Automating Software Defined Networks: Escape the Margin-Crunching Vise

Cisco Knowledge Webinar

November 5, 2019
Today’s Presenters

**John Malzahn**
Senior Manager,
Service Provider
Solutions Marketing
Cisco

**Marc Austin**
Director, Product
Management Service
Provider Network
Automation
Cisco Systems
Agenda

- Business trends and challenges
- Cisco’s Software Defined Transport Network offer
- Overview and key components
- Supported use cases
- Demo
- Business outcomes
The Networking Landscape Is Changing

Can you deploy services at the speed that your customers demand?

- Customers want and expect more
- Traditional services planning and deployment models no longer work
- The current business model makes investment for transformation challenging
Service Provider Economics are Changing
The importance of investing for scale

$1 CAPEX in 2022
11X work it did in 2012

Sources: IHS Technology, "Service Provider CapEx, OpEx, Revenue, and Subscribers Database, Q1 2017"; Cisco Visual Networking Index (VNI)
How do you think people will most likely use 5G?

A. More bandwidth for higher definition consumer video
B. Lower latency for autonomous driving
C. Cheap, narrow bandwidth for smart cities and smart homes
An Answer to the Challenges
Software Define Transport Networks

Plan, design, and build for dynamic scalability to meet demand

Agilely pursue new, profitable business opportunities

Simplify operations and architectures to do more with less
Define How You Operate Your Network

Get results by simplifying, automating, and optimizing your network

- **Reduce OpEx**
  Simplify operations with full lifecycle automation

- **Differentiate Services**
  Automate service delivery paired with software-defined policy

- **Optimize CapEx**
  Improve visibility and dynamic capacity control

© 2019 Cisco and/or its affiliates. All rights reserved.
Cisco Software Defined Transport Network

Bandwidth and Management Suite

SR
Segment Routing (SR-PCE)

WAE*

NSO

EPNM

CX Services

(*) WAE is becoming Crosswork Optimization Engine
Built on a common, programmable, & validated reference architecture

Service Orchestration
End-to-end service lifecycle management

Network Planning

Network Optimization

SR Path Computation

APIs and abstractions for visibility and control

Network services abstraction

Topology & Traffic Modeling

Infrastructure Abstraction

Element management system

Device Management

Software Defined Transport Network
A Suite of Solutions for SDN Transport

**Bandwidth and Management (BAM) Suite**
- Turnkey software and CX services bundle
- Full lifecycle management to design, deploy, monitor, and optimize your network infrastructure

**NSO**
Network Services Orchestrator (NSO)
Deploys the intent by automating service adds, changes and deletions across network in real time

**WAE**
WAN Automation Engine (WAE)*
Performs “what if” analyses of failure impacts and optimizes bandwidth

**SR-PCE**
Segment Routing Path Computation Element (SR-PCE)
Computes segment routing paths dynamically in the network with global visibility

**EPNM**
Evolved Programmable Network Manager (EPNM)
Monitors network, policies and assures they are running properly

(*) WAE is becoming Crosswork Optimization Engine
Continuous Bandwidth Optimization

1. Plan SLA policy
2. Detect network state change
3. Check state for policy violation and compute tactical routing path
4. Deploy explicit routing path

Topology & Traffic

Optimization Engine

SR-PCE Controller

Network Planner

Plan SLA policy
Detect network state change
Check state for policy violation and compute tactical routing path
Deploy explicit routing path

IGP path
Explicit path
Congestion
Bandwidth On Demand

1. Design service with bandwidth guarantee
2. Deploy service configuration
3. Request service path
4. Compute path with bandwidth guarantee
5. Get service path
6. Monitor and validate bandwidth SLA

- Dynamic path
- Explicit path
- Hot link*

*90% < Hot link <100% capacity = lower bandwidth
Improved Customer Outcomes

60% CAPEX Savings

66% OPEX Savings

80% Faster Time-to-Revenue
Built from Proven Global Success

Key Reference Customers

- PLDT
- airtel
- SK telecom
- Vodafone
- STC

© 2019 Cisco and/or its affiliates. All rights reserved.
Customer Success Story
Protect your software defined network and business with the strongest security team on the planet
Why Cisco

1. Networking market leadership
2. Global multivendor network deployments
3. Commitment to open standards
4. Most comprehensive network automation portfolio
5. Most comprehensive security portfolio
For more information on Cisco’s Automation Portfolio please visit Cisco.com/go/crosswork

marc.austin@cisco.com
Questions?