Software Defined Networking via Cisco ONE Controller

Phil Casini
Senior Product Manager

Cisco ONE/N1K Public Webinars, 1H 2013

Date/Time	Topic
Thur, Feb 21st at 0900 PST	Cisco Open Network Environment (Cisco ONE) – Next Phase of Network Programmability and SDN
Thur, Feb 28th at 0900 PST	Cisco One Platform Kit (onePK): Technical Deep Dive and key use cases
Wed, Mar 6th at 0900 PST	Nexus 1000V for Hyper-V with Microsoft SCVMM integration
Wed, Mar 13th at 0900 PST	Cisco ONE controller: Technical Deep Dive and key use cases
Wed, Mar 20th at 0900 PST	5000 Seat VDI Reference Architecture: Cisco UCS & Nexus 1000V, Citrix XenDesktop, and EMC VNX
Wed, Mar 27th at 0900 PST	Nexus 1000V v2.2 for vSphere: More scale, Multicast-less VXLAN, VXLAN Gateway
Wed, April 3rd at 0900 PST	Cloud Services Router (CSR 1000V): Technical deep dive and key use cases
Wed, April 10th at 0900 PST	Cloud Security with ASA 1000V and Virtual Security Gateway v2.1 (VSG)
Wed, April 17th at 0900 PST	Secure Hybrid Cloud solution with Nexus 1000V InterCloud & VNMC InterCloud
Wed, April 24th at 0900 PST	Nexus 1100 for Cloud Network Services: New Services & Ecosystem
Wed, May 1st at 0900 PST	Cloud Networking Services: vNAM and vWAAS
Wed, May 8th at 0900 PST	Virtualized Multiservice Data Center (VMDC) solution with Cloud Networking Services
Wed, May 15th at 0900 PST	Nexus 1000V for KVM (with OpenStack and VXLAN)

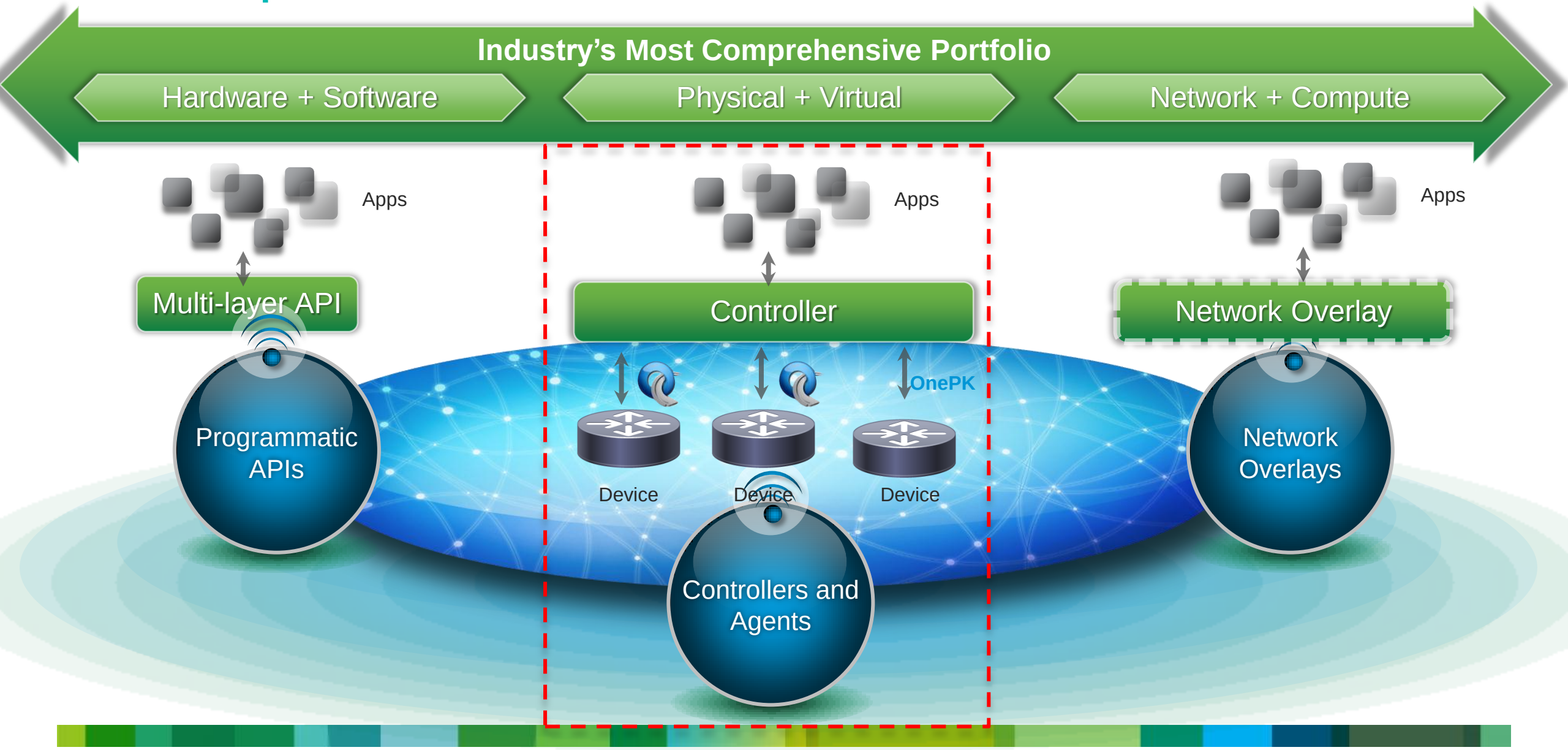
Register and view recordings/presentations here:

