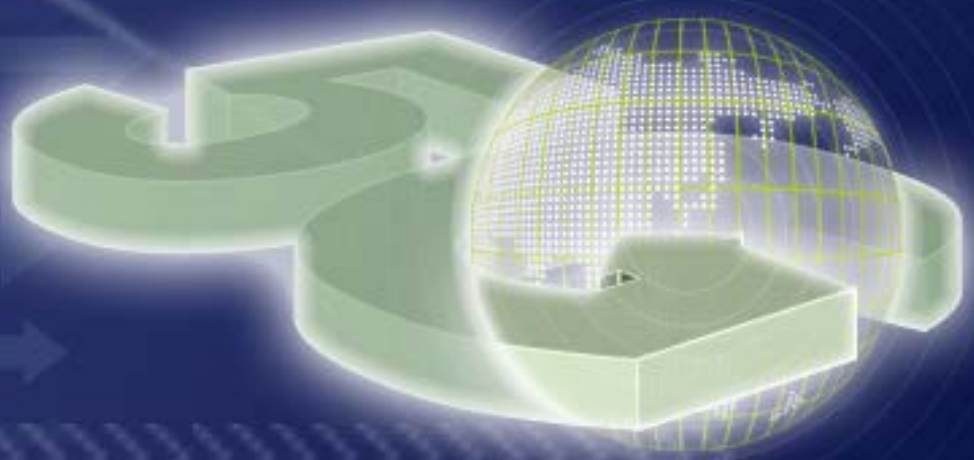
Overview of 5GMF Current Activities

Kohei Satoh
Secretary General of 5GMF
satoh@arib.or.jp

The Second Global 5G Event
Rome Marriott Park Hotel, Italy, 9 Nov. 2016



5GMF
The Fifth Generation Mobile Communications Promotion Forum

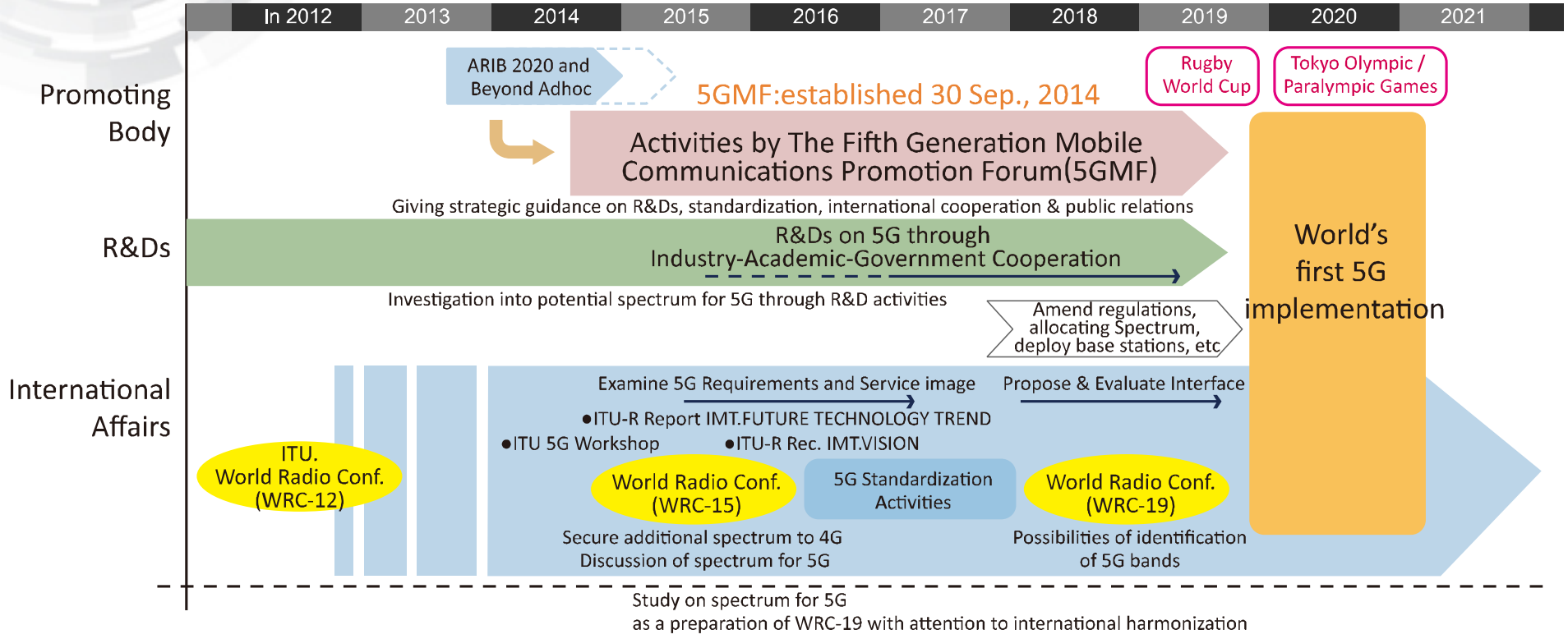
Contents

