

5G Connected Edge Cloud for Industry 4.0 Transformation



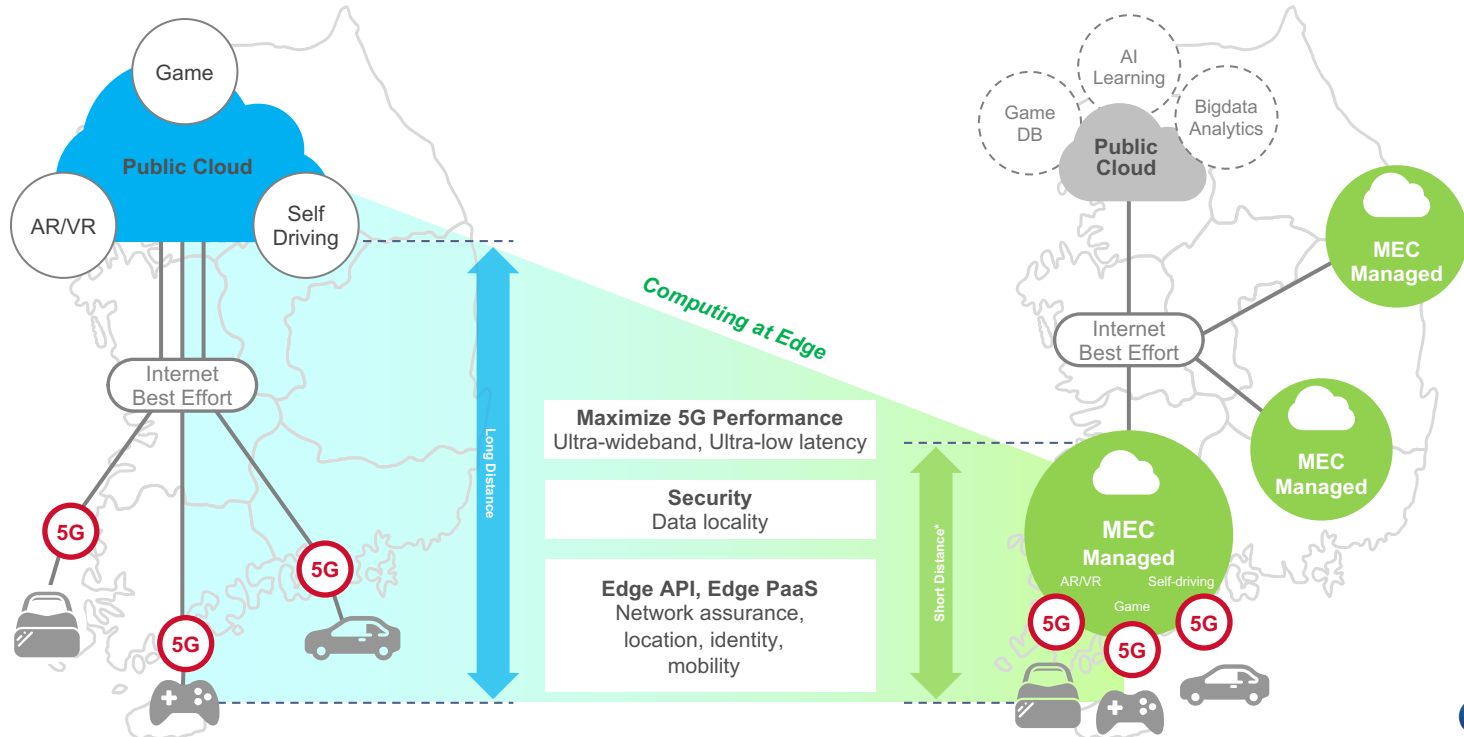
5G MEC: SK Telecom's Status and Plan

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Vice President, 5GX Cloud Labs

SKT's MEC is 5G Mobile Edge Cloud

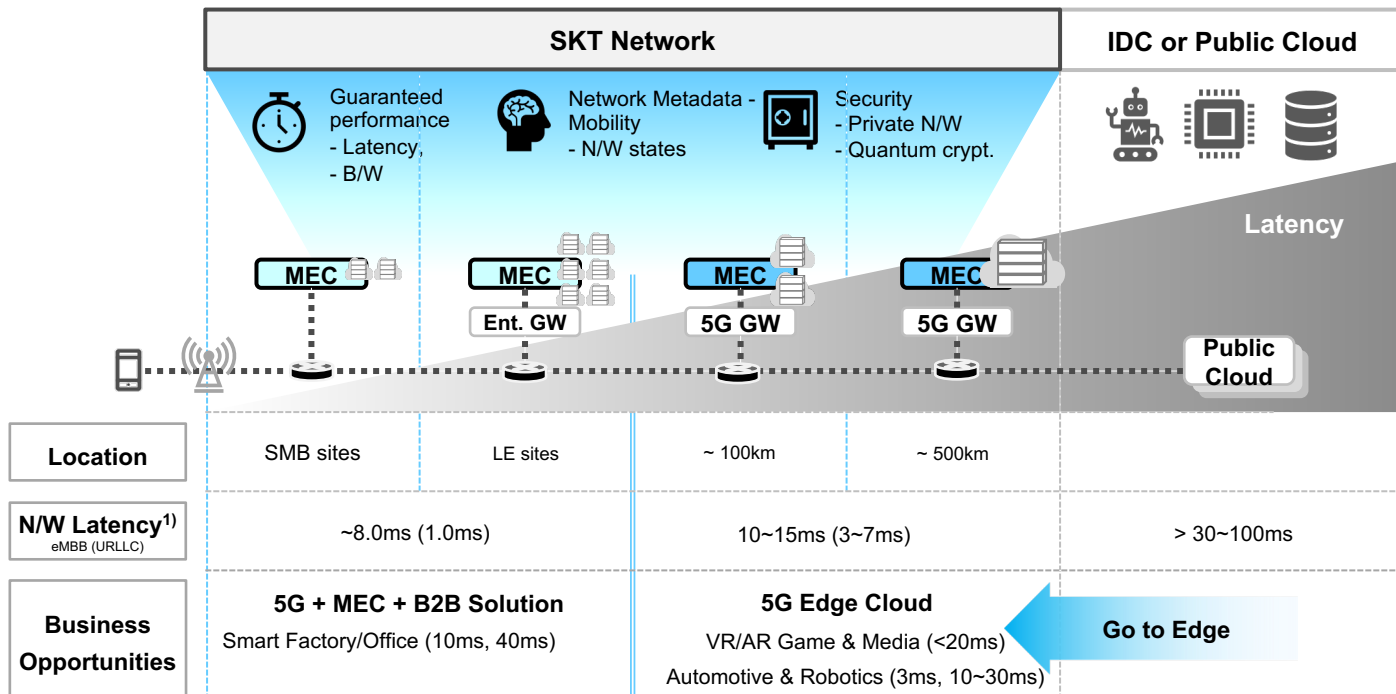
Cloud computing environment near 5G users

