NTELS, Republic of Korea

ONEM2M USE CASES IN KOREA

Contact: Ms. Yoo Rhee Jin   Email:
            NTELS, Republic of Korea

NTELS

OneM2M Use Cases In Korea

May 2024

Sustainable Convergence for Digital Transformation

Creative Convergence

ntels

Contents

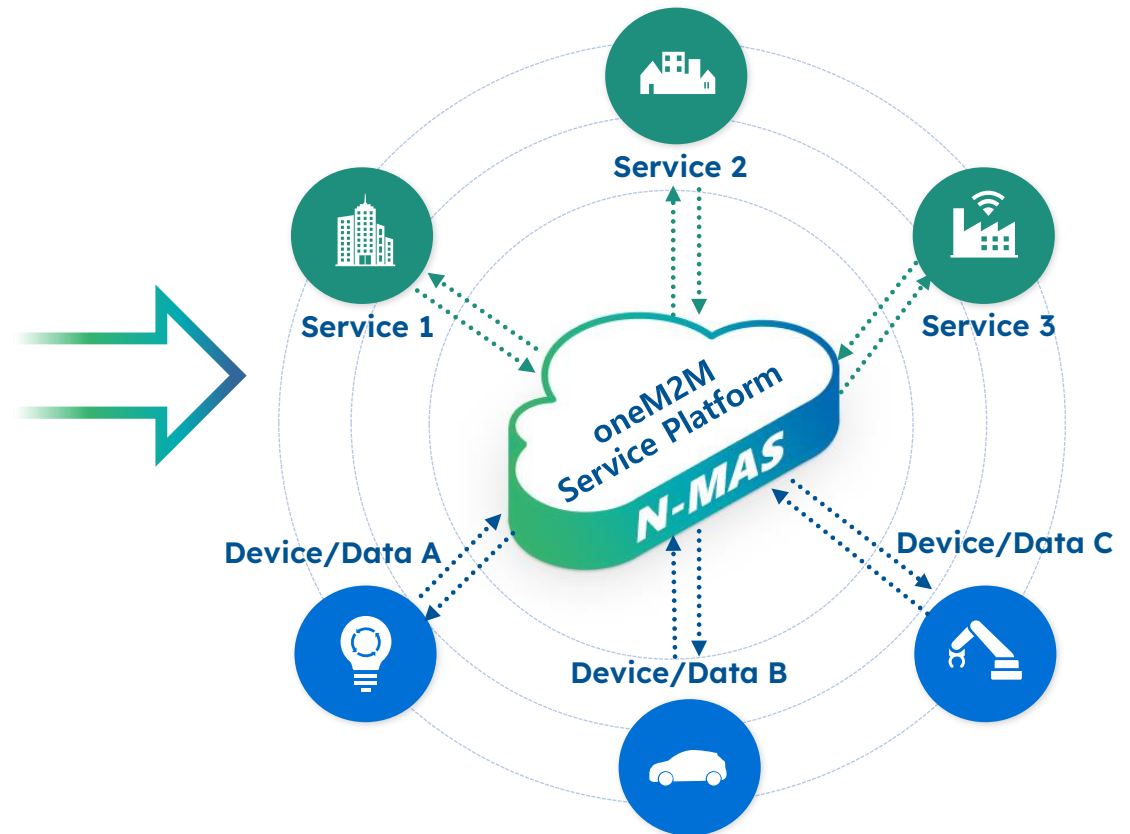# Why oneM2M Standard Platform ?

Silo-type Implementation for Each Industry Sector	Common Platform Implementation for Any Industry Sector

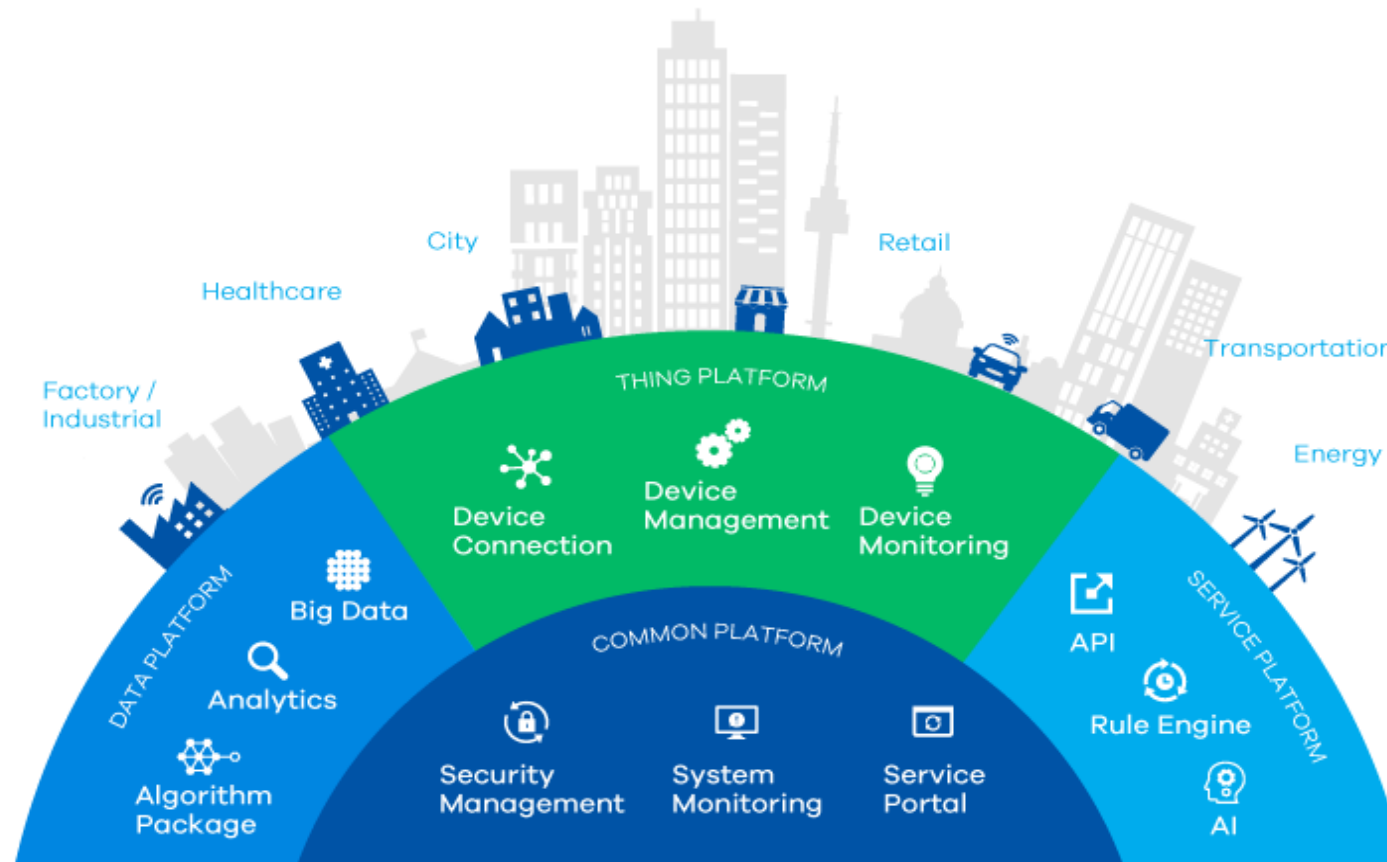**A separate IoT platform for each service**
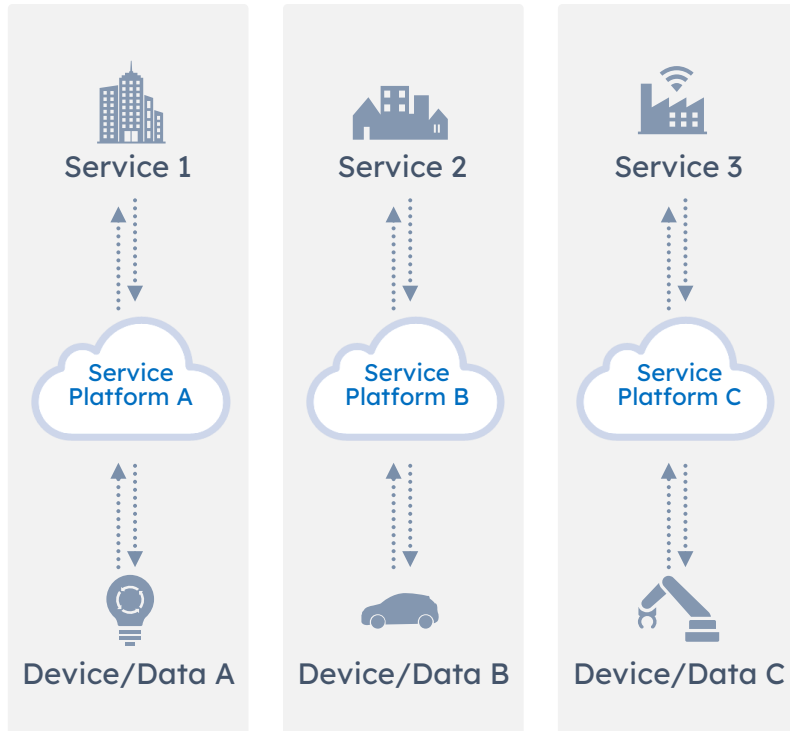
A common IoT platform that fits into any services

