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# Guidelines for Applicants Making Business Offers Towards the Advancement of New IoT Cloud-Related Services

October 14, 2016



NTT DATA Corporation

# 1. Current Status of IoT (Internet of Things)
## What is IoT?

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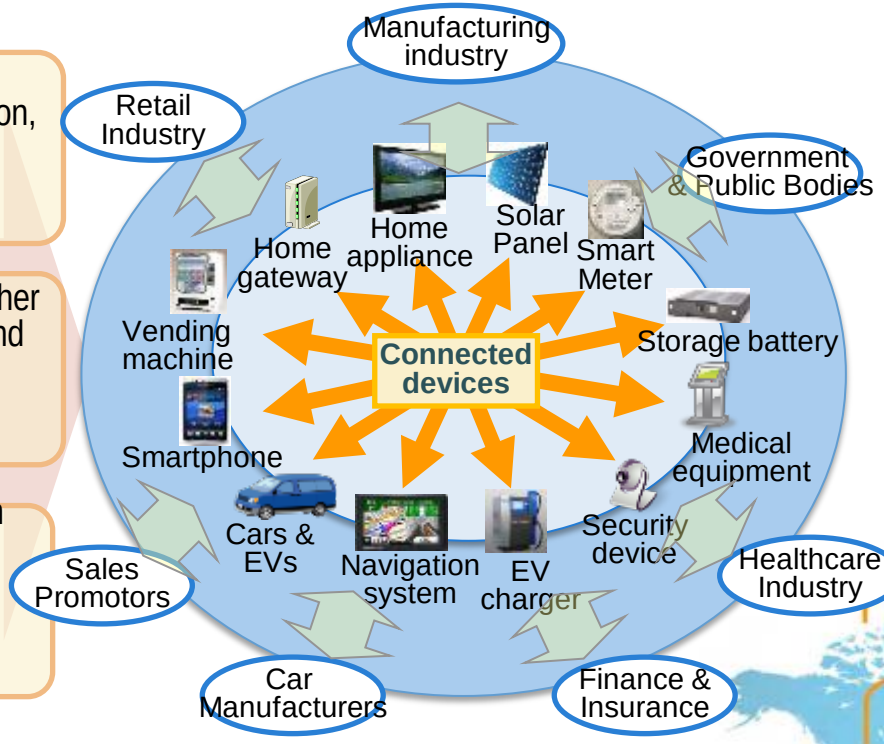
- **As technology advances, users and "things" become more widely and deeply interconnected. This is expected to dramatically change the business environment.**

Technological evolution

(1) Devices: advanced performance, generalization, and price reduction

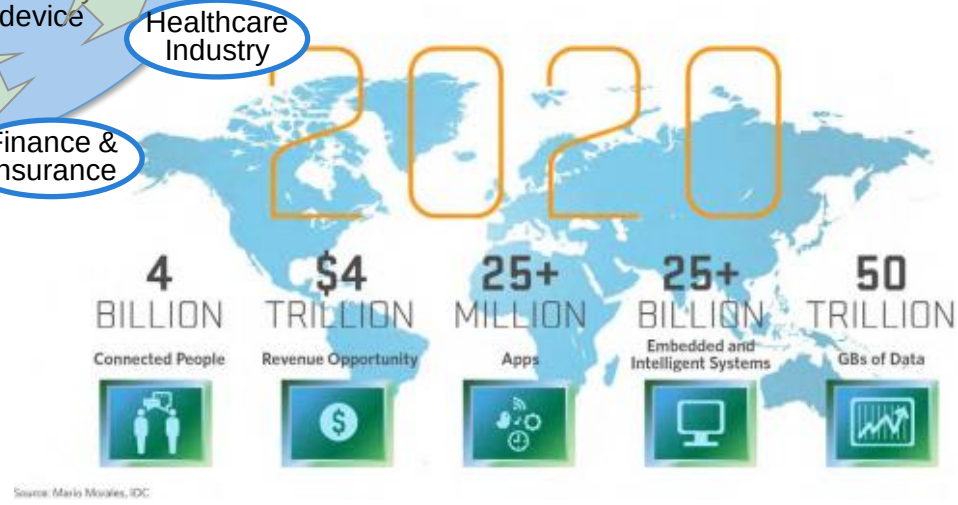
(2) Telecom networks: higher speed, higher volume, and lower prices


