

# Transform Your Enterprise with an Intelligent Edge and IoT

## LEARN FROM CONNECTED DEVICES ACROSS INDUSTRIES



### Manufacturing

Increase efficiency and maximize productivity by using edge intelligence to predict equipment failure, detect process anomalies, improve quality control, and manage energy consumption. Real-time analysis reduces decision latency and minimizes costly production delays.



### Retail

Deliver unique customer experiences by leveraging data at the edge to personalize offers, build an omnichannel customer relationship, and streamline the purchase process. Edge data can also improve inventory management, ensuring product availability and easing supply chain strains.

In 2017, 3 billion industrial edge devices generated 256 Zettabytes of data. That's over 30 times more data than what was stored across cloud and private datacenters. As the number of sensors and devices increase, the amount of data produced will continue to grow at a staggering rate. According to Gartner analysts, more than 50 percent of IoT projects will use edge devices for analytics by 2022.

Most organizations deal with these oceans of data by processing it all in the cloud, an approach that causes significant IT and business challenges, such as bandwidth congestion, lack of scalability, processing delays, limited security, and compliance and privacy issues.

Traditional IT architectures weren't built to accommodate edge cloud workloads, and efforts to employ them in this new context result in poor performance, disabling complexity, and untold lost opportunities afforded by real-time intelligence at the edge.

While IoT devices have been around for years, making sense of the data generated from these devices has not been a top priority for many organizations, largely due to complexity and cost. With the right edge computing and IoT platform, however, deploying planet-scale edge intelligence can be straightforward, cost-effective, and a path to unprecedented innovation within your enterprise.



Ingest sensor/device data and provides real-time analysis for any device types

### Planet-scale Edge Intelligence



### Oil and Gas

Transform upstream and downstream operations with edge intelligence. Real-time analysis of well sites can optimize extraction processes, and analysis at retail locations can identify trends to maximize revenue.



### Healthcare

Edge-based diagnostic equipment and monitoring tools bring processing and analysis closer to the patient, improving care and services without compromising patient privacy. Real-time detection and diagnosis can make a significant impact on patient outcomes.



### Smart Cities

Connected city services can dynamically improve traffic flow when trouble spots appear, dispatch emergency personnel quickly, and detect issues with utilities before they become problems. With the amount of data involved from all devices and sensors across the city, computing at the edge is the only viable approach.

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## COMPUTING AT THE EDGE

Previously, an edge cloud (with local appliances connected to sensors) was very difficult to operationalize due to the diversity of sensors, which communicate via protocols like Modbus, CAN bus, PROFINET, and MQTT, and require different physical interfaces. The scale of deployment, frequently involving hundreds of locations, made it even more challenging. Moreover, next-generation cloud native applications require new constructs and AI (Artificial Intelligence) frameworks. Applications need to run on a range of devices with different types of CPU, as well as different types of GPU, ASICs, FPGAs, and add-on cards from various vendors. On top of this, the human element of IT—operational technologies, developers, and data scientists—all need to come together to operate the IoT application.

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## BUILD INTELLIGENT EDGE PLATFORMS AT SCALE

The Nutanix Xi IoT platform delivers local compute and AI for IoT edge devices, converging the edge and cloud into one seamless data processing platform. The Xi IoT platform eliminates complexity, accelerates deployments, and elevates developers to focus on the business logic powering IoT applications and services. Now developers can use a low-code development platform to create application software via APIs instead of arduous programming methods.

### Infrastructure and App Lifecycle Management for Massive Scale

Make edge infrastructure invisible by enabling frictionless functionality and deployment across all IoT stakeholders, including end users, IT operators, application developers, and data scientists.

### Insights from Data at Low-code

Compute sensor data streams locally in real-time with open dataflows and services, while allowing filtered and transformed data to flow securely to your cloud of choice using native services. The edge PaaS (Platform-as-a-Service) supports easy-to-use developer APIs, reusable data streams, and pluggable machine learning (ML) architecture to enable rapid development and global deployment of modern IoT applications. Xi IoT lets you build multiple frameworks into the runtime, enabling custom runtime environments, and bring in ML models from anywhere.

### Converge Edge and Cloud

Easily move data from edge devices to a cloud of your choice, be it your own private cloud or Microsoft, Amazon, or Google public cloud infrastructure.

Xi IoT offers several advantages over traditional proxy gateway solutions, including:

- Real-time data processing at the edge for real-time, actionable insights.
- No-code methods for migrating filtered insights to your preferred clouds.
- Easy configuration, setup, and management for thousands of edge locations from a centralized SaaS control plane.

## XI IOT HIGHLIGHTS:

### Process Large Data Volumes:

Use machine learning to intelligently process IoT sensor and device data.

**Increase Reliability:** Continuous operations even with unreliable low-bandwidth links.

**Reduce Latency:** Fast response at the edge.

**Secure Connections:** End-to-end security from the edge to the cloud.

### Freedom to Choose Your Cloud:

Built-in cloud connectors with no manual API scripts.

### Freedom to Select Sensors and Devices:

Connect any sensors or devices using multiple protocols, MQTT, or IP-based systems.

