Consideration on the collaboration between oneM2M and 3GPP
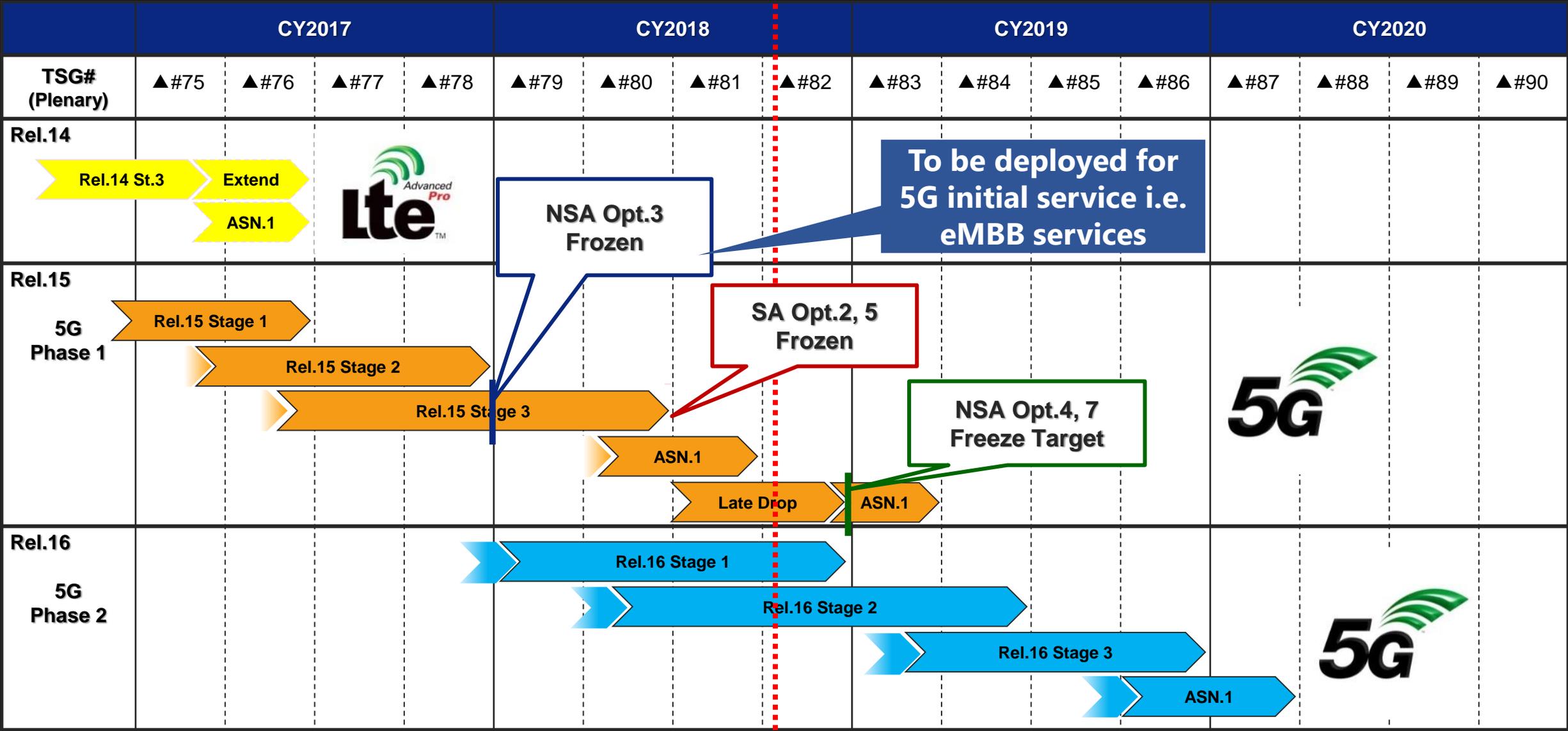
Yusuke Nakano

KDDI Corporation

3GPP TSG-SA Vice-chairman

Agenda

1. Introduction – 5G overview
2. Key Enablers of 5G for Cross-Industry Collaboration
3. Expectation of oneM2M in 5G era

1. Introduction – 5G overview

3GPP Work plan

Potential of 5G

✓**Start with eMBB**

- **Creating new experience value for consumers**
- **Proper evolution of 4G**

✓**Enterprise services**

- **Varieties of collaboration with cross-industry partners transform business**
- **Essential value of 5G**

