Cisco IP Solution Center (ISC)

A Family of Intelligent Network Management Applications for Managing MPLS and Carrier Ethernet Networks

Agenda

- Introduction
- Cisco Service Provider IP Network Management Portfolio View
- MPLS VPN and Carrier Ethernet
- Monitoring and Assurance
  - OSS Integration
- MPLS Diagnostics
- MPLS Traffic Engineering
- Summary

Meeting Service Provider Challenges

Enabling the Transition

Services

- Differentiation
- Loyalty
- Revenue

Efficiencies

- OpEx
- CapEx
- Profits

Control

- Service
- Network
- Business

IP

- **Intelligence**
- **Flexibility**
- **Adaptability**

Cisco Service Provider Strategy

The Most Complete Partner for SP Success

Deploy Services

Layer existing and new services for revenue and profit growth, faster time to market

Build Networks

Intelligent, extensible, and efficient packet infrastructures for lower TCO

Accelerate Demand

Accelerate demand by connecting consumers, SMBs, and enterprises to SP services

Optimize Business

Provide domain expertise to support business and network transitions and improve operational efficiencies

Cisco IP/MPLS Solutions

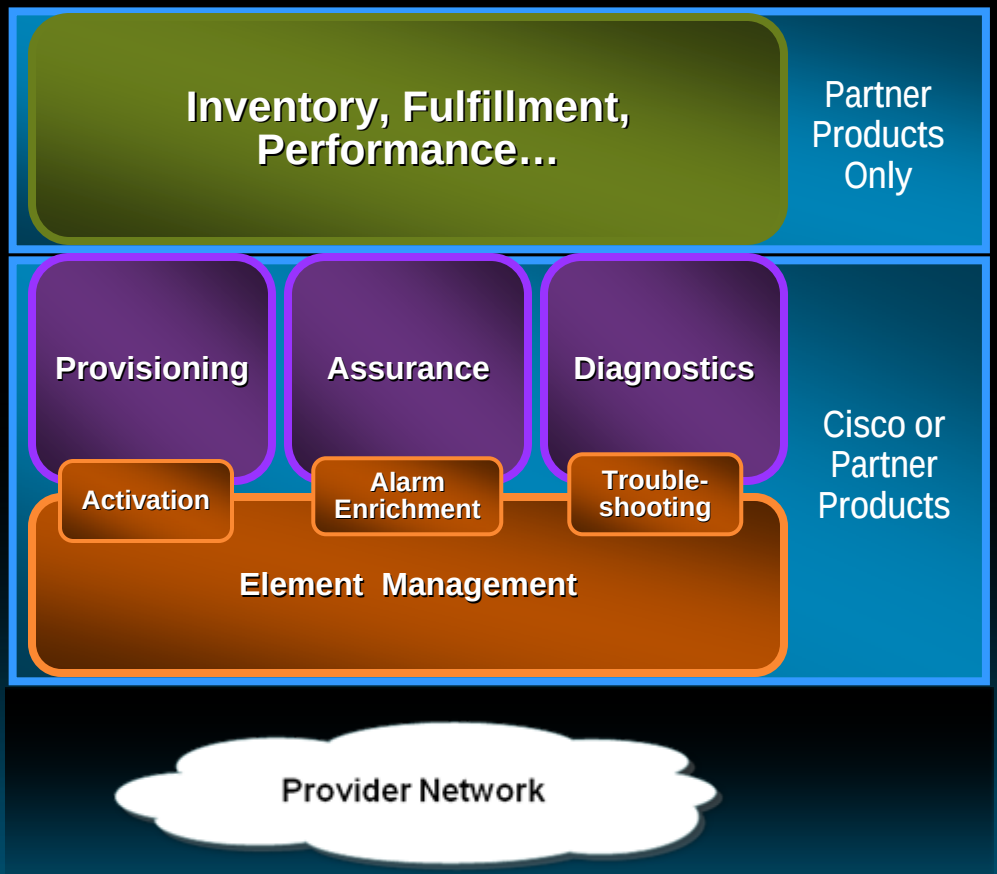
Agenda

- **Cisco Service Provider IP Network Management**

  Portfolio View

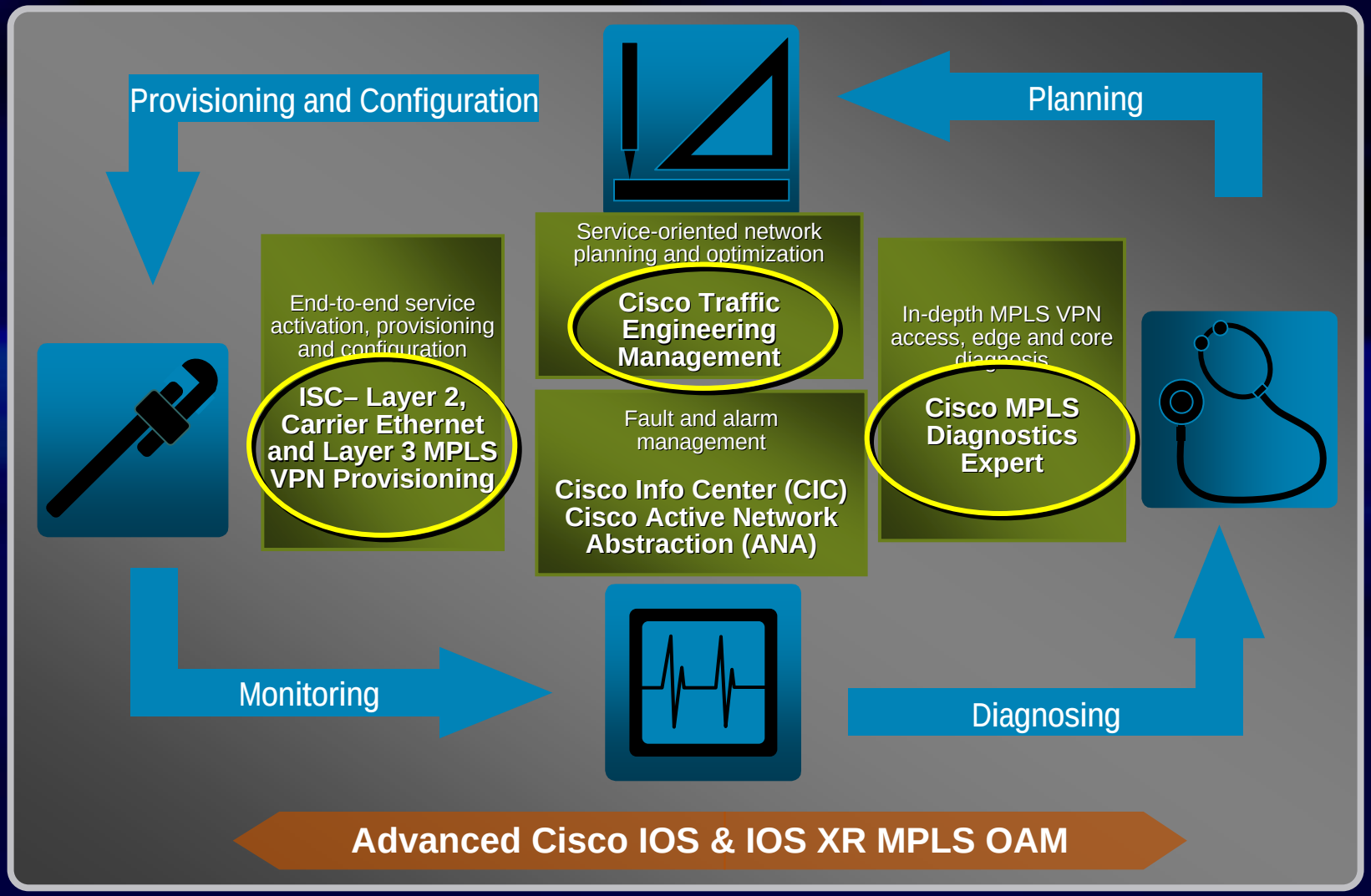
Cisco Service Provider IP Network Management
Portfolio and Partner View

- Cisco Portfolio
  - EMS with service-enriched interfaces
  - Carrier-proven provisioning
  - End-to-end service assurance
  - Unique automated diagnostics
- Solution Architecture
  - Designed & tested with Cisco® hardware
  - Modular architecture
  - Cisco or partner component choice
  - Rich interfaces with proven integrations
  - Cisco or partner delivery services



