Digital Twin
DIGITAL TRANSFORMATION REALIZED

Digital Twin's Building Management System Solution

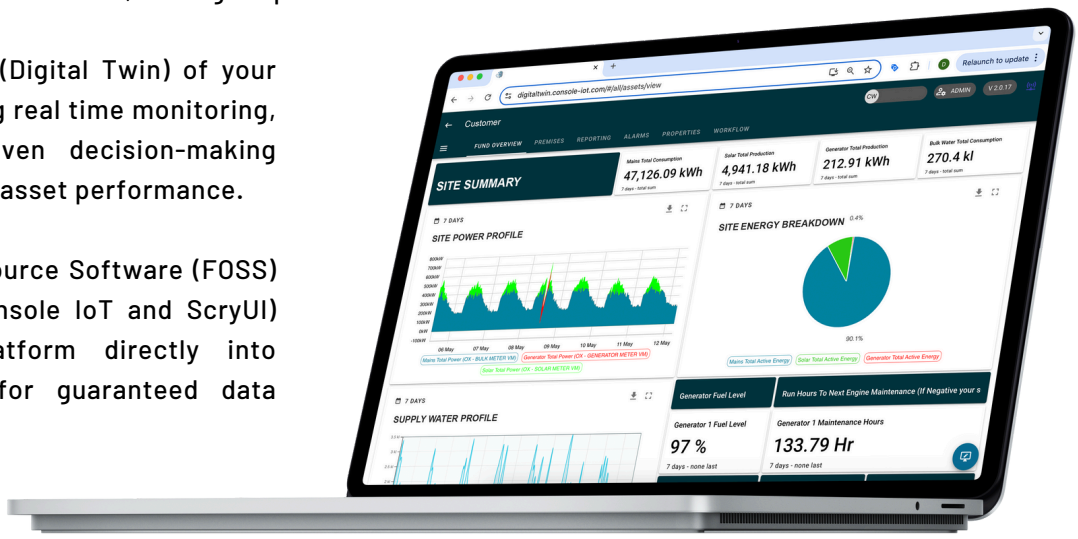
Unlock your building's full potential with seamless BMS integration on one digital platform.

Digital Twin Building Systems Platform

Our solution provides a non-invasive edge-to-cloud integration layer that connects your existing Building Management System (BMS), HVAC plant, and auxiliary systems — including Access Control, CCTV, Fire, Utilities, and People Counting — into one unified, intelligent platform.

It creates a virtual replica (Digital Twin) of your building operations, enabling real time monitoring, optimisation, and data-driven decision-making across energy, comfort, and asset performance.

We utilise Free and Open Source Software (FOSS) technologies (excluding Console IoT and ScryUI) and can deploy the platform directly into customers' environments for guaranteed data security and ownership.



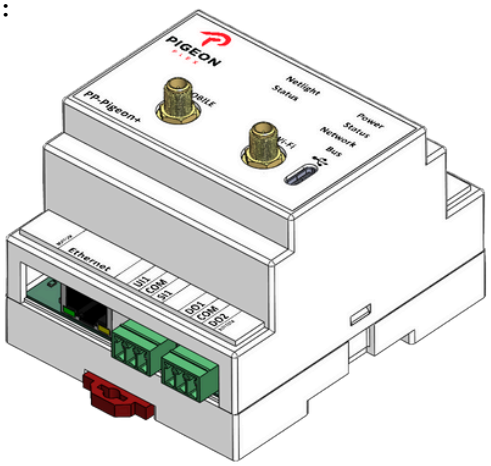
Core Capabilities

- **Non-Invasive Edge Integration**
- **Cloud Data & Intelligence**
- **Visualisation & Control**
- **Vendor-Agnostic Interoperability**

Edge Integration — Secure & Non-invasive

At each facility, an edge IoT device connects to your on-premise control systems without disrupting operations. This supports common building and industrial protocols including:

- **BACnet** – HVAC, chillers, and air handling units
- **Modbus** – energy meters, pumps, and controllers
- **SNMP** – network and CCTV systems
- **DLMS / MBus** – water and electrical utilities
- **REST / MQTT** – smart sensors, modern APIs, and cloud connectors



The edge device reads and caches all relevant data locally, ensuring resilience during network interruptions and securely transmits telemetry to the cloud using MQTT with persistent queuing.

