



Address the Challenges of Deploying Azure IoT at the Edge

Considerations for maximizing your investment and ensuring security with open orchestration for Azure IoT solutions.

Scaling Azure IoT Deployments: Is There an Easy Button?

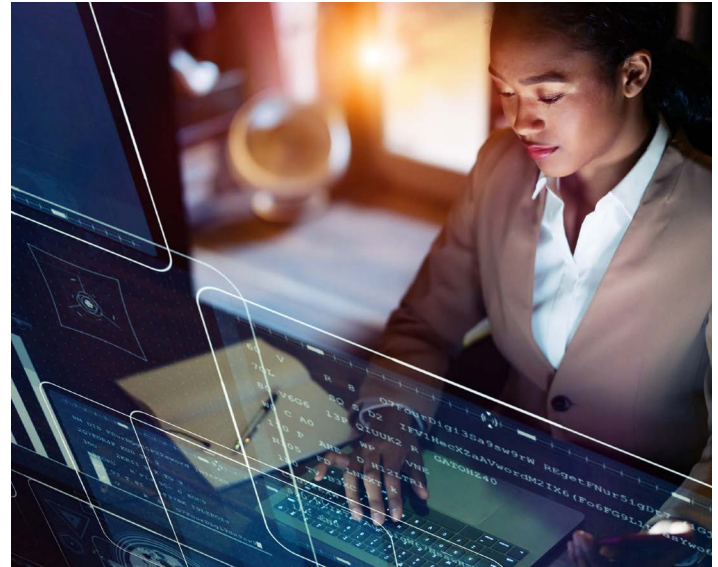
While IoT deployments have been growing, with greater capabilities and breadth of solutions, delivering true compute power at the edge at scale remains complicated.

The diversity of hardware and software cluttering the distributed edge landscape keeps many IoT projects from scaling effectively, while solution vendors generally have proprietary offers that lock users in, reducing their deployment flexibility for the long term.

Organizations have already heavily invested in legacy infrastructure and software investments to support the field and can't always jump into greenfield deployments. Additionally, considerations are in order due to the unique needs and skill sets of both Operations Technology (OT) and IT resources and how quickly they can be re-trained or re-tooled to deliver new, complex solutions.

Ultimately, companies that have selected Azure IoT also benefit from a simple-to-use, cloud-based, open orchestration solution that delivers rapid scale for deploying Azure IoT Edge with a choice of hardware in the field.

The core focus is all about driving innovation while maximizing the current and future IoT distributed edge computing investments and ensuring successful Azure IoT deployments with proven ROI.



In order to accommodate existing software investments such as Windows-based applications they would need support for Virtual Machines (VMs) at the edge, in addition to containers, while connecting to Azure IoT and other backend environments.

To date, solutions that integrate directly with Microsoft Azure IoT to address all the challenges that organizations face haven't been readily available.

A joint solution enabling companies to run existing legacy applications in VMs, alongside cloud-native containerized applications on choice of hardware while harnessing the power of the Azure IoT hyperscale cloud to organize, monitor, query, and orchestrate changes across massive fleets of edge computing nodes will be a huge win for any organization driving their next gen digitization strategy at the edge.

Reaching the utopia of open, integrated, secure, flexible and scalable solutions which are zero trust, and zero touch, is difficult.

Microsoft Azure IoT Edge streamlines the ability to capture data and make this usable, but to date some of the intangible provisioning and orchestration needs have proven to take effort to scale and manage.

Successfully deploying edge solutions in the real world requires solving the challenges of provisioning and securing both hardware and applications and enabling full deployment life cycle management.

Only with these challenges addressed can users scale solutions that accelerate the collection and transmission of data to Azure IoT, enabling them to capture value via advanced analytics and machine learning.

Many core industrial-minded organizations are still trying to figure out their cloud strategy, including which cloud, how many clouds, how to migrate between choices, and so on.