www.cisco.com/go/1000vcommunity

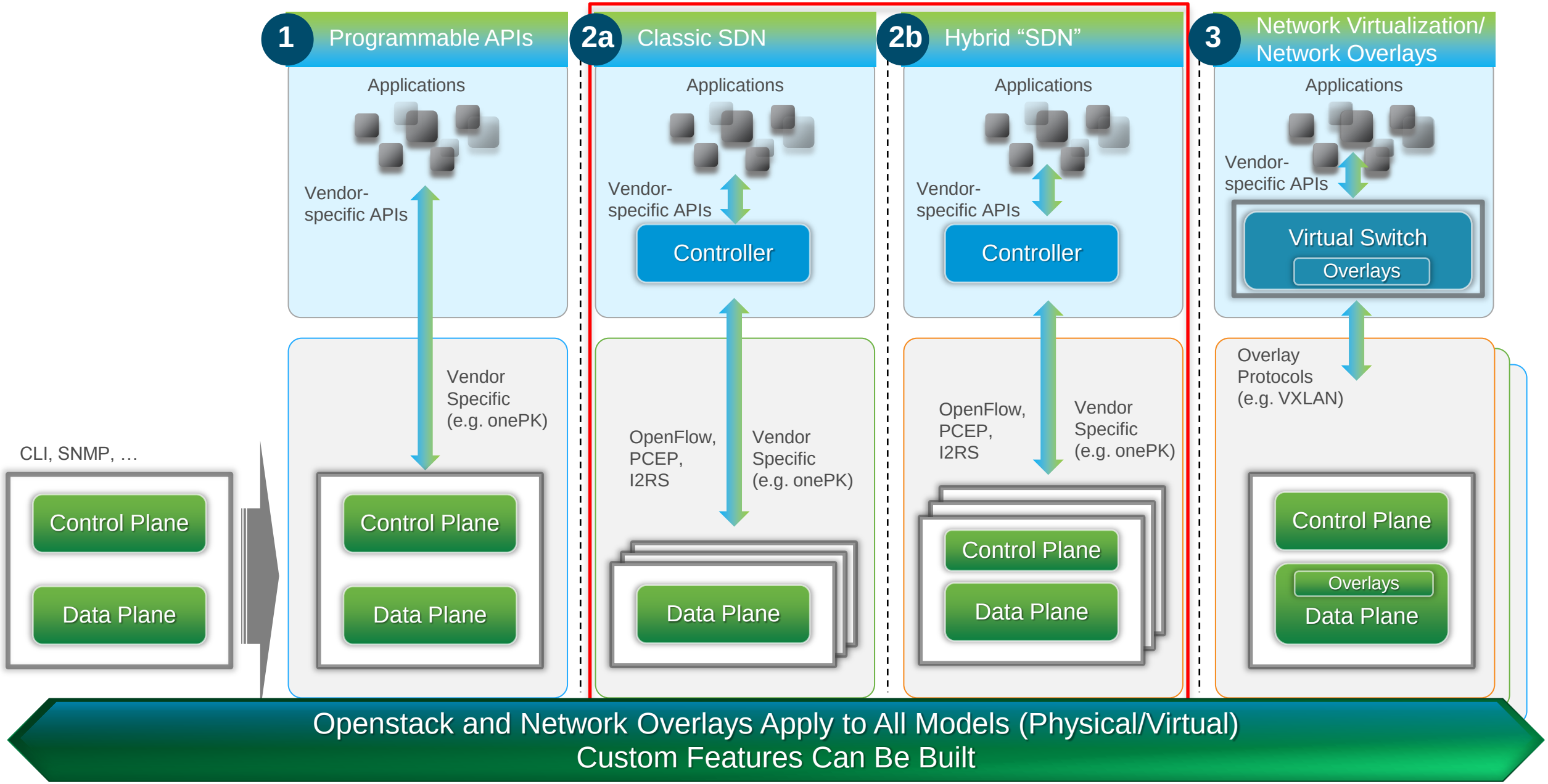
Agenda

- Cisco ONE Overview
- Cisco ONE Controller
- Cisco ONE Controller Applications
  - Monitor Matrix
  - Transit Selection