NTELS AIoT Platform : N-MAS

N-MAS is an AI-integrated IoT platform compliant with oneM2M, the global standard IoT protocol. Its key features are IoT data collection/processing/visualization and device management.

N-MAS Solution - Certificates and Awards

oneM2M Certificate	TTA Certificate & Award

oneM2M Certificate

World's First Certification

- Globally recognized -

(2017. 02)

World's First Global Certification

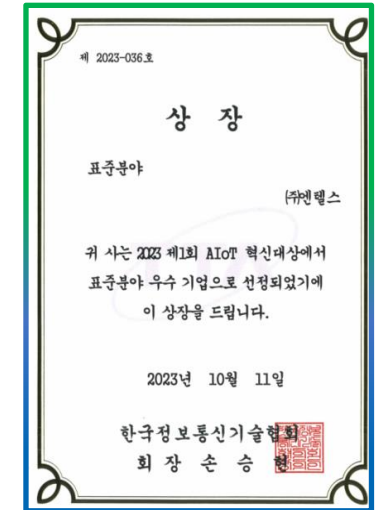- GCF Certification by a global authority

(2020. 01)

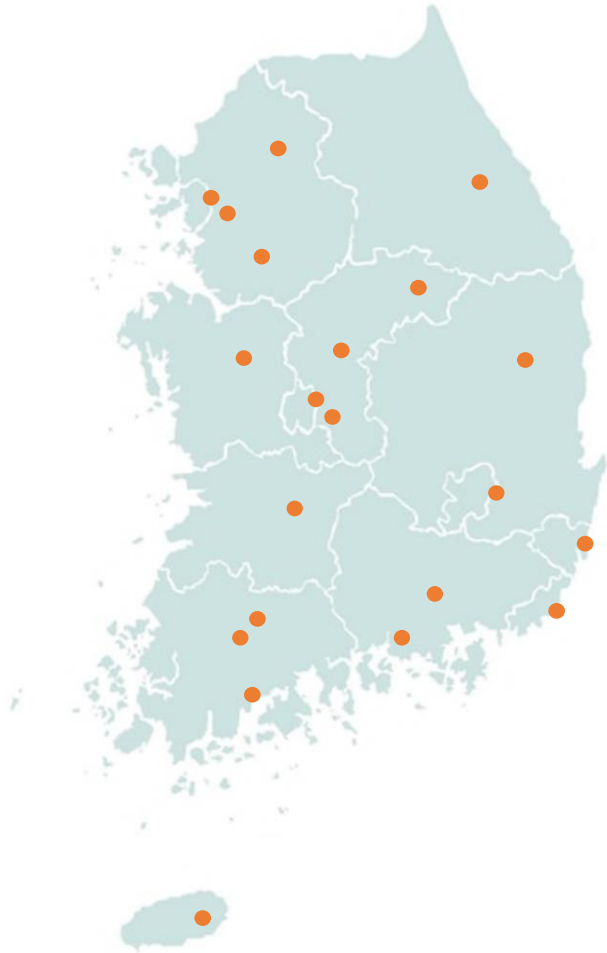### TTA Certificate & Award

Good Software (GS) Certification

(2023. 06)

The 1st AIoT Innovation Awards

(2023. 10)

NTELS AIoT Platform (N-MAS) Effect

Category	Purpose	Effect	Details
SMART CITY	Secure golden time for urban safety	Golden Time 30m ▶ 15m	- Rescue victims rapidly through real-time accident reception - Secure access roads for disaster handling vehicles and control the disaster situations
INDUSTRY	Shorten the power outage duration	Outage Time 15m ▶ 9m	Failure prediction and analysis of power distribution facilities
ENERGTY	Reduce operating cost	Operating Cost 8% ▼	Real-time collection/control of gas metering data and standardization of operation systems
TELECOMMUNICATIONS	Prevention of crime recurrence	Crime Recurrence 11% ▼	Crime prevention through criminal location tracking

