Cisco Prime
for Service Providers
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What Will be Discussed

• The Cisco Prime Vision
• Prime Portfolio of products for the SP market
• Prime IP-NGN Suite Overview
• Prime Competitive Edge
Cisco Prime for Service Providers
Experience Lifecycle Management

- A modular portfolio of applications
- A-to-Z management for next-generation packet and transport networks
- Delivering the Cisco Advantage
Experience Lifecycle Management Benefits for Service Providers

**Design**
- Rapid time to revenue
- Differentiated services

**Analyze**
- Grow ARPU
- Increase loyalty

**Fulfill**
- Low-cost operator
- Low touch
- Lowest cost

**Assure**
- Improve QoS
- Reduce turnover
- Lowest cost

**Domain Managers**
Provide core information for devices and technologies
Automated discovery and configuration management
Network visibility
Cisco Prime
Architecture Plays for Service Providers

Prime for Mobility
• Mobile RAN Backhaul lifecycle (packet, optical, 3rd-party microwave radios)
• Mobile GW & packet core mgmt
• Zero-touch provisioning
• Mobile AAA for SP Wifi [Sigtran]
• Diameter Routing Agent
• Femto/Small cell provisioning, mgmt [TR-069] & performance
• Policy & Subscriber Data Mgmt
• Analytics

Prime for Video
• Centralized Assurance and Inventory Management
• Broadband customer premise equipment (CPE) provisioning (Data over Cable Service Interface Specification [DOCSIS] and TR-069)
• Performance Management
• Analytics

Prime for Cloud & Managed Services
• Next-generation DNS for cloud
• Hosted collaboration services on IaaS
• TelePresence as a service
• Unified Computing System (UCS), Nexus, and Data Center Networking (DCN) management solutions
• Fulfillment stack driving Cloud domain provisioning (LineSider)

Prime for IP Next Generation Network

Architectures
• MPLS and Carrier Ethernet (Core, Distribution, Access)
• Ran Backhaul
• Next Generation IPv6 Residential Services
• Optical Transport

Cisco Prime IP NGN Suite
• Prime Central
• Prime Provisioning
• Prime Network
• Prime Optical
• Prime Performance Manager

Infrastructure Management
• Prime Address Management (Address Management and Configuration)
• Prime Network Registrar (IPv6 and scalable DNS and DHCP Servers)
• Prime Access Registrar (Authentication, Authorization, Accounting)
## Cisco Prime for Service Provider Portfolio

### Prime Active Catalog
- Multi-domain provisioning & activation
- Business process automation, workflow
- Customer impact database
- Service catalog, complex workflow

### Prime Central
- Common inventory, event management, user management, and reporting
- IP element and network management
- Optical transport network management
- Performance management & reporting

### Prime Order Management
- Multi-domain provisioning & activation
- Business process automation, workflow
- Customer impact database
- Service catalog, complex workflow

### Prime Service Inventory
- Multi-domain provisioning & activation
- Business process automation, workflow
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### Prime Provisioning
- Multi-domain provisioning & activation
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### Prime Performance Manager
- Multi-domain provisioning & activation
- Business process automation, workflow
- Customer impact database
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### Prime for IP NGN
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### Prime IP Address Management
- Multi-domain provisioning & activation
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### High-Speed Servers
- IPAM user interface, resource mgmt
- DNS and DHCP Servers
- Authentication, Authorization, Accounting
- Residential/SOHO equipment activation

## Prime for IP NGN
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Cisco Prime the Modular Service Provider Portfolio

**Prime Analytics**
- Prime Analytics
- • Business & Operational Analytics

**Service Management**
- Cisco Workplace / Cloud Portal
- Prime Order Management
- Prime Service Inventory
- Prime Provisioning
- • Unified self-service portal
- • Business process automation, workflow
- • Customer impact database
- • Service catalog, complex workflow

**Network & Element Management**
- Prime Central
- Prime Network
- Prime Optical
- Prime Performance Manager
- Prime Network Analysis Module
- Prime Assurance Manager
- Prime Collaboration Manager
- • Central point of access for network information and control
- • IP element and network management
- • Optical transport network management
- • Network performance management & reporting
- • Visibility into application performance on the network
- • Aggregate Network Analysis Module information
- • Assurance for TelePresence and TelePresence sessions

**Infrastructure**
- Prime Network Registrar
- Prime Access Registrar
- Prime Premises
- Prime Service Manager for SP Wi-Fi
- Prime Service Manager for BNG
- • DNS and DHCP Servers
- • Authentication, Authorization, Accounting
- • Residential/SOHO equipment activation
- • Subscriber policy and data management for SP Wi-Fi
- • Subscriber charging, policy and data management for BNG
Cisco Prime for IP NGN

Access, Aggregation, Edge, and Core Consistency in Delivery and Management of Services
Centralized User Portal

Prime portal provides:

- Single point of entry into the network for operator access to all information they need
- Support of LDAP, TACACS+ and RADIUS plug-ins for external authentication
- Reduced operational costs using an integrated framework for operators and administrators
- Increased efficiency with seamless transition between functional areas
Network Discovery
From Access to Core

Faster and more cost effective Packet Transport, MPLS, Carrier Ethernet and RAN Backhaul management with automatic discovery of all network components

- Complete end-to-end visibility of all network elements, covering a wide variety of Cisco Products (over 50 different platforms) from edge to access, aggregation and core