(3) Software: more open and spread of cloud services




**By 2020**
**25 billion devices will be connected...**

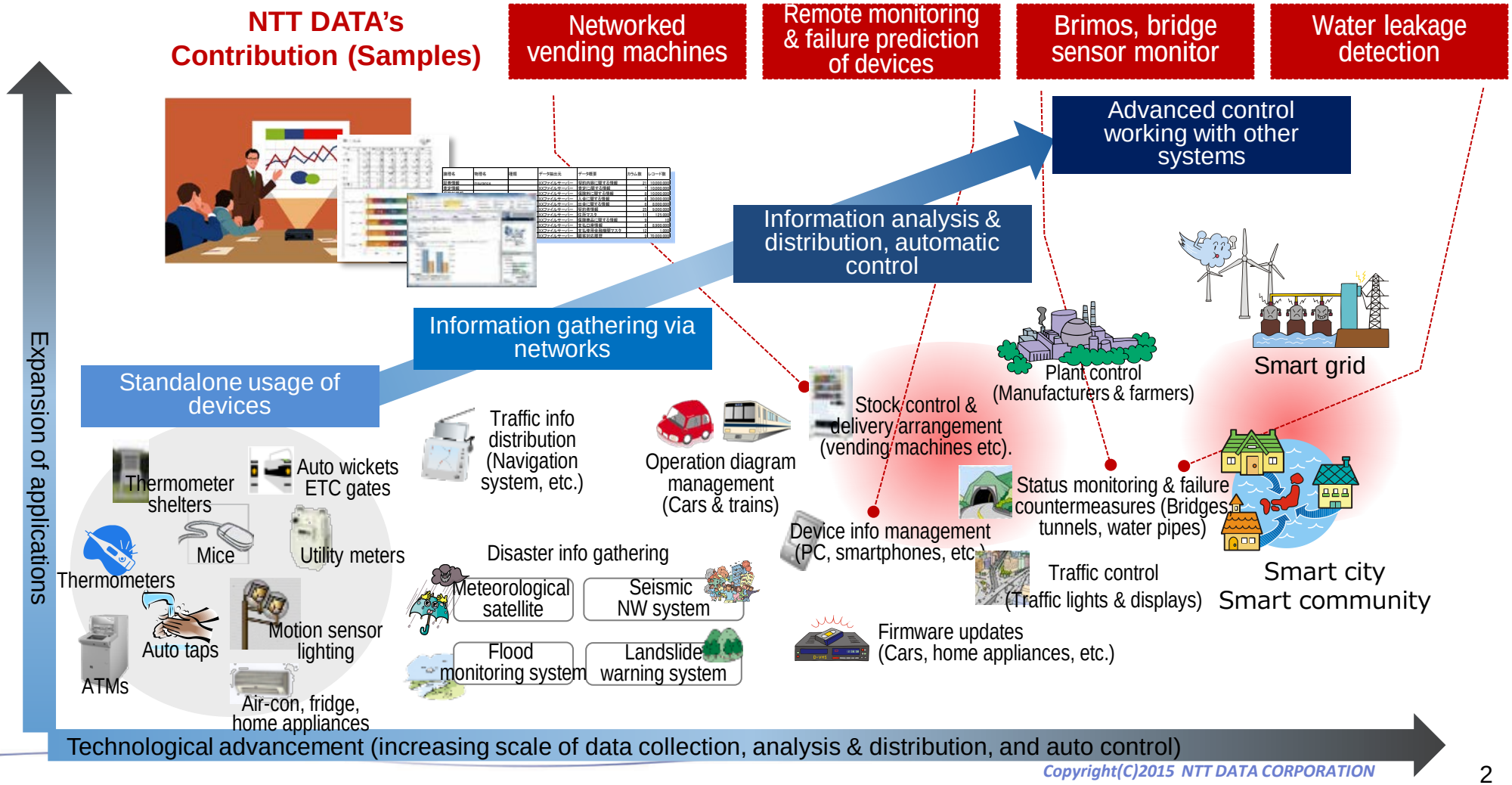
**...and greater convenience and business value created through organic liaison between human beings & machines**



