Microsoft

Azure Intelligent Edge Brief

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Agenda

- Azure Intelligent Edge Overview and News
- Today's Focus Area: Azure Data Box Edge: A Simple Walkthrough
- Q&A

But First - What is the AIEB?

30-minute briefing open to everyone to discuss a specific area within our 'Intelligent Edge' offerings

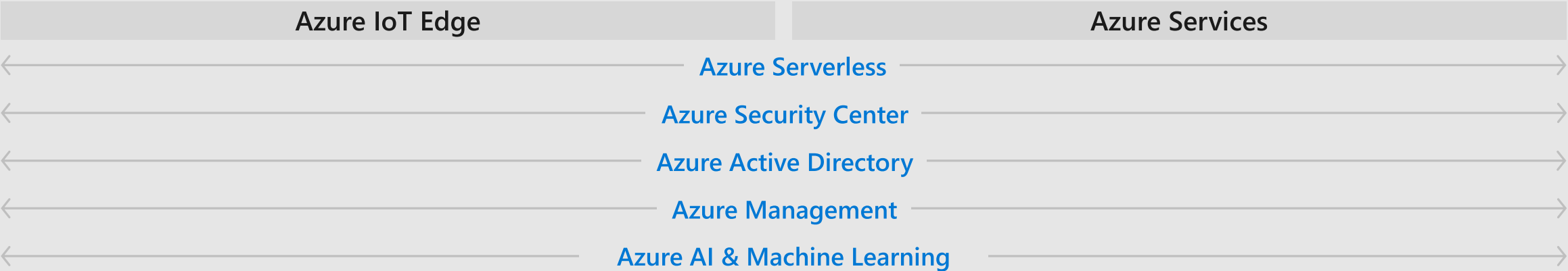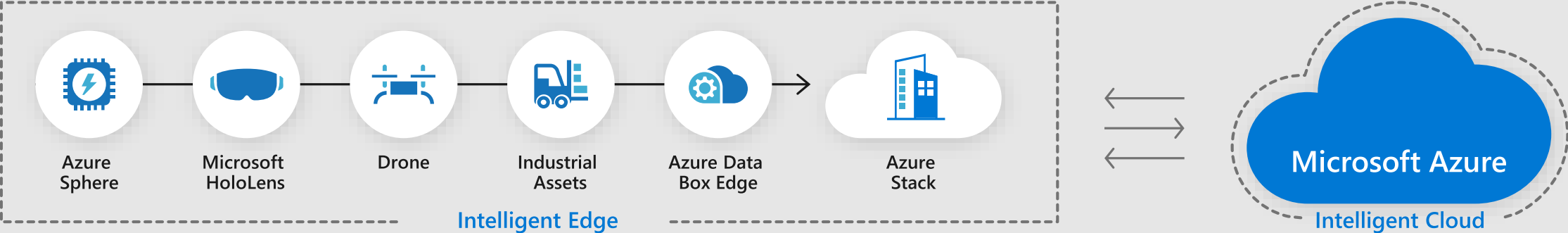Not a forum to share NDA information

Using 'regular' Teams for now for easier collaboration (Q&A, discussion, etc.)