Designed for ultra-wideband, ultra-low latency and privacy-sensitive services



Edge as the Key Component of the Cloud

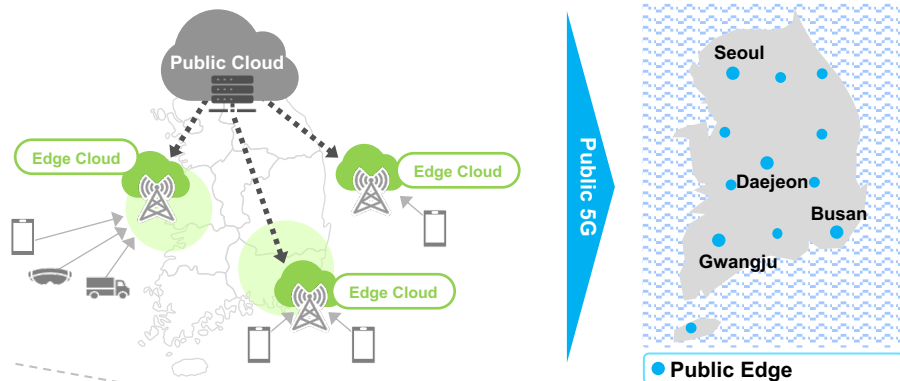
As edge becomes critical territory, CSPs work with telcos to meet new demands



MEC Deployment Models

Public Edge

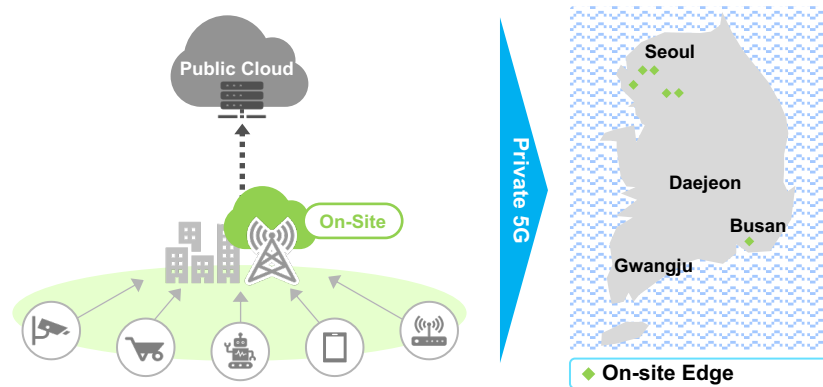
“Provides nationwide MEC services to 5G users”



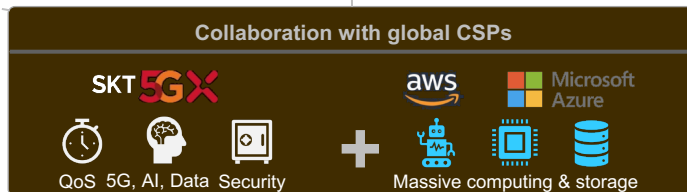
- Realistic Content (AR/VR) Service
- Massive/Live Video Streaming, mCDN
- Self-driving (drone, V2X)

On-site Edge

“Provides private MEC services to enterprise users”



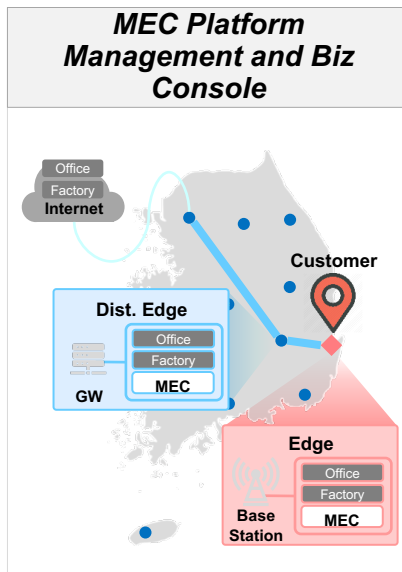
- Smart Factory - Self-driving robot, video analysis
- Smart Office/Branch - AR/VR Training