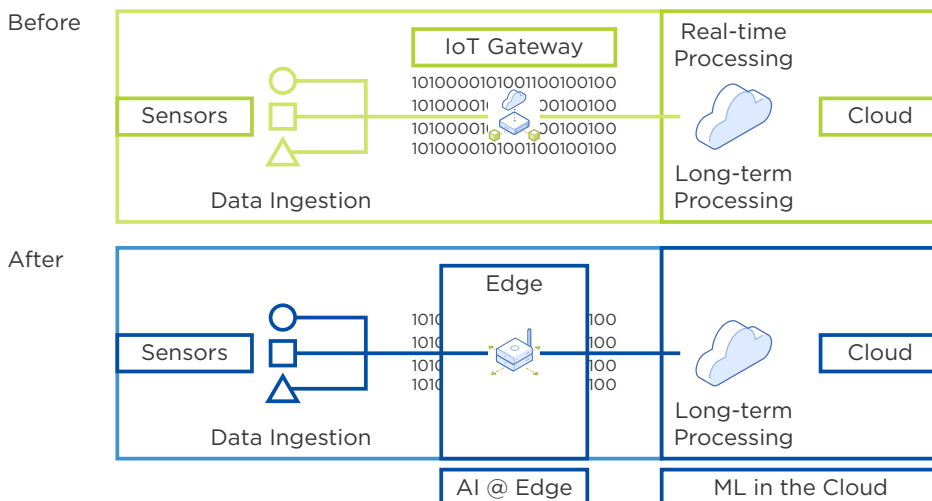


Figure: Nutanix transforms the IoT gateway into an intelligent edge device with local real-time processing (edge PaaS)

## XI IOT AND EDGE ARCHITECTURE

Nutanix Xi IoT is comprised of an SaaS control plane and the Xi Edge platform running on an edge device. The SaaS control plane provides an end-to-end platform that is centrally managed from the cloud through a user-friendly interface for application development and operations to easily deploy thousands of edge locations. You can deploy Xi Edge bare metal or as a virtual machine (VM) on shared or dedicated nodes.

The Xi Edge platform uses Kubernetes, which allows consolidation of traditional IoT applications and enables next-generation, data science-based applications in containers.

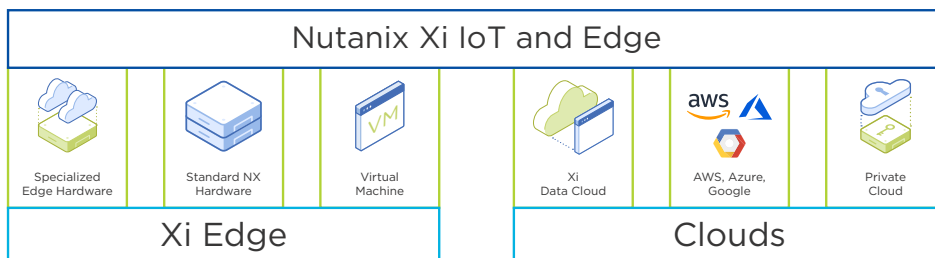


Figure: Simplified Edge Computing with Built-in Cloud Connectors

The Xi Edge platform provides secure access to IoT data sources with data pipelines all the way from the edge to the cloud, including AWS, Azure, GCP, and managed/on-prem private clouds. It also provides seamless data mobility between edge and cloud, which lets users send metadata and build ML models in the cloud.

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## DESIGNED FOR OPERATORS/DEVELOPERS

**Operator** support is built-in, which consolidates infrastructure sprawl and eliminates application silos. Operators can easily manage planet-scale operations with zero-touch onboarding.

**Developers** can bring their own cloud and machine learning models from any domain and access rich data and runtime services to execute AI at the edge. Developers can also leverage rich APIs and integrate with existing CI/CD pipelines for easy debugging.

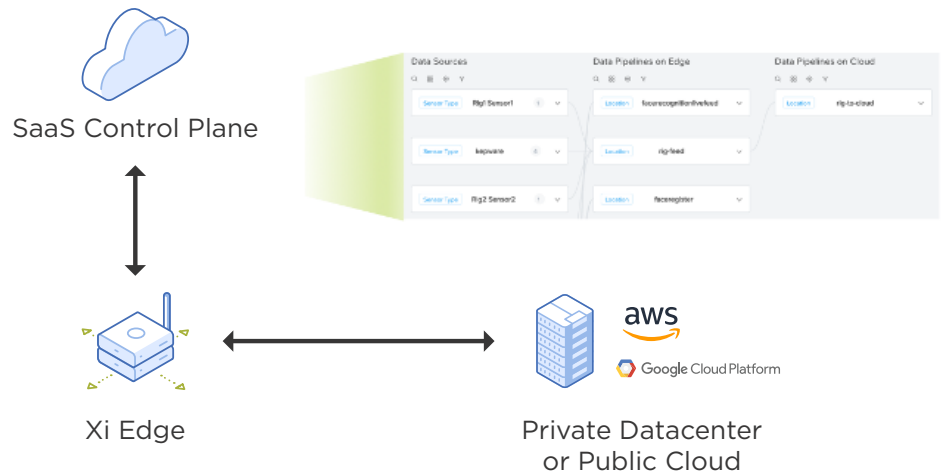


Figure: Deploy Edge Resources with Ease

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## TRANSFORM YOUR ORGANIZATION TODAY

Nutanix Xi IoT enables easy ingest and analysis of new and existing data streams that can transform your organization. Xi IoT lets you fully exploit the potential value of your data by freeing you to focus on business logic and applications, including real-time analysis for manufacturing facilities, oil and gas upstream and downstream locations, retail outlets, hospitals, and much more. The insights from your intelligent edge can deliver an array of benefits, including reduced downtime, increased patient or customer satisfaction, and new targeted products and services, all of which help you identify trends long before the competition, differentiate your brand, and maximize revenue.

Nutanix is committed to helping companies modernize their datacenters and edge infrastructure so that IT can shift its focus from maintenance and operations to driving innovation. Schedule a customized technical briefing on Nutanix Xi IoT platform by connecting with your Nutanix representative or emailing us at [iot@nutanix.com](mailto:iot@nutanix.com). Check out [www.nutanix.com/iot](http://www.nutanix.com/iot) for additional details.



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