Applications for IP/MPLS Business Services

A Suite of Network Management Applications for Managing MPLS and Carrier Ethernet Services



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- **ISC L3 VPN and Carrier Ethernet Provisioning**

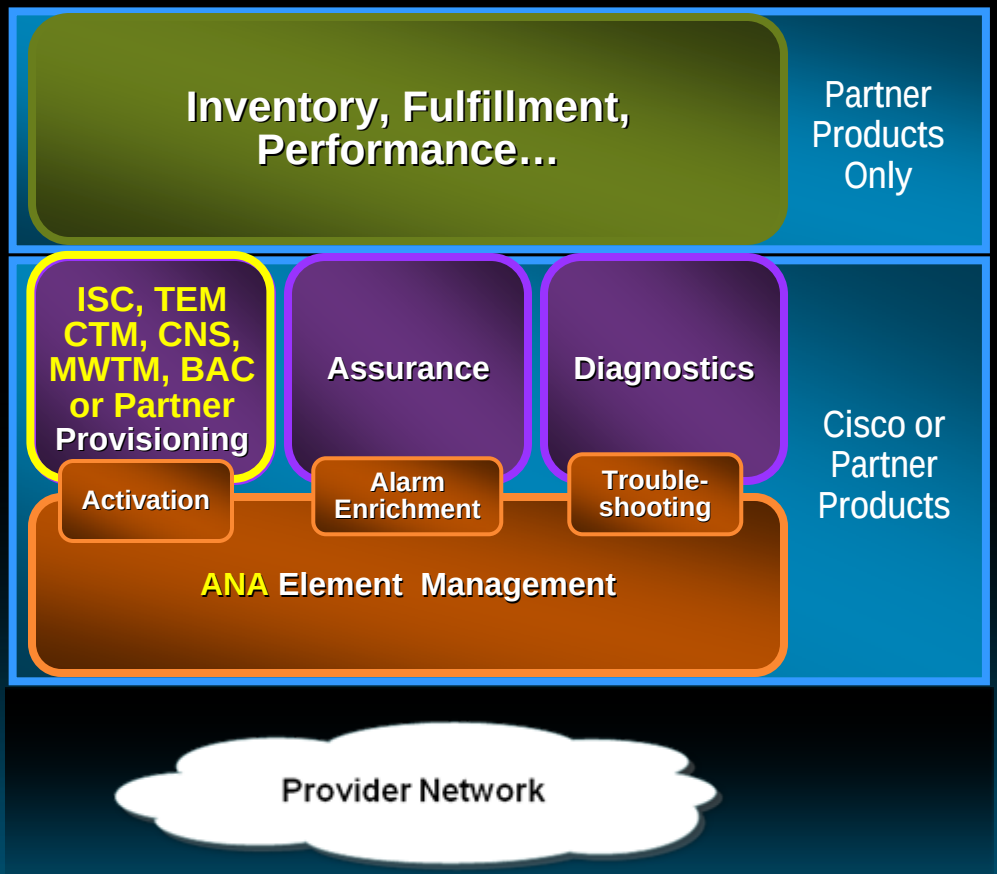
Provisioning & Configuration

End-to-end service activation, provisioning and configuration

ISC– Layer 2, Carrier Ethernet and Layer 3 MPLS VPN Provisioning

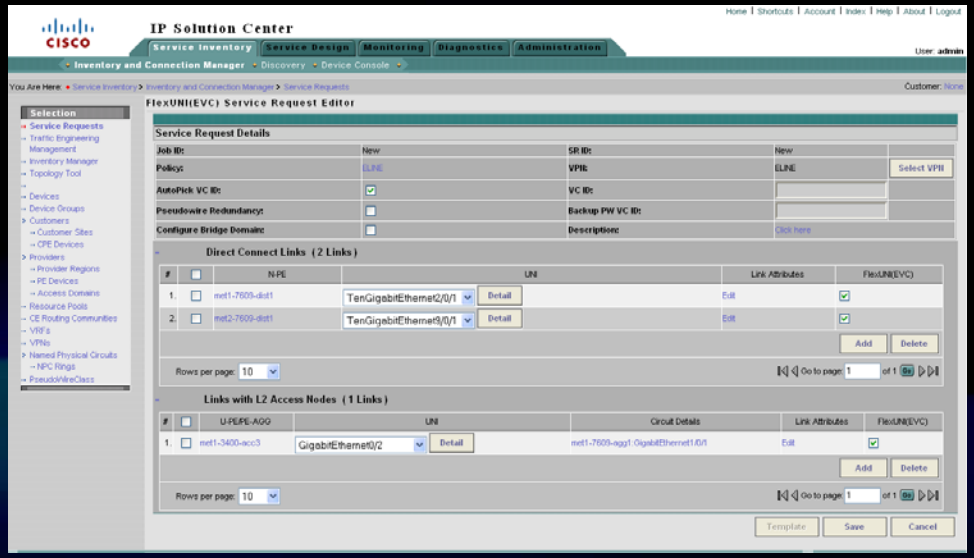
Cisco Portfolio for Provisioning Management

