



Unlock Business Transformation with AKS Edge Essentials

Cloud-like Elastic Compute at the Edge

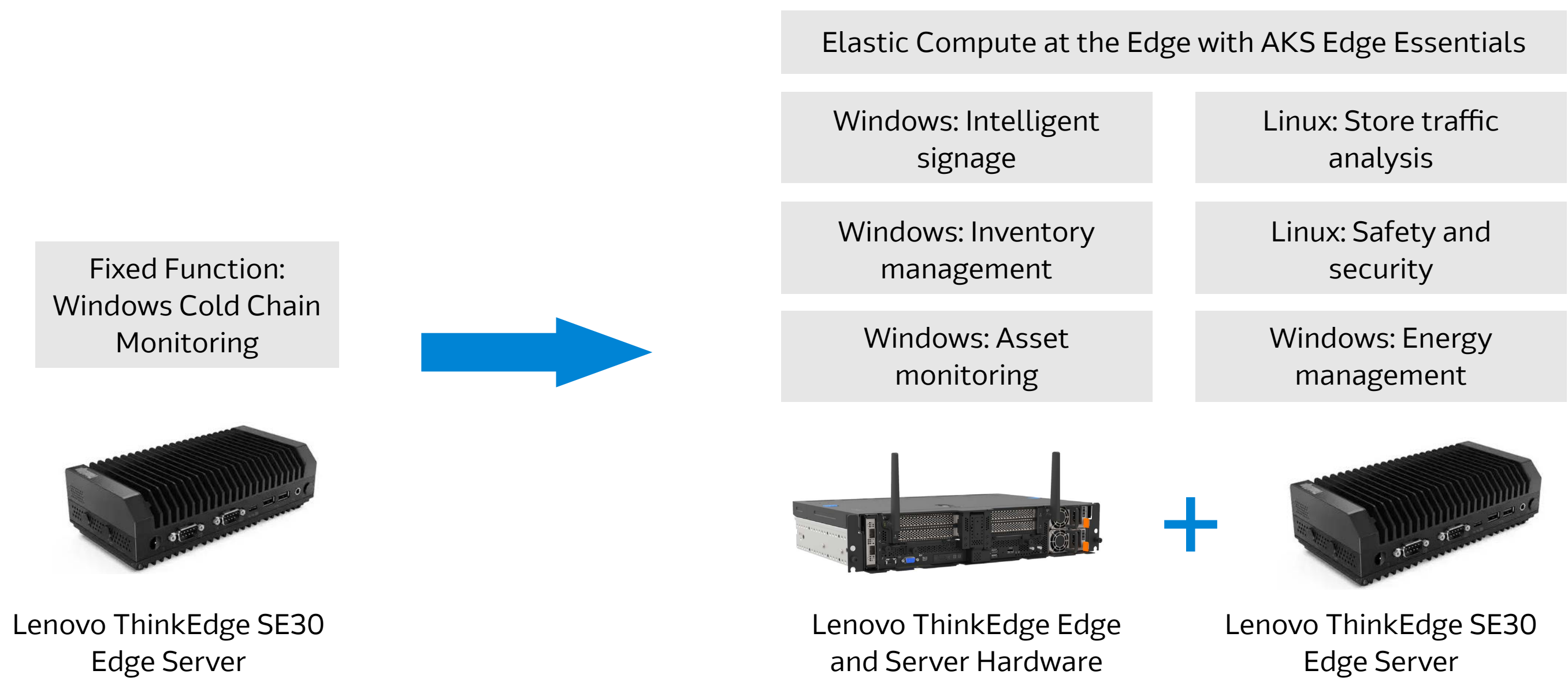


Business Transformation Architecture

The continued acceleration of digital transformation has created a monumental shift in customer expectations, driving businesses to transform and tailor customer interaction while gathering data to help them progressively grow. This change means organizations must quickly and seamlessly adapt on-site mobile devices and systems to meet desired customer experiences, which may seem unachievable to many as today's edge is saturated with fixed-function siloed devices. These are also often associated with high maintenance costs and cannot support new use cases and business transformation.

