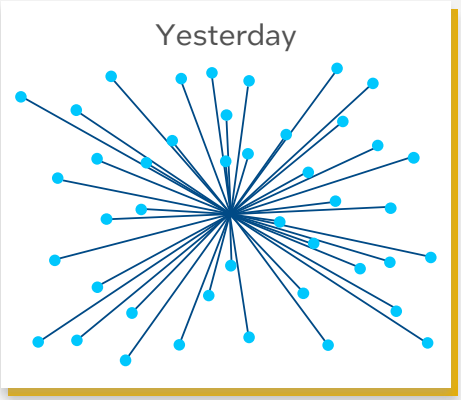
Solution Brief

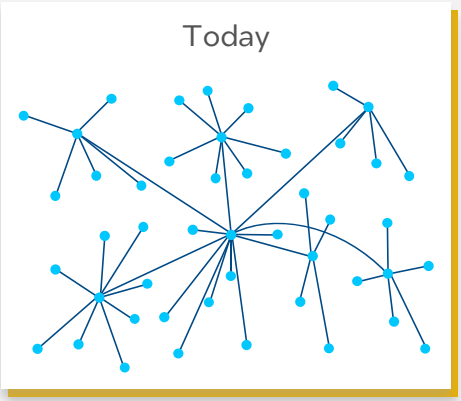
Control Optimization & Autonomy
Environmental Management

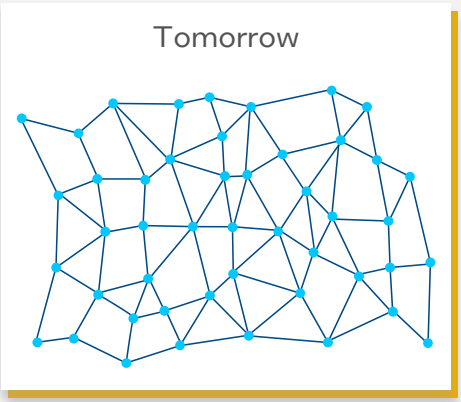
Enhancing Cloud and Edge Deployments with Pratexo Studio

Pratexo Studio Is an Intuitive User Interface that Accelerates Solution Deployment for Complex Multi-tiered Architectures

Networks Over Time







The Move to Decentralized, Resilient Networks

The past decade has seen a tremendous uptick in the adoption of IoT technologies[1]. These technologies are so embedded in the operations of businesses and critical infrastructure that safeguards and failover systems need to be set in place in the event of network disruption. Network resiliency is more important than ever.

This need for network resiliency is driving a migration away from a centralized network model to a more decentralized one; one that allows for operational continuity in the event of power outages or other network disruptions. Enterprises must find a balance between handling the increased level of data creation, deploying low-latency solutions, and building safeguards to protect against network downtime.

However, achieving these simultaneous goals often means deploying technologies such as virtualized networks, hybrid edge-to-cloud architectures, and IoT technologies running increasingly complex intelligent algorithms, which can be a major technical hurdle for companies to overcome. If they don't have the technical expertise or resources to implement them effectively, they are at risk of falling behind.