The market has attempted to address the inherently diverse nature of edge to cloud strategies with a dizzying landscape of proprietary platforms.

30%

of workloads will be managed at the edge by 2025, vs 1% today.

Source: Gartner

60%

of IoT initiatives stall at the Proof of Concept (PoC) stage.

Source: Cisco



The ultimate value of digital is interconnecting ecosystems to foster new experiences and revenue streams. Key to realizing this goal over time is to invest today in open, trusted infrastructure that is aligned to several core principles.

A Multi-Cloud Strategy is Fundamental.

Imagine having a foundation for your IoT solution investment that enables a multi-cloud strategy rooted in an open edge, decoupling the infrastructure from applications and domain knowledge so customers can have a consistent management and security experience regardless of chosen cloud in any vertical use case.

A better-together integration of this kind of open foundation with Azure IoT would enable you to accelerate with this leading cloud platform while maintaining complete flexibility as your needs evolve.

Security at the edge can't be compromised.

No company can afford to let their guard down and take on undue risk when deploying a connected solution in the field.

For those already deploying solutions at the edge, it simply underscored what was already very well known — securing distributed devices is hard.

As intelligent systems increasingly expand into the field, we'll see more and more attacks of this sort if we continue to leverage the same security stance and tools that we've used for decades within perimeter locations like data centers and secure telecommunication facilities.

To reduce risk and ensure adoption, security at the distributed edge begins with a zero-trust foundation, a high degree of usability, and open collaboration. Edge solutions need to take the guesswork out so customers can securely orchestrate their deployments with choice of hardware, applications, and clouds, with limited IT knowledge required.

The goal is to enable users to adopt distributed edge computing to drive new experiences and improve business outcomes, without taking on unnecessary risk.



ZEDEDA and Microsoft Azure IoT Help Bridge the Gap

We have partnered to seamlessly and securely orchestrate distributed edge computing workloads at scale.

ZEDEDA has worked with Microsoft to directly integrate their open orchestration solution for distributed edge computing with Azure IoT to address these scaling and security challenges.

The result is a comprehensive solution that simplifies deployment of Azure IoT Edge in the field and the open foundation maximizes flexibility and choice as business needs evolve.

ZEDEDA's Microsoft Azure IoT integration supports two deployment models.

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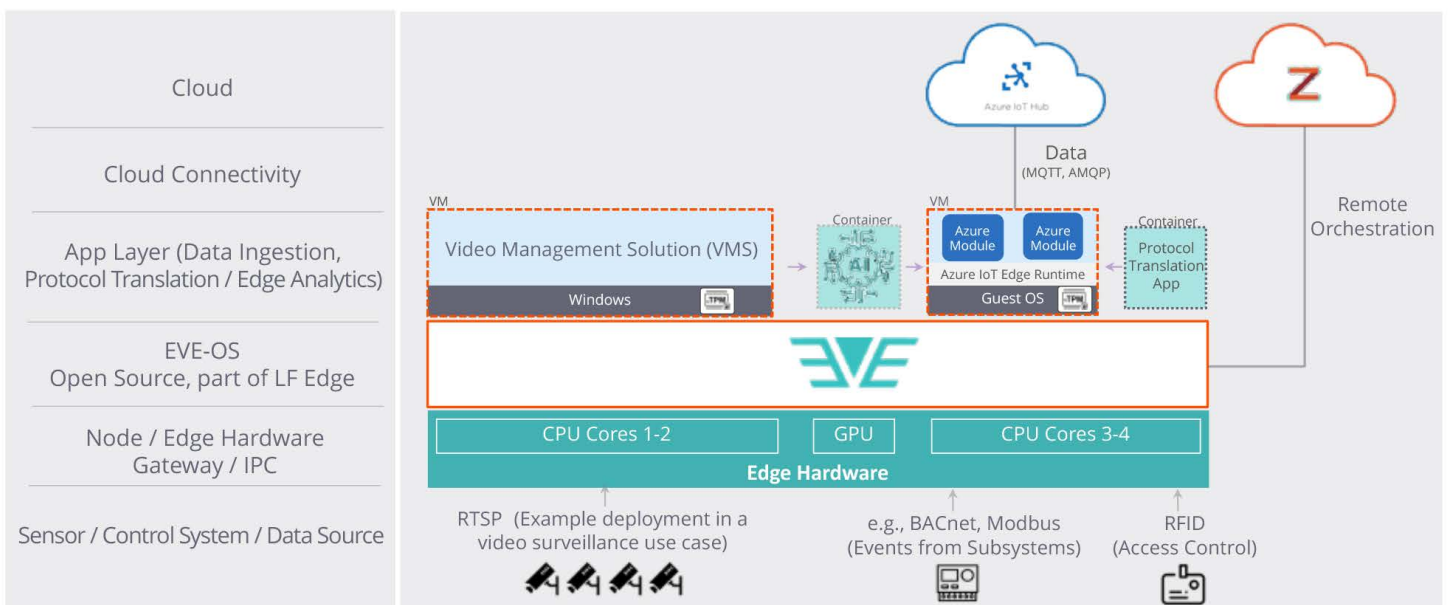


