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ORION
IoT PLATFORM

ORION
White Paper
2019

AN|10

ABOUT US

INTERNET OF EVERYTHING, FOR EVERYONE

At AN10, we are building an entire IoE ecosystem, enabling people, governments, and businesses to take control of their technological evolution.

This ecosystem includes intelligent hardware, intuitive applications, project delivery, and ORION, our innovative IoT platform.

We're a team of engineers, data scientists and solution architects, all working towards a common goal: a more connected, more intelligent world.

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AN10

COMPANY NAME :
AN10 INC.

COMPANY ADDRESS
2 WISCONSIN CIRCLE, SUITE 700
CHEVY CHASE, MD 20815

ORION overview

An Innovative IoT Platform

ORION is a revolutionary IoT platform that enables rapid deployment of large scale IoT applications. It enables businesses to harness the power of IoT and fully realize their digital transformation goals. ORION is tested to provide high speed data processing, easy edge device connection and management; and advanced analytics capabilities

Accelerated Development

Deploy your IoT assets quickly and at scale by using ORION's simple and intuitive device registration system to quickly register and provision IoT devices.

Manage IoT Assets At Scale

Manage, maintain and update your devices remotely, at scale. Through our admin interface, users can be manage their devices in real-time.

Big Data Ready

ORION gracefully handles millions of devices and billions of messages per second. It is designed to easily manage your big data needs and deliver consistent and reliable data management.

Advance Analytics

ORION enables simple and easy data storage and retrieval with lightning-fast querying. It also incorporates advanced machine learning capabilities over spatio-temporal data.

Robust APIs

ORION comes with pre-built standardized north/south bound APIs to enable easy integration with diverse tools and hardware. It's intuitive interface makes it easy to develop applications for any industry/ vertical.

Enabling Industrial Innovation

Explore how ORION transforms the world, one device at a time

ORION is a comprehensive, versatile IoT platform that is tested to provide high-speed data processing, easy device connection and management and advanced analytics capabilities.

We are an Internet of Things company.

What do we do?

In a nutshell, Everything.

We have over 9 years of expertise building an entire IoE ecosystem, enabling people, governments, and businesses to take control of their technological evolution.

Our ecosystem includes intelligent hardware, intuitive applications, project delivery, and ORION, our innovative IoT platform.

Agile Development & Deployment
You can quickly build a new application layer and develop custom devices, with a simple and easy in-situ deployment

Made For High Scalibility
It is purposefully designed to scale to millions of devices and Terabytes of data efficiently, with no impact on reliability.

Guaranteed System & Data Security
Whether you deploy on premises, in the cloud, or in-situ, we ensure that your data and devices remain secure and isolated.
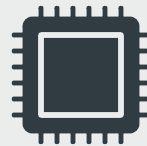
Capabilities

*Coming Soon

Security, Isolation and Multi Tenancy

- Device data isolation per client
- Device data isolation per application per client
- Token based authentication for data access (with revocation)
- Encrypted access to data from platform to applications
- Support for multiple clients on the same platform
- Public cloud, private cloud, hybrid deployment options

Device Management

- Device Registration against Client
- Device Data Mapping to User-friendly names
- Device-specific Notifications*
- Device Meta-data assignment
- Grouping devices using tags
- Device Capability Configuration*
- Identity Management *
- Remote Configuration*
- Remote Update (Software/Firmware)*

Billing

- Number of Devices Registered
- Number of Rules Configured
- Number of Batch queries
- Number of Rules Triggered*

ORION Capabilties

The process
of infinite creativity.

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With ORION, the possibilities are truly endless

Stream Processing capabilities

- Field transformation using logical name
- Virtual sensor creation
- Conditional Event triggering
- Advanced Event Triggering*
- Maintaining Sensor Change History & Duration
- Sensor value/state change over time and its derivative (if value)
- Fast OLAP queries over large device dataset
- Device data queries filtered on metadata information

Analytics Engine

- Fast OLTP queries for device specific data
- Standardize connector for external data access*
- Parametrized analytic queries and drill down for BI*
- ML-based advanced analytics*
- Edge-computing based data analytics*
- CPU, Memory, Disk usage monitoring for all nodes in the platform
- Time Machine (Streaming Replay)

Platform Monitoring

- Individual component (Database, Messaging, Workers) performance stats
- Automatic scaling (up/down) of components*
- Connectivity*
- Number of Messages*

ORION Capabilities

High Level View

This section explains the ORION Architecture and how the platform works along with 3rd party devices and the AN10 platform

