COCO: EASY MULTIDOMAIN VPN SERVICE

On-demand, SDN based connectivity to support BigData applications

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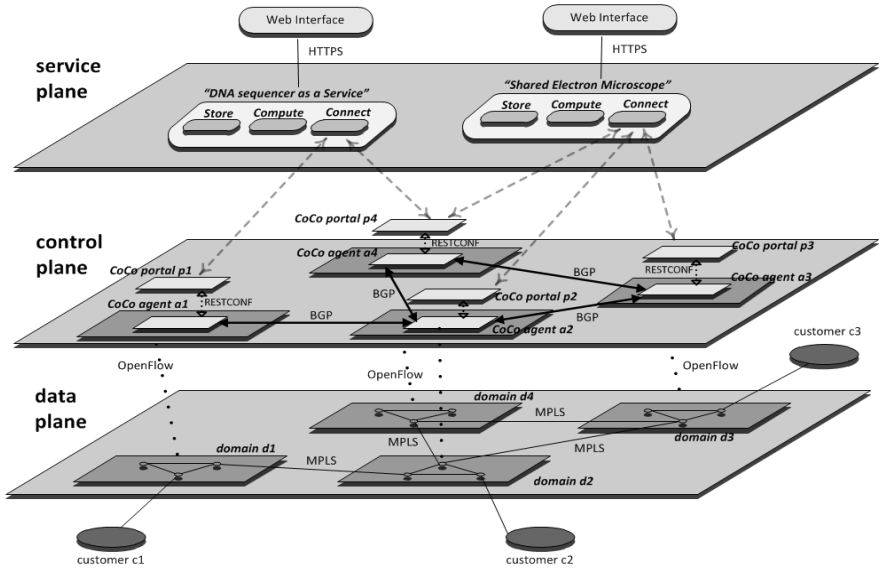
VPN SERVICE: NOT NEW BUT CURRENTLY STATIC AND TEDIOUS TO CONFIGURE

- Virtual Private Networks (VPNs) are around for ~20 years
- Number of technologies exist to assure private connectivity
  - MPLS, Q-in-Q, PBB,... + encryption
- Unfortunately, configuration is static, frequently manual
- Our project makes life easier: CoCo allows end users to set up on-demand VPNs via web portal

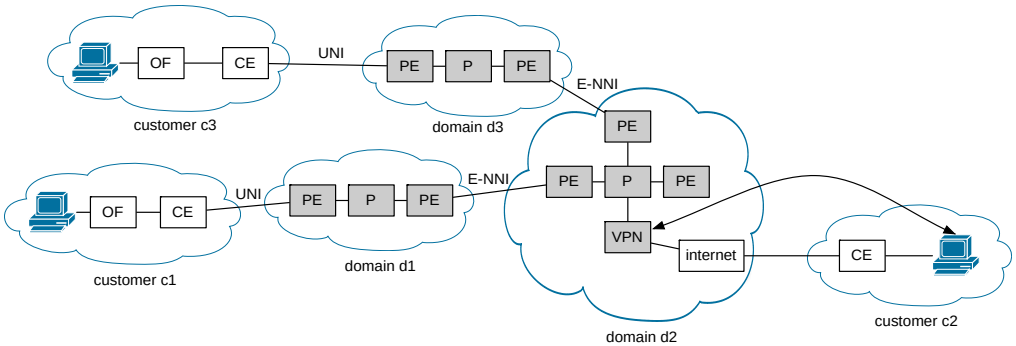
COCO LAYERED ARCHITECTURE – ULTIMATE GOAL

- Web portal as user fort-end
- REST API for web portal to controller communication (northbound interface)
- BGP for communication between controllers in different domains
- OpenFlow for controller to switches communication (southbound interface)



SOME ARCHITECTURE DETAILS: LAYER3 VPN, MPLS FORWARDING

- We have decided to make the following choices regarding architecture details
  - Layer3 (not Layer2) service
  - Double MPLS tagging:
    - External: aggregation and forwarding in network core
    - Internal: to differentiate between CoCo instances



COCO IS OPEN SOURCE AND BASED ON OPEN SOURCE (DE FACTO) STANDARDS

- When designing CoCo, we decided to use as much existing (or emerging) open source technology as possible
- Specifically, we have used
  - OpenDaylight controller (started with Hydrogen, now running Li-SR2)
  - RESTconf and OpenFlow as north- and southbound interfaces
  - Tomcat, MySQL, Eclipse J2EE, OpenStack, Mininet,OpenVSwitch...
- Pica8 switches used in physical testbed