Sakura's IoT Platform β

～Sakura Internet tackling with IoT～
(Provision of β version)

Sakura Internet Inc.

IoT Platform Team

Sakura’s IoT Platform

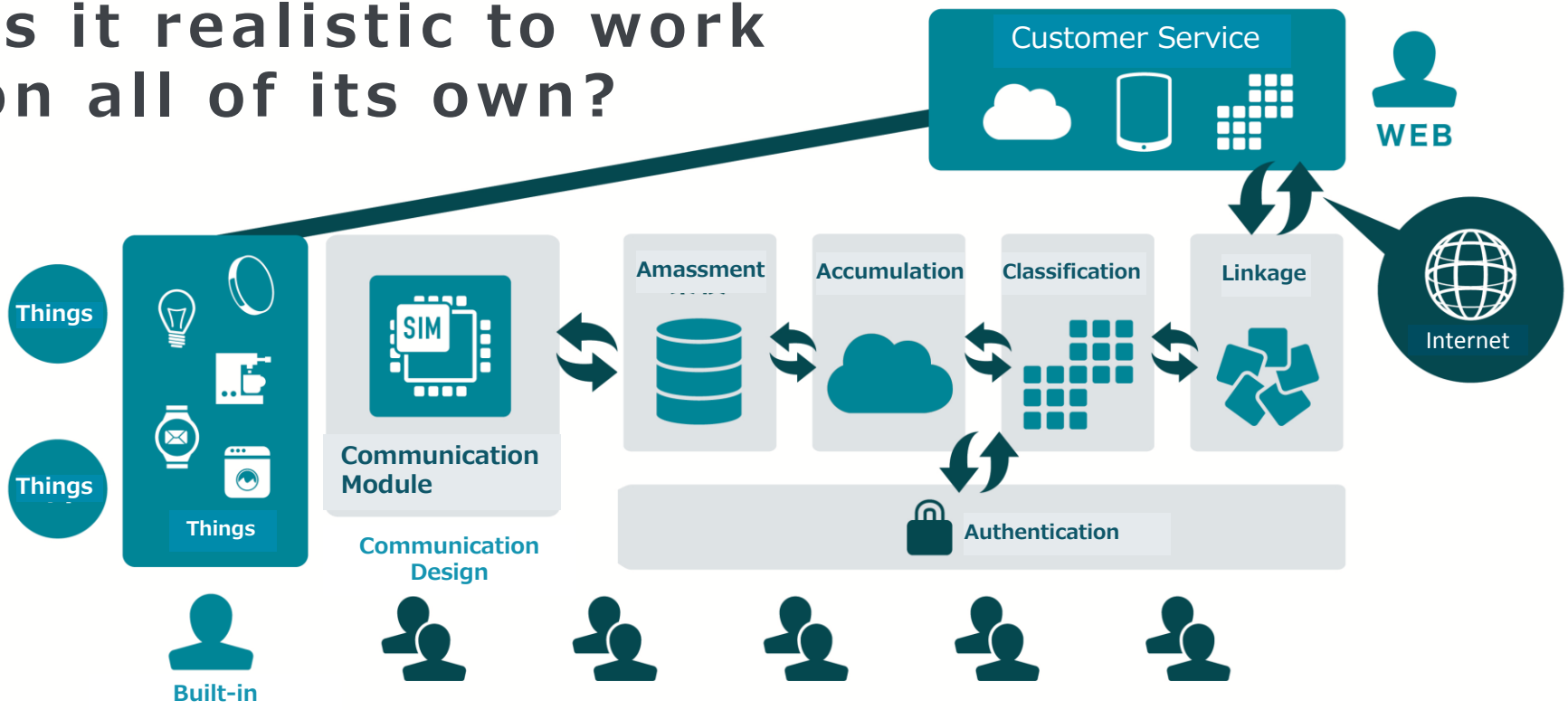
Internet of “Things”

さくらのIoT Platformβ

Platform that aims at discovering correlativity and relationships of “Things” that we have never realized

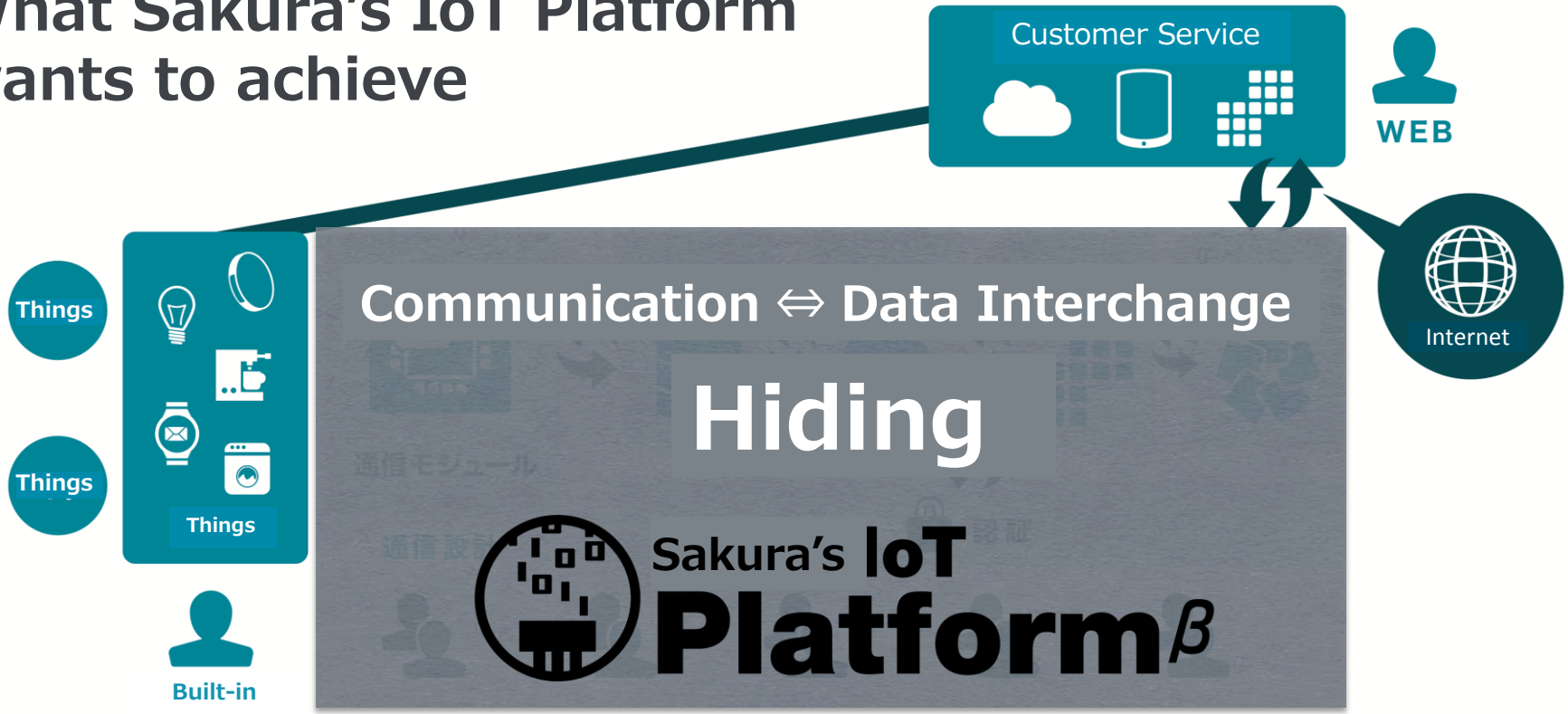
It all started from the conversation “Wish things tweeted…”