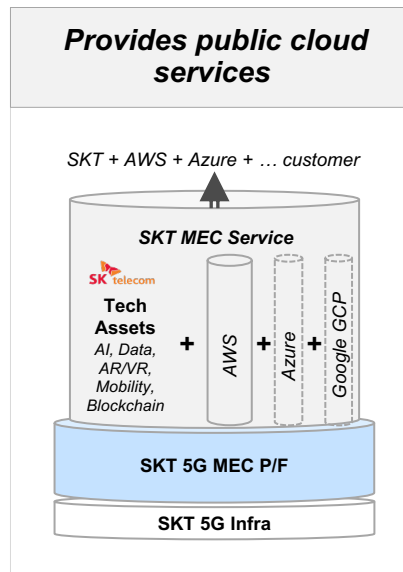
SKT MEC Differentiations

SKT's MEC can provide unique values to the cloud users

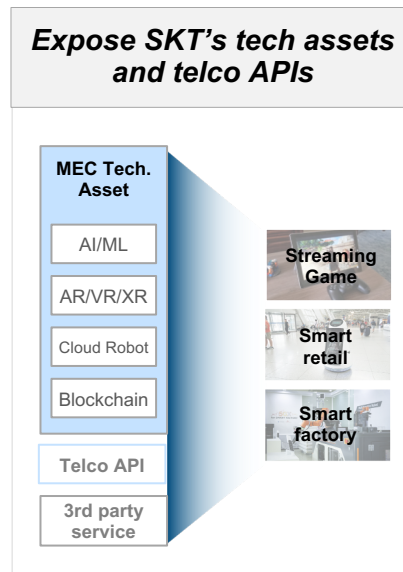
Edge Infrastructure



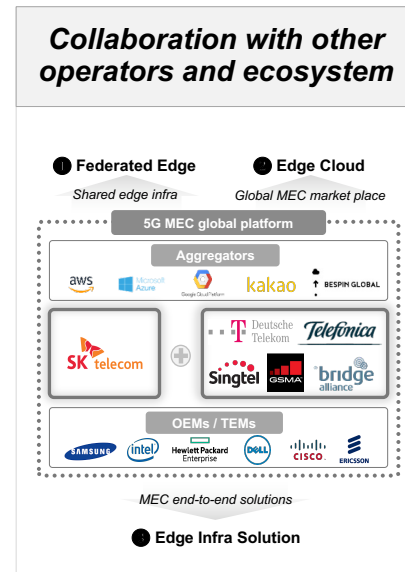
Public Cloud Integration



Specialized Service at Edge

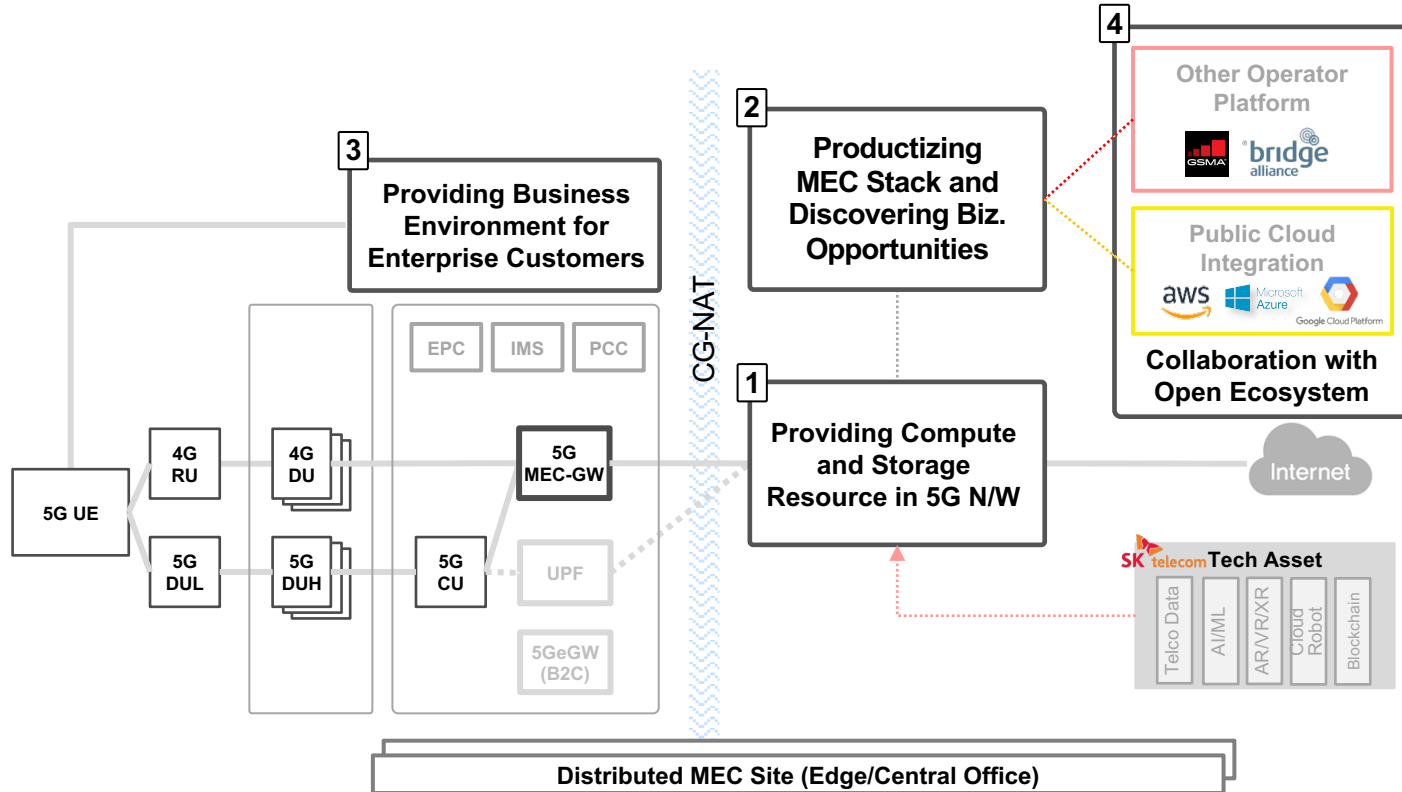


Global Collaboration

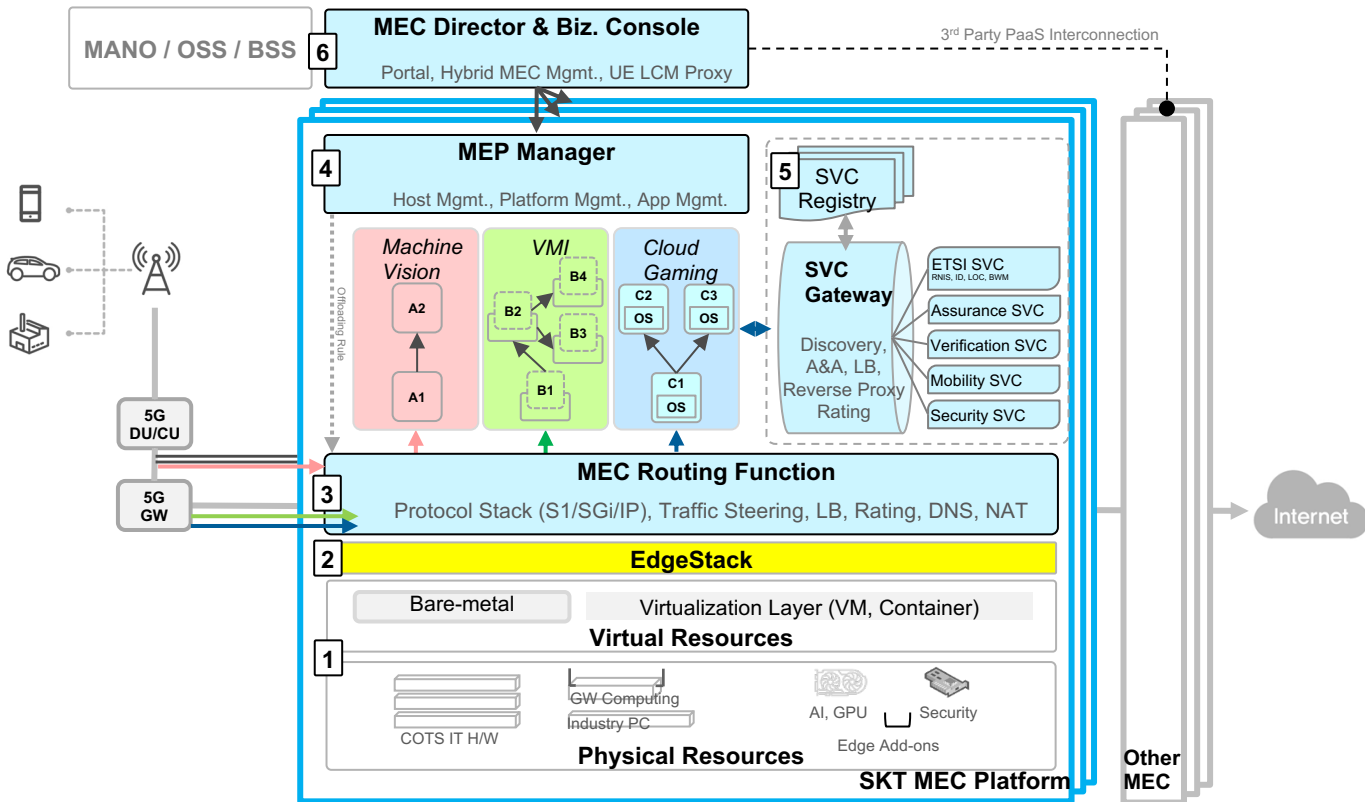


SKT MEC Status

Developed: (1) advanced 5G edge infra, (2) biz platform, (3) e2e MEC orchestrator, and (4) interface with other telcos and CSPs



SKT MEC Architecture



SKT EdgeStack

Enables MEC stack to support cloud native MEC applications
Consists of Edgetron and Singulus network stack

1

Provides Managed Kubernetes* for MEC

