Integrated Cloud Native NFV/App stack family (Short term: ICN)

Blueprint: Multi-Server Integrated Cloud native NFV/App stack (Short term: MICN)

Project Technical Lead: Kuralamdhan Ramakrishnan, Elected 6/24/2019

Link to process-SC review record Graduation reviews

Attributes info

Case Attributes	Description	Informational
Type	Blueprint	
Blueprint Family - Proposed Name	Integrated Cloud Native NFV stack	
Use Case	SDWAN, Customer Edge, Edge Clouds – deploy VNFs/CNFs and applications as micro-services	
Blueprint proposed Name	Multi-server Cloud Native stack	
Initial POD Cost (capex)	50K minimum	
Scale & Type	Minimum of 4 Xeon Servers + 1 Xeon server as genesis	
Applications	SDWAN, ML/DL Analytics, EdgeXFoundry and 360 degree Video streaming	
Power Restrictions		

Orchestration	Infratructure Orchestration
	
	  Bare Metal Provisioning : ironic with Metal3 controlled by Cluster API
	
	  Kubernetes provisioning : KuD.
	
	  Centralized controller: With Cluster-API
	
	Docker for containers and Virtlet for VMs
	
	Service Orchestration : ONAP (Only the components that require VNF/CNF workload deployments via K8S)
	
	MEC framework: OpenNESS
	
	Site orchestrator : Kubernetes upstream
	
	Traffic Orchestration within a cluster: ISTIO
	
	Traffic orchestration with external entities : ISTIO-ingress and ISTIO-egress with MCDeployment
	
	Knative for function orchestration
		Expose HW accelerators
		
		Storage Orchestration: Ceph with Rook
		
		Futrue: AF-XDP for packet processing based containers, OpenShift for site orchestrator, Kubevirt for VMs.

SDN	OVN, SRIOV, Flannel	

Workload Type	Containers, VMs and functions	
Additional Details	Future: eBPF based CNI (such as PolyCube)	

System level architect/lead: Srinivasa Addepalli

Contributors:

Committer	Committer Company	Committer Contact Info	Committer Bio	Committer Picture	Self Nominate for PTL (Y /N)
Kuralamdhan Ramakrishnan	Intel	kuralamudhan. ramakrishnan @intel.com	• Kuralamudhan Ramakrishnan is working as a Senior Software Engineer in Intel, Oregon has specialized in the field of Networking, storage and data management and worked in Telco industries. • He created various open source projects such as Multi Network plugin in CNI called "Multus" CNI to support Multi-Homed pod in Kubernetes and "SRIOV-DPDK CNI" and "Userspace CNI" working in Kubernetes Networking in Intel, worked on Kubernetes compute on power management and worked in Kubernetes network SIG for Network Plumbing Working Group to advocate for Telco, comms use case in K8s and formation of Multi-network de-facto standard spec in K8s. • Kural's LinkedIn - link		Yes
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Files

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Microsoft Powerpoint Presentation Akraino-Intergrated-Cloud-Native-meetup-external-v4.pptx	Dec 03, 2019 by Kuralamudhan Ramakrishnan
Microsoft Powerpoint Presentation Akraino-Edge-Service-matching.pptx	Apr 21, 2020 by Srinivasa Addepalli
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