5GMF
The Fifth Generation Mobile Communications Promotion Forum

1

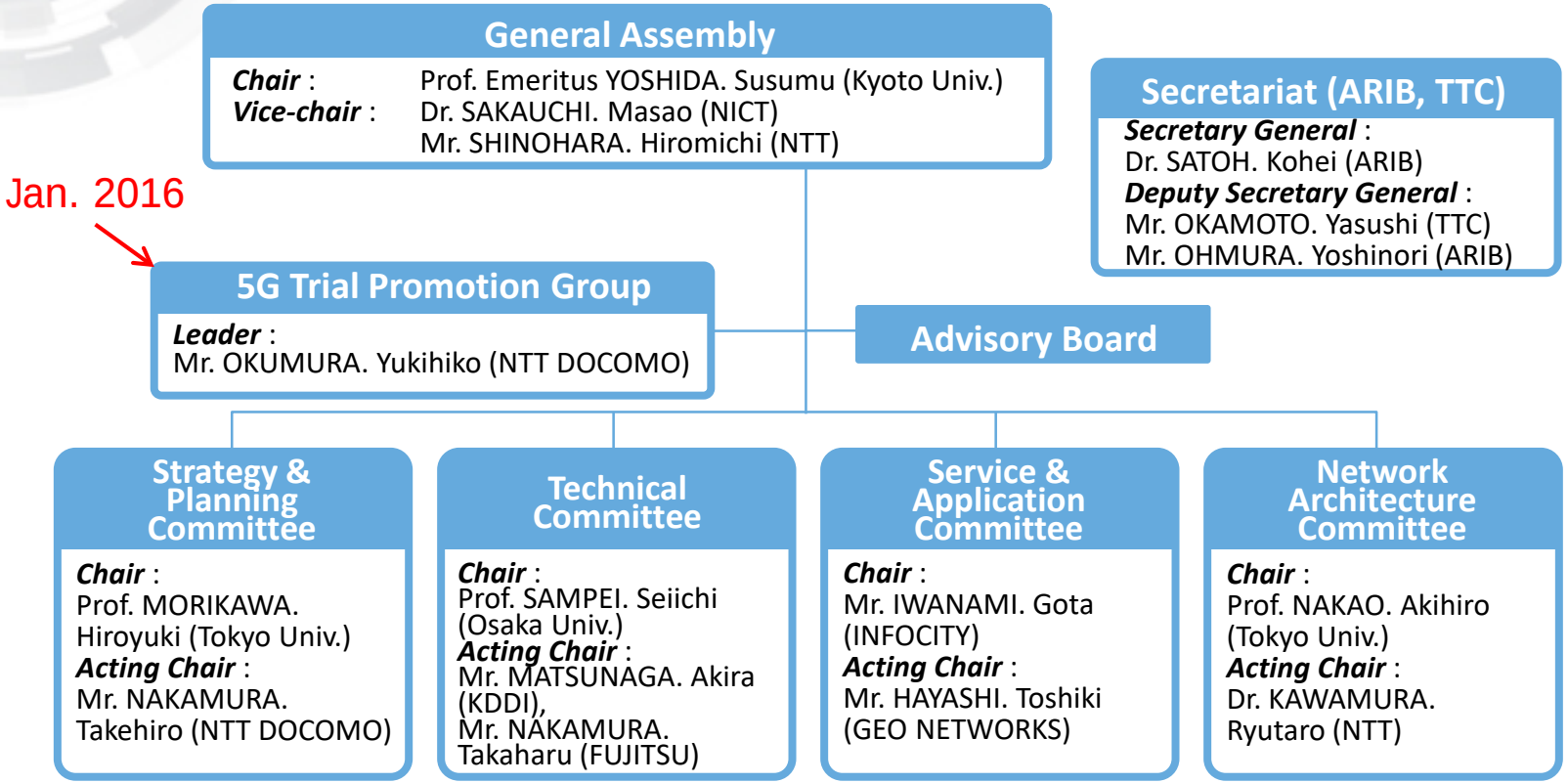
Overview of 5GMF

Roadmap towards implementation on 5G Mobile in Japan



Translated from "Final Report from the Radio Policy Vision Council", Ministry of Internal Affairs and Communications, Japan, December 2014.

