

# SINGAPORE SMART CITY CONSORTIUM INTRODUCTION

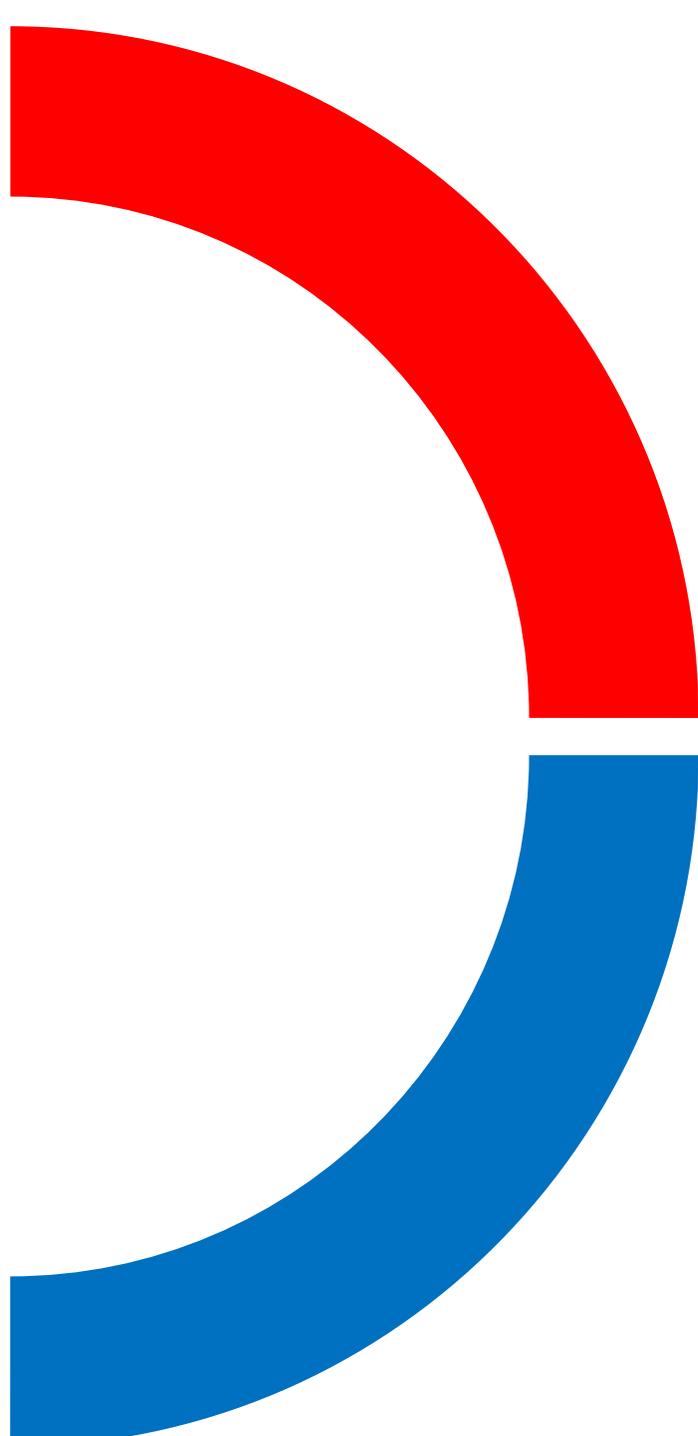


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-  2 – Smart Security Solution
-  3 – Smart Sustainability Solution
-  4 – Smart Community Solution
-  5 – Smart Mobility Solution
-  6 – Enablers

## II – Business Development

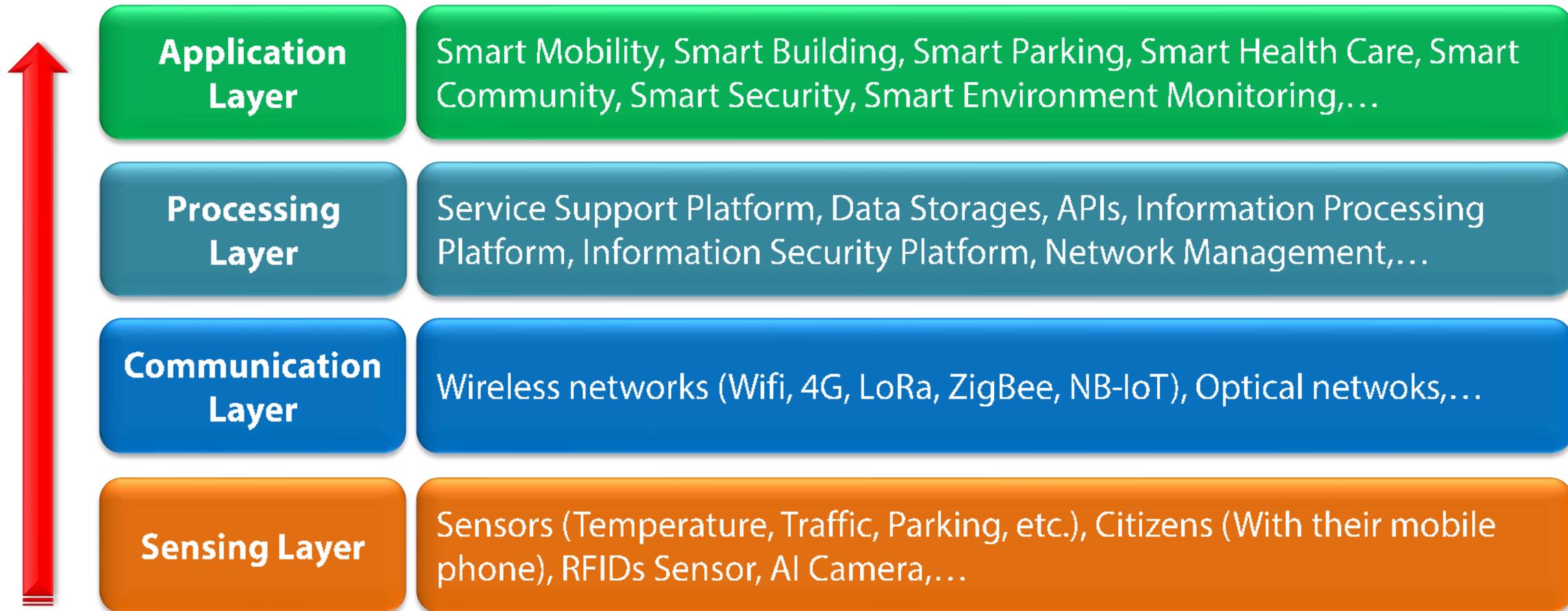


**PART 1**  
**Introduction**





## Smart city layer structure



Consortium Leader



**Smart Community**

Smart Home/ Smart Building



Smart Farm/ Smart Park



**Smart Sustainability**

Energy Management



Energy Storage System



Environment Protection



**Smart Security**

Surveillance



Facilities/Access Control



E-Payment



**Smart Mobility/  
Smart Transportation**

Ride-Hailing



Fleet Management



**Connectivity**



**Enablers**

**Image Sensing**



NEXWAH TECHNOLOGY  
YOUR ENGINEERING & BUSINESS SERVICE PARTNER

## 1. Smart Security

### 1.1. Surveillance Solutions

- Smart Lampposts
- CCTV Cameras
- Video Analytics (Human Tracking)
- Video Analytics (Vehicle Tracking)

### 1.2. Access Control

- Electronic Locking Devices
- Intrusion Detection Alarms
- Security Management Platform
- Visitor management Platform

### 1.3. Edge Cloud Solutions

- Ai Edge Module
- Data Logistics Cloud
- Edge Cloud Ai Balance Analysis
- Network Transport Protocol
- IOT Gateway Platform
- Multi-Access Edge Computing

### 1.4. Digital Payment

- Transit Ticketing & Fare Collection
- Smart school
- Digital Identification

### 1.5 Fire Monitoring

## 2. Smart Sustainability

### 2.1. Energy Management

- Energy Audit
- Energy Monitoring
- Performance-based Management

### 2.2 Energy Storage

- Lithium Battery
- Energy Storage Systems
- Battery Monitoring Systems

### 2.3. Environmental Protection

- Leak Detection

## 3. Smart Community

### 3.1. Smart Devices

- Smart Lighting
- Smart Switches
- Smart Controls
- Smart Modules
- Smart Lockers

### 3.2. Platform

- Building Management
- Estate Management
- Parcel Delivery Locker Platform

### 3.3. Smart Indoor Agriculture

## 4. Smart Mobility

### 4.1. Ride-hailing

- Ride-hailing Booking Platform
- Vehicle Routing Technology

### 4.2. Fleet Management

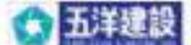
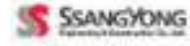
- Fleet Management Platform
- Vehicle Tracking Technology

Our Solutions

# Our Partners

Each of our consortium members has various partners in various industries in Singapore as well as world wide

COMMERCIAL REAL ESTATES	INDUSTRIAL & DATA CENTERS	SEMICONDUCTOR
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## **PART 2**

# **Smart Security Solutions**

Solutions/ Products – Consortium members - Case studies

## 2.1 Surveillance Solutions

- Smart Lampposts
- CCTV Cameras
- Video Analytics (Human Tracking)
- Video Analytics (Vehicle Tracking)

## 2.3 Access Control

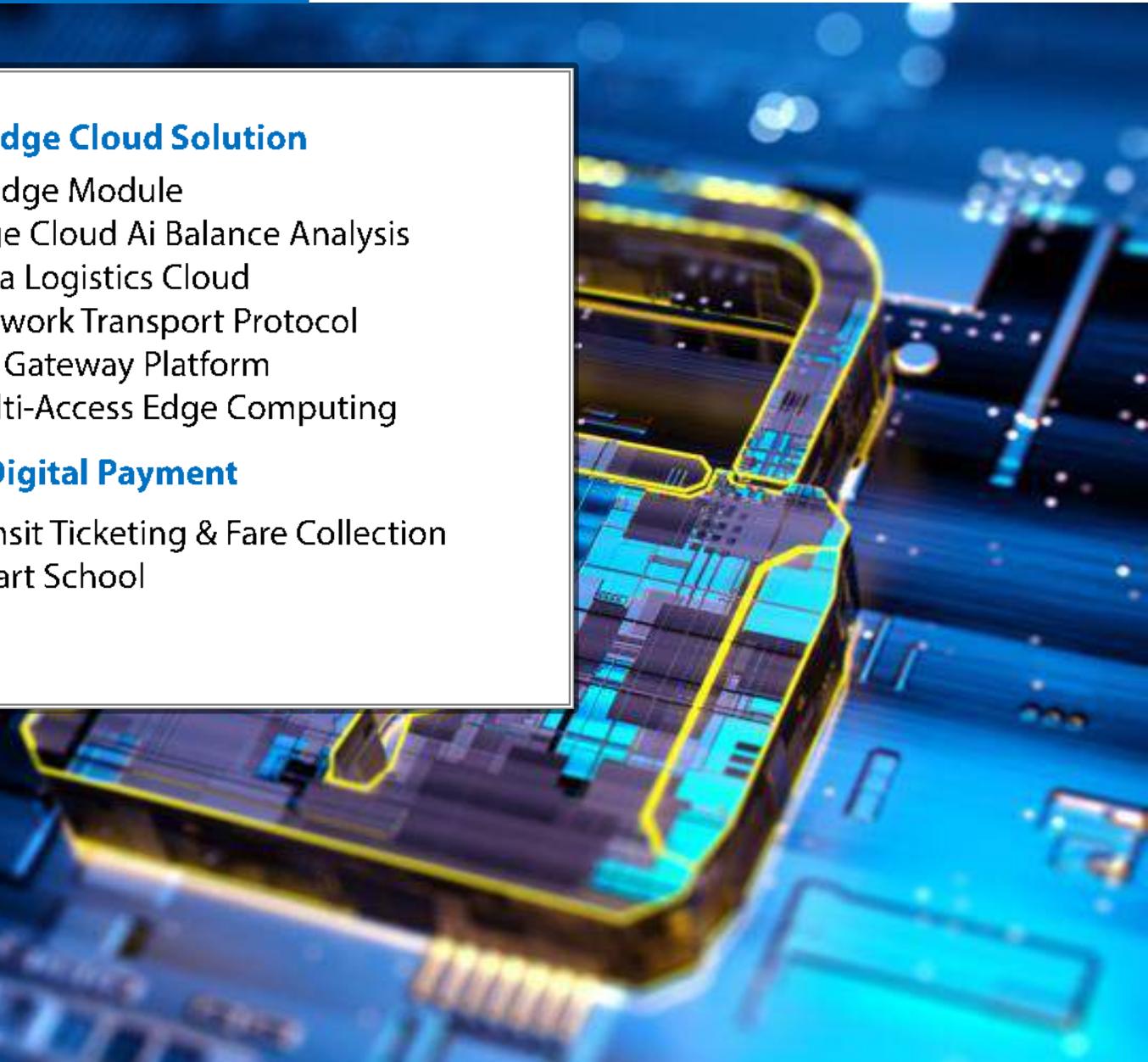
- Electronic Locking Devices
- Intrusion Detection Alarms
- Security Management Platform
- Visitor management Platform

## 2.2 Edge Cloud Solution

- Ai Edge Module
- Edge Cloud Ai Balance Analysis
- Data Logistics Cloud
- Network Transport Protocol
- IOT Gateway Platform
- Multi-Access Edge Computing

## 2.4 Digital Payment

- Transit Ticketing & Fare Collection
- Smart School



## 2.1 Smart Surveillance Solutions

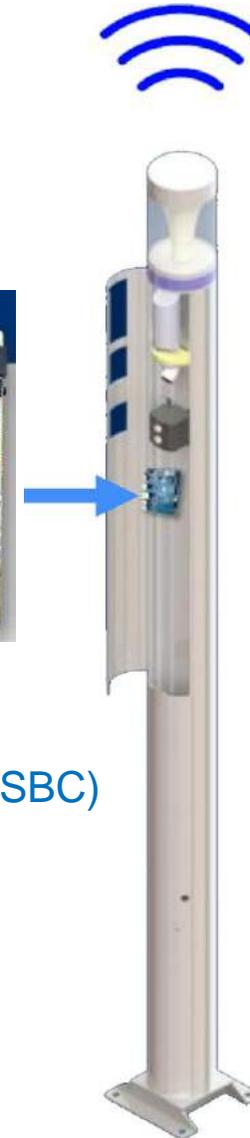
### CCTV Camera



### Smart Lamppost



Planet Spark PSX4 Single Board Computer (SBC)