Admin deploys the Azure IoT Edge Runtime on choice of edge compute node running EVE-OS with a single click. Once deployed, Azure IoT Edge connects to Azure IoT Hub in the cloud and users can then deploy application modules through Azure IoT Hub directly.

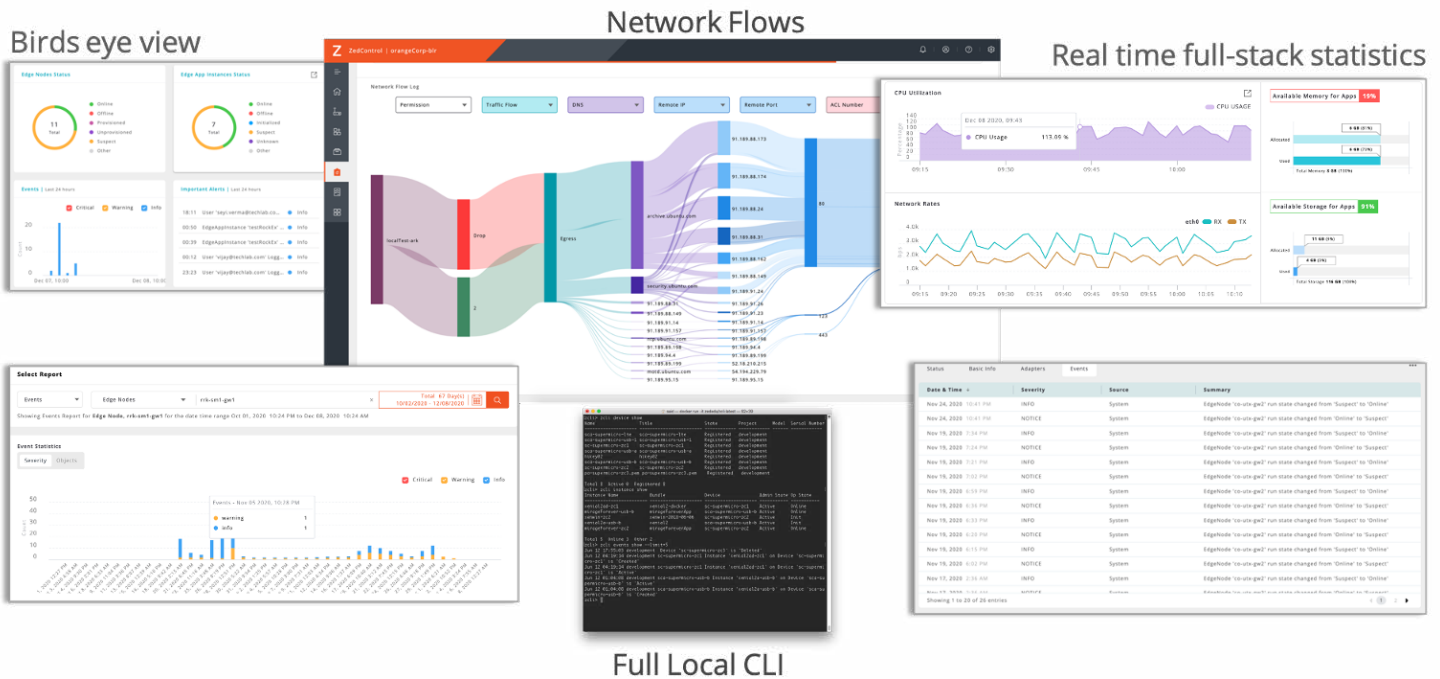
2

Admin defines a project that provisions what each edge node should run in terms of runtime, modules, device twins, module twin configurations, etc. This is a one-time setup, after which customers onboard