What is the CCVPN Usecase?

- **CCVPN**: Cross Operator, Cross Domain, Cross Layer VPN Service
- **Cross Operator, Cross Domain, Cross Layer**
  - 2 Different Operators
  - ONAP is Deployed at 2 Different Geo Sites,
  - Different Networking Domains (Different Underlying Networking infrastructure)
- **VPN Service**
  - Modeled after the E-Line Service
ONAP-Powered Connectivity Service: CCVPN Usercase

Cross Operator, Cross Domain, Cross Layer VPN Service – End State
ONAP-Powered Connectivity Service: CCVPN Usercase
Cross Operator, Cross Domain, Cross Layer VPN Service
How ONAP is used to Orchestrated CCVPN

ONAP External APIs

DCAE
Policy Framework
SDN-C
OTN Controller
OTN Domain1
OTN Domain2
A&AI/ESR
SD-WAN Controller
vGW
CPE

Topography Discovery
Service Provisioning
Closed Loop

London

Beijing

Policy Framework
DCAE
SO
A&AI/ESR
SDN-C
OTN Controller
OTN Domain1
OTN Domain2
vGW
CPE

BPMNs
rules
DGs

DGs

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DGs
How the CCVPN Service is Orchestrated in ONAP

4 steps to develop CCVPN on ONAP:

1. Model-based VF Onboarding
2. Service Design
3. Control Logic Design (BPMN/DG)
4. Analysis/Policy Rule Design

Steps to develop CCVPN on ONAP:

1. Resource Onboarding
2. Service & Product Design
3. Policy Creation
4. Change Management Design
5. Design Test & Certification

Control Logic Design (BPMN/DG)

Analysis/Policy Rule Design

Recipe/Eng Rules & Policy Distribution
Note 1 - VF-C is ETSI aligned.

ONAP External APIs

Control Logic Design (BPMN/DG)

Analysis/Policy Rule Design
Step 1: Model-based Resource Onboarding

1. CCVPN analysis and decompose scenario to resource definitions
2. Onboard VNF/Configuration as VF resource
3. Test VF
Step 2: Service Design

1. Design service, Add Specific Service Artifacts
2. Test service Flow
3. Onboard Service
Step 3: Service/Resource Flows Design (BPMN/DG)

1. Service/Resource BPMN workflow design (*Vendor Agnostic*)
2. Resource instance DG flow design (*Vendor Specific*)
3. Upload BPMN to Service Orchestrator (SO)
4. Upload Directed Graph (DG) to SDN-C
Step 4: Analysis/Policy Rule Design

1. Define data analysis rule
2. Define policy rule
3. Upload data analysis rule to DCAE/Holmes
4. Upload policy rule to Policy

Data analysis rule design

1. Collect alarms
2. Analyze the alarms
3. Trigger a cross-link down event

Policy rule design

1. Subscribe with the cross-link down event
2. Take action to reroute

```
controllog: version: 2.0
controlling-name: controller
controlling-chain: controller
controlling-event: cross_link_down

triggers:
- trigger: unique-policy-1d-1e-down
  name: ClientInterface
  type: VTEP
  event: 3

actions:
- action: send-event
  event: ClientInterface
  type: VTEP
  name: ClientInterface
  event: 3
```

Note: VFC is CTO aligned.
ONAP-Powered Connectivity Service: CCVPN Usercase
Cross Operator, Cross Domain, Cross Layer VPN Service

L2 Underlay (EoODU)
Handoff
L3 VNF
CCVPN Service

L3 PNF

OTN Domain1
OTN Controller
OTN Domain2
OTN Controller
SD-WAN Controller
vGW

ONAP (CCVPN)
SO
SDNC
A&AI
DCAE, Analytics, Policy Control Loop

East/west API

OSS/BSS

ONAP (CCVPN)
SO
SDNC
A&AI
DCAE, Analytics, Policy Control Loop

ONAP (CCVPN)
SO
SDNC
A&AI
DCAE, Analytics, Policy Control Loop

SD-WAN Controller
vGW

ONAP (CCVPN)
SO
SDNC
A&AI
DCAE, Analytics, Policy Control Loop

ONAP (CCVPN)
SO
SDNC
A&AI
DCAE, Analytics, Policy Control Loop

ONAP (CCVPN)
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Cross Operator, Cross Domain, Cross Layer VPN Service
ONAP-Powered Connectivity Service: CCVPN Usercase
Cross Operator, Cross Domain, Cross Layer VPN Service

L2 Underlay (EoODU) — Handoff — L3 VNF

CCVPN Service

East/West API
ONAP-Powered Connectivity Service: CCVPN Usercase
Cross Operator, Cross Domain, Cross Layer VPN Service
ONAP-Powered Connectivity Service: CCVPN Usercase

Cross Operator, Cross Domain, Cross Layer VPN Service
Thank you