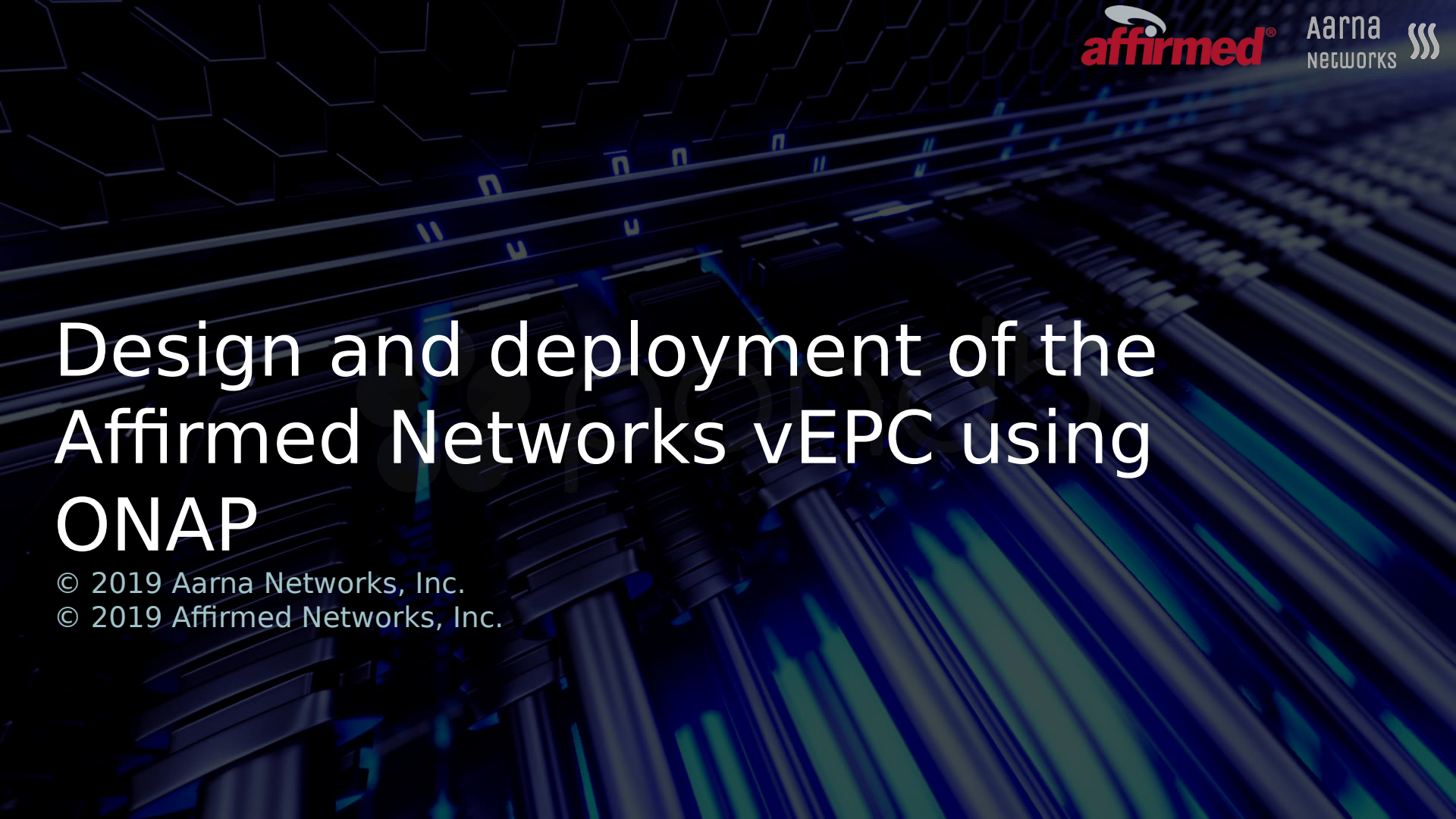


Design and deployment of the Affirmed Networks vEPC using ONAP

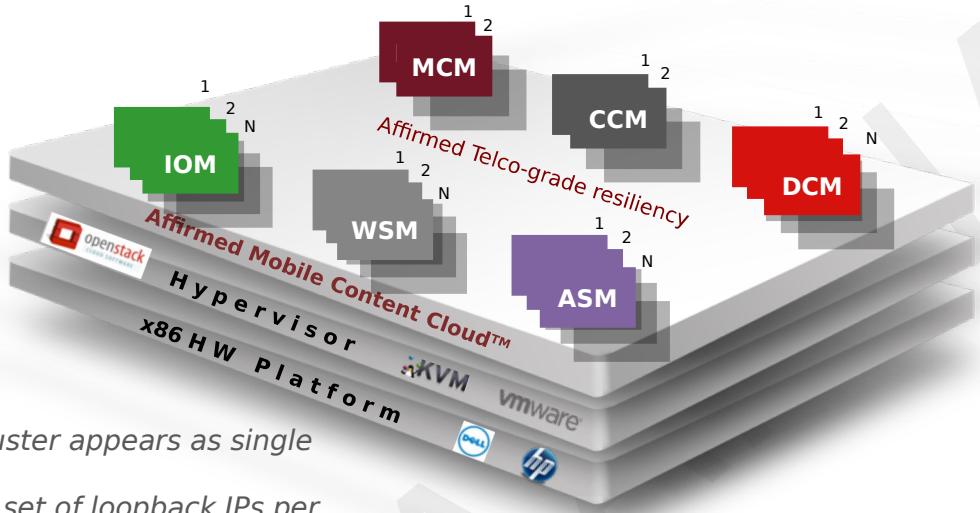
Objectives

Demonstrate the onboarding of Affirmed vEPC (aka Mobile Content Cloud – MCC) onto ONAP (based on Beijing release):

- Onboarding the Affirmed vEPC VNFs & NS onto MANO software (ONAP)
- Deploying the NS using ONAP, onto OPNFV scenario (using Aarna's ANOD distribution)

Affirmed Distributed vEPC Architecture

Distributed Functions Scale Independently



- ✓ *VM Cluster appears as single VNF*
- ✓ *Single set of loopback IPs per VNF*
- ✓ *(e.g. single S1u, S11, Gx, etc.)*

Production ready vEPC services:

- ✓ *S-GW*
- ✓ *P-GW*
- ✓ *GGSN*
- ✓ *MME (similar distr. VM Arch)*
- ✓ *WAG/ePDG*
- ✓ *Gi LAN VAS*

Deployment Efficiency

MCM – Management Control Module

- *OA&M, CLI, NETCONF, etc.*

CCM – Centralized Control Module (Control Plane)

- *Dynamic Routing, Session mgmt., Diameter*

DCM – Distributed Control Module (Control Plane)

- *GTP-C, call control, RADIUS clients, IKE v1/v2*

IOM – Input Output Module

- *Logical IP interface termination, IPSEC*

WSM – Workflow Services Module (Data Plane)

- *Subscriber/APN tunnel termination*
- *QoS, Charging, NAT/Firewall, Policy Routing, DPI*
- *IPSEC (per-subscriber – ePDG)*

ASM – Advanced Services Module (Data