PoC to develop Use Scene with 5G

Stadium Entertainment

Construction by ICT

High-definition Video Transmission

Advanced Security System

Simultaneous video streaming service

Remote operation of heavy machinery with high-definition video

8K video transmission in mobile

Data relay by wearable devices

2. Key Enablers of 5G for Cross-Industry Collaboration

Key Enablers of 5G for Cross-Industry Collaboration

- ✓ **End to End Network Slicing**
- ✓ **Exposure Function in 5GS**
- ✓ **Enhancement for Edge Computing**

Key Enablers of 5G for Cross-Industry Collaboration

✓**End to End Network Slicing**

✓**Exposure Function in 5GS**

✓**Enhancement for Edge Computing**

What is Network Slicing?

✓ **The technology to provide optimized functions and quality according to a use-case through logically isolated network**

✓ **Requirements like;**

- Communication with high throughput

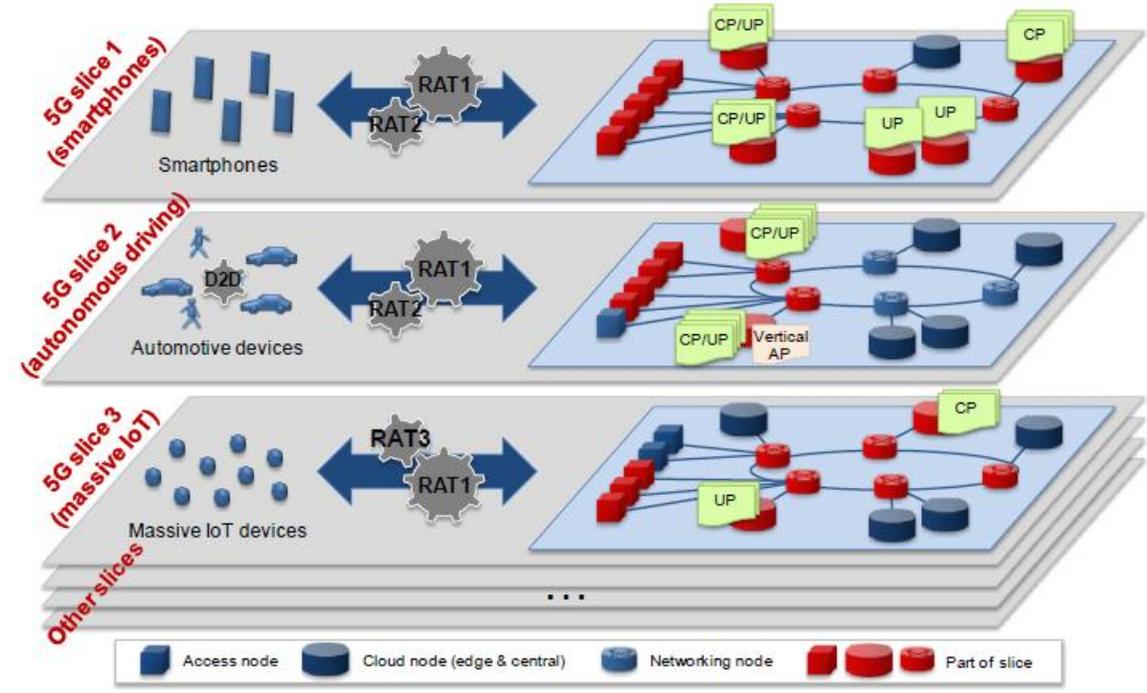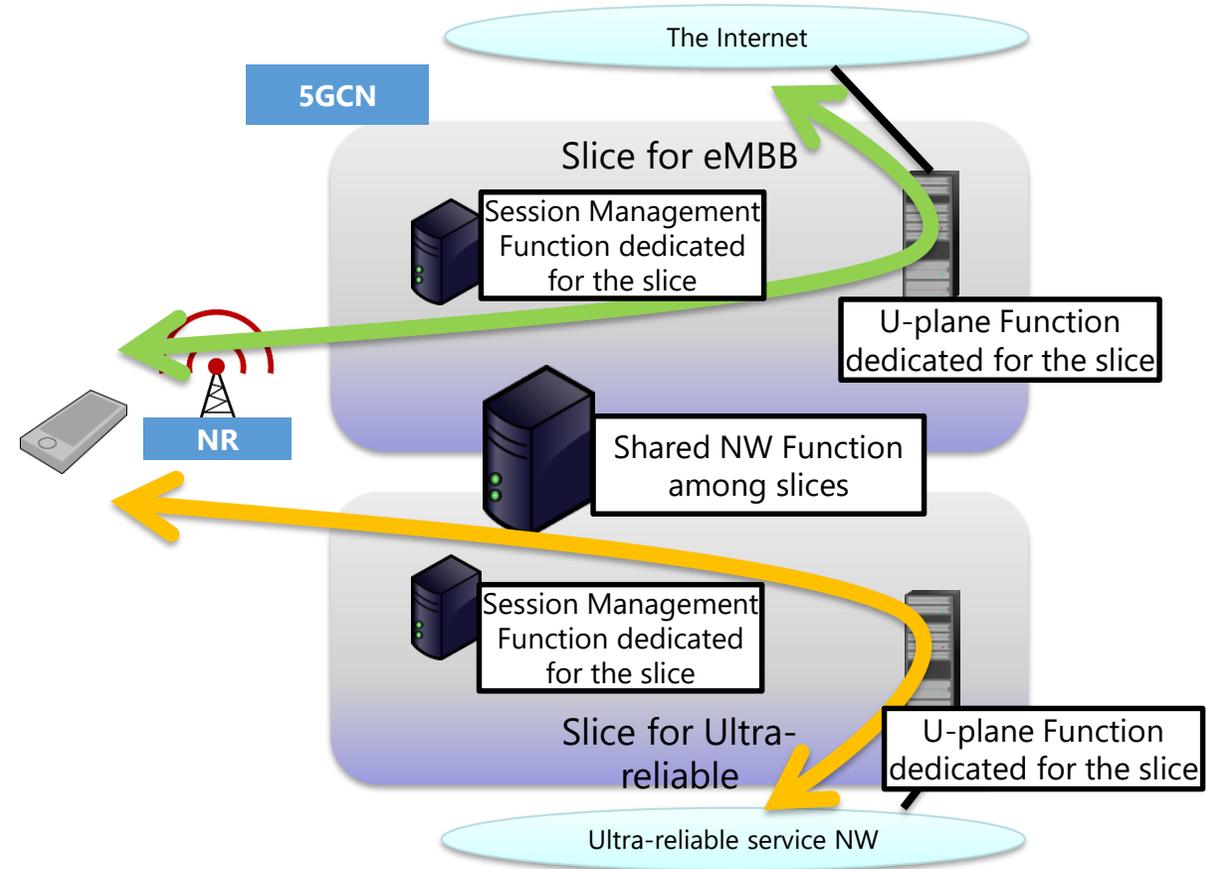- Collection of massive sensor information

