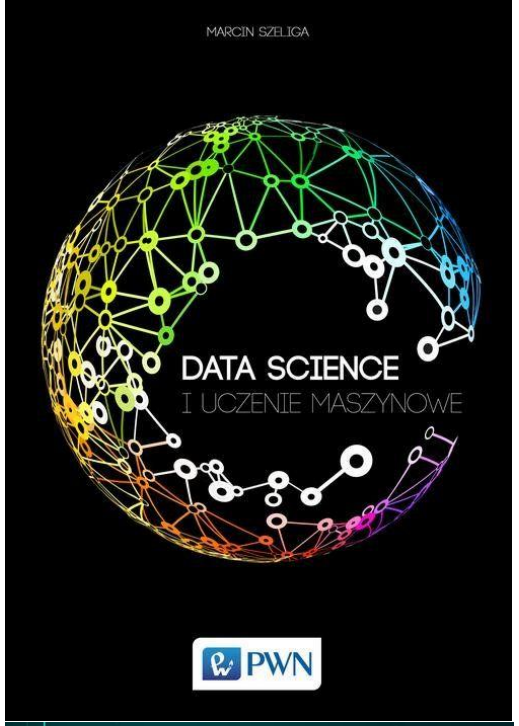
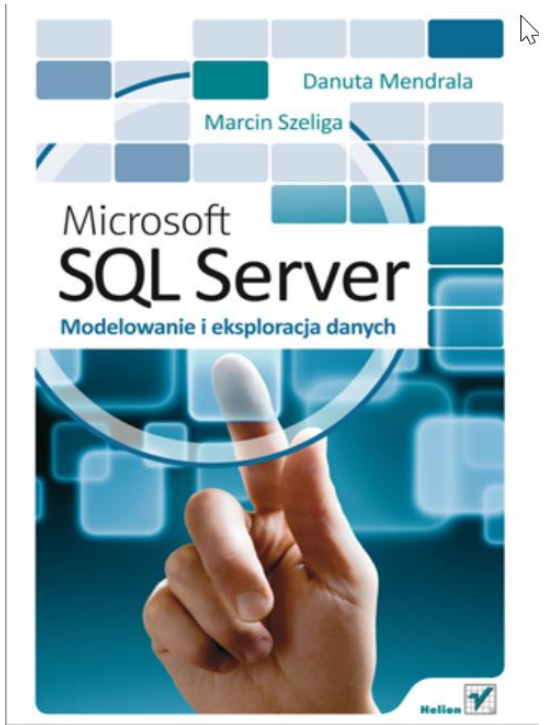
Azure Machine Learning
An overview

Marcin Szeliga

About me

- Machine Learning practitioner
- Over 25 years of professional experience
- Artificial Intelligence MVP & MCT
- Microsoft Certified Solutions Expert
  - Data Management and Analytics
  - Cloud Platform and Infrastructure
  - Business Intelligence
- Microsoft Certified Solutions Developer
  - Azure Solution Architect