Is it realistic to work on all of its own?



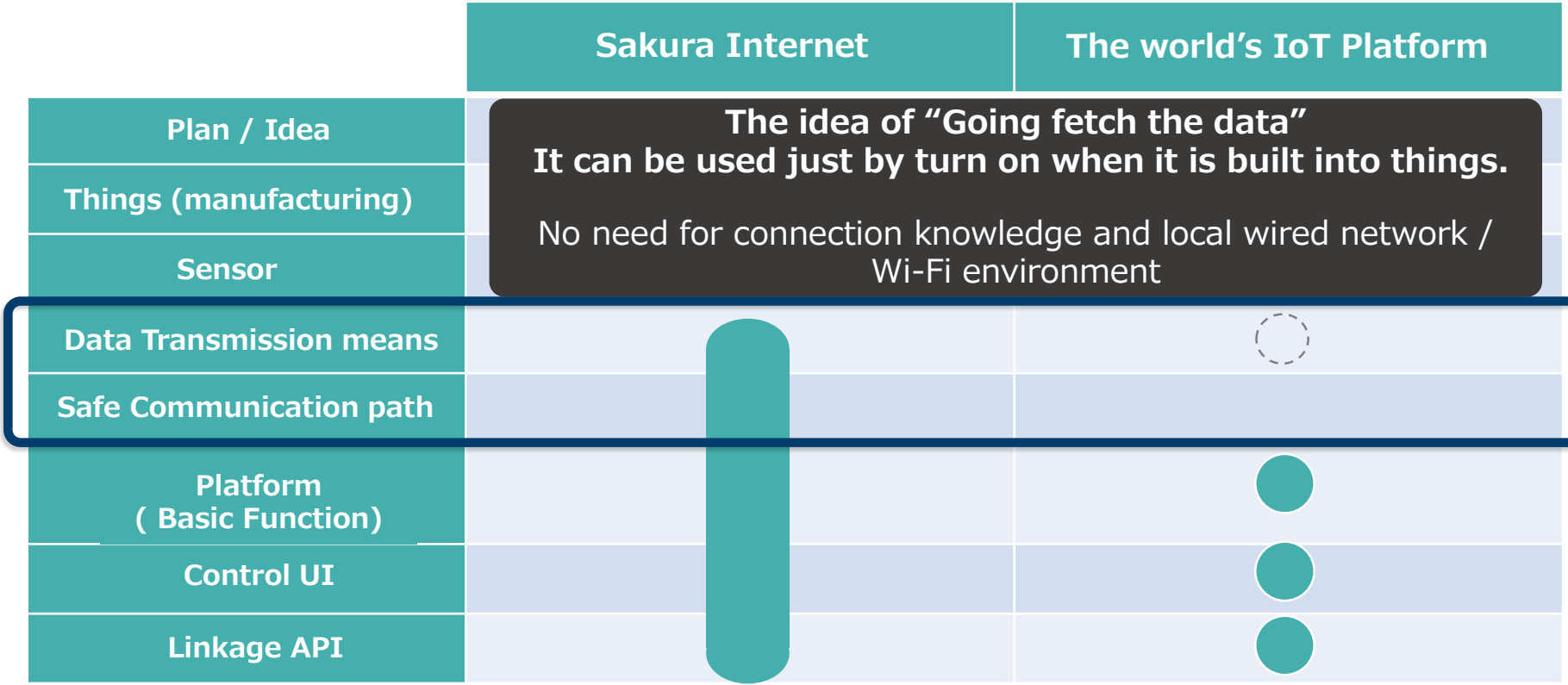
We only want to handle network and exchange data, there are too many things to take care of.

