Driving oneM2M Standards Adoption: Unlocking Opportunities in Malaysia's IoT Ecosystem

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Key Topics

The Malaysian IoT Landscape

Unlocking Opportunities with oneM2M

MTSFB's Role in Standards Adoption

oneM2M and Favoriot: A practical synergy

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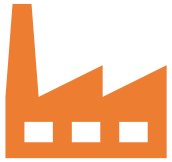
Malaysia's IoT Journey



I: Early Foundations

~2010 - 2014

Focus: Initial awareness, university projects, early industrial adoption.

Standardisation: No national framework; solutions are proprietary silos.

II: National Strategy

2015 - 2020

Launch of the **National Internet of Things (IoT) Strategic Roadmap (2015)**, **Industry4WRD (2018)**, **Malaysian ITS Blueprint (2019)**, and **Malaysia Smart City Framework (2019)**.

Interoperability: Focus is on vision and vertical deployment; the lack of a common service layer limits data sharing.

III: Digital Acceleration

2021 - Present

Launch of **MyDIGITAL (2021)** and **Construction 4.0 Strategic Plan (2021-2025)**. Emphasis on digital economy and infrastructure, as reflected in the **MyTMAP2030 Strategic Thrusts**.

Scale & Efficiency: Fragmentation increases costs, slows government procurement, and prevents national-scale, cross-sector solutions.

MyTMAP2030 Strategic Thrusts & Key Initiatives

Strategic Thrust	Objectives
Robust and Resilience Communications Infrastructure	Ensure equitable, resilient digital infrastructure for nationwide connectivity and economic growth.
Security, Privacy and Trust for National Sovereignty	Develop standards to protect information, network infrastructure, security, trust, and data privacy.
Innovation through Emerging Technologies	Facilitate industry innovation by leveraging emerging technologies.
Advancing Environmental, Social and Governance (ESG) Goals	Develop standards to encourage the adoption of sustainable technologies to reduce environmental impact.
Regulatory Compliance through Standardisation	Implement robust standards for compliance and quality management to ensure consistent service quality and enhanced user experience.

Emerging Technologies Areas

- Fixed Services
- Mobile Services
- Satellite
- Broadcasting
- Vertical Applications
- Soft Technology

MyTMAP2030

The Strategic Communications and Multimedia Technology Roadmap 2025-2030

ACCELERATING TECHNOLOGY ADOPTION THROUGH STANDARDS

Malaysian Technical Standards Forum Bhd

MCMC

ST1: Robust and Resilience Communications Infrastructure

K1.1 Facilitate infrastructure deployment in urban and rural areas.
K1.2 Accelerate technology adoption and enable services across vertical applications.
K1.3 Enhance connectivity with high-quality and affordable internet access.

ST2: Security, Privacy, and Trust for National Sovereignty

K2.1 Create comprehensive security and privacy standards aligned with global frameworks.
K2.2 Safeguard sensitive data and computing capabilities.
K2.3 Ensure secure and efficient deployment of services and applications.
K2.4 Enhance competencies and capabilities in security, trust, and privacy.