NTELS AIoT Platform (N-MAS) Use Cases in Korea

SMART CITY

- IoT Platform for Disaster Management (local governments in Korea)
- Open Smart City Platform
- Smart Park System
- Pilot Complex Town for Zero Light Pollution
- Public Building Energy Efficiency Service
- Traffic Accident Prediction Service (Korea Road Traffic Authority)

INDUSTRY

- Smart Power Distribution System (Korea Electric Power Corporation, KEPCO)
- Industrial Motor Failure Prediction System
- Shipbuilding and Maritime IoT Platform
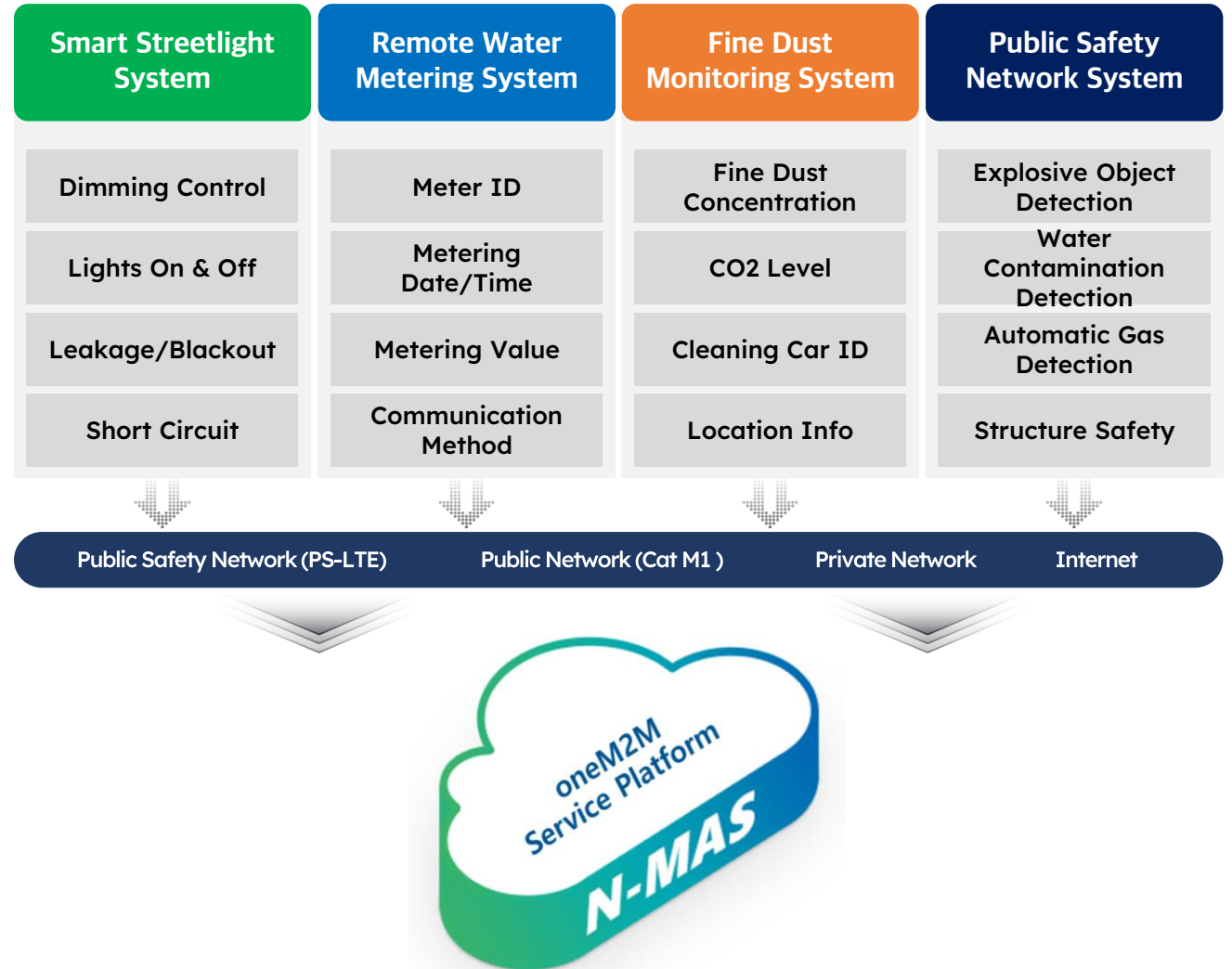- Device Monitoring System

ENERGY

- Gas AMI Platform (Korea City Gas Association)
- Energy IoT Platform
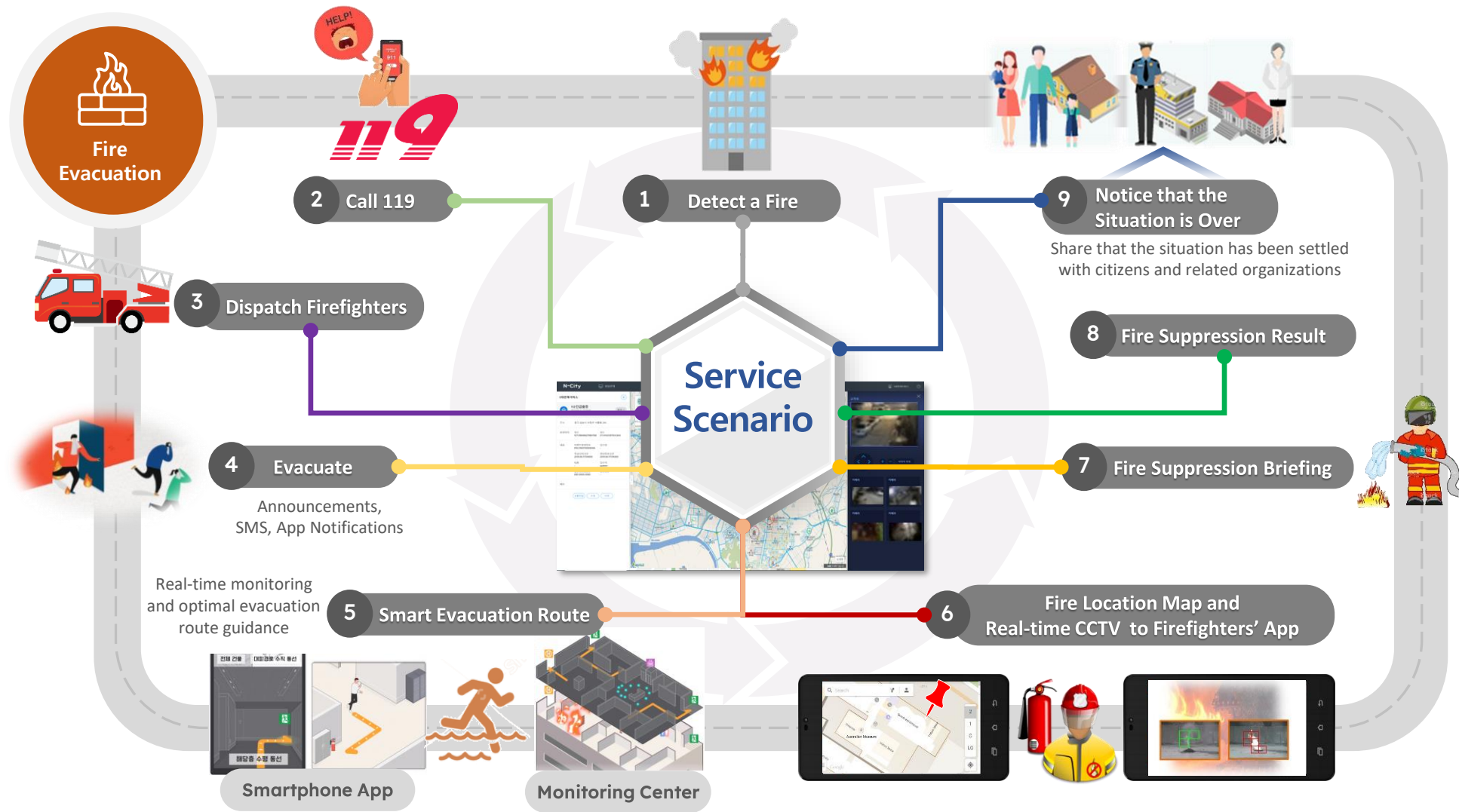- Power Mgmt. Software Platform (HUB-POP)