Agenda

- Azure Data Services
- Azure Machine Learning

Azure Data Services

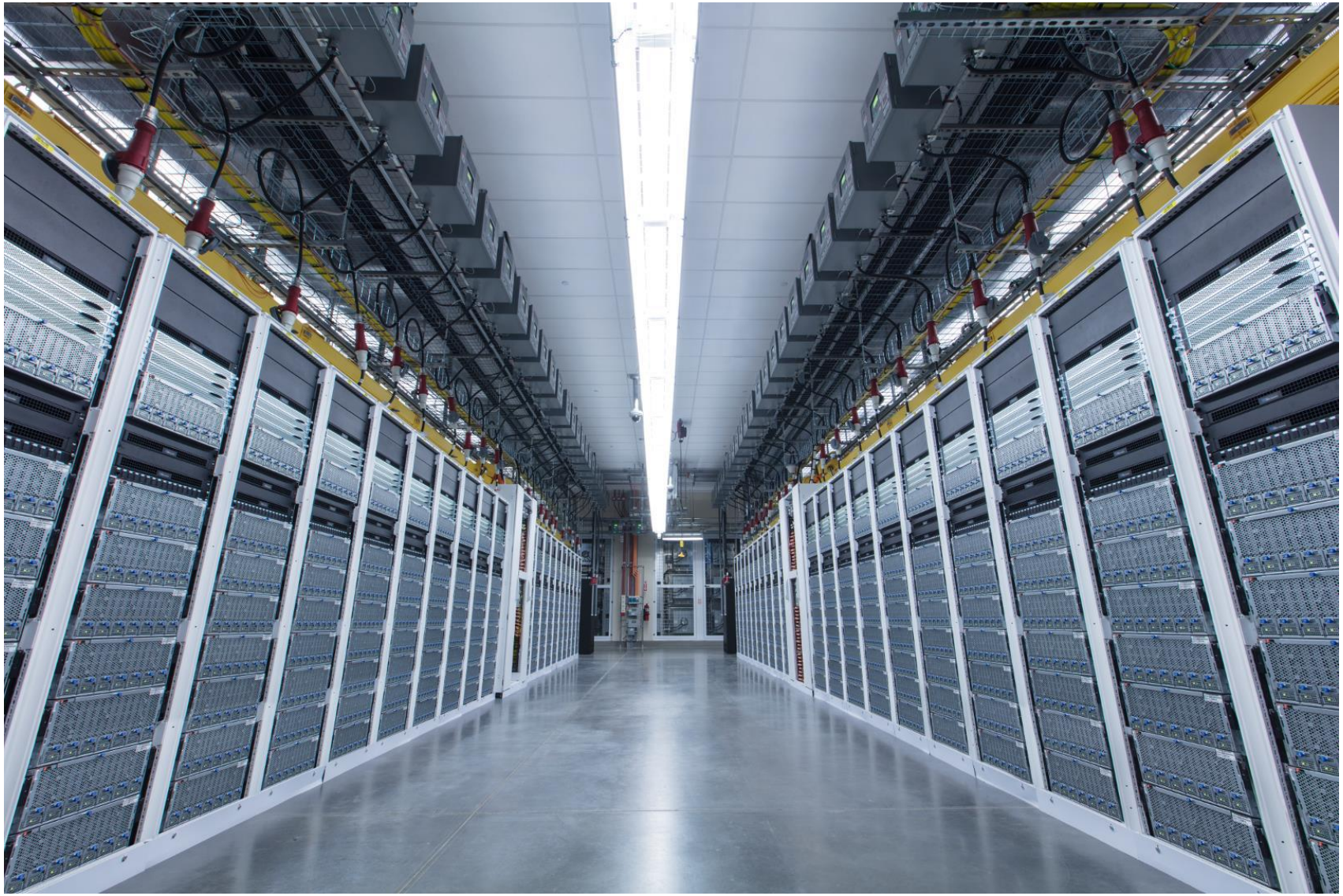
Azure regions: 54 regions worldwide
Available in 140 countries

Your Data Lives Here (Amsterdam NL)

Your Data Lives Here (Cheyenne WY)

Your Data Lives Here (Quincy WY)

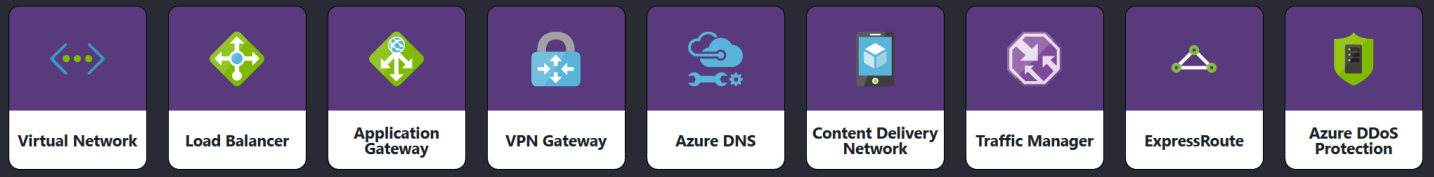
What it Looks Inside



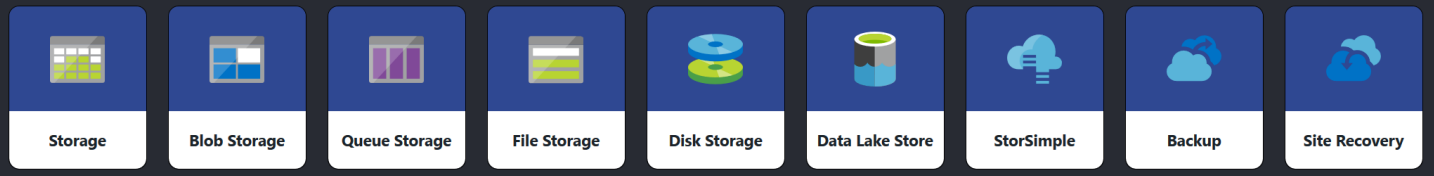
Data platform: An integrated group of technologies that lets us work with all kinds of data in useful ways