Use Case Assumptions

- The use case will use APP-C for VNF instantiation
- The APP-C will interact directly with the OpenStack VIM (no need for a Specific VNFM)
  - In the Affirmed lab setup Red Hat OpenStack Platform 10 (RHOSP10) was used; RHOSP10 is based on OpenStack Newton Release
- The VNFD will be HEAT based

vEPC Onboarding onto ONAP

- Create Openstack Cloud image with required software
- Create required resources on Openstack (Flavor, Networks/Subnets)
- Create HEAT templates and environment files
  - Create 3 VSP's
    - MCM (Management Control Module)
    - CSM (Content Services Module)
    - SSM (Subscriber Services Module)
  - Cretae 1 Network Service (MCC_Service)
- Add the required scripts in cloud-init section of VNF's YAML files
  - Onboard the ZIP files in SDC and create VSP's & NS
- Test the Vendor Software Products (VSP)
  - MCM, CSM and SSM respectively

vEPC Deployment using ONAP

- Create Service Instance for MCC_Service
- Add VNFs (MCM, CSM & SSM) to the service instance
- Run SDN-C Preload scripts that set the required parameters in SDN-C
- Instantiate VNF Module MCM, which creates the VM
- Instantiate VNF Module CSM, which creates the VM
- Instantiate VNF Module SSM, which creates the VM
- Post-installation configuration (not automated yet via ONAP)


affirmed
Aarna
Networks
Thank You!!!