- To use secure mobile VPN

Figure 9: 5G network slices implemented on the same infrastructure

Source: NGMN 5G WHITE PAPER V1.0

End to End Network Slicing

✓5G Network Slicing

- Resource isolation from other service ->No service impact caused by other slices failure

- Customized NW functions and/or capacities to ensure SLA

The Internet

5GCN

Slice for eMBB

Session Management Function dedicated for the slice

U-plane Function dedicated for the slice

NR

Shared NW Function among slices

Session Management Function dedicated for the slice

Slice for Ultra-reliable

U-plane Function dedicated for the slice

Ultra-reliable service NW

Key Enablers of 5G for Cross-Industry Collaboration

✓ End to End Network Slicing

✓ **Exposure Function in 5GS**

✓ Enhancement for Edge Computing

Exposure Function in 5GS

- ✓ **Network Exposure Function (NEF) supports;**
  - Expose NW capabilities, events and information provided by 3GPP NFs to AF
  - Provide means for the AF to provide information to 3GPP NW

- ✓ **APIs specified in SCEF are supported (see the table)**
- ✓ **RESTful API and Open API**
- ✓ **Enhancement for Slicing and access to UDR (Unified Data Repository)**

| |
|---|
| **Monitoring** |
| **Device Triggering** |
| **Resource Mgmt of Background Data Transfer** |
| **CP Parameters Provisioning** |
| **PFD Management** |
| **Changing the Chargeable Party at session set up or during the session** |
| **Setting up an AF session w/ required QoS** |

