

Carrier-Grade Data Platform for 65M+ Connected Devices

High-scale Wi-Fi Management & Analytics Platform Driving Operational Excellence for Service Providers

IoT83 built and deployed a premium Wi-Fi Management and Analytics service that delivers real-time visibility, remote diagnostics, descriptive analytics, and operational intelligence across millions of homes and devices for leading service providers in North America.



Business Objective

Enable service providers to monitor, diagnose, and optimize subscriber home networks at scale—reducing support costs, improving agent efficiency, and enhancing customer experience.



At a Glance



5.5M+

Homes Deployed



65M+

Connected Devices



1.2 TB

Data Ingested Every Day



24 TB

Data Processed Every Month



15 Min

Device Reporting Interval



Multi

North American Service Providers



The Solution

Built on the Flex83 AIoT Platform, the solution ingests and processes high-velocity telemetry from Wi-Fi gateways, edge devices, and enterprise systems—delivering actionable insights through dashboards, alerts, and analytics to support real-time operations and decision-making.



Real-time Data Ingestion



Diagnostics & Descriptive Analytics



Command Center & Dashboards

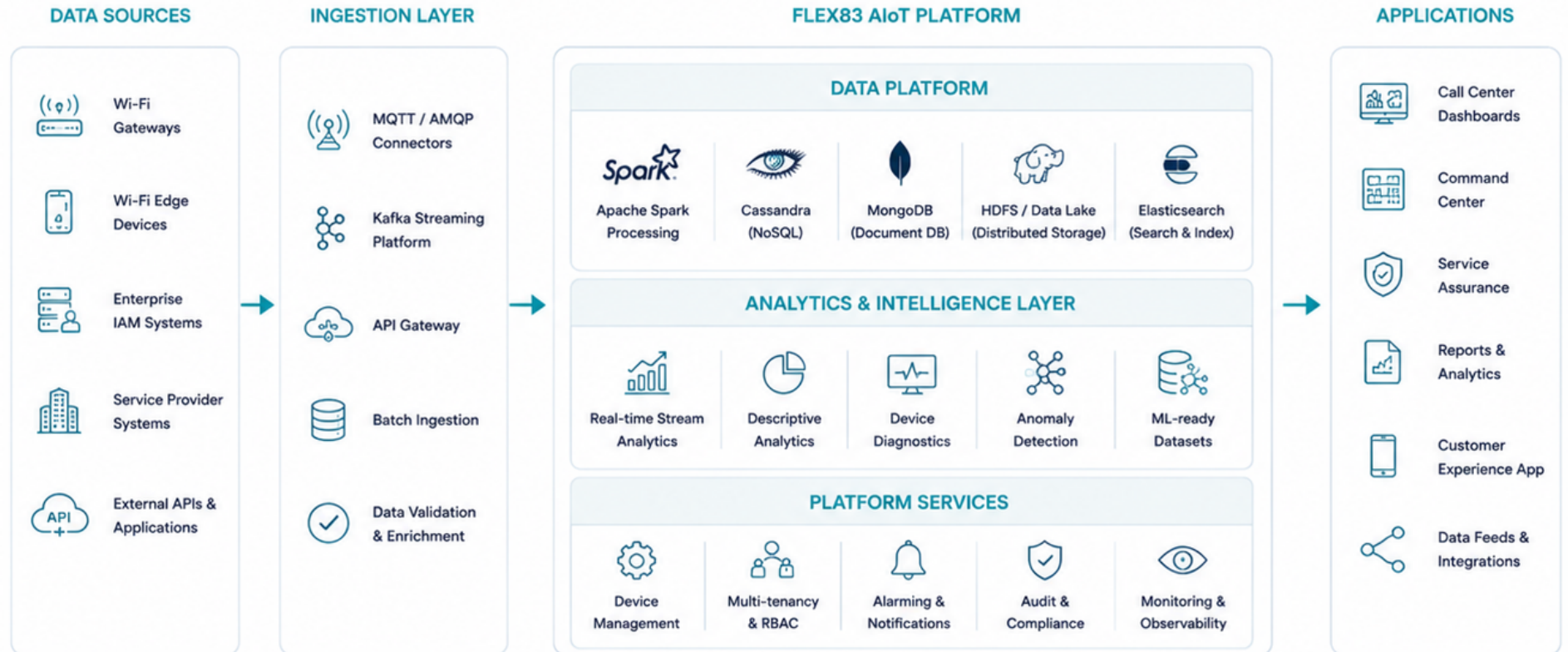


Alerts, Reporting & Data Feeds



Architecture for Scale, Reliability & Cost Efficiency

Flex83 provides the data foundation and application enablement capabilities to ingest, process, analyze, and operationalize data at massive scale.