TELECOMMUNICATIONS

- Location Tracking Service (Ministry of Justice)
- Smart Tag IoT Service
- Cellular IoT (3GPP)

SMART CITY – IoT Platform for Disaster Management

Needs

To prepare for national disasters and resolve safety concerns for citizen safety/health and disaster management

Features

Detect and manage fine dust, water leakage, traffic lights, streetlights, explosive objects, etc.

Benefits

- Secured golden time through disaster situation management such as real-time accident reporting, securing access roads, etc. **30 min. ▶ 15 min.**
- Reduced communication costs by using public safety network (PS LTE)

Smart Streetlight System	Remote Water Metering System	Fine Dust Monitoring System	Public Safety Network System
Dimming Control	Meter ID	Fine Dust Concentration	Explosive Object Detection
Lights On & Off	Metering Date/Time	CO_2 Level	Water Contamination Detection
Leakage/Blackout	Metering Value	Cleaning Car ID	Automatic Gas Detection
Short Circuit	Communication Method	Location Info	Structure Safety

Public Safety Network (PS-LTE)   Public Network (Cat M1)   Private Network   Internet

oneM2M Service Platform
N-MAS

SMART CITY – Fire Evacuation Scenario

Fire Evacuation

2 Call 119

1 Detect a Fire

9 Notice that the Situation is Over
Share that the situation has been settled with citizens and related organizations

3 Dispatch Firefighters

8 Fire Suppression Result

Service Scenario

4 Evacuate
Announcements, SMS, App Notifications

7 Fire Suppression Briefing

Real-time monitoring and optimal evacuation route guidance

5 Smart Evacuation Route

6 Fire Location Map and Real-time CCTV to Firefighters' App

Smartphone App

Monitoring Center

SMART CITY – Other Use Cases

Smart Street Light System

- LED Lights
- Public Safety Network
- Dimming SMPS
- Pole Light Monitor
- Flashing Controller
- WD-L450P

Fine Dust Monitoring System

- External Modem
- External Modem
- A100 Fine Dust Sensor
- Station #1
- Station #2

[Change cleaning route by measuring and analyzing fine dust on roads]

SMART CITY – Other Use Cases

Smart Park Service

- Video-based Safety Management
- Voice-based Emergency Bell
- Smart Lighting
- Environment Sensing in the Park
- Bench Using Solar Energy
- Smart Trash Can
- Park Guidance Based on AR
- Smart Direction Board
- Public Wi-Fi
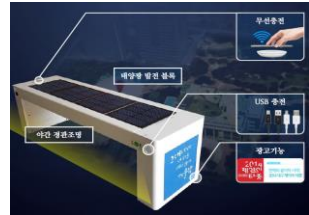
On-site Smart Lighting System

Smart Street Lights

Network Gateway 2

Network Gateway 1

Gateway

Short Distance Communication

Gateway
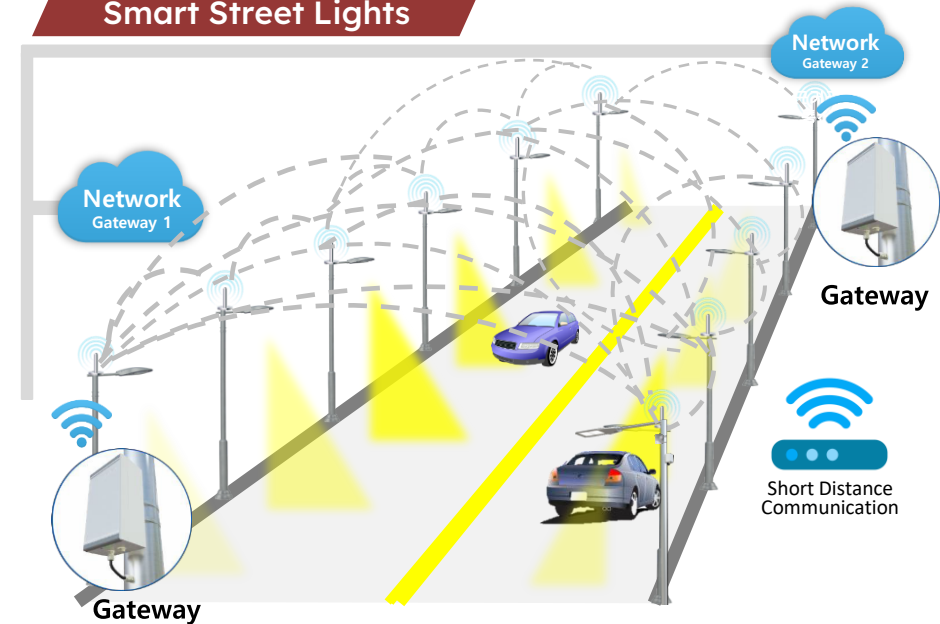
Fine Dust Sensing

Fine Dust NO2 SO2

Emergency Alarm

Emergency Bell & Situation Report

INDUSTRY - Smart Power Distribution System

Needs

- To predict and analyze the failure of power distribution facility
- To implement an advanced facility management system capable of self-diagnosis

