BIG DATA NETWORK

CUDI 2015

REUNIÓN DE PRIMAVERA

21 AL 24 DE ABRIL

Puerto Vallarta, Jal.

# Nuevas Redes con SDN


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Abril 22, 2015

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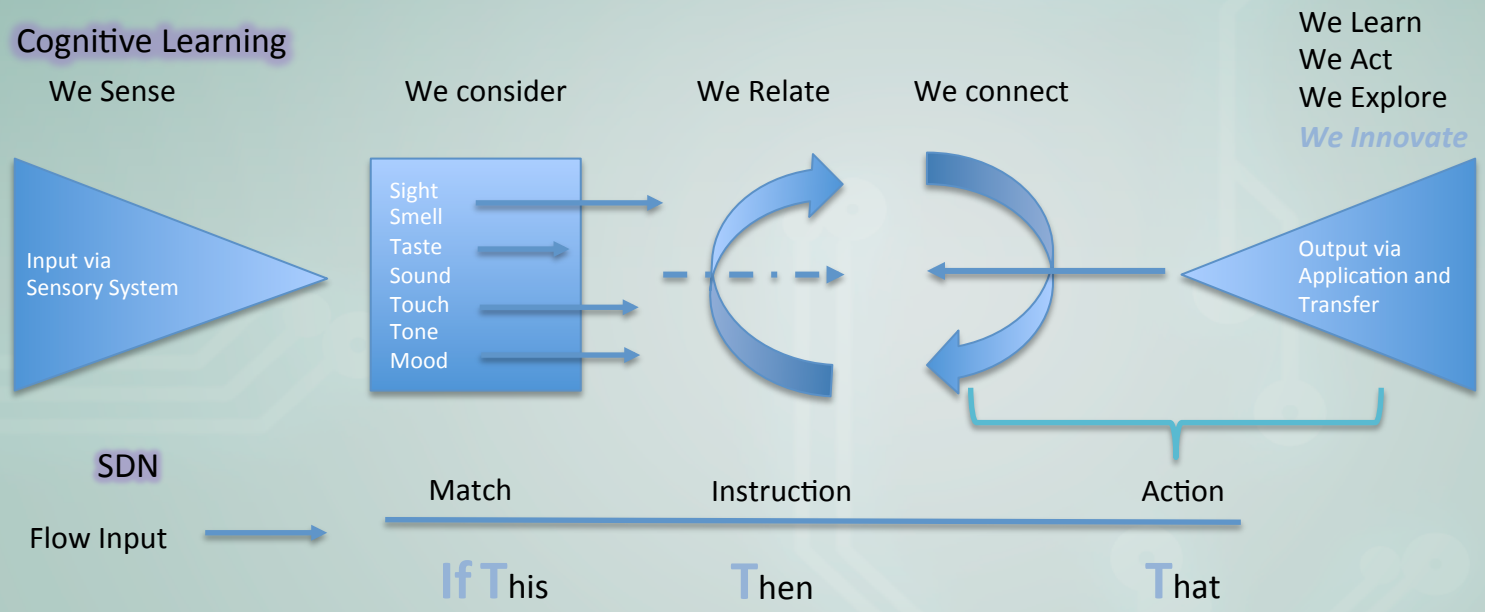
# Why Software Defined Networks?




- Intuitive modeling of the flow system.
- Similar to how we learn, enabling application developers to use the network as a tool rather than a resource.