- Physical and logical topologies

- Multivendor support
Common Event/Alarm list

- At-a-glance view of network health from Access to Core
- Full Alarm Lifecycle management
Service Design and Fulfill

- Accelerate service deployment for both Packet Transport, MPLS, Carrier Ethernet and IP-RAN services with easy to use point and click service creation wizards
- Point & Click provisioning and automatic path computation for Packet Transport network to adapt to transport operations
- Eliminate manual errors with automation

Service Provisioning Lifecycle

- Start
- Requested
- Deployed
- Deleted
- End
- Create
- Deploy
- Decommission
- Purge

Resource Pools

Policy

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Manage Your Configurations

Configuration Restore

Configuration Change Log

Configuration Comparison
In-Depth Visibility into Carrier Ethernet Networks
Logical Inventory Details

- Full discovery of the logical building blocks that are composing the service.

![Diagram of Logical Inventory Details](image)

Pseudowire:

![Diagram of Label Switching](image)
In-Depth Visibility into Carrier Ethernet Networks

EVC Topologies

Drastically reduced troubleshooting time to identify device configuration or network errors using virtual connection (e.g., VLAN) graphical representations to quickly identify associated devices and their configuration.

Topology to represent:

- STP Forwarding decision
- Root bridge
- REP Topologies

![EVC Overlay Diagram]
Drill into VLAN Topology

- VLAN Topology Views
  - Bridge/switching entities
  - EFPs
  - Links between EFPs
  - STP link states
  - Root bridge
- STP/REP decorators indicate forwarding paths

VLAN Logical Topology

VLAN Topology overlay on physical topology map. Highlights nodes and links, including STP port states.
In-Depth Visibility into Carrier Ethernet Networks
Ethernet Service Virtualization

Unique graphical view representation for complex Ethernet services to help users analyse how a service traverses multiple domains and technologies
Easier Carrier Ethernet troubleshooting with CFM leveraging Prime:

- CFM hierarchy configuration discovery and reported in hierarchal views
- CFM ping, CFM trace and other built-in scripts available
Monitor Network Faults

- At-a-glance view of network health from Access to Core
- Cross domains correlation and de-duplication to rapidly diagnose and remediate faults that span multiple domains
- Full Alarm Lifecycle management
Service Assurance

- Fast network outage detection with visualization of impacted network devices
- Dedicated service alarms indicating the two devices terminating logical link and the impacted ID
- Hyperlinks for immediate fault localization and isolation
Monitor, Inspect, and Diagnose Network Faults

- Alarm reported at each level of the application enable at-a-glance view of services and devices health for fast fault isolation

- Domain Manager performs a first level of correlation to reduces number of alarms/events

- Affected parties report on specific fault scenarios (e.g., link down)

50:1 average event reduction
Service Troubleshooting

- Improved pseudowire troubleshooting with graphical representation of all network components traversed
- Powerful service tracing mechanism to simulate the path of the traffic along the network elements
- Hop by hop details on each technology traversed (MAC address, MPLS label stack, used protocols....)
System Extensibility

- Ability to rapidly add new features via a flexible architecture
- Different tools available to extends models and device configuration.
- Online documented SDK tools and forum to support system integrators
Performance Statistics

- Network health monitoring identifies degraded services or prevents backhaul link congestion via threshold crossing alerts (TCA) or performance statistics trend analysis (pseudowire, IP-SLA interface statistics, etc.)

- This allows service providers to deliver outstanding quality, exceed service-level agreements (SLAs), and better differentiate their offerings
Analyzing Network Behavior

- Rich set of reporting capability across all events/alarm to enable close monitoring and analyzing network behaviour.
- Reports customizable and exportable in HTML, PDF, XML, Excel
Third-Party Device Support

Out-of-the-Box Support for:

- DragonWave (microwave radio)
- Alcatel-Lucent
- Huawei
- Juniper
- RAD
- NEC iPasolink

- Multivendor ready
- Easy integration of other third-party microwave devices

Basic logical and physical discovery for third-party devices supporting the standard MIB2
Cisco Prime for IP NGN Benefits

- Automating and accelerating service time-to-value
- Improving subscriber experience with rapid fault isolation
- Ensuring service levels with performance management
- Simplifying buying with modular portfolio
- Reducing complexity with standards-based integration

Using the Cisco Advantage to simplify management
Cisco Prime Competitive Differentiators

• Tight alignment between Cisco hardware and network management
  ✓ VNE approach supports 30 day target to support new FCS’ing products
  ✓ VNE approach supports adding new hardware and software without disrupting NMS

• Third-party device support – including microwave radios
  ✓ Greater multivendor support than our competitors

• Lifecycle management
  ✓ Simplified deployment and lower TCO

• Root cause analysis and flow-based correlation
  ✓ Eliminates Complex IF-THEN logic of rule-based approaches

• Extensive API availability
  ✓ Northbound interfaces included at no additional cost

• Point and click operations
  ✓ Intuitive GUI for rapid visualization and diagnosis

• Topology maps support greater views

• Easy to extend
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### Prime for IP NGN
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- Prime Order Management
- Prime Service Inventory
- Prime Provisioning
- Prime Network Registrar
- Prime Access Registrar
- Prime Premises

### Prime Fulfillment
- Prime IP Address Management
- Prime for IP NGN
- Prime for IP NGN
Thank you.