CORD: An Open Reference Implementation

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Open Reference Implementation

Residential / Mobile / Enterprise

AT&T
China unicom
SK telecom
Verizon
NTT Communications

CORD
Central Office Re-architected as a Datacenter
Economies of a datacenter

*Infrastructure built with a few commodity building blocks using open source software and white-box switches*

Agility of a cloud provider

*Software platforms that enable rapid creation of new services*
Re-architecting the Central Office

Open Source Software

Commodity Hardware
(Servers, White-Box Switches, I/O Blades)

SDN
NFV
Cloud

Re-architecting the Central Office

Open Source Software

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(Servers, White-Box Switches, I/O Blades)
CORD – Software Architecture

Inventory
Customer Accounts
Analytics
... Allocation Policy

Operator Specification (TOSCA, Yang)

Controller

CORD POD
Everything-as-a-Service (XaaS)

Access-as-a-Service and Software-as-a-Service

Bundled Legacy and Disaggregated Greenfield

Data Plane (NFV) and Control Plane (SDN)

Trusted and Untrusted 3rd Party

Controller

Residential Subscribers

Controller

vOLT

Controller

vSG

Controller

vRouter

Controller

OpenStack

Controller

ONOS

Controller

Monitoring

Controller

vCDN
Domains: Residential/Mobile/Enterprise

- **Residential**
  - vOLT, vSG, vRouter, vCDN

- **Mobile**
  - vBBU, vMME, vSGW, vPGW, vCDN

- **Enterprise**
  - vCarrierEthernet, vOAM, vWanEx, vIDS

CORD Controller

- Metro Ethernet
- BBUs
- PON OLTs
- ROADM (Core)
Reference Implementation

**Hardware Blueprint**
- OCP Servers
- OCP Switches
- OCP Access Blades

**Assembly Instructions**
- ...

**Testing Infrastructure**
- ...

**CORD POD**
An open virtualized service delivery platform that provides cloud economies and agility.

From Access-as-a-Service to Software-as-a-Service.

**Open Source Software**

**Core Components**
- OpenStack
- Docker
- ONOS
- XOS

**Access Services**
- R: vOLT, vSG, vRouter
- E: vOAM, vCE,…
- M: vBBU, vPGW,…
- …

**Other Services**
- Monitoring
- …

**Configured for Different Domains:**
Residential, Enterprise, Mobile
Open Source Ecosystem

Domains of Use

- R-CORD
- M-CORD
- E-CORD
- A-CORD

Components

- Controllers
  - ONOS
  - XOS
  - ...
- Services
  - vRouter
  - vCPE
  - ...
- Hardware
  - GPON
  - BBU
  - ...

Distribution

Reference Implementation

Field Trials

- Operator Network
- Operator Network
- Operator Network
opencord.org

CORD Mini-Summit

R-CORD, M-CORD, and E-CORD Demos in the SDN & NFV Solution Showcase (S3)