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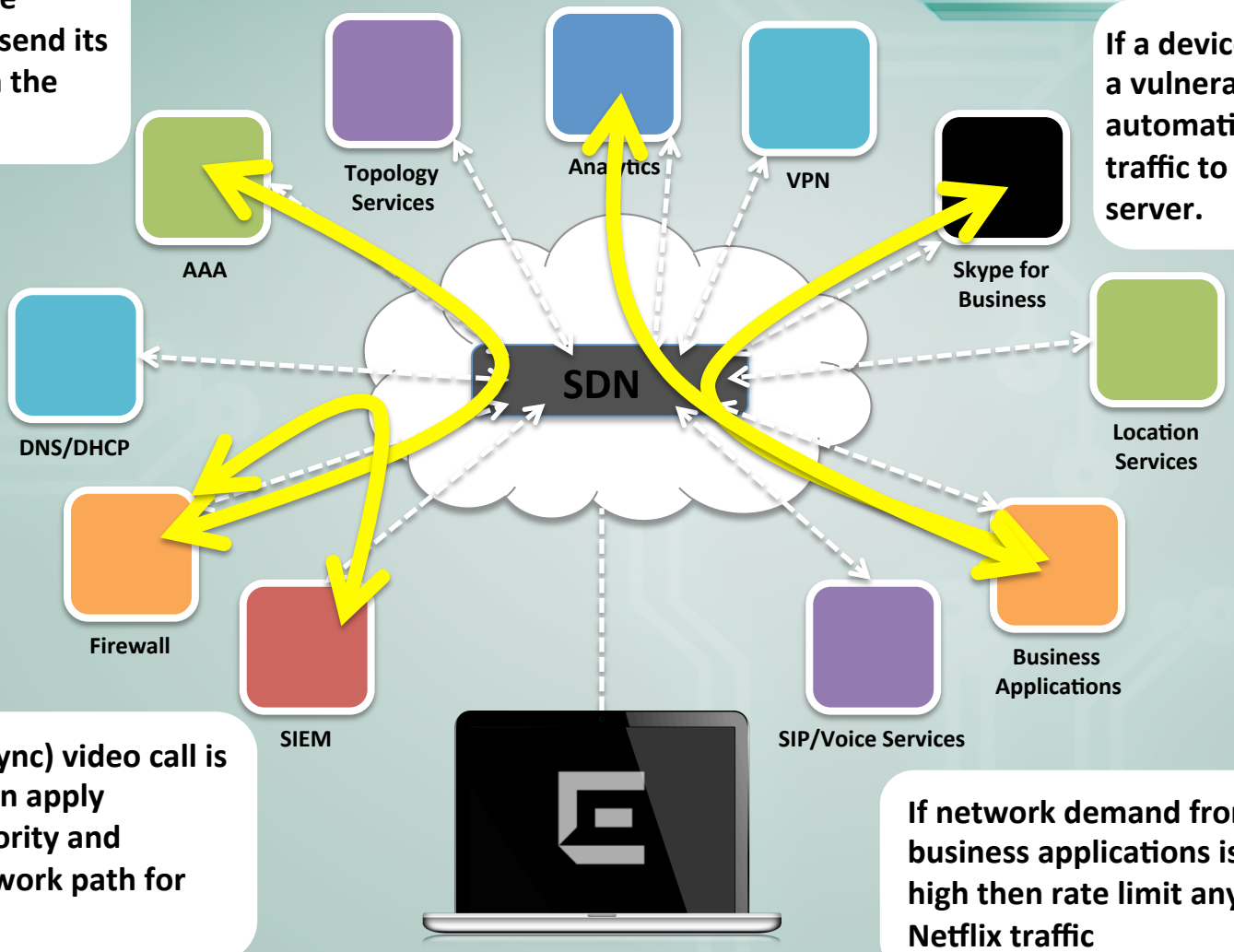
If a medical device connects to the network then send its traffic through the firewall




If a device is found with a vulnerability then automatically redirect traffic to remediation server.

If a Skype (Lync) video call is initiated then apply dynamic priority and optimal network path for the call.

If network demand from business applications is high then rate limit any Netflix traffic

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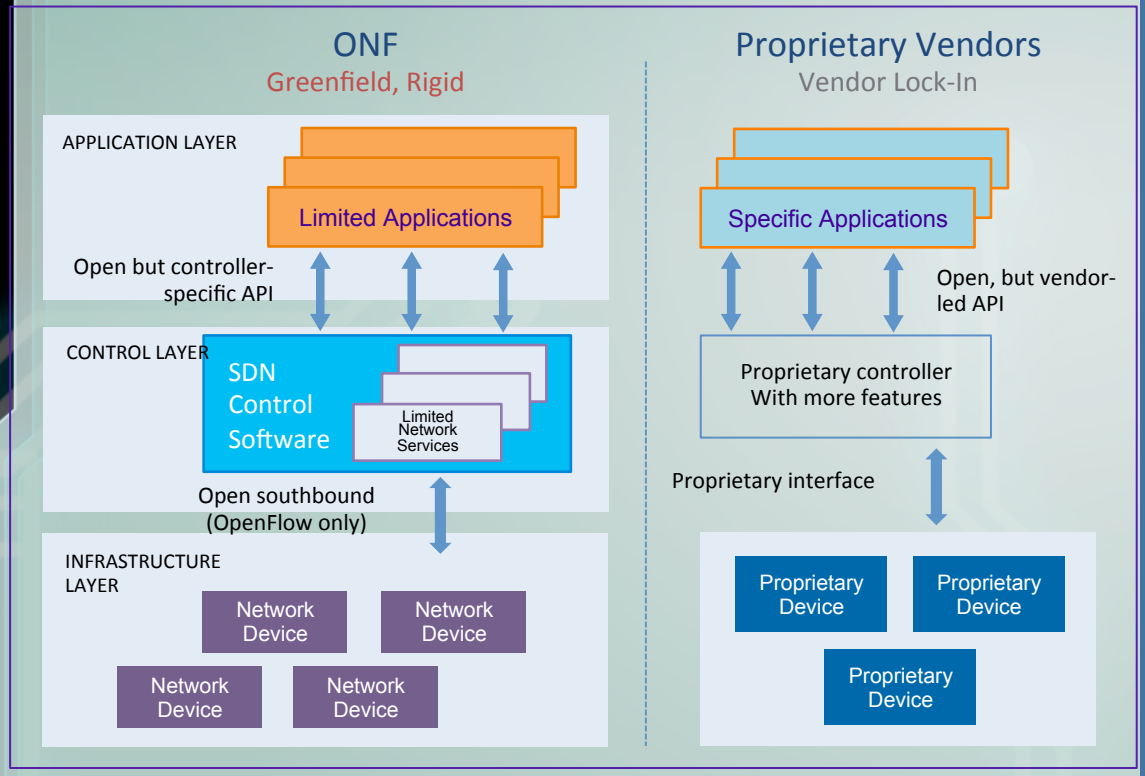
# SDN Benefits

- Openness
  – Decouples the tightly coupled network architecture, and opens up the control plane and the associated protocol
- Agility
  – SDN enables more flexible network control and management
  – SDN promotes the rapid innovation on networking technologies by programing the network

SDN is considered as a promising way to enhance the networks.

# Real-World SDN

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ODL - Flexibility and choice

Apps

Open Multi-Vendor-led API

OpenDaylight-Based Controller

Wi-Fi | Analytics | Security | Policy

Flexible: Both Vendor-Specific and Open API

Physical and Virtual Infrastructure (Extreme and 3rd Party)

Extreme's SDN Platform

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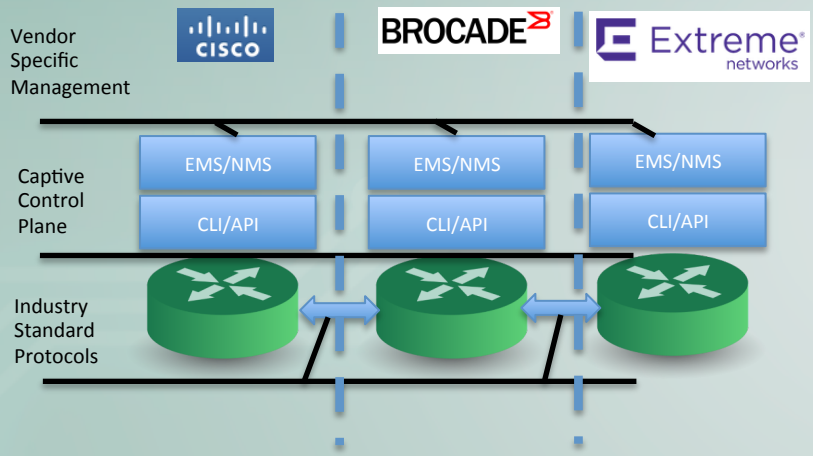
# OneController

