

Document No:	GSC-19_305b
Source:	5GMF
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Agenda Item:	5.6 Strategic Topic #3:IMT-2020/5G

5G Mobile Network R&D In Japan

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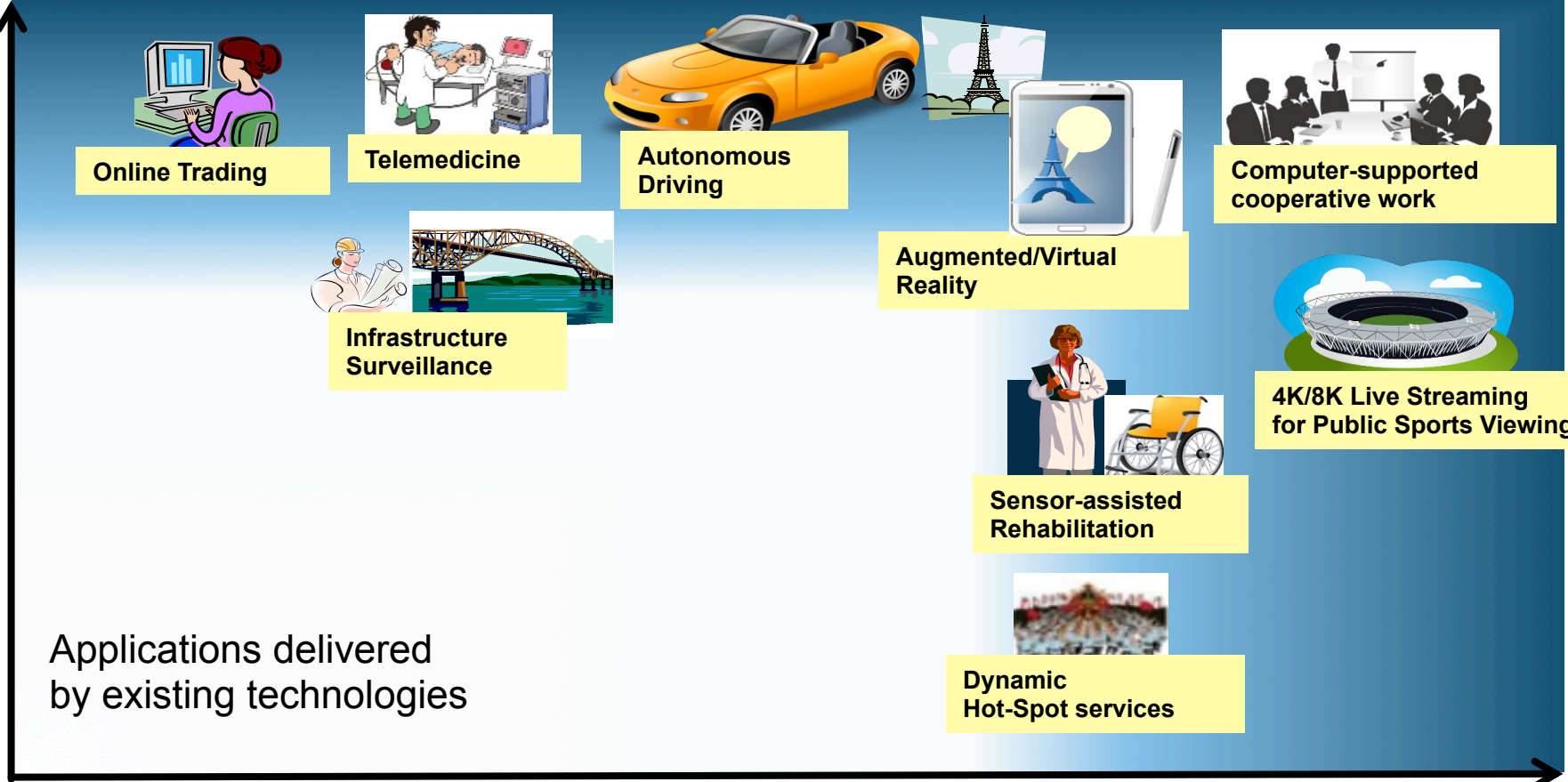
Activities of Network Architecture Committee of 5GMF

- **5GMF Network Architecture Committee** has been studying overall network architecture for 5G mobile
- Challenges, requirements and technologies for network infrastructure have been discussed to develop the Network Technology Roadmap
- The first version of the network architecture and the network technology roadmap has completed by the end of June, 2015.
- Outcome of the committee will be included in the 5GMF white paper, which will be released in Autumn, 2015.

