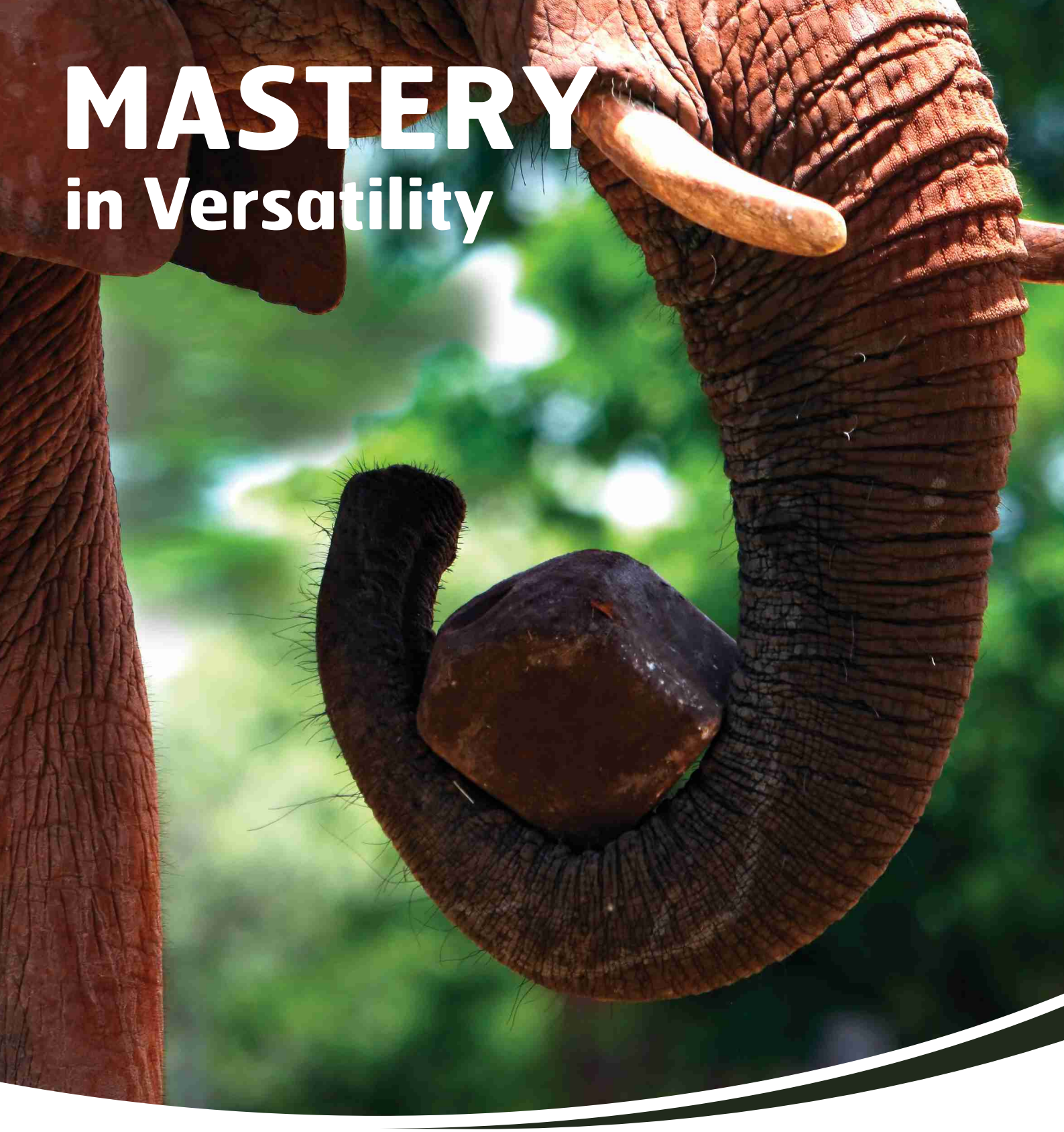

MASTERY
in Versatility

Core MPLS Solutions

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Mastery in Versatility: Core MPLS Solutions

MPLS was originally developed by the Internet Engineering Task Force (IETF) in order to add a connection oriented methodology to the IP traffic in full mesh topology. The notion of Label Switched Path (LSP) was introduced to define connection-oriented paths for packets in a connectionless network. MPLS has emerged as an elegant solution to meet the bandwidth, service management and additional requirements for next generation IP based backbone networks. MPLS tackles the issues related to scalability and routing, and can be layered over a customerís existing transport technology connecting IP routers.

