



Enterprise CORD

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CORD
Central Office Re-architected as a Datacenter

Current State of the Art

Public Cloud

Firewall

IDS

Policy Control

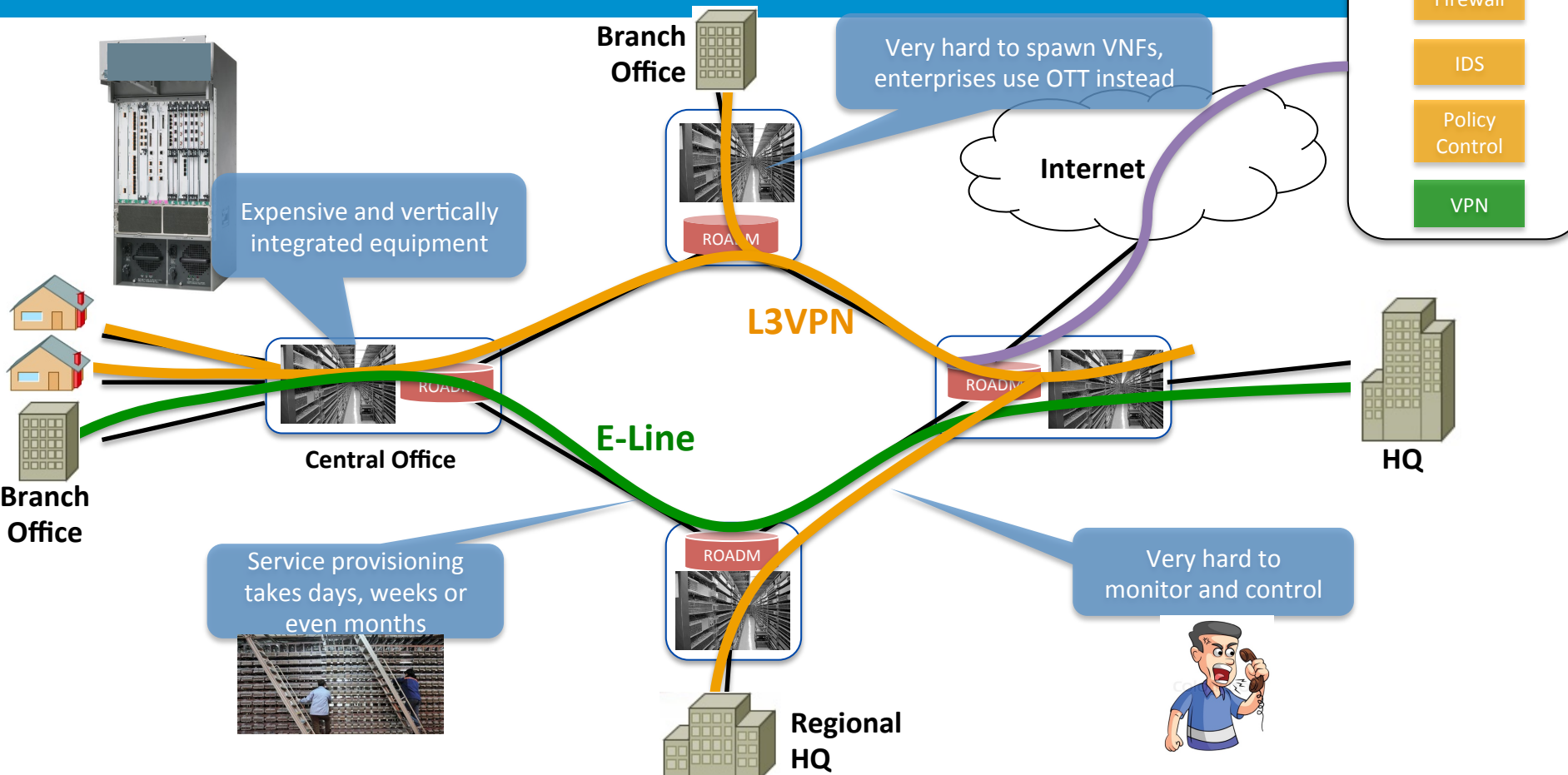
VPN

Very hard to spawn VNFs, enterprises use OTT instead

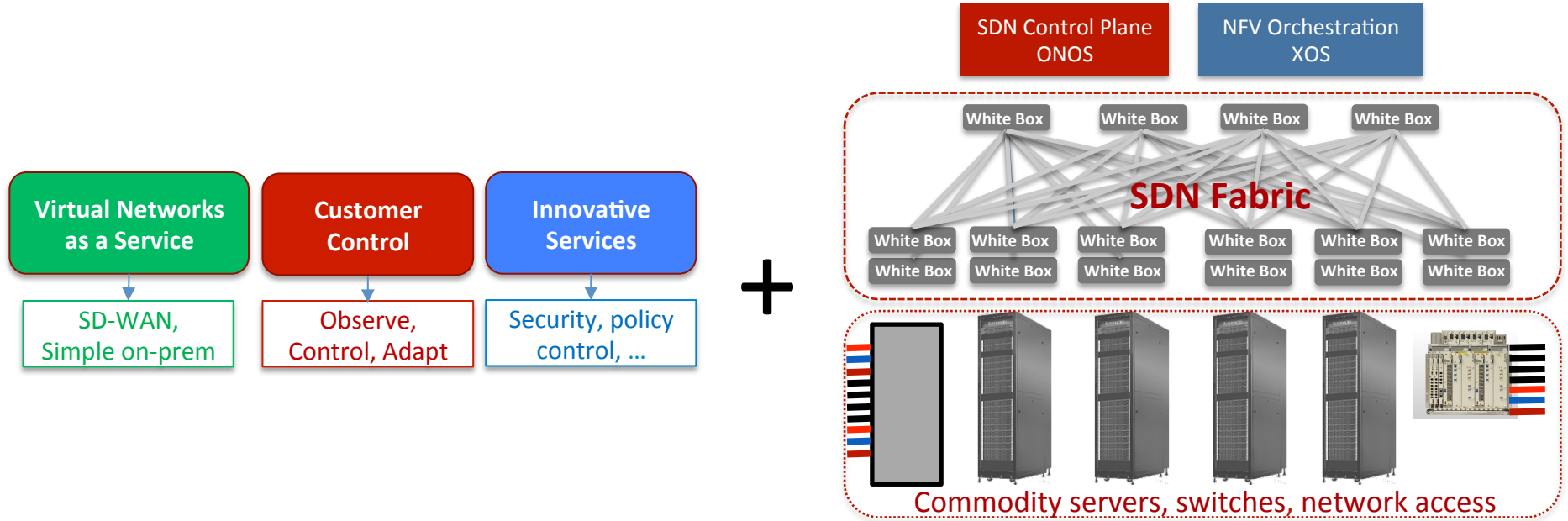
Expensive and vertically integrated equipment

Service provisioning takes days, weeks or even months

Very hard to monitor and control



E-CORD Value Proposition



Carrier-grade Network as a Service

Built on an open platform

Bring data center economy and cloud agility

E-CORD PoC (March 2016)

- Carrier Ethernet connectivity
 - MEF E-Line service model
 - Ethernet Edge UNI (re)provisioning
- On-demand enterprise services
 - Bump in the wire
 - Firewall, traffic analysis, WAN accelerator, ...