Key Enablers of 5G for Cross-Industry Collaboration

✓ **End to End Network Slicing**

✓ **Exposure Function in 5GS**

✓ **Enhancement for Edge Computing**
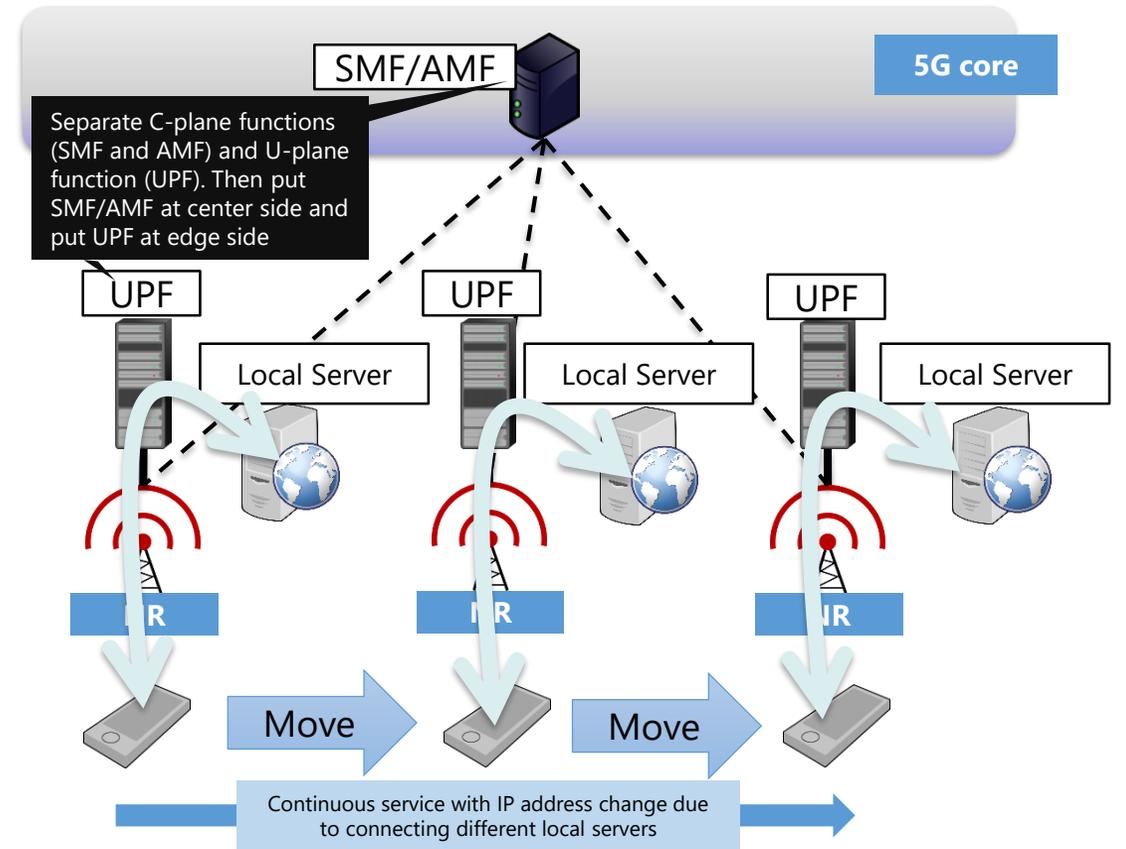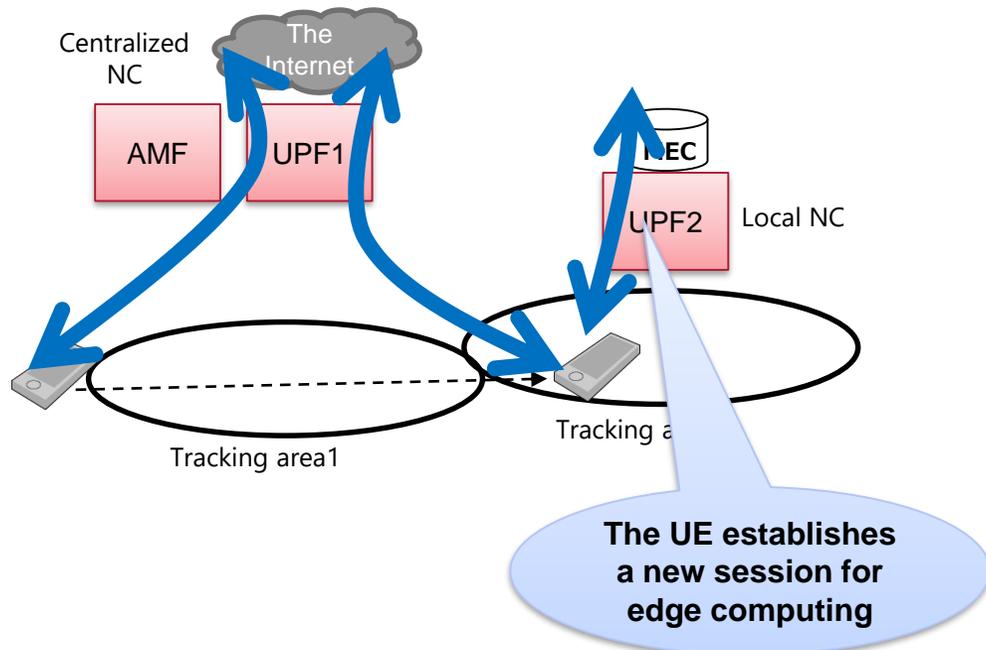
Enhancement for Edge Computing