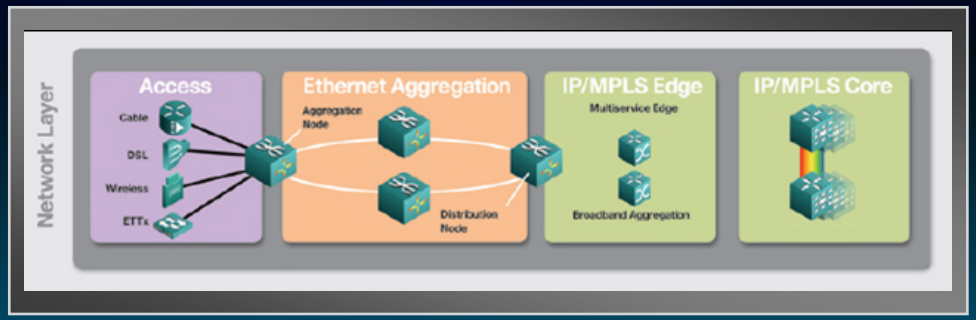
- **IP Solution Center Provisioning**
  - L3 MPLS VPN
  - L2, Carrier Ethernet
  - Traffic engineering
- **ANA Activation**
  - Customizable activation methods
  - Abstracted device layer for provisioning
  - Integration with partner products
- **Other Domain-Specific Provisioning Products**
  - CTM (optical)
  - MWTM (mobile & cell site routers)
  - BAC (broadband, wireless, femtocell CPE)



Cisco ISC Provisioning Overview

- Designs and Assigns
- Robust Provisioning flow
- Wide Service Configuration Support
- Automatic Management of Logical Resources
- Comprehensive Platform, IOS, and IOS XR Feature Support





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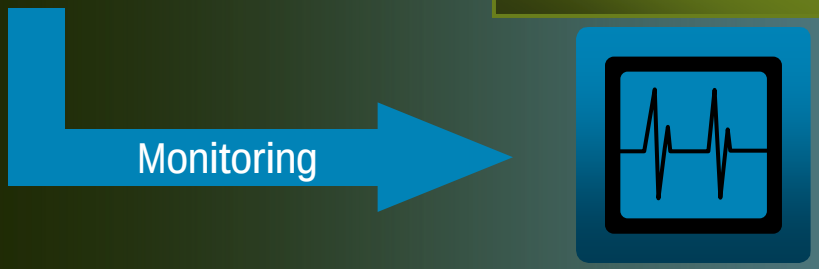
- **Monitoring and Assurance**
  - **OSS integrations**