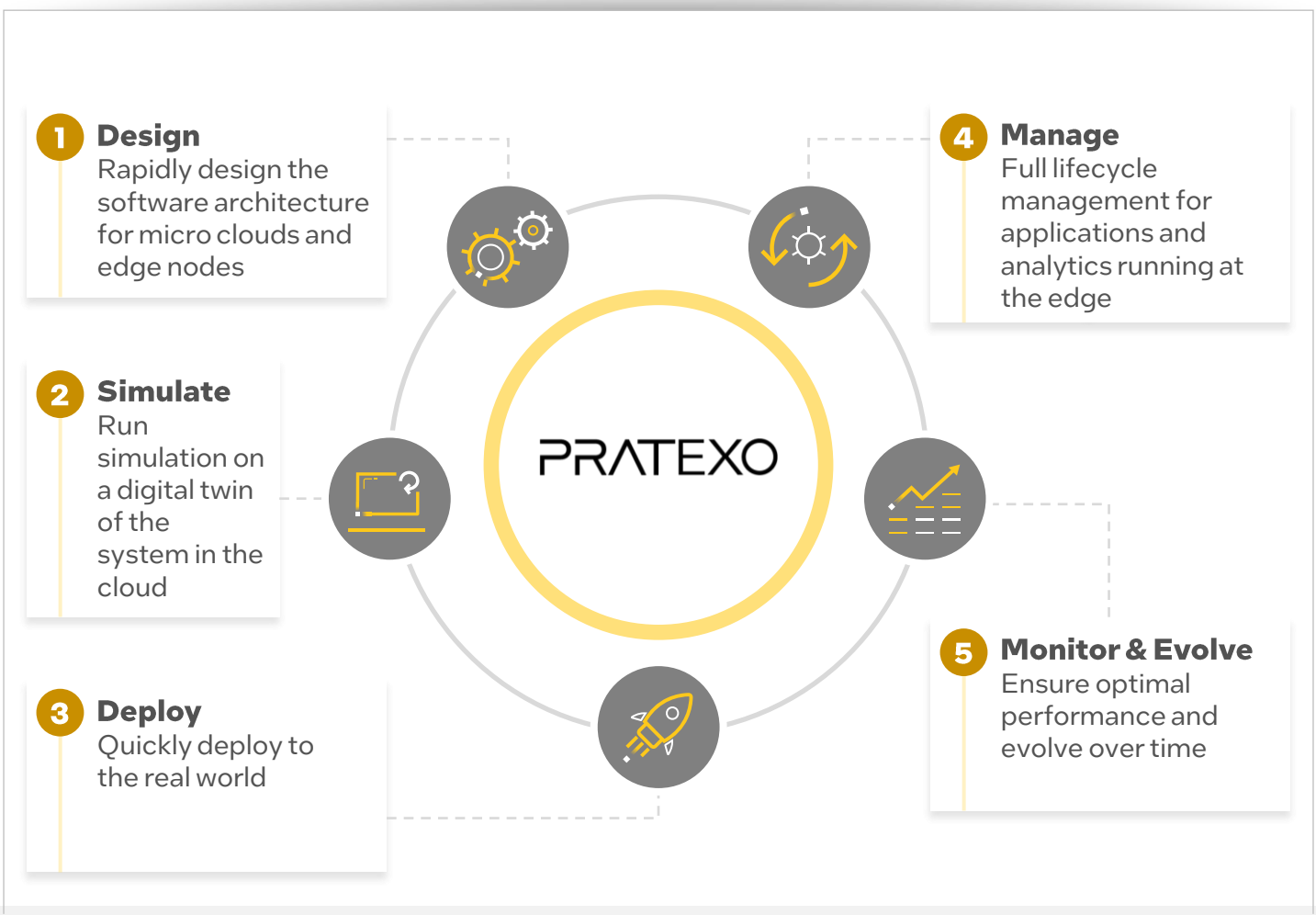
Companies must be able to bring the power of cloud computing down to the edge. The Pratexo Studio is helping customers do just that.

Pratexo Studio Accelerates the Ability to Seamlessly Deploy Complex Solution Architectures

Pratexo wanted to help solutions architects deploy solutions faster by helping them overcome the traditional technical hurdles that network virtualization and hybrid architecture deployments can bring.

The result is Pratexo Studio, a no-code platform that dramatically accelerates the ability of an architect or engineer to design, test, deploy, and manage complex, decentralized software architectures from the far edge up to central clouds.

Pratexo Studio is an intuitive solution-building interface that enables architects and engineers to deploy and manage edge nodes and micro clouds in critical infrastructure environments. The solution builds, deploys, and configures complex multi-tiered architectures via drag-and-drop functionality to easily create hyperconnected networks that enable data collection and advanced analytical processing at scale. The result is reduced time to deployment, operational continuity in the event of server disconnection, and a more secure, reliable solution to manage utility grid monitoring.