- ✓ **Put UPF edge site and locally break out the data**
- ✓ **Edge cloud provides locally optimized services based on subscriber's profile**
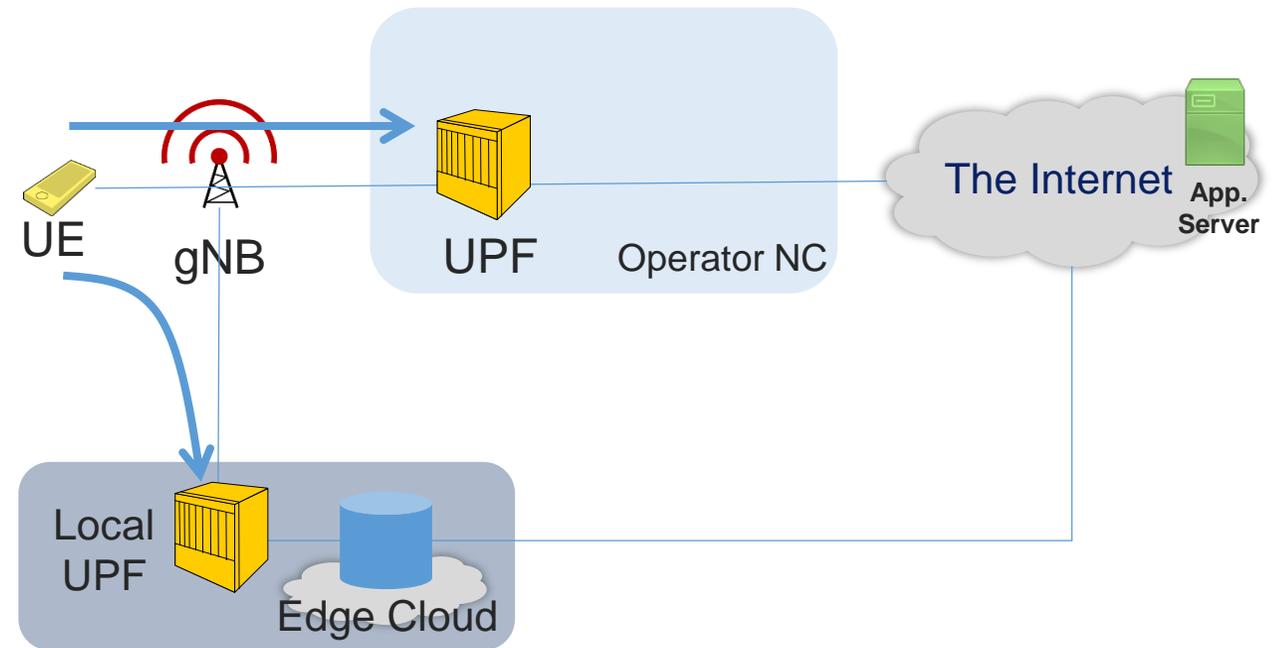
Enhancement for Edge Computing

- ✓ **Indication of the network to connect**

- ✓ **Session establishment based on UE location**

- ✓ **Session and Service Continuity by 3 types of SSC mode**

Centralized NC

The Internet

AMF   UPF1

MEC

UPF2   Local NC

Tracking area1

Tracking a...