What Sakura's IoT Platform wants to achieve



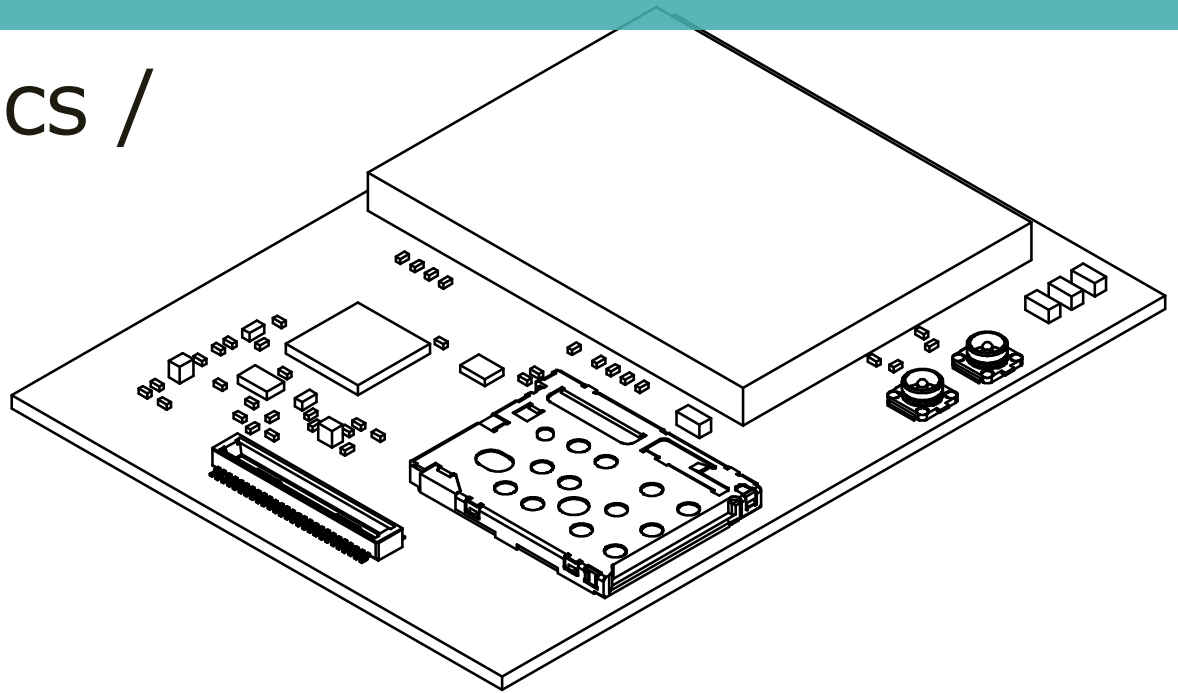
Making things / services and enabling data interchange without significant changes to existing business domain / skill set

Characteristics of Sakura's IoT Platform



1. Positioning of Communication Module

2. Characteristics / Specifications



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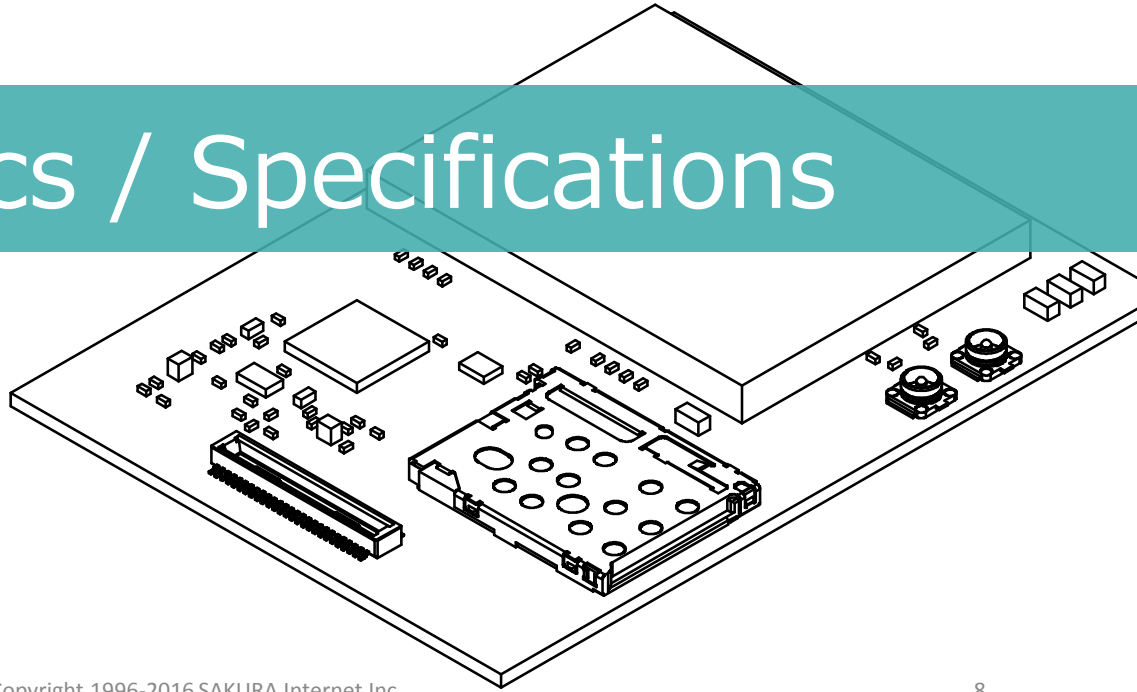


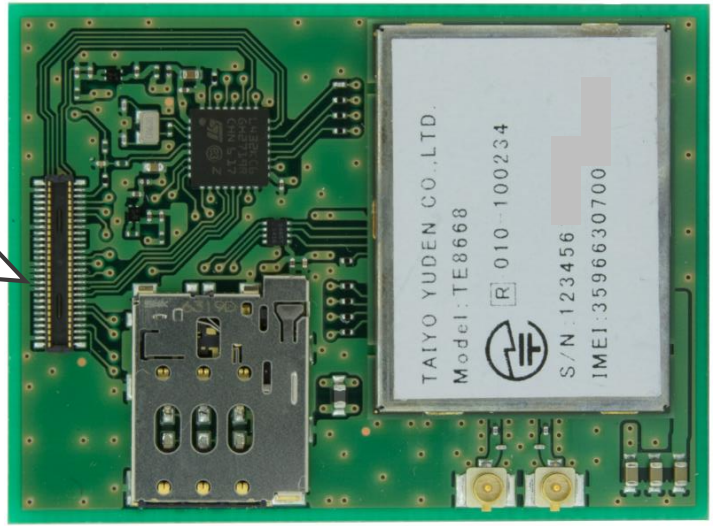
LTE Communication Module that can be used for mass production

