Disruption at the Edge: OCP based CORD on-Demand

Flex Cloud and Communication Segment

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Compute redistributes due to new workloads demands
Open source presence in edge computing

Automation of Infrastructure + Network + Cloud + Apps + IOT

- Application Layer / App Server
- Network Data Analytics
- Orchestration, Management, Policy
- Cloud & Virtual Management
- Network Control
- Operating System
- IO Abstraction & Data Path
- Disaggregated Hardware

VNF Products, Services, and Workloads

- OpenStack
- OpenContrail
- SNAS
- ONAP
- OpenDaylight
- ONOS
- OvS
- DPDK
- Open vSwitch
- Linux
- Docker
- OpenStack Foundation
- Linux Foundation

Source: The Linux Foundation

Standards

- ITU
- IEEE 802
- MEF
- NIST
- ONF
- 3GPP
- IETF
- ETSI
- Telecom Infra Project
CORD: Next gen COs for the Service Providers

CORD: Central Office Rearchitected as Data Centers

Economies of a Datacenter
Infrastructure built with a few commodity building blocks using open source software and white boxes

Agility for Service Provider
SDDC platforms enable rapid creation of new services
Flex reference CORD stack

CORD: 5G Mobile, Residential & Enterprise

- **vOLT**
- **vSG**

**Scheduler, Resource Manager, Container**

**End to End Automation**

- Application Software
- Orchestration Software
- Platform Level Software

**Network, Compute, Storage**

**OCP Hardware**

**Host OS, Hypervisor, OVS**

**Platform Level Software**

- XOS
- ONAP

**Orchestration Software**

- openstack
- ONOS

**Application Software**

- Flex reference CORD stack
CORD automation framework

1. Switch image deployment & config

2. PXE & provision server test images

3. Switch & Server HW Inventory, Firmware Update, and Benchmarking
   A. System Inventory (Ansible)
   B. Firmware Update (Ansible, fw-utils)
   C. Benchmarks
      A. CPU (Spec)
      B. Memory (Stream)
      C. Disk (fio)
      D. System (Unixbench)
      E. Network (iPerf)

4. Network Interconnect Validation

5. Server Image Deployment & Config
   A. CPU (Spec)
   B. Memory (Stream)
   C. Disk (fio)
   D. System (Unixbench)
   E. Network (iPerf)

6. Cloud Infrastructure Deployment

7. CORD Deployment

8. CORD Benchmarking
CORD stack pods

Network Topology

- ONU
- Router Gateway
- GPON OLT MAC White box
- Management Switch
- Spine Switch (S1)
- Spine Switch (S2)
- Leaf Switch (L1)
- Leaf Switch (L2)
- Head Node 1
- Head Node 2
- Compute Node 1
- Compute Node 2
- Compute Node 3
- Compute Node 4
- MAAS Node
- Jenkins
- External switch

Compute:
- Full Rack POD: 15 Srv
- Half Rack POD: 30 Srv
- Initial POD: 4 Srv

Network:
- Full Rack POD: 4 Sw
- Half Rack POD: 4 Sw
- Initial POD: 4 Sw

Up to 3000 Subscribers

Up to 1500 Subscribers

Up to 400 Subscribers
Flex Lab-as-a-Service

Community lab to build ecosystem & provide solution trials, validation and certification.

Physical
» Lab space consisting of 2000+ sq.ft. area in Silicon Valley
» Power and cooling capacity for up to 30 racks

Network
» 1G dedicated network with remote access
» Supports up to 60 secured project PODS

CloudLabs support
» Partner and vendor staging
» Automation and test tool integration

https://flexcloudlabs.com
Our motivation

Promote Open Hardware Platforms

The On-demand labs are intended to help companies evaluate open source options for hardware and software stacks across North America.

Collaborate across Opensource Consortiums

LaaS helps by providing disaggregated hardware and software stacks. ONF is testing their software using the On-demand labs to grow the CORD and ONOS communities.

Integrate, Validate and Certify Tools and Software on Platform Solutions

Flex works with the LaaS ecosystem to integrate OCP and software solutions like CORD. We see a growing interest from Telco to use LaaS for trials before migration to field deployments.
Flex: A partner from day zero through deployment

- Customer Engagement
- Technology Sandbox
- Performance Benchmarking (Comparative)
- Vendor Certification
- HW/SW Systems Integration
- CSP/Carrier Grade Compliance Testing
- Cloud Deployment Solutions
Flex participating in edge disruption with…

1. Building automation frameworks for faster rack integration

2. Hosting LaaS to bring open source communities together

3. Deploying reference solutions with partners at scale
“If you want to go fast, go alone
If you want to go far, go together.”

Nepali Proverb

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