Traditional embedded and edge devices with fixed functionalities may need help to support increasing workloads and evolving demands. Additionally, using the same devices with different workloads can create non-homogenized conditions that present challenges.

True digital and business transformation success requires a more flexible architecture foundation. Adopting a distributed architecture can extend device performance and integration capabilities, allowing the deployment of lightweight and scalable approaches. These reduce platform dependencies and surpass the physical constraints associated with traditional embedded devices. Using the containerization approach to building and deploying software, solution providers can enable the efficient and scalable rollout of applications on edge devices in a distributed computing environment.



What is a Container?

A container is a software unit that contains all the necessary components to operate in a computing environment. Containerization allows for faster and more efficient software deployment, which can accelerate the integration of the same application across thousands of edge platforms at an unprecedented scale.

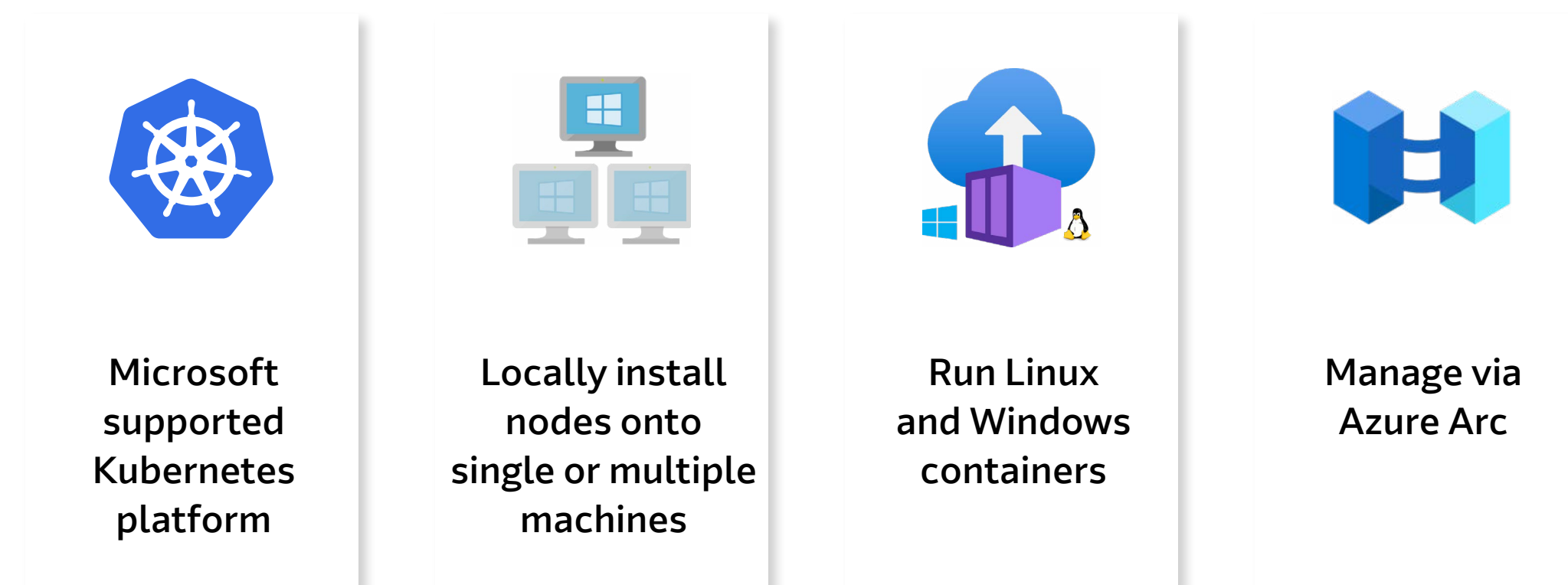
Containerizing workloads can help organizations better manage their edge applications, deliver more effective and efficient services, and remain competitive in today's fast-paced business landscape.