Virtual Network as a Service

Customer Control

Carrier grade services

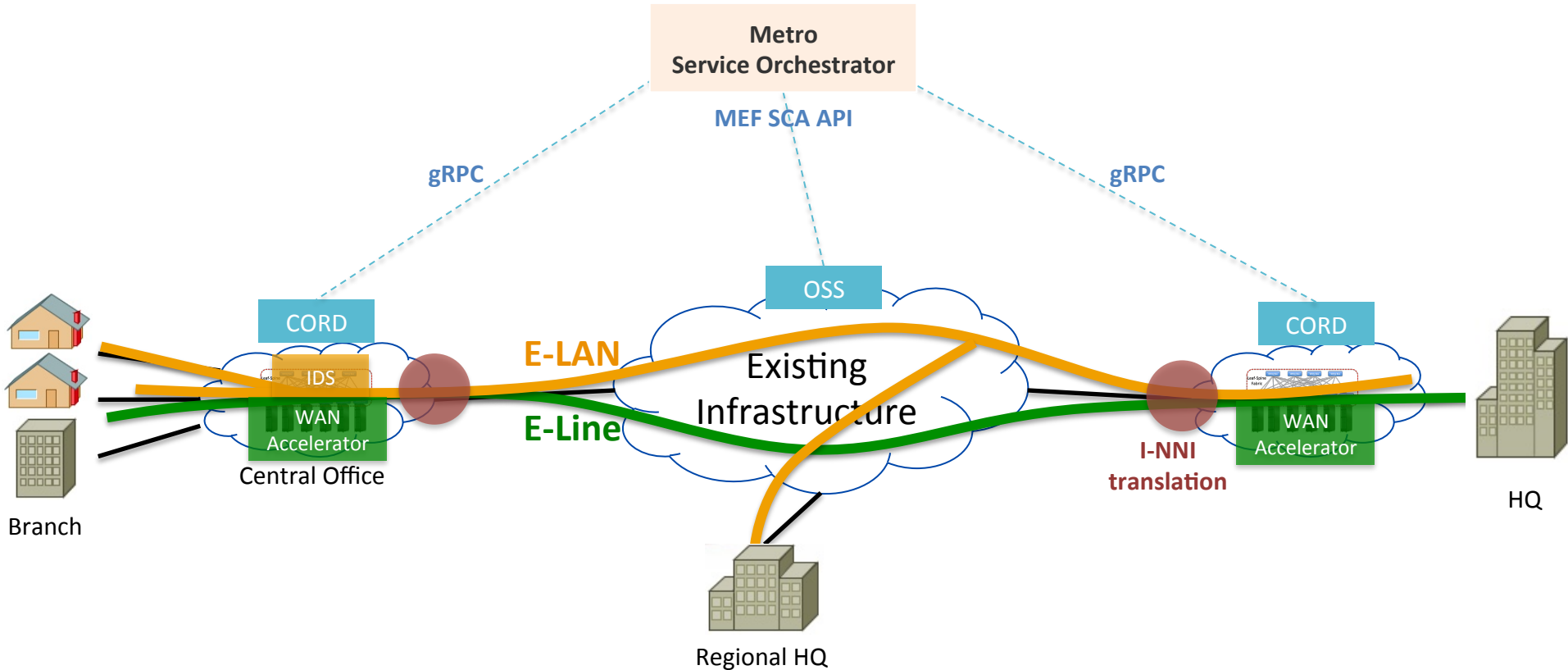
The screenshot displays the E-CORD PoC web interface. At the top, there is a navigation bar with the CORD logo, a BASK logo, and links for Home, E-lines, and Logout. The main content area is divided into several sections:

- E-LINE MAP:** A map showing a connection between San Francisco and Pleasanton.
- Add a service:** A section for configuring services, categorized into PERFORMANCE (WAN Accelerator, Traffic Analytics, Policy Control), SECURITY (Firewall, Anti-virus, IDS, Encryption), and ENTERPRISE (vRouter, NAT, VPN).
- San Francisco and Pleasanton:** Two panels for configuring parameters for each location, including CIR (1 Gb) and EIR (1 Gb).
- E-LINE SERVICES:** A diagram showing the service flow between San Francisco and Pleasanton, including Traffic Analytics and Firewall.
- SLA:** A table defining Service Level Agreement parameters.