- Various on-prem Kubernetes solutions are available from multi-cloud vendors**
- Each vendor uses their own proprietary way to manage Kubernetes cluster

2

Provides high performance N/W stack

- Minimizes the network performance*** degradation of Kubernetes on VM (KoV)
- Lack of supports on high performance Kubernetes network stack



**Abstracts the Kubernetes Cluster LCM;
provides ETSI MEC compliant interface**

Edgetron



**Simplifies KoV network stack →
maximizes overall network performance**

Singulus Network Stack

EdgeStack

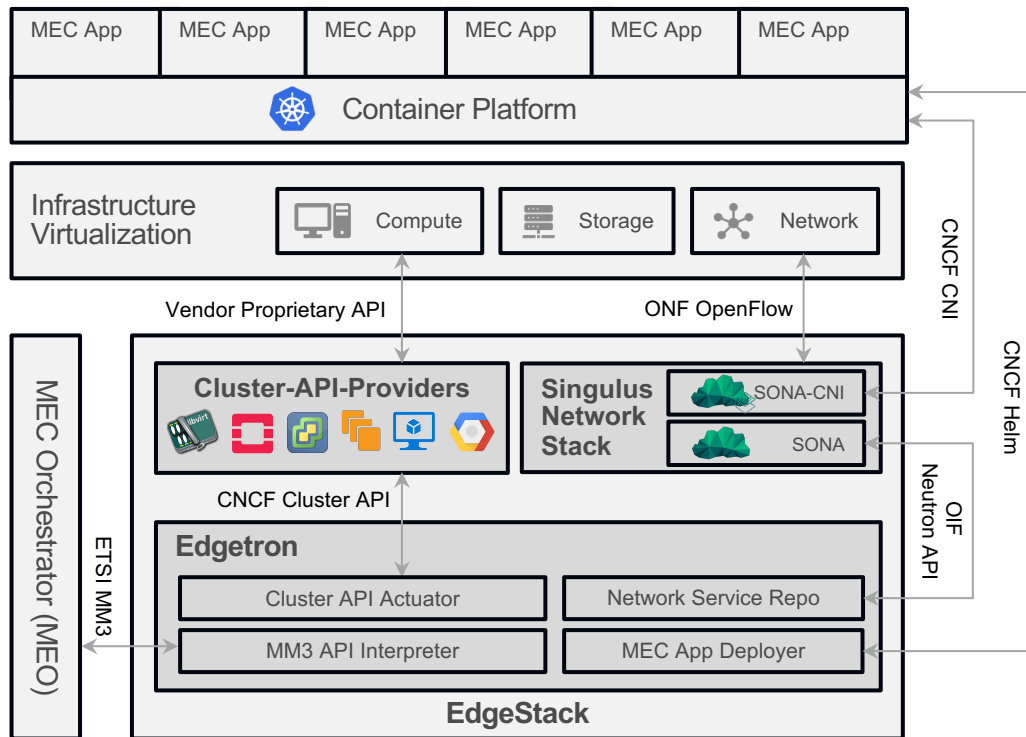
*) the majority of Cloud Service Providers (CSP) provide **Managed Kubernetes** service through Kubernetes on VM (KoV)

