



Nutanix Xi IoT Solutions for Healthcare

XI IOT HIGHLIGHTS

- › **Manage Large Set of Structured and Unstructured Data Volumes:** Use AI at the edge to intelligently process IoT sensor and data from both clinical and IT devices.
- › **Improve asset monitoring:** Facility utilization where sensors and data analytics help make the most efficient use of clinical facilities.
- › **Secure Connections:** End-to-end security from the edge to the cloud thus strengthening data security and patient privacy.
- › **Increase Reliability:** Continuous operations even with unreliable low-bandwidth links.
- › **Reduce Latency:** Fast response at the edge.
- › **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 thereby improving interoperability.

¹ Grand View Research Firm, Internet of Things (IoT) in Healthcare Market Size, Share & Trends Analysis Report By End Use, By Component, By Connectivity Technology (Cellular, Wi-Fi, Satellite), By Application, And Segment Forecasts, 2018 - 2025
<https://www.grandviewresearch.com/industry-analysis/internet-of-things-iot-healthcare-market>

² Barnett, Thomas, et al. "Cisco Global Cloud Index 2015-2020." Cisco Global Cloud Index 2015-2020. Cisco, Nov. 2016. www.cisco.com/c/dam/m/en_us/service-provider/ciscoknowledgenetwork/files/622_11_15-16-Cisco_GCI_CKN_2015-2020_AMER_EMEAR_NOV2016.pdf.

According to Grand View Research firm, the global IoT in healthcare market size was valued at USD 120.2 billion in 2017 and is anticipated to grow at about 20% CAGR over the next five years.¹ Growing adoption of wearable technology, rising investments to implement digital technologies in healthcare settings, and emergence of connected care are key factors boosting the adoption of the Internet of Things in the healthcare industry. Technological advancements, growing aging population, and rising prevalence of chronic conditions are also positively impacting the market. In 2017, 3 billion edge devices generated 256 zettabytes of data and 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.

However, in order to make effective inroads into a complete digital transformation strategy, it's vital to employ a holistic viewpoint. There is a growing number of healthcare organizations focusing efforts on quadruple aim, which is, improving the patient experience, decreasing healthcare costs, driving better health outcomes, and improving care team experience. With the combination of data growth and quadruple aim strategies, healthcare organizations are turning towards artificial intelligence (AI) based solutions closer to where the data is being generated.

AI-based solutions enable new set of healthcare use cases to drive increased business value.

- **Track patients, staff, and physical assets:** Reduce staff time in looking for medicines and supplies (e.g. wheelchairs) and increase time with patients.
- **Reduce unplanned downtime of crucial equipment:** Keep critical systems (e.g. portable modalities) online and ready when patients need them the most through real-time predictive maintenance.
- **Non-intrusive equipment monitoring:** Monitor and track equipment usage in a patient's room to quickly detect issues with bed sensors, room temperature, and more.
- **Ambient video analytics:** Identify authorized or unauthorized people in a given room in real-time.

COMPUTING AT THE EDGE

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 regulatory compliance and patient privacy issues.



DESIGNED FOR OPERATORS AND 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.

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. 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.

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.

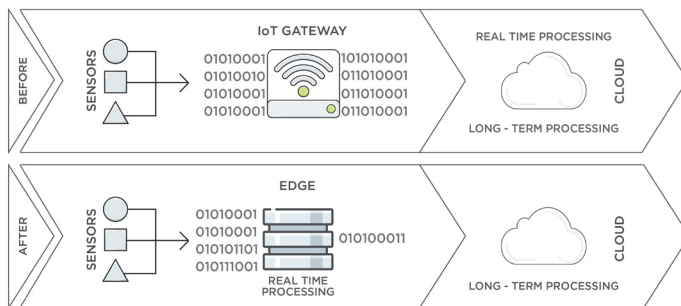


Figure 1: Nutanix transforms the edge with local real-time processing (edge PaaS)

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 AI-based 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 AND EDGE ARCHITECTURE

Nutanix Xi IoT is comprised of a SaaS infrastructure and application lifecycle management plane and Xi Edge software running on a variety of edge hardware. The SaaS management provides an end-to-end view 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.

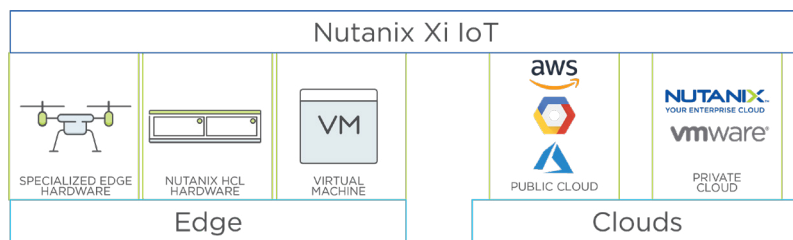


Figure 2: Simplified Edge Computing with Built-in Cloud Connectors

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.

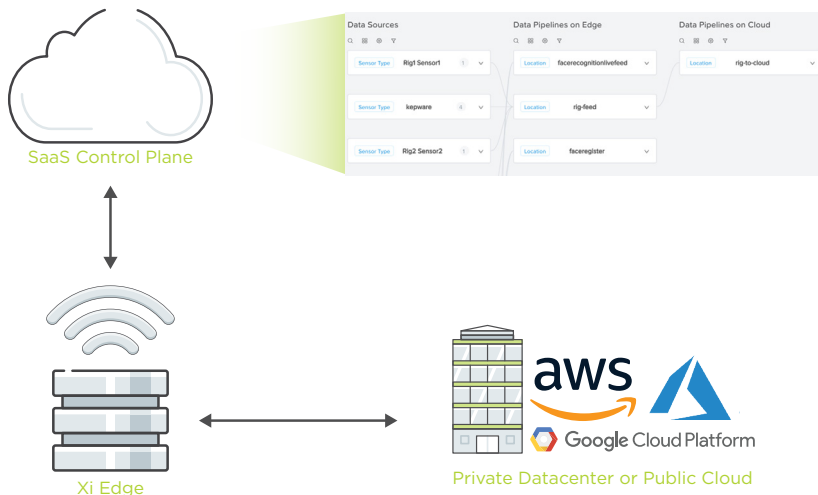


Figure 3: Deploy Edge Resources with Ease

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 to track and manage medicines and supplies, reduce unplanned downtime of critical hospital equipment, non-intrusively monitor patient room equipment, and analyze ambient video streams. The insights from your intelligent edge can deliver an array of benefits, including more time with patients, increased equipment uptime, and advanced security, all of which help you identify trends long before the competition, differentiate your brand, and maximize revenue.

Nutanix is committed to helping healthcare organizations 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. Check out www.nutanix.com/iot for additional details.

Nutanix makes infrastructure invisible, elevating IT to focus on the applications and services that power their business. The Nutanix enterprise cloud platform leverages web-scale engineering and consumer-grade design to natively converge compute, virtualization and storage into a resilient, software-defined solution with rich machine intelligence. The result is predictable performance, cloud-like infrastructure consumption, robust security, and seamless application mobility for a broad range of enterprise applications. Learn more at www.nutanix.com or follow us on [Twitter@nutanix](https://twitter.com/nutanix).

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