Cisco Open Network Environment



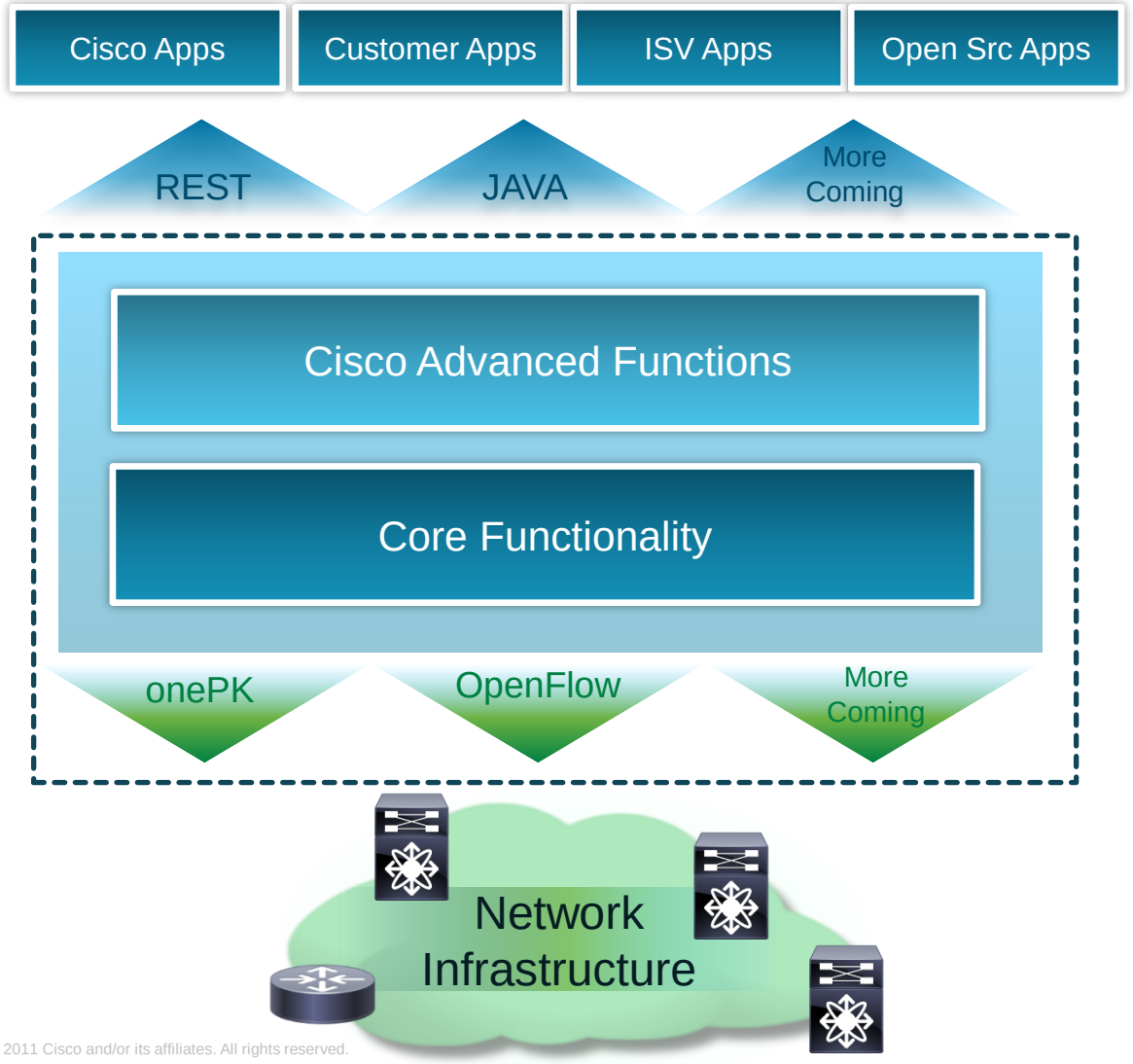
Network Programmability Models



Openstack and Network Overlays Apply to All Models (Physical/Virtual)
Custom Features Can Be Built

Cisco ONE Software Controller
A JAVA/OSGI Application

Industry's Most Extensible Controller Architecture