ST3: Innovation through Emerging Technologies

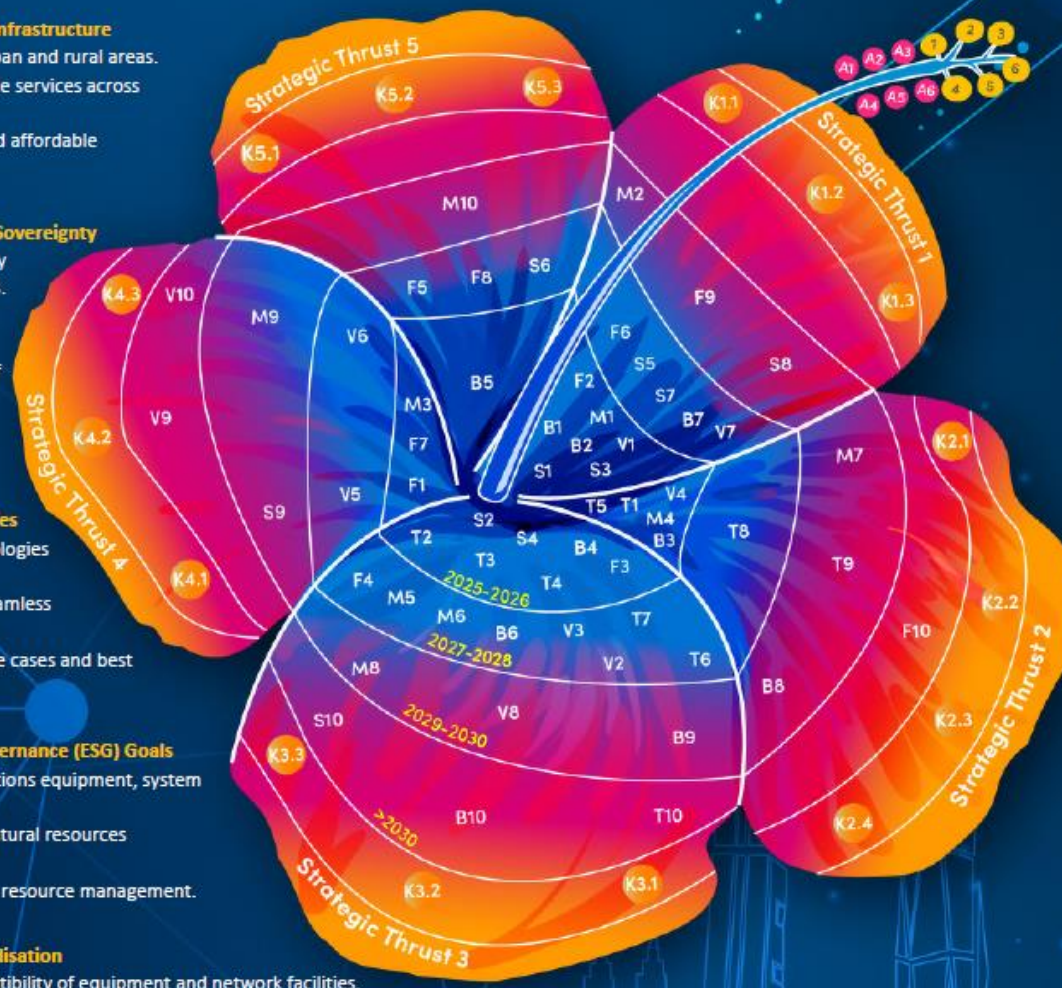
K3.1 Establish frameworks for emerging technologies that drive innovation.
K3.2 Promote cross platform integration for seamless ecosystem.
K3.3 Facilitate technology adoption through use cases and best practices.

ST4: Advancing Enviromental, Social and Governance (ESG) Goals

K4.1 Improve energy efficiency for communications equipment, system and network.
K4.2 Encourage use of renewable energy for natural resources conservation.
K4.3 Promote circular economy for sustainable resource management.

ST5: Regulatory Compliance through Standardisation

K5.1 Enable safety, interoperability, and compatibility of equipment and network facilities.
K5.2 Facilitate compliance to regulatory requirements such as EMF emission, QoS, and QoE.
K5.3 Strengthen governance through documented use cases and best practice.



Stakeholders

1. Ministries & Agencies
2. Regulatory Bodies
3. Academia, Associations & Professional Bodies
4. Service & Solutions Providers
5. Vendors & Manufacturers
6. Public & Consumers

A1: Fixed Services

F1 Co-Packaged Optics
F2 Wi-Fi Enhanced FWA
F3 XGS PON
F4 Edge Computing
F5 Autonomous Software Defined Network
F6 All-Optical Switching
F7 Energy Efficient Networks
F8 Gigabit-Speed Li-Fi Networks
F9 Space Division Multiplexing
F10 Quantum Key Distribution

A2: Mobile Services

M1 Private Network
M2 AI-Based Energy-Efficient Network
M3 AI/ML for Network
M4 5G-RedCap
M5 Cross-layer Collaboration Technology for XR
M6 Sidelink Positioning & Ranging
M7 Uncrewed Aircraft Systems
M8 Integrated Sensing & Communications
M9 Ambient IoT
M10 Terahertz Communications

