A single source of truth to unlock the potential within a modern utility's data landscape

TheGAW industries

DIGITAL SOLUTION

 # Oil and storage terminals

Prepare for a safer, data driven terminal future

Enable accurate data exchange and synchronization across your oil and gas terminal

There is only one physical terminal, but most terminals operate with many separate systems and models such as SCADA, PLC and DCS, tank gauging, metering, maintenance, safety systems, ERP, and manual logs. Each system uses its own format, level of detail, and team to maintain it. This creates digital silos and breaks the consistency of operational data.

When data does not match between systems, or when data is not exchanged at all, the impact can be serious. Wrong tank levels can trigger overfill risk. Unverified pressure and temperature data can lead to unsafe operating conditions. Gaps between operations and safety systems can delay alarms and response. These inconsistencies can result in incidents, environmental releases, compliance issues, equipment damage, and downtime.

As terminals add more sensors, automation, and digital tools, the data volume increases fast and the dependency on accuracy becomes even higher. Regulations also demand stronger traceability, reporting, and proof of safe operations. Without a connected data layer, complexity increases risk.

A Digital Twin solves this by creating a single validated source of truth for the terminal. It synchronizes live data across systems, maps it to the asset model, and delivers one consistent view of operations. Most importantly, it strengthens safety by enabling earlier detection of abnormal conditions, better control of critical limits, and clearer operational decision making.

Break down data silos. Improve data accuracy. Raise safety and operational control.

TheGAW's DIGITAL SOLUTIONS

Build safer loading and transfer operations with end to end terminal digital twin monitoring and alerts

Foundation Twin

Essential Digital Visibility

What you get in this package

A complete entry level Digital Twin that gives your team a full 3D view of the terminal and live dashboards to monitor key operating conditions. It is built around your existing instrumentation and available data points, so you immediately get practical visibility without major changes to the site.

3D Model and Live Dashboards

- Full 3D modelling of the terminal asset using AutoCAD or similar CAD tools
- Live dashboards configured based on available terminal instrumentation and data points
- Data visualization can be expanded based on existing site inputs

Terminal Overview Live Monitoring

- Tank level
- Flow rate in pipelines
- Tank temperature and tank pressure
- Atmospheric temperature
- Climate and weather conditions where available

Ship Loading Dashboard

- Vessel arrival for loading and unloading
- Vessel details and products handled
- Inward and outward trend
- Vessel schedule chart

Truck Loading Area Dashboard

- Trucks loaded per day
- Turnaround time TAT
- Loading rate
- Bay utilization

Core KPIs Included

- Pump running hours
- Availability and downtime
- Energy consumption
- Flow vs design capacity
- Line pressure trends

Optional Add On

Risk Management Register - A structured section to store and display workover and maintenance history by terminal area, supporting risk review and analysis

Insight Twin

Advanced Monitoring

What you get in this package

A higher accuracy and more expandable Digital Twin that includes everything from Foundation Twin, with advanced 3D modelling and optional laser scanned inputs. This package is designed for clients who want deeper operational visibility and maintenance focused dashboards that support preventive maintenance planning.

Advanced 3D Model Upgrade

- All dashboards, KPIs, and sections from Foundation Twin
- Advanced 3D modelling using Hexagon or similar industrial software
- Optional laser scanned inputs for accurate as built representation

Truck and Ship Monitoring and Management

- KPIs and dashboards can be adjusted based on client requirements
- Preventive maintenance analysis tables and dashboard views, enabled based on available data
- Improved reporting structure for reliability and performance review

Operational and Maintenance Intelligence

- Truck monitoring and management
- Ship monitoring and management
- Expanded operational visibility for planning and coordination

30% *Up to reduction in unplanned downtime*

Enabling safer, more efficient, and more resilient facilities.

Immersive Twin

Virtual Reality Digital Twin for Training and Advanced Operations

What you get in this package

A premium Digital Twin experience that includes everything from Foundation Twin and Insight Twin, plus a full Virtual Reality model of the terminal. This package adds immersive walkthroughs, process demonstration, and equipment management so teams can train, plan, and collaborate more effectively while improving operational readiness.

