

Marketing at Scale in Microsoft

An overview of how we use Azure Machine Learning and Artificial Intelligence capabilities to enable decision making internally

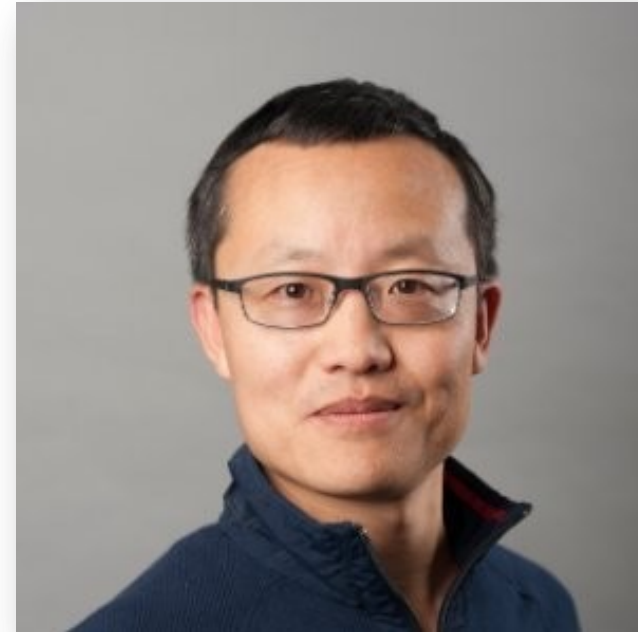
Speakers



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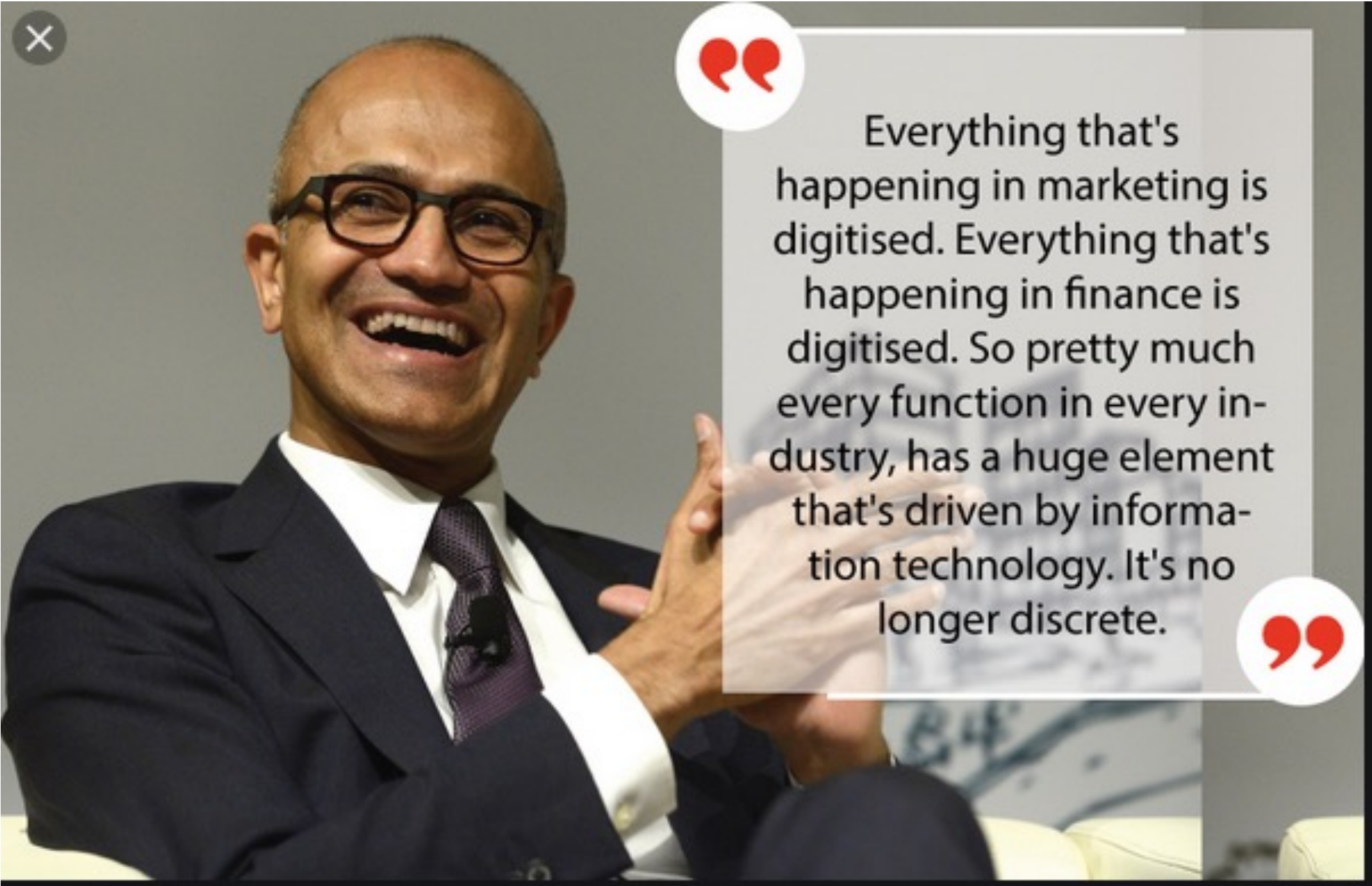
Today's Session