A3: Satellite

S1 Low Latency & VHTS
S2 NTN - IoT and M2M Communications
S3 Small Satellite Specification
S4 AI Assisted Satellite System
S5 Satellite FSO Communications
S6 NTN - Direct to Devices
S7 Multi-orbit Satellites
S8 VHF Data Exchange System
S9 Life Extension and In-orbit Servicing
S10 Quantum Communications

A4: Broadcasting

B1 UHD Broadcasting
B2 5G New Radio for Broadcasting
B3 Cloud-Based Broadcasting
B4 Personalized Content Delivery
B5 AR/VR Broadcasting
B6 Real-time Disaster Broadcasting
B7 5G Broadcast
B8 Blockchain for Content Rights Management
B9 AI-Generated Content
B10 Quantum-Enhanced Broadcasting

A5: Vertical Application

V1 Automotive V2X
V2 Remote Factory Automation
V3 Telemedicine
V4 Smart Farming and Aquaculture
V5 Secure Micro ePayment
V6 AI Supported Grid Monitoring
V7 Smart City Public Surveillance
V8 Interlligent Transport System
V9 XR Entertainment
V10 Geo-Targeted Advertisement

A6: Soft Technology

T1 Security and Privacy
T2 Generative AI
T3 Big Data
T4 Ubiquitous IoT Adoption
T5 Blockchain Interoperability
T6 Spatial Computing
T7 Digital Twin
T8 Zero Trust Network Access
T9 Quantum Computing
T10 Web3

MyTMAP2030 - IoT Related

Edge Computing

Edge computing processes data locally, near the user, to significantly reduce latency, making real-time applications (like autonomous vehicles and IoT) faster and more effective.

Ambient IoT

Ambient IoT leverages the capabilities of 5GA and 6G to seamlessly integrate battery-less sensors into the environment, enabling constant, context-aware data collection for intelligent systems that autonomously respond to human needs and environmental changes.

Non-Terrestrial Networks Enabled IoT and M2M Communications

NTN-IoT and M2M communications use Non-Terrestrial Networks (like satellites) to provide a reliable connection for remote IoT devices and sensors in areas without traditional network coverage, expanding the reach of smart solutions across sectors like logistics and agriculture.

Ubiquitous IoT Adoption

Widespread, seamless integration of interconnected IoT devices into all everyday environments, leveraging technologies like 5G, edge computing, and AI to enable real-time data exchange for personalized services and optimized resource management across sectors like smart cities and healthcare.

Digital Twin

A Digital Twin is a dynamic, real-time virtual model of a physical asset or system that uses IoT and AI to monitor, simulate, and analyze operations, helping industries predict issues and optimize outcomes across sectors like manufacturing and smart cities.

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The National Challenge

A fragmented IoT landscape of vertical silos prevents interoperability, increases costs, and limits national-scale solutions

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The Problem: Fragmentation

Siloed System

Smart city, energy, and logistics systems are built in isolation. They cannot 'talk' to each other, creating data islands

Vendor Lock-In

Companies are tied to a single vendor's proprietary technology, stifling innovation and increasing long-term costs.

High Complexity

Developing new cross-domain applications (e.g., parking + traffic + pollution) is slow, expensive, and difficult to scale, stifle innovation

The Solution – oneM2M

oneM2M is the Android/iOS of IoT. It doesn't care if you're using Zigbee or LoRaWAN; it makes sure all apps speak the same language.

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Core Benefits for Malaysia

Breaks Vendor Lock-in

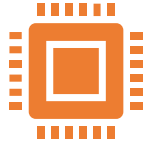
Enables true interoperability. Any oneM2M-compliant device can work with any oneM2M-compliant application, regardless of the vendor.

Accelerate Innovation

Frees developers to build valuable applications, not costly, custom integrations. This lowers the barrier to entry for local technopreneurs.

Aligns with National Goals

Directly supports the National IoT Roadmap's goal for a "Regional Hub" by establishing the framework for "interoperability testing."



Cost Reduction & Reusability

Reuse common services. Stop reinventing device management and security for every single project.