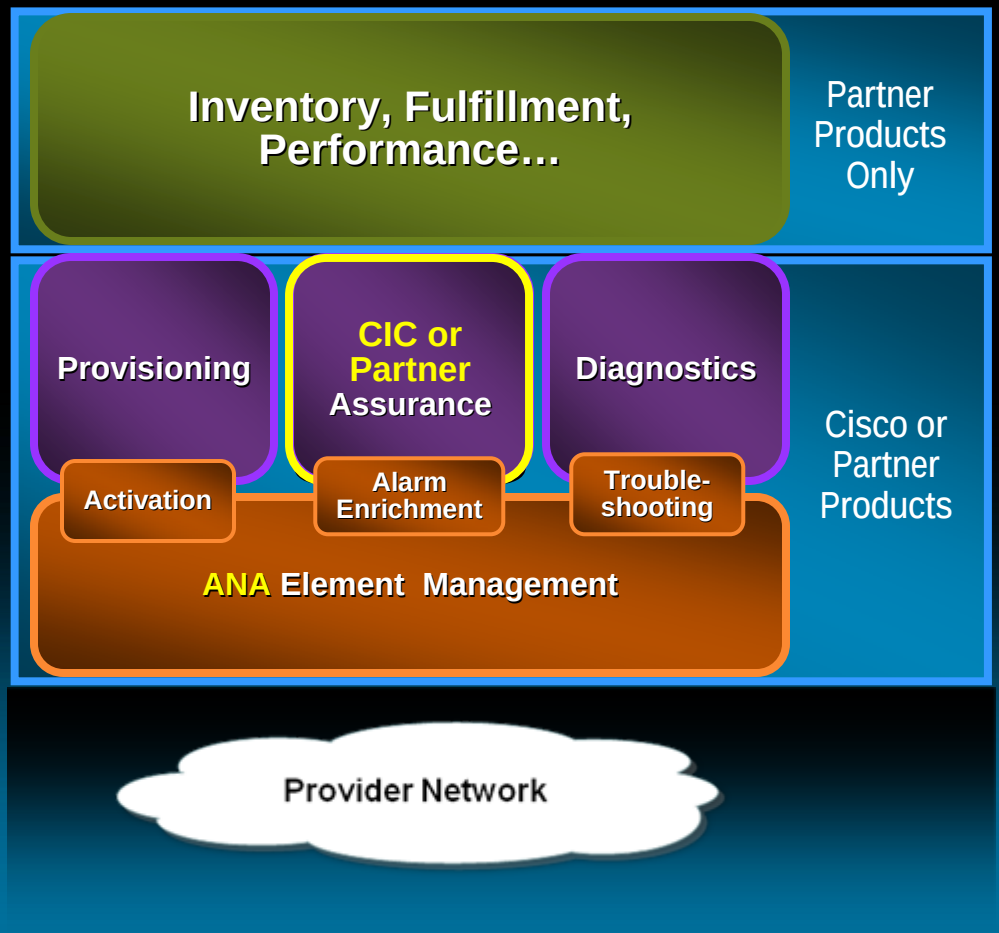
Fault and alarm management

Cisco Info Center (CIC)
Cisco Active Network Abstraction (ANA)



Cisco Portfolio for Assurance Management

- **ANA EMS**
  - Device and service alarm reduction, enrichment
  - Exposed via NBI & SNMP
  - Integrations: CIC, partner
- **Cisco Info Center (CIC / NetCool)**
  - Consume ANA-enriched events
  - Drill down to ANA troubleshooting
  - Additional advanced correlations provided through service contract
- **Combined Assurance and Provisioning Solution**
- **ISC integration with CIC for alarm and trouble ticket enrichment**
- **Cisco NCM available to track all changes to the network configuration**



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- **MPLS Diagnostics Expert (MDE)**

In-depth MPLS VPN access, edge and core diagnosis

Cisco MPLS Diagnostics Expert

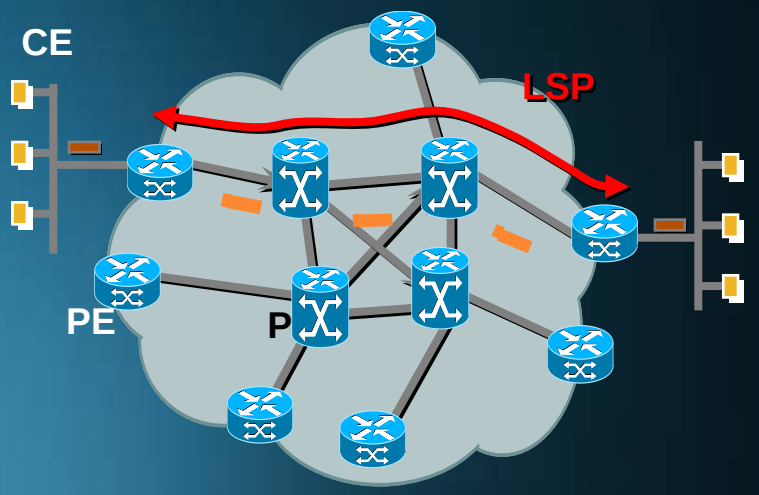
Diagnosing

The Business Problem: Overview

- Outage detection
- Complexity of IP/MPLS networks – e.g., *LSP Black holes* in MPLS core
- Network configuration changes … typically cause 50% of network outages
- Access circuit issues – typically 90% of customer support calls
- Customer network problems – all too often “MPLS VPN outage” root cause
- Need for MPLS skills on the helpdesk
- NOC organizational “hand-overs”