Features

- Collect and analyze sensor data installed on electric poles by IoT platform
- Manage distribution facilities, sensors, and gateways

Benefits

- Established a self-diagnosis system to prevent failures of power distribution facilities
- Provided diverse services through power distribution infrastructure (commercial area analysis, security enhancement, disaster handling)

Error Report

Drone Dispatch

Facility Manager — Sensor Error Detection → System — Electric Pole Sensors — On-site Facility Inspection → Site Manager

Sensor Signal

On-site Inspection
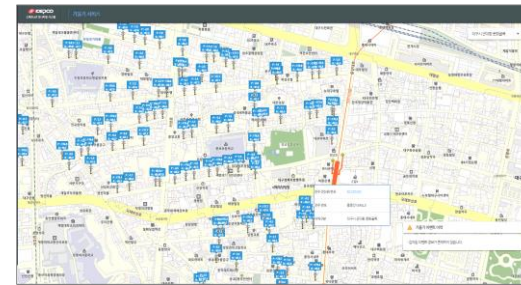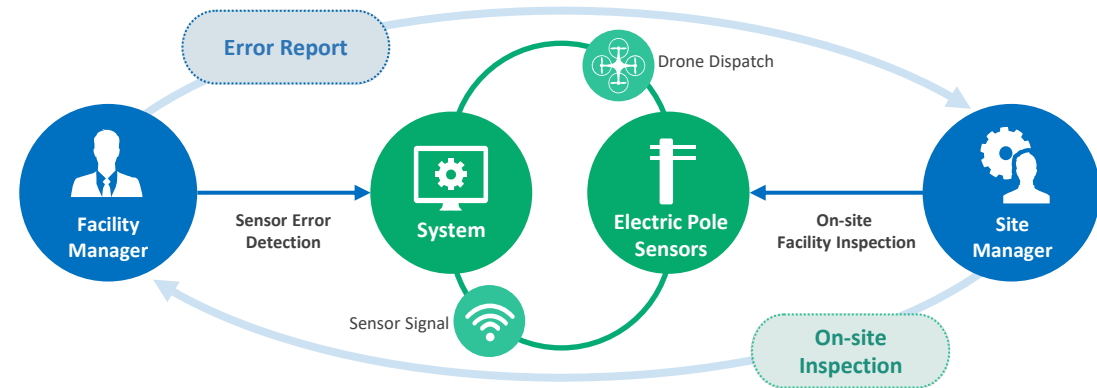
[Electric Pole Tilt Monitoring]
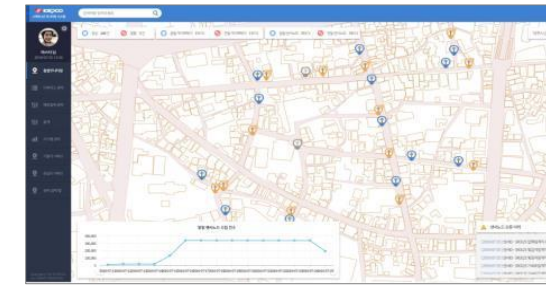
[Map-based Integrated Monitoring]
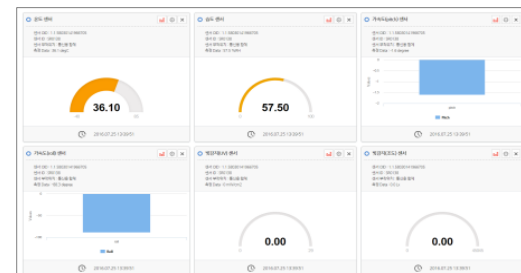
[Sensor Data Monitoring]

[Facility Status Monitoring]

SMART CITY – Open Smart City Platform

Needs

To solve urban problems such as energy shortage, traffic difficulties, environmental pollution, social safety, etc.

Features

- Implement a platform for maritime safety
- Manage smart crosswalks for pedestrians
- Provide beacon-based small business marketing service
- Building a situation-aware evacuation guidance system

Benefits

Saved enormous costs by implementing the integrated N-MAS platform compared to the individual implementation of each service

$22M ▶ $14M

Maritime Safety Service

Maritime Drone

Guardian

Smartphone App

LTE Real-time Video Transmitter

LTE Network

oneM2M Service Platform N-MAS

Operator

Operating System

Smart Crosswalk System

Control Body | Voice Guidance | Safety Fence | Stop Line Violation Sign

Beacon-based Marketing Service

Situation-aware Evacuation System

INDUSTRY - Industrial Motor Failure Prediction System

Needs
- Asset & performance management (industrial motors, components, etc.)
- Predict industrial motor failures in advance

Features
- Monitor the soundness of industrial motors, predict failure and remaining life, detect abnormal operation, etc.

Benefits
- Reduced downtime of motors
- Decreased on-site service visits
- Optimized inventory levels of spare parts
- Saved costs through optimal facility performance management