Azure Products

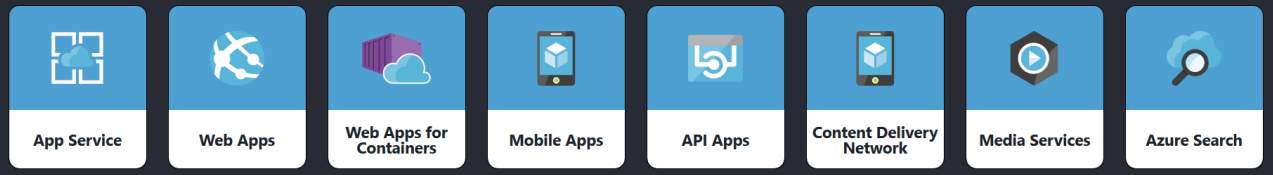
Networking



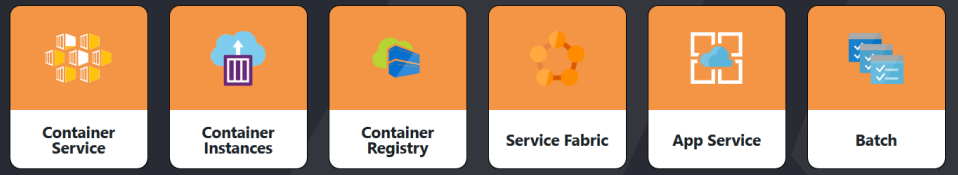
Storage



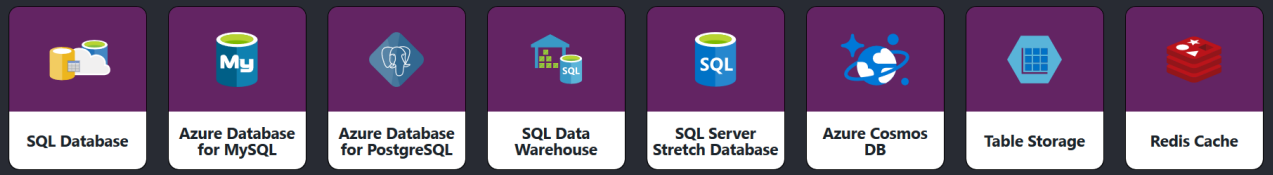
Web + Mobile



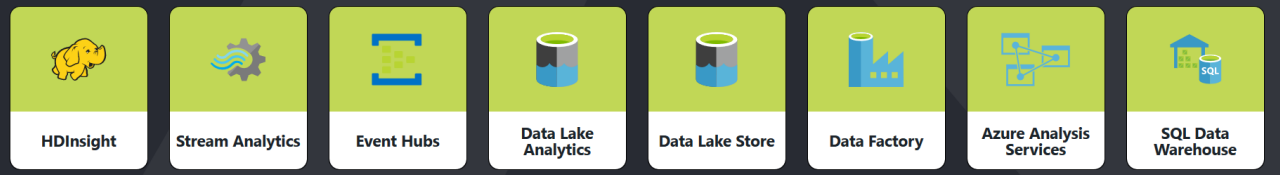
Containers



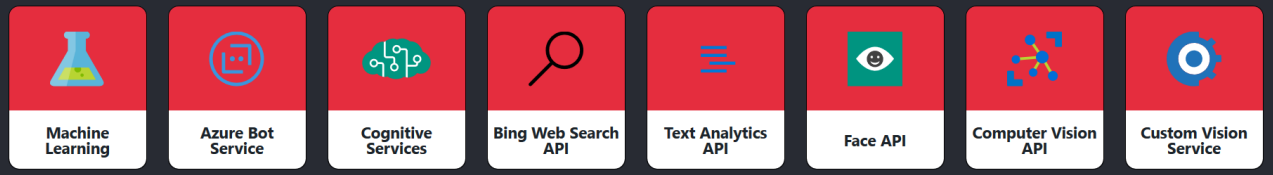
Databases



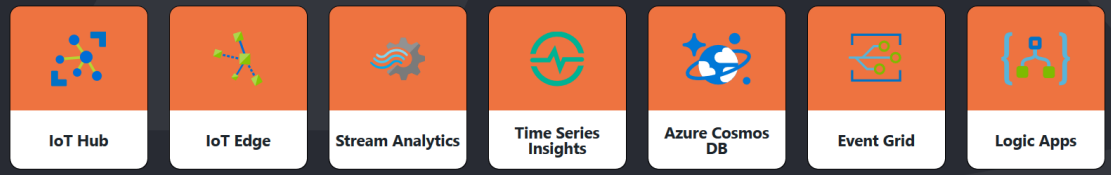
Data + Analytics



AI + Cognitive Services



Internet of Things



Categorizing Data

By how we work with it

Operational data

Read/write data used by applications to keep current state

Examples: Order info in an ecommerce application, customer info in a CRM application