  Front-line helpdesk -> Level 2 support -> Level 3 support/design engineering)

Real-life customer problem … Deleted VPNV4 address family on route reflector … took hours to find and diagnose

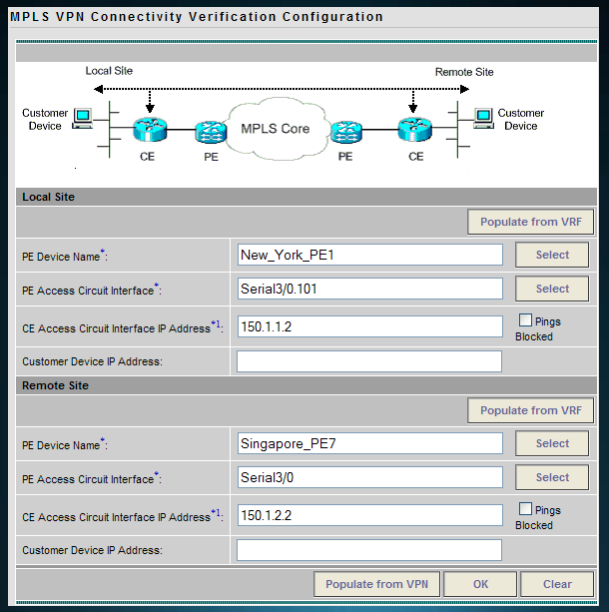


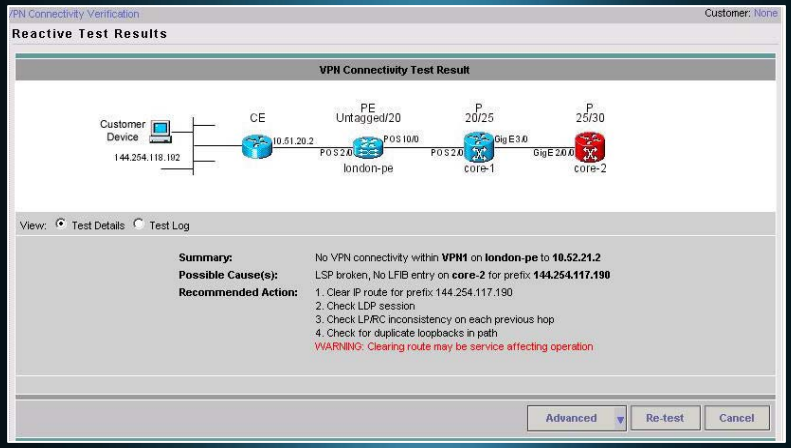
Real-life customer problem … Inconsistency between MPLS forwarding table on CPU and line card … several hours outage

Cisco MPLS Diagnostics Expert (MDE) - Product Overview

NetworkComputing AWARDS 2008
NETWORK MANAGEMENT PRODUCT OF THE YEAR

- Award winning, automated troubleshooting and diagnosis of MPLS VPN problems - 80/20 rule
- Diagnoses problems in MPLS VPN core, edge, and access … and can isolate problems to the end-customer network!
- Reduces MPLS outages from hours to minutes using MPLS VPN Failure Knowledge Base developed by NMTG – with TAC and ITD support
- Diagnoses complex MPLS core LSP “black holes” via Cisco IOS MPLS OAM support – LSP ping and traceroute in mixed IOS/IOS-XR networks
- Usable by, and empowers, the NOC helpdesk
- Accelerates NOC organizational handover via detailed test log – all steps logged
- Unique Cisco capability, complementary to existing, traditional fault NMSs
- Deployable with customers who don’t use ISC as well as those who do
- Comprehensive patent filed on MDE algorithms