### Safer foot & cycling path



### Traffic enforcement



### Environment Monitoring



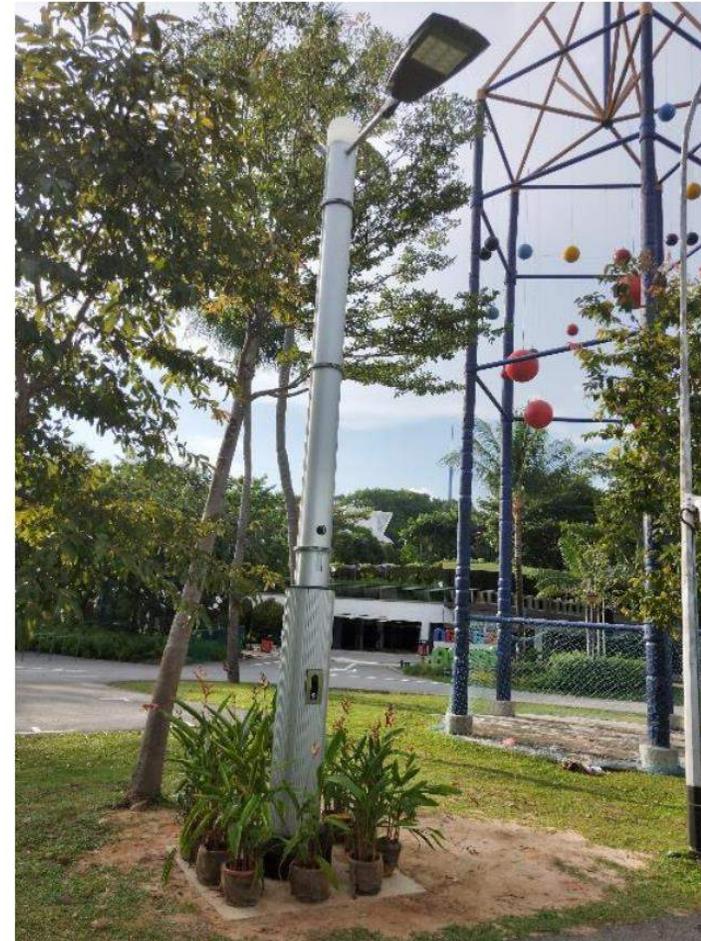
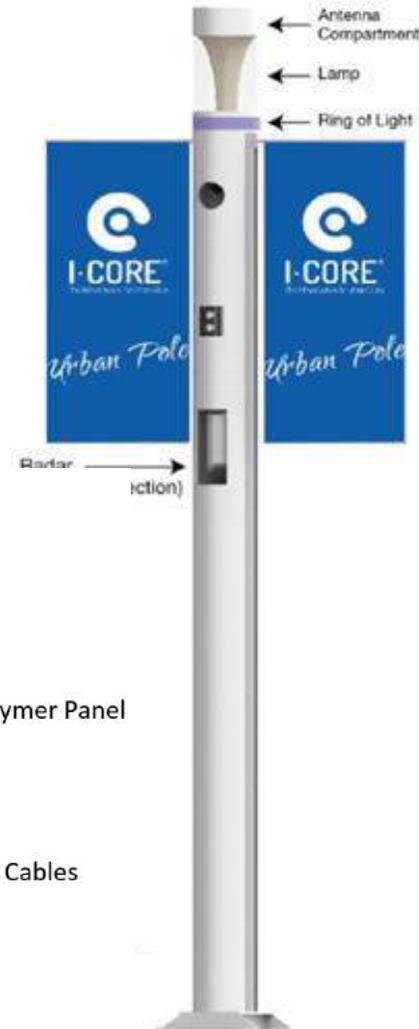
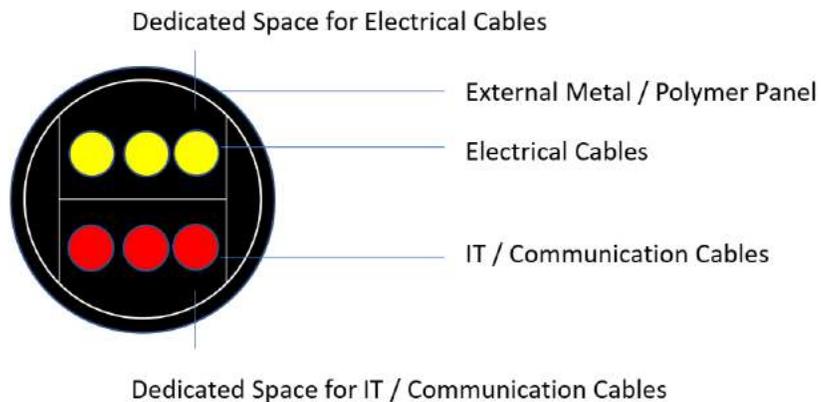
## 2.1 Smart Surveillance Solutions

### Smart Lamppost

- iCore solution is a smart infrastructure which allows user to add, remove or change any IoT devices at any time.
- New capabilities of Smart City deployment with secure and cost-effective solution.

#### INTERNAL CORE CONCEPT

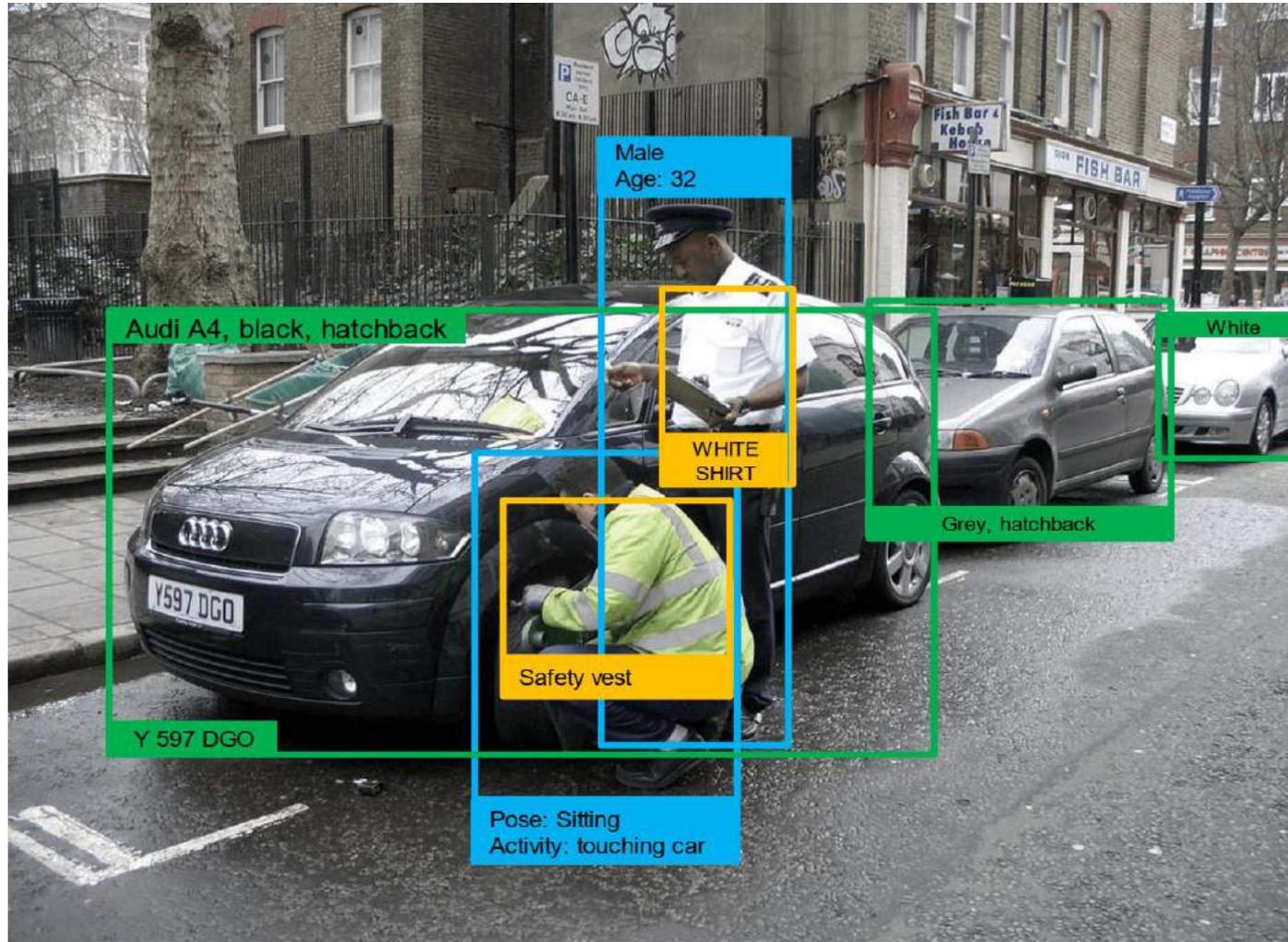
[Used in I-CORE® Technology Design]



Singapore, Sentosa Resort Island, Palawan Green

## 2.1 Smart Surveillance Solutions

### Videos Analytics (Human & Vehicle Tracking)



### Vehicles analytics

- ✓ Vehicle classification
- ✓ Number plate
- ✓ Vehicle make, model and colour

### People analytics

- ✓ Gender
- ✓ Age
- ✓ Ethnicity
- ✓ Emotion
- ✓ People Count
- ✓ Activity detection

### Clothing analytics

- ✓ Attire type
- ✓ Colour
- ✓ Attire style

## 2.1 Smart Surveillance Solutions

### Videos Analytics (Human & Vehicle Tracking)



## 2.1 Smart Surveillance Solutions

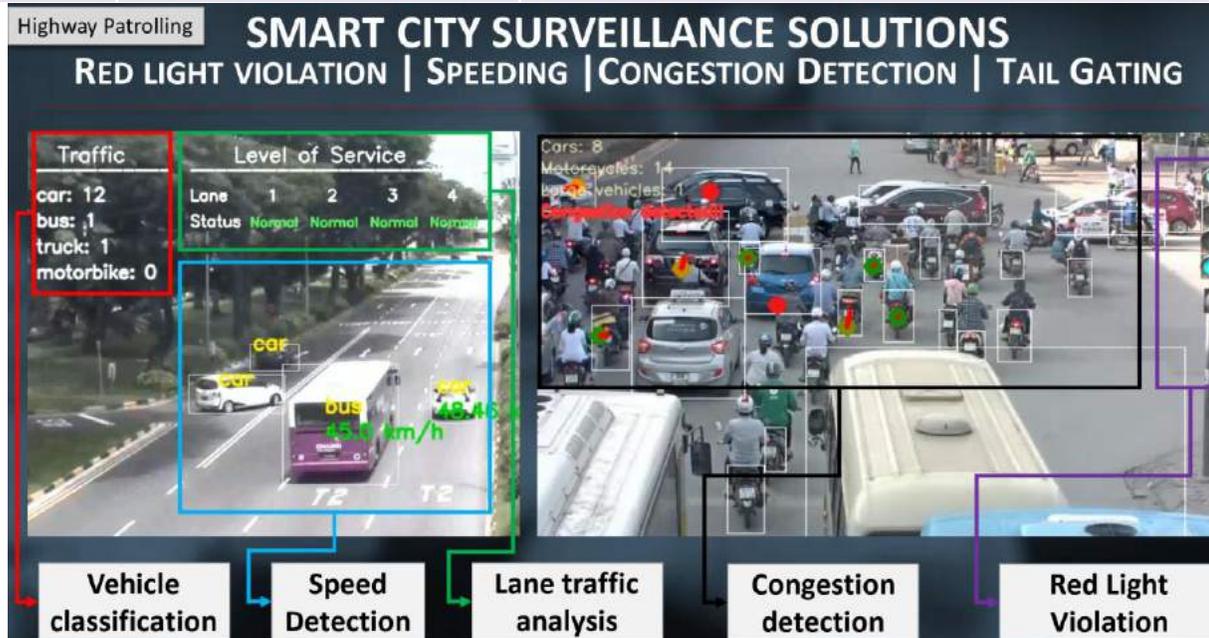
### Videos Analytics (Human & Vehicle Tracking)

No.	Application Group	Description
1	Urban Vision	<p>Situational Awareness for Smart city (Track every vehicle passing by at street junctions: Mark various risky scenarios, Motor cyclists without helmets, Pedestrians not crossing at zebra, Over-speeding,...)</p> <p>Smart City Surveillance Solutions (Vehicle classification, Speed Detection, Lane traffic analysis, Congestion detection, Red Light Violation)</p> <p>Keep city safe by spotting criminals and suspects anywhere in the city</p>

Highway Patrolling

### SMART CITY SURVEILLANCE SOLUTIONS

RED LIGHT VIOLATION | SPEEDING | CONGESTION DETECTION | TAIL GATING



Traffic

- car: 12
- bus: 1
- truck: 1
- motorbike: 0

Level of Service

Lane	1	2	3	4
Status	Normal	Normal	Normal	Normal

Cars: 8  
Motorcycles: 14  
bicycles: 1

CGF

48.46 km/h

Vehicle classification

Speed Detection

Lane traffic analysis

Congestion detection

Red Light Violation

SCAN through thousands of cameras:

Based on

**Clothing attributes:**

- Yellow shirt-round collar
- blue shorts-knee length

**NARROW DOWN**

on SUSPECT

Based on

Facial recognition

**FIND HITS**

### A Suspect in the Thai Bomb Attack

Police circulated images of a man seen in a security video moments before the blast that killed 20 people.



## 2.1 Smart Surveillance Solutions

### Videos Analytics (Human & Vehicle Tracking)

No.	Application Group	Description
2	Site-Insight (Security & Access Control & Building management Systems)	Protect the premise from unknown people using face recognition Attendance management & blacklist system, Abandoned Object Detection, People + Car Entry/Exit Count, Violence Detection, Falling Person Detection Covid 19 Analytics (Face recognition, Mask detection, Human body temperature,...)