Organizational Structure of 5GMF



Action plan (mid-term) of 5GMF

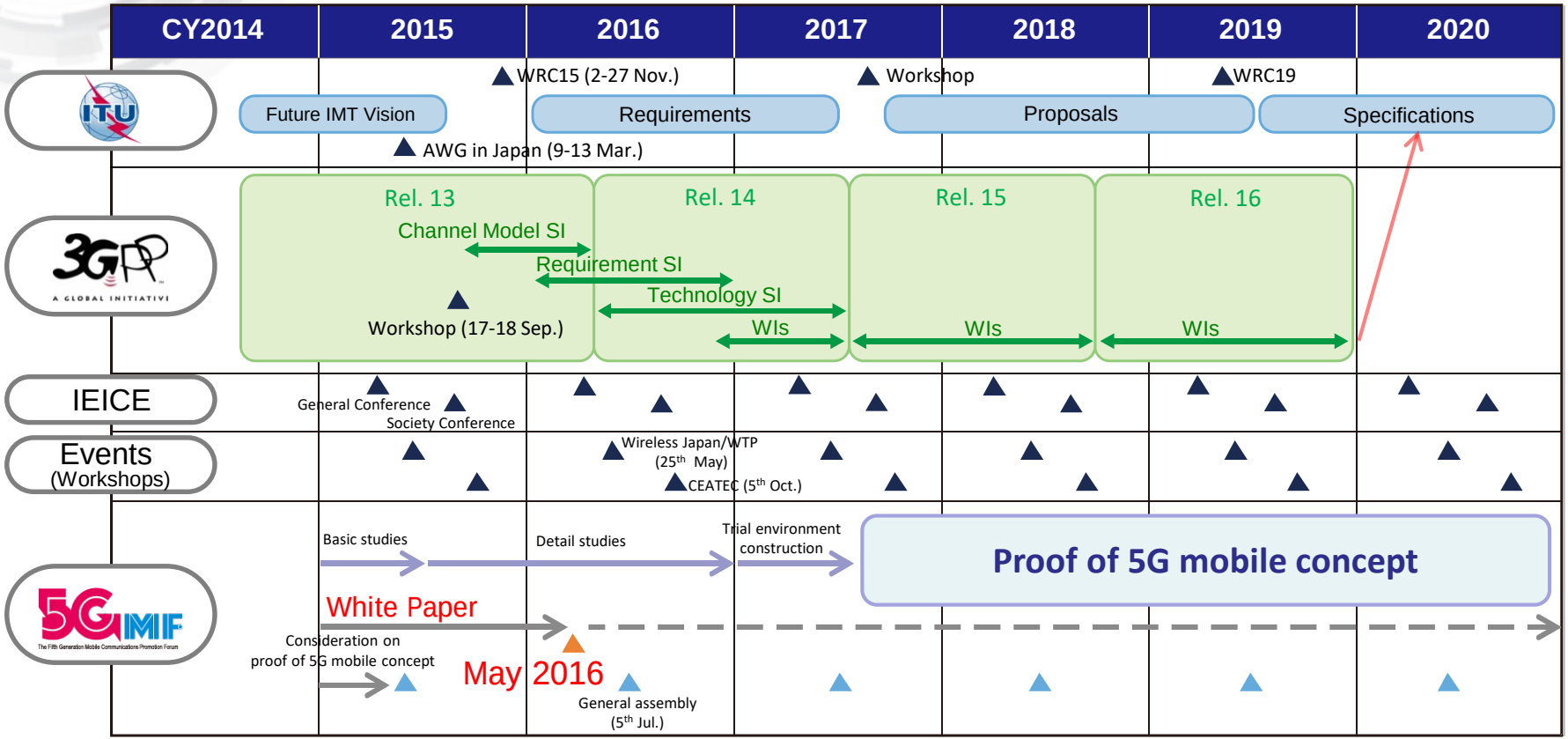
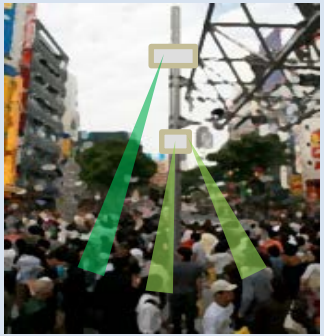