This approach offers:

- Improved portability
- Greater flexibility and agility
- Increased efficiency
- Enhanced security
- Simplified management

Introducing AKS Edge Essentials Cloud-like Elastic Compute at the Edge

The unparalleled AKS (Azure Kubernetes Service) Edge Essentials architecture is the industry's first edge-to-cloud solution that includes cloud-like east-west computing and north-to-south cloud support via Kubernetes at the edge across both Linux and Windows, enabling existing and new applications with support from the edge nodes to the cloud. The solution allows enterprises to deploy new use cases that will transform their business faster and more affordably with a cloud-native architecture that uses existing infrastructure while supporting existing apps.



The Industry's First Edge-to-Cloud Solution.

AKS Edge Essentials delivers unparalleled elastic cloud-like compute at the edge, enabling business transformation like never before.

Enabling Containerized Workloads with AKS Edge Essentials

AKS Edge Essentials

Enables developers to deploy and manage containerized applications across a wide range of edge devices and environments, including virtual machines, IoT devices, and on-premises servers.

Azure Kubernetes Service Edge Essentials is an on-premises Kubernetes implementation of Azure Kubernetes Service (AKS) that orchestrates running containerized applications at scale. AKS Edge Essentials includes a Microsoft-supported Kubernetes platform that with lightweight Kubernetes distribution, a small footprint, and a simple installation experience. These characteristics make deploying Kubernetes on PC-class or "light" edge hardware easier.

Why use AKS Edge Essentials

AKS Edge Essentials provides a range of features for edge scenarios, including automated deployment and scaling, built-in security and compliance, simplified management and monitoring capabilities.

AKS also allows you to:

- Locally install nodes on a single or multiple machines
- Simplify Kubernetes experience with a Microsoft-managed platform
- Run Linux and Windows containers
- Use Azure Arc for management and to easily deploy new services
- Run native Windows applications
- Enable cloud services at the edge

What are the requirements for AKS Edge Essentials?

AKS Edge Essentials runs on Windows 10 IoT Enterprise, Windows 11 IoT Enterprise, Windows Server IoT 2019, and Windows Server IoT 2022.

The hardware requirements are minimal, supporting everything from single-board computers to ruggedized edge clients and servers. All that's needed is hardware that supports one of the target operating systems and at least 4GB of RAM.

Reference Solution Design for: Cold Chain Monitoring, Customer Insights, and Intelligent Signage Use Cases Validated on Lenovo Hardware and Scaled via Arrow

Implementing Vision AI, AI-based customer insight tools, and intelligent signage applications can transform retail operations and customer experience. However, challenges remain in deploying new apps with existing ones, leveraging existing infrastructure to avoid upgrade costs, bridging modern cloud-native apps with legacy apps, and managing development and deployment costs.

Arrow, Microsoft, Lenovo, Intel, and Scalars AI have collaborated to develop a cold chain monitoring, intelligent signage, and customer insights reference solution. The reference design demonstrates how AKS Edge Essentials can help to easily scale, deploy, and manage vision-based signage, customer insights, and cold chain retail monitoring with custom Linux and Windows-based containers using lightweight Kubernetes distribution.