Benefits

- **Faster time to deployment -** The intuitive drag-and-drop functionality allows architects to either deploy assets to the real world or run a digital twin simulation with just a few clicks.
- **Streamlined management -** Pratexo Studio's user-friendly interface enables solutions to be set up and managed remotely from a centralized dashboard, reducing time to deployment and improving efficiencies.
- **Improved data security -** By processing data at the edge, closer to where it is being generated, there is a lowered opportunity for data breaches than if it were being pushed up to a central cloud.
- **Lower costs -** Running solutions with intelligent AI/ML can enable predictive capabilities that can result in decreased network downtime, faster emergency response, and lower maintenance costs.

By combining the resiliency and scalability of cloud computing with the security and low-latency capabilities of edge computing, Pratexo makes it possible for any organization to accelerate their digital transformation in an ever-changing world.

How Pratexo Studio Works

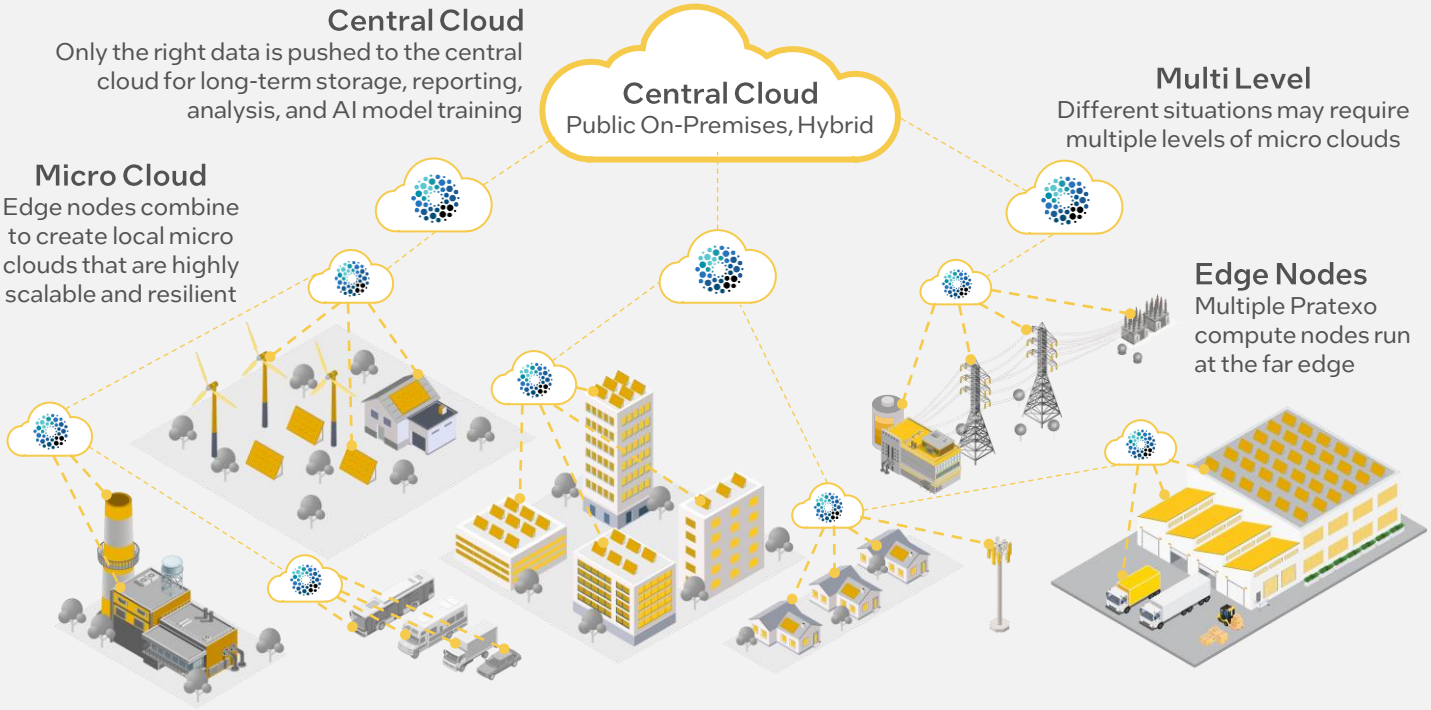
Engagements typically begin with a conversation between Pratexo and the customer to identify the customer's needs and match those with Pratexo's capabilities.