Falling Person Detection

Detect a collapsed/fallen person and send alert



Violence Detection

Detect and alert for violence or fighting

## 2.1 Smart Surveillance Solutions

### Videos Analytics (Human & Vehicle Tracking)

No.	Application Group	Description
3	Vista Mart (Smart Retail & Enterprises)	Tracking: Clients recognition, Client behavior, Client's Interested area, What client purchase
		Hospitals: Tracking safety doctors – detect people in need of help / visitors/patients for operational purpose

#### Who are they?

**Gender:** Female  
**Ethnicity:** Asian  
**Age Group:** 30-35

**Returning Customer:**  
Yes [ ID: 3221 ]

**Emotion:** confused

**Current action:** product engagement

**Last engaged product(s):**  
Black wrist watch  
round analog

#### What is their in-store behavior?



Eye ball tracking

#### What are there interest areas

**Engagement section:**  
Michael Kors purse  
**Engagement time:** 35m

**Section value:** \$9000  
**Monthly engagements in MK section:** 216

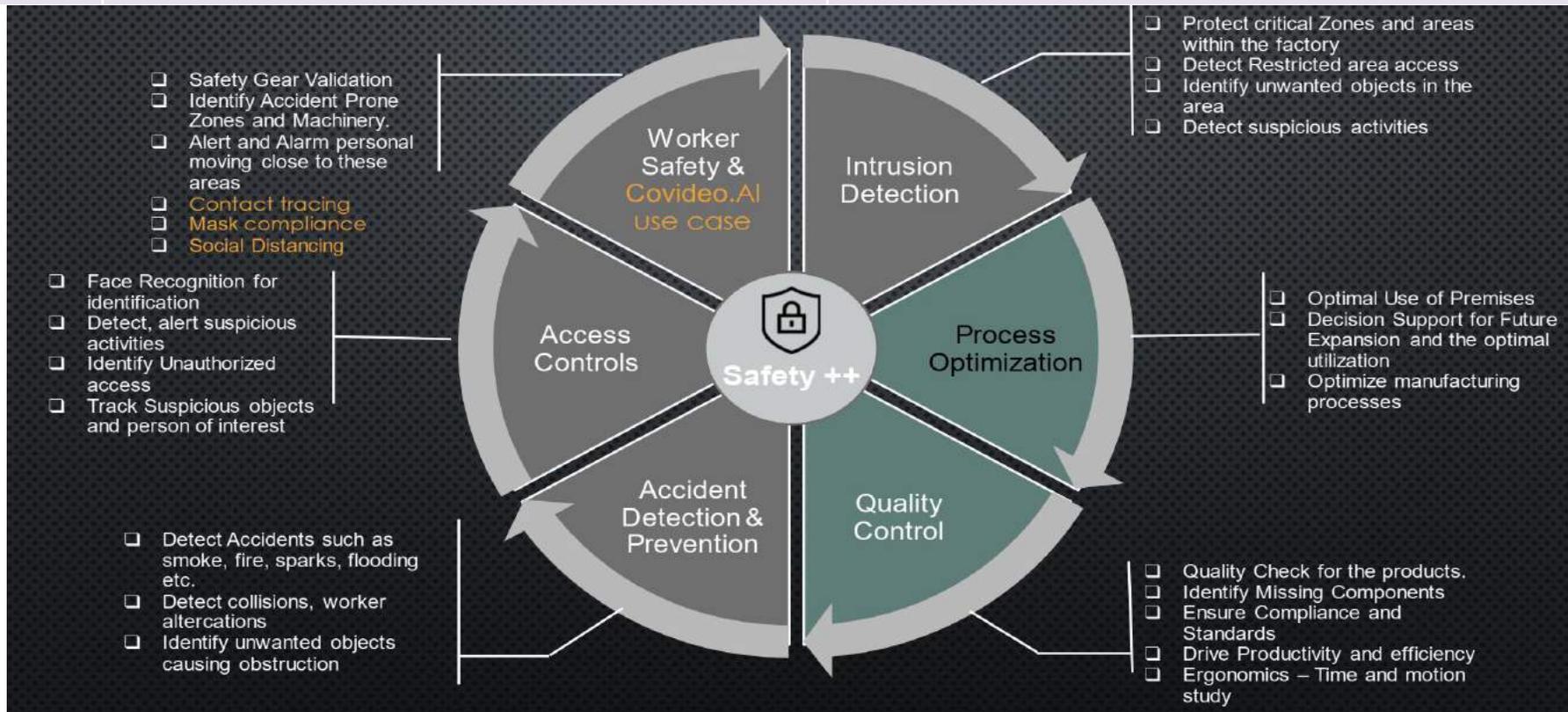
#### What do they purchase?

**Time of visit:** 10:00  
**Dwell time:** 1 hour  
**Items Purchased:** Hand bag  
**Value:** \$300

## 2.1 Smart Surveillance Solutions

### Videos Analytics (Human & Vehicle Tracking)

No.	Application Group	Description
4	Lab-Vista (Safety and Operational Enhancement for Manufacturing & Logistics)	Intrusion Detection, Process Optimization, Quality Control, Accident Detection and Prevention, Access Control, Worker safety and Covideo.AI



## 2.2 Edge Cloud Solutions

### Edge Module

## Portable Facial Recognition

For key installations security, Edge Police cameras

#### 1 Edge Processing

No need of network connectivity for recognition

#### 2 Multiple faces recognition in a single frame

recognizes upto 5 faces in a single frame

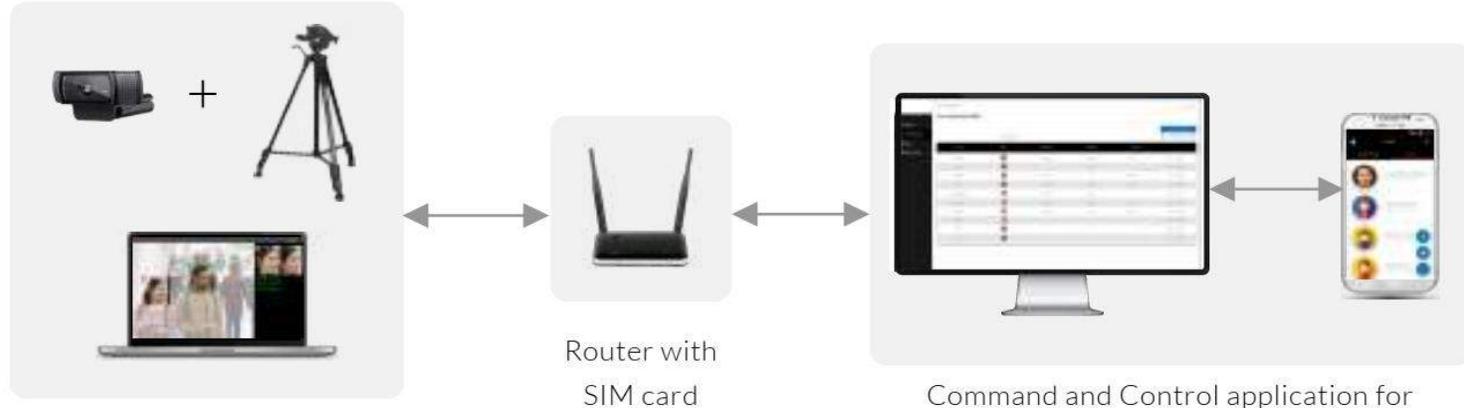
#### 3 Battery Powered

enables to be setup at checkpoints in a short notice

#### 4 Setup

< 20 mins

#### 5 Scalable



USB camera mounted on the tripod,  
and the field laptop connected to  
the camera at the remote location

Command and Control application for  
recognition alerts from remote locations, and  
mobile app to enrol Persons of Interest, and sync  
to the central Command and Control (C2) server



## 2.2 Edge Cloud Solutions

### Edge Module

## FR SYSTEM USE CASES



The system can be deployed at police check posts for strict surveillance, and to maintain law and order.



The system can be deployed at stadium entries for event security.



The system can help in securing and monitoring people entering religious places during events.



The system can help in counter-terrorist operations by monitoring entries and exits at sensitive locations.



The system can help in securing high-value, key infrastructure, and industrial places such as refineries, power plants, and defense facilities.



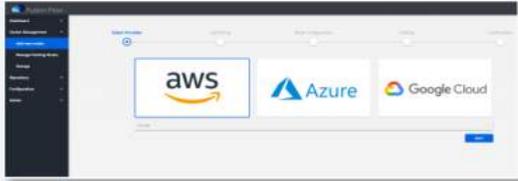
The system can be rapidly deployed, and can help to protect important public figures such as, head of governments, and secure all premises they visit.



The system can help in securing public spaces during political rallies.

## 2.2 Edge Cloud Solutions

### Edge Module

Function	Product		Core Features
Management & Control	 Fusion Flow		<ul style="list-style-type: none"> <li>Edge device life-cycle management</li> <li>Configuration and orchestration</li> <li>Multi-cloud provisioning and management</li> <li>Application marketplace and deployment</li> <li>Application migration between clouds and Edge</li> </ul>
Connectivity & Orchestration	 c-cube		<ul style="list-style-type: none"> <li>Layer 3 overlay SDN</li> <li>Distributed Multi-cloud and Edge enabler</li> <li>Geographically dispersed Edge regions</li> <li>Inter-region communication</li> </ul>
Data Acceleration	 STA™		<ul style="list-style-type: none"> <li>Secure optimized data delivery</li> <li>Automatic network switching</li> <li>Bandwidth bonding</li> <li>QoS and CoS</li> </ul>
Edge Compute	 IGX™ MEC		<ul style="list-style-type: none"> <li>Data harvesting and ingestion</li> <li>Edge Application Enablement Platform</li> <li>Edge processing</li> </ul>

### 2.2 Edge Cloud Solutions

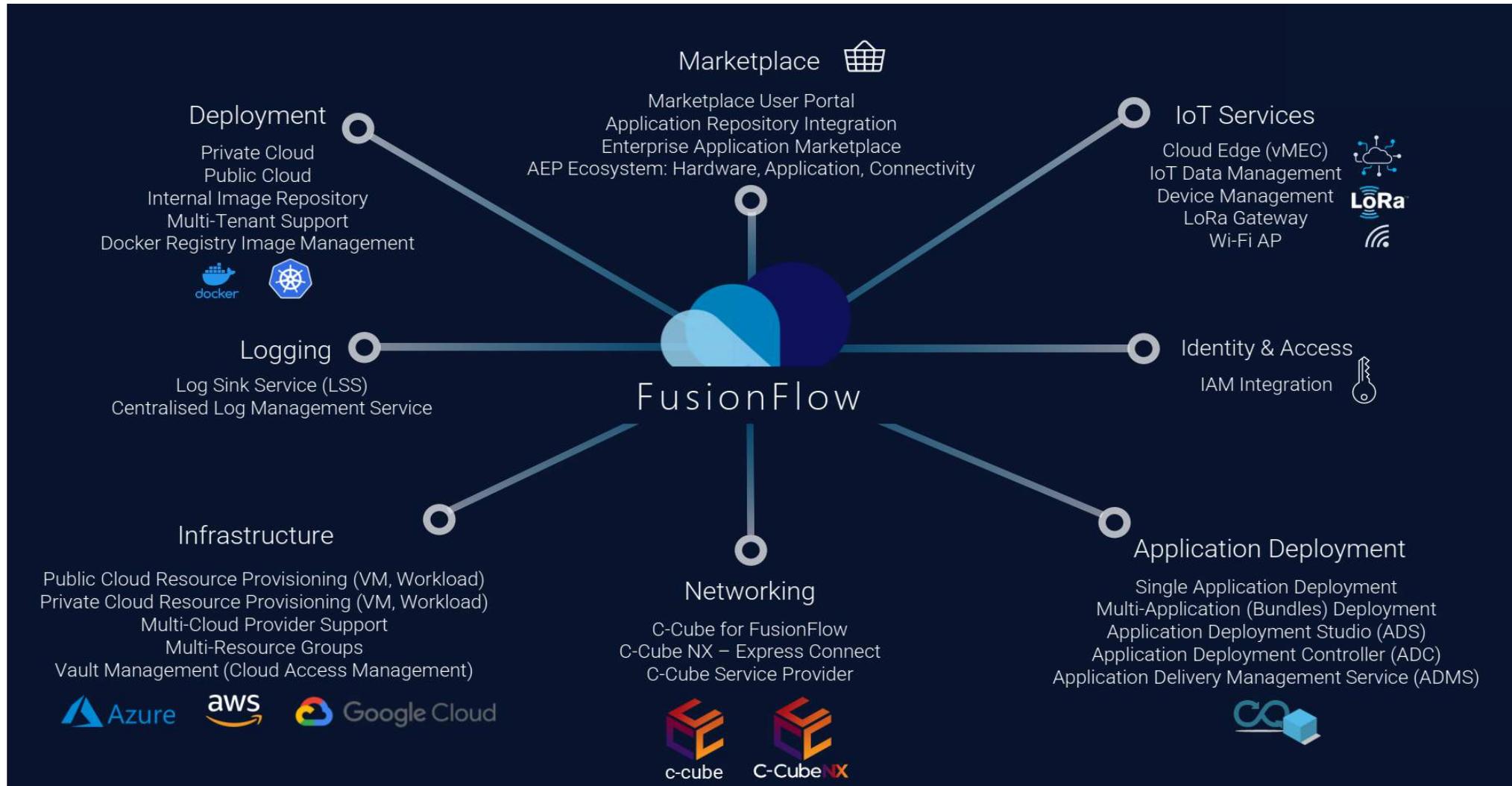
#### Edge Cloud AI Comparison

Specifications	Edge AI	Cloud AI
<b>Processing Power</b>	Less critical on processing power requirement	Required hyper processing power
<b>Replace or Upgrade</b>	OTA field upgrade	Upgrade at control center
<b>Latency &amp; Connectivity</b>	A real-time AI, for application such as autonomous driving or industrial controls.	Not suitable for real-time applications.
<b>Communication Bandwidth</b>	Process locally, only send metadata to control center	Big bandwidth of data transportation needed
<b>Security</b>	Customer owns the data	Very strong security but It is still better privacy from Edge processing
<b>Total cost of ownership</b>	Cost of ownership is more than Cloud solution	The cost of ownership is very less

## 2.2 Edge Cloud Solutions

### Data logistics cloud

### 5G Edge Cloud Service



## 2.2 Edge Cloud Solutions

### Case study

#### Public Safety – Smart Fuel Station Case Study in Indonesia

##### IMPROVE OPERATIONAL EFFICIENCY



###### Vehicle Queue Management

Workload between pumps can be dynamically distributed by analysing crowd. Staff scheduling can also be planned more accurately