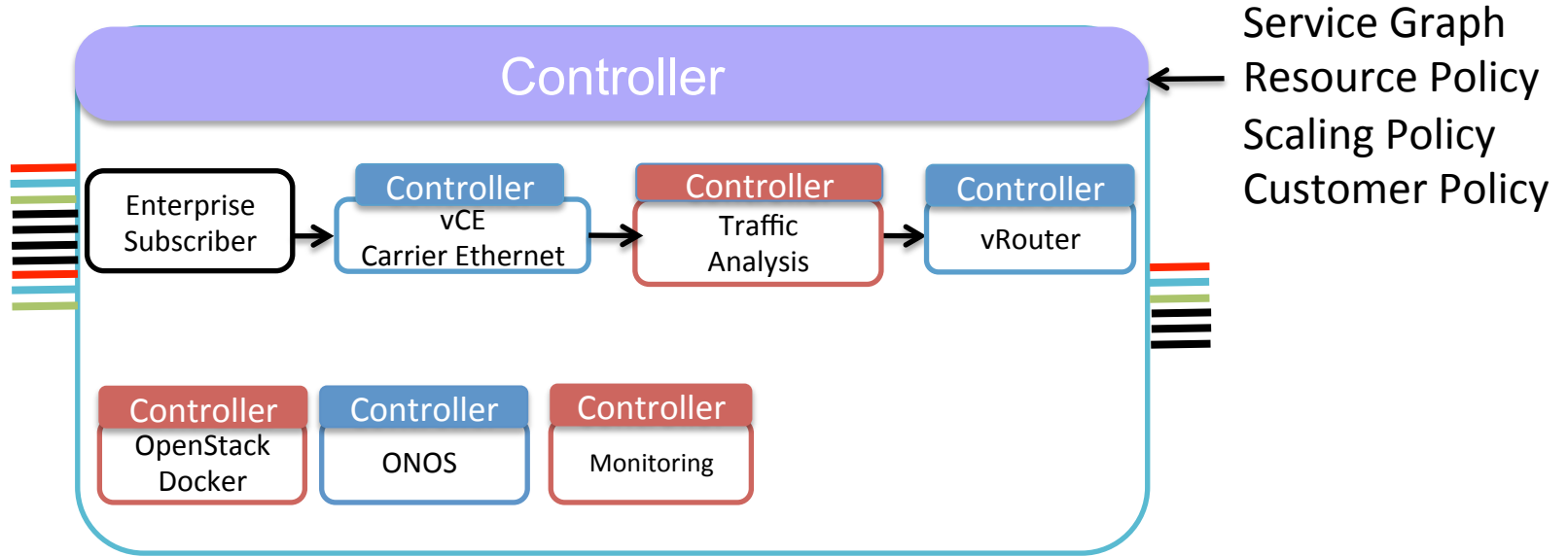
SLA	Value	Unit
Latency	300	ms
Latency Variation	5	%
Packet Loss	2	%

A green 'Save' button is located at the bottom of the interface.