MTSFB: The Key Enabler

The Malaysian Technical Standards Forum and Body (MTSFB) is positioned to lead the charge from recognition to regulation.

MTSFB's Strategic Actions

Formal National Standardisation

- Take the international oneM2M technical specifications (which are already recognised by ITU-T) and formally adopt them

Certification and Compliance Program

- Establish a local certification scheme with local partner and research institutions

Localising Interworking Guidelines

- Publish specific national guidelines on how to implement the Interworking Proxy Entity (IPE)

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The Industry Champion: Favoriot

How a leading local platform like Favoriot can integrate oneM2M and champion a national standard.

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MySTI Certified
MySTI STI202300015

Warehouse Environment Building Agriculture Home

Smart Applications

Email, SMS, Telegram, HTTP POST, RPC
Methods

2. Manage

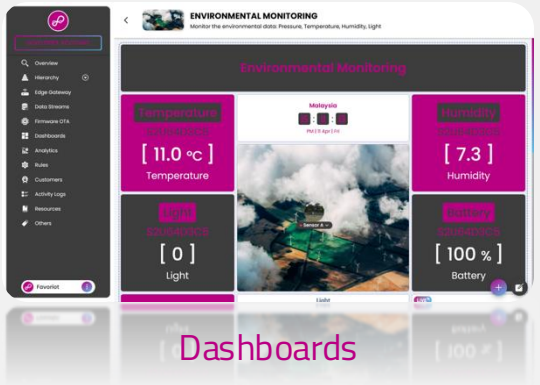
4. Insights

REST API

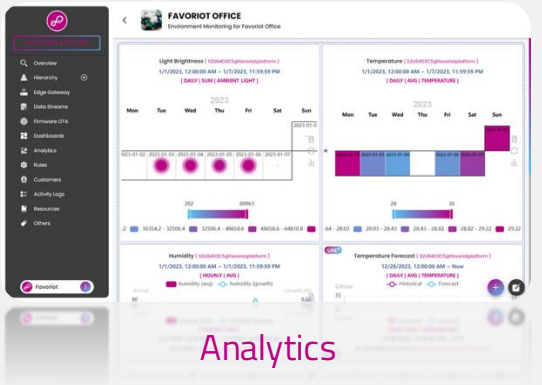
Scalable Storage | Device Management | Rule Engine