Analytical data

Read-only historical data used for analysis

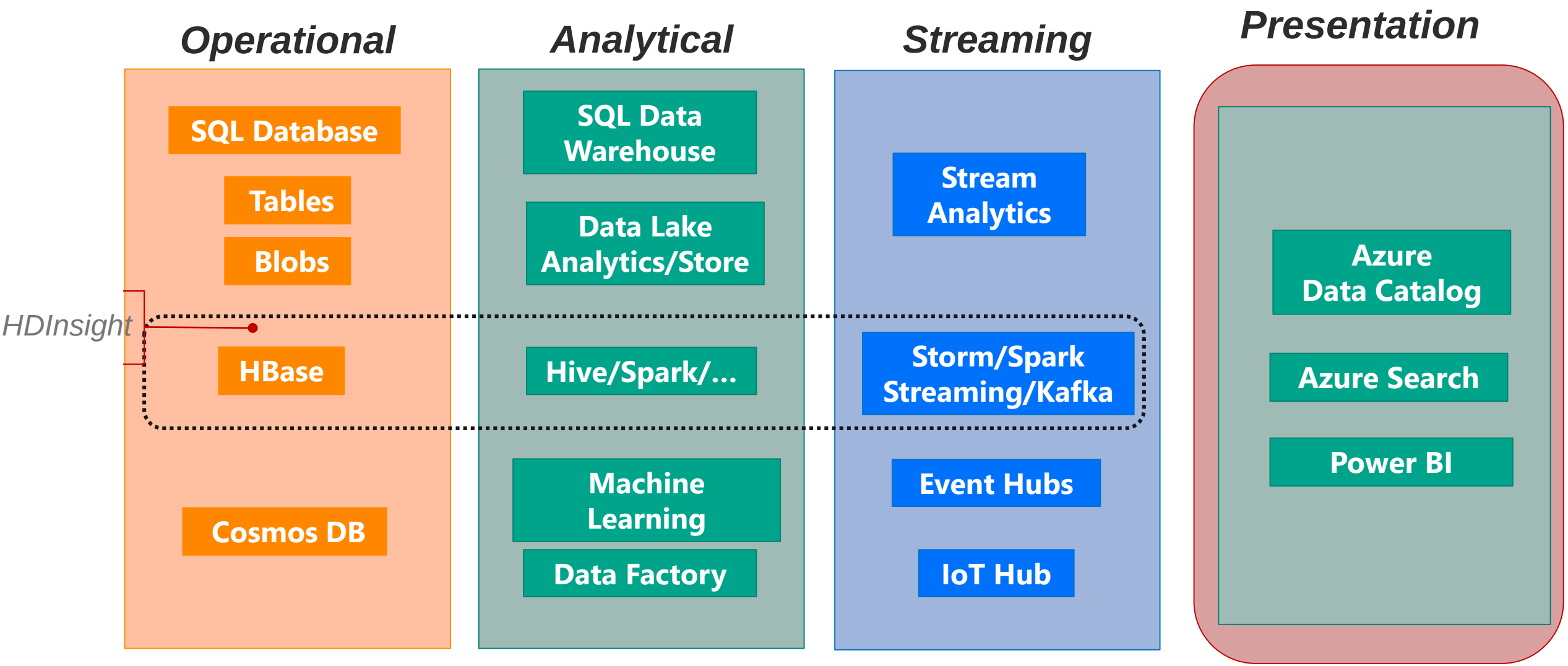
Examples: Data warehouses, machine learning data