Cloud Data & Intelligence Layer

Once in the cloud, all incoming data flows through a modern medallion architecture:

Bronze Layer
Captures unprocessed raw device data

Silver Layer
Cleaned and structured telemetry

Gold Layer
Optimised, enriched data for analytics and applications

This architecture powers scalable data access for analytics, dashboards, and machine learning while maintaining data integrity and performance.

Digital Twin Visualisation & Control

Data is surfaced and visualised through our next generation platforms:

Console IoT
Our enterprise IoT dashboarding, alarming, and reporting suite.

ScryUi (NextGen)
Advanced Digital Twin interface for real time spatial visualization, predictive analytics, and multisystem correlation.

Users can explore live equipment performance, energy consumption, occupancy trends, and system interdependencies in a single view.

Compatibility & Ecosystem

Our system integrates seamlessly with:

- Existing BMS frameworks (including Niagara, Johnson Controls, Schneider, Siemens, etc.)
- Edge devices like Teltonika routers, gateways, and data concentrators
- Third party sensors and controllers from multiple vendors

This ensures vendor agnostic interoperability, future scalability, and investment protection — leveraging what's already installed.

Key Benefits

Non-Invasive Integration
Seamlessly connect with existing BMS systems without replacement or disruption.

Unified Data Model
HVAC, security, utilities, and occupancy data combined into one intelligent system.

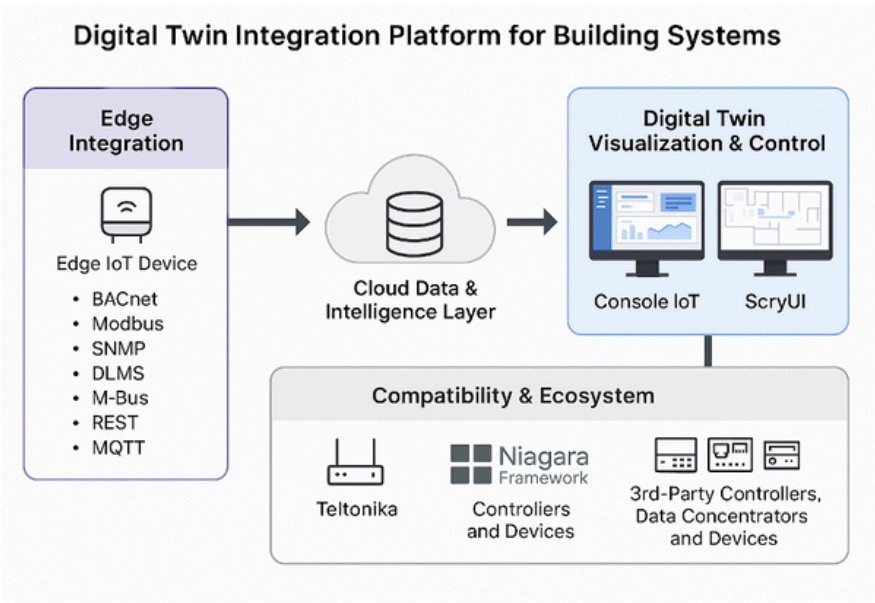
Energy Optimisation
Designed to implement SANS474 including ToU, PV generation, and energy balancing.

Predictive Insights
Detect inefficiencies and faults before they impact operations.

Enterprise Scalability
Our solution scales easily from single sites to national portfolios.

Architecture Snapshot

- Edge Layer: Multiprotocol data acquisition → caching → MQTT queue
- Cloud Layer: Medallion data lake → analytics engine → API services
- Experience Layer: Console IoT / ScryUI → visualization, alerts, optimization



Digital Twin (Pty) Ltd is proudly South African.

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