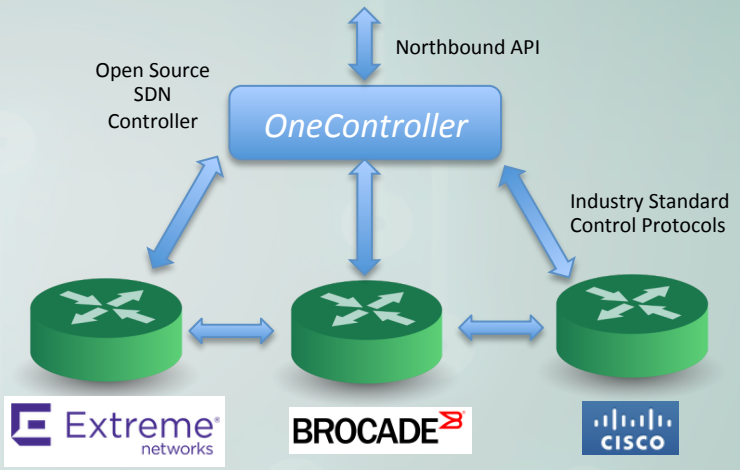
# New Architectures

## Traditional Architectures



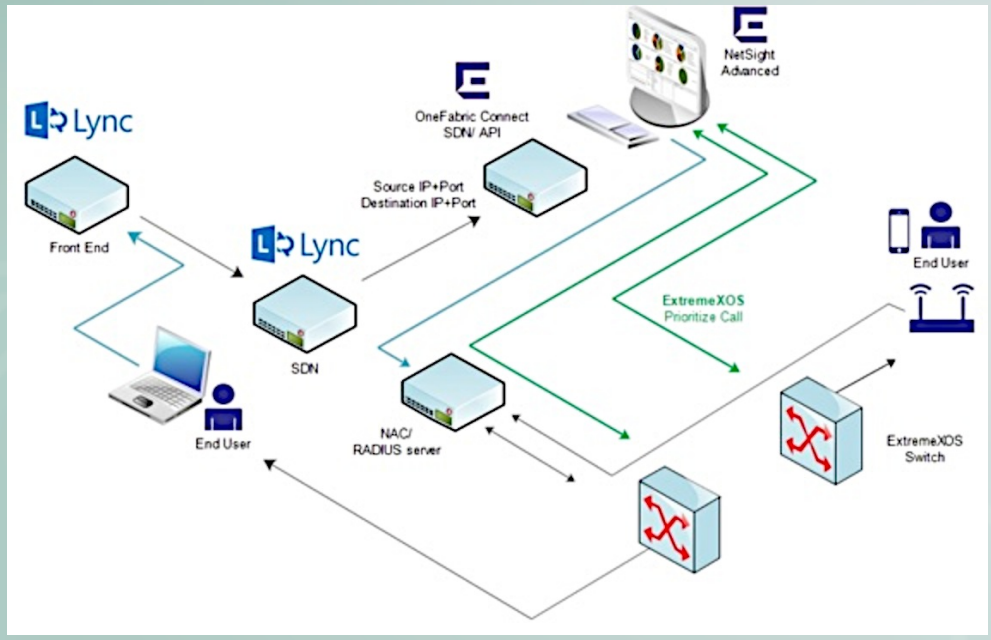

- EMS, NMS, CLI and APIs specific to switch and to each vendor
- Proprietary control plane per device
- Communication protocol standardized for interoperability

## Emerging SDN Architecture




- Centralized open control plane, non-vendor specific
- Normalized programming interface
- Standard control protocols and modeling language

# SDN with Microsoft Lync




**Solution Benefits**

- Improved Quality of User Experience
- Automated, dynamic and adaptive QoS provisioning
- Validated QoS capabilities and performance – wired and wireless
- In-depth, contextual visibility into performance, call quality
  - Simplified monitoring and troubleshooting of elements impacting user experiences and network performance.