###### Customer Royalty Program



By using ALPR (Automatic License Plate Recognition) technology, we are able to automate traditional membership system and makes it simpler for regular customers to on-board to the system

##### MITIGATE OPERATIONAL RISKS



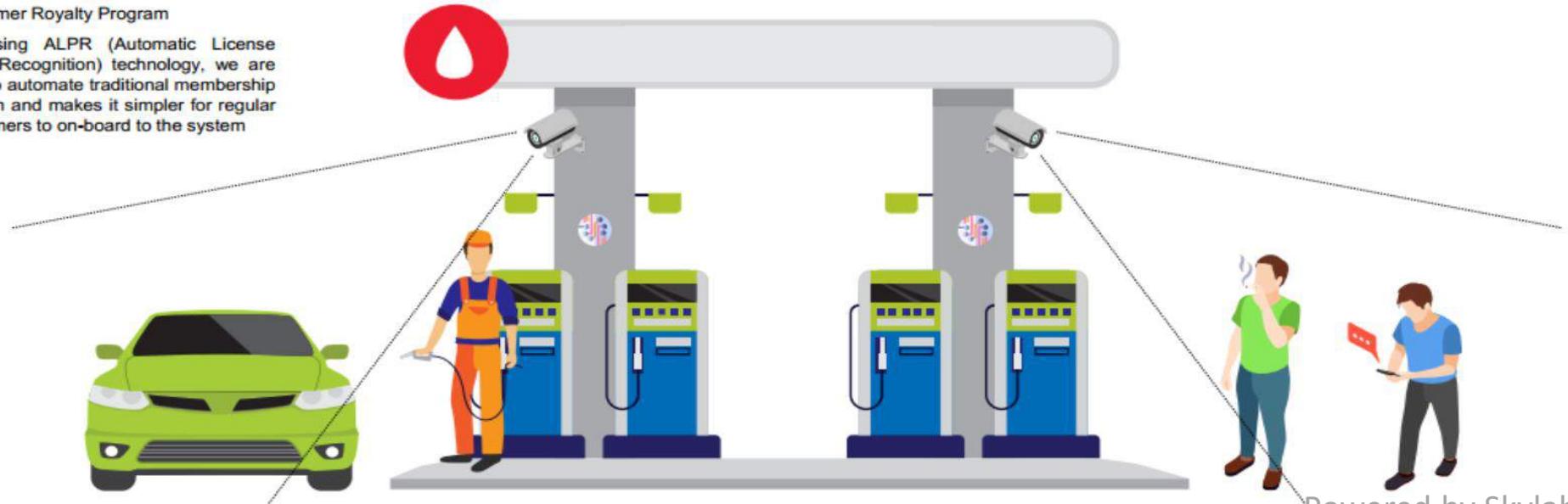
###### Workplace Safety

Early detection of hazard's symptoms (Eg. Gas leak, smoke, overheating etc.) from sensors can prevent potentially catastrophic disasters from happening



###### Suspicious/Dangerous Actions Alert

Certain actions such as smoking and phone usage can be a huge risk in a gas station environment. Video analytics can be used to monitor such events 24/7 and send alerts upon detection

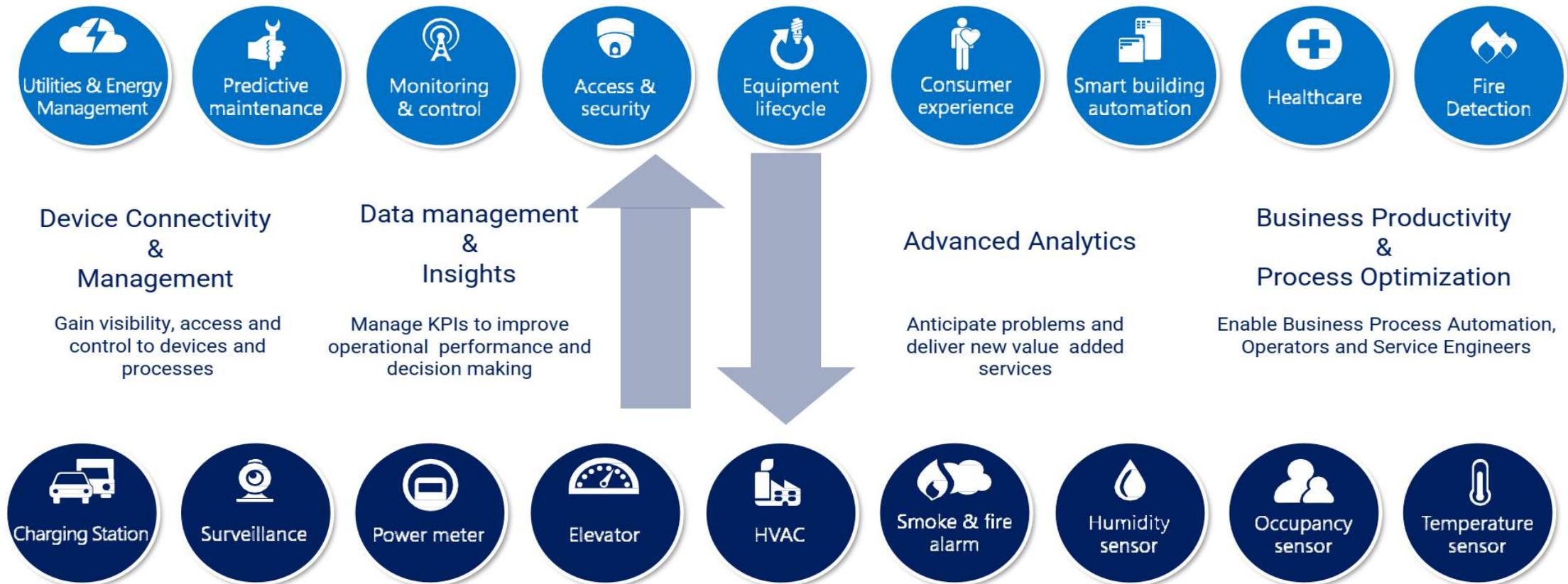


## 2.2 Edge Cloud Solutions

### Edge Module

#### SMART BUILDING MANAGEMENT

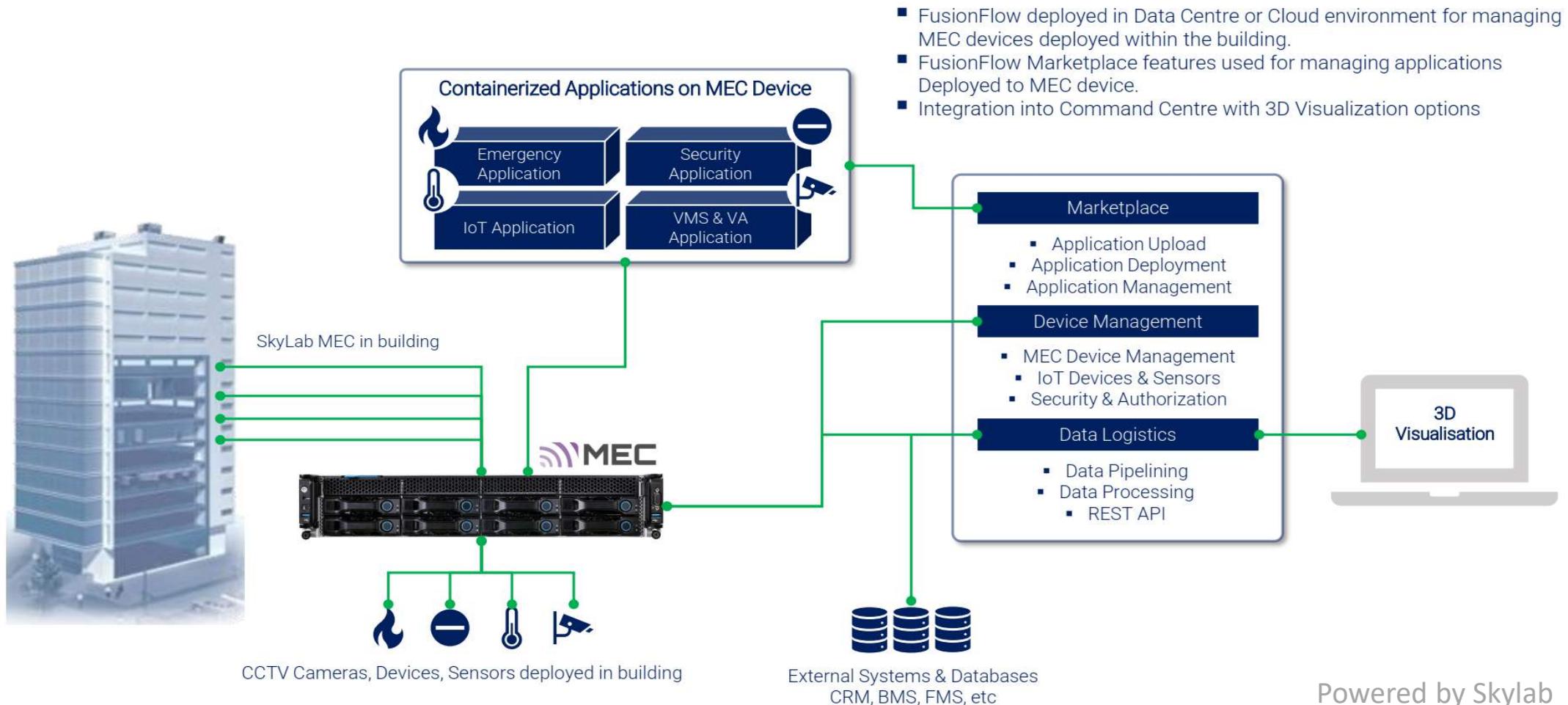
Purpose and Overview



## 2.2 Edge Cloud Solutions

### Edge Module

#### Smart Estate and Built Environment

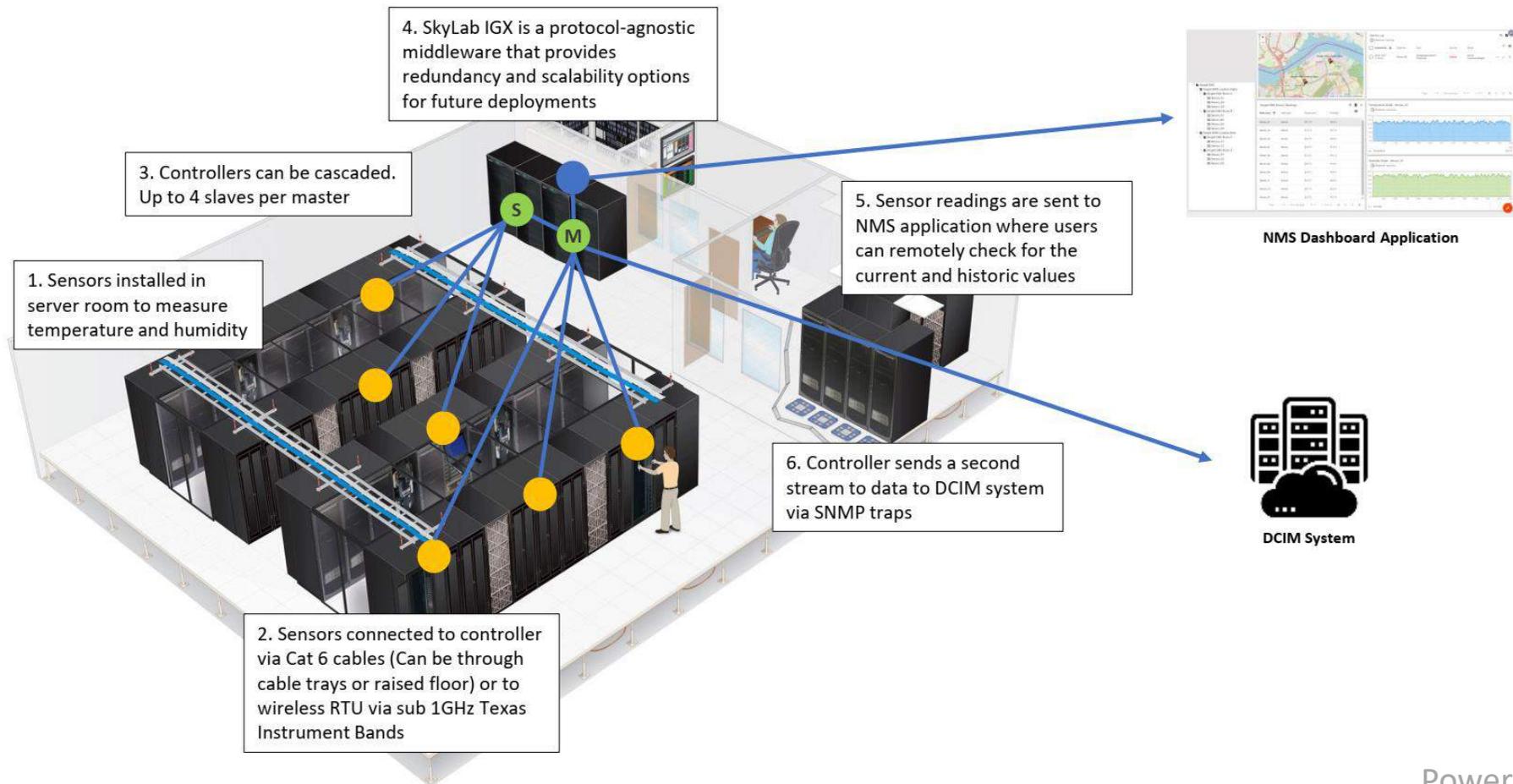


## 2.2 Edge Cloud Solutions

### Network Transport Protocol

#### ENVIRONMENTAL MONITORING CASE STUDY FOR A TIER 1 TELCO

Solution Architecture



## 2.2 Edge Cloud Solutions

### Edge Module

#### SKYLAB INTEGRATED VISUALISATION PLATFORM

Features & Functionality

2D and 3D tandem dashboard provides full visibility of essential KPIs as well as visibility of the port's actual activities in one screen. Provides a bird's eye view of the whole campus that a Control Tower should have.