Potential Applications Enabled By 5G

Applications enabled by 5G

Quality
of
User Experience
(Reliability,
Low Latency)



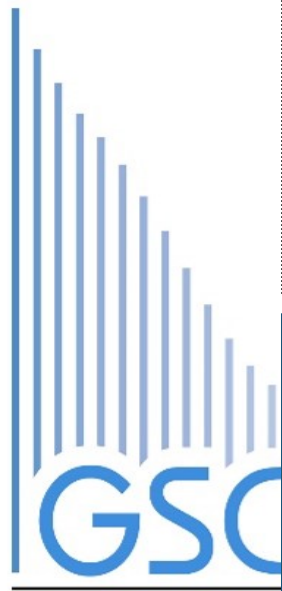
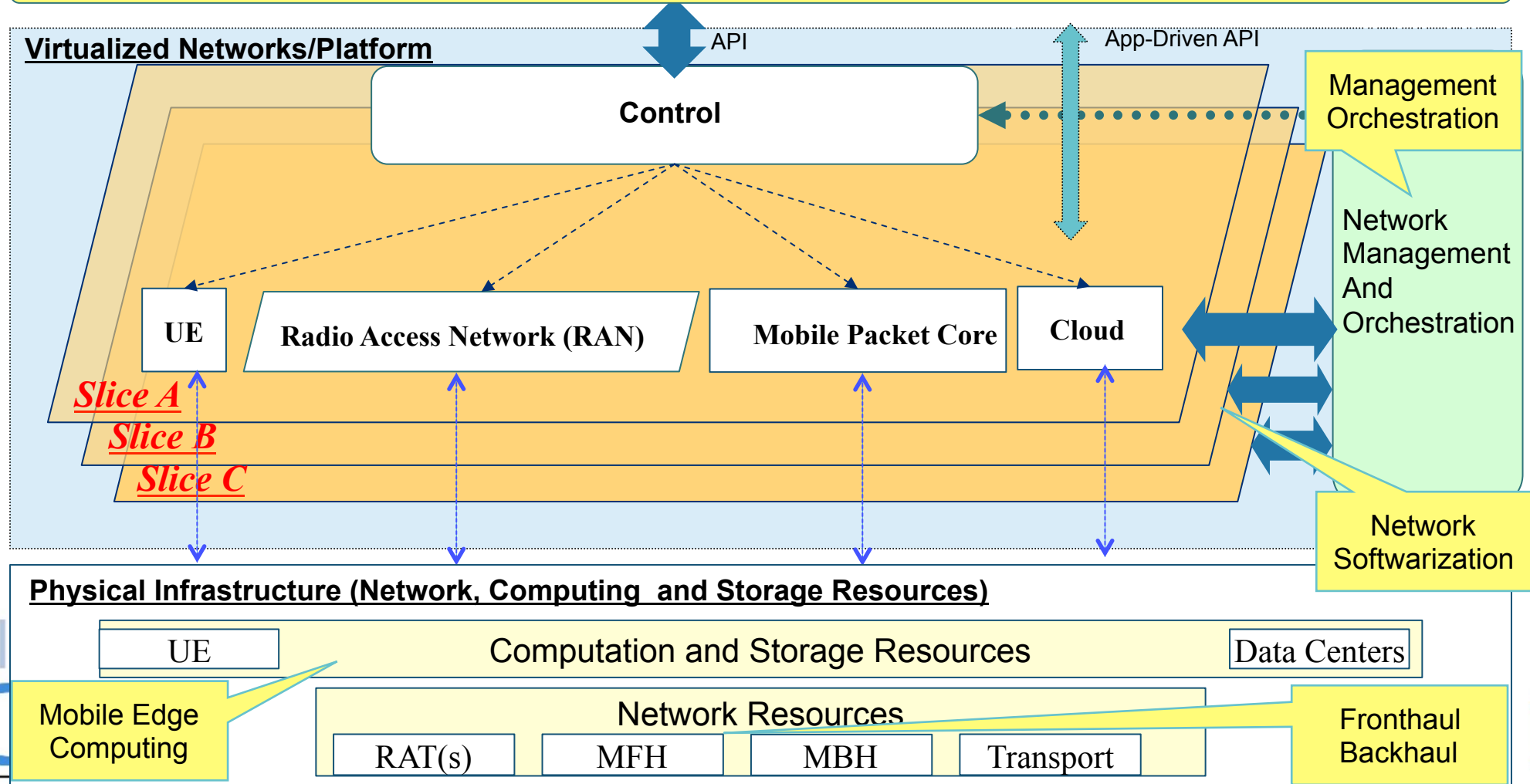
Quantity of Data
(Peak Data Rate, Number of Devices)