How Microsoft marketing team turns ideas into solutions by leveraging Azure products and services.

The basics of Azure storage, Azure Synapse, and Azure Machine Learning, and how to use these services to business intelligence and machine learning needs.

Key topics in this session include:

- A clouding computing architecture example within the Microsoft marketing department
- An overview of Azure portal and Azure products/services
- A demo of how to store the data and collaborate it between Azure Storage and Azure Synapse
- A demo of Azure Machine Learning solution



Everything that's happening in marketing is digitised. Everything that's happening in finance is digitised. So pretty much every function in every industry, has a huge element that's driven by information technology. It's no longer discrete.



Improving customer
experience is a priority

45%

Growing revenue is a
priority

42%

Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, December 2020

Base: 302 US-based decision makers for business application planning, investment, and ongoing improvement decisions

86%

Customer expectations to digital experiences have significantly increased

88%

Focused on acquiring and updating the technology needed to grow our business

87%

Substantial urgency to modernize customer facing applications

84%

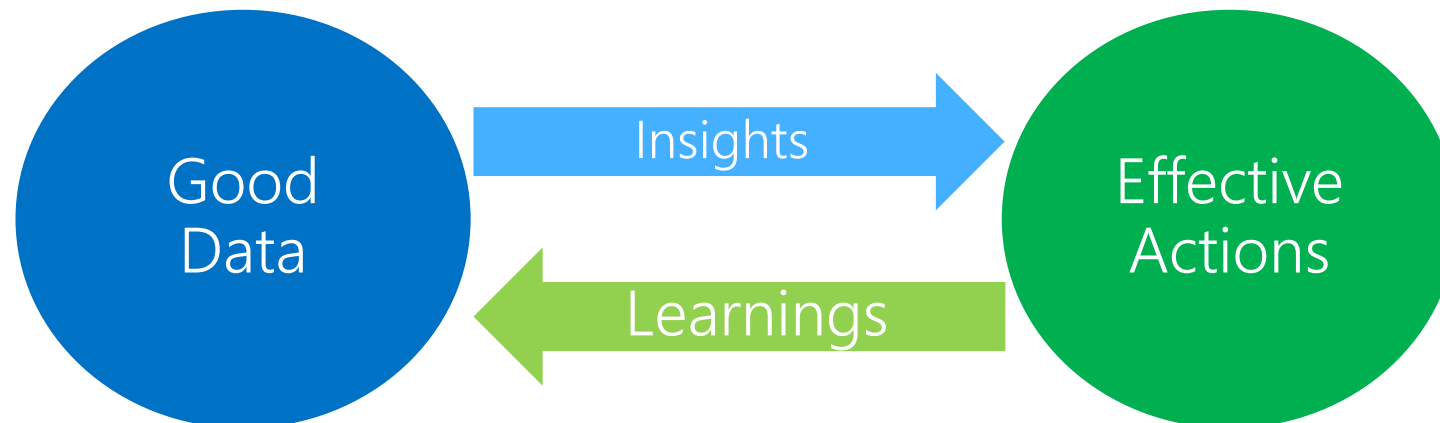
Customer facing applications are central to our differentiation from our competitors