Built for Scale & Reliability



Handles 1.2 TB of data every day (24 TB per month) with 15-minute device reporting intervals



Deployed across leading North American service providers with high availability and uptime



Cloud-agnostic architecture deployed on AWS / Azure / GCP and private cloud



How Flex83 Delivered Scale with the Lowest TCO

Flex83's reusable platform services, open architecture, and automation capabilities enabled faster delivery, operational efficiency, and long-term cost advantages.

TCO ADVANTAGE DRIVERS



Reusable Platform Services

Pre-built microservices for ingestion, device management, analytics, and operations reduce custom development.



Open Source Foundation

Leverage best-in-class open source technologies to avoid vendor lock-in and reduce licensing costs.



Cloud-Native & Elastic

Auto-scaling architecture ensures you pay only for what you use while meeting peak demands.



Multi-tenant by Design

Single platform, isolated tenants, centralized operations and lower infrastructure complexity.



Automation & Observability

Built-in monitoring, alerting, and self-healing capabilities minimize manual effort and reduce downtime.



Edge Intelligence

Edge agents and local processing reduce bandwidth costs and improve real-time responsiveness.

IMPACT AT SCALE



Faster Time to Market

35% faster delivery compared to building from scratch with 10x improvement in development velocity.



Lower Total Cost of Ownership

Up to 6x reduction in TCO through reusable components, automation, and operational efficiency.



Reduced Operational Costs

50% fewer support calls and up to 19% fewer truck rolls through remote diagnostics and proactive monitoring.



Higher Platform Efficiency

Consolidated data pipelines, unified analytics, and reusable data models reduce duplication and cost.



Enterprise-Grade Reliability & Security

99.99% platform uptime with secure, isolated multi-tenant architecture and built-in compliance controls.

TECHNOLOGY HIGHLIGHTS



Streaming First

Kafka-based event streaming architecture for high-throughput, low-latency data ingestion.



Massive Scale Data Layer

Distributed storage with Cassandra, MongoDB, HDFS and Elastic for scalability and performance.



Analytics & ML Ready

Spark-based processing with ML-ready datasets for advanced insights.



Operational Intelligence

Real-time dashboards, alerts, and reports for proactive network and service assurance.



API-First & Extensible

Open APIs and integration frameworks to connect with any enterprise system.



From Telemetry to Operational Efficiency

Delivering measurable business impact for service providers and their customers.

BUSINESS OUTCOMES

<p>50% Fewer Support Calls</p> <p>Significant reduction in Wi-Fi related support calls.</p>	<p>19% Fewer Truck Rolls</p> <p>Reduced field visits through remote diagnostics.</p>	<p>Faster Issue Resolution</p> <p>Lower MTTR with real-time visibility and insights.</p>
<p>Higher Customer Satisfaction</p> <p>Better Wi-Fi experience and proactive issue prevention.</p>	<p>Lower Operational Costs</p> <p>Optimized operations with automation and scale.</p>	<p>Enterprise Grade Reliability & Security</p> <p>99.99% uptime with secure, isolated multi-tenant platform.</p>

OPERATIONAL IMPACT

- Centralized Command Center**
Real-time monitoring of millions of gateways and devices from a single unified view.
- Proactive Diagnostics**
Automated anomaly detection and descriptive analytics to identify issues before customers are impacted.
- Alerts & Reporting**
Intelligent alerts, customizable reports, and analytics feeds for operations, support, and engineering teams.
- Customer Self-Service**
Empowered subscribers with self-serve tools to monitor Wi-Fi health and troubleshoot basic issues.
- Foundation for AI & Self-Learning**
High-quality data at scale enables advanced AI models and continuous improvement.

“ The platform enabled us to build and deploy a premium Wi-Fi Analytics service that is powering millions of homes and tens of millions of devices. The solution has been running smoothly since deployment and has delivered significant operational and customer experience benefits.

— Sr. Director, Product and Program Management



Project completion certificate and recommendation letter available on request.

ENGAGEMENT SNAPSHOT

Engagement Period	Sep 2017 – Dec 2019
Platform Launch	2019
Deployment	Active across leading North American service providers
Scale	5.5M+ Homes 65M+ Devices
Data Volume	1.2 TB / Day 24 TB / Month
Reporting Interval	Every 15 Minutes
Technologies	Spark, Kafka, MQTT, MongoDB, HDFS, Elastic, Cassandra, Grafana

