



# Enterprise CORD

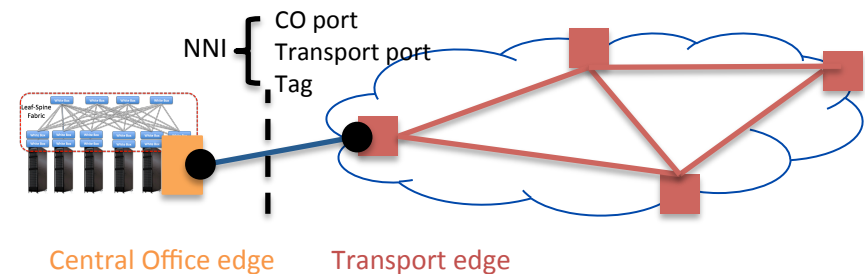
Design Notes  
Nov 17<sup>th</sup>, 2016



# Network-to-Network Interface (NNI)



- NNI model right now is port pair + VLAN
- Supports various deployment models
  - No control over transport network, e.g.,
    - MPLS based: MPLS tag in NNI
    - IP based: VXLAN tag in NNI
  - Full control over transport
  - WDM transport
- NNI contract
  - Assumes CORD POD is responsible for adding/removing tags and pushing/receiving packets on agreed-upon port
  - Transport commits to delivering packets based on port/tag



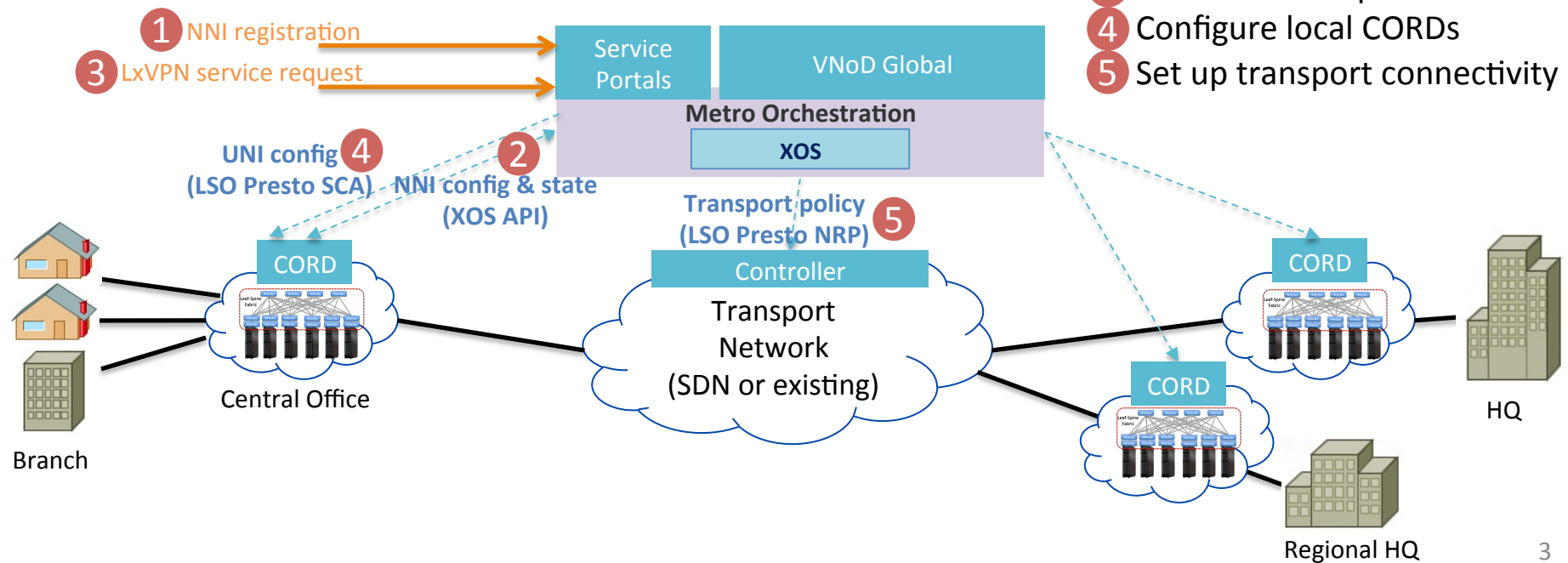
# Multi-CORD Orchestration



Global state: NNI + subscriber/user credentials

Local state: bw profile, UNI config

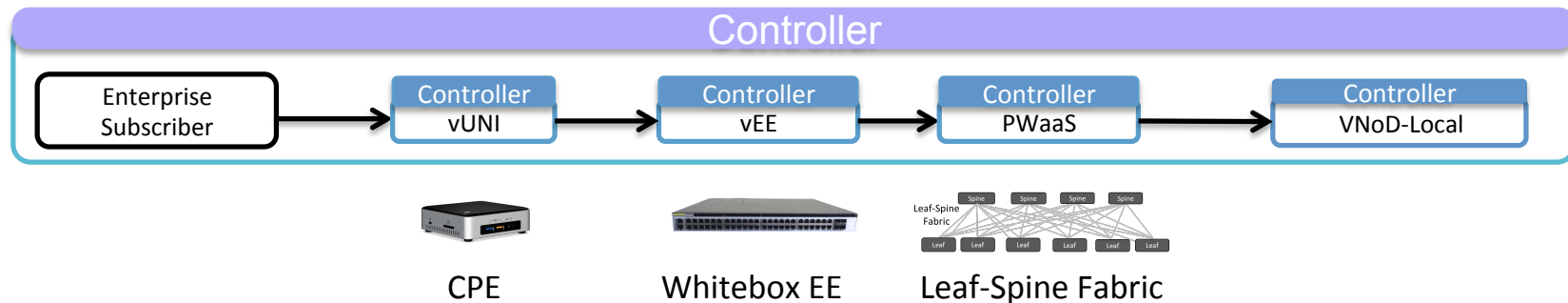
- 1 NNI registration
- 2 Wait for NNIs to come up
- 3 VPN service request
- 4 Configure local CORDs
- 5 Set up transport connectivity



# Local Service Graph



- vUNI
  - Service classification
  - Programmable and on-demand OAM
- vEE
  - Traffic metering: ensure customer does not exceed SLA
  - Service classification if CPE does not support?
  - Differentiate between public (go to vRouter) and private traffic (go to PW)
- PWaaS
  - Connect EE to NNI
  - Applies NNI VLAN tag (at ingress)
- VNoD-Local (rename to vNNI?)
  - Pulls NNI configuration from global level



# UNI



- Intel NUC: ask Larry/Intel for help?
- MicroSemi programmable SFP 1G
  - OAM between CPEs (also consider between CE and PE, and between PEs?)

# Zero Touch Provisioning



Pre-requisite: CSP and Enterprise signs, and creates account

1. Enterprise corporate-wide admin defines virtual network policy
  - E.g., allow E-Line between branch A and B
2. Enterprise branch IT/NW admin, connects “fresh” CPE
  - CPE traffic gets redirected to local portal
3. Enterprise branch IT/NW admin signs in on the local portal

Which triggers VNoD-local to activate service

- Retrieves NNI config from VNoD-global
- Pass NNI config (bandwidth profile and tag) to vEE
- Set up pseudo-wire between from vEE uplink to NNI
- Configure vUNI with proper tagging/port (this one last so no lost traffic)

# vEE Design Notes



- TODO
- Based on Centec V350 hardware switch for now