Security Facility Case Study

Prison automation with 816 doors, Web Services integration, and 25-year platform longevity.
Industry: *Building Automation / Public Safety*

Quick Facts

Attribute	Value
Customer	RENIFER Systems and Automation
Project	First private prison with public participation (Brazil)
Capacity	3,200 prisoners
Doors	816 automated doors and cells
Clients	190+ computers facility-wide
Development	2 months
Contract	25-year management agreement

The Challenge

Challenge: Develop a prison monitoring system for Brazil's first private prison with public participation, requiring a platform that would remain viable for a 25-year management contract.

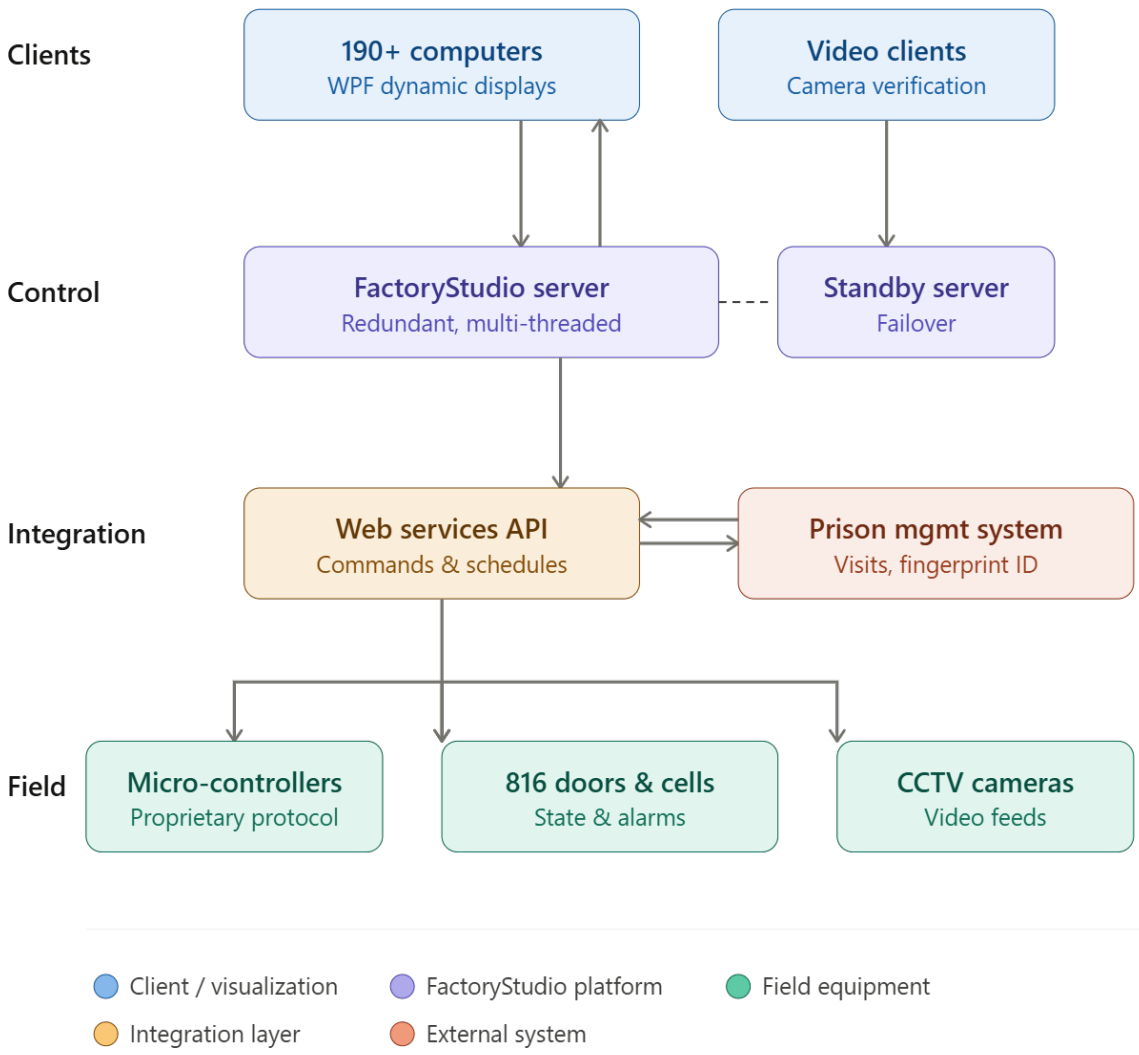
Specific pain points:

- Legacy proprietary software (Visual Basic) could not scale to large distributed systems
- Required multi-threaded task execution for performance
- Needed modern scripting languages (VB.NET, C#)
- Required redundancy at project server level
- Must support proprietary protocol drivers for special security hardware
- Web Service interfaces needed for Prison Management System integration
- Legacy software products would take too long to update for new technologies

Impact: Without a modern platform, RENIFER could not deliver a system that would last the 25-year contract period while meeting security and scalability requirements.

The Solution

Architecture



Tier	Component	Capabilities
Field	Micro-controllers with proprietary protocol	Door state monitoring and alarming
Control	FactoryStudio Server	Multi-threaded execution, redundancy
Integration	Web Services	Prison Management System commands
Visualization	WPF dynamic displays	Real-time cell status and warnings
Clients	190+ computers	Facility-wide access
Cameras	Video integration	Visual verification of door events

Prison Management System Integration

- Manages prisoner schedules (visits, activities)
- Lawyer ID verification (fingerprint)
- Securely sends commands via Web Services interface
- Controls door open/close for cells and secured areas

Development Efficiency Features

Feature	Benefit

Reference Tags	Aliases/placeholders for runtime tag resolution
Tag Templates	One set of tags configured for hundreds of doors
Template Displays	Minimum displays manage entire system
Cell Number Selection	Show any cell's datapoints by entering cell number

Technical Requirements Met

- Multi-threaded task execution
- VB.NET and C# scripting
- Project server redundancy
- WPF graphic development
- Remote access
- Proprietary protocol driver development
- Web Service interfaces

Key Enablers

FrameworX capabilities that made this solution possible:

Capability	Application
Multi-threaded Execution	Performance for large distributed door control
Reference Tags & Templates	One configuration for 816 doors instead of hundreds
Web Services Interface	Secure integration with Prison Management System
WPF Graphics	Dynamic real-time cell status displays
Proprietary Protocol Support	Custom drivers for security micro-controllers
Project Server Redundancy	High availability for critical security system
Modern .NET Platform	25-year longevity on current technologies

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The Results

- **Safer Environment** — Reduced opportunities for prisoner contact with jailers through automated door control
- **Reduced Contraband** — Helped reduce illegal objects entering prisons
- **Reduced Corruption** — Tighter controls and audit trails throughout facility
- **Improved Reliability** — Better cell door data reliability for security operations
- **Rapid Development** — 816-door system developed in 2 months using templates
- **Scalable Platform** — Supports 190+ client computers across facility
- **25-Year Viability** — Modern .NET platform ensures longevity for contract duration

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Customer Testimonials:

> "We find that FactoryStudio is built to face the challenges of prison and public safety applications today, and are confident Tatsoft will be able to resolve any unknown challenges we come across."
>
> *— Antonio Jacomini, Owner, RENIFER Systems*

> "One of the main reasons we decided to work with Tatsoft is they have decades of experience in developing software products and understand the need to have a flexible, reliable platform on which to build applications that will last a long time."
>
> *— Antonio Jacomini, Owner, RENIFER Systems*

Resources:

Download case study: CaseStudy_SecurityFacility.pdf

This case demonstrates large-scale security facility automation with template-based development for 816 doors and Web Services integration.

In this section...