Customers can then partner with Pratexo in a variety of ways. They can:

- Get trained on Pratexo Studio by the technical support team to learn how to manage and use the software itself
- Have Pratexo handle the entire deployment and manage the day-to-day operations, or
- A combination of both in-house management and leveraging Pratexo's professional services

Pratexo Studio is the software layer and as such, can scale with hardware that the customer already has available.

Initially, the architecture deployment is designed on Pratexo's intelligent whiteboard. Here, an architect can specify which types of devices are going to be pushing data to the edge, such as microphones, cameras, or temperature sensors. From there, a developer can pull in "Features", or software modules, that can be integrated into the devices and accompanying node groups; the latter of which combine to form micro clouds that are highly scalable and reliable.



The Pratexo Studio comes with templated architectures, but they also provide the flexibility to create and deploy custom Features quickly. The drag-and-drop capabilities allow for a developer to seamlessly choose and allocate Features as they see fit.

Once the deployment has been set up, an architect can move forward with one of two options. (1) They can deploy these resources to the real world, or (2) They can deploy a digital twin. With a few clicks and drags, an architect can design, integrate, and deploy a complete software architecture simulation. This allows for a simulated environment of an end-to-end IoT device or edge hardware test before a single real-world resource is used.

With an intuitive user interface and access to a world-class technical support team, architects, integrators, and end users can design, test, deploy, and manage complex software architectures from the far edge up to central clouds.

Customer Success Story: Leading Norwegian Power Grid Operator Turns to Pratexo to Improve Operations

Challenge: Hallingdall Kraftnett (HKN), a leading Norwegian power company, was seeking new ways to improve and safeguard their efficiency. They were faced with power spikes, low data quality, and expensive cloud computing costs. With so many disparate stations, if network connections went down it would disrupt operations; there were no failover mechanisms in place. HKN was mandated to increase power availability from 99.5% to 99.99%.

Solution: In order to meet this mandate, HKN used the Pratexo Studio in a variety of ways. They:

- Deployed edge nodes to run at each substation and grouped them into regional micro clouds that shared compute resources.
- Installed microphones with an intelligent machine learning algorithm that could listen for partial discharge at each substation to alert maintenance teams faster than typical manual inspection protocols.
- Processed data locally not only for faster analyzing but also to help improve security and help reduce the risk of a data breach

Results: Following deployment of Pratexo Studio, HKN effectively reduced spikes and power outages, were able to identify preventative maintenance scenarios for significant maintenance cost savings, and helped the country of Norway achieve its environmental and sustainability goals.

Building Pratexo Deployments with Intel Technologies Brings Value to Enterprises

While Pratexo Studio is hardware-agnostic, all Pratexo deployments have been accomplished with the use of Intel chips such as Intel® Atom and Intel® Core™ processors.

Notable is the use of Intel® Xeon® Scalable Processors. By leveraging the high-power compute capabilities, Pratexo could feasibly create micro clouds that are running on fewer nodes for smaller deployments to reduce both costs and power consumption. Conversely, the amount of data processing power could be increased to handle more powerful deployments when necessary.

As IoT technologies are leveraging more complex and more intelligent machine-learning enabled algorithms, Pratexo keeps pace by leveraging the Intel® Distribution of OpenVINO™ Toolkit, most notably in development of their add-on Features which allow customers to customize their intelligent deployments.

Conclusion

As the demand for improved data processing, resilient network infrastructure, and accelerated solution deployment grows, Pratexo stands ready to help customers achieve their digital transformation goals. Across enterprises of all sizes and industries, those who can best leverage the power of hybrid edge-to-cloud architecture will realize the greatest benefits of industrial IoT technologies.

Learn More

Pratexo Website

Pratexo Studio Product Page

Pratexo Knowledge Base

Pratexo – HKN Case Study

Intel® Atom Processors

Intel® Core™ Processors

Intel® Xeon® Scalable Processors

Intel® Distribution of OpenVINO™ Toolkit

intel

Sources

1. State of IoT 2022: Number of connected IoT devices growing 18% to 14.4 billion globally, IoT Analytics, 2022

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