N-MAS

Internet | Wi-Fi, 4G

Internet | Wi-Fi, 4G

Large Electric Motor

Small Electric Motor
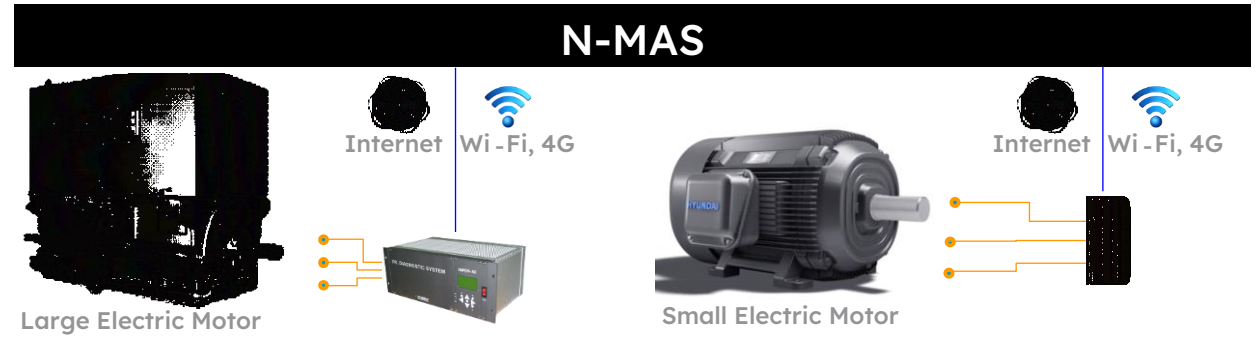
[Dashboard]
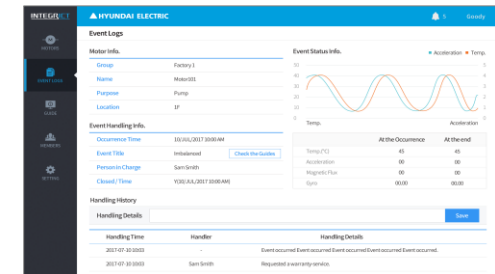
[Monitor and Handle Abnormality]
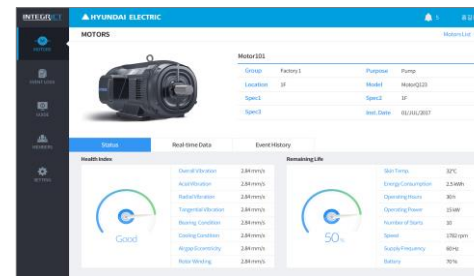
[Health/Life Monitoring of Each Motor]
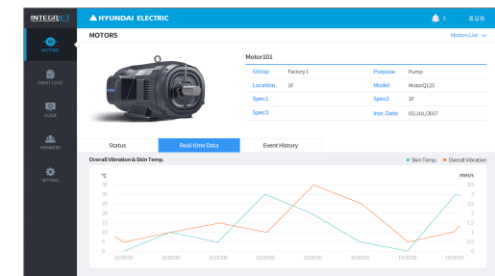
[Data of Each Motor]

ENERGY – Gas AMI (Advanced Metering Infrastructure) Platform

Needs
- To collect/control the gas metering data in real-time and standardize the operation system
- To collect metering data regardless of carrier network

Features
- Convert/collect/control standardized metering data from local gas associations to oneM2M standards
- Provide interconnection of various networks - Linkage with different carrier platforms

Benefits
- Operates in public cloud and provides managed services
- Gas companies reduce billing errors by blocking/resuming gas supply and updating rate information through the IoT platform
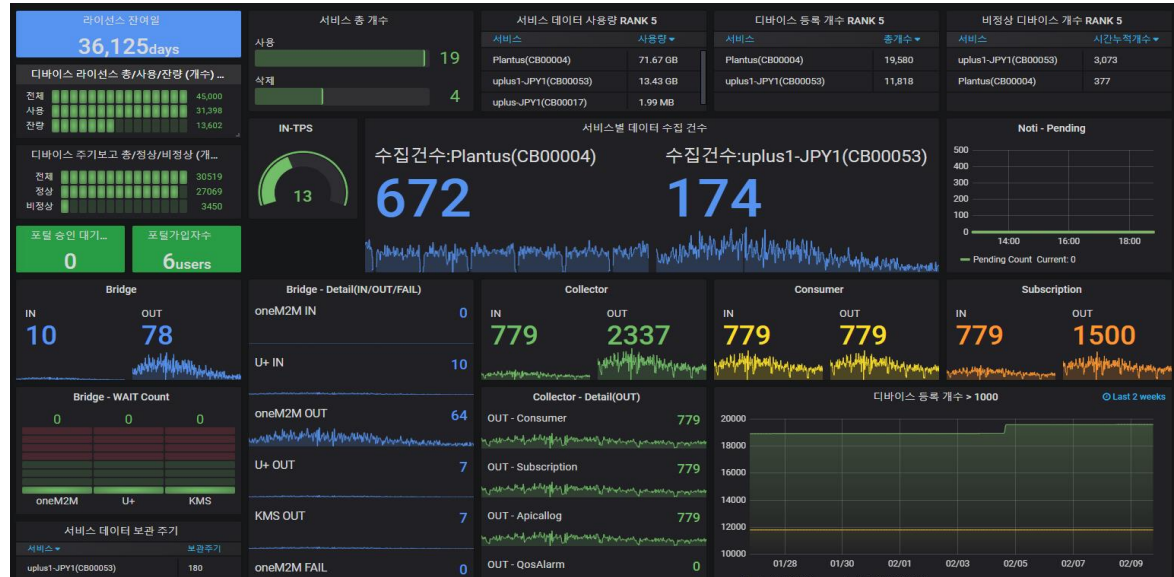
TELECOMMUNICATIONS – Location Tracking Service

Needs

- To prevent social crimes such as child kidnapping and sexual offenses
- To prevent crime recurrence by detecting signs of crime in advance

Features

- Track and predict the movement of criminals
- Setting restrictions on leaving during specific time slots
- Set prohibited areas (no access/entry) and generate alarms when the criminal enters the area

Benefits

- Efficient management in case of abnormal situations through real-time location tracking of criminals
- Protect victims from offenders
- Provide seamless service on both web and mobile
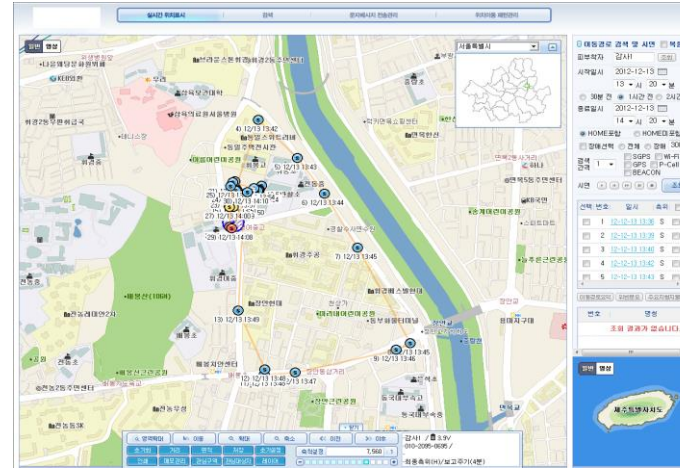
Moving Path