**) ① vanilla Kubernetes on KVM, ② Tanzu on vSphere, ③ OpenShift on OpenStack

***) **60 ~ 90% network performance degradation** compared to Kubernetes on Bare-Metal

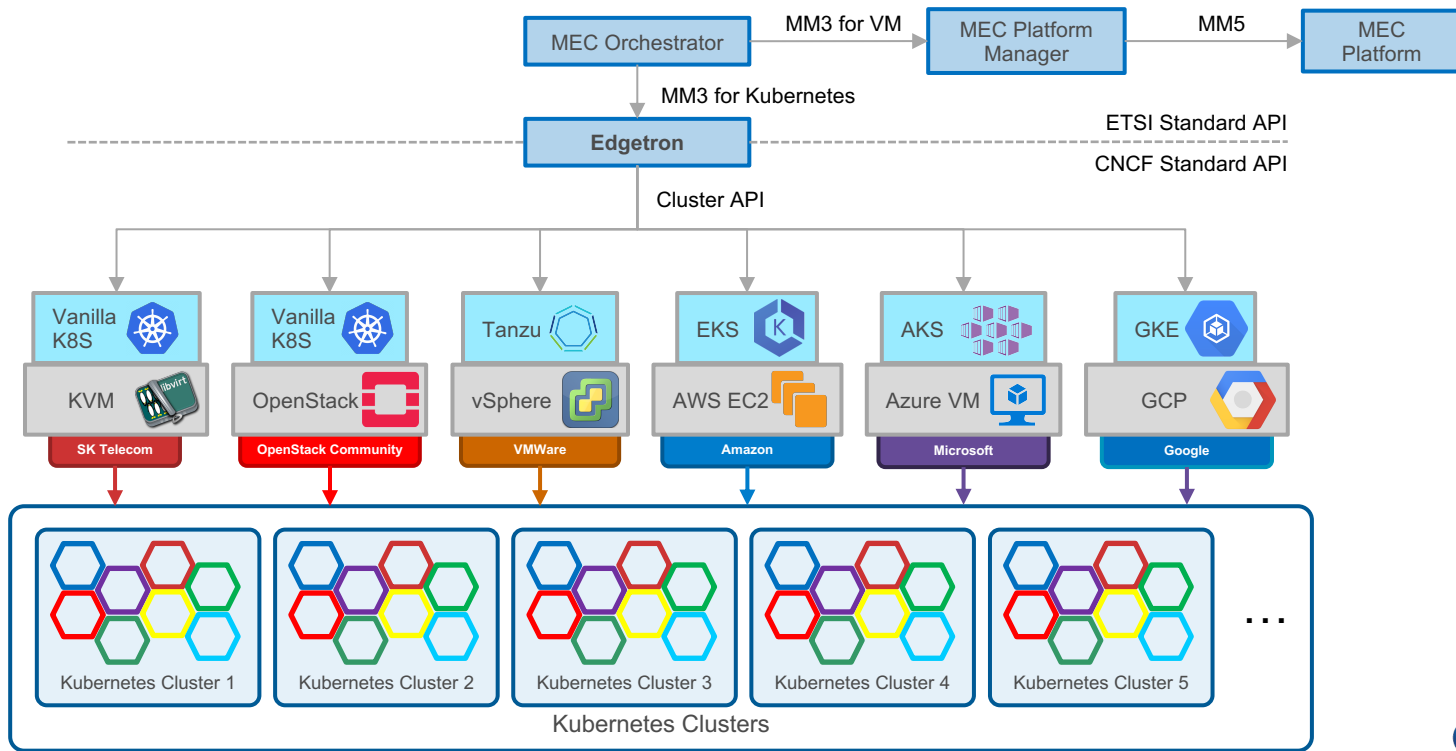
EdgeStack

Provides multi-vendor cloud native software stack optimized for edge
Compatible with ETSI, ONF, CNCF and OIF standard APIs



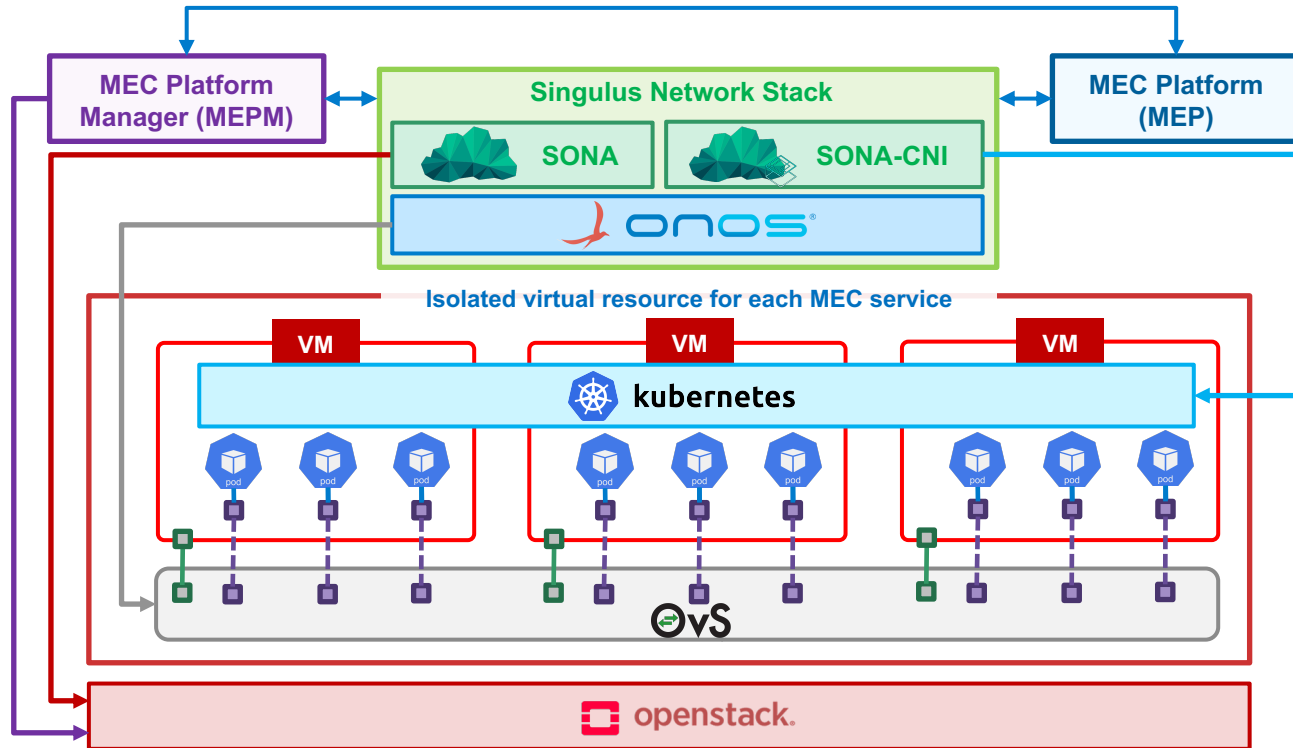
Edgetron

Cloud native resource management for multi-cloud edges
Abstracts provider-specific cluster LCM mechanisms using CNCF's cluster API