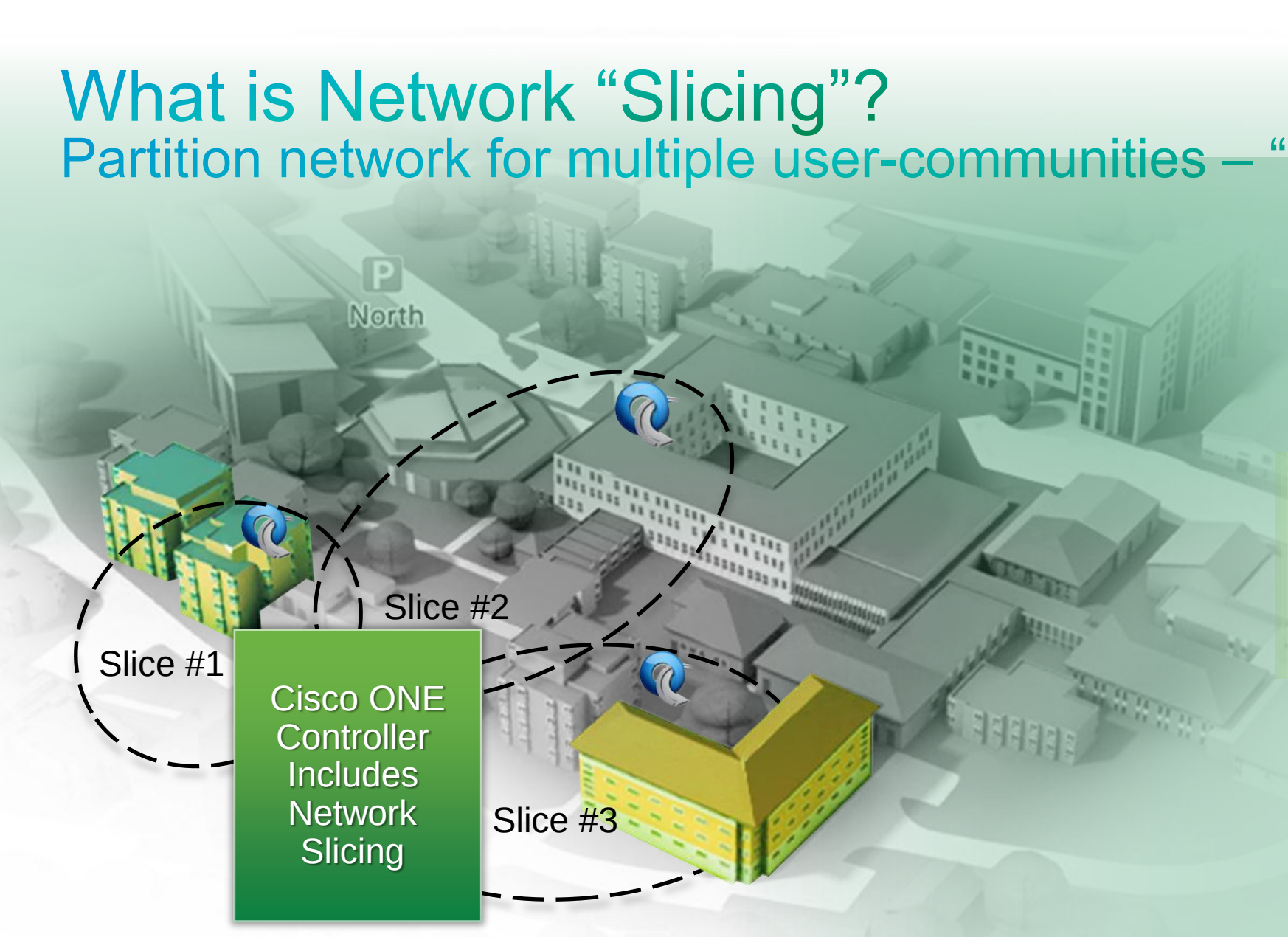
Multiple published APIs for popular languages and software (Eg: OpenStack)

Modular architecture allows rapid adoption of evolving controller functionality while minimizing operational disruption

Extensible protocol support ensures continuous adoption of emerging standards

What is Network “Slicing”?

