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

Provisioning and Configuration
- End-to-end service activation, provisioning and configuration
- ISC – Layer 2, Carrier Ethernet and Layer 3 MPLS VPN Provisioning

Planning
- Service-oriented network planning and optimization
- Cisco Traffic Engineering Management
- Fault and alarm management
- Cisco Info Center (CIC)
- Cisco Active Network Abstraction (ANA)

Monitoring

Diagnosing
- In-depth MPLS VPN access, edge and core diagnosis
- Cisco MPLS Diagnostics Expert

Advanced Cisco IOS & IOS XR MPLS OAM
Agenda

- 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
  - Abstrated 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
Agenda

- 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”

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

- **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

Planning

Service-oriented network planning and optimization

Cisco Traffic Engineering Management
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
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:

- Cisco MPLS Diagnostics Expert Overview: