

**6th Japan–EU Symposium
on ICT Research and Innovation
@ Makuhari Messe**

IoT Platform, Use Cases, and Standards

2016.10.6

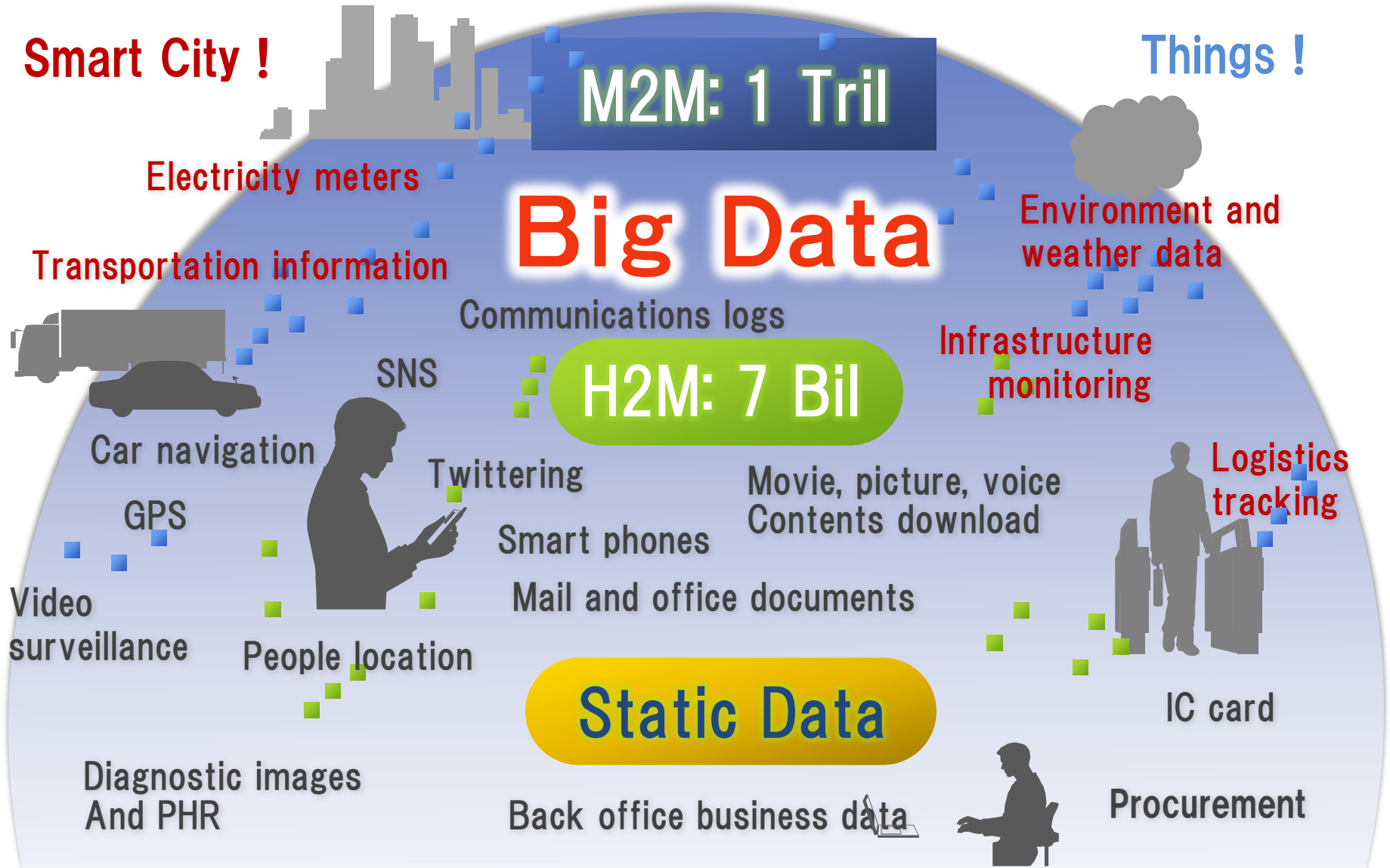
**Director of Next Generation M2M Consortium
V.P. of IoT Cloud Service Business, Hitachi, Ltd.**

Dr. Taizo Kinoshita

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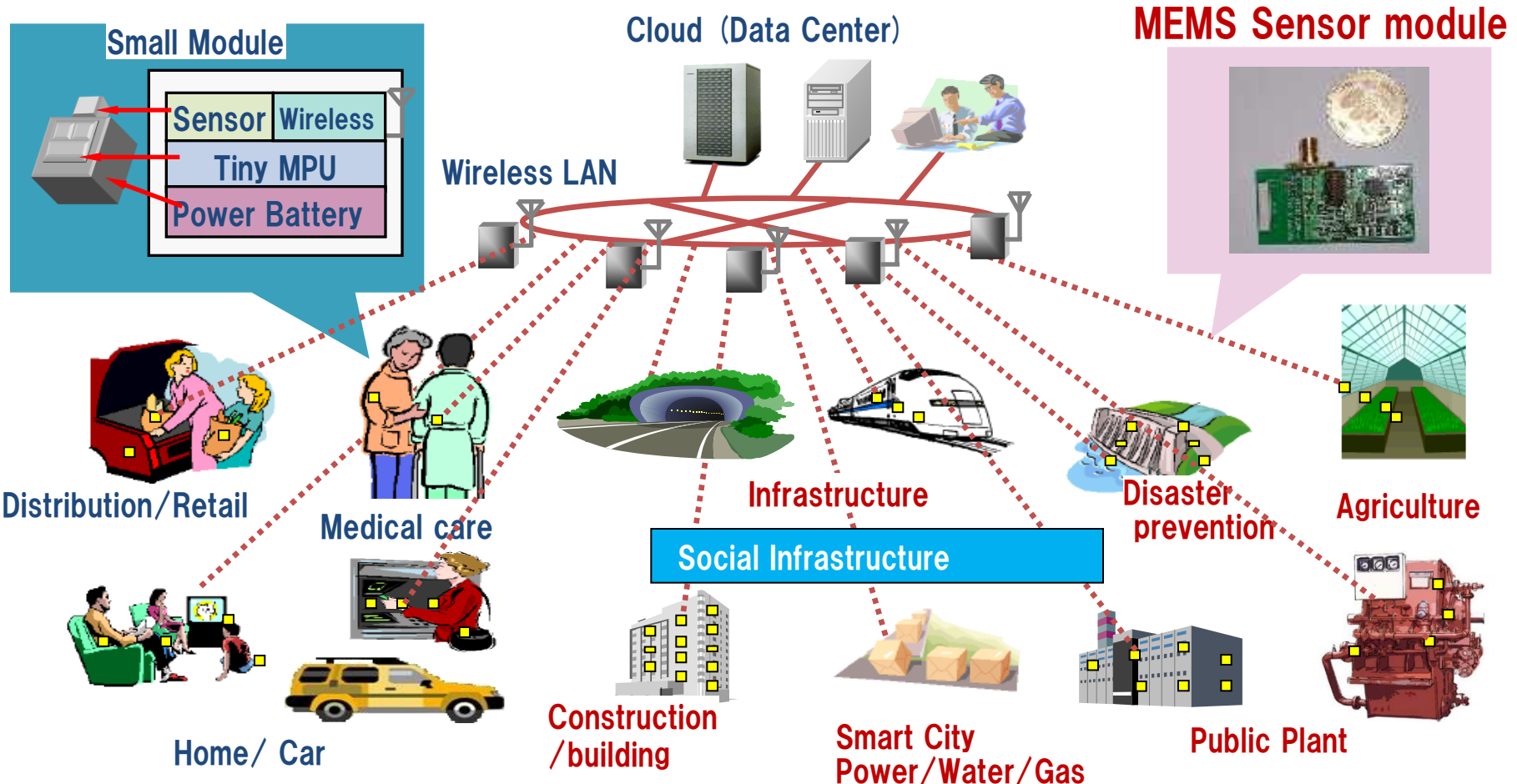
1. Introduction
2. IoT Platform
3. Use Cases
4. IoT Standards
5. Conclusion

1-1. IoT/M2M Market Segments



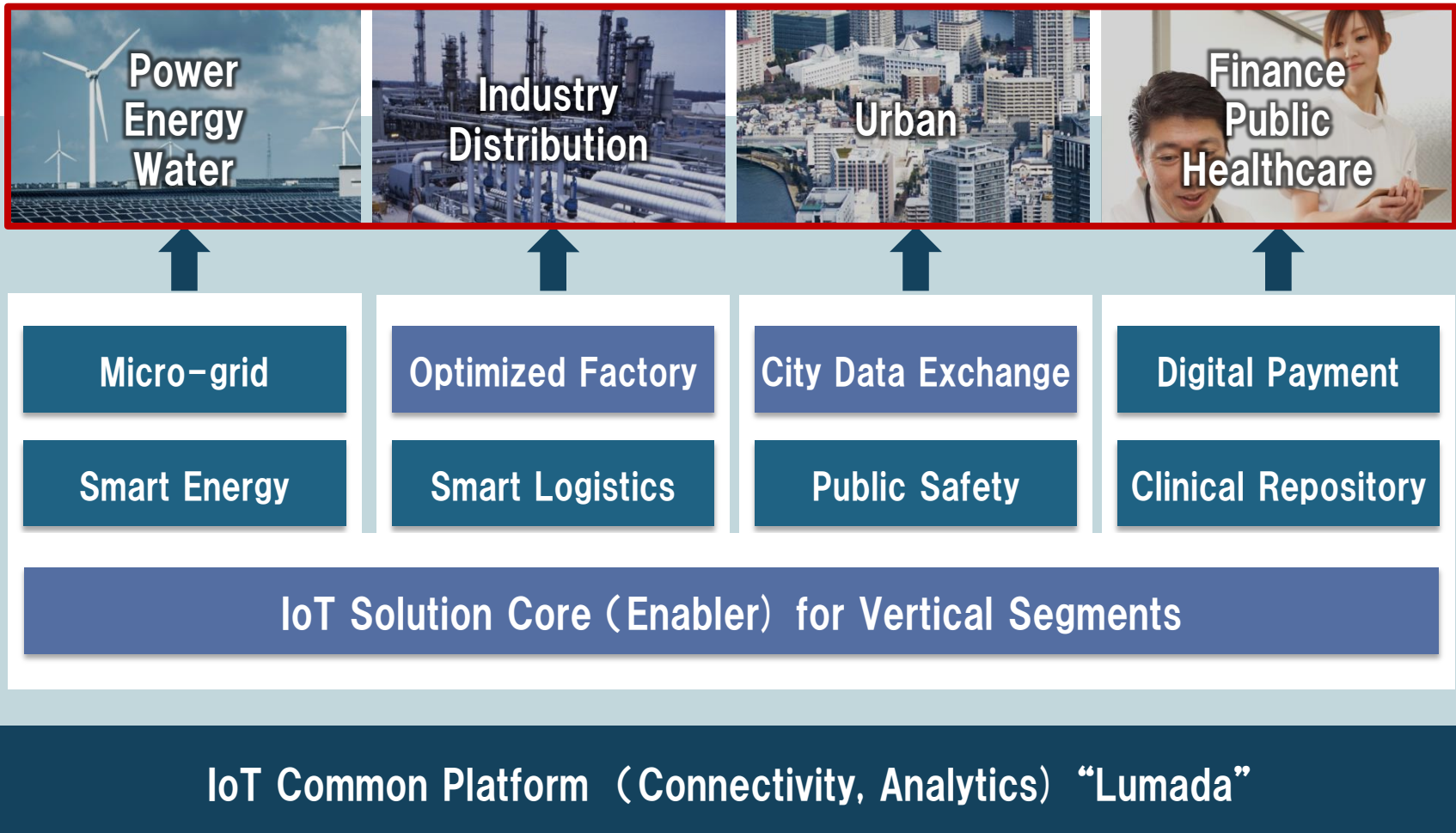
1-2. M2M Sensor and Big Data Cloud

- Small & Tiny wireless sensor nodes are putted on “Trillion Things Universe”
- Big data analysis in the “Smart City Cloud Platform” can be monetized

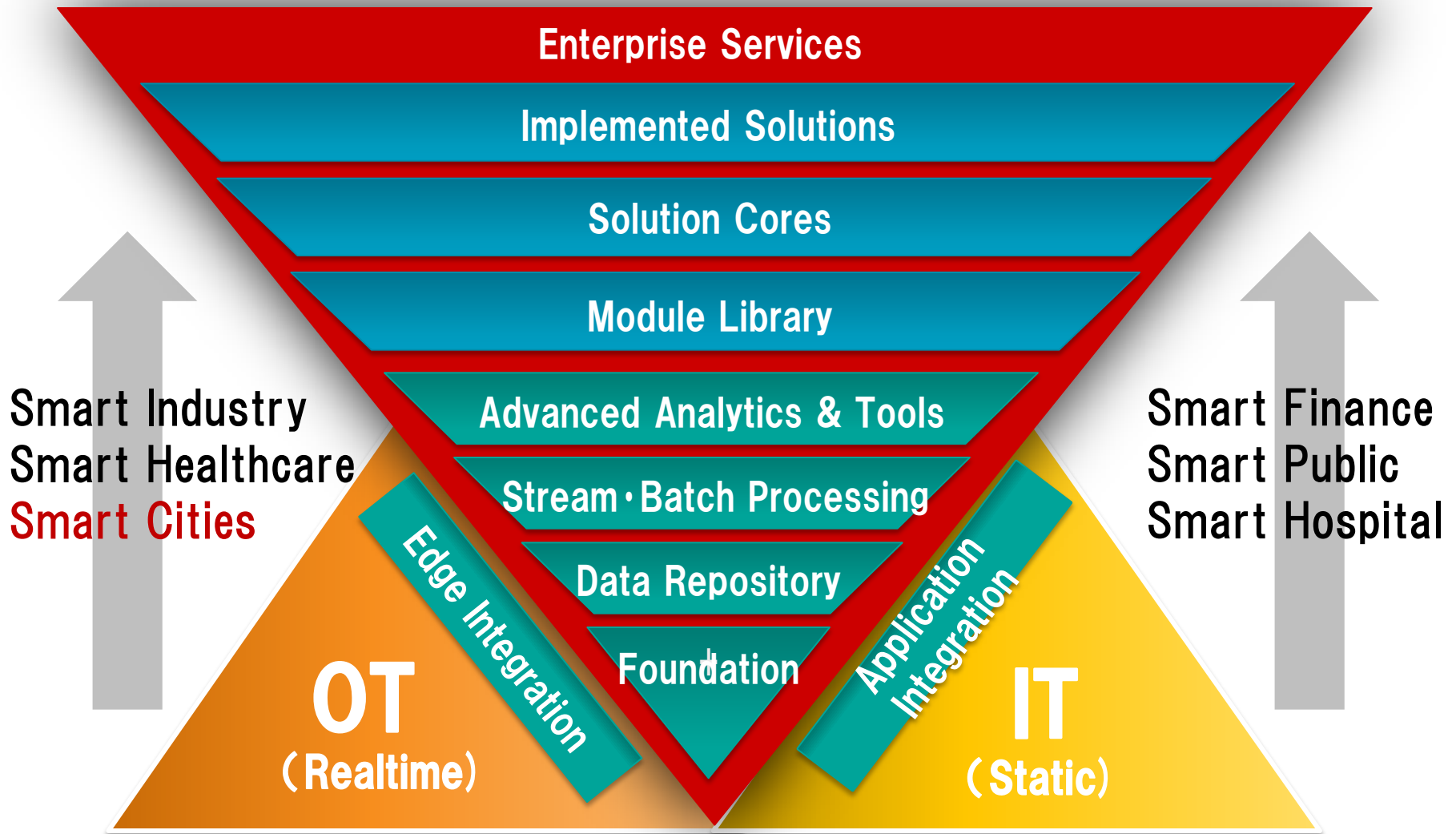


2-1. IoT for Social Innovation

“Lumada” provides solutions to Smart Cities



2-2. IoT Platform “Lumada”

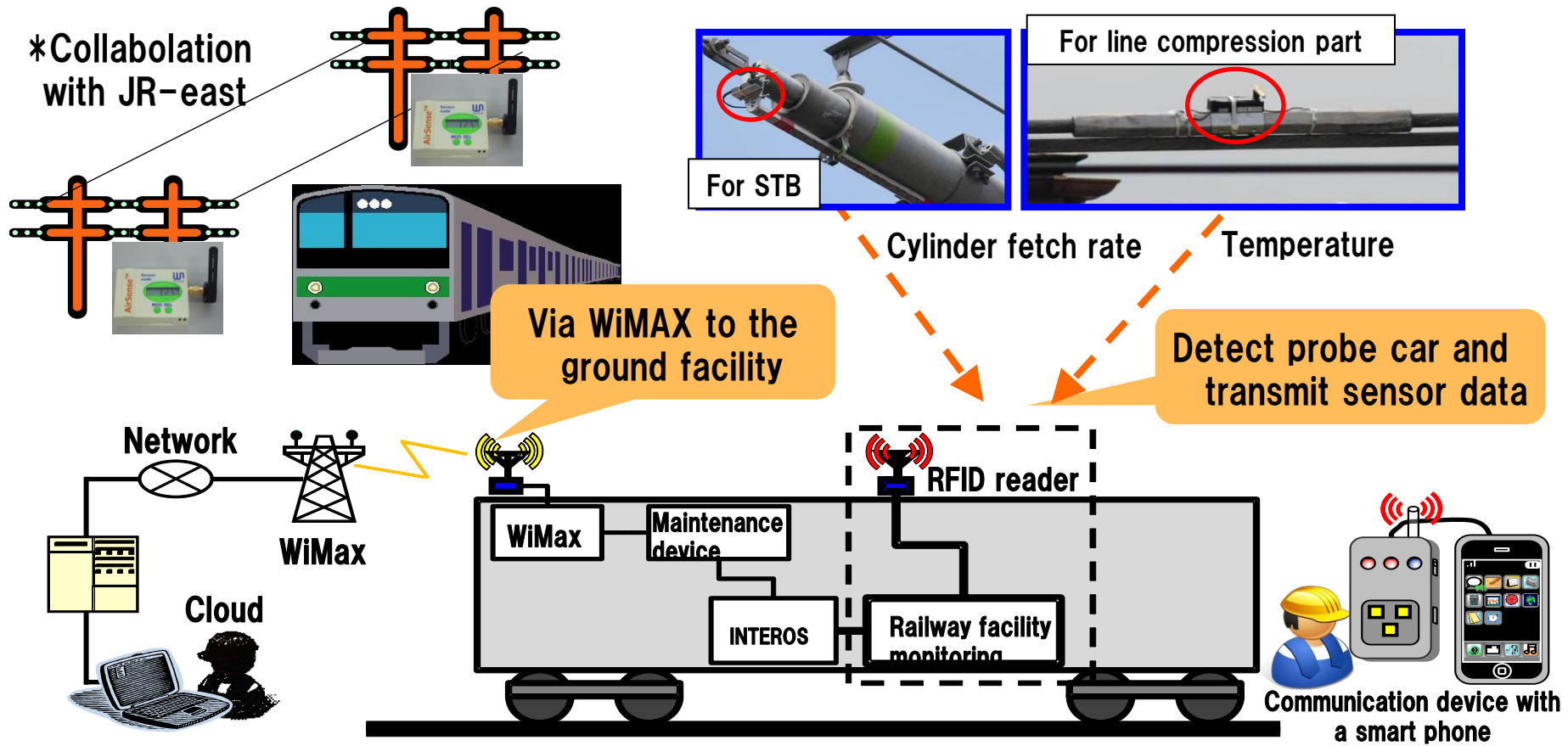


* Smart Cities: Infrastructure, Urban, (+Automotive, Office, Home)

3-1. Use Case (1) - Urban: Railway -

Monitoring tension, temperature, breaking of power line cable

Railway: 1.3Mkm x 10 devices/m = 13B devices, Power Line: 0.6Mkm x 2 = 1.2B



3-2. Use Case (2) - Urban: Building -

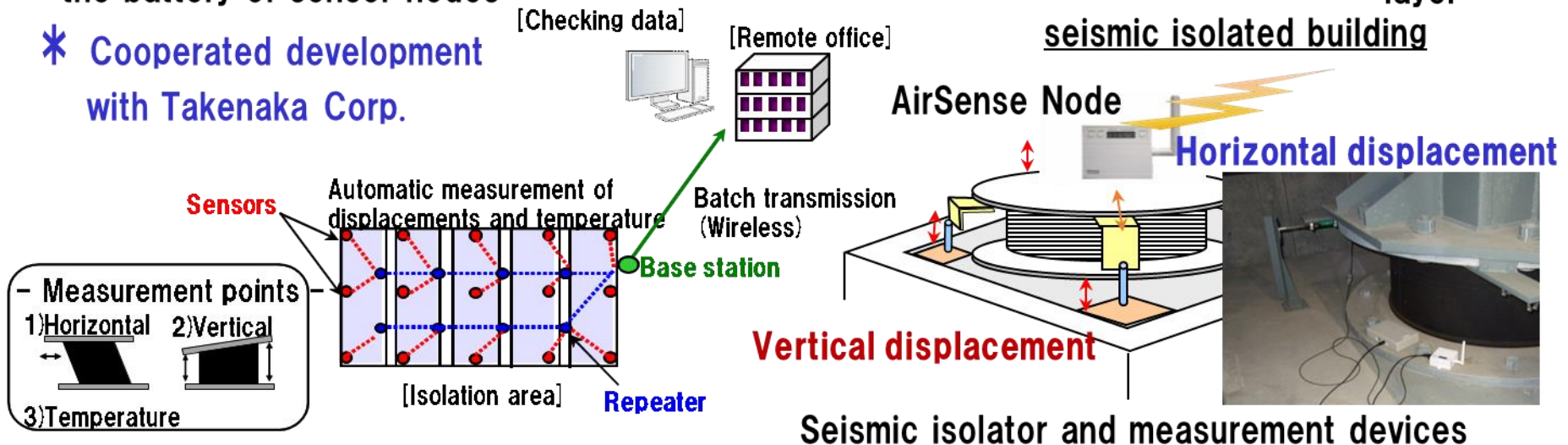
Maintenance and disaster management of buildings with seismic isolation monitoring systems*

Building : 1.2M x 10k = 12B , Public Facility : 12M x 20k = 240B devices

[System Characteristics]

- Monitoring and transmission of seismic isolator displacement data (horizontal/Vertical)
- Introducing **oscillation generators** into the battery of sensor nodes

* Cooperated development with Takenaka Corp.



3-3. Use Case (3) - Public Plant: Oil/Gas -

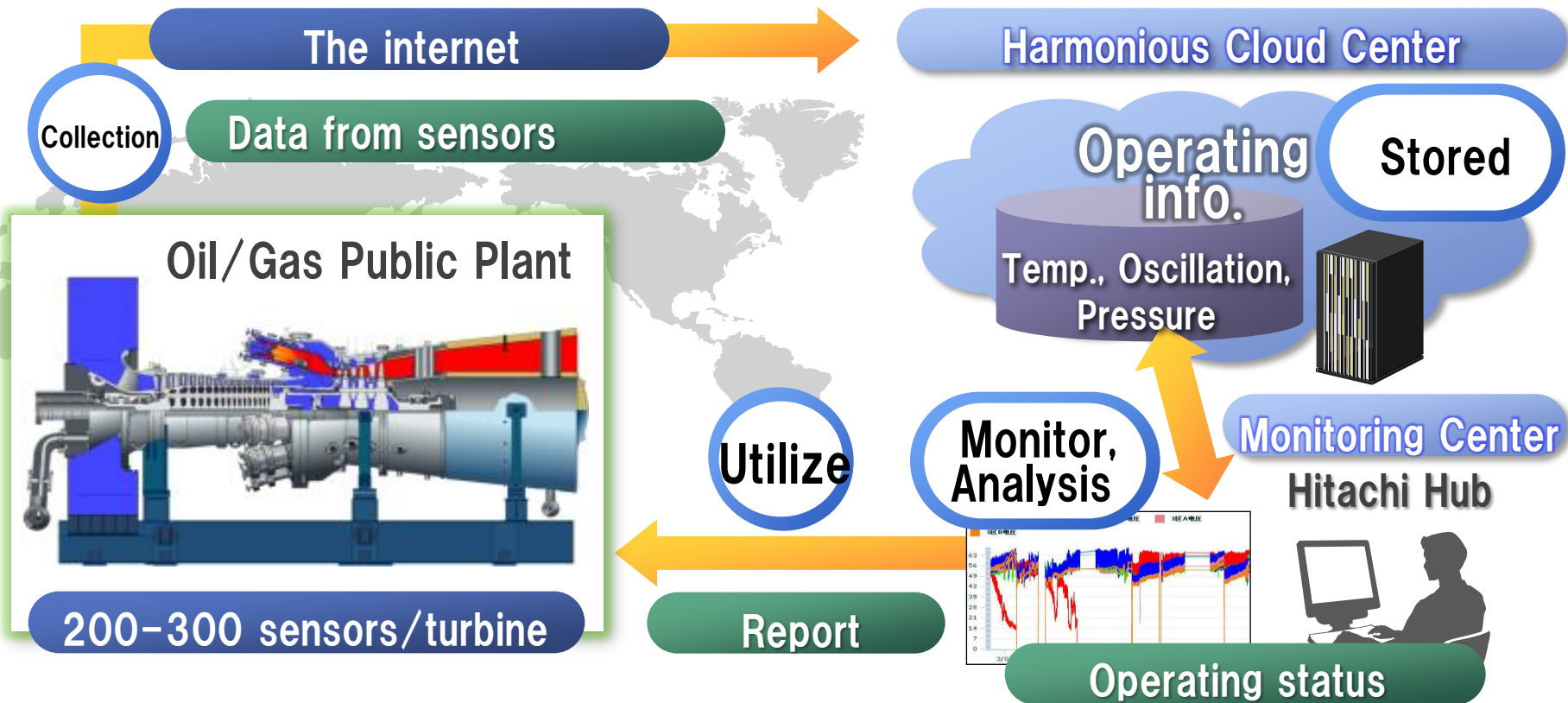
Preservative maintenance by monitoring and analysis

Plant Factory (Large): 1.2M x 20k devices = 24B devices

Gas Line: 0.6M km x 2 devices/m = 1.2B devices

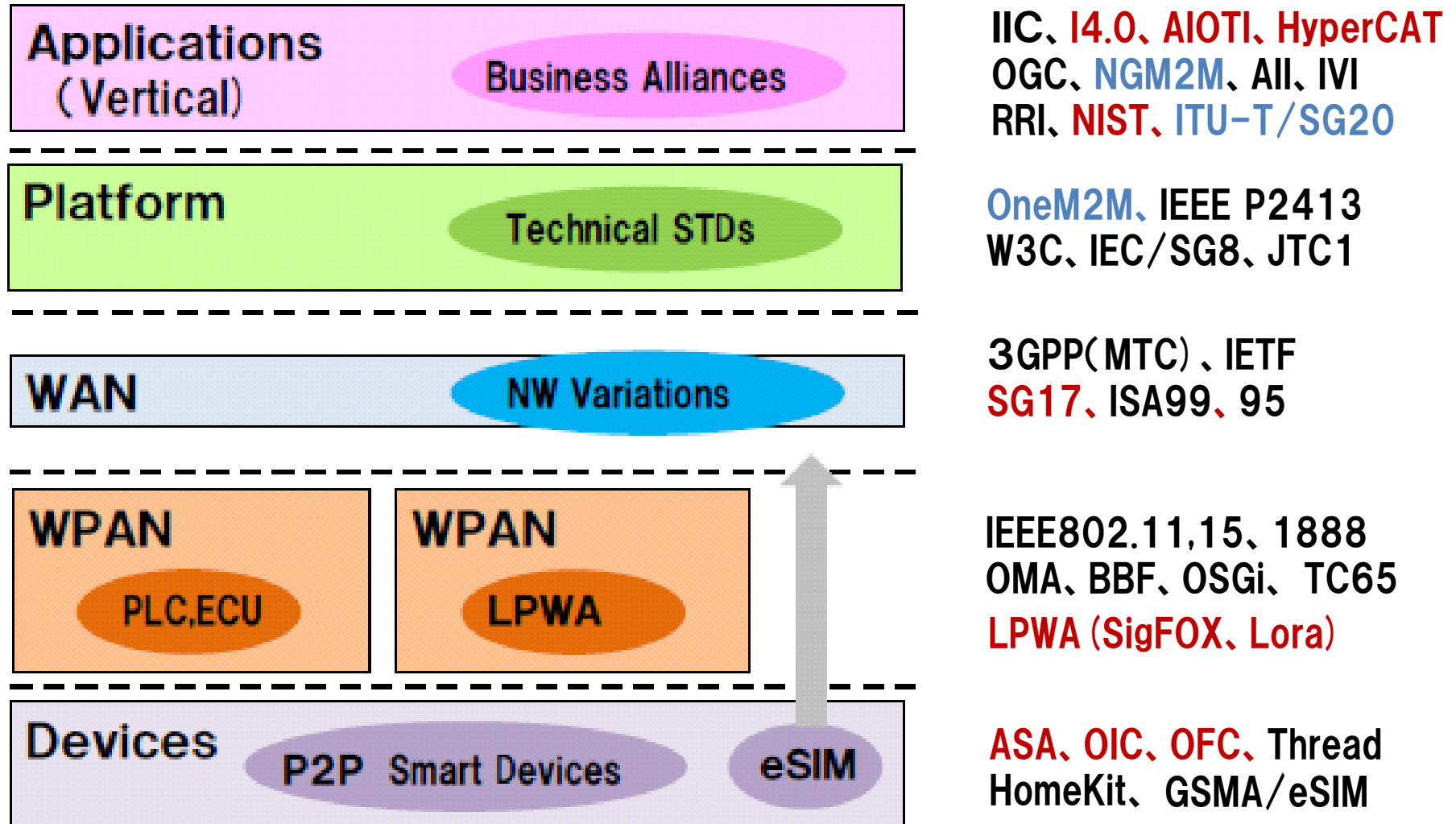
The amount of the operation information: 2GB/day

* Hitachi Plant Technology



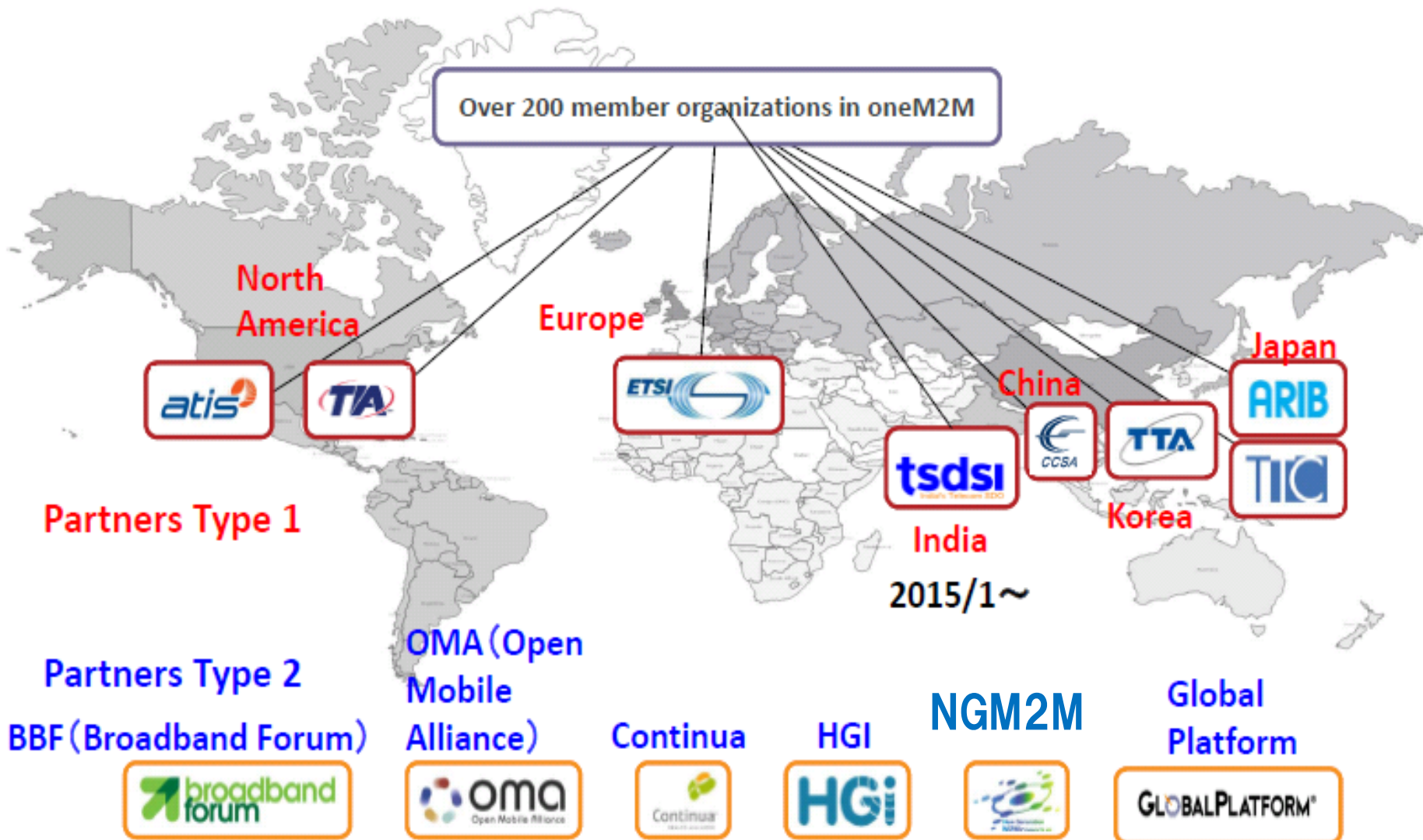
4-1. IoT Standards Overview

Horizontal: Technical Standards, Vertical: Business Alliances



4-2. OneM2M

IoT/M2M Standard: Global Organization Partnership Project



4-3. OneM2M Release2.0、 ITU-T SG20

Technical Specifications

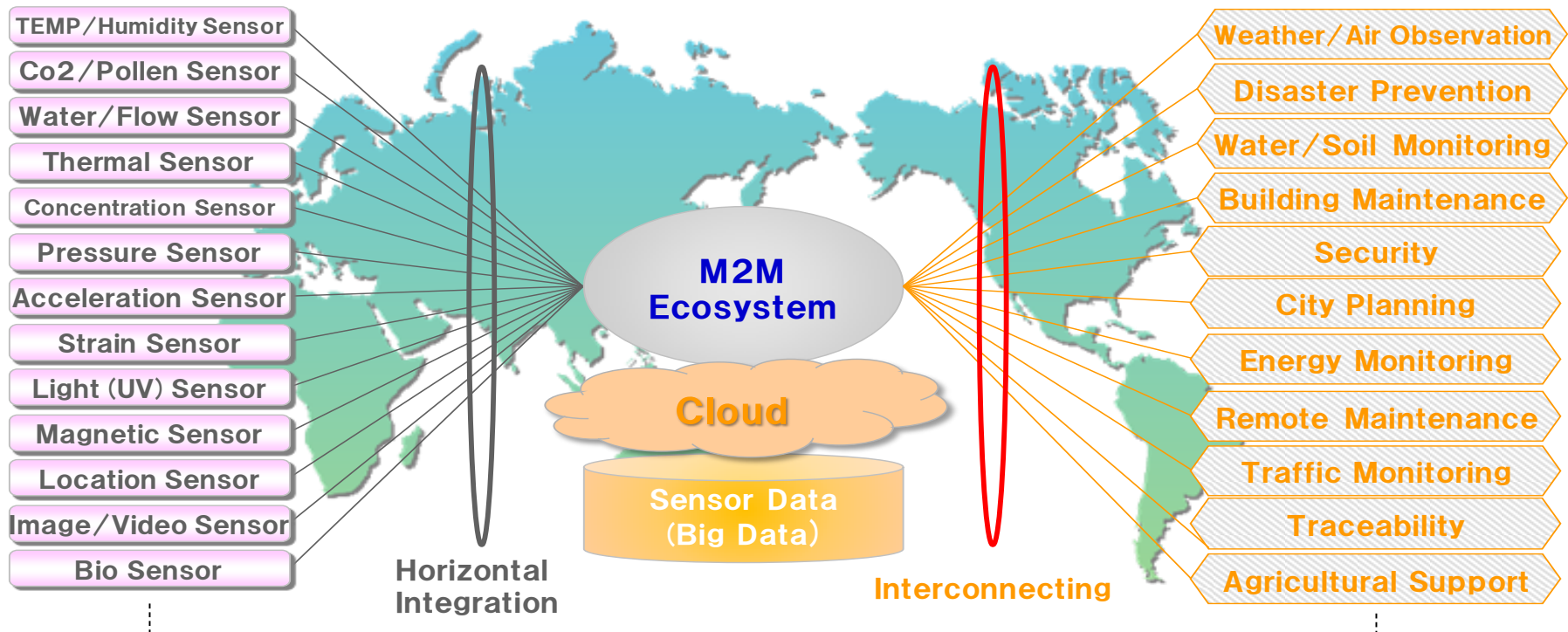


【ITU-T SG20】 IoT and applications including smart cities and communities (SC&C)

	Title
PLENARY	
課題1	Research and emerging technologies including terminologies and definitions
Working Party 1	Internet of Things (IoT)
課題2	Requirements and use cases for IoT
課題3	IoT functional architecture including signalling requirements and protocols
課題4	IoT applications and services including end user networks and interworking
Working Party 2	Smart cities and Communities (SC&C)
課題5	SC&C requirements, applications and services
課題6	SC&C infrastructure and framework

4-4. NGM2M Consortium in Japan

Various new services will be developed by gathering/utilizing various information of “Things” via IoT/M2M Sensor Network



【New Generation M2M Consortium】

The consortium was established in November 2010, to accomplish cross-industry “New Generation IoT/M2M Network Society” with the members of more than 100 companies

5. Conclusion and Future Study

【Conclusion】

- (1) IoT Market: 1 Trillion Things (Social Innovation)
- (2) IoT Platform: Connectivity, Enabler, Analytics, Cloud
- (3) Use Cases: Smart Cities (Social Infrastructure)
- (4) Technical Standards and Business Alliances

【Future Study】

- ★ IoT Platform: Standard is needed (Open, Common IF)
- ★ Business: Ecosystem is needed (Alliances, Consortium)
- ★ Core Enabler: AI/Analytics, DB, Semantics, Security,
Connectivity (LPWA), Edge Computing, etc.

END

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