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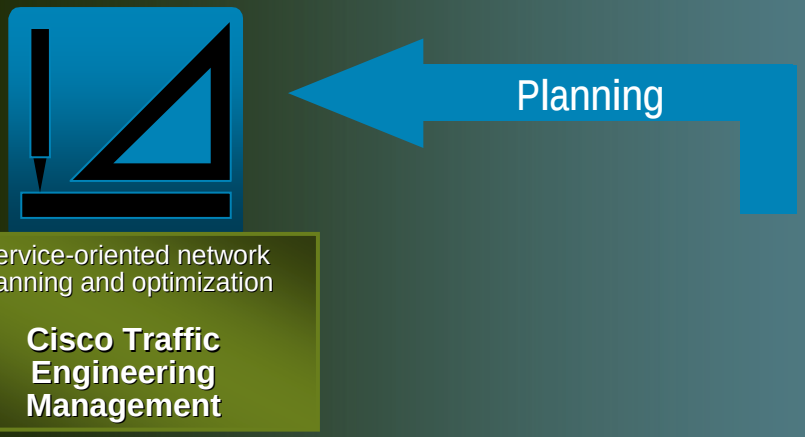
- **MPLS Traffic Engineering**

  Provisioning



Key Challenges in Traffic Engineering of MPLS Networks

Business Challenges

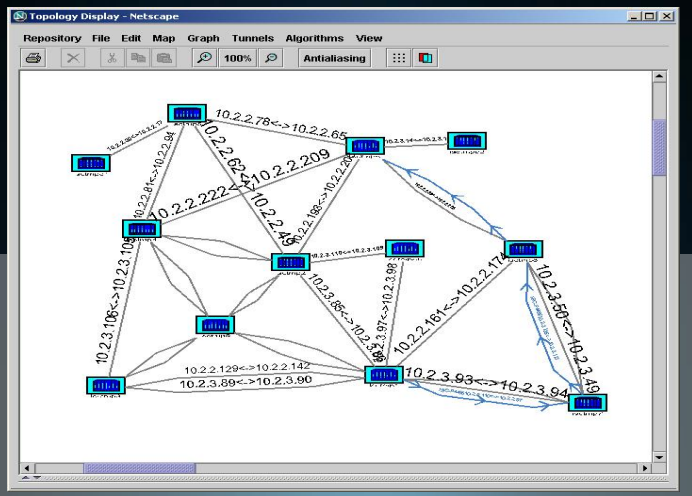
- Traffic management on IP/MPLS Core networks
- Predictable routing for Ethernet business services
- Bandwidth protection for data collection and signaling traffic in mobile IP core
- Fast restoration of L2VPN services
- Matching of business services to available QoS resources in converged NG networks
- Delivery of hard bandwidth guarantees

Management Needs

- Comprehensive user interface for reducing the complexity of TE technology
- Error-free provisioning of TE tunnels and traffic admission
- TE planning based on actual network topology
- Fast restoration in the event of element failure (sub-50 ms for VoIP)
- Optimization of network utilization
- Large-scale TE resource management and bulk TE tunnel provisioning
- Transparency over ongoing network changes… new features and new IOS or IOS XR releases

The Features and Benefits of ISC Traffic Engineering Manager (TEM)

- Discover, visualise and audit MPLS-TE tunnels
- Protect the network against failure
- Optimize network utilization
- Guarantee bandwidth for QoS-sensitive applications and premium services
- Enable fast service recovery and restoration



Agenda

- Summary

IP Solution Center: Applications Summary

Cisco IP Solution Center is a family of intelligent network management applications for planning, provisioning, and troubleshooting MPLS and Carrier Ethernet networks.

ISC:MPLS simplifies, integrates, and automates the management of L3 VPN networks.

ISC:L2 VPN and Carrier Ethernet simplify, integrate, and automate the management of L2 VPN and Carrier Ethernet/ATM/ Frame Relay networks.

MDE is an automated, workflow-based network management application that troubleshoots and diagnoses problems in MPLS VPNs.

ISC:TEM leverages MPLS-TE to enable network convergence and offers advanced MPLS-TE management functionality, including network optimization and bandwidth protection.

For More Information

- For more information about the Cisco IP Solution Center and its family of intelligent network management applications, visit the following Cisco Connections Online location or contact your local account representative
- Cisco IP Solution Center Overview:

  http://www.cisco.com/go/isc
- Cisco MPLS Diagnostics Expert Overview:

  http://www.cisco.com/go/mde