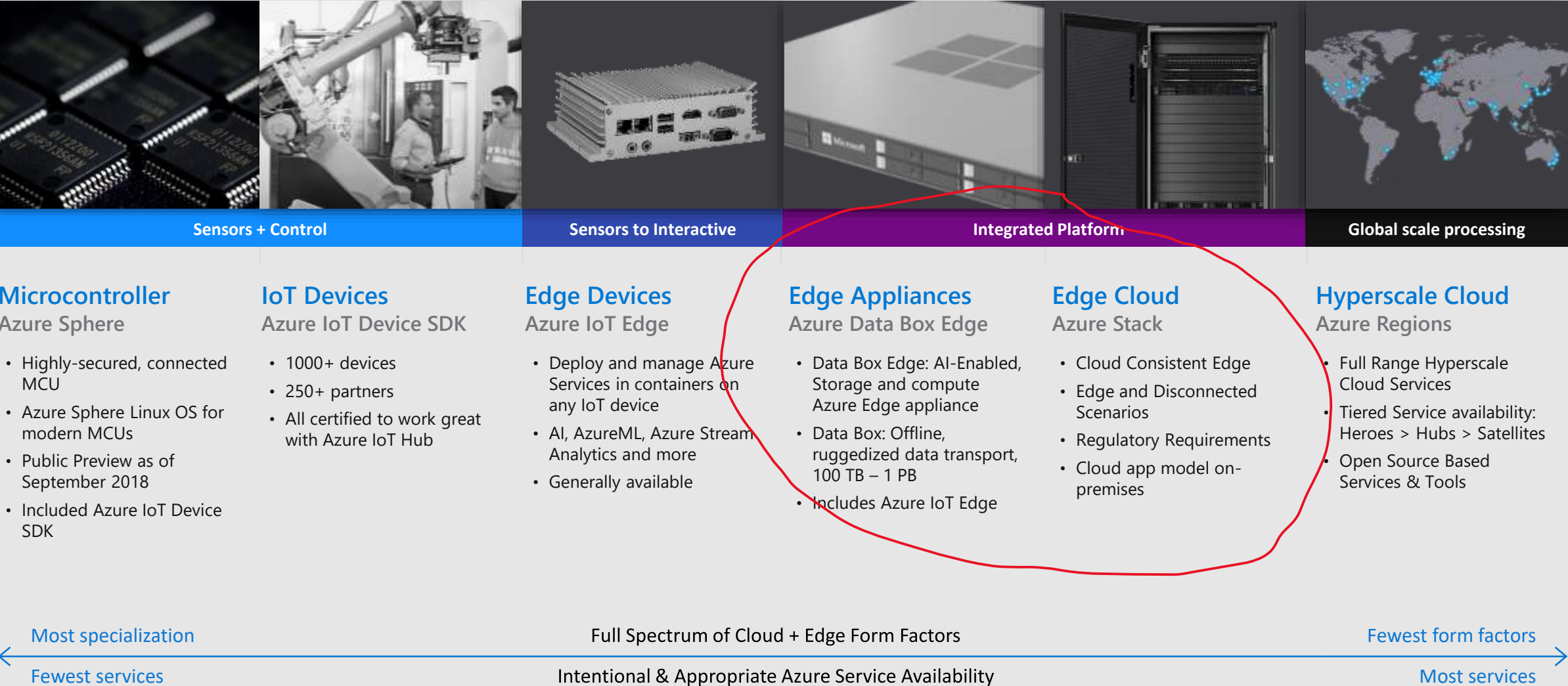Calls will be recorded and posted here: https://aka.ms/aieb-channel

Some quick news…

- Azure Stack 1908 Update is (now) available (for real this time!): https://docs.microsoft.com/en-us/azure-stack/operator/azure-stack-release-notes-1908?view=azs-1908
  - Note that we require two things before deploying 1908:
    - Hotfix to 1907 (1907.12.44): https://support.microsoft.com/en-us/help/4517473/azure-stack-hotfix-1-1907-12-44
    - Azure Stack OEM Version 2.1 or later: https://docs.microsoft.com/en-us/azure-stack/operator/azure-stack-update-oem?view=azs-1908 (OEM Version 2.1 Update will vary by OEM – links to each OEM on this page)

Microsoft Azure approach

Azure Sphere — Microsoft HoloLens — Drone — Industrial Assets — Azure Data Box Edge → Azure Stack

Intelligent Edge

Microsoft Azure

Intelligent Cloud

Azure IoT Edge	Azure Services

Azure Serverless

Azure Security Center

Azure Active Directory

Azure Management

Azure AI & Machine Learning

Azure Intelligent Edge + Cloud Taxonomy

Sensors + Control		Sensors to Interactive	Integrated Platform		Global scale processing

Microcontroller
Azure Sphere

- Highly-secured, connected MCU
- Azure Sphere Linux OS for modern MCUs
- Public Preview as of September 2018
- Included Azure IoT Device SDK

IoT Devices
Azure IoT Device SDK

- 1000+ devices
- 250+ partners
- All certified to work great with Azure IoT Hub

Edge Devices
Azure IoT Edge

- Deploy and manage Azure Services in containers on any IoT device
- AI, AzureML, Azure Stream Analytics and more
- Generally available

