Benu SD-Edge on OSM

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Simplifying the Edge

A fully-virtualized, software-defined edge for carrier networks that can run in the cloud, edge data centers, and regional hubs.
Benu SD-Edge Platform For Virtual Network Functions And Services

Managed Business

Managed Home

Parental Control
Scheduled Access
TeleWorker
Fingerprinting
IoT Security
Guest WiFi
Bandwidth Mgmt
Device Policies
Firewall
Content filtering
IDS/IPS
DoS Protection
Malware/Phishing
Mobile backup
Static IP
SD-WAN / VPN

Services Pipelines

Network Functions: WAG | BNG | CGNAT | DPI

Open Programmable Data Plane

Benu Data Plane

Switch API

Bare Metal
Hypervisor
Kubernetes
Arista Switch

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My search for the right MANO

- Operator’s requirements for a MANO are different from a VNF vendor’s requirements

- What does VNF vendor really want?

- We want to showcase our VNFs to our customers. We want to demonstrate how easy it is to configure, monitor and scale our VNF.

- As a secondary requirement, we want a consistent way to do these things for our in-house testing
What we don’t want?

• Super Complicated installation. If I need to read a manual to install a software, I’m out!

• Very high requirements for compute, memory and storage

• We don’t want to do a lot of work to get this going! We want to focus on our application.
Use-case: vBNG VNF/CNF

- OSS/BSS
- K8’s cluster
- NFV Infrastructure
- VIM
- MANO NFVO+VNFM
- vBNG CP CNF
- vBNG DP CNF
- vBNG VNF
- VNF Repo
- docker
- HELM
- Kubeadm, kubectl
Step 1: Configure (Day-1 Operation)

vnf-configuration:
  juju:
    charm: benu
    proxy: true
  initial-config-primitive:
    - seq: '1'
      name: config
      parameter:
        - name: ssh-hostname
          value: <rw_mgmt_ip>
        - name: ssh-username
          value: xxxxxxxx
        - name: ssh-password
          value: xxxxxxxx
    - seq: '2'
      name: sinit
      parameter:
        - name: bdcip
          data-type: STRING
          value: '172.21.248.51'
  config-primitive:
    - name: sinit
      parameter:
        - name: bdcip
          data-type: STRING
          default-value: '172.21.248.51'
Step 2: Monitor (Day-2 Operation)

```
metrics:
- name: benu_tunnelcount
- name: benu_subcount

monitoring-param:
- aggregation-type: AVERAGE
  id: benu_vwag_tunnels
  name: benu_vwag_tunnels
  vnf-metric:
    vnf-metric-name-ref: benu_tunnelcount
- aggregation-type: AVERAGE
  id: benu_vwag_subs
  name: benu_vwag_subs
  vnf-metric:
    vnf-metric-name-ref: benu_subcount
```
Step 3: Scale (Day-2 Operation)

scaling-group-descriptor:
  - name: "benu_vwag_autoscale"
    min-instance-count: 1
    max-instance-count: 2
  scaling-policy:
    - name: "benu_vwag_subcount_above_threshold"
      scaling-type: "automatic"
      threshold-time: 10
      cooldown-time: 180
  scaling-criteria:
    - name: "benu_vwag_subcount_above_threshold"
      scale-in-threshold: 10000
      scale-in-relational-operation: "LT"
      scale-out-threshold: 12000
      scale-out-relational-operation: "GT"
      vnf-monitoring-param-ref: "benu_vwag_subs"

vdus:
  - vdu-id-ref: benu_vWAG_vnfd-VM
    count: 1
Last but not least

• Ease of generating descriptors and packages.
Thank You