the edge node, and EVE-OS will “phone home” in an eventual consistency model, for a fail-proof desired state and automatically deploy the entire Azure IoT stack automatically based on the deployment manifest.

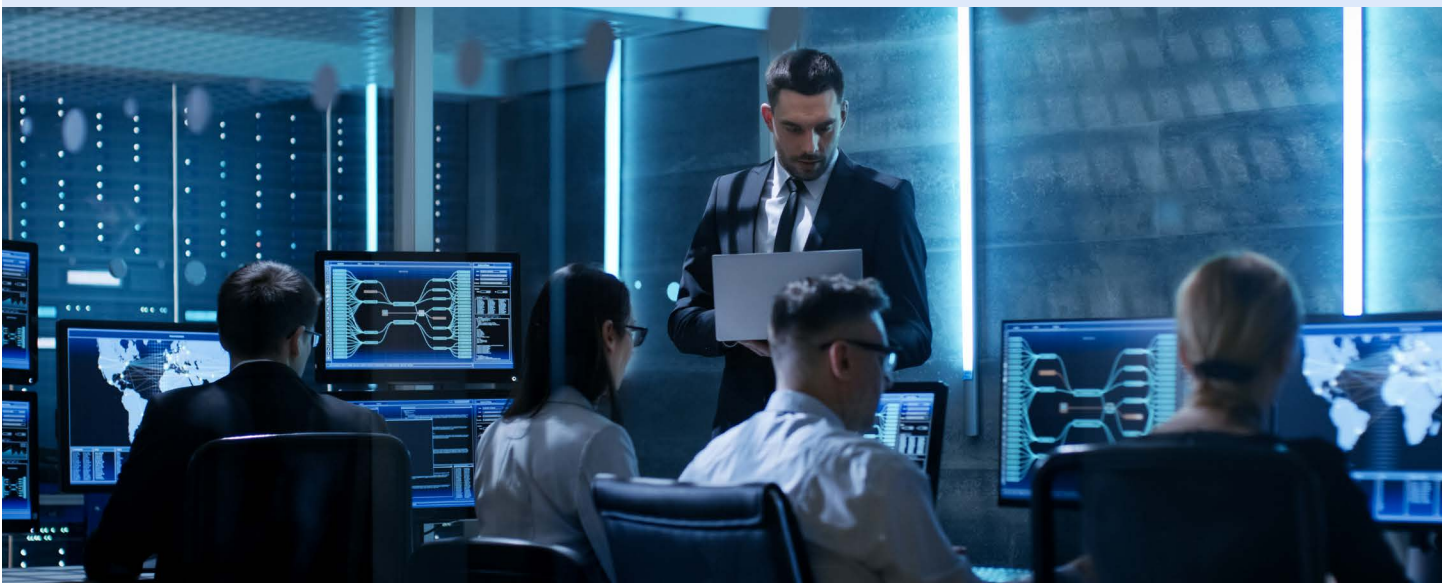
This comprehensive solution simplifies all phases of scaling projects involving IoT, AI, 5G, networking and security technologies at the distributed edge, including supporting both existing Windows-based software and modern containerized apps.



