MEF Created the $80B* Carrier Ethernet Market

Goal is to leverage the MEF’s $80B CE base to evolve into orchestration + new services

*IHS Market Report
Network as-a-Service (NaaS)

Orchestrated Services

- E-Line
- E-LAN
- E-Tree
- E-Access
- E-Transit
- L3 VPNs
- IP Transit
- SECaaS
- App Services

Self-service Web Portal

NaaS Service Provider “X”

NaaS Service Provider “Y”

SDN

NFV

Legacy Networks

Internet

Cloud Provider

Data Center
MEF LSO Reference Framework

Self-service Web Portal

- LSO Allegro
- LSO Cantata
- LSO Sonata
- LSO Interlude
- LSO Presto

Business Applications

Service Orchestration Functionality

LSO Legato

Network Operator 1

Network Operator 2

End-to-End Network-as-a-Service

EMS: Element Management System  PNF: Physical Network Function  SOF: Service Orchestration Function

- Fulfillment
- Performance
- Control
- Assurance
- Usage
- Analytics
- Security
- Policy
MEF’s Intra-Operator APIs and Open Initiatives

Service Level Orchestration Open APIs
- Fulfillment
- Performance
- Policy
- Security
- Control
- Assurance
- Usage
- Analytics

Network Level Orchestration Open APIs
- Technology Domains
  - SD-WAN
  - Data Center
  - Packet WAN
  - Optical Transport
  - NFV
  - Cloud Exchange
  - 5G Wireless

Orchestrated Services
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- App Services
- Internet Access
- Wavelength
MEF SD-WAN Position

- Focus on CSP SD-WAN managed services
- CSP LSO API integration with SD-WAN services
- Segregated control and data plane
- Provider components in the form of VNF’s
- SD-WAN CPE in virtual or physical form factor
**SD-WAN Service using MEF LSO Reference Architecture (RA)**

### Presto Interface

- Enables a Service Orchestrator to manage different vendor SD-WAN Controllers
- SD-WAN Controllers manage SD-WAN Edges in their domain
- MEF OpenCS SD-WAN Project focusing on functionality (SOF) at the Presto Interface
Presto API Focus Areas

- LSO Provisioning
  - Site
  - Networks (LAN, WAN, VLANs, etc)
  - Application policy → Complex definition
  - Features (VPN, ...)
- LSO Status
  - Sites, Links, Overlay, VPN
- LSO Statistics
  - Flows (applications, sources, destinations)
  - Users & devices
  - Link quality
- LSO Analytic Events
  - Link condition changes
  - Quality thresholds
  - Routing changes
Single CSP: Internet Only Branches

Used for Off-Net connectivity

- Branches connected with public links only (BB, DIA, ...)
- Presto == Vendor abstracted API
Single CSP: Internet Only Branches with OTT Cloud Integration

Used for Off-Net connectivity

- Clouds connected with SD-WAN or directly with MPLS/CE 2.0
- Presto == Vendor abstracted API
Single CSP: Hybrid Connected Branches

Used for MPLS augmentation

- Branches connected with hybrid access
- Blend of private & public links
Single CSP: Non SD-WAN Branch Integration

Used for migrations

- SD-WAN sites connected with ISP broadband links only
- Legacy branch interoperability
  - DC / VDC interoperability using IPsec
  - Non SD-WAN sites connected using private links (MPLS, LL, ...)
- Routing exchanged between all branches
Single SP: Multiple SD-WAN Vendors

- Multiple SD-WAN vendor solutions present
- Single LSO driving two or more solutions
MEF’s Inter-Operator APIs and Open Initiatives

- Service Orchestration
- Inter-Operator Open APIs
- Serviceability
- Ordering
- Address Validation
- ... Others

- Technology Domain
- 5G
- Cloud
- Software

- Orchestration Services
  - E-Line
  - E-LAN
  - E-Tree
  - E-Access
  - E-Transit
  - SECaaS
  - IP Transit
  - L3 VPNs
  - Internet Access
  - Wavelength

- AT&T Announcement
- MEF & TM Forum Announcement
Multi SP

- Multiple LSO’s, multiple SD-WAN vendors
- Exchange policy information
- Provision NNI
Multi CSP - Off-Net Internet Overlay Model with Broadband Providers

- SD-WAN Controller
- Presto APIs
- East-West Sonata and Interlude APIs
- Self-service Web Portal
- Cloud APIs
- Mission Critical Cloud Applications
- Internet ISP 1
- Internet ISP 2
- CPE
- SDN Switch
- UNI
- SONA
- VNF
- SD-WAN
- GW
- RO - Resource Orchestrator
- GW - Gateway
- CPE - Customer Premise Equipment
- NaaS
- Service Provider
Announcing: Industry White Paper of Third Network Services

Third Network Services

Lifecycle Service Orchestration

SDN and NFV Network Infrastructure

http://mef.net/tgn
Summary

- MEF will focus on CSP managed SD-WANs
- Leverage the MEF $80B CE market as a platform for new innovation
- MEF LSO APIs for SD-WANs
- MEF LSO: Connecting Open Source and Standards to Implement and Deliver Dynamic Third Network Services - Thursday, April 6 11:30am
- Join MEF SD-WAN Initiative