Streaming data

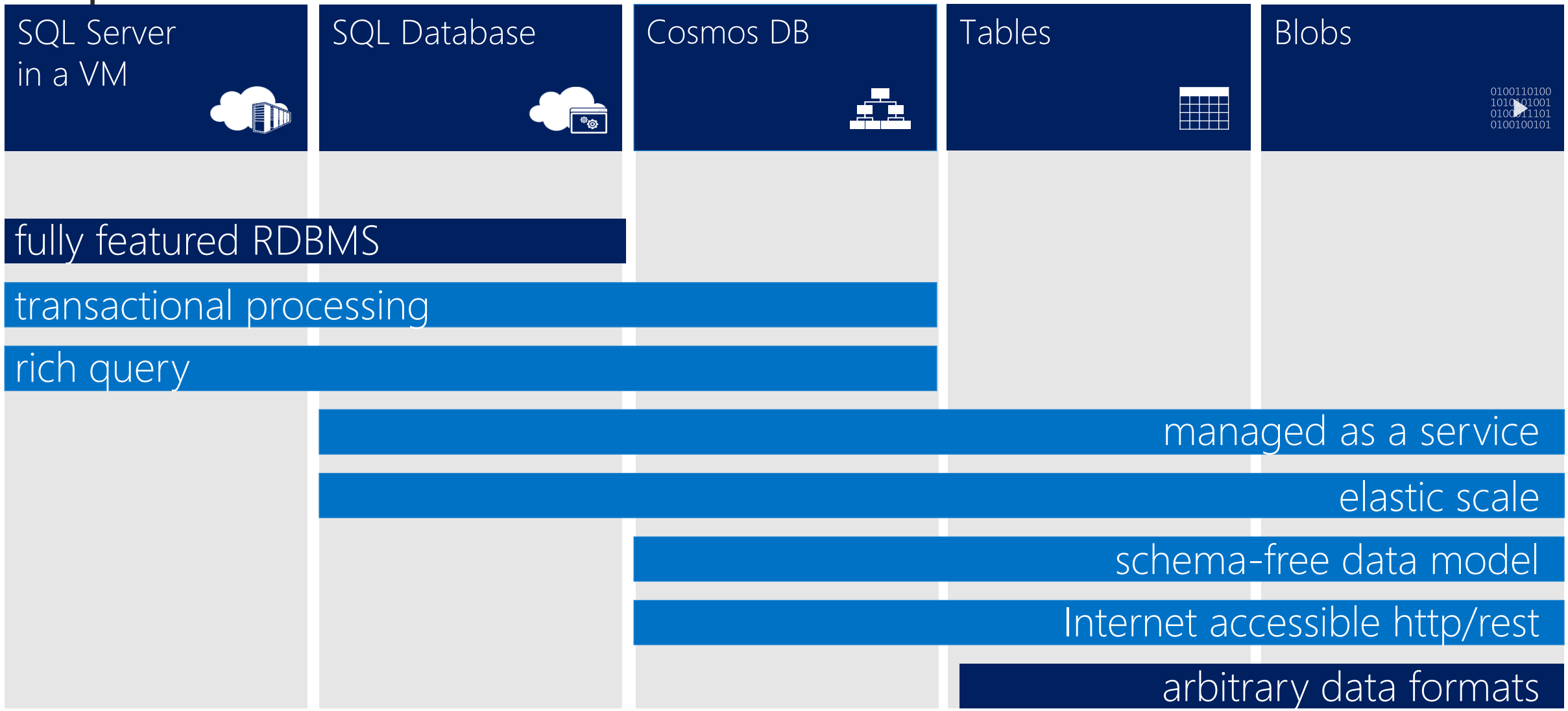
Data produced and processed in real time

Examples: Internet of Things (IoT), e.g., sensor data

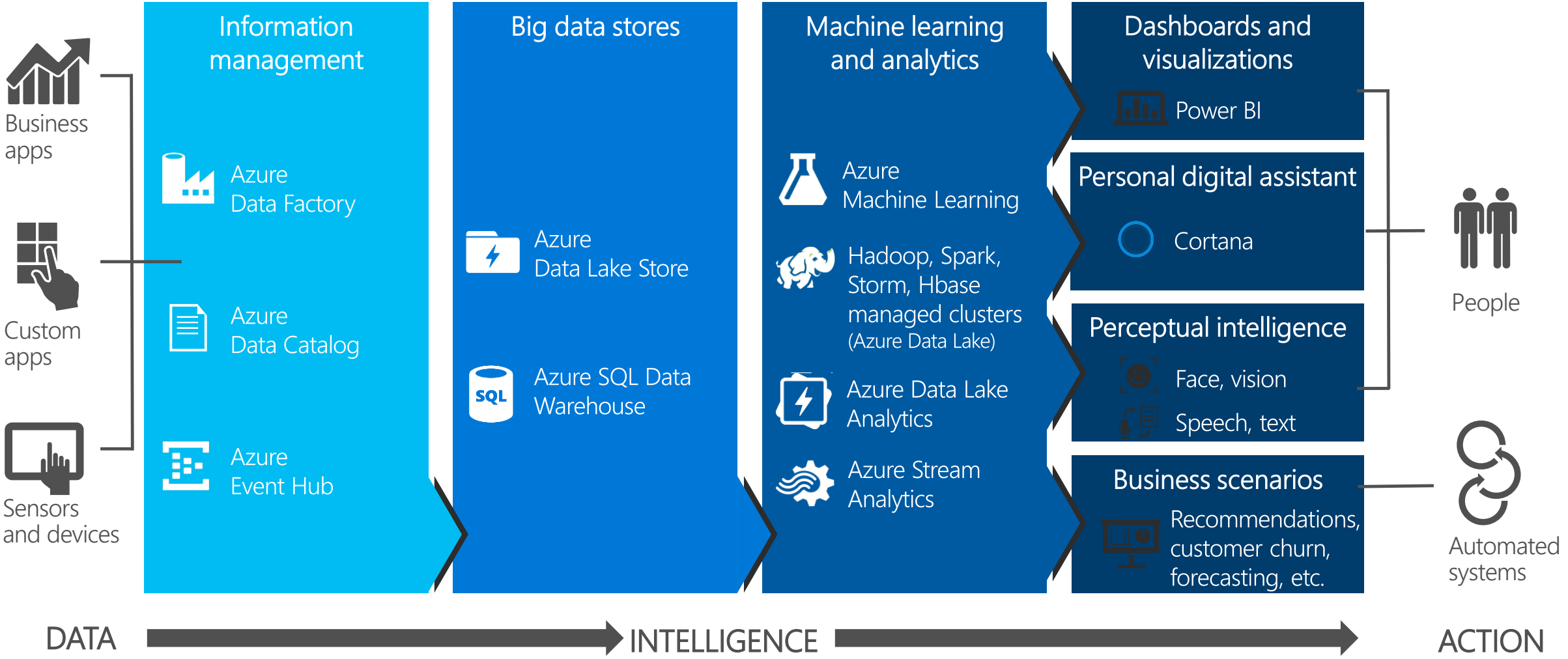
The Azure Data Platform
High level overwiew



