Loading Base Use Case

Automated loading base management with ERP integration and multi-compartment truck handling.
Industry: Oil & Gas / Logistics

Quick Facts

Attribute	Value
Scale	84,284 tags, 3,576 communication points
Loading Bays	30 bays
Screens	79 displays
Servers	3 (1 database/application, 2 redundant operation)
PLCs	NEXTO 3030
Clients	5 concurrent

The Challenge

Challenge: Implement comprehensive loading base management to automate access control, manage loading operations with precision, handle multi-compartment vehicles, and provide real-time data with ERP integration.

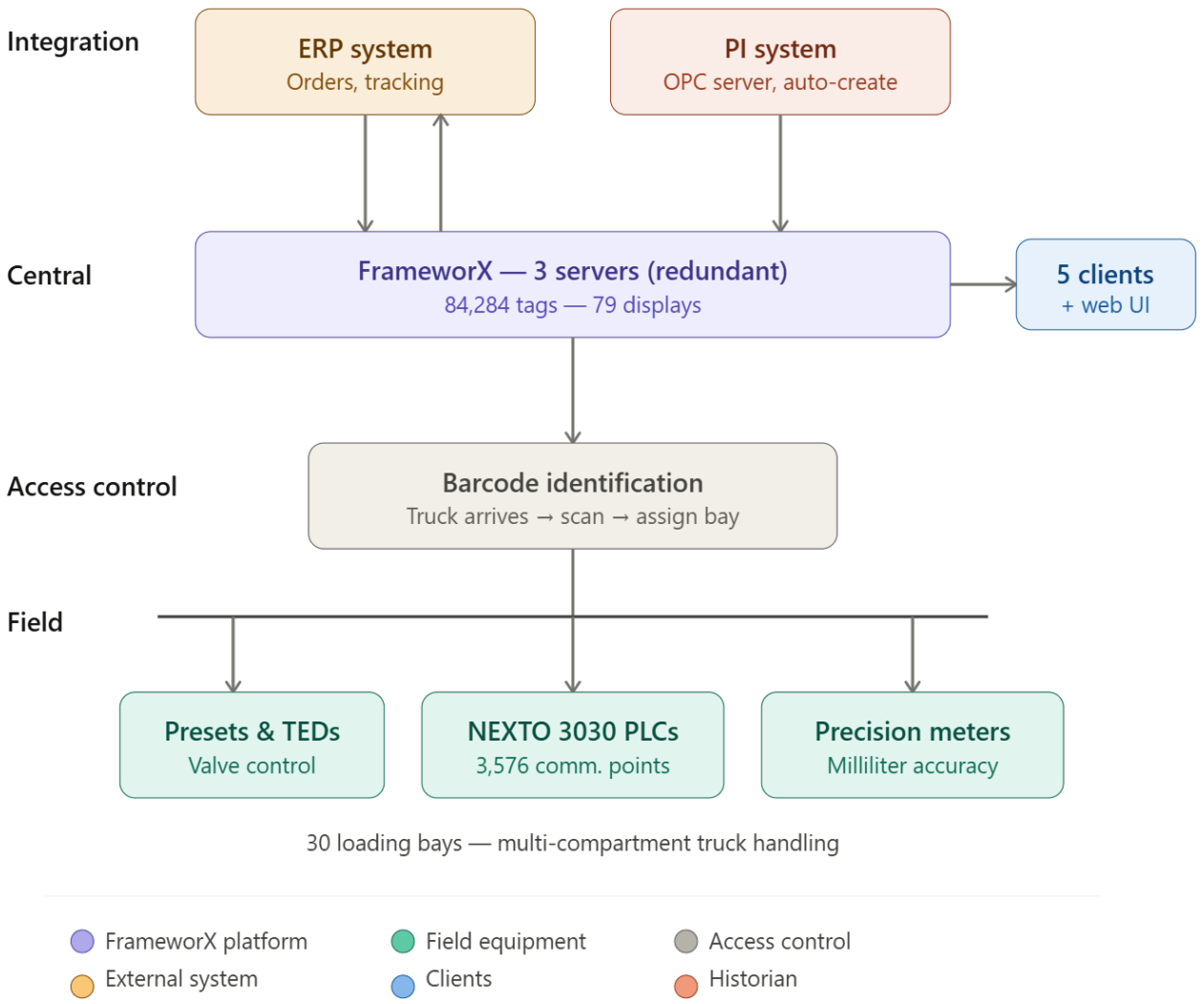
Specific pain points:

- No integrated solution for loading diverse products (milk, chemicals, fuel, grains)
- Manual access control and bay assignment inefficient
- Multi-compartment tanker trucks require precise product-specific filling
- Lack of real-time operational data
- Disconnected systems between loading operations and ERP

Impact: Manual processes causing delays, errors in product allocation, and inability to track operations in real-time.

The Solution

Architecture



Tier	Component	Capabilities
Field	Presets, TEDs, PLCs	High-precision milliliter meters, valve control
Central	3 servers (redundant)	Database, application, operation
Integration	ERP connection	Order management, tracking
Clients	Web interface + 5 stations	Registration, configuration, operations

Automated Workflow

1. Orders inserted into system
2. Truck arrives with barcode tag
3. System reads barcode, assigns bay
4. Multi-compartment filling (different products per compartment)
5. High-precision metering (milliliter accuracy)
6. Real-time tracking to ERP

Scale

Metric	Value

Tags	84,284
Communication Points	3,576
Screens	79
Loading Bays	30
Clients	5

Key Features

- Runtime mode allows adding screens and information without downtime
- OPC Server connected to PI system with auto-create tag functionality
- Web interface for registration and configuration

Key Enablers

FrameworX capabilities that made this solution possible:

Capability	Application
Automated Access Control	Barcode-based truck identification and automatic bay assignment
Multi-Product Handling	Support for multi-compartment vehicles with different products
High Precision Measurement	Milliliter-level accuracy in product dispensing
Real-time Data Integration	Live connectivity between field devices and ERP
Scalable Architecture	Redundant server configuration for operational continuity
Runtime Flexibility	Dynamic screen and information addition without downtime

---

The Results

- **Fully Automated Operations** — Established automated loading base managing 30 bays
- **Complete Traceability** — Achieved end-to-end tracking from order entry to product delivery
- **Eliminated Manual Processes** — Automated truck routing and product allocation
- **Real-time Visibility** — Provided instant visibility of all loading operations with high-precision measurement
- **Scalable Solution** — Delivered redundant, ERP-integrated system ready for expansion
- **Runtime Customization** — Enabled operational changes without system downtime

---

This case demonstrates automated loading base management with barcode identification, multi-compartment handling, and ERP integration.