2D/3D Tandem Dashboard

## 2.2 Edge Cloud Solutions

### Case study

#### Smart Transport Case Study



TRAIN  
ARRIVAL



PLATFORM  
CROWD  
DENSITY



TRAIN  
DEPARTURE



ABC - 123  
TRAIN ID  
RECOGNITION

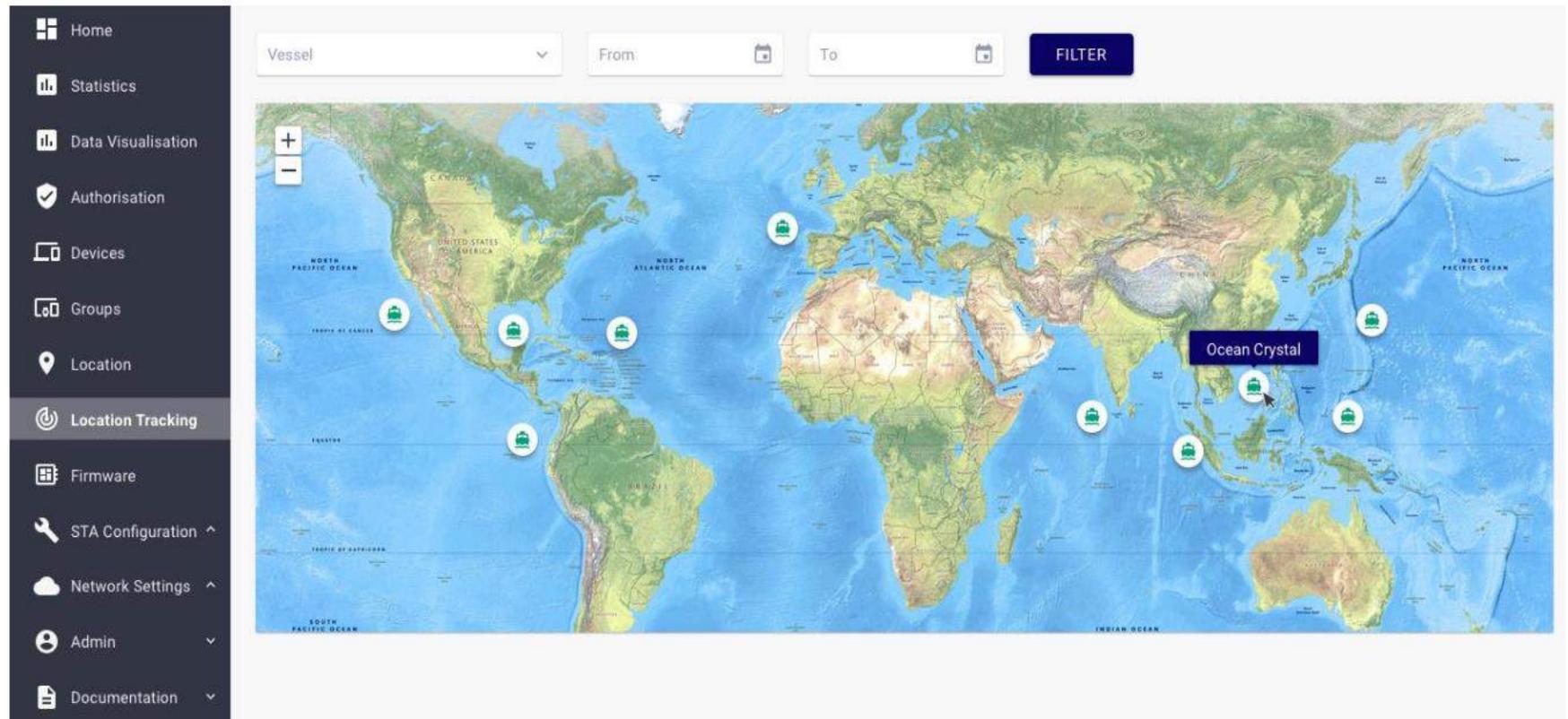


## 2.2 Edge Cloud Solutions

### Edge Module

#### Real-Time Vessel Location Tracking

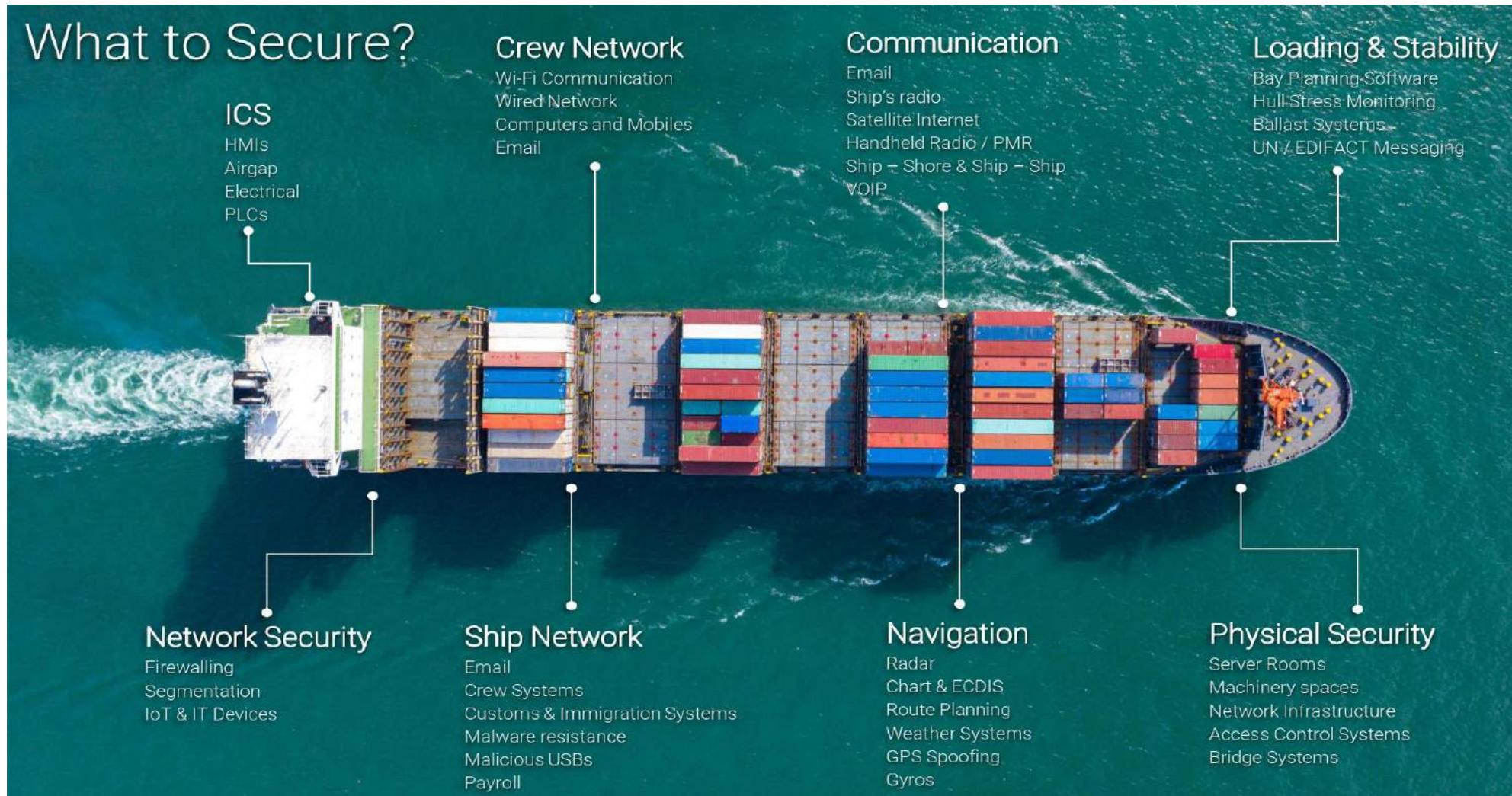
View and track all real time device location information via dashboard and map view and location history.





## 2.2 Edge Cloud Solutions

### Edge Module



## 2.2 Edge Cloud Solutions

### Edge Module



>100 Megawatt-Peak Solar Farm



### GREEN ENERGY MANAGEMENT

*Renewable Energy Portfolio Management  
Business Intelligence Platform*

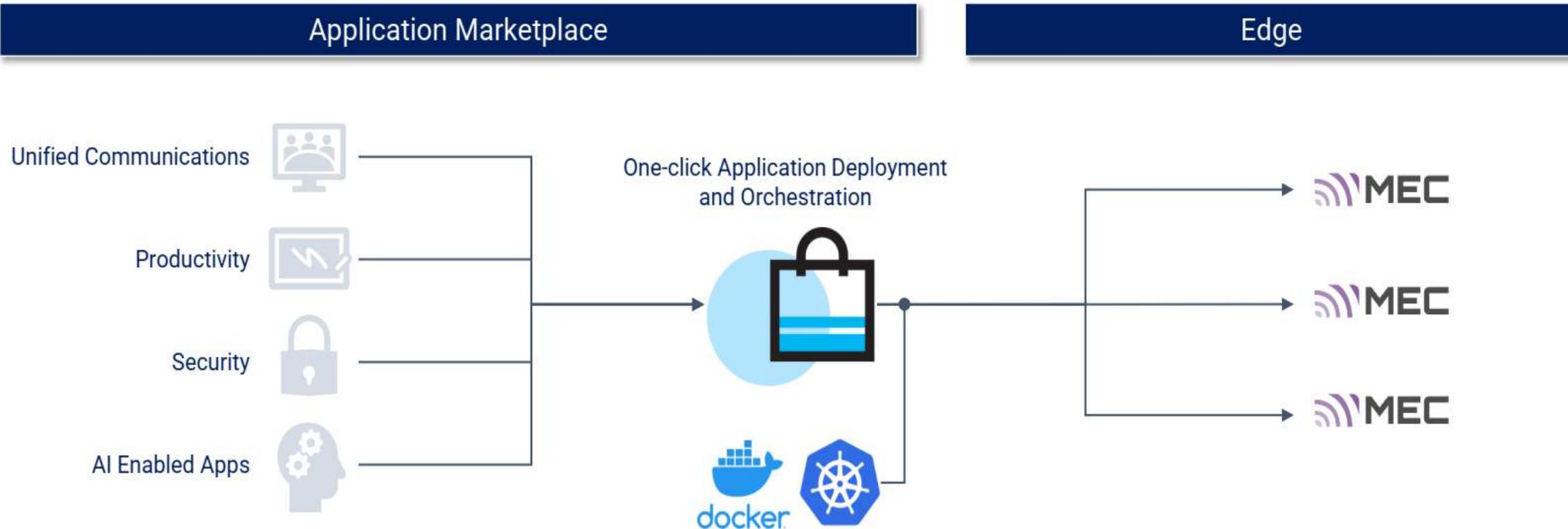


1 Megawatt-Peak Solar Farm



## 2.2 Edge Cloud Solutions

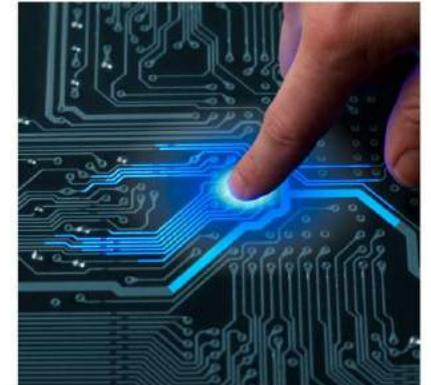
### Edge Module



### 2.3 Access Control

#### Securities Service Solutions

- Access Control & Identity Management
- Biometrics (Fingerprint, Vein, Iris, FR)
- Evacuation & Mustering
- Intrusion Detection
- Automated Pedestrian Barriers & Road Blockers
- IP digital CCTV, Recording Management
- Security & Safety Communications
- Electronic Keys & locks
- Fence & Perimeter Intrusion Detection
- Intelligent Video/ Analytics
- Unified Security Management System



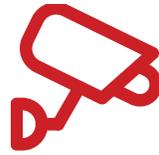
## 2.3 Access Control

### Securities Service Solutions



#### VERIFSUITE™ Enterprise

Customisable suite of managed services for enterprises of all sizes



#### VERIFSUITE™ Video

Smart video alarm services to swiftly access & verify alarms  
24/7



#### VERIFSUITE™ Ops

Customisable managed services for efficient management of buildings & operations



#### VERIFSUITE™ Access

A managed access control solution designed for a mobile-centric & fast-moving world