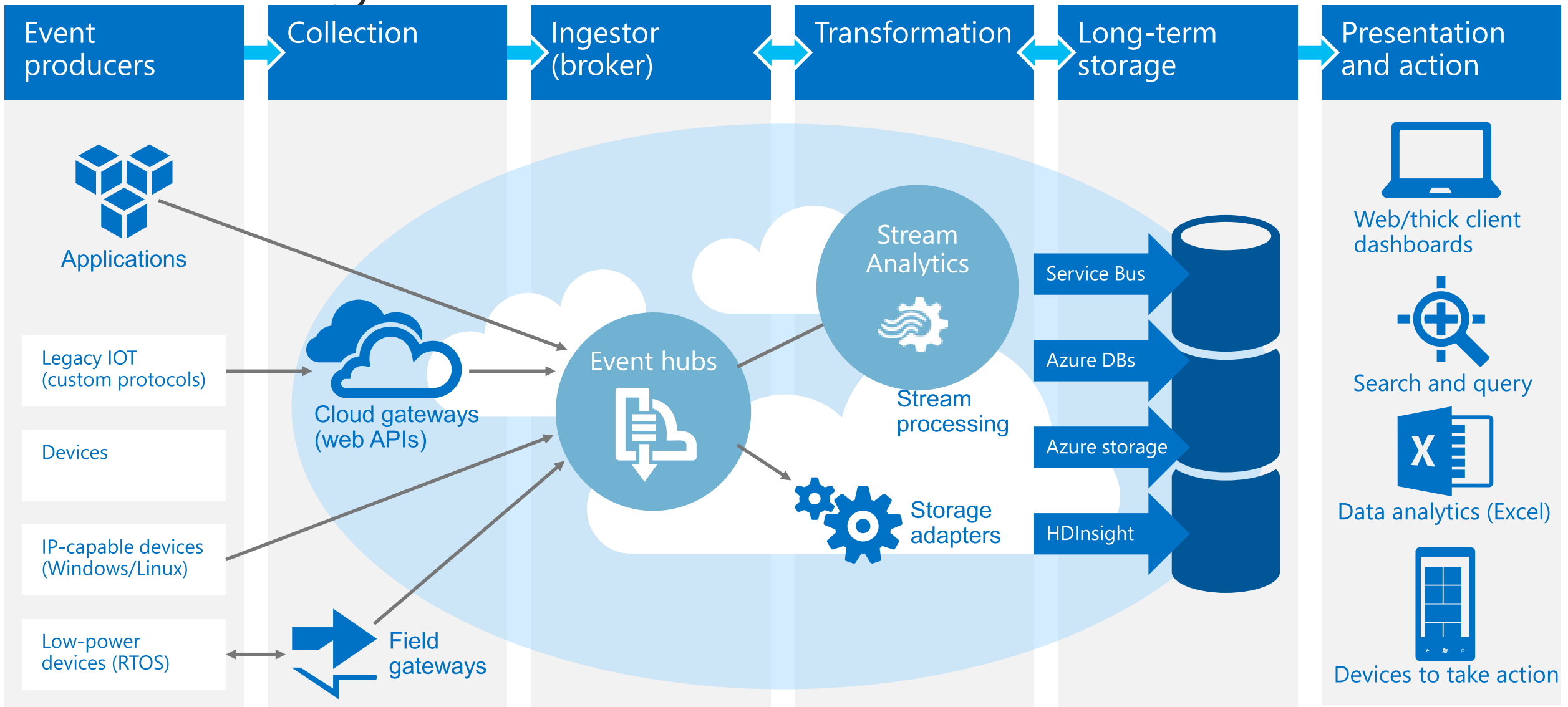
Operational Data Services



Analytical Data Services



Streaming Data Services



Network Security

Securing your network from attacks and unauthorized access is an important part of any architecture.