E-CORD High-level View

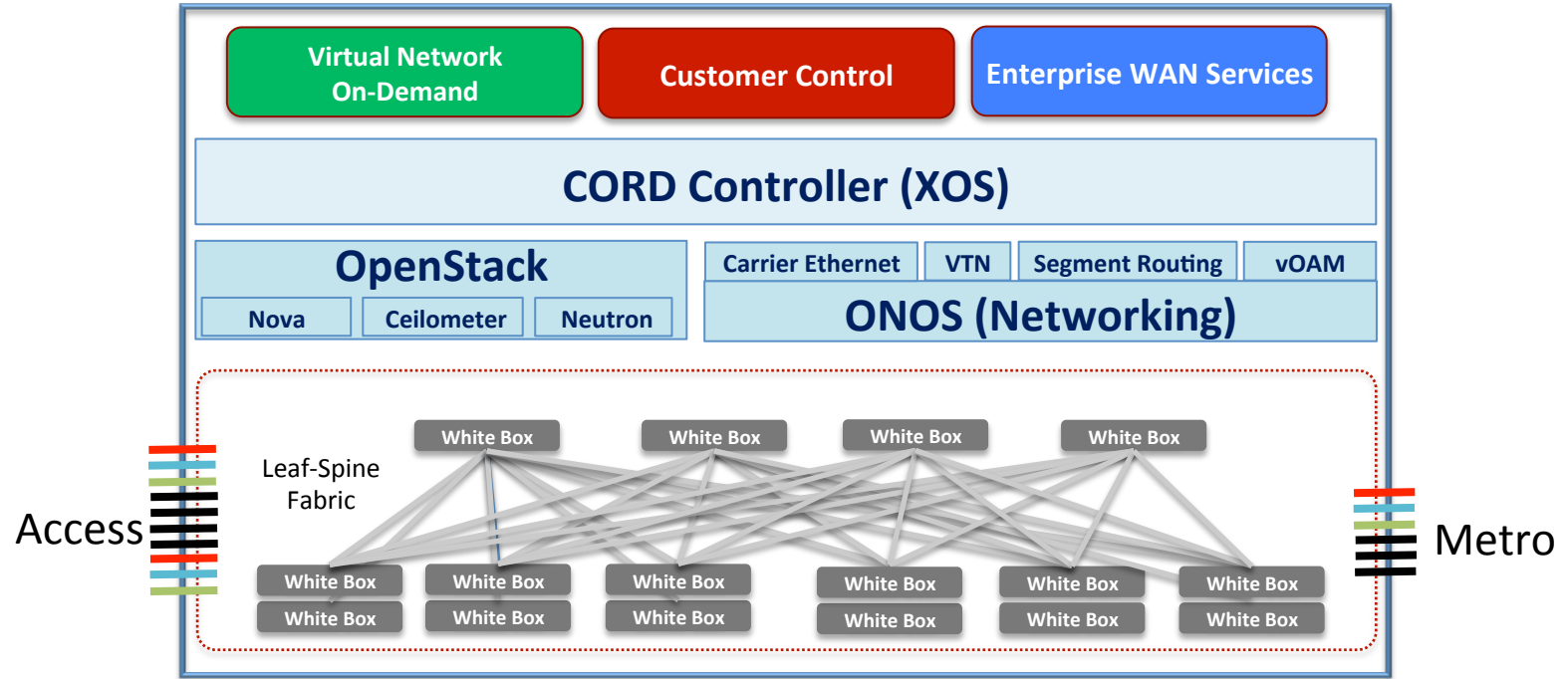


E-CORD Internal View

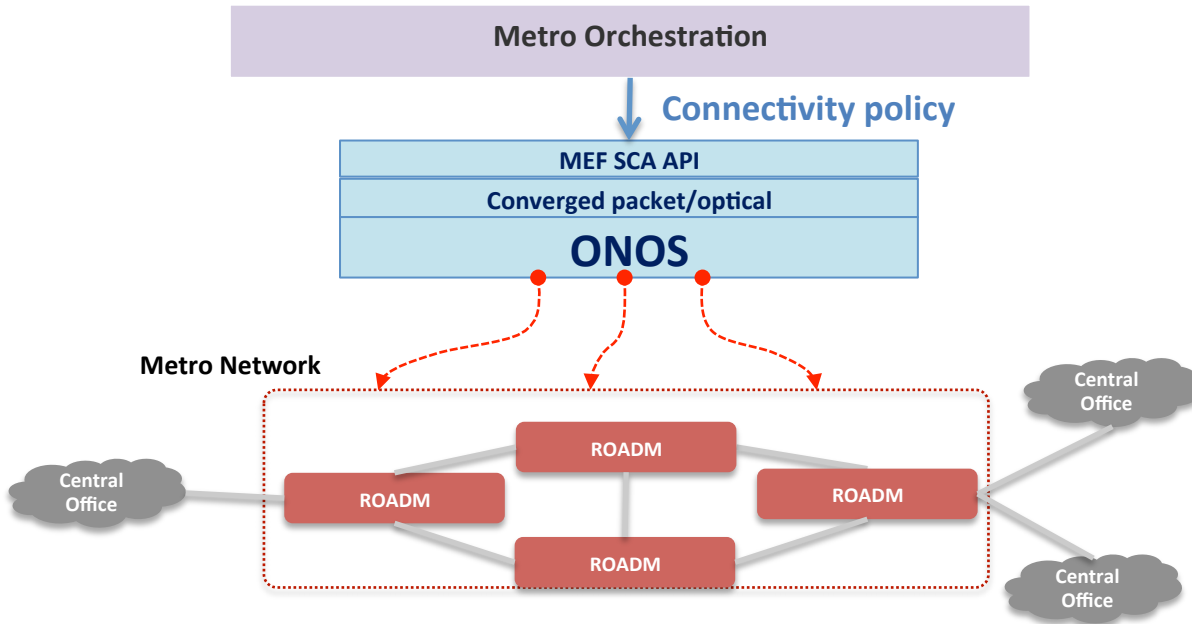


Everything-as-a-Service (XaaS) / Micro-Services Architecture

E-CORD Software Architecture: Central Office



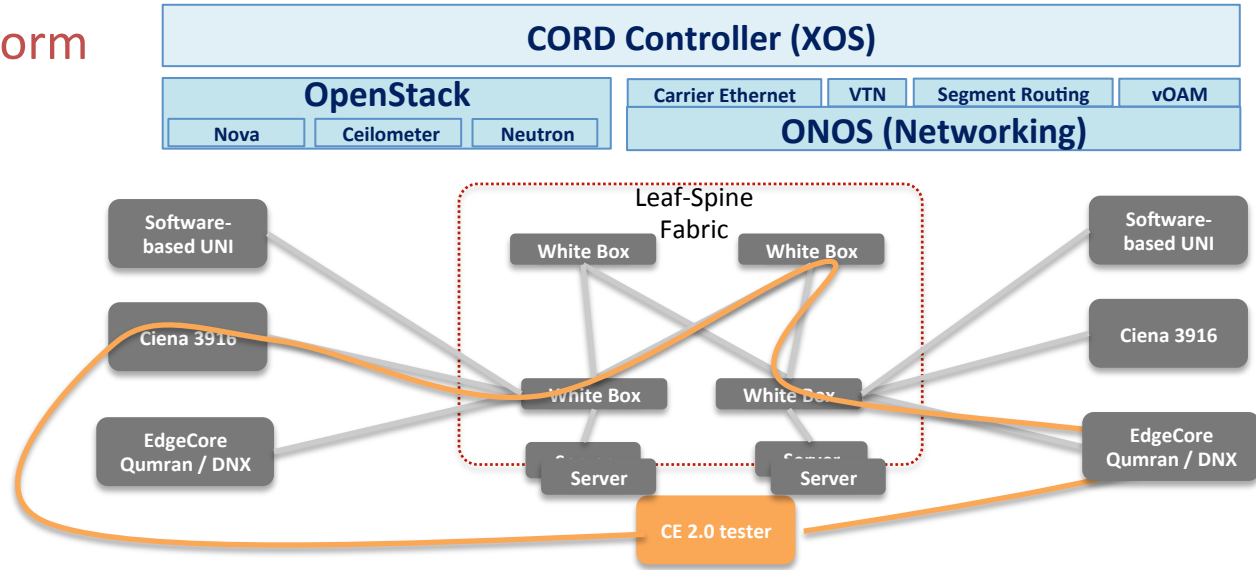
E-CORD Software Architecture: Transport



Work in Progress: MEF Collaboration



- Participated in Euro16 LSO Hackathon, white papers, ...
- E-CORD is **reference build** for OpenCS
 - Open source
 - V1 done, v2 in progress
- E-CORD is **reference platform**
 - Based on whitebox
- MEFnet
 - Hosting of hardware & software components for OpenLSO & OpenCS
 - Performance and compliance testing
 - Vendor neutral



Work in Progress: Platform and Services



- Integrating with the CORD platform
 - Fixing the shortcuts
- L2VPN
 - collaboration with MEF to follow up with latest OpenAPI activities
 - refactoring apps to align better with MEF LSO architecture
- L3VPN
 - started design discussion with our collaborator
- Multi-CORD site coordination
 - start modeling metro orchestration layer XOS

Roadmap



- Expanded variety of virtual networks of demand
 - L2VPN, L3VPN, SD-WAN overlays, ...
- Offer richer set of value added services
 - Firewall, WAN acceleration, traffic analysis and steering, ...
- Add integrated analytics through A-CORD
- Enable field trials
 - China Unicom, ...