→ Newly designed, “De-Prototype” in mind

→ Realizing shape, price, and quality, taking mass production into account

Connection by mass production-conscious board to board connector

Roughly the size of two SD cards and can be used for various purposes



Low power consumption taking long-term operation

→ Powered by Category 1 compliant LTE modem

newly developed for M2M / IoT※1

→ Large reduction in current consumption ※2

Achieving several months operation by battery

→ Enabling yearly operation for commercial version

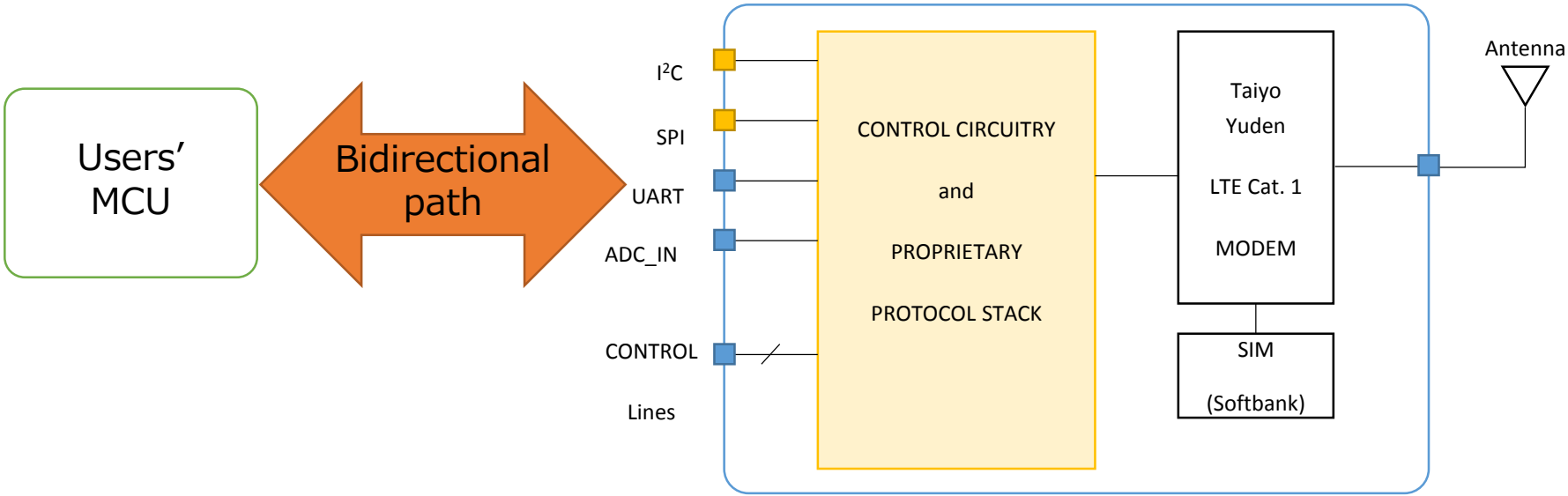
※1 Jointly developed by SoftBank / Altair Semiconductor / TAIYO YUDEN
http://www.softbank.jp/corp/group/sbm/news/press/2016/20160720_02/

※2 Consumption current when RRC_IDLE is less than 2 [mA]

Interface that largely reduce the development man-hour

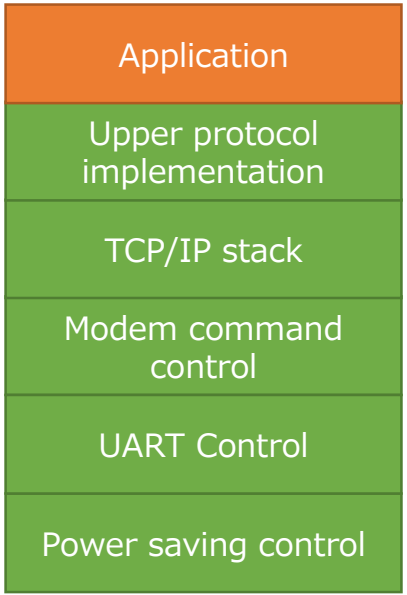
Protocol stack that takes time for development and test is build into module