Internet Protection	Firewalls	DDoS Protection	Network Security Groups
Assess the resources that are internet-facing, and to only allow inbound and outbound communication where necessary. Make sure you identify all resources that are allowing inbound network traffic of any type.	To provide inbound protection at the perimeter, there are several choices: • Azure Firewall • Azure Application Gateway • Azure Storage Firewall	The Azure DDoS Protection service protects your Azure applications by scrubbing traffic at the Azure network edge before it can impact your service's availability.	Network Security Groups allow you to filter network traffic to and from Azure resources in an Azure virtual network. An NSG can contain multiple inbound and outbound security rules.

Identity and Access

Authentication

This is the process of establishing the identity of a person or service looking to access a resource. Azure Active Directory is a cloud-based identity service that provide this capability.

Authorization

This is the process of establishing what level of access an authenticated person or service has. It specifies what data they're allowed to access and what they can do with it. Azure Active Directory also provides this capability.

Azure Active Directory Features

Single Sign-On

Enables users to remember only one ID and one password to access multiple applications.

Apps & Device Management

You can manage your cloud and on-premises apps and devices and the access to your organizations resources

Identity Services

Manage Business to business (B2B) identity services and Business-to-Customer (B2C) identity services.

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Encryption

Encryption at rest

Data at rest is the data that has been stored on a physical medium. This could be data stored on the disk of a server, data stored in a database, or data stored in a storage account.

Encryption in transit

Data in transit is the data actively moving from one location to another, such as across the internet or through a private network. Secure transfer can be handled by several different layers.

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Encryption on Azure

Raw Encryption

Enables the encryption of:

- Azure Storage
- V.M. Disks
- Disk Encryption

Database Encryption

Enables the encryption of databases using:

- Transparent Data Encryption

Encrypting Secrets

Azure Key Vault is a centralized cloud service for storing your application secrets.

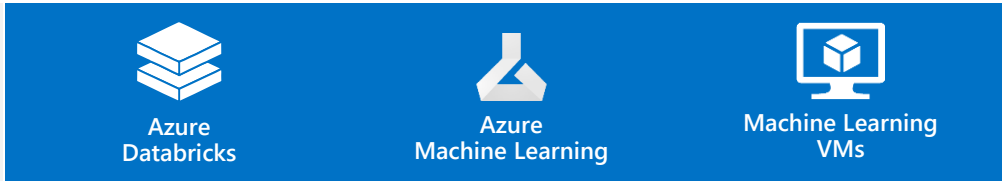
Azure Machine Learning

Machine Learning on Azure

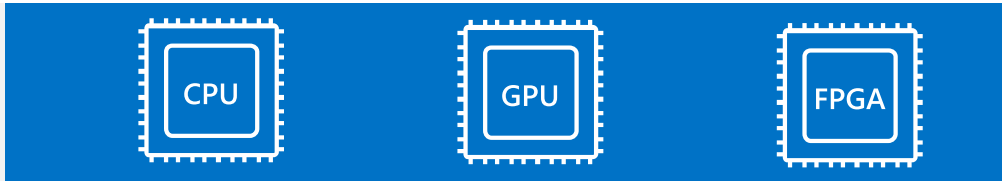
Sophisticated pretrained models
To simplify solution development

Popular frameworks
To build advanced deep learning solutions

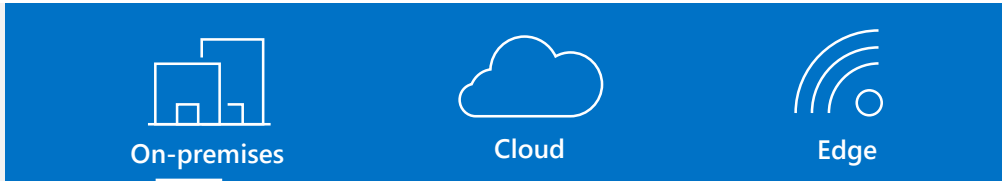
Productive services
To empower data science and development teams



Powerful infrastructure
To accelerate deep learning



Flexible deployment
To deploy and manage models on intelligent cloud and edge



Microsoft Cognitive Services

Give your apps a human side

Vision

From faces to feelings, allow your apps to understand images and video

Speech

Hear and speak to your users by filtering noise, identifying speakers, and understanding intent

Language

Process text and learn how to recognize what users want

Knowledge

Map complex information and data in order to solve specific tasks

Search

Access billions of web pages, images, videos, and news with the power of Bing

Labs

An early look at emerging Cognitive Services technologies: discover, try, and give feedback on new technologies before general availability

Lab Cognitive Services

- Try out the Cognitive Services using the website demo options
- Set up your Azure Account
- Provision Cognitive Services keys
- Text Analytics via REST

What is serverless?

