Cisco Open Networking Environment
ONE

April 2014
Fragmented Approaches Creating Increased Complexity

Controllers

Virtual Services

APIs

Hybrid Cloud

Data Sovereignty

Provisioning

Element Management

Infrastructure Security & Policy

DC

WAN

ACCESS

2013-2014 Cisco Systems
Announcing the Cisco ONE Platform
Enabling Application Centric Infrastructure

Cisco ONE PLATFORM

- Faster application deployments
- Consistency and agility across the Enterprise
- Improved application availability with faster remediation
- Increased security and productivity with automation
## Cisco ONE Software Platform

<table>
<thead>
<tr>
<th>Infrastructure Domains</th>
<th>WAN</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cisco ONE Essentials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controller, Virtual Switch, Northbound/Southbound APIs</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cisco ONE Foundation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACI Fabric, L2/L3 Services, Infrastructure Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cisco ONE Advanced Application Services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Policy-Based, Optimized End-to-End Application Delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cisco ONE Advanced Security Services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehensive Network Security and Threat Defense</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cisco ONE Platform in the Data Center

- **Cisco ONE Advanced Security Services**
  - ASA
  - Web/Email
  - Sourcefire

- **Cisco ONE Advanced Application Services**
  - InterCloud

- **Cisco ONE Foundation**
  - ACI Fabric
  - UCS Director
  - Prime

- **Cisco ONE Essentials**
  - ONE PK
  - DevKit
  - N1KV

- **Infrastructure Domains**
  - Data Center
  - WAN
  - Access
# Cisco ONE Across WAN and Access

<table>
<thead>
<tr>
<th>Domain</th>
<th>ASA</th>
<th>Web/Email</th>
<th>Sourcefire</th>
<th>InterCloud</th>
<th>ACI Fabric</th>
<th>UCS Director</th>
<th>Prime</th>
<th>N1KV</th>
<th>ONE PK</th>
<th>DevKit</th>
<th>APIC</th>
<th>ONE PK</th>
<th>DevKit</th>
<th>Cloud</th>
<th>Firewall</th>
<th>WAAS</th>
<th>UC Gateway</th>
<th>AVC</th>
<th>CMX</th>
<th>AVC</th>
<th>ISE/TrustSec</th>
<th>AnyConnect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cisco ONE Advanced Security Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cisco ONE Advanced Application Services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cisco ONE Foundation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cisco ONE Essentials</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Infrastructure Domains</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Cisco ONE**

- Advanced Security Services
- Advanced Application Services
- Foundation
- Essentials

**Data Center**

- ACI Fabric
- UCS Director
- Prime

**WAN**

- ASA
- Web/Email
- Sourcefire
- InterCloud
- One PK
- DevKit
- APIC
- One PK
- DevKit

**Access**

- Cloud Web Security
- Firewall
- AVC
- WAAS
- UC Gateway
- AVC
- CMX
- ISE/TrustSec
- AnyConnect

**Foundation**

- CSR
- Prime
- AP License, L2/L3 Switching
- Prime

**Essentials**

- DevKit
- DevKit

**APIC**

- ONE PK
- DevKit
Simplified Licensing with Logical Suites

- **Cisco ONE Suite for DC**
- **Cisco ONE Suite for WAN**
- **Cisco ONE Suite for Access**
- **Enterprise Security Suite**
- **Data Center Foundation**
- **WAN Foundation**
- **Access Foundation**

Included with SmartNet and Collaborative Services
## Simplified Licensing with Logical Suites

<table>
<thead>
<tr>
<th>Infrastructure Domains</th>
<th>Data Center</th>
<th>WAN</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco ONE Essentials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cisco ONE Foundation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cisco ONE Advanced Application Services</td>
<td>Cisco ONE Suite for DC</td>
<td>Cisco ONE Suite for WAN</td>
<td>Cisco ONE Suite for Access</td>
</tr>
<tr>
<td>Cisco ONE Advanced Security Services</td>
<td>Enterprise Security Suite</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Included with SmartNet and Collaborative Services**

*Cisco ONE Suite for DC*  
*Cisco ONE Suite for WAN*  
*Cisco ONE Suite for Access*
When is this Available?

**Announced in February**
- Cisco ONE Platform
- Cisco InterCloud
- Cisco APIC Enterprise Module

**Spring/Summer 2014**
- Pricing & Offer Details
- APIC Controller Availability
- Enterprise Module Availability
- InterCloud Availability

**Fall/Winter 2014**
- Cisco ONE Platform Availability
- ELA & Subscription Licensing Models
Cisco ONE partner community

Introducing Cisco DevNet

To Create a Community of Software Developers who Leverage Cisco Technology in Their Work

Innovative & Compelling Apps

- Engineering
  - API Development
- SDKs
  - ONE DevKit
  - Common Northbound APIs
- Developer Support
  - Cross Platform Support
  - Access to Testing Lab
- Community Management
  - Strategic and Tactical Marketing

DevNet Portal
DevNet APIs and SDKs

DevNet Portal Live | Cisco Community & DevNet Integration | ONE PK Developer Support | APIC Enterprise Module Sandbox | DevNet Hackathon (May)

Dec | Jan | Feb | Mar | Apr
Cisco ONE and SDN
“Cisco is late to the SDN game” Really?