Image of Verification Trial

- Verification to commence from FY2017
- Hold not only in Tokyo but also in local cities

Coverage and outdoor driving experiments in a large premise

Outdoor trial in open square environments crowded with people



Trial in indoor environments crowded with people

Global Collaboration on 5G

Workshops on 5G related issues

- CEATEC-Japan, Chiba, 8 October 2014
- 18th Meeting of the APT Wireless Group, Kyoto, 9 March 2015
- CEATEC-Japan, Chiba, 8 October 2015
- EU-Japan 5G Symposium, Tokyo, 8 and 10 February 2016
- 1st Global 5G Event, Beijing, China, May 31 – June 1, 2016
- CEATEC-Japan, Chiba, 5 October 20 2016
- 2nd Global 5G Event, Rome, Italy, 9-10 November, 2016

The 1st Global 5G Event in Beijing

Snapshot of the representative of the five 5G promotion organizations

CEATEC JAPAN

Snapshot of Workshop 2016

Goals of 5GMF

International collaboration and Standardization

Innovation by R&D through Industry-Academia -Government Cooperation

The Fifth Generation Mobile Communications Promotion Forum

5GMF leads the discussion of 5G mobile in the world

5GMF
The Fifth Generation Mobile Communications Promotion Forum

2

Overview of 5GMF White Paper

Content of 5GMF White Paper

5GMF issued first White Paper “Mobile Communications Systems for 2020 and beyond” in the end of May 2016.

Chapter & Title	Chapter & Title
Scope	8. Requirements for 5G
1. Introduction	9. Spectrum Implications
2. Objectives	10. Overview of 5G Technologies
3. Market and User Trends of ICT	11. 5G Radio Technologies
4. Traffic Trend	12. 5G Network Technologies
5. Cost Implications	13. Conclusion
6. 5G Key Concept	Annex Future businesses and services
7. Typical Usage Scenarios of 5G	

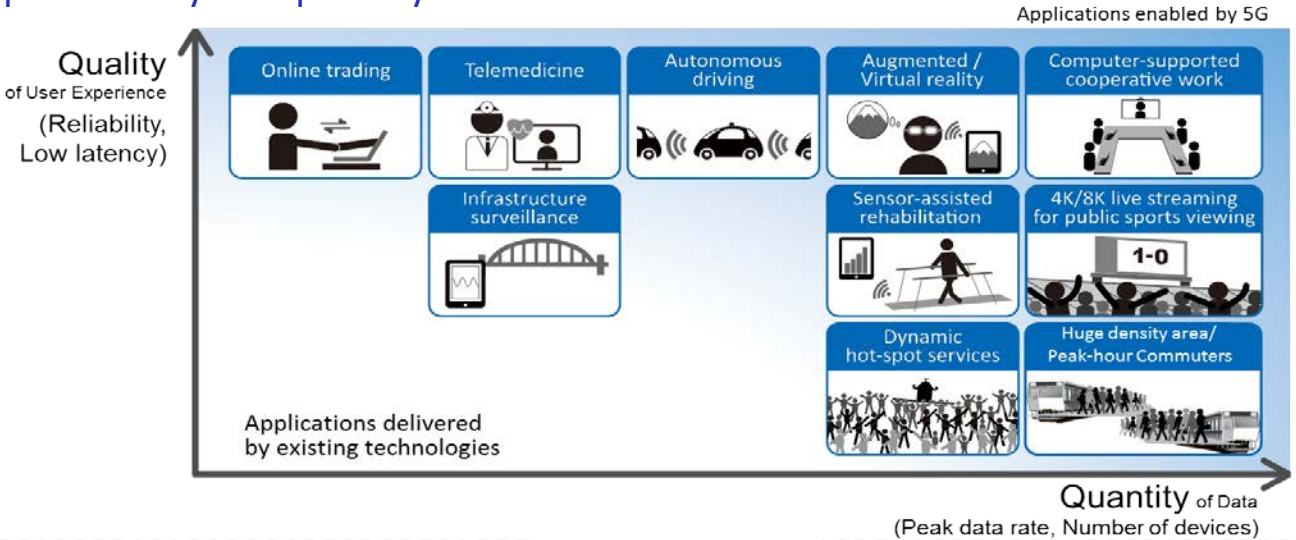
End-to-End Quality in the 5G era

- End-to-end (E2E) quality required by applications and/or users will be far more diversified in the 5G era than what we have seen in the preceding generations.