Expanding Beyond Cold Chain, Customer Insights, and Digital Signage Use Cases

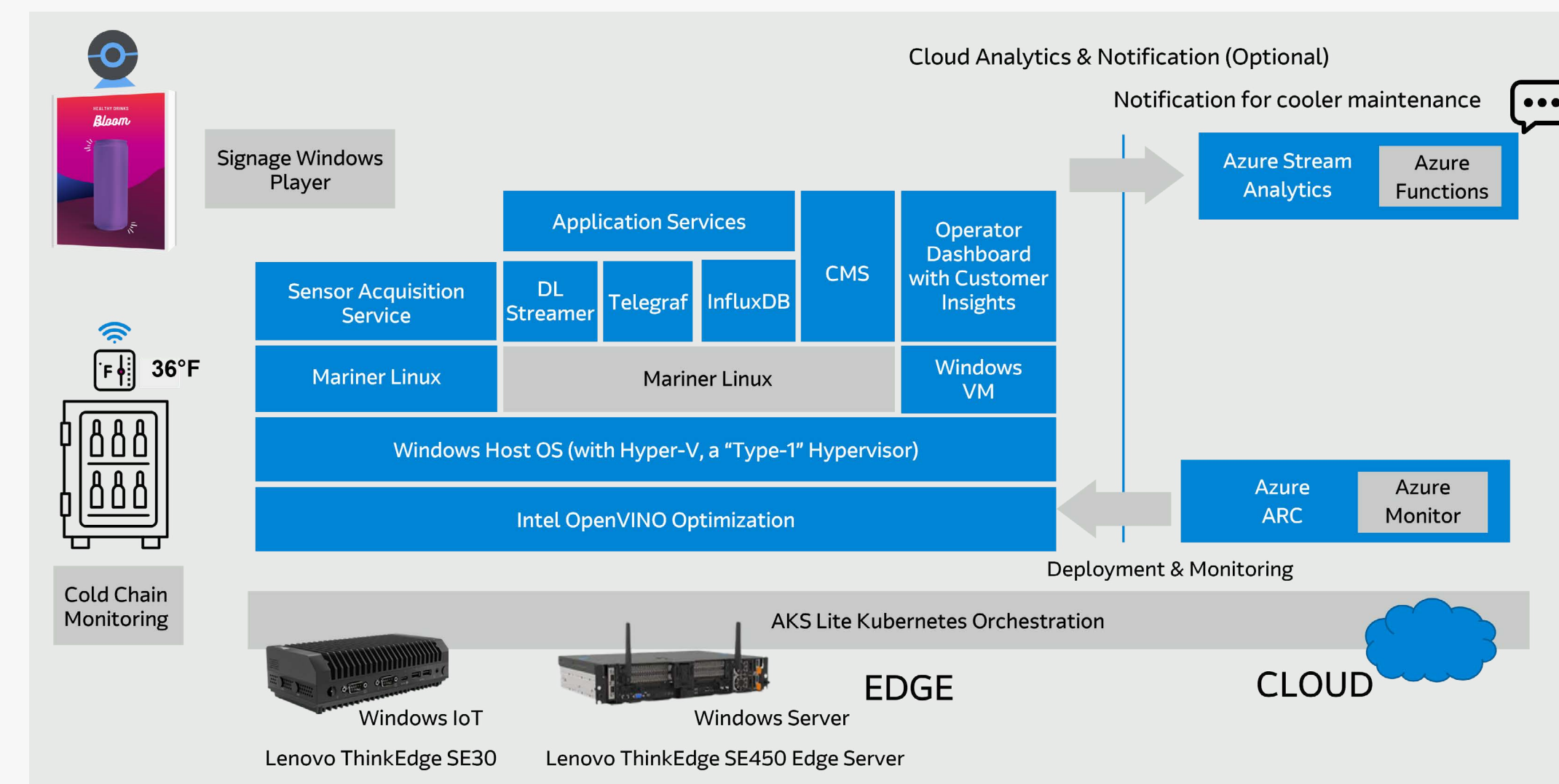
The cold chain monitoring, intelligent signage, and customer insights reference design can be a starting point for many retail use cases, adding new capabilities seamlessly that take advantage of the latest technologies like AI and ML. By taking advantage of the AKS Edge Essentials implementation, solution providers can automatically scale compute infrastructure up or down based on demand, add new applications, and ensure efficient resource use to avoid unnecessary costs. With cloud and edge deployments support, organizations can take advantage of new technologies without disrupting existing infrastructure. Additionally, a seamless and unified management experience across the entire infrastructure eases remote management and operations.

Save Hours on Development Time with Free Access to Our Solution Reference Design!

Arrow is making its Cold Chain Monitoring, Intelligent Signage, and Customer Insights Retail Reference Design available to you for free!

Request your personal access code [here](#).

AKS Edge Essentials Architecture in Action



Delivering a cloud-like scale at the edge reduces the time to deployment of new use cases while reducing the complexity of predicting future needs. With Kubernetes at the edge, enterprises can purchase what they need today and add scalability as business needs grow to accommodate new compelling applications.



Getting Started

Want to learn more about the Intelligent Cold Chain and Digital Signage Demo? Ready to see how the AKS Edge Essentials can revolutionize your edge computing infrastructure?

Schedule a demo with us today and experience the power of containerized workloads! Contact Arrow at WindowsIoT@arrow.com.



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