The UE establishes a new session for edge computing

SMF/AMF

5G core

Separate C-plane functions (SMF and AMF) and U-plane function (UPF). Then put SMF/AMF at center side and put UPF at edge side

UPF   UPF   UPF

Local Server   Local Server   Local Server

NR   NR   NR

Move   Move

Continuous service with IP address change due to connecting different local servers

3. Expectation of oneM2M in 5G era

Expectation of oneM2M in 5G era

- ✓ **Enabler of cross-industry Collaboration**
  - **Universal management of Massive information data**
 - **Gateway between Access NW e.g. 3GPP and Upper layer application systems**
- ✓ **Diversified Data/Information Management**
  - **Flexible location of oneM2M PF correspond to Edge Computing Environment**

Expectation of oneM2M in 5G era

✓**Interworking with 3GPP system**

① Interworking via API of 3GPP defined exposure feature, i.e. NEF and SCEF

② Interworking via MEC-API

③ Edge/Fog computing of oneM2M PF
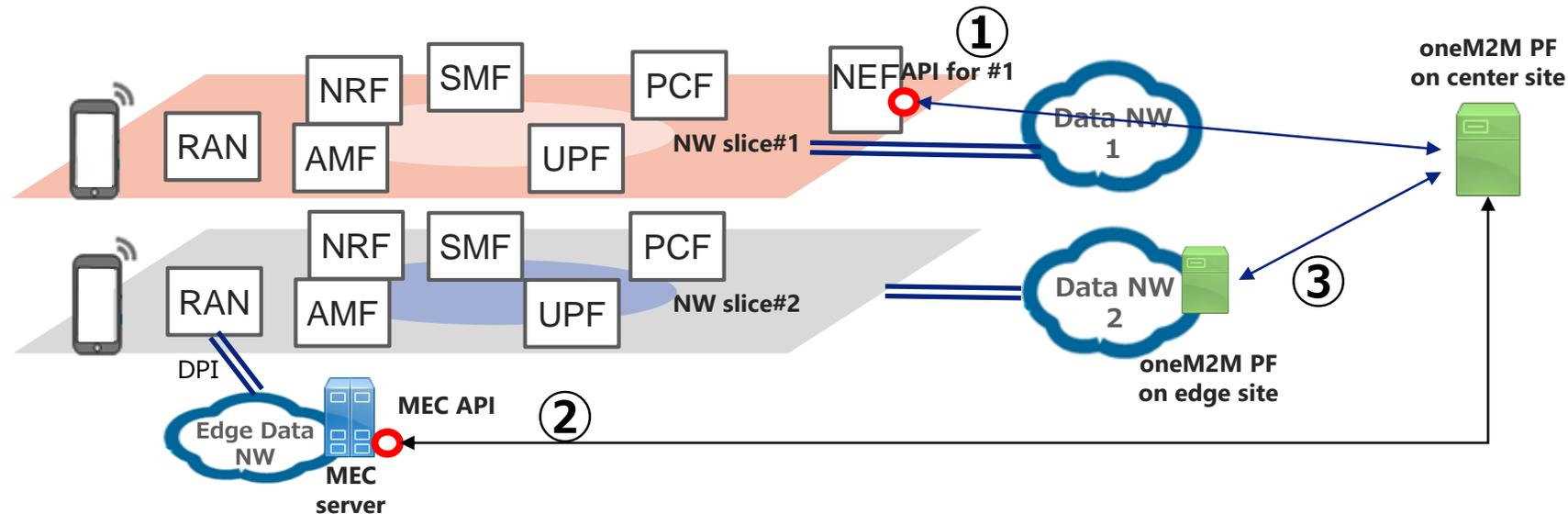
Conclusion

- ✓ **Potential of 5G**
  - Application for Enterprise business
- ✓ **Key Enablers of 5G for Cross-Industry Collaboration**
  - End to End Network Slicing
  - Exposure Function in 5GS
  - Enhancement for Edge Computing
- ✓ **Expectation of oneM2M in 5G era**
  - 3GPP Interworking and Edge/Fog Computing

From
"Communication Carrier"
to
"Partner to co-create new value"

To be a Company that
Consumers can feel closest to
and
Continues to Produce Excitement