#### VERIFSUITE™ Robo

Pay-as-you-use security robotic solutions

## 2.3 Access Control

### Our Solution for Smart-City: COMMAND CENTER



## 2.3 Access Control

### Securities Service Solutions

#### VIRTUAL TELLER MACHINE

**Increase transaction volumes**  
with a small footprint

**Optimize workflows**  
Quick loans, investments  
and account opening

**Identify financial needs**  
with a virtual teller, 24/7

**Optimize resources**  
Centralize tellers & product  
specialists



#### AUTOMATED FORM FILLER

**Data collection**  
with digitization expertise

**Enrol biometrics**  
Face, iris and fingerprint  
data storage

**Self-service enrolment**  
Integrated queuing and  
payment system, according  
to your business needs

**Automated form filling**  
Store templates, minimize  
human error



**Main office**  
Centralized management



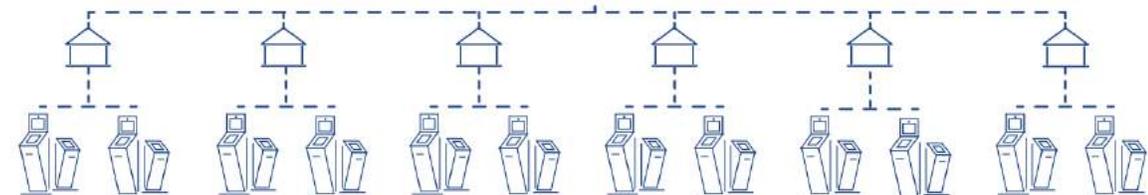
CENTRAL BIOMETRIC AUTHENTICATION MANAGEMENT PLATFORM



REMOTE TERMINAL MANAGEMENT PLATFORM

Branches

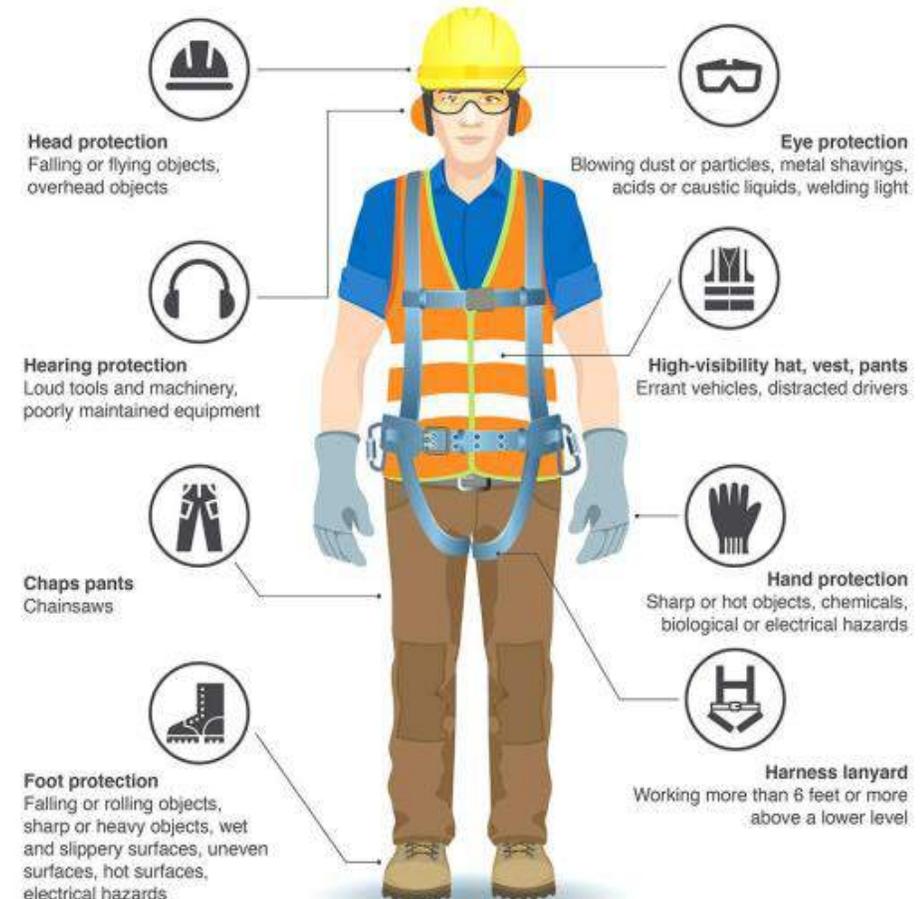
Terminals



## 2.3 Access Control

### Securities Service Solutions

### AI Solutions for Construction and Manufacturing



## 2.3 Access Control

### Securities Service Solutions

### AI Solutions for Construction and Manufacturing



## 2.3 Access Control

### Securities Service Solutions

### Contactless Hotel Solutions



## 2.4 Digital Payment

### Transit Ticketing & Fare Collection

*FIRST Fully EMV Compliant Transit Reader designed & made by Asia company*

Singapore MRT	Bangkok BEM
Manila MRT	Bangalore Metro
Bangkok BTS	Japan Bus/Tram/Metro

Open-Loop Payments

Certified EMV L1, EMV L2 (VISA, MasterCard, AMEX, JCB, Discover, RuPay)

Future-Proof

Modular hardware and software design ensures front-end device will continue to serve the masses reliably, even as different form of payment schemes & connectivity come into play.

Our Role

Design, develop, supply and maintain (option)

Partners / Customers

Land Transport Authority

MSI QUADRAC

## SMART TRAVELS

So much more than just transit payment. STYL developed advanced next generation transit payment device to be installed at station gantries and buses



## 2.4 Digital Payment

### Smart School



**SINGAPORE GOOD DESIGN**

# SMART SCHOOLS

POSB Smart Buddy Programme is the World's First School Cashless Payment and Savings programme that incorporates elements of IoT such as location and step tracking.

### World's first in-school payment & savings wearable on a child's wrist

#### Current

- 167 Schools and counting
- Over 30,000 children enrolled in the programme since Aug 2017

#### Payment + IoT

- Truly cashless payment in schools using direct debit from parent's bank account or e-wallet
- Parents control allowance & monitor child's spending, food consumed, step count via mobile application.
- Also accept payment by school concession cards & EZ-Link cards since 2020

#### Our Role

- One-stop technology solutions provider
- In-house creation of wireless payment terminal, wireless POS, top-up kiosk, child payment wearable, mobile app, school menu portal
- Backend with integration to banking payment system

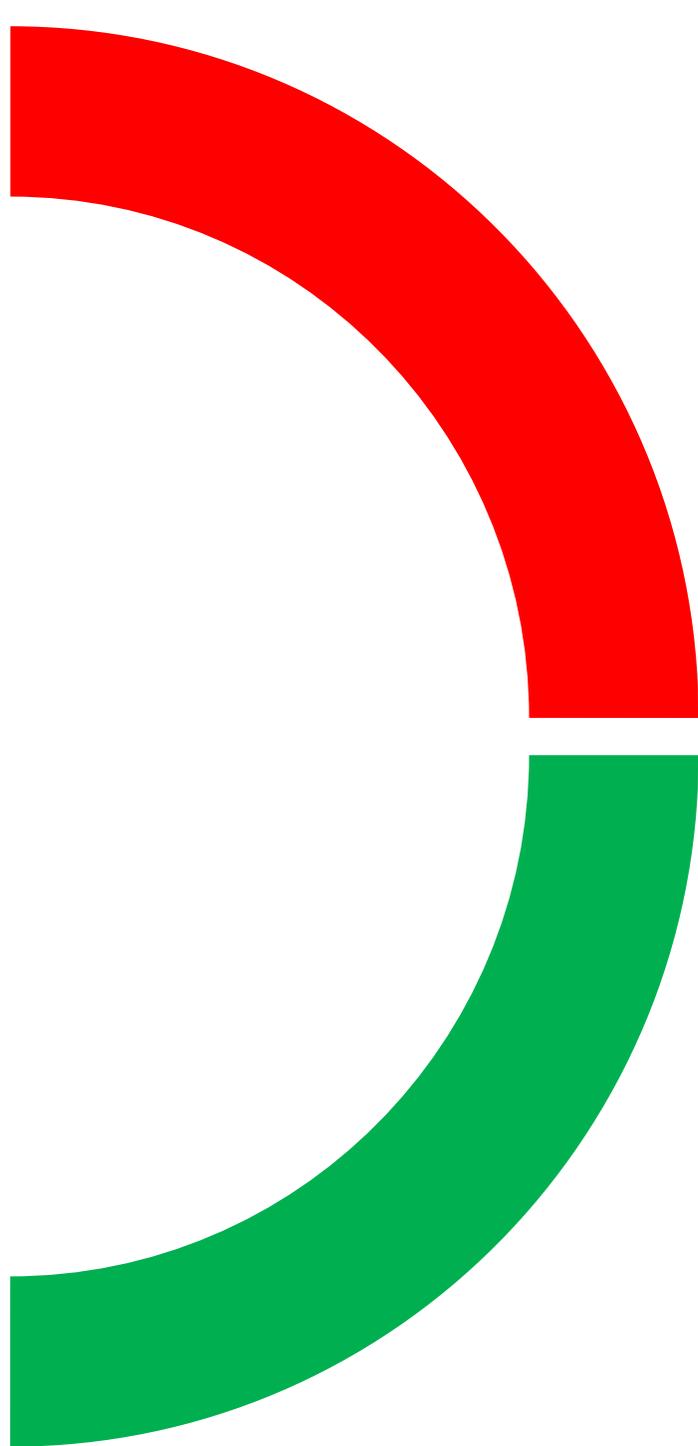
#### Partners / Customers



## **PART 3**

# **Smart Sustainability Solutions**

Solutions/ Products – Consortium members - Case studies



## Energy Management

### Energy Management

- Energy Audit
- Energy Monitoring
- Performance-based Management

### Energy Storage

- Lithium Battery
- Energy Storage Systems
- Battery Monitoring Systems

### Environmental Protection

- Leak detection

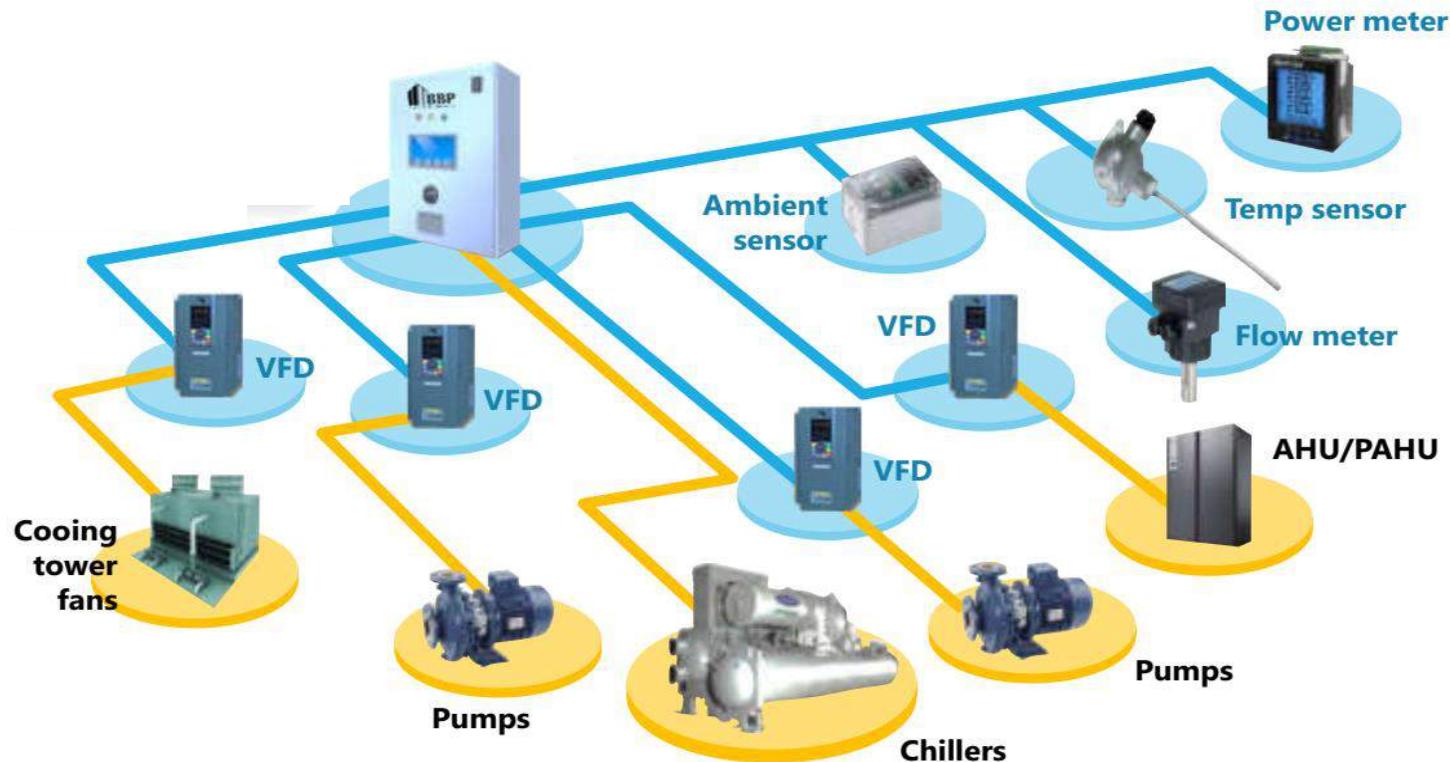


## 3.1 Energy Management

### Performance-based Management

### Energy Savings for HVAC systems

(in Data centers as well as commercial and industrial buildings)



### HOW IT WORKS

**Holistic chiller plant control logic**  
– no piecemeal optimization

**Fail-safe redundancies**

**Customization** to clients requirements

Improve **reporting and monitoring** for better operations & maintenance

## 3.1 Energy Management

### Performance-based Management

### Energy Savings for HVAC systems

(in Data centers as well as commercial and industrial buildings)

**Our process is methodical and tailor-made to your requirements**

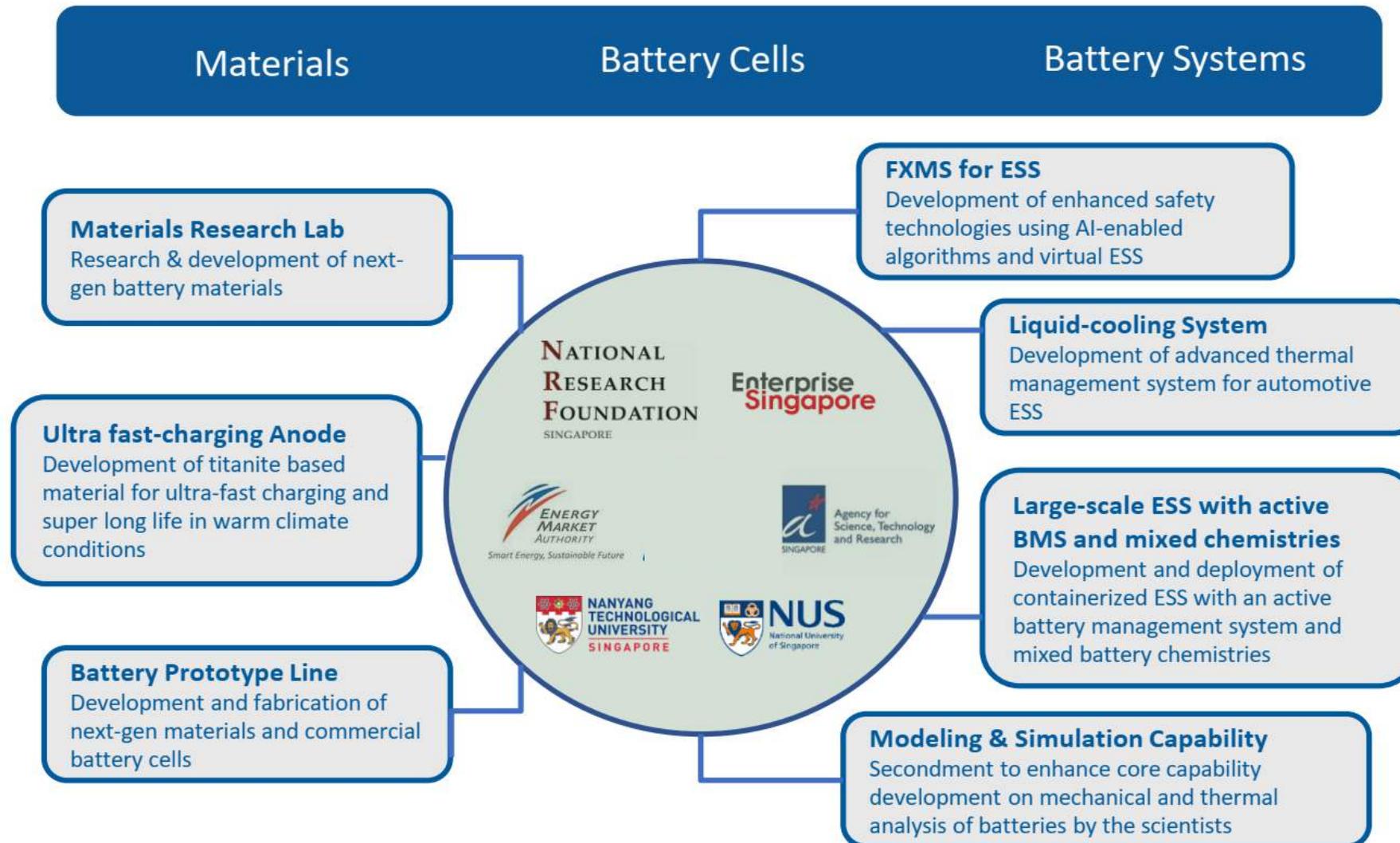


Zero Investments from Customers | BBP funds All Investments to deliver savings

Powered by BBP

## 3.2 Energy Storage

### Energy Storage Systems



## 3.2 Energy Storage

### Energy Storage Systems

#### SUPPORTED WITH A GLOBAL RESEARCH STRATEGY

##### Materials

##### Battery Cells

##### Battery Systems

##### Nickel Manganese Cobalt (NMC)

- High power and energy performance
- Ideal and commercially proven for e-mobility