ZEDEDA provides a consistent management and security experience regardless of hardware and software used.



ZEDEDA's cloud-based dashboard provides IT and OT teams with a bird's-eye view into their entire distributed edge infrastructure, including the status of all computing nodes and applications. With scale and security, developers can instantly deploy all Azure IoT Edge services on large fleets of nodes with a single click and manage the full life cycle of both the software and hardware.



Key Benefits

- Customize one-click Azure IoT Edge deployment with Azure DPS integration
- Deploy, monitor and operate all devices hardware and software from a single dashboard
- Leverage full life cycle management of Azure IoT Edge nodes at scale
- Ensure device and data integrity in remote environments through a Zero Trust model
- Deploy on an open-source foundation (EVE-OS from LF Edge), preventing lock-in and simplifying ecosystem integration
- Enable support for apps in any combination of Kubernetes clusters, Docker containers and VMs, alongside alongside Azure IoT Edge
- Collect data from various endpoints and transmit to Azure IoT Hub for analytics, AI/ML, etc.

ZEDEDA provides a consistent management and security experience in any use case, regardless of hardware and software used.

“Azure IoT Edge offers customers the opportunity to transform their operations by bringing analytics and other workloads from the cloud to the edge, but customers often have complex computing environments that can pose challenges for scaling. ZEDEDA enables businesses to easily deploy Azure IoT Edge solutions and manage them in a single pane with their other edge workloads.”

Tony Shakib

General Manager, Azure IoT, Microsoft

Edge Orchestration for Azure IoT: Case Studies

PEOPLEFLO

PeopleFlo is revolutionizing fluid technology by transforming industrial pump systems from stand-alone devices into smart, secure, synchronized and connected assets.

With ZEDEDATA and Microsoft Azure IoT Edge, PeopleFlo is improving pump performance, reducing energy consumption by 50%, and cutback CO2 emissions while improving motor, pump and control valve reliability.

Key Outcomes with ZEDEDATA

- Full life cycle management of entire edge deployment including software and hardware
- Future-proofing for additional solution needs
- Prevention of vendor lock-in



“ When we focused our company on MachineEdge’s pump system optimization, we needed solutions to three challenges: updating software external to our Azure IoT Edge modules, holistic device security and device monitoring. ZEDEDATA provided a secure solution for device management and application deployment while future-proofing MachineEdge for new innovations. ”

Michael Thompson
CTO, PeopleFlo

BOBST

BOBST is one of the world’s leading suppliers of industrial packaging equipment and services.

Together with ZEDEDATA and Microsoft Azure IoT, BOBST is reinventing the art and science of factory automation – improving quality and yield, while reducing risks and costs.

Key Outcomes with ZEDEDATA

- Scalable foundation for connected machines deployed globally
- PoC to hundreds of deployed nodes in 5 weeks
- Saved six months on development time



“ We are shaping the future of the packaging world where every phase in the production process is connected, digitized and automated. With ZEDEDATA, we sped up our production readiness in the area of device management by six months, and we received a first working proof of concept within a few days, while becoming production-ready in less than two months. ”

Serge Morisod
Head of IoT Lab, BOBST



We tie the room together.

An ecosystem built on an open foundation is critical for success in our increasingly connected, data-driven world. ZEDEDATA provides a consistent device and app orchestration foundation for our growing ecosystem of technology and services partners. Together with our partners, we can help you accelerate your IoT and edge projects to solve business challenges.

Contact us at sales@zededa.com to learn more about this solution brief and how we can help you with your digital transformation.

www.zededa.com