Moving Path
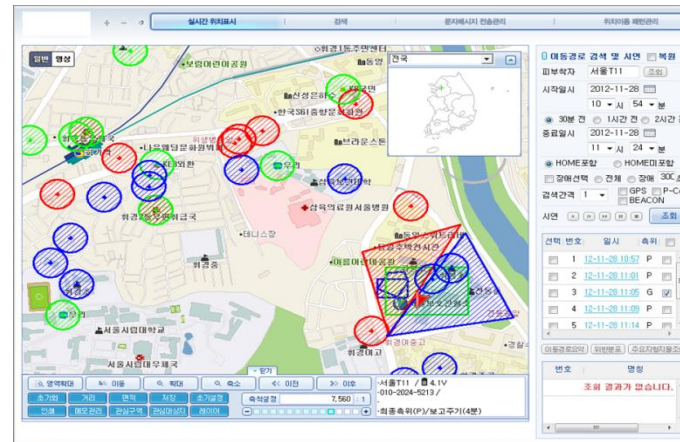
Restricted Zones

Event Alert

TELECOMMUNICATIONS – Smart Tag IoT Service

Needs
- Location alarms for pets and belongings
- To prevent children from getting lost

Features
- Track your belongings wherever they are (supports long-distance)
- Show distance/direction from smart tag to smartphone and gives sound alert
- Receive location information even if the smart tag is not Bluetooth paired (via another user's phone

Benefits
- You can see where it has traveled through the timeline
- Even if the smart tag is in a remote location, you can still receive location information from other nearby users' smartphones

Find Companion Animal

Tags and smartphones work together to track the location

Loud Alarm

Tag will generate an alarm when it comes within 120m from the smartphone
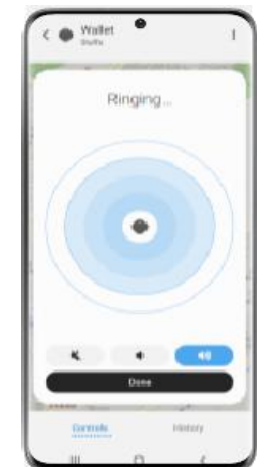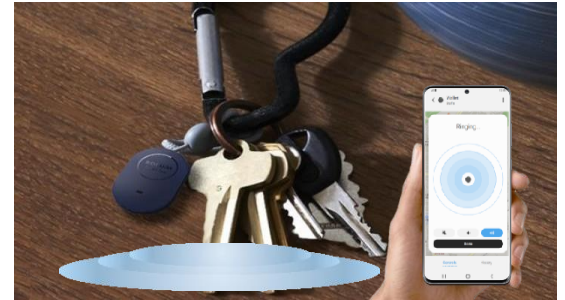
Possible to check the product's current location and location history through mobile

NTELS Solution Business Map

ntels solutions are provided to customers in various industries based on top-tier technological competitiveness in the industry.

Category	Solution	Solution Info	Clients
Private 5G	SMP	Private 5G Solution for Enterprise	KHNP, KICOX — Enterprise
LTE/5G	Policy Core (PCF, BSF, NSSF, PFDF)	4G, 5G Policy Core Solution	SK telecom — Telco
	Charging (OFCS, CHF)	Charging Solution	SK telecom, AT&T, Three.co.uk, YTL SINCE 1955, SK telink — Telco
	MEC	Media Edge Cloud (Media Business Platform)	SK telecom — Telco; SINCLAIR BROADCAST GROUP — Media; SK hynix
	xTMS	Everything Traffic Management System	GYEONGGI-DO, 경기도교육청 — Public; KHNP — Enterprise
Billing	CCBS FOSSA Billing	CCBS : Integrated Telco Business Support Solution (CRM, PRM, SCM, Charging & Billing) Fossa Billing : SaaS Billing for B2B Enterprise	KB Kookmin Bank, LG HelloVision, SEJONG TELECOM, KCT Inc., SK telink, SAMSUNG SDS — MVNO / Media / IDC
AIoT	N-MAS	IoT Data Collection, Processing, Control, Visualization, & Device Management Solution	SK telecom, KEPCO, SOLUM, Ministry of Justice — Public / Enterprise
	N-SCALE	Integrated Building Management Solution	SK telecom, ADT, 수원시 SUWON CITY, QuadReal — Public / Enterprise
Data	Virtualization, Lakehouse	Data Fabric using Data Virtualization, Integration of DW & Data Lake	SK telecom, kt — Telco; KEB Hana Bank, Shinhan Bank — Finance
AI	AICC	Contact Center based on AI & Big Data	hear.com, ST. SYNTEK INFORMATION SYSTEMS, Book City, 미르네트웍 — Enterprise

N-MAS Solution Benefits

N-MAS Connectivity solves issues in both development and business areas so you can secure IoT business value.

No Overlapping Development

Device registration, management, and security; data communication, store, and management

Guaranteed Interoperability

Interoperability between devices and service providers

Reduced Cost & Time

Reduction in resource investment by using common functions applied to various industries
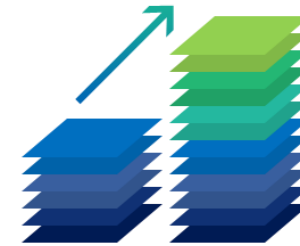
Improved Productivity

Fast time-to-market while securing the service quality

N-MAS Solution – Measurable Implementation Effect

In addition to platform development and operational costs, N-MAS Connectivity can significantly reduce your investment when implementing services.

- Platform Development Cost: Fixed, regardless of the number of services
- Service Implementation Cost: Significantly reduced as the number of services increases
- Operational Cost: Fixed, regardless of the number of services

Approximately **20% +α** cost reduction based on **3 services**
Approximately **50% +α** cost reduction based on **10 services**

End-to-End Service via Modular Structure

N-MAS has a modular structure of Thing Platform, Data Platform and Service Platform so that they can be easily customized and expanded to meet business needs. The 3 platforms can be applied as a whole or modularly.