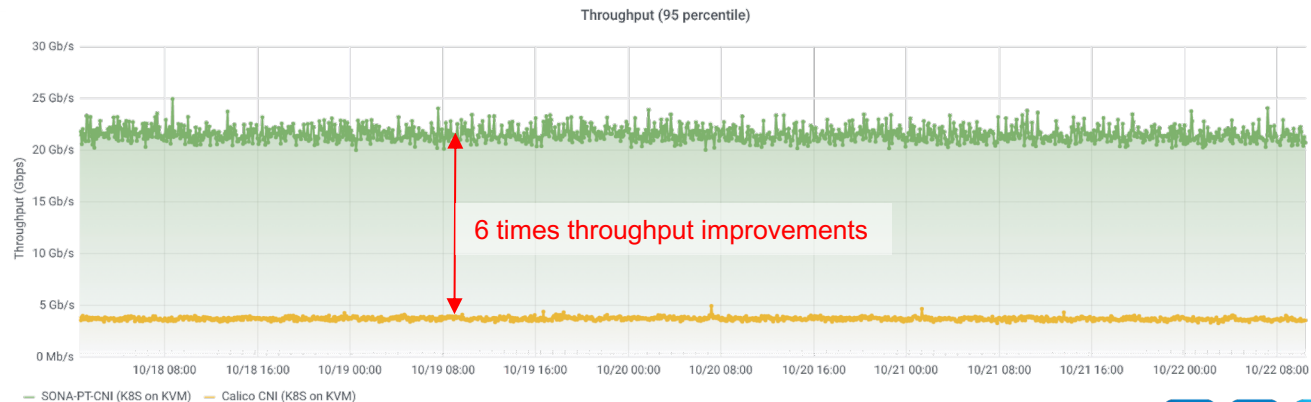
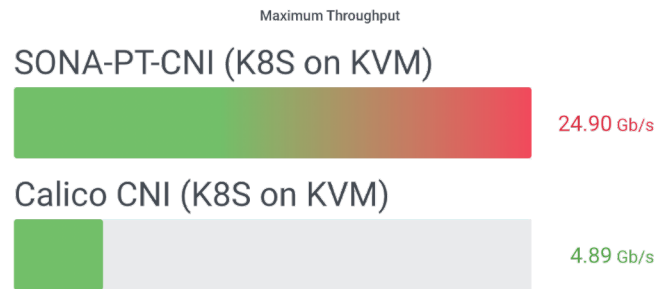
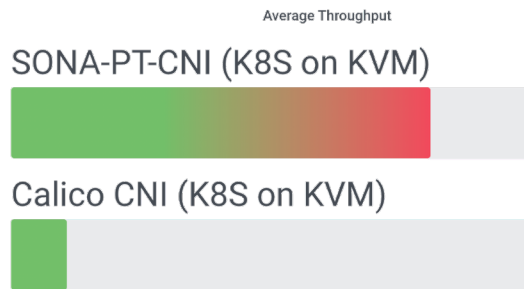
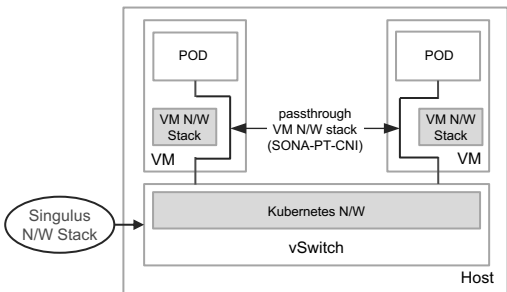
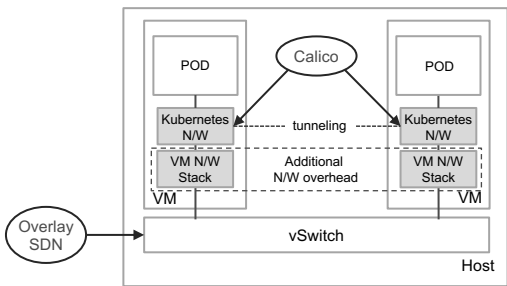
Singulus Network Stack

SDN-based optimized network stack for managed Kubernetes
Unifies VM and container network stacks to maximize network performance



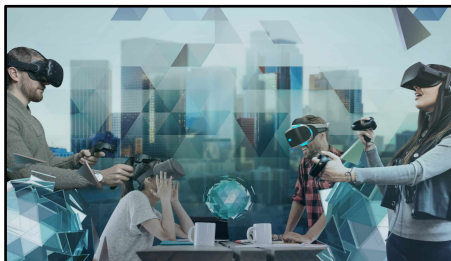
Singulus Network Stack Performance

Offloads the entire Kubernetes network stack from VM to host's vSwitch
Passthrough VM network stack, attaches vSwitch port directly to the container

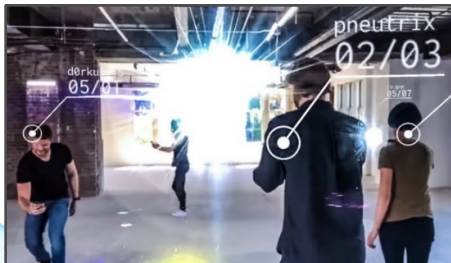


MEC Business Cases

Cloud VR



Massively Interactive AR



Online Education



Smart City



SKT 5G MEC Service

Smart Factory



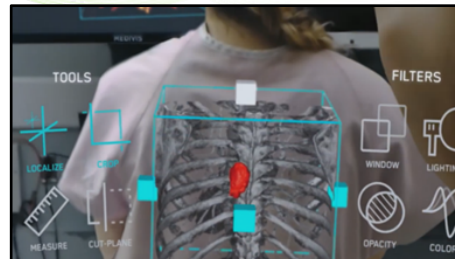
Digital Government



Smart Robot



Smart Hospital



5GX MEC Machine Vision

Using 5G MEC & and Machine Vision to detect product defect

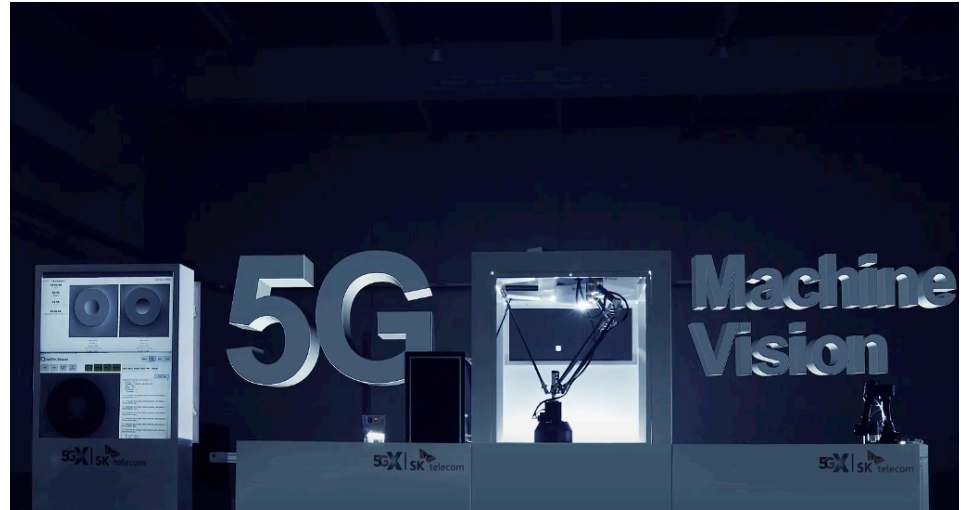
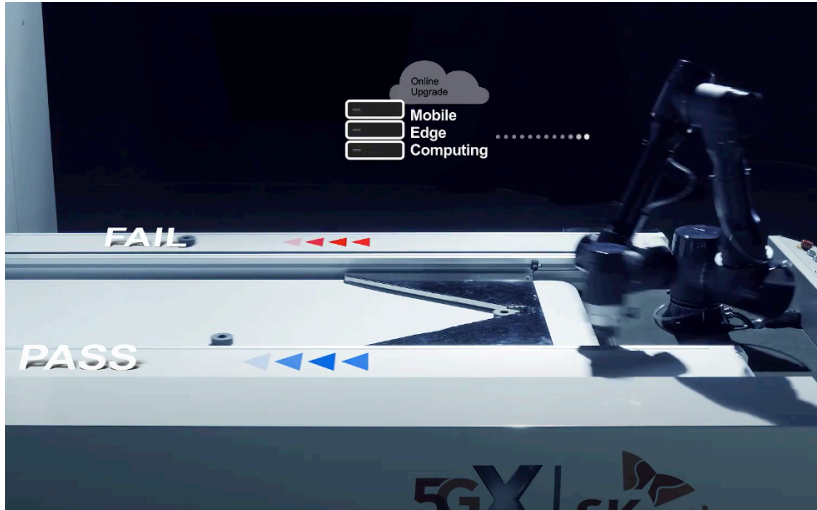
5G
Ultra reliable and low latency