Comprehensive Architecture of 5G Mobile Networks

(Draft 150618)

Goal : End-to-End Quality and Extreme Flexibility to Accommodate Various Applications

Applications & Services with Various Requirements (M2M/IoT, Content Delivery, Tactile)



Technology Roadmap: Focus Areas

Requirements

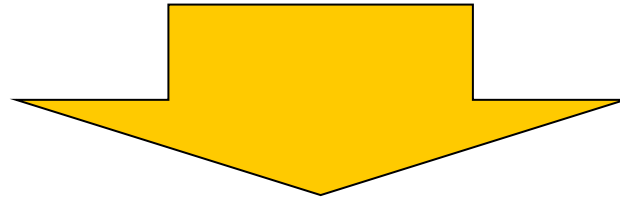
End-to-end Quality of 5G Applications

Extreme Flexibility

Latency

Data rate

Number of Devices



Focus Areas
and Themes

Network Softwarization

(Deep) Programmability

Application Driven

Multi-Tenancy

Fronthaul / Backhaul

Low Latency

Data Isolation

Management / Orchestration

Automation

Intelligence

Autonomy

Analytics

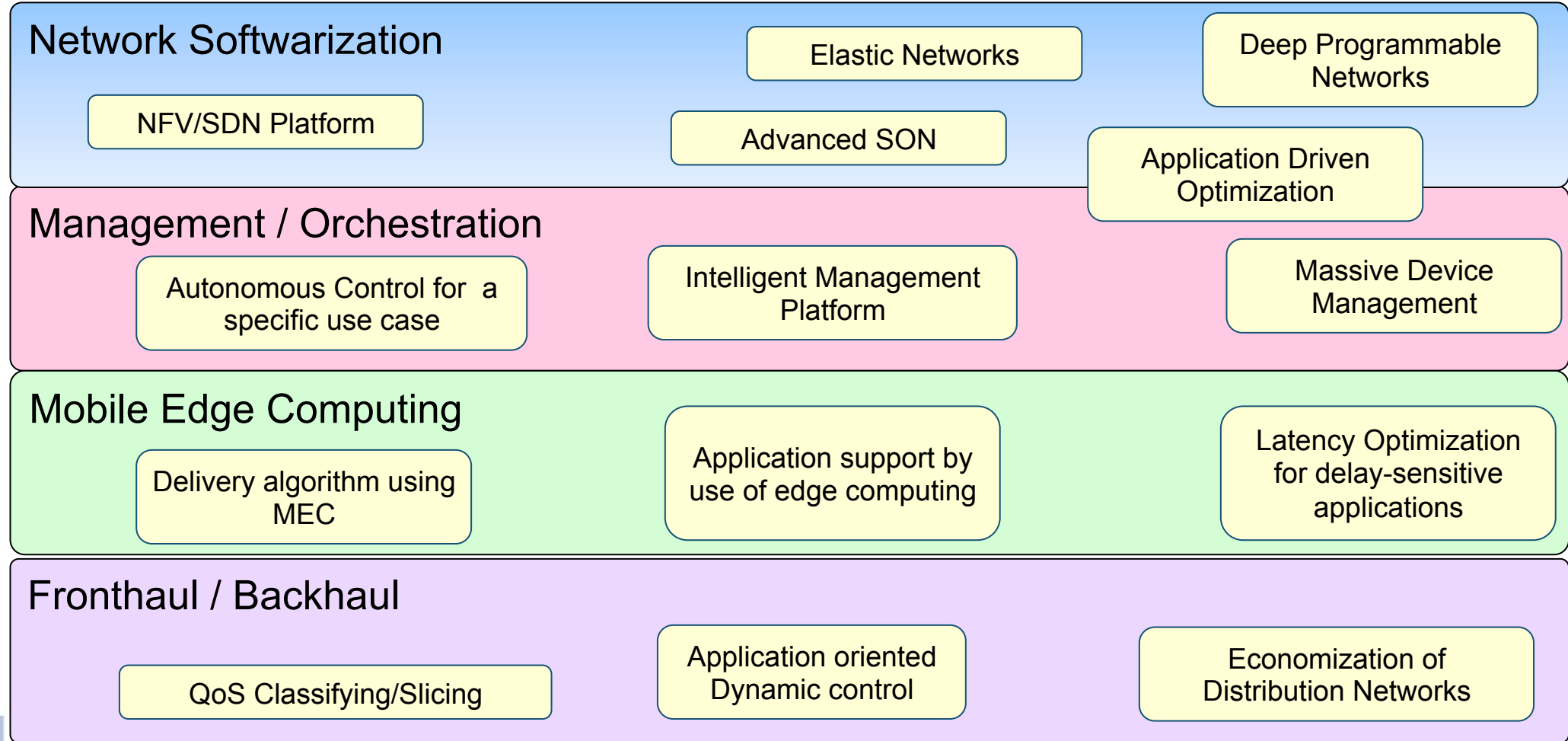
Knowledge

Edge Security

Mobile Edge Computing

Technology Roadmap: Timeline

(Draft 150618)



Network Softwarization

The terminology, Network Softwarization, was first introduced in Academia, as the name of conference [1], to include broader interests regarding Software Defined Networking and Network Functions Virtualisation, Network Virtualization, Mobile Edge Computing, Cloud and IoT technologies.

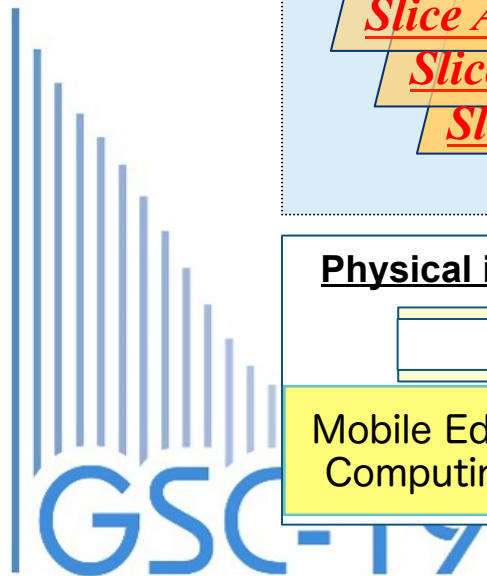
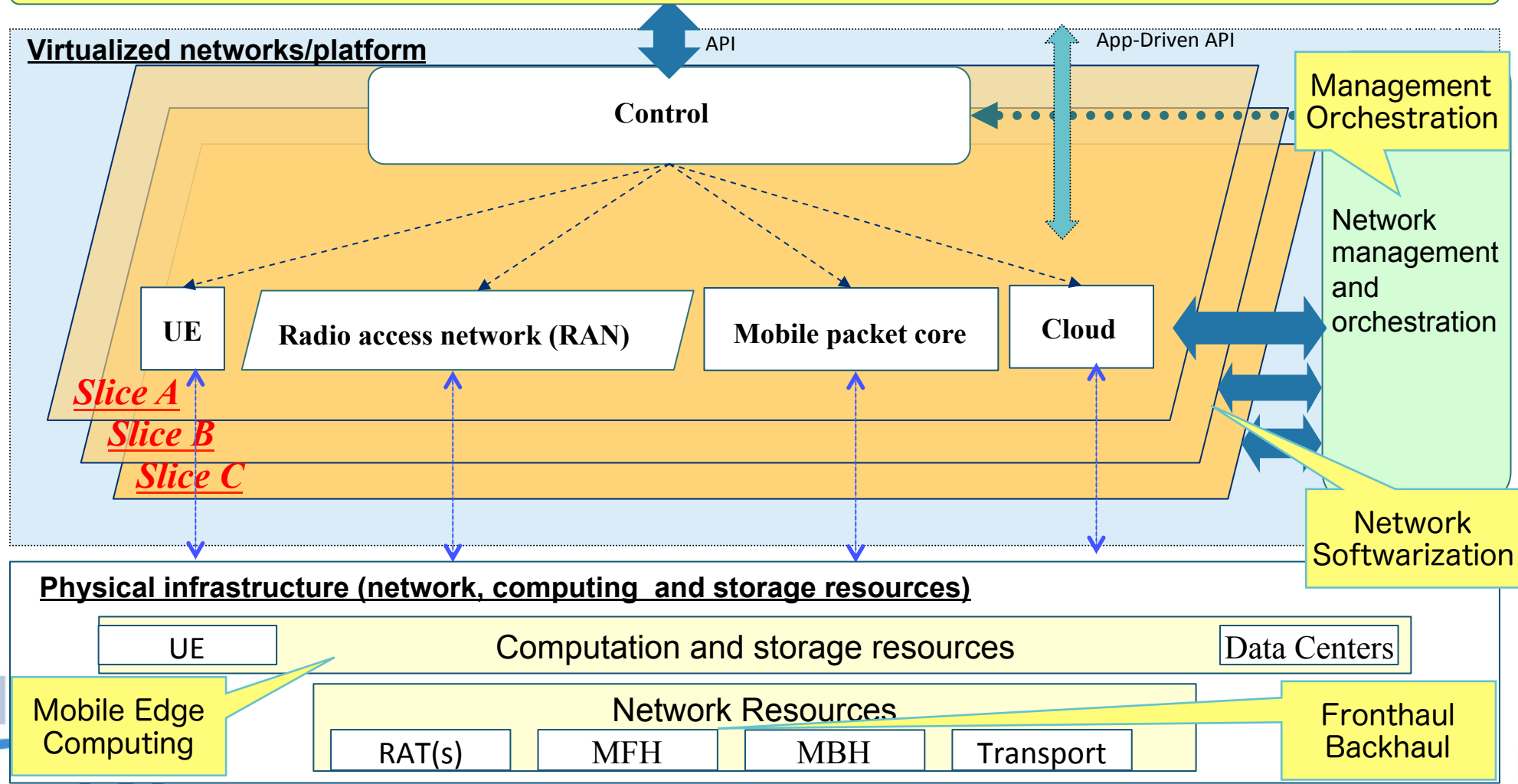
We intend to introduce various requirements of programmable software defined infrastructure, especially specific extension for 5G mobile networks