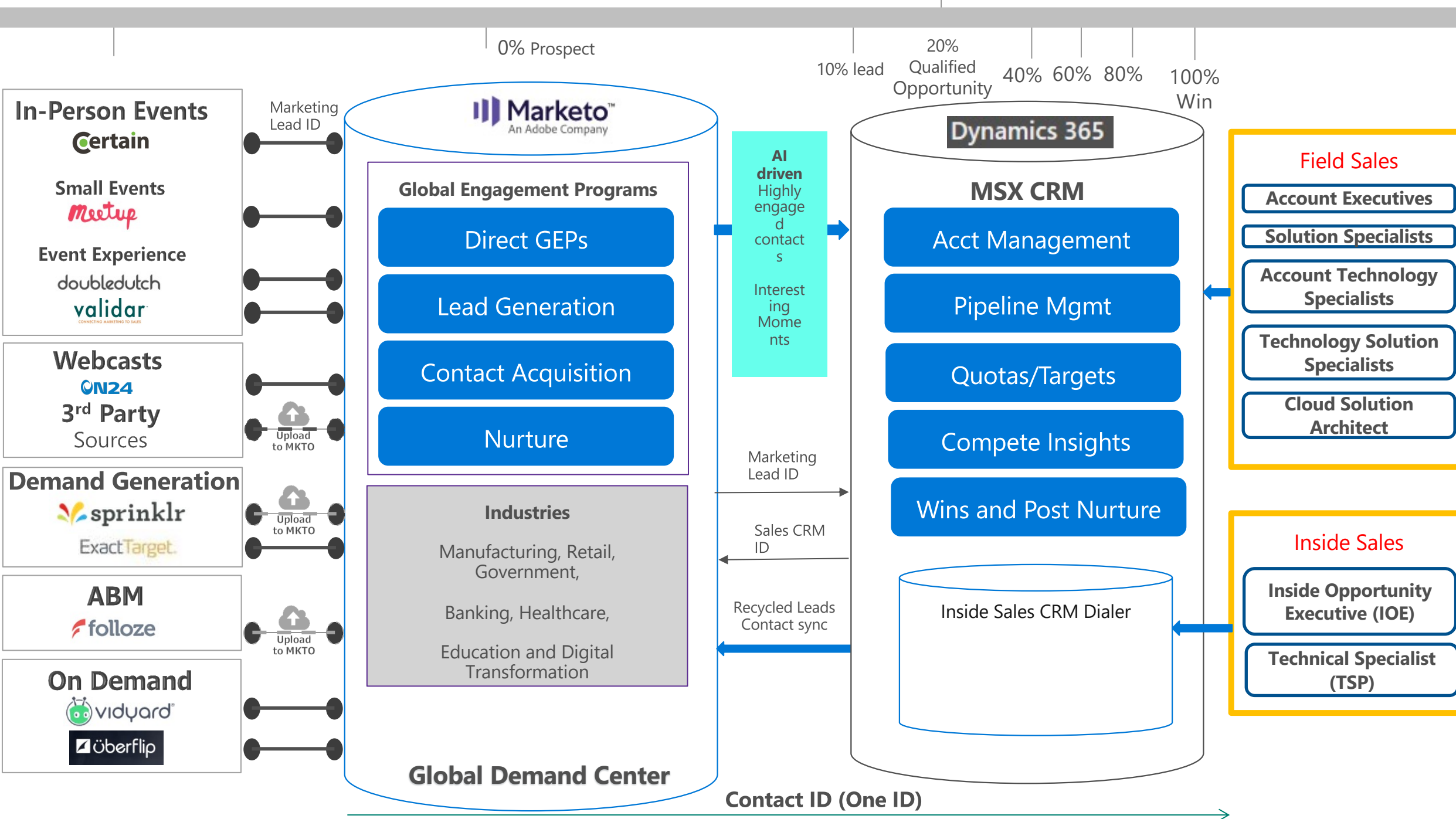
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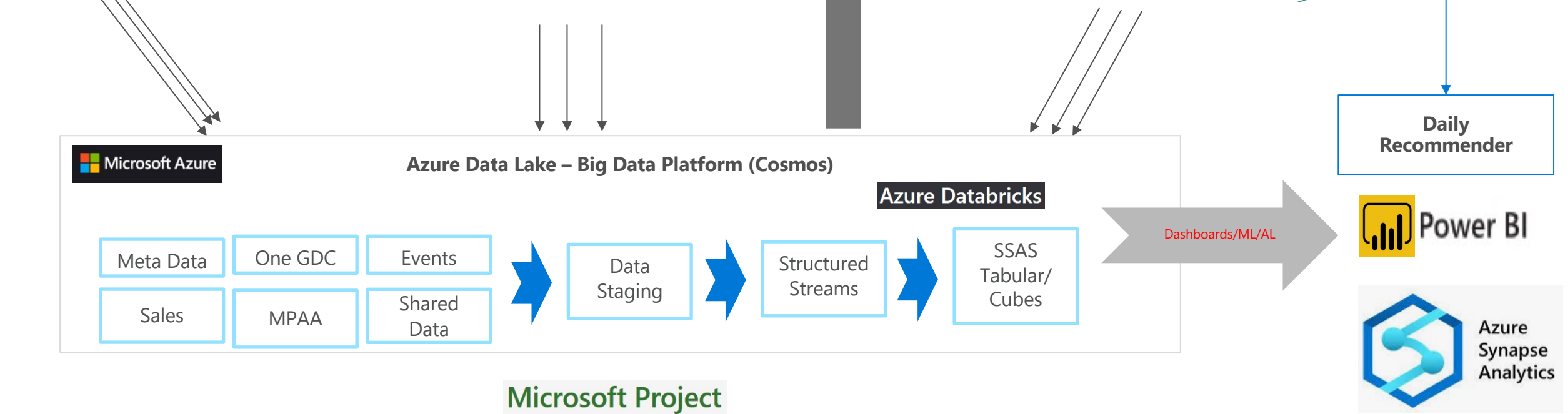