  For example, the ITU-R Vision recommendation [1] illustrates a number of usage scenarios in which the capabilities required are not identical but diversified depending on the expected E2E quality.

  [1] IMT Vision – "Framework and overall objectives of the future development of IMT for 2020 and beyond", ITU-R, Recommendation M.2083-0, Sep. 2015

- The following figure represents potential 5G applications mapped on a domain of the quality in user experience by the quantity of data.



Key Concepts of 5G

Two Key Concepts of 5G

1. Satisfaction of End-to-End Quality

- 5G shall provide satisfactory **"End-to-End Quality"** required by any kind of application **anytime, anywhere and any use scenes**.
- This conceptualization of **“Satisfaction of End-to-End Quality”** is very **different from previous generations** of mobile communication systems, for which best effort delivery was seen as sufficient.

2. Extreme Flexibility

- 5G networks will be **required to provide “Extreme Flexibility”** In order **to produce this level of End-to-End Quality** for the many services 5G systems will be expected to support.

Key Technologies for Key Concepts

■ Key Technologies Needed to Realize Key Concepts

1. Advanced Heterogeneous Networks

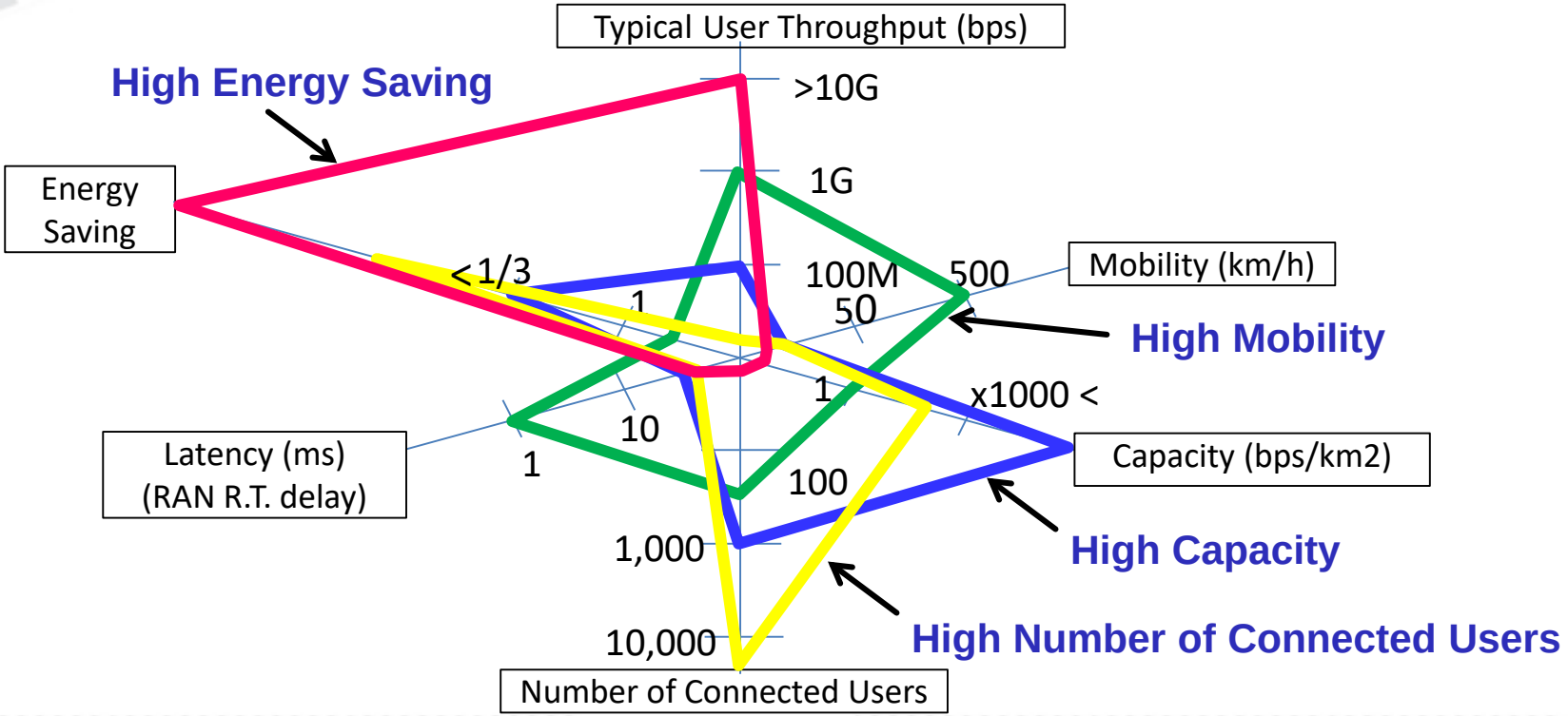
5G will **not** be made up of **a single network**, rather it will **use advanced heterogeneous networks**, where **5G radio access technologies (RAT), already existing 2G, 3G, LTE, WLAN networks** to **create an integrated system** that can provide support for a variety of services with flexibility.

2. Network Softwarization

Network Softwarization is an overall transformation trend in this industry. With network softwarization, network devices and components can be designed, introduced, maintained and administered with easily updated programmable software as well as ensuring that network devices and components can easily and flexibly be used and maintained.

Requirements For User Scenes (Examples)

- 5G systems do not always need to achieve their maximum performance.
- 5G systems will be determined based on individual use scene requirements.

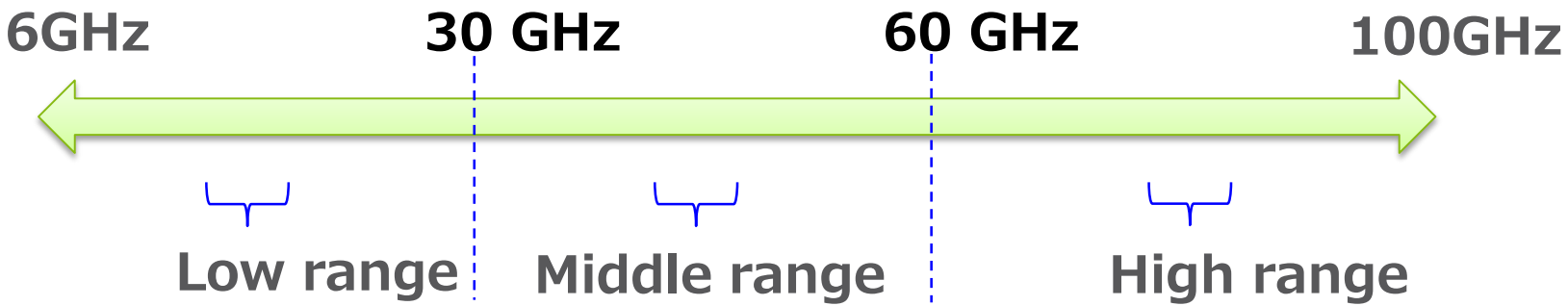


Evaluation of spectrum ranges above 6GHz

- Spectrum needs to be used based on the individual characteristics of each band, from low frequency to high frequency

- Evaluate frequency bands from 6GHz to 100GHz from the following viewpoints
  - Stage1 : Use cases and technology
  - Stage2 : Sharing or interacting with other systems

Classification of Spectrum Ranges above 6GHz in Stage 1



Looking Towards the future

- 5GMF will continue the following activities going forward
  - Contributing to the **ITU and 3GPP** on **frequency allotment** and the **development of standards**;
  - Building **relationships with 5G related organizations internationally**;
  - **Promoting** 5G for **potential users in industry**.

- 5GMF hopes discussions on following actions are successful in order to speed up the introduction of the necessary standards and requirements:
  - **Hold 5G Verification Trials** under actual conditions in order to **attract relevant industries to utilize 5G**;
  - **Give demonstrations of 5G characteristics** collaborating **with domestic and international partners**;
  - **Consider a platform** where **service providers** will be able to **easily offer 5G related services to their customers**;
  - **Consider the necessary frequency bands for 5G** both **domestically and internationally**, on which 5G's success depends.

5GMF
The Fifth Generation Mobile Communications Promotion Forum

Thank you
for your kind attention.