<table>
<thead>
<tr>
<th>SDN Platform</th>
<th>SDN Controller</th>
<th>SDN Virtual Switch</th>
<th>SDN Switch</th>
<th>SDN ASICs</th>
<th>SDN Orchestration Software</th>
<th>Layer 4-7 SDN Services Platform</th>
<th>VXLAN Gateway</th>
<th>SDN Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco</td>
<td>Cisco</td>
<td>Cisco</td>
<td>Cisco</td>
<td>Cisco</td>
<td>Accedian Networks</td>
<td>F5</td>
<td>VMware</td>
<td>Big Switch</td>
</tr>
</tbody>
</table>

Cisco ONE: Infrastructure Programmability
If you want you can program, but you don’t need to

Programmable
- NX-API
  - JSON-RPC
  - XML/JSON
- Python scripting
- Customizable CLIs
- BASH access
- Broadcom shell access
- Linux containers
- OpenFlow support
- Cisco onePK™

Automation and Orchestration
- Puppet
- Chef
- OpenStack network plugin
- XMPP support
- OpenDaylight integration

Visibility
- Dynamic buffer monitoring
- Enhanced Ethanalyzer
- SMTP email “pipe” output
- Embedded Event Manager (EEM)
- Flow monitoring
- vTracker

SNMP (v1, v2, v3), Syslog, NETCONF, RMON, CLI
Did you know?

“Managing Cisco Devices using Puppet”:
http://www.youtube.com/watch?v=ai_93hUlmt0
When did Cisco include into IOS programmability with “Embedded Event Manager” (TCL scripts)?

2000
Open Daylight
Cisco’s reference for controller architecture

- Open-source controller
- Main industry players support the initiative
- Multiple northbound and southbound APIs
- Base controller code provided by Cisco
- Cisco will provide commercial versions of Open Daylight
- Introduce OpenFlow non-intrusively in your organization

- Cost-effective, flexible solution to gain more **intelligence** out of your network traffic: gain **visibility** into what is going on in your network!
Cisco ONE:
Data Center Network Architectures
Network architectures in the DC

Federated Clouds

Network Fabrics

Virtual Networking

Application Centric Infrastructure

Cisco Open Network Environment

Supported infrastructure

| Full Cisco Nexus portfolio | Anything | Cisco Nexus 9000 |
Data Center Network Fabrics

- Scalable, flexible networks
- Technology examples:
  - Virtual Port Channels enable non-blocking redundant architectures
  - Fabric Extenders enable management simplification
  - FabricPath enables flexible L2 topologies like spine/leaf or large domains
  - Unified Ports and FCoE enable consolidation of storage and data fabrics
  - BiDi optics enable low-cost transition to 40GbE
- With a rich switching portfolio to meet every need
- Dynamic Fabric Automation takes a DC network to the next level
DFA consists of four modules, that can be deployed individually or together for a comprehensive solution.
Cisco Virtual Networking

**Tenant A**
- Cisco Virtual Security Gateway (VSG)
- ASA 1000V Cloud Firewall
- Cloud Services Router 1000V
- Cisco vNAM
- Citrix NetScaler VPX
- Imperva SecureSphere WAF

**Nexus 1000V**
- vWAAS

**Multi-Hypervisor (VMware, Microsoft*, RedHat*, Citrix*)**

**Any Physical Infrastructure (Compute, Network, Storage)**

**Nexus 1000V**
- Distributed switch
- NX-OS consistency

**Security**
- Zone-based FW
- Edge FW

**Application**
- Application visibility
- Application performance
- WAN optimization

**Routing**
- Virtual router
- WAN L3 gateway
- Routing and VPN

**Ecosystem Services**
- Citrix NetScaler VPX virtual ADC
- Imperva Web App. Firewall

**InterCloud**
- Flexible Hybrid Cloud
Innovation Example: Cisco VXLAN Gateways
Connecting physical workloads to a virtual overlay

- **L3 VXLAN gateway:** L3 services VM (CSR 1Kv / ASAv)
- **L2 VXLAN gateway on Nexus 1110**
- **L2 VXLAN gateway on physical switch**
- **L3 VXLAN gateway on physical switch**
Example: Cisco Intercloud

Hybrid Cloud: The Best of Both Worlds

- **Dev/Test**: Quickly develop in cloud and run production in data center
- **Capacity Augmentation**: Build the base and rent the peak
- **Disaster Recovery**: Deliver as a service, reduce complexity and cost
Current Approaches

Customer → Open → Homogeneous + Custom Cisco InterCloud → Providers

Virtual Networking
Cisco’s Hybrid Cloud Differentiation

No Cloud Vendor Lock-In
Any Hypervisor to Any Provider
Heterogeneous Infrastructure

End-to-End Security
Data Sovereignty
Workload Mobility Across Clouds

Cisco InterCloud

Cloud Providers & Cisco Powered Services

Open Ecosystem

Virtual Networking
Cisco InterCloud Solution Overview

Enterprise DC / Private Cloud

- vSphere
- Hyper-V
- OpenStack/KVM
- CloudStack/Xen

InterCloud Business Edition

- End User & IT Admin Portals
- Secure Fabric, Network, Compute & Storage

Provider Clouds

- InterCloud Provider Enablement Platform
- Cloud Providers Cisco Powered Services
- Brokered Services

- Azure APIs
- Windows Azure
- EC2 APIs
- Amazon Web Services
Cisco InterCloud: Secure Workload Mobility
Hybrid Cloud for burst capacity or dev/test machines

**Choice:** Freedom to place workloads across heterogeneous Private and Public Clouds

**Consistency:** End-to-end workload security with consistent extension of Private Cloud policies to Public Cloud environments

**Control:** Unified management and networking to move workloads across clouds

**Compliance:** Assurance that all employees adhere to IT policies when using Public Cloud services

Virtual Networking

Sustained Workloads

Variable Workloads

Cisco InterCloud

Private

Public

Virtual Networking
Cisco ONE Platform

- Simplifying IT, increasing agility
- Delivering on the promise of SDN
- Providing customer choice and flexibility
- Open ecosystem, driving innovation
- Only Cisco: breadth, depth, leadership
Thank you.