Dashboards | Analytics

REST API | MQTT | COAP | WEBSOCKET



Dashboards



Analytics

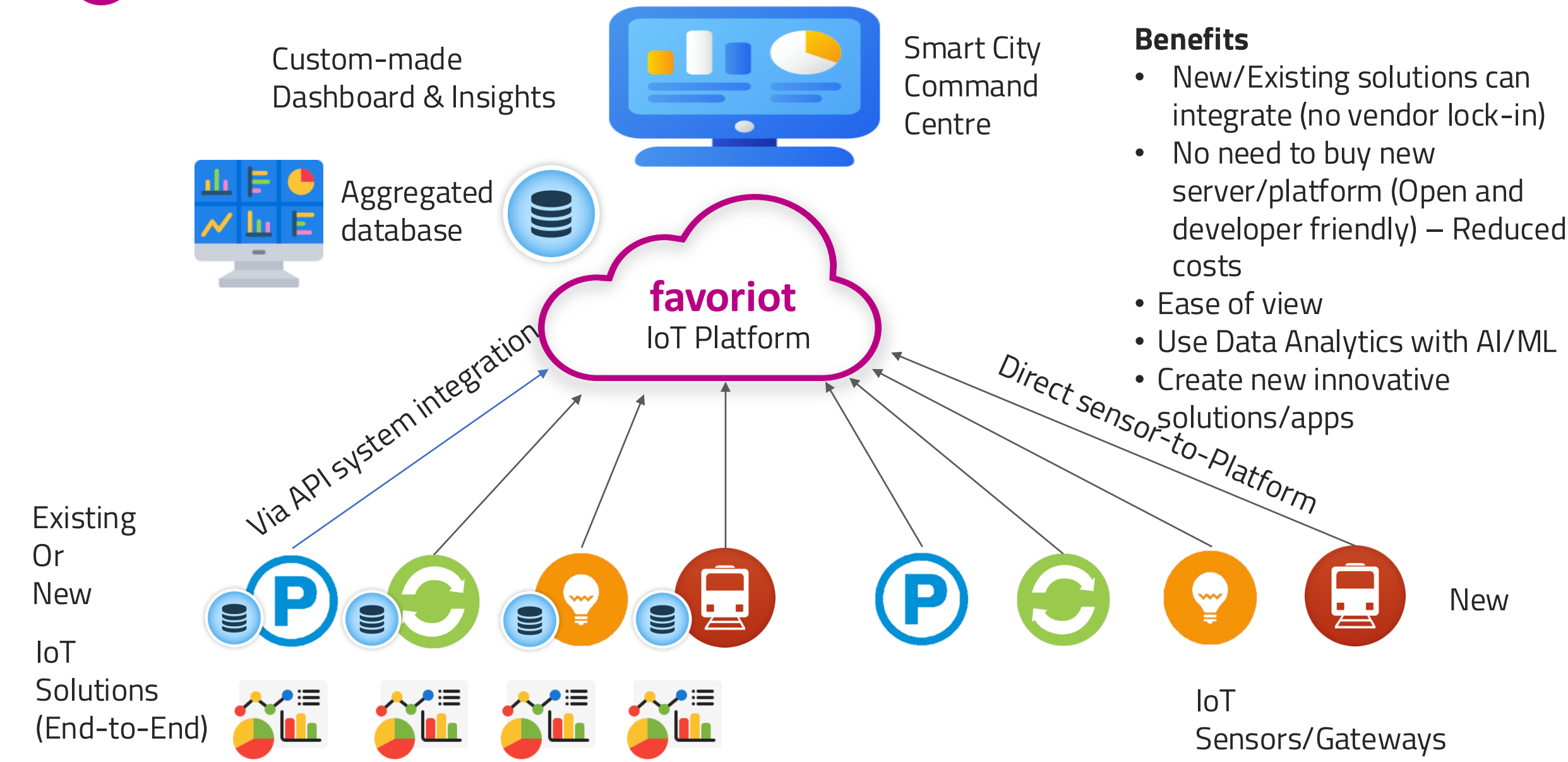
3. Visualise

Gateways

Devices

1. Connect

Smart City IoT Platform Using favoriot



Benefits

- New/Existing solutions can integrate (no vendor lock-in)
- No need to buy new server/platform (Open and developer friendly) – Reduced costs
- Ease of view
- Use Data Analytics with AI/ML
- Create new innovative solutions/apps

Favoriot's Technical Path – Integration via Interworking Proxy (IPE)