Comprehensive Architecture Of 5G Mobile Networks

Comprehensive Architecture of 5G Mobile Networks

Goal : End-to-End Quality and Extreme Flexibility to Accommodate Various Applications

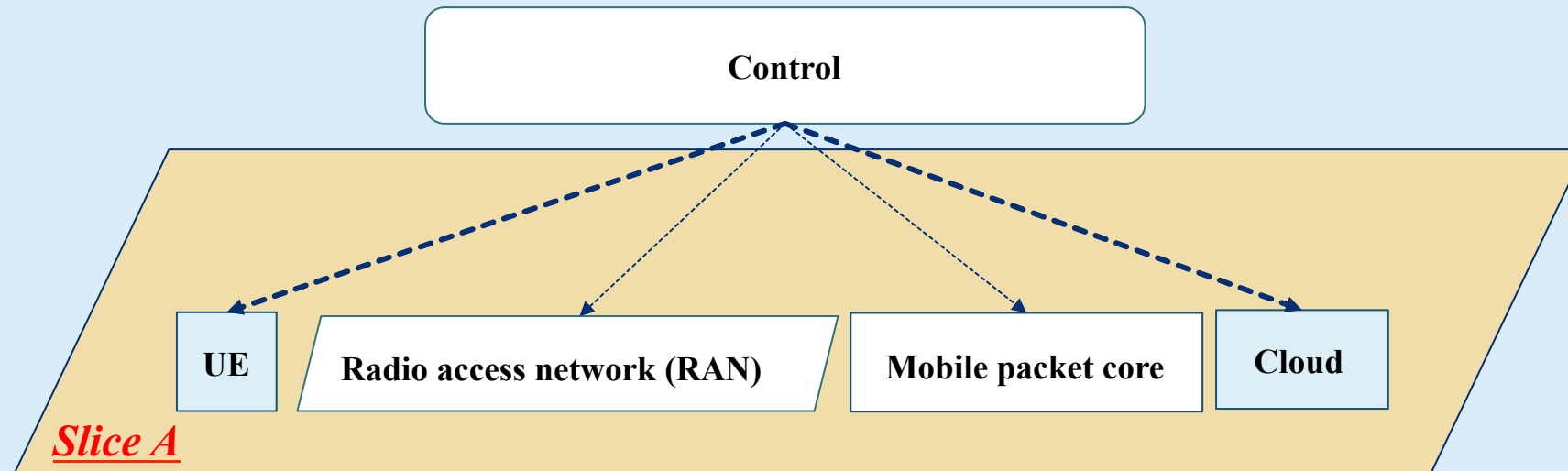
Applications & Services with various requirements (M2M/IoT, Content delivery, Tactile)