X

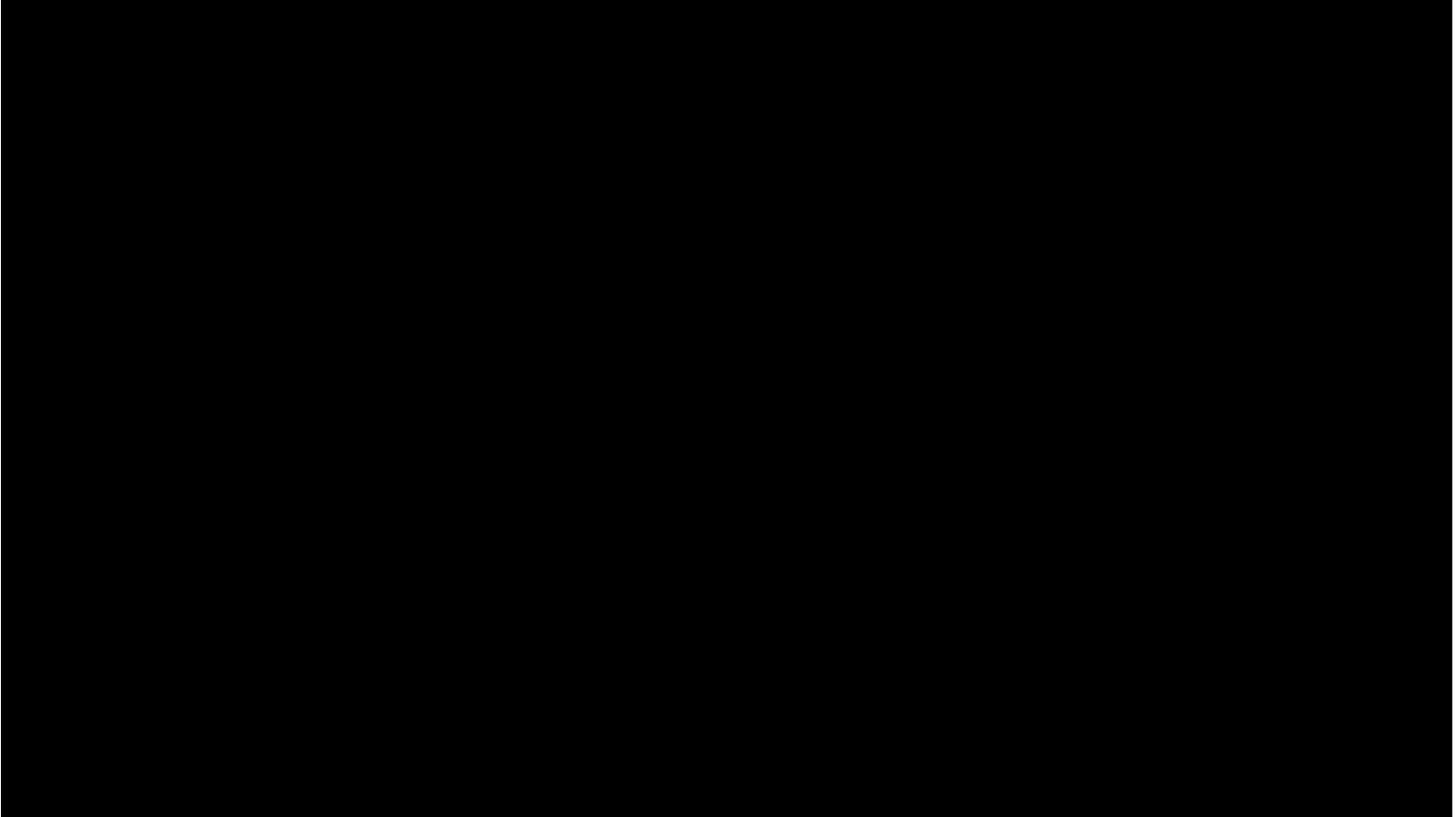
AI
Artificial Intelligence

X

MEC
Mobile Edge Computing



5GX MEC Machine Vision (Illustrative)



Changdeok ARirang



The World First
B2C MEC Service

Using 5G MEC & AR to improve the visitors experience of
palaces with many physical barriers



Haechi, the symbol of Changdeokgung,
a UNESCO heritage, becomes an AR
docent and guides the various places of
the palace through a navigation function



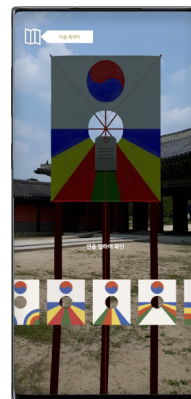
AR Navigation



AR Theater



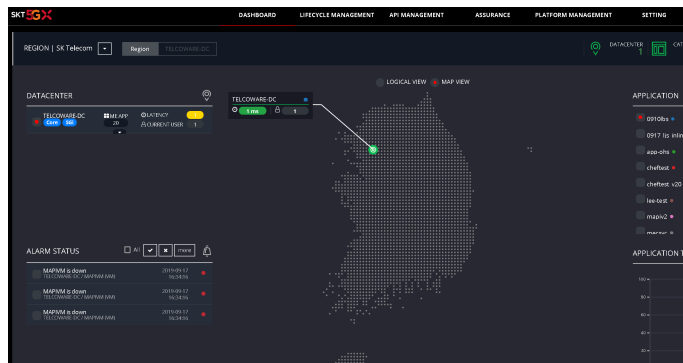
AR Gaming



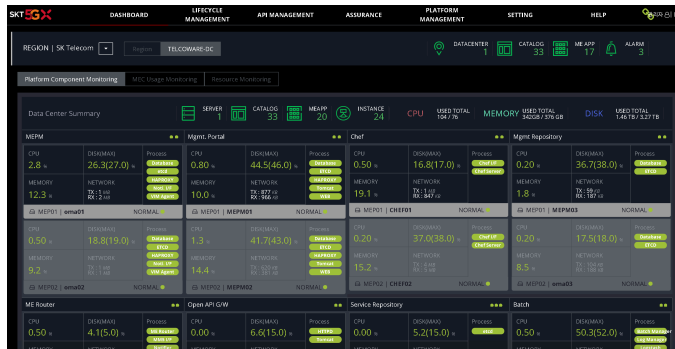
Changdeok ARirang (Demo)