User can use platform just by populating data by I2C or SPI bus



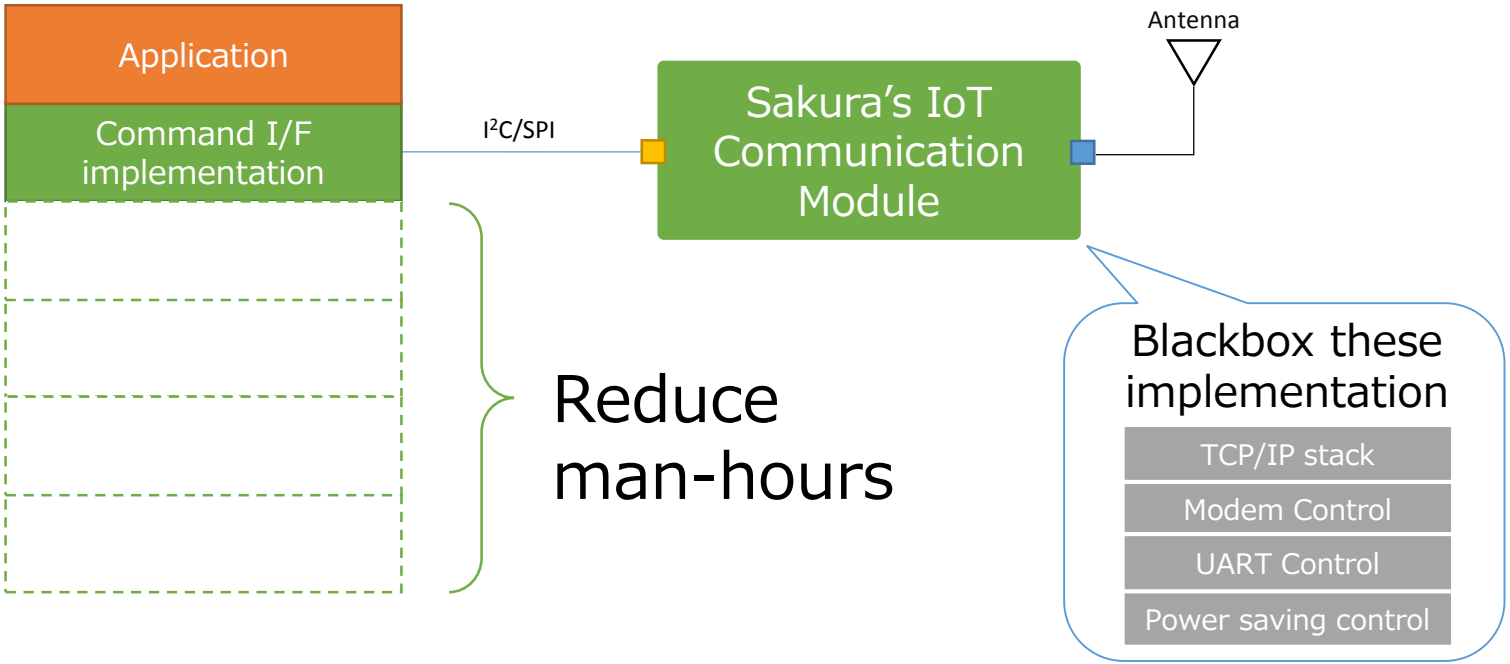
Comparisons with existing development

Necessary Items for Development



More things that “we have to make” than that “we want to make”

Sakura’s IoT Communication module can…



Functions of Platform

- **2 Interchange methods**
  - real-time interchange
  - bulk interchange using saved data
- **Saving / Referring data**
  - Open / Closed / Private