Details at the breakout session

Summary



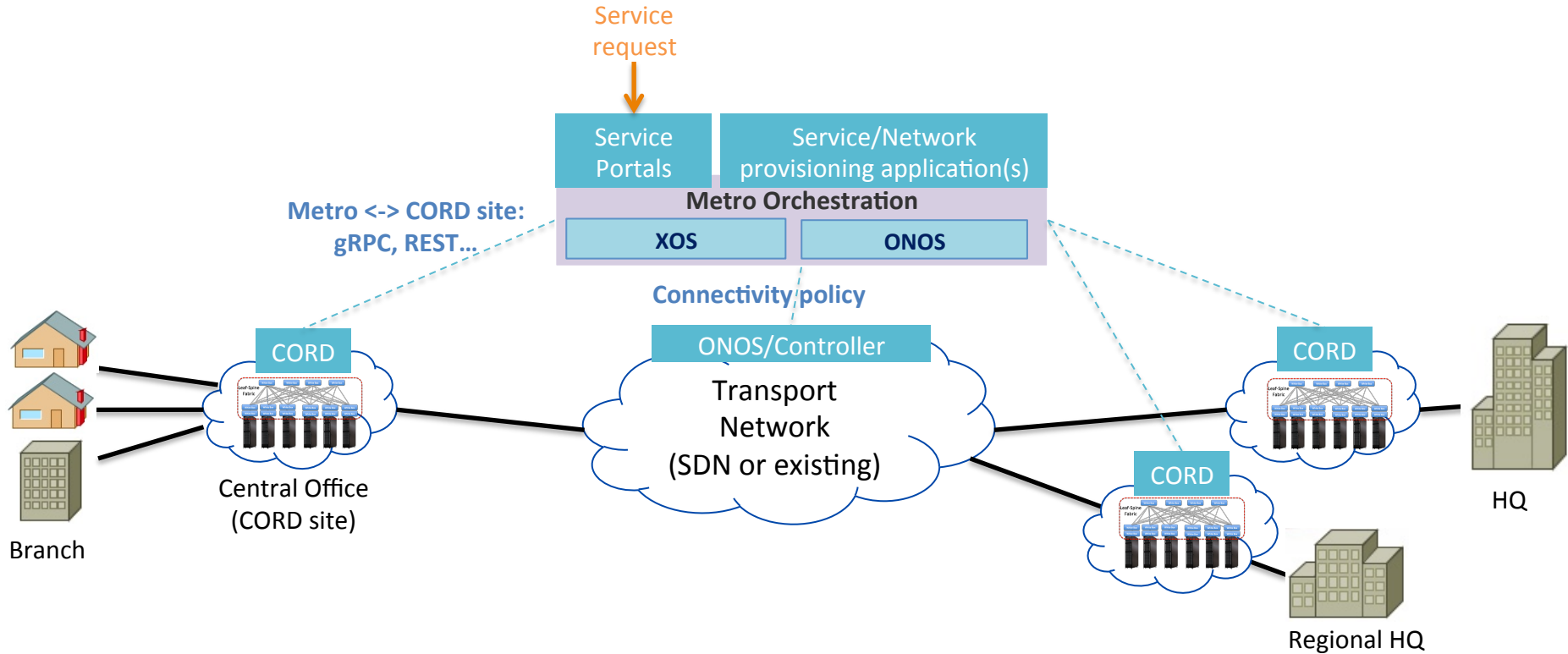
- E-CORD enables service providers to offer enterprise customers
 - Virtual networks on demand with value added services
 - Ability to observe and control their virtual networks and servicesWith CORD's standard economics and agility
- Strong collaboration with MEF
 - OpenCS reference build and platform
 - MEFnet
- Hope to do more field trials in 2016

Join us at the breakout session to help plan E-CORD future!