Thing
Data
Service

Thing Connectivity
Device Connectivity Management

Device Connectivity
Device Mgmt.
Device Monitoring

Data Management
Big Data Processing & Analyzing

Data Mgmt.
Data Lake
Data Analytics

Services Implementation
Service Implementation Tool

API
Rule Engine
Service Portal
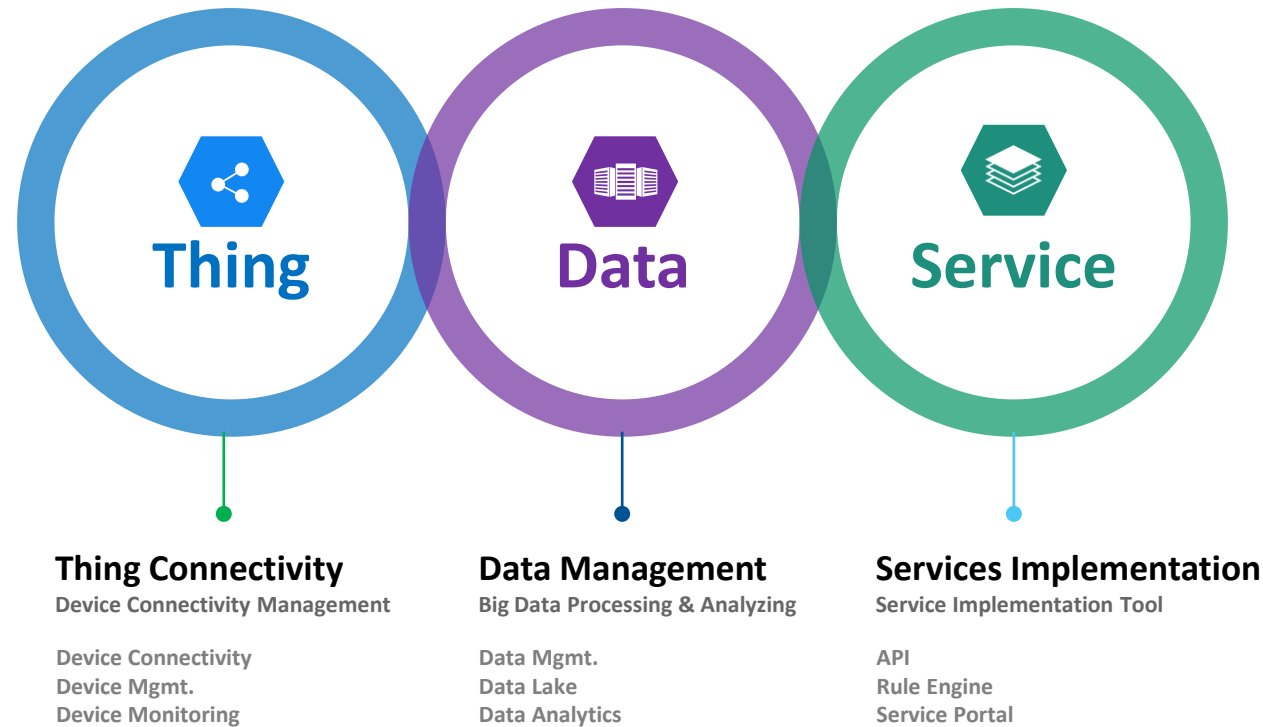
(Example Screen) N-MAS Solution – IoT Service based on PS-LTE

(Example Screen) N-MAS Solution – Smart City Data Hub

N MAS™ Data

(Example Screen) N-MAS Solution – Safety 2.0 System
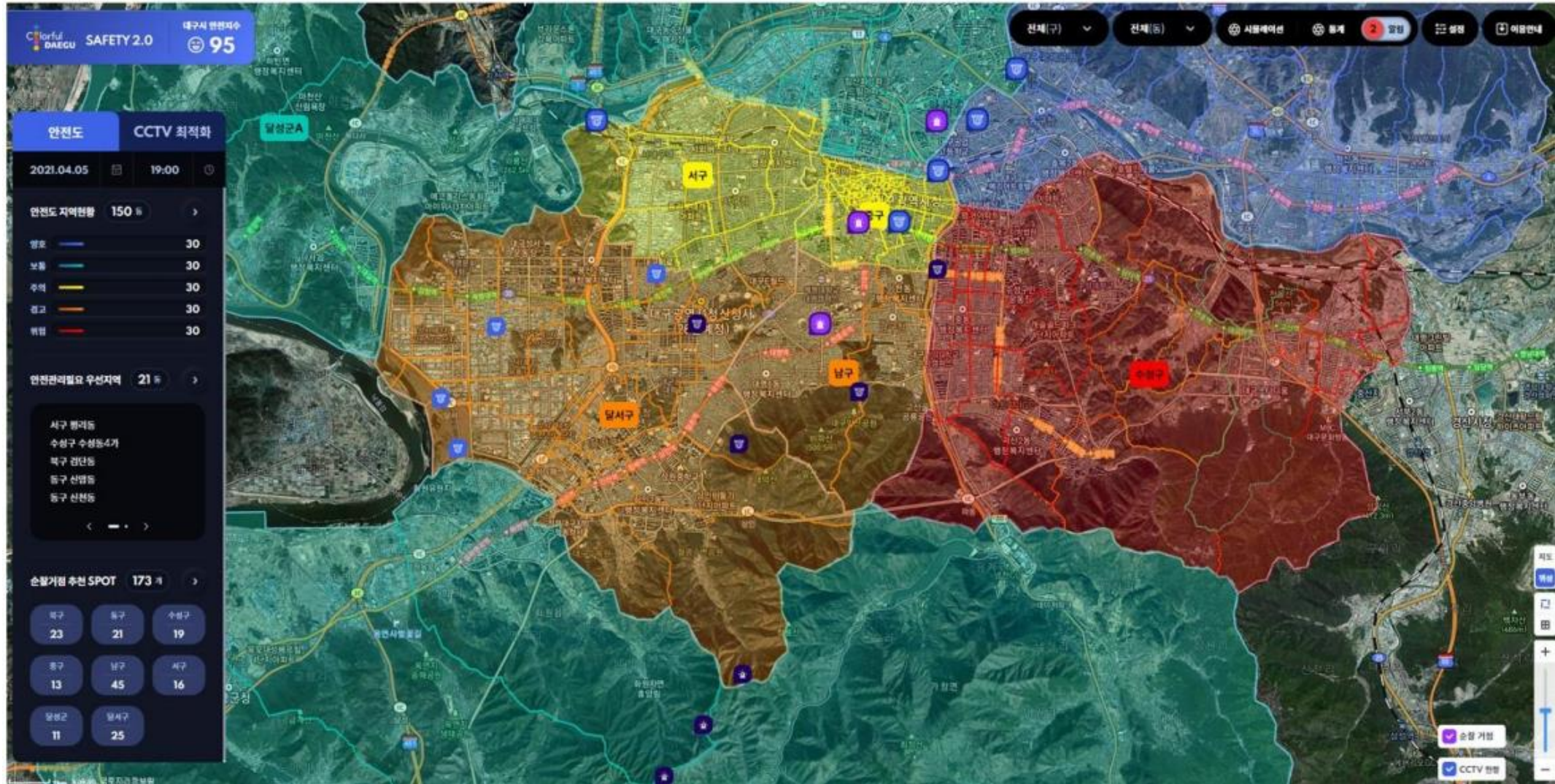
Q & A

End of Document

NTELS

www.ntels.com

Geumha Bldg. 8th Floor, Hakdong-ro 401, Gangnam-gu, Seoul, 06069, Korea

Tel	02-3218-1200
Fax	02-3218-1299
General	info@ntels.com
Sales	sales@ntels.com