# 2. NTT DATA's IoT-Related Business Records

- **With its abundant IoT technology expertise, NTT DATA possesses a substantial record of IoT technology application projects in a wide range of social and corporate infrastructural areas.**

## Expansion of IT utilization through IoT and NTT DATA's Contribution



# 3. Overview of NTT DATA's IoT Cloud (1/3)
## Overall Configuration

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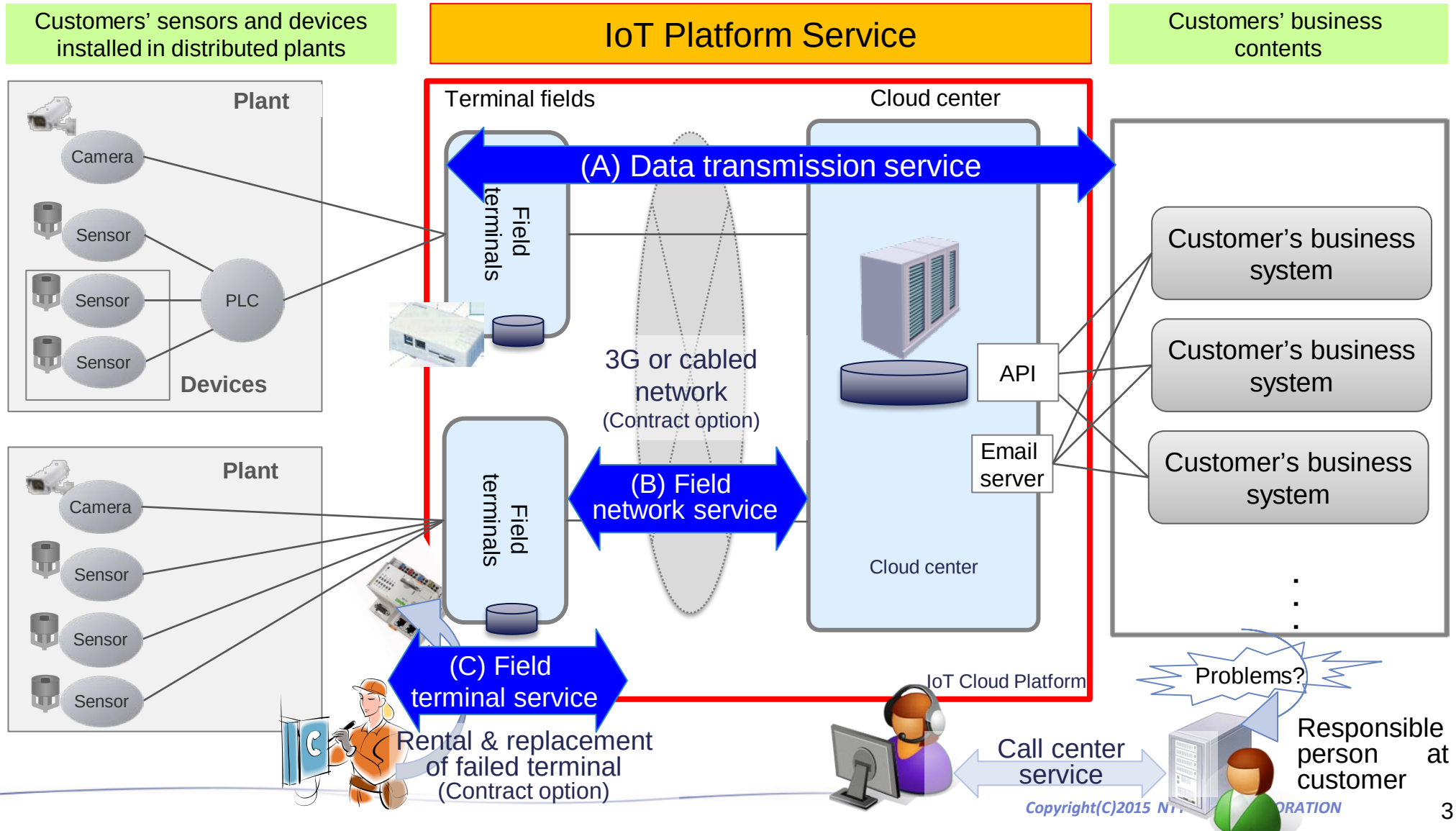
- **NTT DATA's IoT Platform Service is a cloud-based network platform to help customers gather information from devices and sensors quickly and easily.**