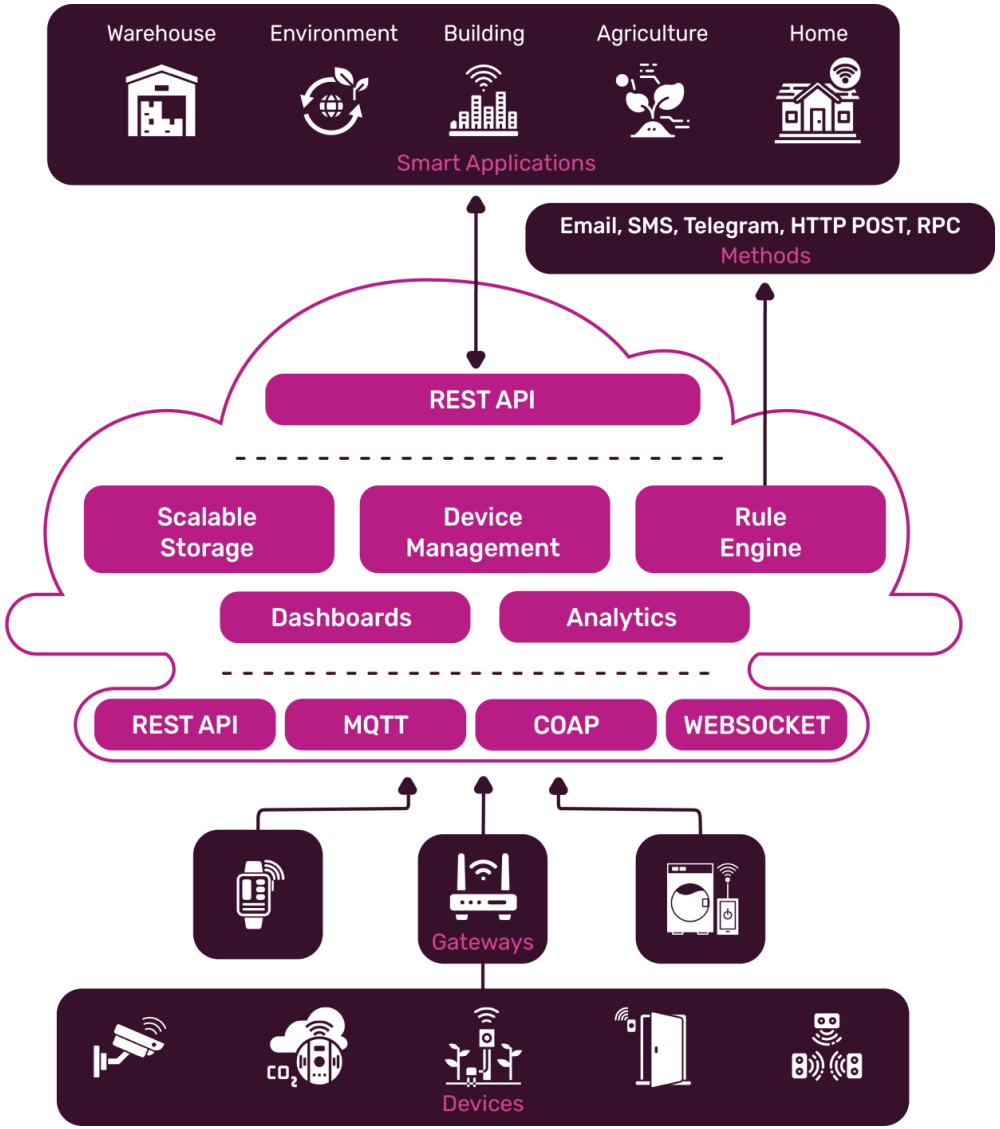
Favoriot's existing RESTful API architecture is highly compatible with oneM2M's service-based design.

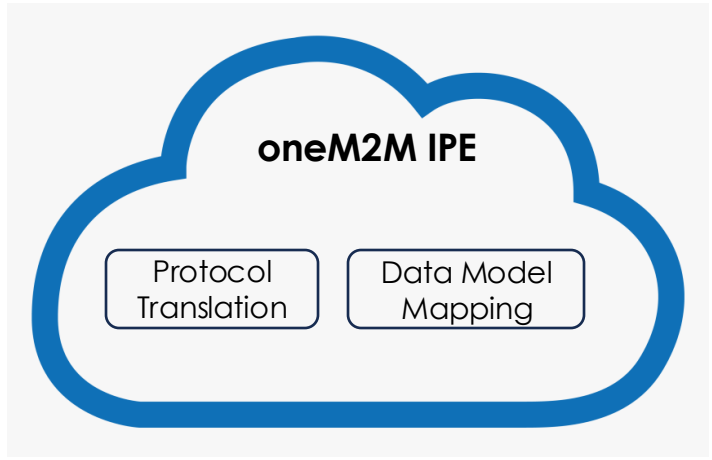
The IPE acts as a powerful “translator” or “adapter”

It maps Favoriot's specific API and data models to the oneM2M standard resource structure.

This allows Favoriot-managed devices to be discovered and used by any other oneM2M-compliant application in the ecosystem.

Integration via Interworking Proxy (IPE)





IPE acts as a gateway, translating the oneM2M standard data models and procedures (like Create, Retrieve, Update, Delete operations on resources) into the format that FAVORIOT accepts

Interoperability is Now

"Standardisation is the bridge from a fragmented present to a unified, intelligent, and efficient IoT ecosystem for Malaysia."


THANK YOU
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