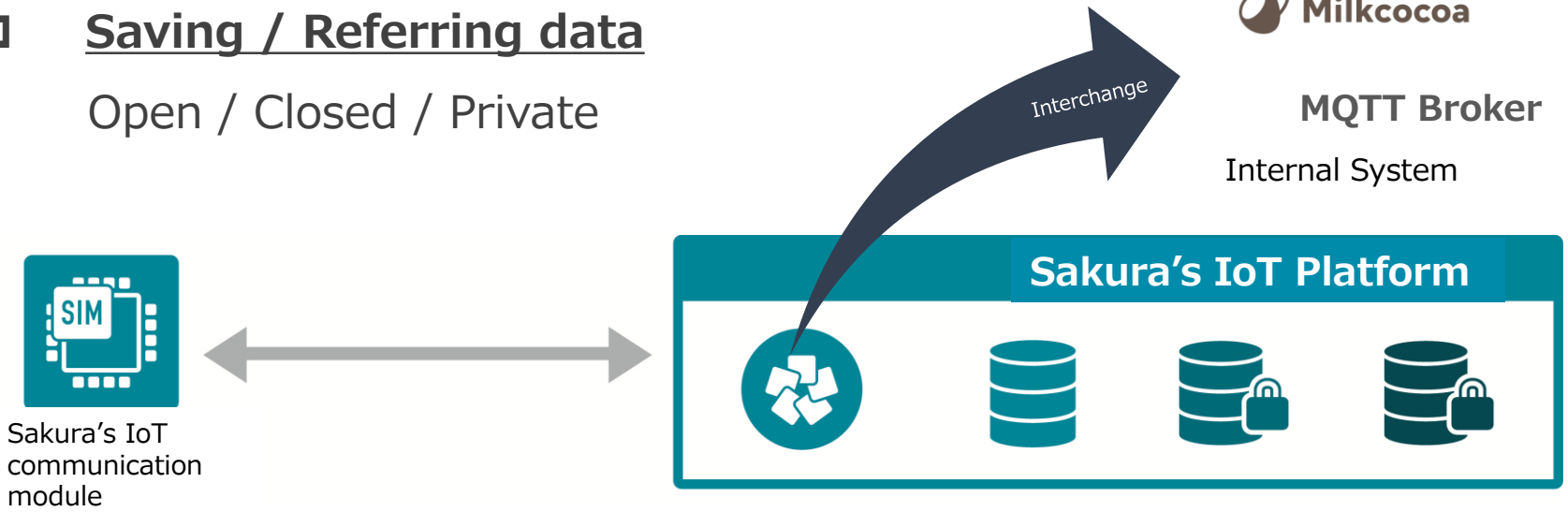
myThings

IBM Bluemix

BOT TREE for IoT

powered by amazon web services

Milkcocoa



Data interchange

- **2 Interchange methods**
  - real-time interchange
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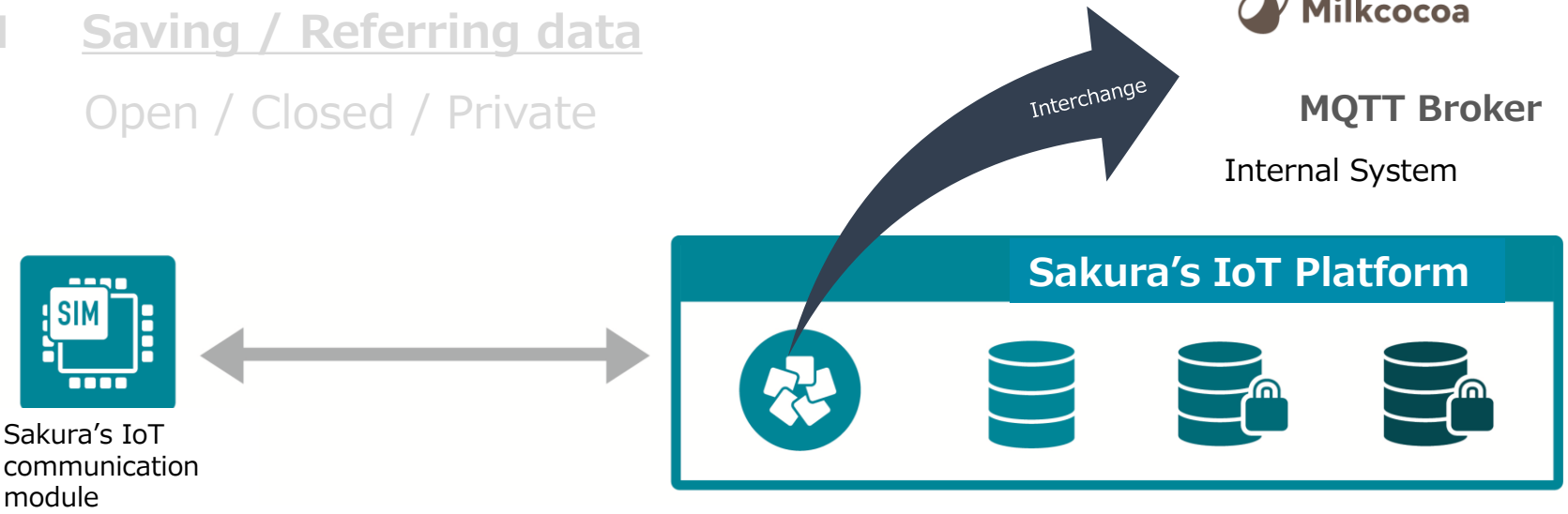

Real-time processing

Interchange system can be easily constructed by general-purpose protocol
Simple configuration for connecting to corresponding service

- General-purpose protocol
  - HTTP Webhooks
  - WebSocket
  - MQTT Broker
- Linkage with various services

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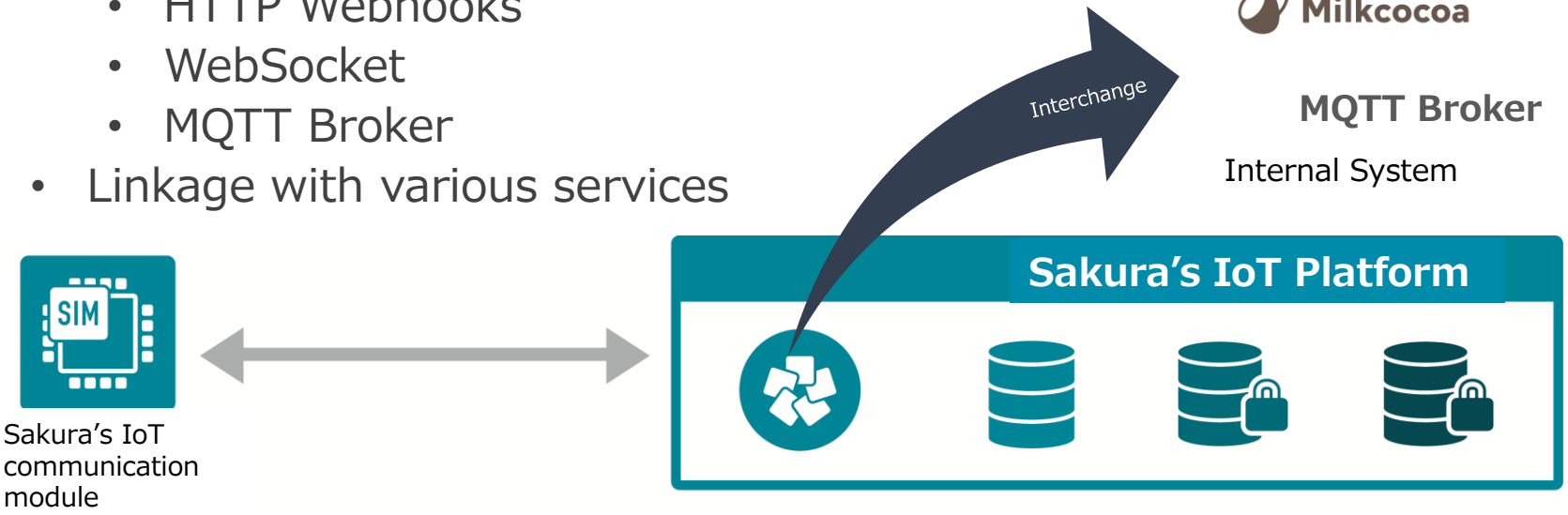
MQTT Broker

Internal System



Batch processing

Bulk interchange using saved data

Permanently saved data from communication module

Data acquisition by API with criteria specified

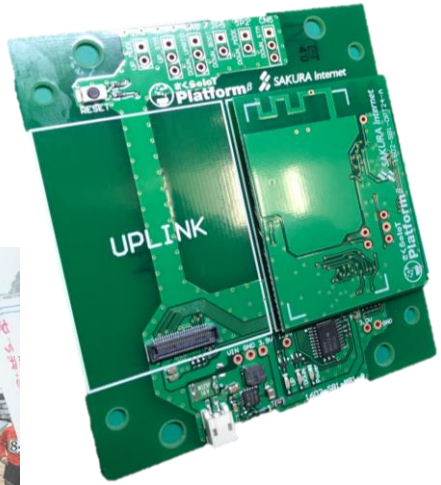
Suitable for daily batch processing

Data Saving

- 2 Interchange methods
  - real-time interchange
  - bulk interchange using saved data
- **Saving / Referring data**
  - Open / Closed / Private

development of GW type

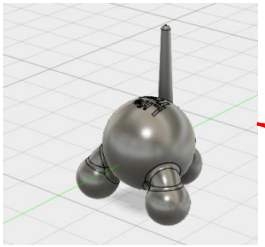
Seek the needs with business partners
Lead into mass production, new feature, and development of GW type modules