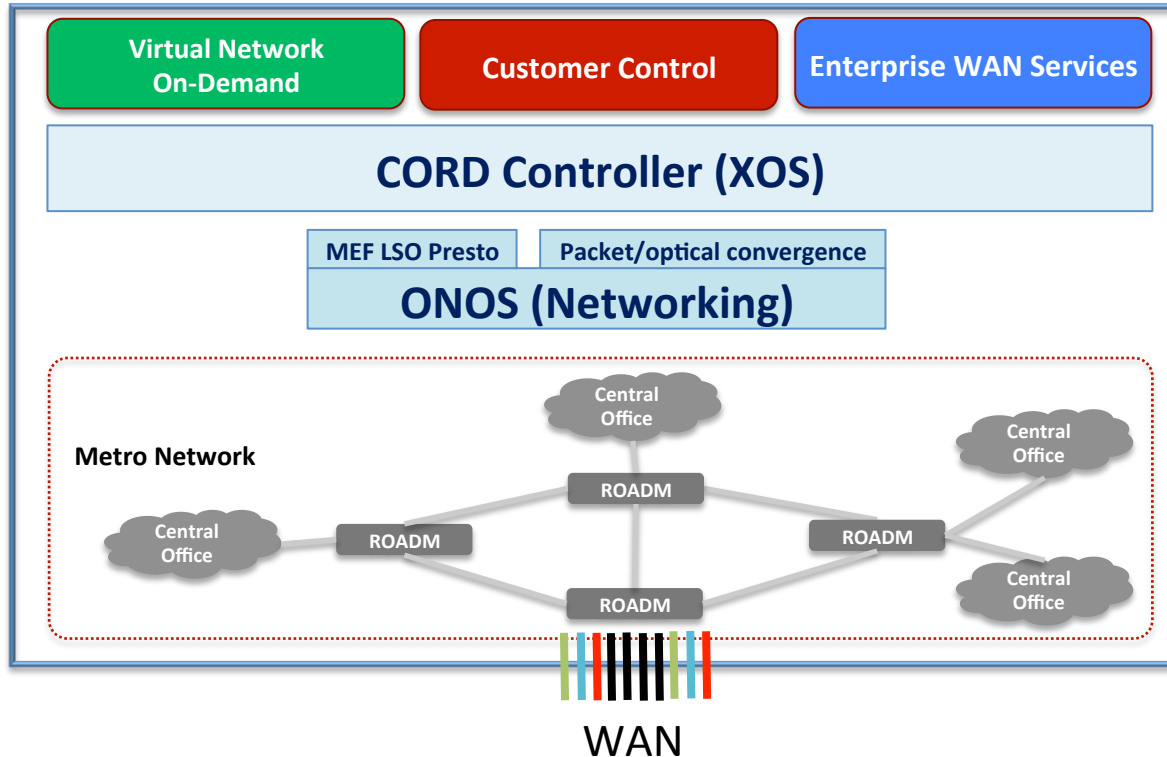


backup

E-CORD High-level view



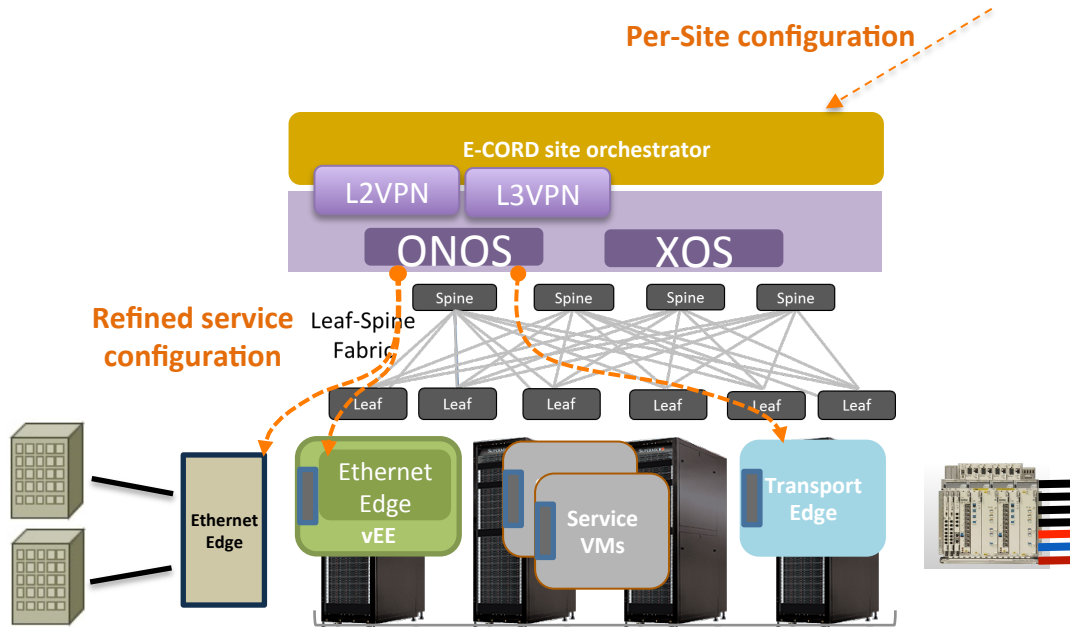
E-CORD Software Architecture: Metro Layer



E-CORD Architecture: Central Office



1. Site orchestrator refines High-level service graph into site-local service graph
2. XOS instantiates the service graph, app on ONOS configures the networking for service instances



OpenCS in ONOS