##### Lithium Iron Phosphate (LFP)

- Low initial cost and stable material
- Well suited for stationary applications – slow charge requirements



##### Lithium Manganese Iron Phosphate (LMFP)

- Very stable material
- Super high safety applications
- Nascent Chemistry

##### Titanium Dioxide (TiO<sub>2</sub>)

- Ultra-fast charge, ultra-long life
- Hot climate applications
- Still in R&D

##### New Gen chemistries under R&D:

- Solid State
- High Nickel content
- Silicon anode
- Lithium Metal

##### Non Flammable Electrolytes

- Ionic liquids
- High performance and increased safety

### 3.2 Energy Storage

#### Energy Storage Systems



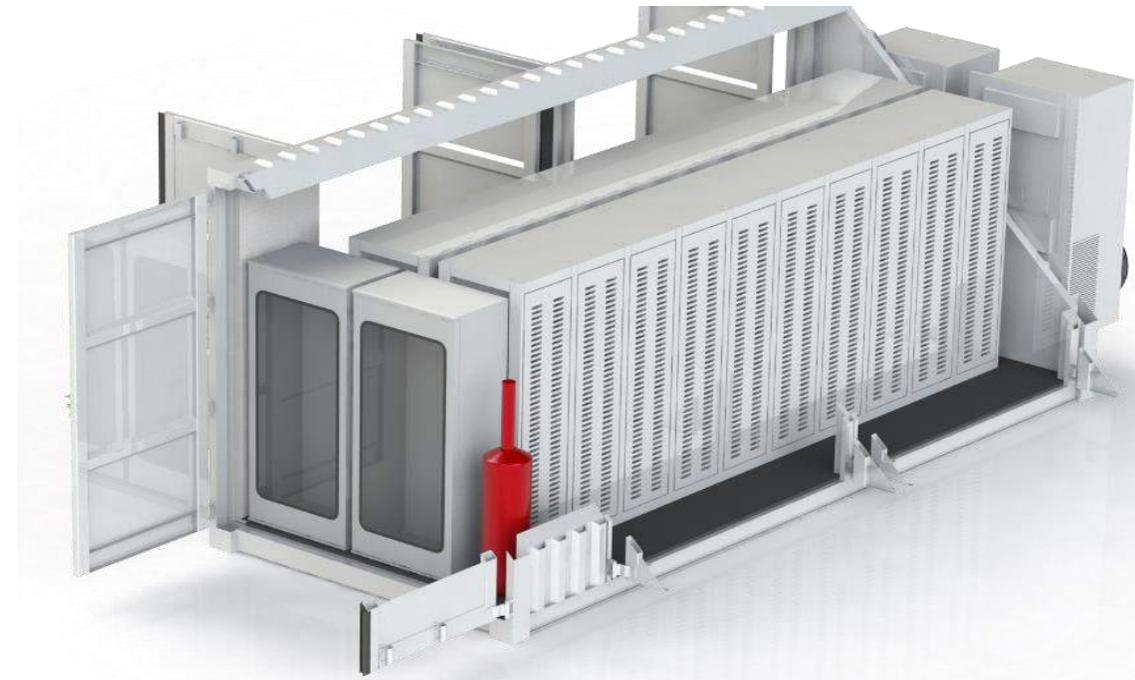
## 3.2 Energy Storage

### Energy Storage Systems



### 3.2 Energy Storage

#### Energy Storage Systems



## Type of Containerized Energy Storage System

Turnkey ESS Solution

Complete with PCS, BESS, EMS and fire Suppression System

BESS Solution

Complete Battery Solution, BMS and fire Suppression System

## 3.3 Environmental Protection

### Liquid Leak Detection

#### TYPICAL APPLICATIONS



Data Centres



District Cooling System (DCS)



Oil & Gas Industries



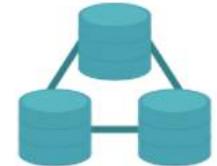
Water Treatment Plants



Commercial and Industrial buildings



Labs & Clean Rooms



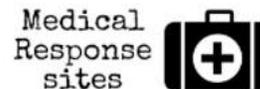
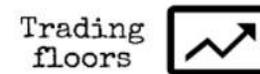
Genset Rooms

#### Industry Usage Overview

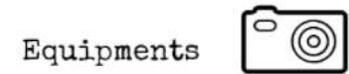
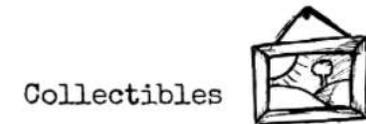


■ Data Centres (34.31%) 
 ■ Oil & Gas Industries (33.33%)  
■ Commercial & Industrial.. (24.51%) 
 ■ Others (7.84%)

#### Mission-Critical Facilities



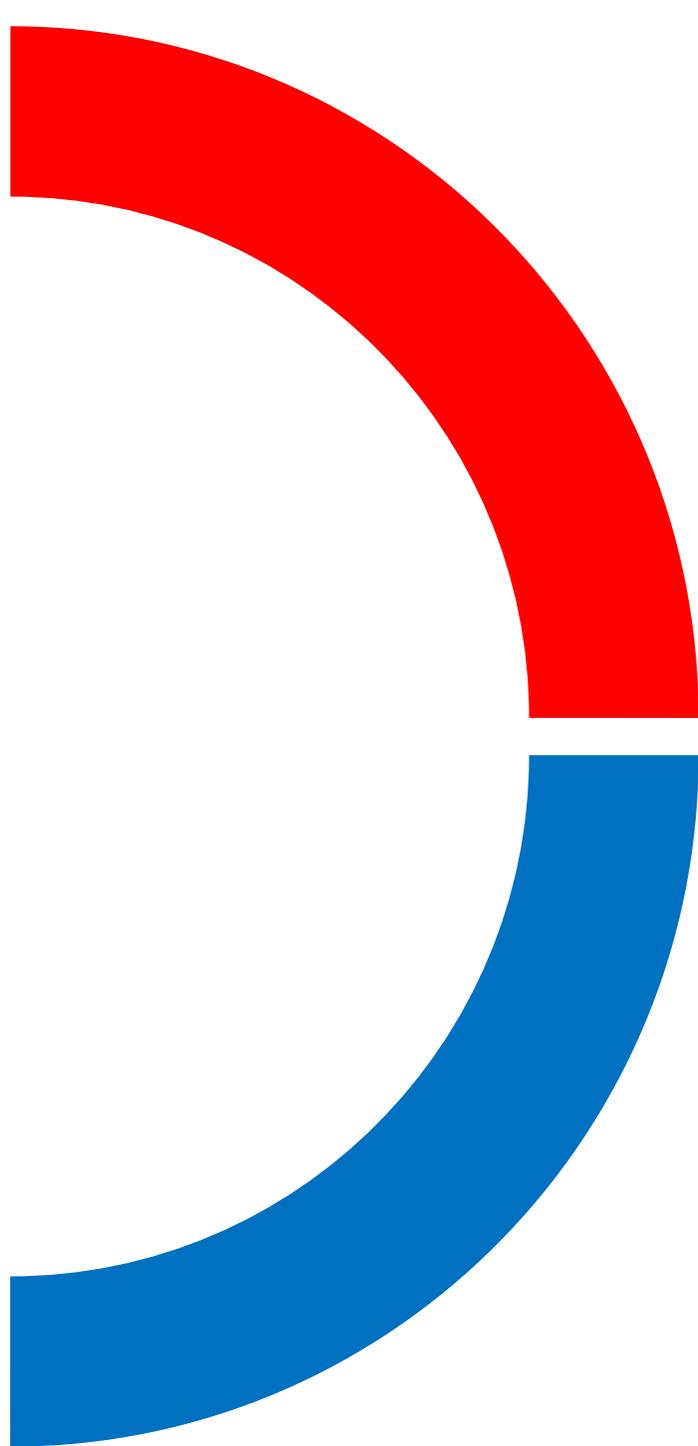
#### Asset Preservation



## **PART 4**

# **Smart Community Solutions**

Solutions/ Products – Consortium members - Case studies





## Smart Community Solutions

### Smart Devices

- Smart Lighting
- Smart Switches
- Smart Controls
- Smart Modules
- Smart Lockers

### Platform

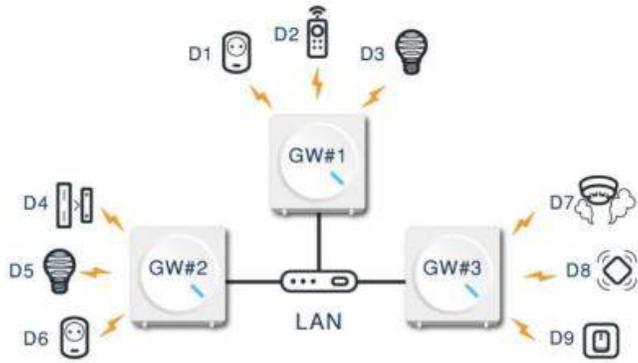
- Building Management
- Estate Management
- Parcel Delivery Locker Platform

### Smart indoor Agriculture



## 4.1 Smart Devices

### Smart Home Solution on a Single Platform



#### Multiple Gateway Extension

Designed for large installation with floors and distance



**MATION**  
MIGUEL CORPORATE SERVICES

Climate Control System

Energy Management System

AV Entertainment System

Security & Safety System

Pro LED Lighting System

Assisted Living

Home Appliances & Devices



**G1 Z-Wave Gateway**  
Easily control all Z-Wave devices



## 4.2 Smart Indoor Agriculture Smart Indoor Farm/ Smart Park

### IoT System for Smart Agriculture & Horticulture

#### Scalable Monitoring Platform

Deploy sensors with LPWAN nodes in fields and parks to monitor conditions remotely via web portal or mobile app

#### Modern Agriculture & Horticulture with IoT

Change from schedule-base to demand-base irrigation & nutrient dispensing. Save water & resources, improve yield. With embedded ML methods, data gathered is used to advise farm and park operators.

#### Our Role

- Develop & maintain the IoT management & analytics backend with supporting mobile app
- Design, develop & supply edge sensor device with LPWAN connectivity

#### Partners / Customers



# SMART FARMS SMART PARKS



## **PART 5**

# **Smart Mobility Solutions**

**Solutions/ Products – Consortium members - Case studies**

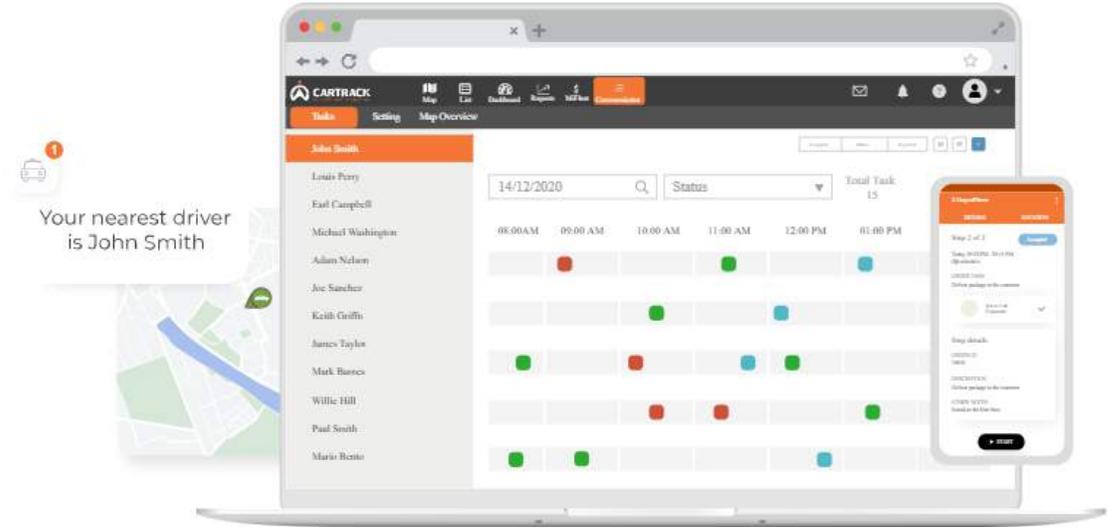


## Ride-hailing

- Ride-hailing Booking Platform
- Vehicle Routing Technology

## Fleet Management

- Fleet Management Platform
- Vehicle Tracking Technology



### Employee transport

Delight your employees with better commutes through SWAT's next generation mobility technology.