ORION Architecture

| IOT APPLICATIONS |
| ORION AEP |

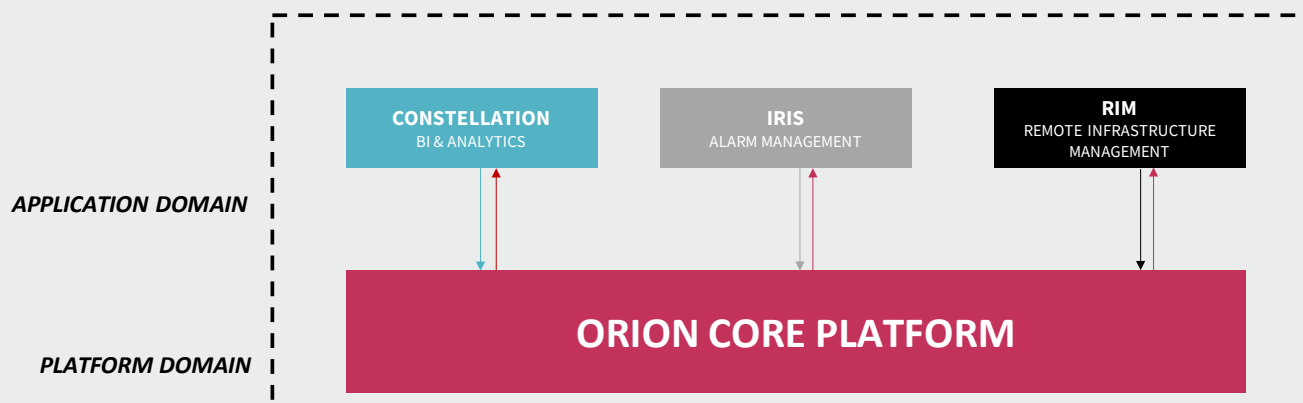| AN10 DEVICES | 3RD PARTY DEVICES |
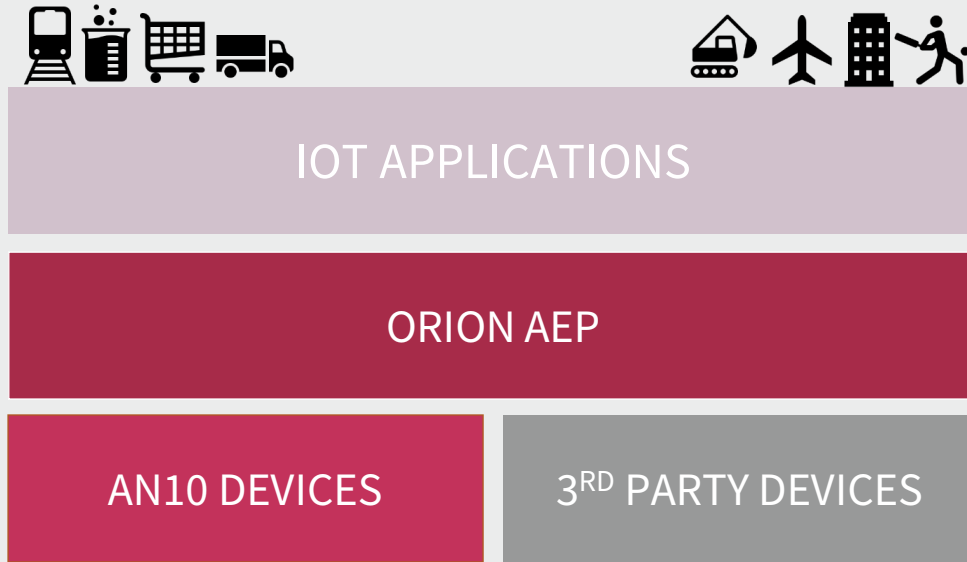
Application-Data decoupling