Partition network for multiple user-communities – “Sandbox” R&D dept.



Market Status

- Slicing only on isolated networks today (lab)
- Current open source components not suitable for production networks
- Researchers need to expand network connectivity
- IT needs more rapid provisioning capabilities

Consistent policy management for maximum flexibility and Innovation

New Controller Applications
Extending and Customizing with Cisco ONE Portfolio

Previously Announced

Network Slicing

Dynamic network partitioning of the network using logical associations provided by ONE Controller's centralized view

Phase 2 Apps

Monitor Matrix

Ability to monitor, analyze, and debug network flows using conventional network switches

Improved economics and more flexibility

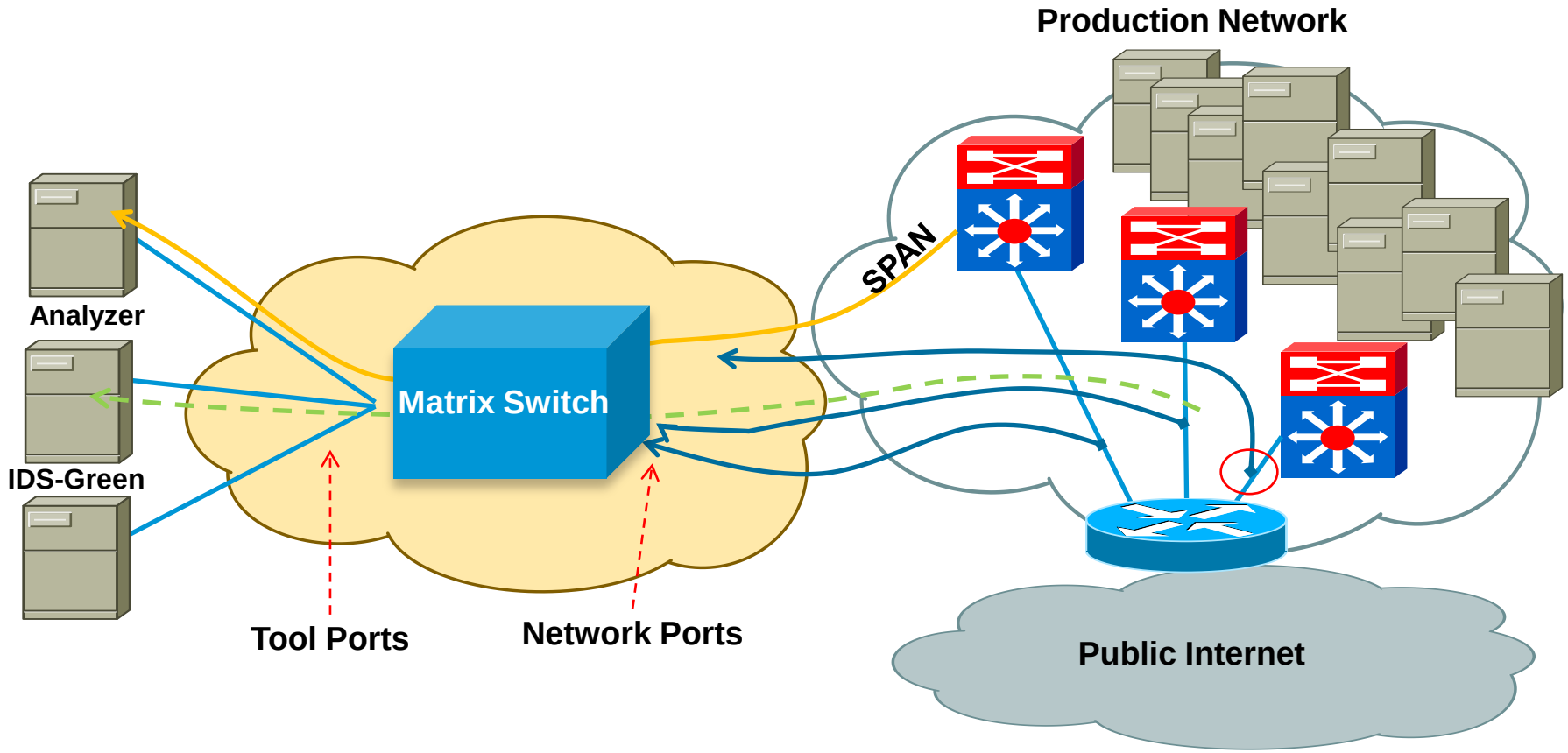
Custom Forwarding Transit Selection

Using unique parameters such as low latency to program specific forwarding rules across the network

Tie network behavior to business rules

All Controller Apps are in Customer PoC

Conventional Monitor Matrix Solution



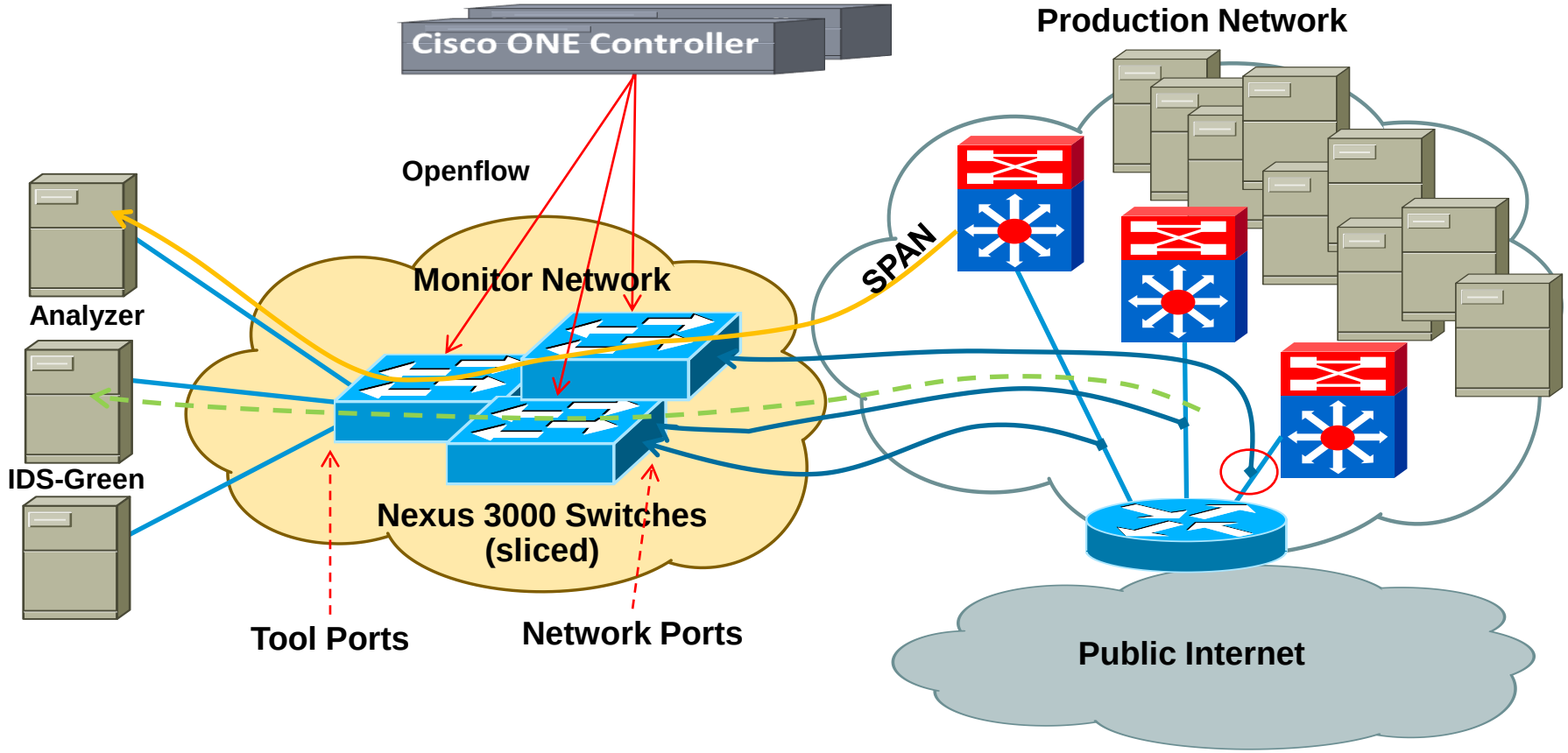
Purpose built Matrix Switch - Aggregates Tap (SPAN/optical Tap)