Horizontal Extension of SDN/NFV Slicing

Applications & Services (M2M/IoT, Content delivery, Tactile)

Virtualized networks/platform

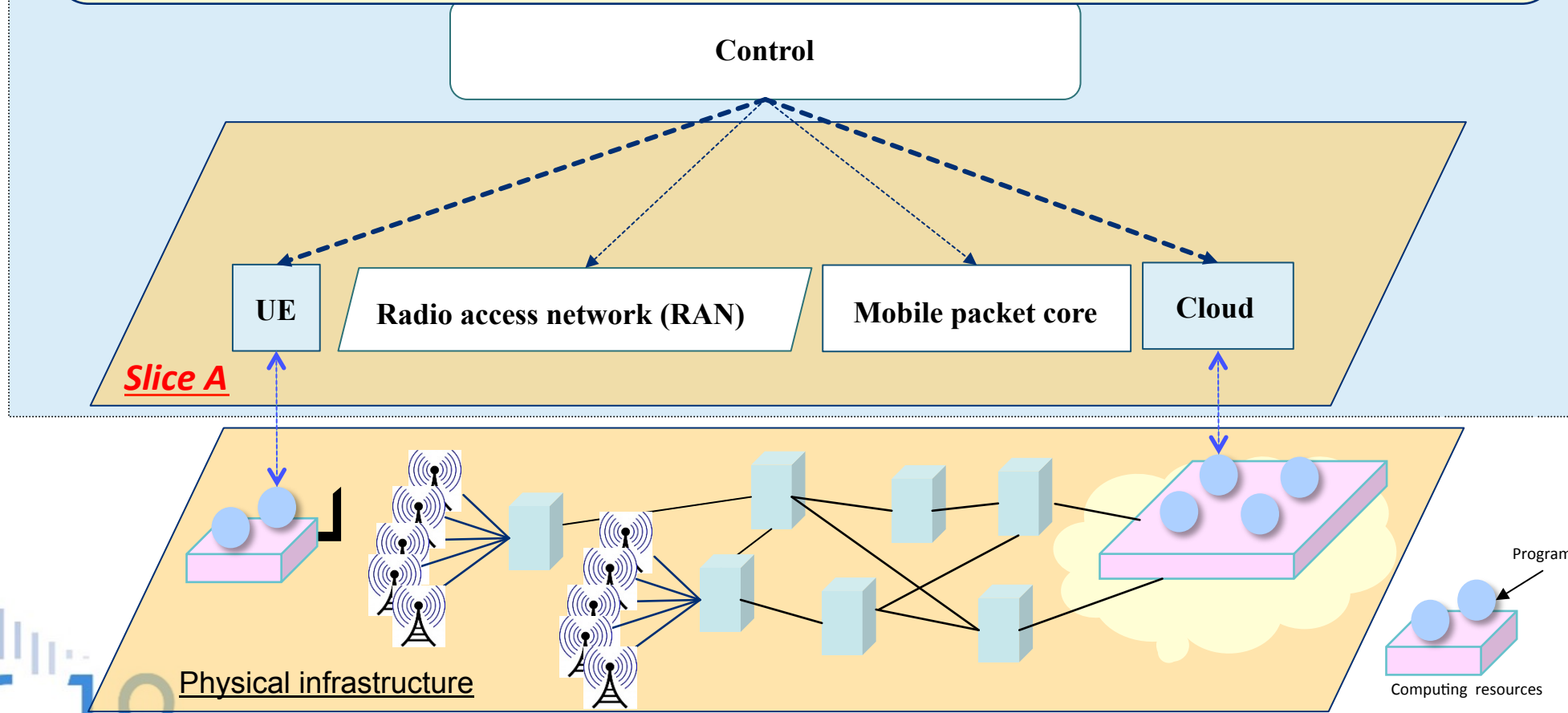


The “Control” function block manages all aspects necessary to run an application and service provided by this slice. It encompasses not only the legacy network related software functions, but also the application related functions in the UE and the Cloud.