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## ■ Transmission protocol

Standard protocols for IoT and OneM2M (for M2M purposes) are employed

- Transmission volume reduction by using lightweight protocol that minimizes transmission headers
- Network topology that takes account of connections to a large number of devices

## ■ Using a micro server for a field terminal

- Device costs reduced compared with conventional telemetry communications devices
- Software can be programmed with java which runs on Linux
- Remote configuration of operational parameters and software possible
- Reduces maintenance personnel costs for remotely installed field terminals

## ■ Supports various types of network

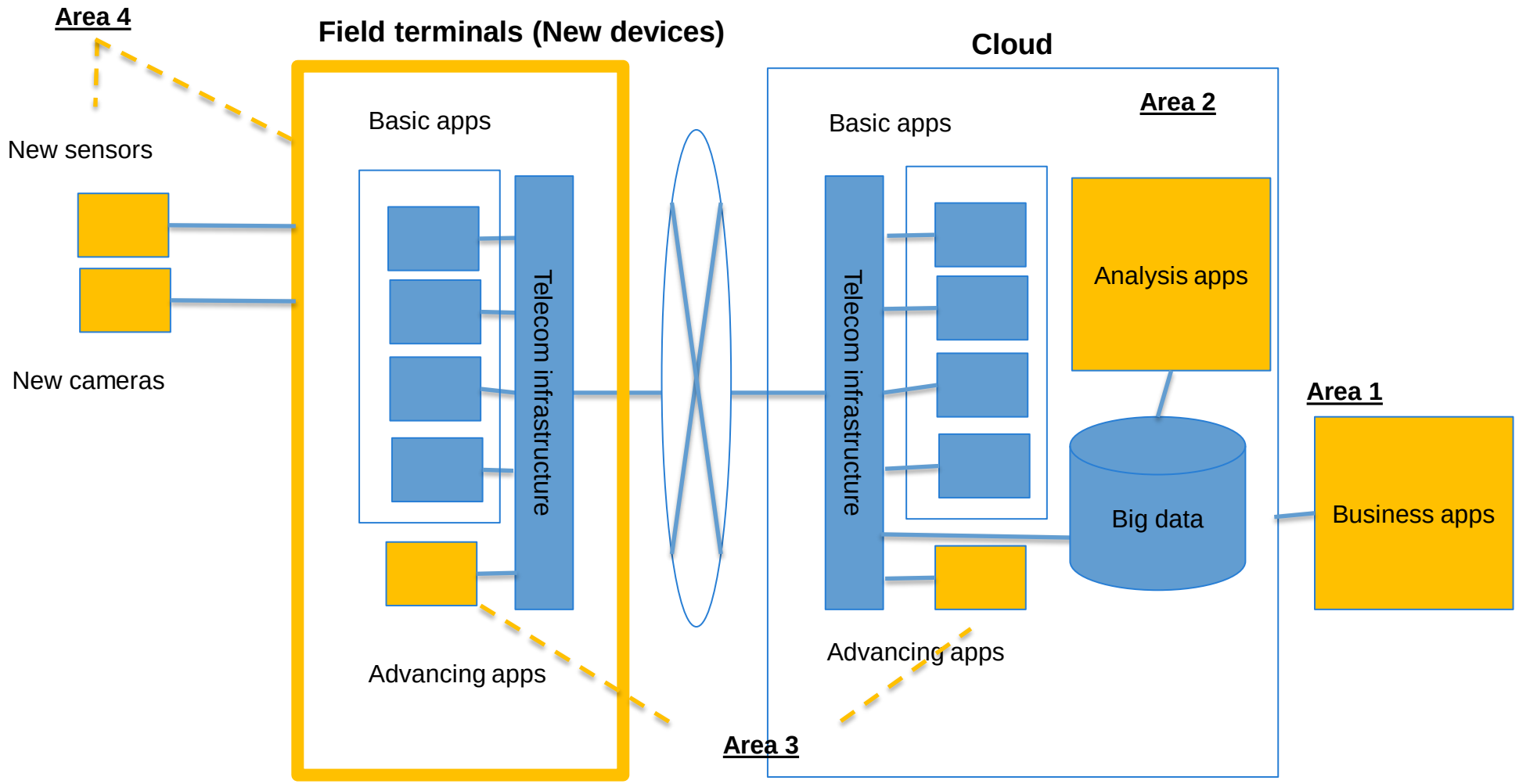
- Device configurations support cabled, wireless, and optic (privately setup) connections
- A network contract between the field terminals and the cloud center can be arranged as either the closed 3G NW (NTT Docomo, au, Softbank, etc.); closed NW with an MVNO carrier; or connection via the Internet (FLET'S or satellite). IP network through wide-area Ethernet is also available.