Challenges with The Conventional Approach

- **High cost of conventional matrix switches make scaling unaffordable**
- **Filtering and forwarding are statically configured, not event driven**
- **Tools compatibility limited to off the shelf**

By Applying Software Defined Networking Cisco Has Created a New Solution That Addresses These Challenges

Cisco Monitor Matrix Solution



Replaces Classical Matrix Switch with Nexus 3000 switches and Monitor Matrix SDN Application

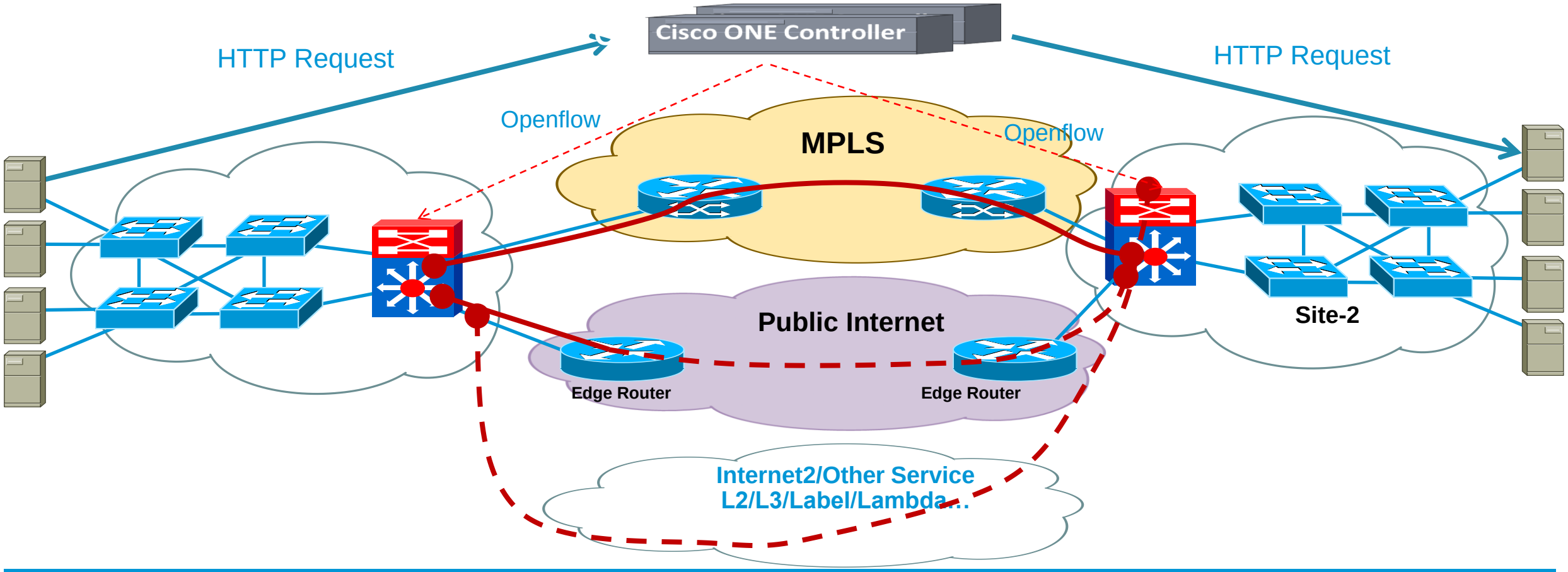
Cisco's SDN Based Monitor Matrix Approach

- **Reduced CAPEX and OPEX**
  - Replacing purpose built h/w with familiar production switches creates disruptive CAPEX and OPEX economics that fuels scaling the solution

- **Enhanced Functionality: Event Driven filtering and forwarding**
  - Applying SDN enables Controller to drive policy enforcement in real time and through event driven activities

