IEC Type 3: Android cloud native applications on Arm servers in edge for Integrated Edge Cloud (IEC) Blueprint Family

Use Case Details:

Attributes	Description	Informational
Type	New	
Industry Sector	Telco, Cloud	
Business driver	• Edge cloud requires initiatives for cloud gaming on Android platform • 5G + edge bring low latency and high-throughput for cloud gaming, which improves user experience • More and more Android applications will migrate into edge compute platform. Building an android platform is necessary, and it's rigid demand.	
Business use cases	Android Cloud Gaming	
Business Cost - Initial Build Cost Target Objective	Using virtualization technology instead of mobile chip board on ARM server will reduce the cost of android platform. ARM server board also let android platform more flexible and more agile. In order to support cloud gaming and AR/VR, ARM server need have GPU inside. • 2 ARM Nodes • **Android 9.0** ○ **GPU (AMD, NVIDIA)** • Android virtualization layer: Robox, docker.	
Business Cost – Target Operational Objective	It more like a cloud platform, but it's specific for android application. • It needs Helm and Ansible for the automation and management tools to keep operational cost lower • It needs to monitor the status of android system status and application status. • Maintain a mixed edge platform including x86 and ARM. It's more complex • Kubernetes • **Android 9.0** ○ **GPU (AMD, NVIDIA)** • **Host OS kernel optimization;** • Android virtualization layer: Robox, docker. • **GPU (AMD/NVIDIA)** • Both ARM and X86 can support it.	
Security need	Security is very important in this use case, especially for containerized android system.	
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	Cloud Gaming and AR/VR	
Blueprint proposed Name	IEC Type 3: Android cloud native applications on Arm servers in edge	
Initial POD Cost (capex)	2 ARM bare metal machines, 1 10G switch, 1 AMD GPU, 1 NIVIDA GPU	
Scale & Type	For the smallest deployment, this requires 2 ARM bare metal machines. For large deployments, this could span to large number of bare metal machines.	

Applications	Android application, such as cloud gaming, VR/AR.	
Power Restrictions	N/A	
Infrastructure orchestration	Host: • Bare Metal ProvisioningAnsible • OS: Ubuntu • GPU Driver: AMD,NVIDIA: • Network: OVS • Android virtualization layer: Robox container • **Host OS kernel optimization** Guest OS Andriod: • **GPU Driver (AMD, NVIDIA)**	
SDN	N/A	
Workload Type	• Android applications	
Additional Details	N/A	

Blueprint was approved by the TSC on 2 Apr 2020.

Election ended on 22 April 2020- **Hanyu Ding** was the winner

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As per the Akraino Community process and directed by TSC, a blueprint which has only one nominee for Project Technical Lead (PTL) will be the elected lead once at least one committer seconds the nomination after the close of nominations. If there are two or more, an election will take place.

	TS2280v1	TS2280v2
CPU	2x 32 core 2.4 GHz Hi1616 Processors	2x 32 core 2.6 GHz Hi1620 Processors
RAM	8x 16GB RDIMM-Tx2	8x 16GB DDR4-DIMM
Storage	2x 1TB SSD	2x 1TB SSD
Networking	2x 1/10Gbe BASE-T (1 connected) 1x IPMI Lights-out Management	2x 1/10Gbe SFP+ (connected) 1x IPMI / Lights-out Management
GPU	1 AMD GPU ,1 NVidia GPU	

Servers and Switches

Server Name	IPMI Address	Public Network Address	Switch Port(s)	OS Installed
93	10.x	10.x	gigabyte-edgecore2: left 40Bbe Port 1, right 40Gbe Port 2, left 10Gbe Port 7 Breakout 1, right 10Gbe Port 7 Breakout 2	Ubuntu 18.04
174	10.x	10.x	gigabyte-edgecore2: left 40Bbe Port 3, right 40Gbe Port 4, left 10Gbe Port 7 Breakout 3, right 10Gbe Port 7 Breakout 4	Ubuntu 18.04

BP: