

IEC Type 5: SmartNIC for Integrated Edge Cloud (IEC) Blueprint Family

As the beginning, we start from Kubernetes with SmartNic. In the future, we will enable Openstack and other specific features.

The feature list is in the attachment.

Use Case Details:

Attributes	Description	Informational
Type	New	
Industry Sector	Edge Cloud, Telco	
Business driver	VPC, 5G UPF can use SmartNIC to accelerate the performance.	
Business use cases	- Demonstrate SmartNIC accelerated Edge stack - OVN-K8s in host and OVS offloaded in SmartNIC - Software ecosystem support for SmartNIC platform - Kubernetes support for networking acceleration and SmartNIC	
Business Cost - Initial Build Cost Target Objective	- Common drivers for x86 and Arm - Full DPDK support - Overlay support (VxLAN, GRE) - Hardware offload for Linux tc - Crypto offload drivers	
Business Cost – Target Operational Objective	- OVN/Open vSwitch - Open vSwitch offload on SmartNIC platform - Kubernetes - SmartNIC for Kubernetes - Huge page support - Node Feature Discovery - Related CNI projects Multus, Cilium, SR-IOV and OVS-DPDK - Storage: - NVMeoF interface	
Security need	Crypto offload drivers	
Regulations	N/A	
Other restrictions	N/A	
Additional details	N/A	

Case Attributes	Description	Informational
Type	New	
Blueprint Family - Proposed Name	Integrated Edge Cloud (IEC)	
Use Case	VPC, 5G UPF	
Blueprint proposed Name	IEC Type 5: SmartNIC	
Initial POD Cost (capex)	VPC: 1 Rack with 2 servers, each server with 1 SmartNIC UPF: 3 servers, each server with 1 SmartNIC	

Scale & Type	In the gateway, infrastructure service, and edge cloud	
Applications	Short Video Applications, UPF	
Power Restrictions	SmartNIC: 35W	
Infrastructure orchestration	• Bare Metal Provisioning Ansible • Kubernetes Provisioning KuD • Host OS Level: ◦ Network: cilium/OVN • SmartNic Arm cores Level: ◦ Network: cilium-BPF/ovs-vswitchd/ovs-dpdk/ • Docker for containers and Kubelet for VMs	
SDN	OVN, SRIOV	
Workload Type	• Containers	
Additional Details	SmartNic features: • Needs to provide mechanism to recover from the system crashes remotely. • Support PXE protocol • Secure boot/Secure Key Storage	

Xuan Jia is stepping down as PTL. We need to nominate/elect a new PTL. If you are interested in being PTL for the Smart Nic, please put a Y in the Self Nominate column. If you are NOT interested, please make sure that you have an N in that column.

Self Nominations will end on 12 July at 11:59 pm Pacific Time.

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Presentations:

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Smart Nic features:



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