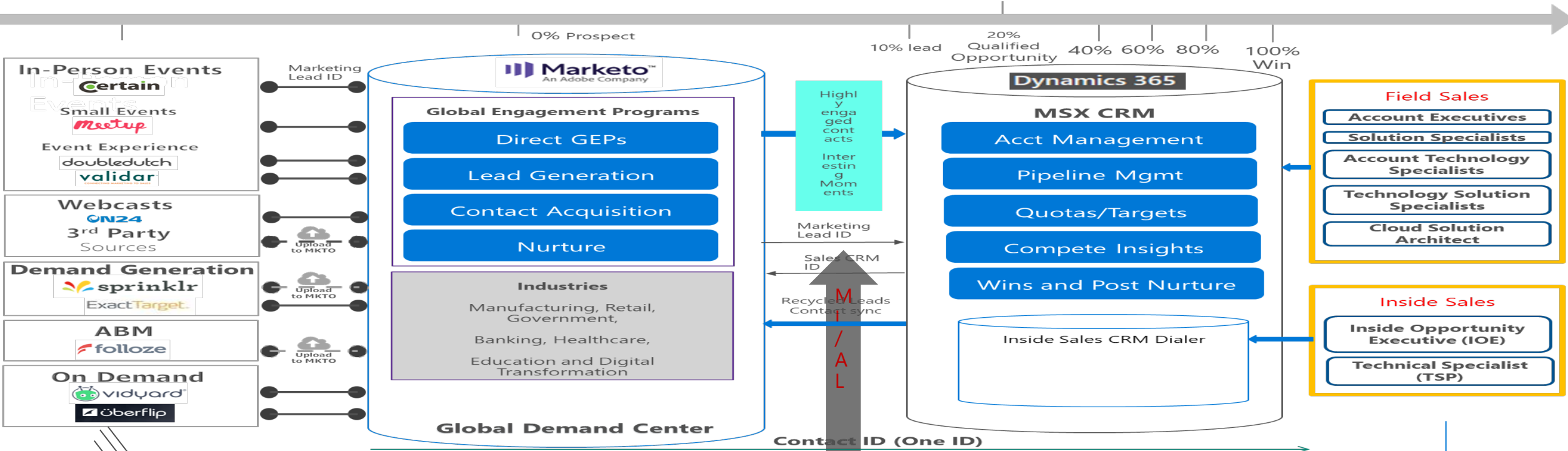
Base: 302 US based decision makers for business application planning, investment, and ongoing improvement decisions

