small- and medium-sized businesses and large corporations. Such companies are seeking to outsource remote access VPN services.

Ovum, a leading research organization, estimates that by 2006, out of the total US\$32.5 billion worldwide VPN market, remote access services will be worth US\$4.2 billion. Standard dial-up access will still comprise the majority of connectivity options to telecommuters and mobile workers, but by 2003, the number of VPN dial ports is expected to shrink by 20 percent, with DSL and cable access VPN methods gaining market share accordingly. In addition, an exponential rise in the number of telecommuters and mobile workers is expected, in both the United States and Europe.

Q. Who are the target service providers for this solution?

A. Any service provider—incumbent local exchange carriers (ILECs), interexchange carriers (IXCs) international post, telephone and telegraph (PTTs); cable operators (COs), and other licensed operators—is considered an ideal target, provided the service provider has the following characteristics:

- MPLS backbone
- Access infrastructure (dial, DSL, or cable)
- Geographic coverage
- Currently offering connectivity services to small and medium-sized companies and large enterprises
- Presence in densely populated metro areas

Q. Who are the target business customers for this solution?

A. Target business customers are small- to medium-sized businesses and large enterprise customers seeking an outsourced remote access solution. Medium-sized companies, employing between 100 to 999 people, are the prime targets because these companies are often undergoing rapid growth and are challenged by constantly expanding remote access requirements. Many of these companies are expanding internationally and require global access VPN services. In addition, this is an excellent and much-in-demand solution for telecommuters and mobile employees working in the following vertical segments: business consulting, engineering, architecture, healthcare, finance, insurance, and real estate.

Q. How can business customers benefit from this solution?

A. Business customers can realize the following benefits:

- Remote users can now securely access their mission-critical corporate intranet and extranet using MPLS VPN via dial, DSL, and cable
- Differentiated service levels can now be extended all the way to the last mile by taking advantage of the quality-of-service (QoS) features of the MPLS VPN
- Remote dial access can be achieved on a global scale
- Access is gained through local or toll-free numbers
- Connectivity can be secure, if provisioned by the service provider
- Charges for voice and data services are integrated into a single bill
- Problem-solving and troubleshooting help is available via the service provider's help desk
- Easy provisioning and installation
- Simple, cost-effective access

Q. What benefits does this solution offer the service provider?

A. Cisco is the first company in the market to offer a comprehensive Remote Access to MPLS VPN solution. The Cisco Remote Access to MPLS VPN service architectures for dial, DSL, and cable have been validated through extensive solution-testing and have been deployed by international service providers.

By providing business subscribers remote access VPNs, service providers can achieve the following benefits:

- Maximize the use of MPLS core services
- Expand VPN service portfolio by providing remote access, intranet, and extranet
- Extend MPLS VPN services to the last mile over dial, DSL, or cable
- Reduce capital expenditures by using existing network infrastructure
- Reduce operating expenditures through easier provisioning and changes of remote VPNs
- Meet evolving remote access needs of business customers in terms of remote access network scalability, reliability, and performance
- Generate greater differentiation in competitive market
- Create new revenue streams
- Achieve customer loyalty

Q. What are the service architectures available from the Cisco Remote Access to MPLS VPN solution?

A. There are several service architectures for dial, DSL and cable:

Dial access:

- Layer 2 Tunneling Protocol (L2TP) dial-in
- L2TP dial-out
- Point-to-Point Protocol (PPP) dial-in (ISDN only)
- PPP dial-out (ISDN only)
- Dial backup
- Large-scale dial-out (LSDO)

DSL access:

- PPP over Asynchronous Transfer Mode (PPPoA)
- PPP over Ethernet (PPPoE)
- PPP over any service (PPPoX) with dynamic, portal-based service selection, such as the Cisco Service Selection Gateway (SSG)
- RFC1483 bridged and routed access
- L2TP

Cable access:

- Customer premises equipment (CPE) bridged access, through Data over Cable Service Interface Specification (DOCSIS) service ID (SID)
- PPPoE

Q. What are the service benefits of dial access to MPLS VPN?

A. The Cisco Remote Access MPLS VPN solution removes the need for virtual private dialup networks (VPDNs): Because tunnels are not required in the backbone, optimal routing is achieved through MPLS. In addition, the customer home gateway is no longer needed and service providers can offer managed virtual home gateway services (VHG) using this architecture.

Q. What are the service benefits of DSL access to MPLS VPN?

A. Four architectures are available offering numerous service benefits, such as:

1. PPPoX SSG to MPLS VPN offers service selection in conjunction with MPLS VPN service. Authentication, authorization, and accounting (AAA) features can be provided on a per-service basis.
2. PPPoX to MPLS VPN enables the service provider to offer open or managed access; in addition, service selection can be based on the domain name and each session can be mapped to a different VPN.
3. RFC1483 (bridged or routed) to MPLS VPN allows the service provider to offer enhanced managed CPE services—an excellent solution to provide routing capabilities to branch offices.
4. L2TP to MPLS VPN allows the service provider to offer managed home gateway services, eliminating the customer's home gateway.

Q. What are the service benefits of cable access to MPLS VPN?

A. Two architectures are supported for Cable access:

1. CPE (DOCSIS) to MPLS VPN enables service providers to offer open or managed access.
2. PPPoE to MPLS VPN, in addition to enabling service providers to offer open or managed access, provides the functionality to map each PPP session into a different VPN.

Q. What are the platforms and Cisco IOS[®] Software releases included in this solution?

A. A complete list of platforms and Cisco IOS Software releases is available in the "Solution Release Notes": http://www.cisco.com/univercd/cc/td/doc/product/vpn/solution/rampls2/relnote/ra_2rn.htm

Q. Is this solution available now?

A. The Cisco Remote Access to MPLS VPN solution is available today. Some new features are in development and will be available in future releases.

Q. Where can I find more information about this solution?

A. More information on the Cisco Remote Access can be found at:

<http://www.cisco.com/go/vpnsolutions>

http://www.cisco.com/univercd/cc/td/doc/product/vpn/solution/ramp2/relnote/ra_2rn.htm

Further information is available at: <http://www.cisco.com/univercd/cc/td/doc/product/vpn/solution/ramp2/ovprov/>



Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters
Cisco Systems Europe
11 Rue Camille Desmoulins
92782 Issy-les-Moulineaux
Cedex 9
France
www-europe.cisco.com
Tel: 33 1 58 04 60 00
Fax: 33 1 58 04 61 00

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems, Inc.
Capital Tower
168 Robinson Road
#22-01 to #29-01
Singapore 068912
www.cisco.com
Tel: +65 317 7777
Fax: +65 317 7799

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