Edge Appliances
Azure Data Box Edge

- Data Box Edge: AI-Enabled, Storage and compute Azure Edge appliance
- Data Box: Offline, ruggedized data transport, 100 TB – 1 PB
- Includes Azure IoT Edge

Edge Cloud
Azure Stack

- Cloud Consistent Edge
- Edge and Disconnected Scenarios
- Regulatory Requirements
- Cloud app model on-premises

Hyperscale Cloud
Azure Regions

- Full Range Hyperscale Cloud Services
- Tiered Service availability: Heroes > Hubs > Satellites
- Open Source Based Services & Tools

Most specialization ← → Fewest form factors

Full Spectrum of Cloud + Edge Form Factors

Fewest services ← → Most services

Intentional & Appropriate Azure Service Availability

Azure Data Box Edge

An AI-enabled Edge computing appliance with network data transfer capabilities

Network Storage Gateway
Network data transport to Azure while retaining local access to files

Edge compute/data preprocessing
Use IoT Edge compute modules to analyze, filter, and transform data as it moves to Azure

FPGA powered by Azure Machine Learning
Accelerate ML inferencing of images and video streams to get results close to the data source

Cloud managed
Easily manage your fleet from the Azure portal

Data Box Edge and Gateway use cases

Data Box Edge Data Box Gateway

Data Box Edge

Data Box Edge

Network data transfer from Edge to cloud

Easily and quickly transfer data to Azure to enable further compute and analytics, or for archival purposes
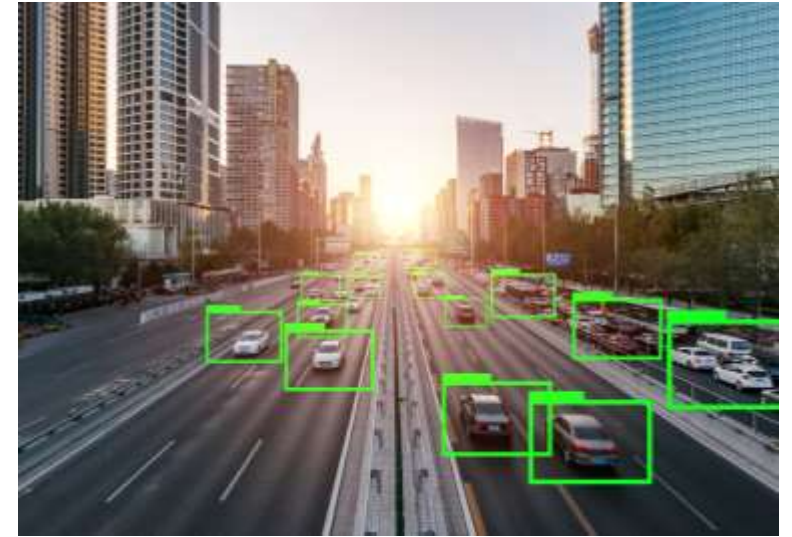
Data pre-processing at the Edge

Analyze data from on-premises or IoT devices to get results quickly and close to where data is being generated. Transferring the full data set to the cloud or filter or transform it before uploading; save on bandwidth

Machine Learning inferencing at the edge

Run Machine Learning (ML) models at the edge to get quick results that can be acted on without round tripping to the cloud, while transferring the full data set to Azure to retrain and improve your models

AZURE DATA BOX EDGE

Network Storage Gateway
Network data transport to Azure while retaining local access to files

Edge Compute
Run Azure services such as AI, ML, Stream Analytics, Functions, SQL or bring your own code

Project Brainwave FPGA
Accelerate ML inferencing of images and video streams to get results close to the data source

First-party System from Microsoft
Acquire and manage through Azure portal as a monthly service