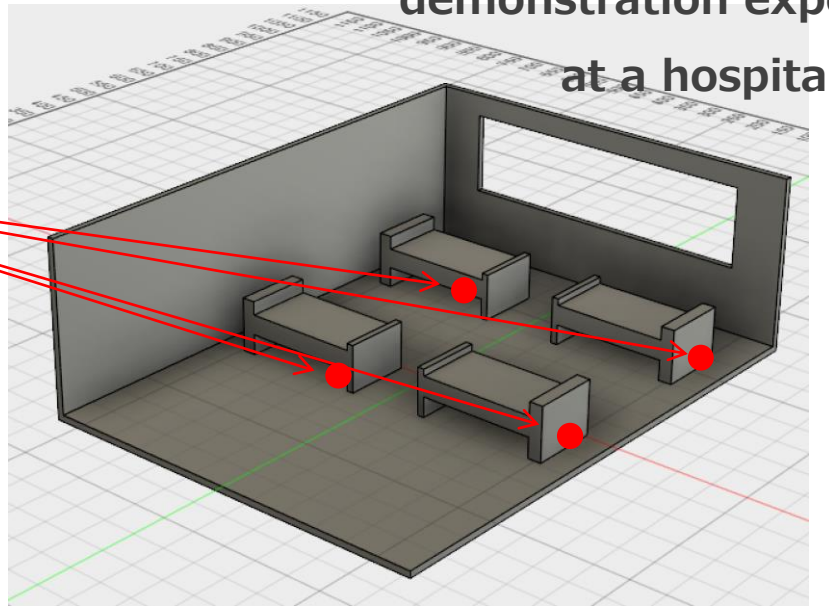
primesap

IoT Medical Healthcare Solutions

demonstration experiment at a hospital



Intel Edision
acceleration/temperature/
humidity/illuminance sensor
and
Sakura Communication module



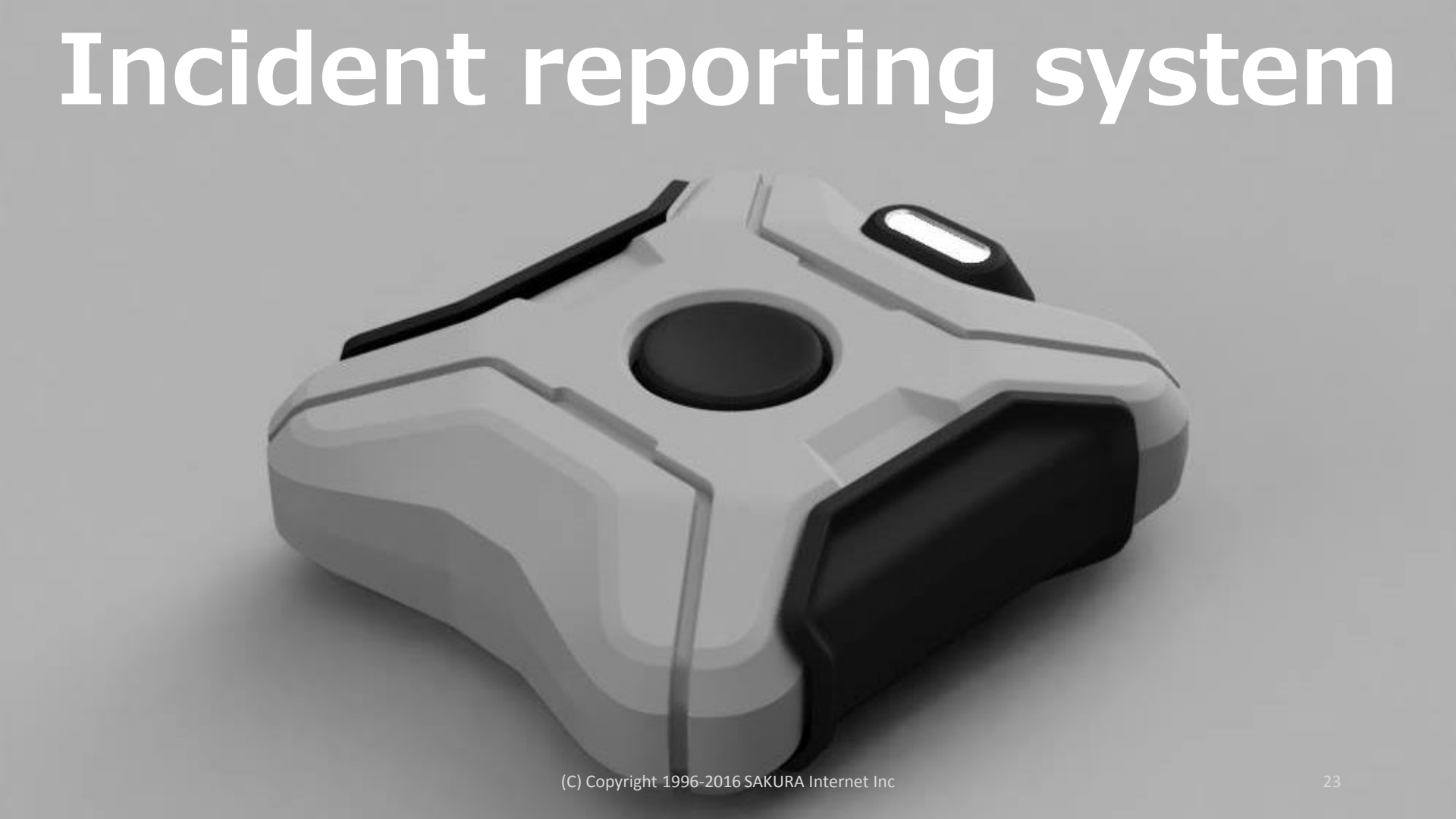
observe the body motion of sleeping patients per bed