# 3. Overview of NTT DATA's IoT Cloud (3/3)
## Service Functions Overview

| | |
|---|---|
| **Fixed interval data collection & real-time supply service** | **Collects sensor and image data from the customer's devices at regular intervals and supplies the data to the parent system.** |
| **Data accumulation and on-demand supply service** | **Stores the data in the cloud for a specified period. Supplies the accumulated sensor or image data to the host system.** |
| **Remote operation service** | **Controls customer's devices via a field device using API calls to the cloud server from the customer's business system.** |
| **Monitoring and notification service** | **Detects abnormal values in the collected sensor data or system failure of the IoT Platform Service, and notifies such events by email.** |
| **Field device parameter setting service** | **Centrally manages parameters using dedicated web system.<br>Checks or changes engineering parameters of the currently running field terminals.** |

# 4. Scope of Acceptable Business Offers

**We accept business offers from applicants under the following four areas concerning our IoT Platform Services. Offers can be made for a single area or multiple areas. We are also happy to receive business offers outside of these areas, however, such offers are assessed separately.**



# 5. Information to Be Included When Making Business Offers

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In the letter of the business offer, please include the following information. If it is difficult to complete an item, please leave blank.

| | Information items to include | Concrete details |
|---|---|---|
| 1 | Novelty of business | Describe how novel and attractive your business offer is. |
| 2 | Business feasibility | Describe feasibility of the business, including role division and target customers. |
| 3 | Possible issues | Describe issues that the business may face over the next three years and their countermeasures. |
| 4 | Technological affinity with IoT cloud | Describe your plans for utilizing our IoT platform. |
| 5 | Novelty of technology and service | Describe how novel and attractive your technology and service are. |
| 6 | Possible technical issues | Describe any technical issues and their countermeasures. |

# 6. Ongoing Projects of Previous Contest Winners

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## ■ Machine learning

An applicant company supplied an analysis engine that detects machine failures from sound, vibration, and other sensor data, and analysis results are then used for failure prevention and maintenance. We plan to provide this as a service via the cloud and demonstration experiments are currently underway at a major machinery manufacturer.

## ■ Abnormality detection

We have connected to the cloud an engine that immediately detects abnormalities or security issues in plant operations based on sensor data patterns. We are now working to build a system to offer this function as a service under a METI-approved experimental project.

## ■ Development of an IoT terminal

We developed a simple IoT terminal that can be used for utility infrastructure monitoring and control purposes. We are currently working towards commercialization of terminal usage.

## ■ Connection to a 360-degree camera

For security control at the coming Olympics and other events, we are jointly developing an application connected to a CCTV camera and the cloud. The connection verification test has already been completed.

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