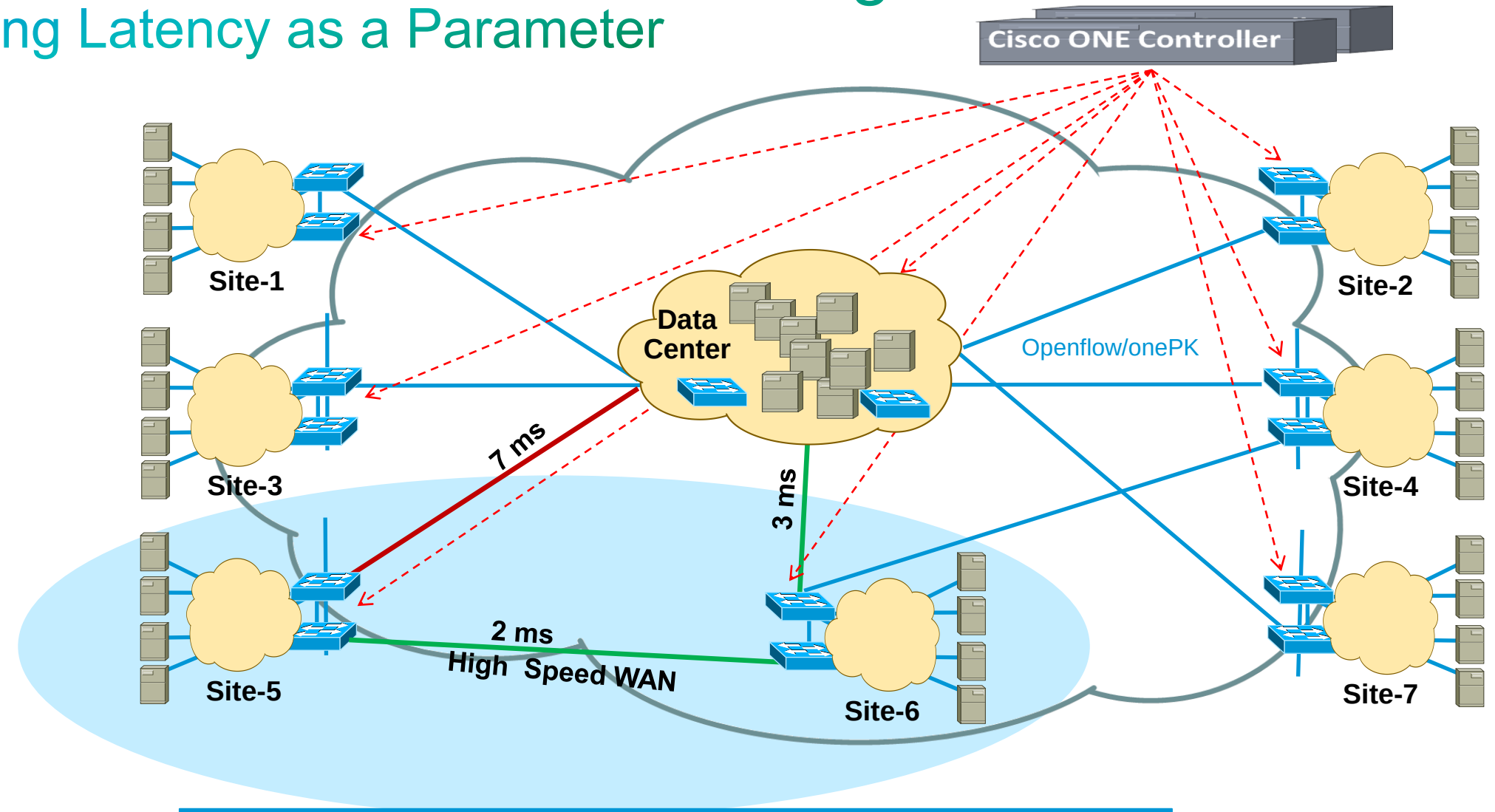
- **Enhanced Flexibility**
  - Using the Controller NBIs creates a programmatic method for simple development and deployment of tool chains and tools flexibility beyond off-the-shelf tools.

Use Case: Custom Forwarding - Transit Selection
Utilizing Topology Independent Forwarding



Business Application Driven Requests Flow Based Traffic Steering with Flowspec Granularity

Use Case: Custom Forwarding -Transit Selection
Using Latency as a Parameter



Supports Mesh or Point to Point Architectures

Cisco ONE Controller

- Product General Availability – Q2CY13
- If interested, reach out to your Cisco Account Team for scheduling trial or evaluation

For Further Information

- For Cisco ONE, visit

  http://www.cisco.com/go/one

Thank you.