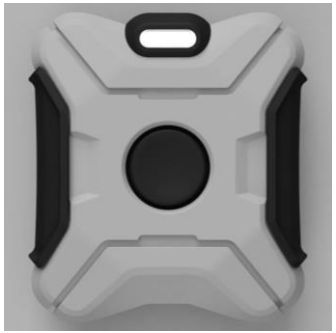
- Understand the correlation of restfulness of sleep with environment factors such as temperature
- Refine the ward environment by understanding the best factors for sleeping

tsumug

Growing the sharing economy
A platform company providing
Smart lock devices

Incident reporting system





- Incident reporting device powered by Sakura communication module
- Long term operation by battery
- Feedback from visitors at various events
- Planned interconnection with security companies, emergency services, and welfare services

Why they adopted

primesap

- Internet connection is not required for the device installation
- No infringement with security policy of the existing local network

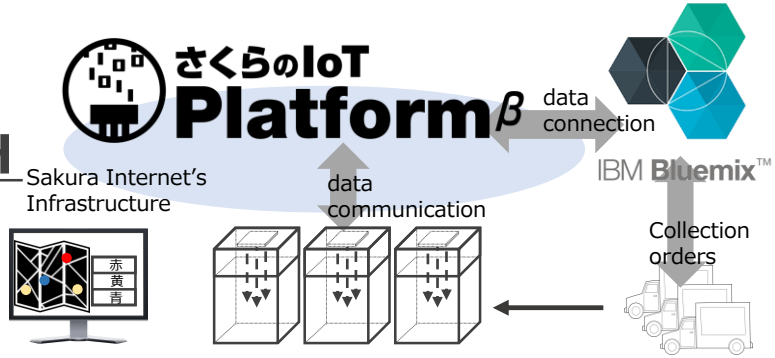
- Is easy to embed. User can focus on own product development.
- “Device to Web connection” without deep understanding of the infrastructure in between them
- Low cost and applicable for mass production

Incident reporting system

- High level of security of closed network
- Simplified architecture

Planned PoC

PoC with HUIS TEN BOSCH



HUIS TEN BOSCH is utilizing robotics, IoT, and AI for individualistic customer experiences. The PoC using Sakura Communication Module is one example of this effort.

■ **Abstract**

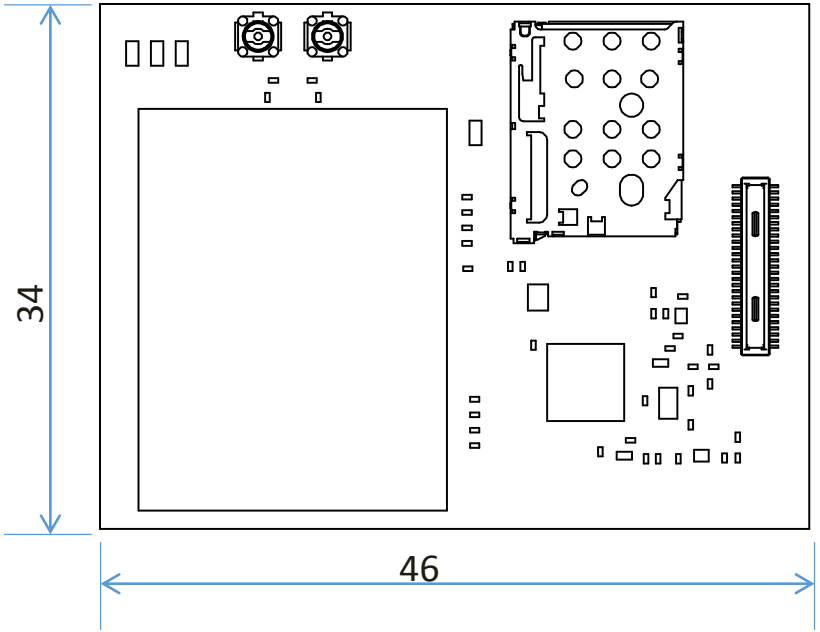
Sensors are installed on trash bins throughout the park. Collected data is sent to Sakura IoT Platform and then analyzed by cognitive computing system.
The future goal is automated trash collection using autonomous trash collection cars.

Sakura IoT Platform is adopted for the demonstration test of automated trash collection system.

※Newly developed 920MHz (LoRa) and 2.4GHz band communication modules are used among with LTE Module to find better solutions

Major Specification

Specification	
External Dimensions	46W × 34D × 3H [mm]
Power-supply Voltage	3.4 ～ 4.2 [V] (3.8 [V] nominal)
Consumption Current	800 [mA] max @Active / 1 [mA] typ. @RRC idle
Operating Temperature Range	-10 ～ 60 [℃]
Approval	Construction design certification / Telecommunications equipment certification
Compliance Specification	3GPP FDD-LTE Release 10
Frequency Band	2100 [MHz] (Band 1) / 900 [MHz] (Band 8)
UE Category	Category 1 (Downlink 10 [Mbps] / Uplink 5 [Mbps])



Price : Charging on communication module, option parts and functions

RP : Point consumed by using Sakura's platform
RM : Unit for exchanging data between communication module and platform

Price: in JPY

Category	Name	Included RP	GW Use / Disuse	Product Price		Minimum charge for Platform usage	
				Regular Price	Campaign	Listed Price	β period
Communication Module	LTE SCM-LTE-beta	1M	Disuse	¥9,960	¥4,980	¥100/mo. ※	Free of charge
	920MHz band SCM-920-01	none	Use	Less than ¥5,000 (Plan)	–	¥100/mo. ※	
	2.4GHz band SCM-2.4-01	none		Less than ¥5,000 (Plan)	–		
Gateway	920MHz band SCG-920-01	1M	–	coming soon	–	¥100/mo. ※	
	2.4GHz band SCG-2.4-01	1M			–		
Option	Verification board SCO-BB-01	none		¥5,000	¥2,500	–	–
	Shield SCO-ARD-01	none		¥8,000	¥4,000		

※Please inquire for bulk pricing

※with 40K RP
※prices are preliminary