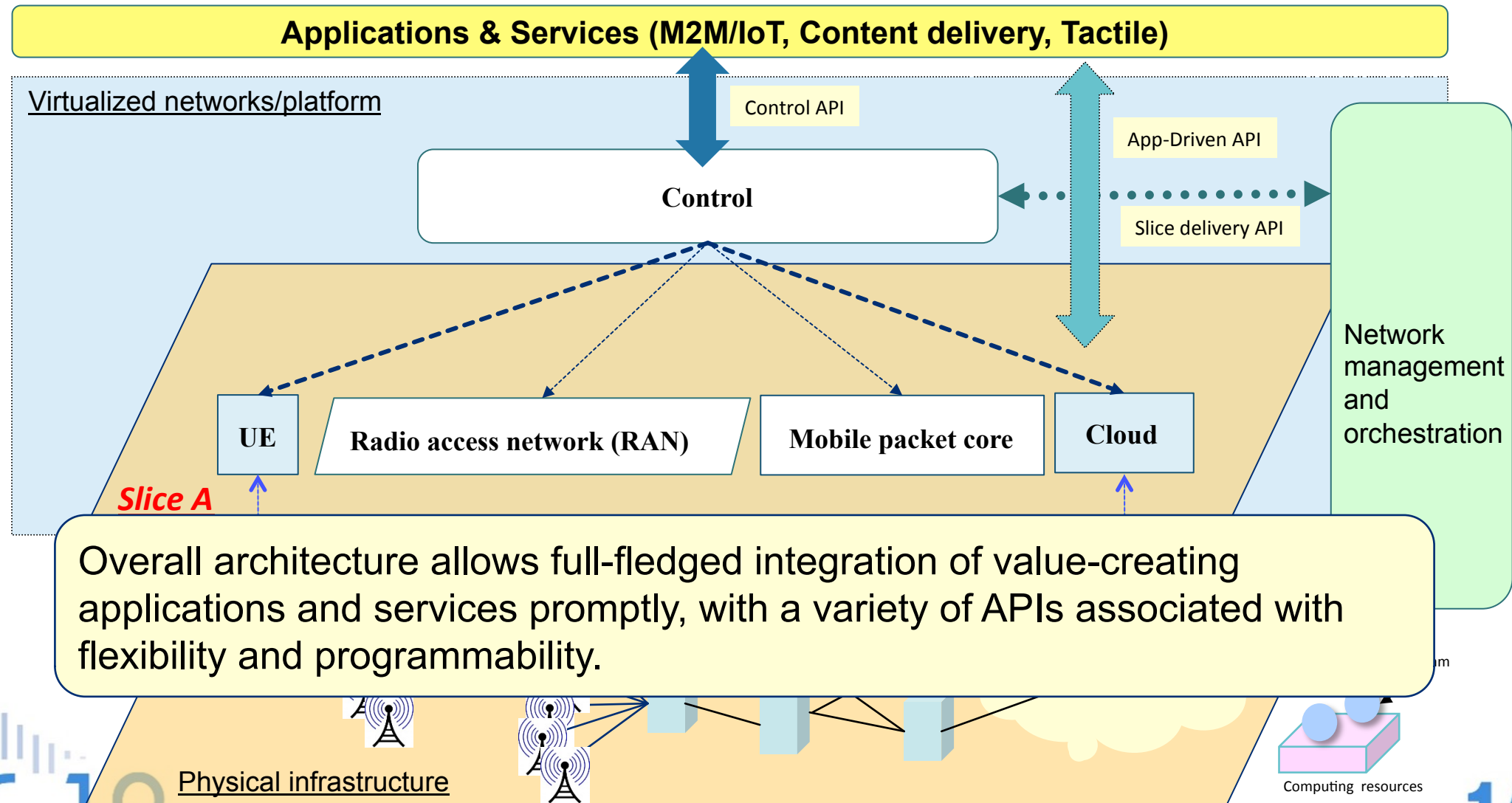
Vertical Extension of SDN/NFV Slicing (Deep Data-Plane Programmability)

Advanced physical infrastructure provides data-plane programmability along end-to-end paths. The slice control is able to leverage the capability to compose custom functions for creating new applications and services

Vi



Application-Driven Software Define Infrastructure



TTC Ad-hoc Group on Future Mobile Networking -Challenges and Technologies-

The Telecommunication
Technology Committee (TTC)

TTC's White Paper now available!

<http://www.ttc.or.jp/e/topics/20150413/>

Summary

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