

Continuation of HPA

BUSINESS DRIVER

Executive Summary - Placement of workloads on the sites that have right compute nodes. ONAP is expected to take VNF requirements at the design time. Then it does match making during instantiation time to select site that has right resources.

Business Impact - This will enable VNF vendors to take advantage of NFVI HW and SW acceleration & Security features to speed up the VNF processing. By placing workloads on right hardware, compute resource usage efficiency improved. For example, placing the application that take advantage of crypto accelerators, when placed in a site that has crypto accelerators will use very less number of CPU resources.

Business Markets - Applicable to physical and virtual network functions deployed in large operational networks - cellular service (4G/5G), cloud service and data center networks.

Funding/Financial Impacts - Potential of significantly reducing the CAPEX

Organization Mgmt, Sales Strategies - There is no additional organizational management or sales strategies for this use case outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.

Technical Debt

Automation of use cases using CLI (with and without HPA)

- Challenges: Automation of use cases using ONAP as a blackbox had been a challenge.
- Solution space
 - vFW, vCPE-TOSCA use case automation is ongoing in R4
 - Identified many gaps and fixing them in various projects.
 - Fixing some gaps may be postponed to R5.
 - Automation of other use cases in R4 such as vLB

Pluggability

- P1: Pluggable architecture for adding new HPA features in MC
- P1 : Pluggable architecture in policy conversion (from TOSCA to Policy)

ETSI NFV Standard compliance

- Understand the gaps in TOSCA definition of EPA and acceleration features and ensure that same is adopted
 - P2 : New TOSCA defined HPA representation
 - P2: TOSCA defined HPA requirements as 'Mandatory' and 'optional'. It needs to be considered in TOSCA to Policy HPA conversion logic.

Use case

- Working on new use case vIPSEC as part of R4.
- Why: To showcase an use case that leverages hardware accelerators based on PCIe.
- Solution space:
 - HEAT templates
 - Configuration of IPSEC VNF for site-to-site tunnels
 - To show case performance difference between IPSEC without Crypto accelerator and with Crypto accelerator
 - Identify gaps in deploying IPSEC based connectivity among multiple locations of an Enterprise.
 - This work may overflow to R5.
 - Fix the gaps identified in deploying IPSEC VNF in multiple locations as a single operation.
 - Ensure that IPSEC VNFs are also deployed using K8S in the cloud-regions in R5

New items in R6

Extending HPA for K8S

Few details

- Base line: NFD (Node feature discovery) from K8S CNCF project.
- Discovery of hardware features, creation of profiles and populating in A&AI of compute flavors.
- Identify any gaps in policy and OOF to do match making VNFs/Application to right compute flavors.

New Hardware features

- FPGA Support

Integration :

- Make the use cases with HPA part of Integration regression suite.