1. Data storage and availability decoupled from Application logic
2. Protocol Adapters for interfacing with AN10 or 3rd party devices
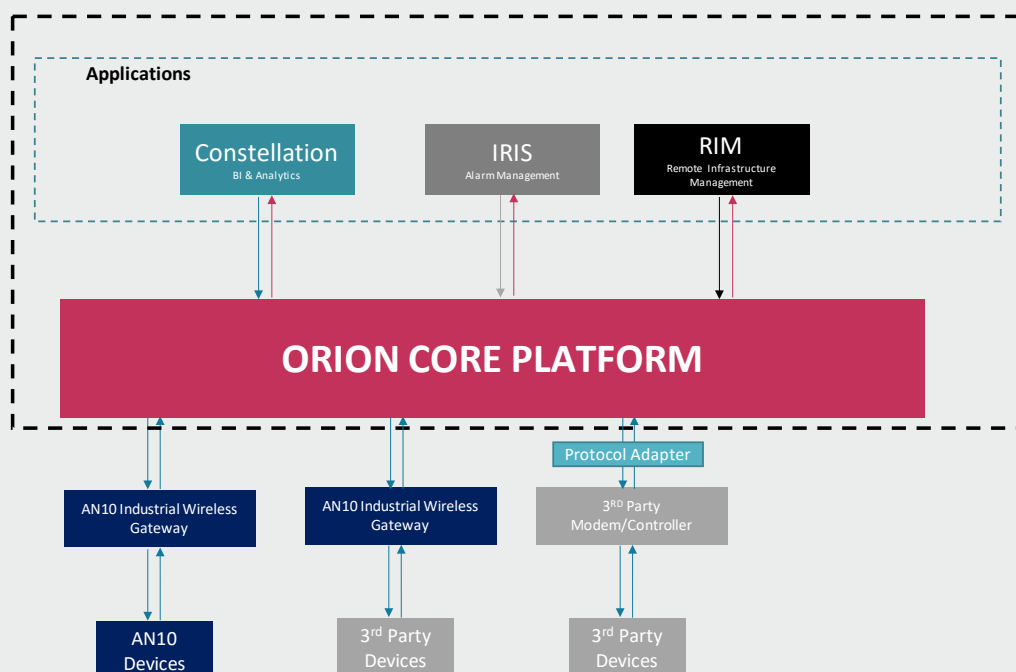
Powerful New AEP

The new AEP supports several different IoT verticals. It has a very flexible fabric for northbound APIs for applications. It also has an ability to connect to AN10 or 3rd party sensor/things by providing different ingress mechanisms to the the ORION AEP.

Internet of Everything, For Everyone.

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Different Applications interaction through ORION

APPLICATION DOMAIN

CONSTELLATION	IRIS	RIM
BI & ANALYTICS	ALARM MANAGEMENT	REMOTE INFRASTRUCTURE MANAGEMENT

ORION CORE PLATFORM

PLATFORM DOMAIN

Interoperability with different IoT Devices through ORION

Applications

Constellation	IRIS	RIM
BI & Analytics	Alarm Management	Remote Infrastructure Management

ORION CORE PLATFORM

Protocol Adapter

AN10 Industrial Wireless Gateway	AN10 Industrial Wireless Gateway	3RD Party Modem/Controller
AN10 Devices	3rd Party Devices	3rd Party Devices

ORION Architecture

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Company Vision

Our Company Vision

Internet of everything for everyone.

AN10 came into being with the vision for becoming a globally competetive IOT solutions company, we are today proud of our IOT ecosystems and solutions. All of it made possible by a structured and process-driven engineering team that works smart and hard to build an innovative, rapidly growing and scalable IOT platform called ORION for businesses and individuals to build Robust and Reliable applications. AN10 is proud for enabling people, governemnt and businesses all around the globe to take control of their technological evolution.

Telecom

AN10 has experience in delivering large-scale IoT deployments for the Telecom sectors. Focusing both on reducing Operational inefficiencies and developing New Revenue streams, AN10 is the perfect technology partner for any company in the Telecom sector.

Fleets

AN10 has developed cutting-edge fleet tracking and management solutions for all enterprise and business needs. With easily installed devices, clients can rapidly deploy our solution over any scale, enabling remote tracking, diagnostics, security and control features.

Buildings

Building management requires a highly complex and cumbersome network of functions, from managing power to ensuring security, to operating a plethora of electronic and mechanical devices. AN10 ensures a comprehensive suite of IoT services & devices - installed during construction or for legacy buildings - to ensure that your buildings are smoothly and efficiently managed.

Affan Syed
Architect & Director Engineering
Developed the structure of the platform and guides it's development.

Faraz Mateen
Lead Engineer
Leads the development and maintenance of the core ORION egine

Arbab Khalil
Analytics & Infrastructure
Manages the development of streaming and analytics capabilities. Also maintains the infrastructure.

Nabeel Ali
API Gateway
Designed and manages the implementation of API gateway for ORION.

Irtiza Ali
Microservices
Developed micro-services for the platform and their containers for deployment.

Platform Team