Virtual Reality Environment

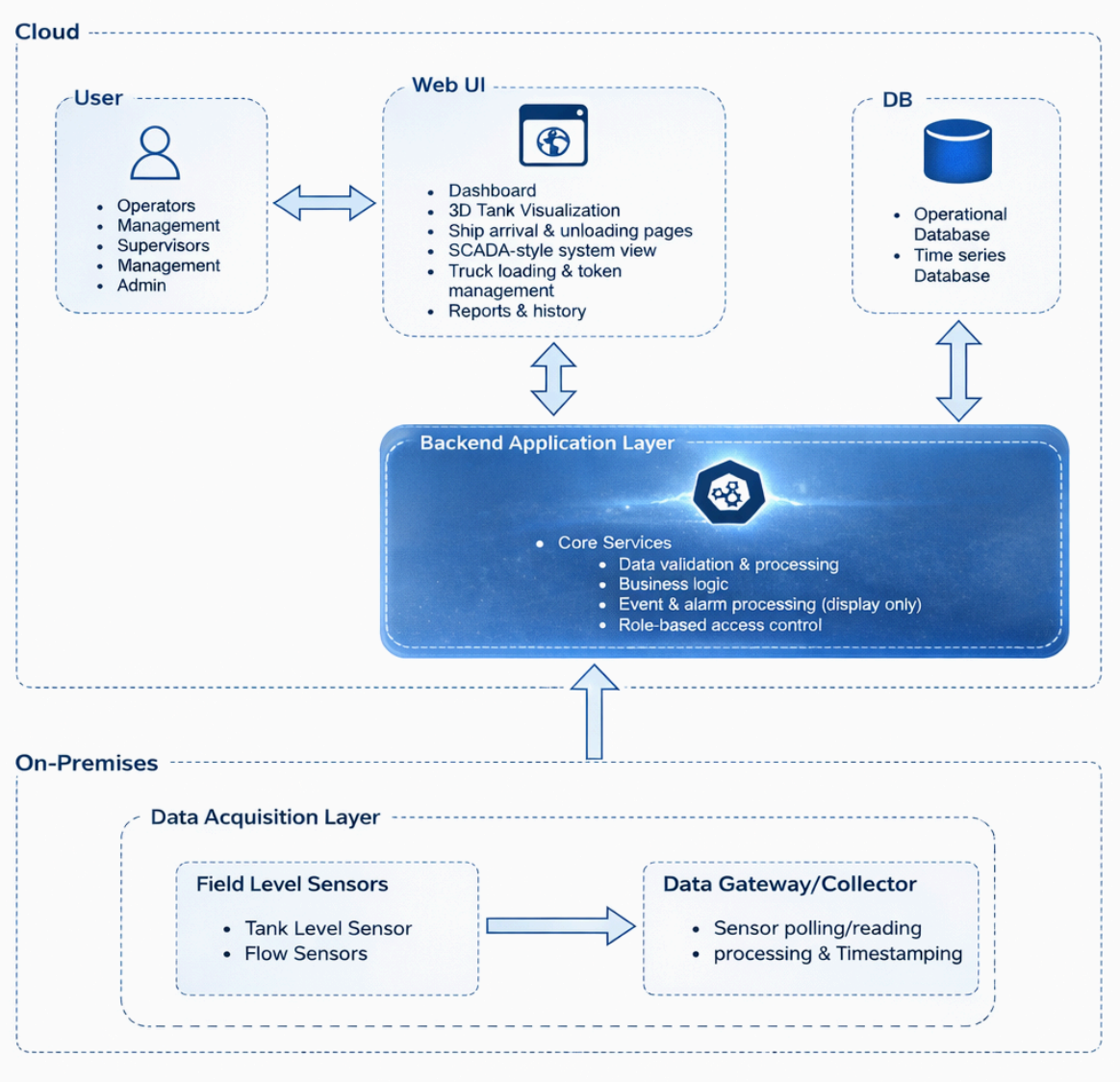
- VR enabled model of the complete terminal asset
- Virtual walkthrough for realistic site navigation and asset understanding
- Strong support for training, planning, and remote collaboration

Process Demonstration and Simulation

- Process simulation of the complete asset
- Enables training on operating workflow and process sequences
- Improves safety critical understanding and readiness

Equipment Management

- Structured equipment information linked to its exact location in the model
- Users can locate equipment in the virtual environment and review details quickly
- Supports inspections, troubleshooting preparation, and abnormal condition awareness based on available monitoring logic



Example of a proposed architecture. Actual Architecture will decided based on the final decision of all attributes

The conceptual workflow is as follows:

- Field sensors and terminal systems generate operational data (level, flow, temperature, pressure, pump status, energy, truck bay, ship data).
- Data will be made available locally through PLC, SCADA, DCS, and operator displays.
- An Edge Gateway or Industrial PC reads required tags in read only mode.
- Data is filtered, validated, timestamped, and securely transmitted to the central platform.
- Backend services ingest and store real time and historical data.
- The Digital Twin maps tags to the asset model (tanks, pipelines, pumps, loading bays, marine) and maintains the asset hierarchy.
- Business logic calculates KPIs and operational metrics (inventory, utilization, throughput, energy, downtime, truck and ship performance).
- Data is exposed through APIs to the web application.
- Users access dashboards, KPI trends, SCADA like mimics, 3D views, reports, and exports via browser or app.
- Package upgrades add capability on the same workflow: Foundation Twin for monitoring and 3D dashboards, Insight Twin for advanced modelling and maintenance analytics, Immersive Twin for VR walkthrough and process simulation.

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“WE SHIP WORLDWIDE”

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