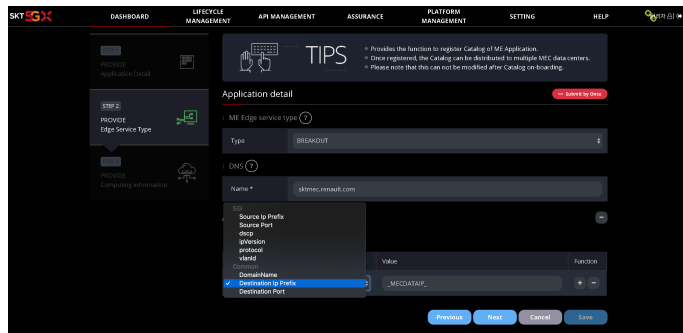
MEC Operation & App Life Cycle Management



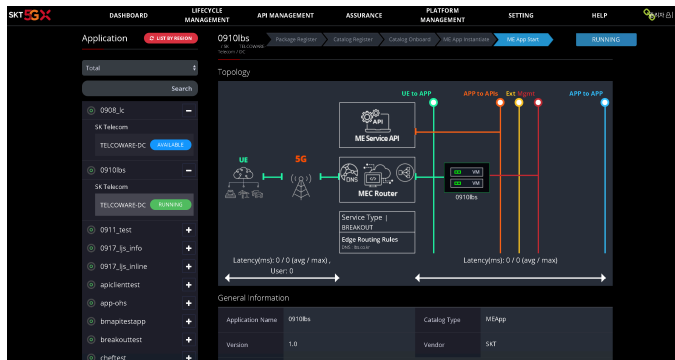
E2E MEC Dashboard



Platform Component Monitoring

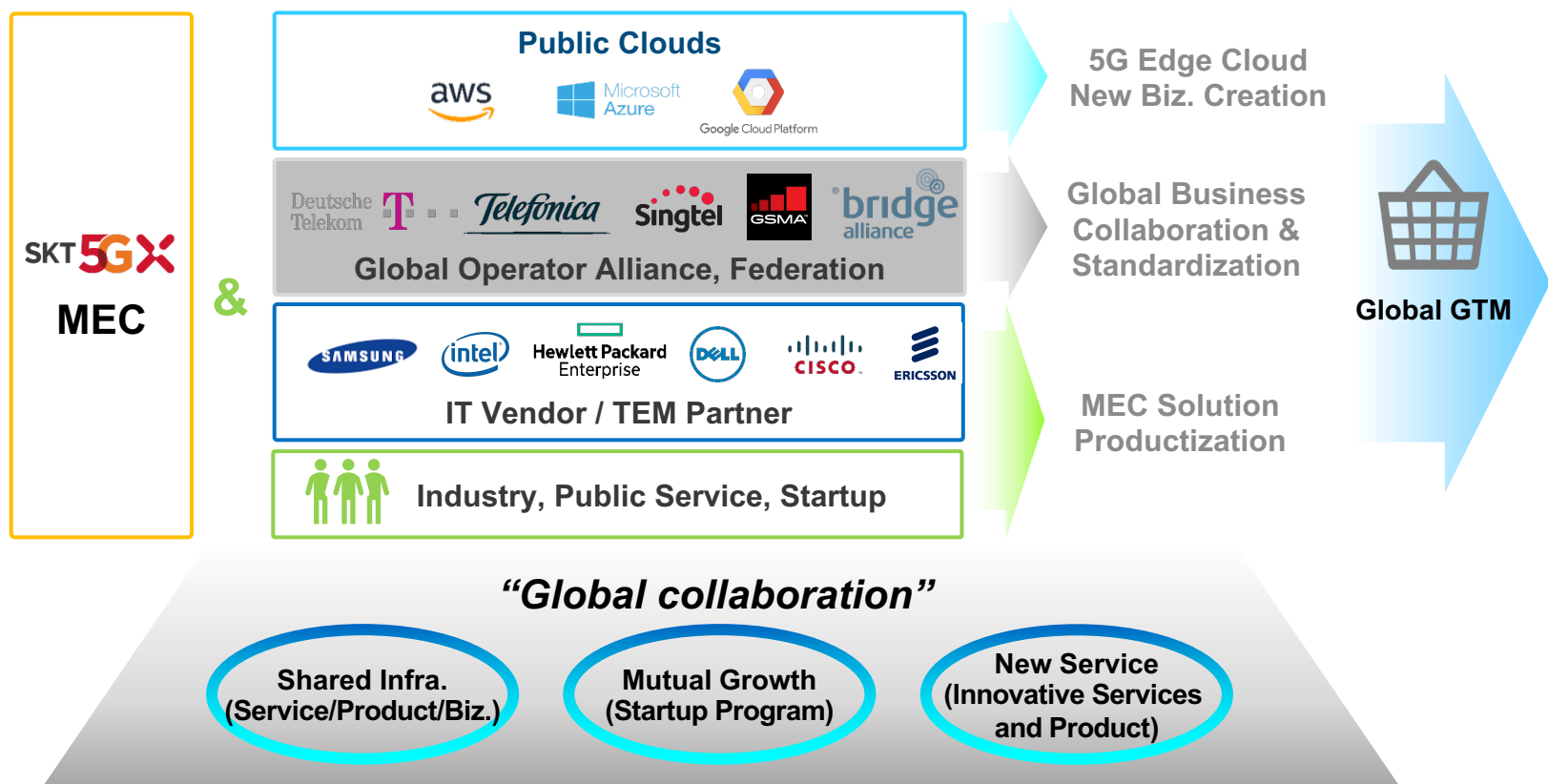


Edge Application On-board
(App metadata, service-type, computing information)



Edge Application Life-cycle Mgmt.

Global MEC Ecosystem



5G MEC: SK Telecom's Status and Plan

Kang-Won Lee



Thank You!



5G World Awards
(‘19.6)
Best Edge Computing
Technology



The Edge Awards
(‘19.9)
The Best Operator Award
for Edge Computing
Development



5G Asia Award
(‘19.9)
Most Innovative 5G
Trial,
Best Network
Virtualization



CommunicAsia
Award (‘20.10)
Most Significant
Contribution to
Edge Computing



World Communication
Award (‘20.10)
The Cloud Native
Award