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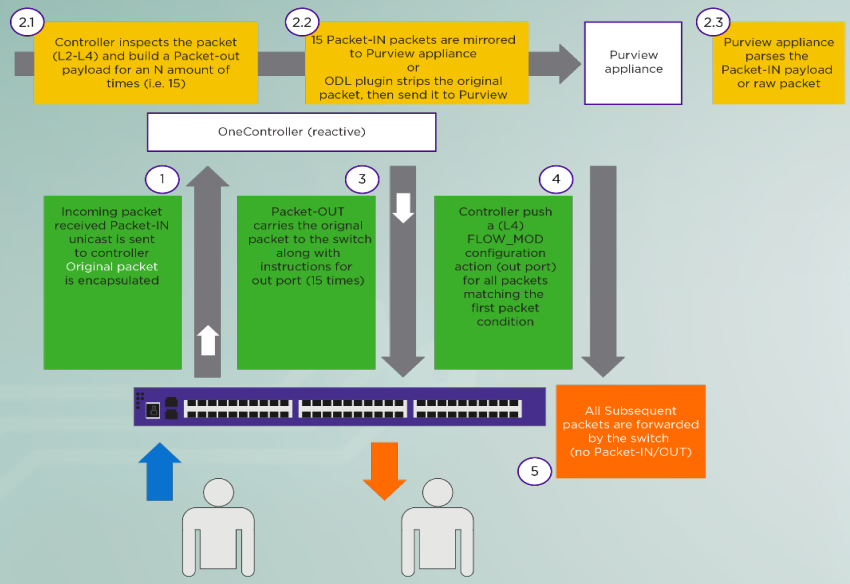
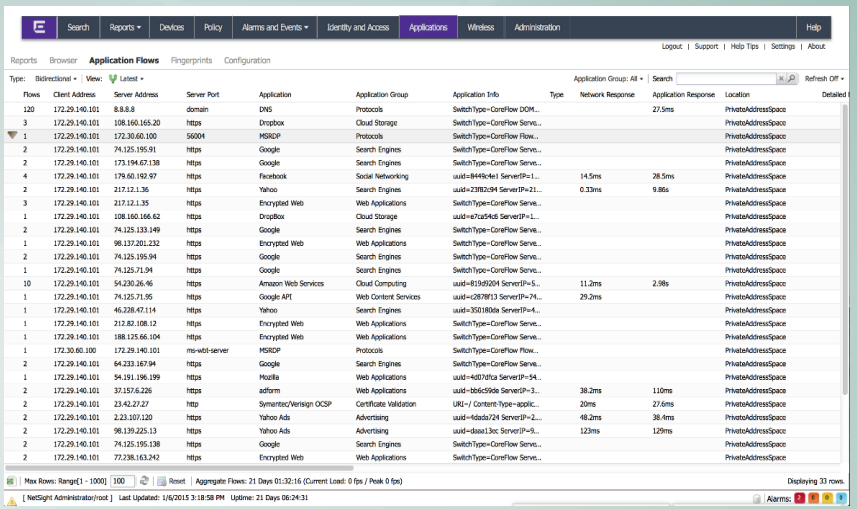
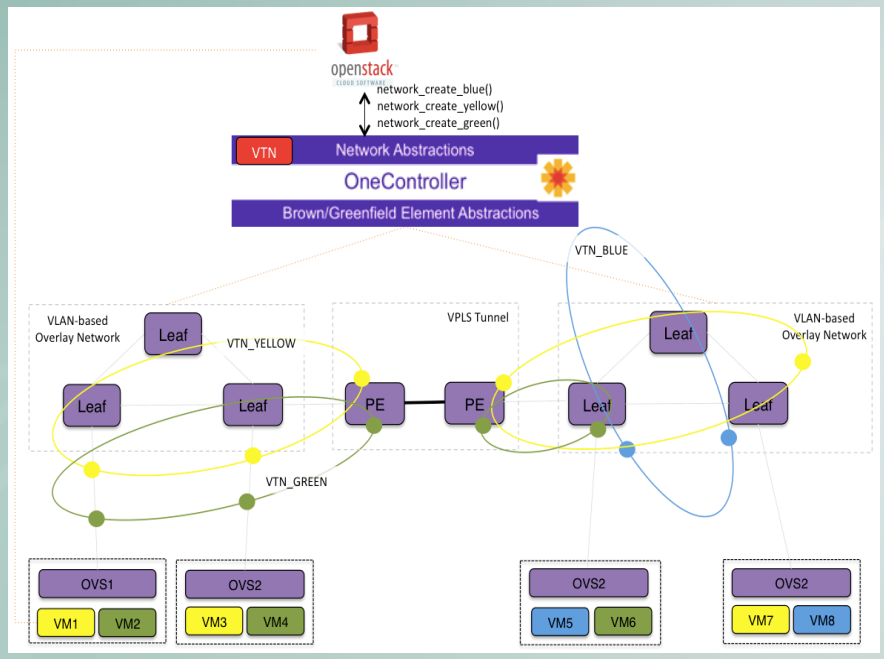
# SDN with Purview




- Leverage OpenFlow and OneController to forward the first N-packets of a new flow to the Purview (or other DPI) Engine
- Provides application visibility in any OpenFlow network (proved with EXOS & OVS)
- Results are presented in OneView
  - No full statistics, just the result of the application fingerprinting

# SDN with VTN for DC




- A simple and consistent single-pane-of-glass web UI for user access and admin access.
- **OpenStack** orchestrator that manages and orchestrates the DC compute, storage and networking infrastructure.
- **OpenStack** offloads all network configuration, management and orchestration to the Extreme Networks OneController.
- **OneController** specifically uses the Virtual Tenant Network (VTN) application to provide multi-tenancy and to stretch the tenant network across geographically dispersed DCs

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# SDN Challenges

- Inter-domain
  - The Internet are managed by owners of different domains, which makes the centralized control doesn't work for inter-domain
- Scalability
  - Centralized control could not scale to a very large network (may work for a data center or a campus, but not Internet scale)
- Use cases
  - To improve the feasibility in real world
- Security
  - Mgmt, Data…