### Public transport

SWAT's demand responsive technology creates efficient, greener mobility solutions for your city.



### Logistics & Delivery

Make the most deliveries with the least number of vehicles, in the shortest time possible.



### School bus

Coming soon

## 5.1 Ride - hailing

### Commute Pass

Build custom route based on periodic booking received on passenger app



### Digital Fixed Route

A digital system that help passenger manage his routes & services



### Just in time

Automatically pool passenger & generate custom routes



### On Demand



## 5.1 Ride - hailing

### Next-Generation Mobility Solution for Industrial Parks

#### Software - Suite of tools

- An integrated system of tools and platform serving end user groups with high quality user experience
- Customisable to your branding



Passenger Interface



Driver Interface



Operations Interface



Route Editor

#### Our Capabilities



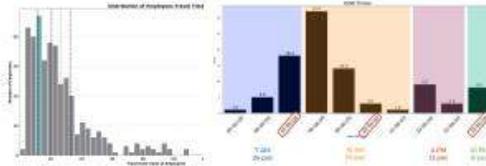
#### Automation & Optimisation

- **Algorithm** that tops renowned global benchmarks solving the pickup & delivery with time windows problem
- **Route planning & optimisation** software - High capacity pooling, generates smooth & efficient routes



#### Solution Design & Delivery

- We evaluate your transport needs, demand patterns & service requirements
- **Transport planning & service design with simulations** to create a customised solution
- Operational support to ensure end to end delivery of solution



#### Reporting & Analytics

- Full data capture for reporting
- Service analysis & insights for future transport planning

##### Ridership Summaries

Client	Day of Operation	Date Test	Count of Rides
Company Name	32	01-Feb	106
Company Name	35	02-Feb	121
Company Name	34	03-Feb	107
Company Name	35	04-Feb	121
Company Name	36	05-Feb	133
Company Name	37	06-Feb	116
Company Name	36	07-Feb	119
Company Name	39	08-Feb	118
Company Name	40	09-Feb	130

##### Full details of passengers and their rides

Passenger ID	Date / Day	Booking Method	Zone	Home Location	Work Location	Pick-up Time	Drop-off Time	Journey Time



Dashboards for tracking and monitoring service health and KPIs

## 5.2 Fleet Management

**Tracking & Monitoring Car/ Taxi/ Vehicle/ Machine... Solution**

**Industries: Cold Chain Logistics/ Construction/ Rental & Leasing/ Transportation & Logistics**

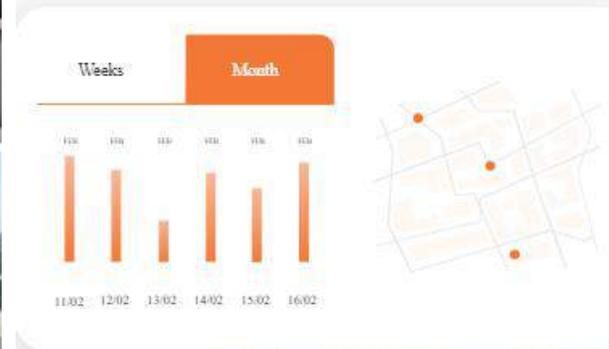
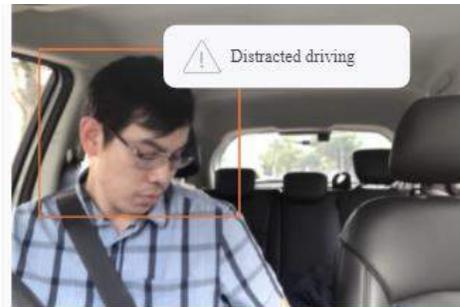


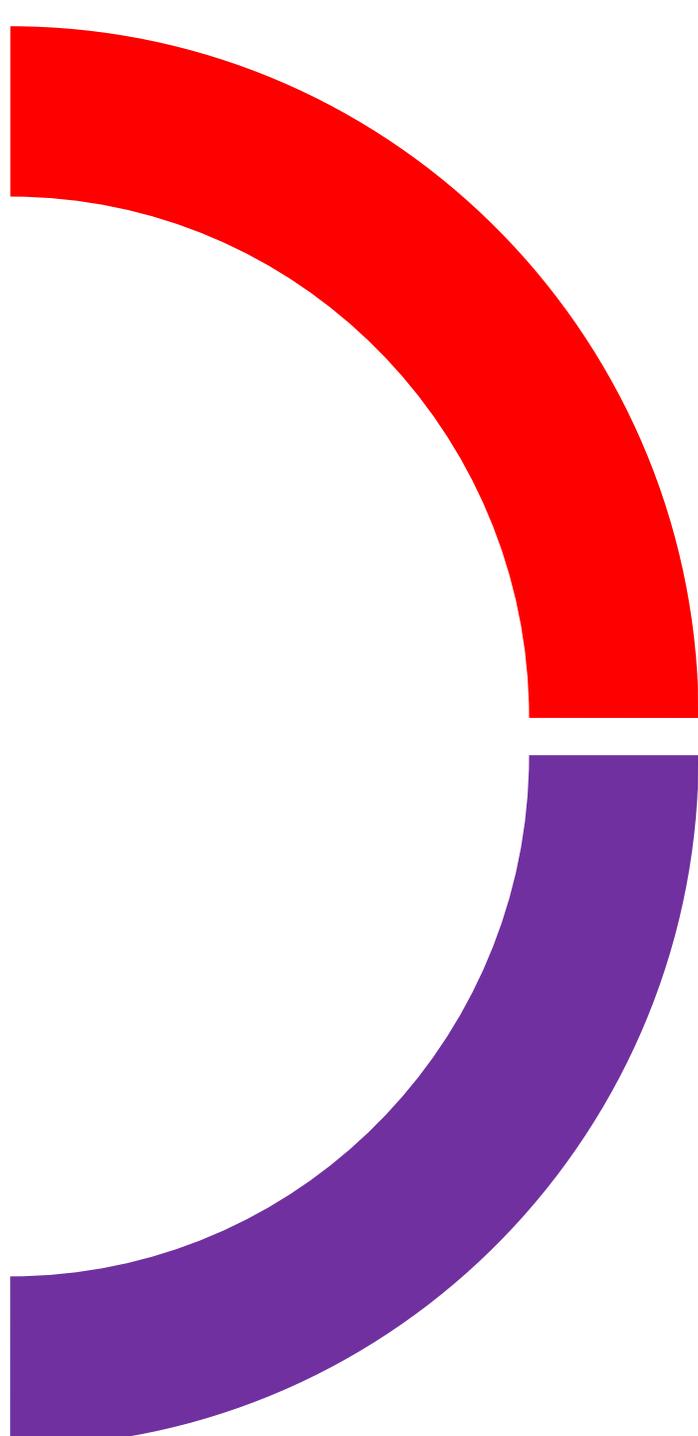
Date Range

05/07/2020  
11/07/2020

XX-11-XX

Speed Over 30	3 violations
Speed Over 20	0 violations
Braking	13 violations
Turning	28 violations
Idling	0 violations
Acceleration	14 violations
Corner Acceleration	0 violations
Corner Braking	0 violations





# **PART 6**

## **Enablers**

**Solutions/ Products – Consortium members - Case studies**



## Enablers



### Electronic Components

Sensors | MCUs | FPGA |  
Radios | Power



### System-on-Module (SOM)

Consumer | Industrial  
Single Board Compute



### Single Board Computer (SBC)

PSX 4 | PSX 7

#### Smart Building

- **Data collection sensors**  
Tracking people, control parking  
Hazard & environment monitoring
- **Edge AI/ Security Camera**  
Access control to guest/ staff
- **Data analysis on Edge / Cloud**  
Provide Detail information for Energy management, Safety & Security

#### Smart Sustainable City

- **Data collection sensors**  
Counting & Tracking people, vehicle  
Hazard, Environment, Lighting monitoring
- **Smart Lamp Post/ Edge AI Camera**  
Public surveillance
- **Data analysis on Edge / Cloud**  
Provide Detail information for Energy management, Safety & Security

#### Smart Health Care

- **Edge AI/ Thermal Camera & Other important sensor**  
The First warning to remote tracking patient condition
- **High speed & low lag Edge AI và AIoT camera**
- **Image processing on Cloud**  
Can use to take X-Ray & to diagnose medical image

#### Smart Lamp Post, Traffic, Car Park, Electric Vehicle

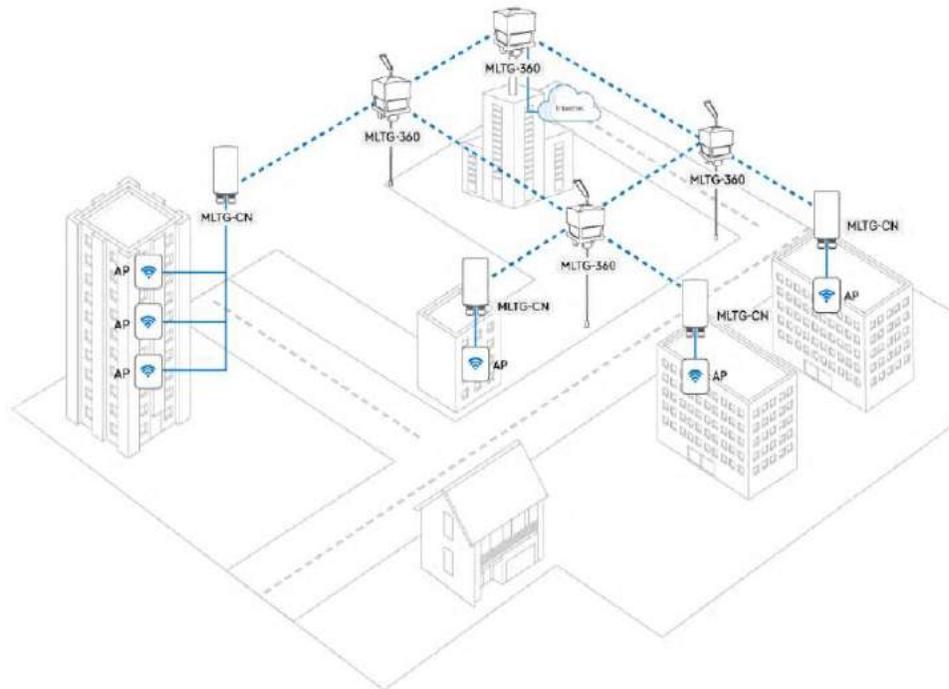




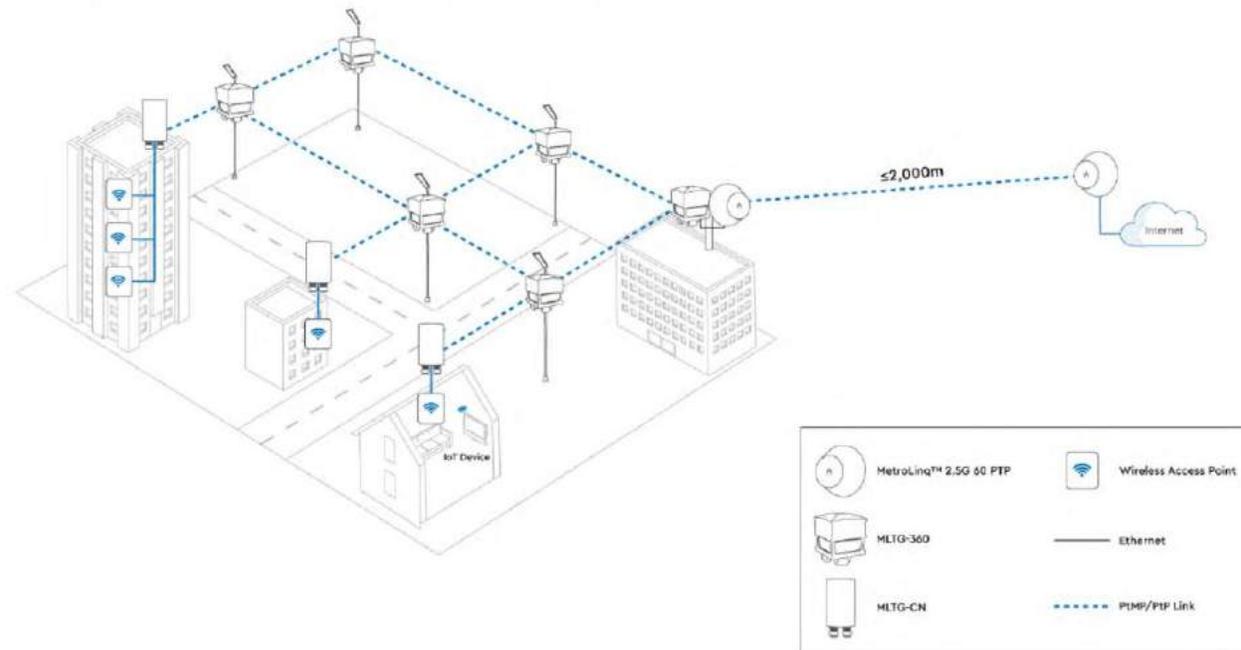
## 60 GHz Wireless Solution

The 60GHz provides opportunities for businesses to do high-speed data transfer across the air and provides flexible deployment of solutions without expensive fiber cables in your last mile set up.

### Deployment scenarios for MLTG-360 DN & CN



### Long distance deployment by incorporating ML2.5





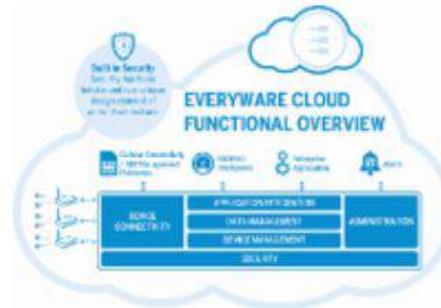
NEXWAH is a system solution provider focus on electronics product and system design, development, prototyping, small to medium volume production

## • PCB Board Assembly



Standard Work Flow  
Testing & Debugging  
SMT, BGA, Casing CNC  
Components Sourcing

## • IOT Platform & Cloud Computing



Google IOT, Amazon AWS,  
Salesforce

Apps IOS, Android, Web

Node JS, Python, Java

## • Smart City Solutions



Building Automation  
Car park Management  
Security, Safety  
Smart Energy  
Healthcare

# Thank you