Data pre-processing at the edge

Machine learning inferencing at the edge

Network data transfer from edge to cloud
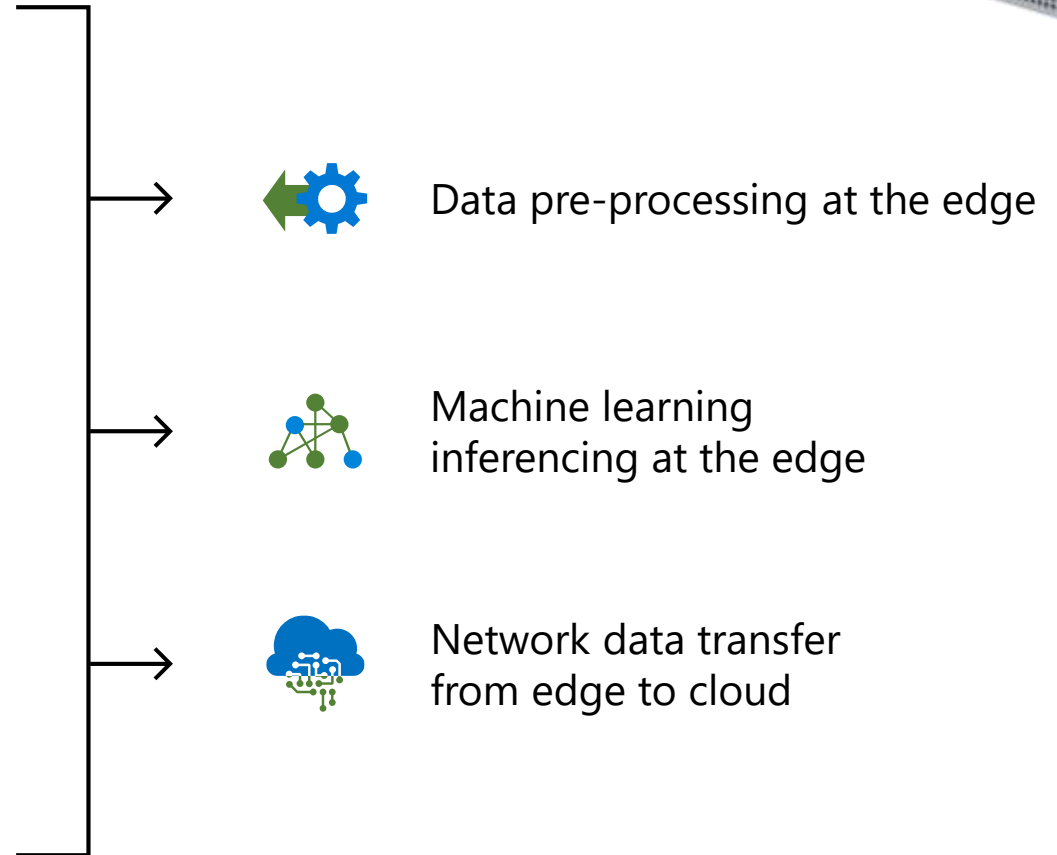
WHAT DO THESE SCENARIOS HAVE IN COMMON?

Retail out of stock detection

Operating room
doctor/patient tracking

When viewed from the intelligent edge, they're the same…

Video camera captures data → AI analyzes the data → Custom business logic provides analytics, alerting, reporting

UNLOCK THE IMPACT OF ML AT THE EDGE WITH DATA BOX EDGE
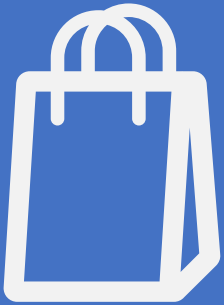
Retail

Reduce revenue loss from unstocked shelves

Optimize stock costs

Improve customer satisfaction

Improve employee productivity

Enable new revenue streams

Manufacturing

Detect and remove defects faster

Identify maintenance needs before they cause downtime

Improve employee safety

Energy

Improve efficiency of oil and gas exploration

Detect well or pipeline anomalies before they impede work

Improve site safety

Government/ Public Sector

Enable real-time insights during field operations

Improve safety, such as traffic patterns and crosswalks

Improve security, such as borders and event venues

Some retail & manufacturing scenarios also apply

Microsoft

Data Box Edge: A Simple Walkthrough

Next AIEB Call will be 10/11 @ 11AM US Central Standard Time
https://aka.ms/aieb-topics