Full abstraction of servers

Developers can just focus on their code—there are no distractions around server management, capacity planning, or availability

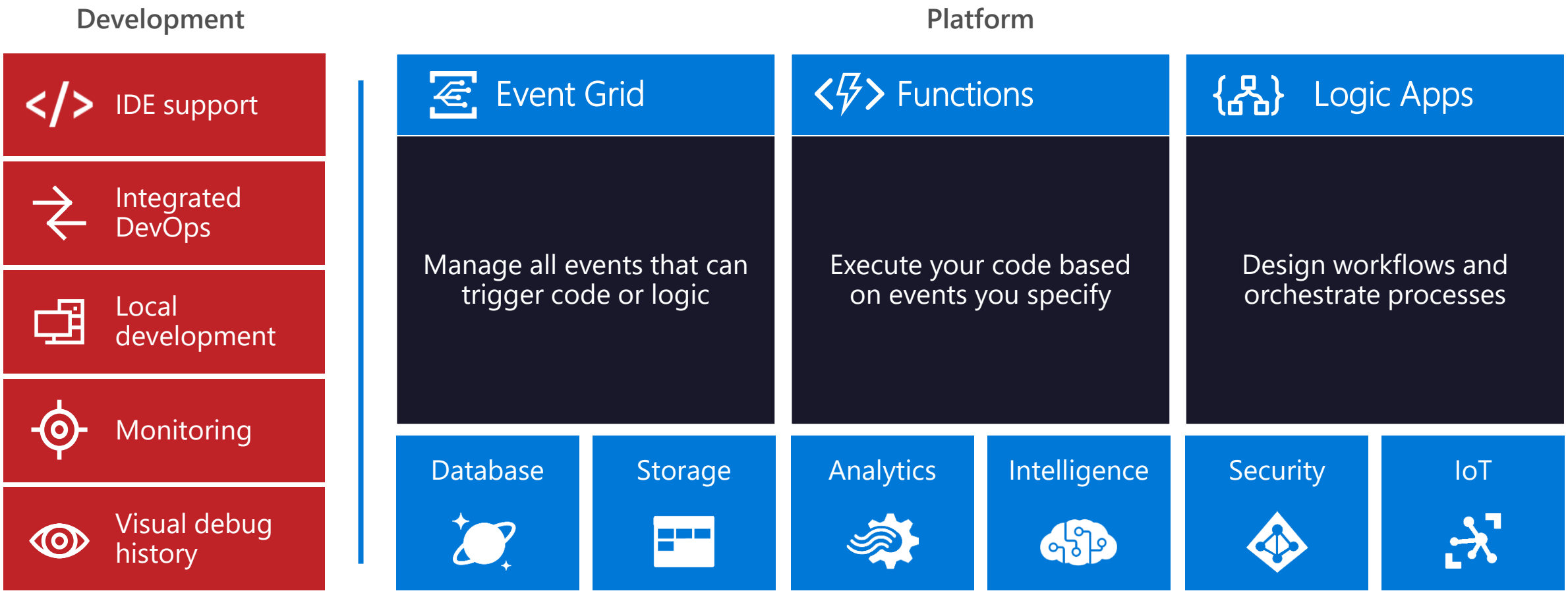
Instant, event-driven scalability

Application components react to events and triggers in near real-time with virtually unlimited scalability; compute resources are used as needed

Pay-per-use

Only pay for what you use: billing is typically calculated on the number of function calls, code execution time, and memory used

Azure Serverless Ecosystem



Lab Custom Vision and Logic Apps

- Provision resources
- Create Custom Vision project
- Build Custom AI into an Application using Azure Logic Apps

Questions

- Machine Learning practitioner
- Over 25 years of professional experience
- Artificial Intelligence MVP & MCT
- Microsoft Certified Solutions Expert
  - Data Management and Analytics
  - Cloud Platform and Infrastructure
  - Business Intelligence
- Microsoft Certified Solutions Developer
  - Azure Solution Architect