MPLS combines the most desirable features of Layer 2 and Layer 3 networks by providing the speed and efficiency of a Layer 3 network coupled with the security and reliability of a Layer 2 network. Combined with its Traffic Engineering (TE) capabilities and Fast Reroute (FRR) protection mechanism, MPLS became the defacto standard in the network core whether it is for a mobile or fixed line.

Formerly, MPLS technology was optional for service providers but nowadays it became mandatory to give at least the basic services to customers.

MPLS delivers service providers a unique, flexible, highly scalable, and reliable network environment which are of crucial importance to service providers.

MPLS' Basic Features Are:

MPLS L3 VPN
MPLS L2 VPN
MPLS Traffic Engineering
Multicast VPNís
MPLS Local Protection (Fast Reroute)

Our Added Value During Design Phase: Our participation and major services on that phase is the preparetion of the Low Level Design, the Network Implementation Plan, and the Network Migration Plan. Apart from these, running the site surveys and testing multiple vendor equipment interoperability can also be in our responsibility.

Our Added Value During Implementation Phase: As Probil, our offers include taking the responsibility from all implementation steps including staging, site preperation, final configuration, and running the acceptance tests.

Our Added Value During Migration Phase: For service providers, an interruption in service results directly in customersí churn. As Probil, we are planning the migration phase so much in detail that we offer a real smooth one. Depending on the complexity of the migration, we mostly provide 0 second down-time during the migration.

Our Added Value For Existing MPLS Networks: For existing MPLS networks, we are providing technical administration and supervision services. In case the service provider wants to enhance or expand his network, we also provide consultancy in planning multi-vendor tests. We also provide solutions regarding the network monitoring, management and provisioning tools which definitely make any service providerís life much easier.

MPLS: Leading Technology In Packet Transport

Tomorrow's network will mostly carry packets. As a result, an evolution of existing time-division multiplexing (TDM)-based transport networks is taking place, and new architectures optimized to carry packets are being defined. The function of a transport network is to carry information between service edge devices. These devices could be Digital Subscriber Line Access Multiplexers (DSLAMs), gateways, T1/E1 aggregators, broadband remote access servers (BRAS), etc. Traditional transport systems based on SDH/SONET platforms provide low-speed bandwidth granularity network services as well as high-speed long-haul transmission services. Circuit-switched transport network services with fixed bandwidth granularity (64 Kbps, 1.5 Mbps, 2 Mbps, 50 Mbps, 150 Mbps, 600 Mbps, etc.) were emulated using connection-oriented, packet-switched (CO-PS) technologies and similar managed-bandwidth services. However, in the access/aggregation and metro domains, there is a desire by carriers to simplify packet transport networking in order to reduce capital expenditures (CapEx) and operational expenses (OpEx) in their next-generation networks.

MPLS is considered a leading connection-oriented packet transport networking technology. Recently many carriers have shown their desire to converge their next-generation core networks onto MPLS, and subsequently have deployed their core networks using MPLS. Given the deployment of MPLS networks and the desire to align packet networking with more traditional transport operations methods, Cisco is leading a large effort to standardize a simplified version of MPLS for transport networks. This standardized approach is known as MPLS Transport Profile (MPLS-TP) in the IETF (groups - MPLS, PWE3, and CCAMP) and the ITU-T SG15.

In addition to offering traditional transport operational models for packet networking, there is a requirement to interconnect the MPLS-based client customer network to the server operator network using MPLS in order to provide simple managed-bandwidth services. In this case, the customer network and the operator network are managed as independent entities (that is customer and operator), so that they can be decoupled functionally and operationally to maintain the client-server relationship.

The MPLS-TP proposal contains a set of compatible technology enhancements to existing MPLS standards to extend the definition of MPLS to include support for traditional transport operational models. This proposal adopts all of the supporting quality of service (QoS) and other mechanisms already defined within the standards, but also brings the benefits of path-based, in-band Operations, Administration, and Maintenance (OAM) protection mechanisms found in traditional transport technologies.

References

- Major GSM operators in Turkey, Uzbekistan and Nepal.
- Significant alternative operators in Turkey.

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