To modernize customer facing applications:

1. Customer facing applications aligned to customer and business successes
2. Investing application platforms and data to personalize customer experiences
3. Ensuring employees have access to insights and tools needed to make right decisions

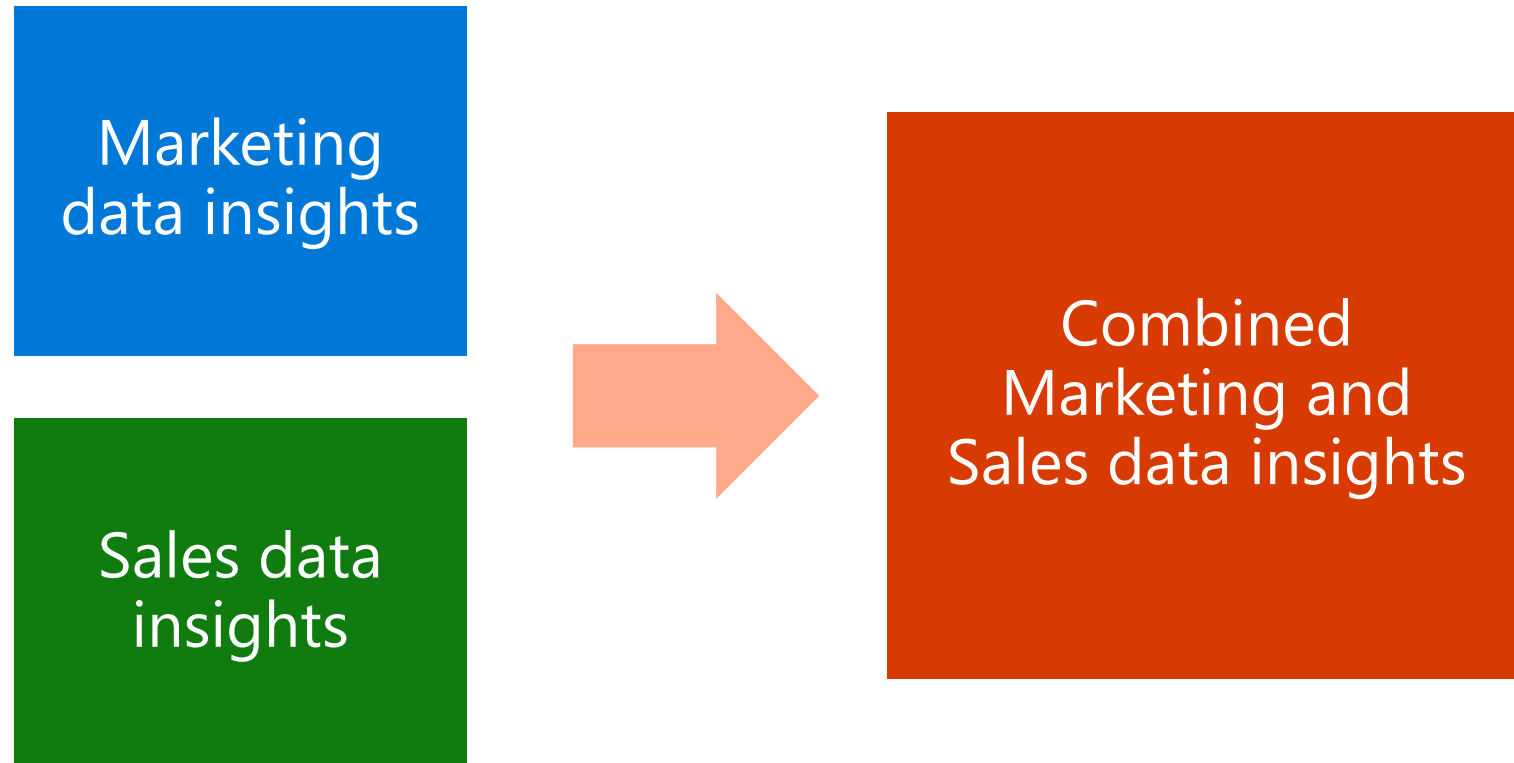






Marketing Data Science Goal

Building the combined Marketing and Sales customer journey where we know precisely when to engage marketing in sale process and vice versa.

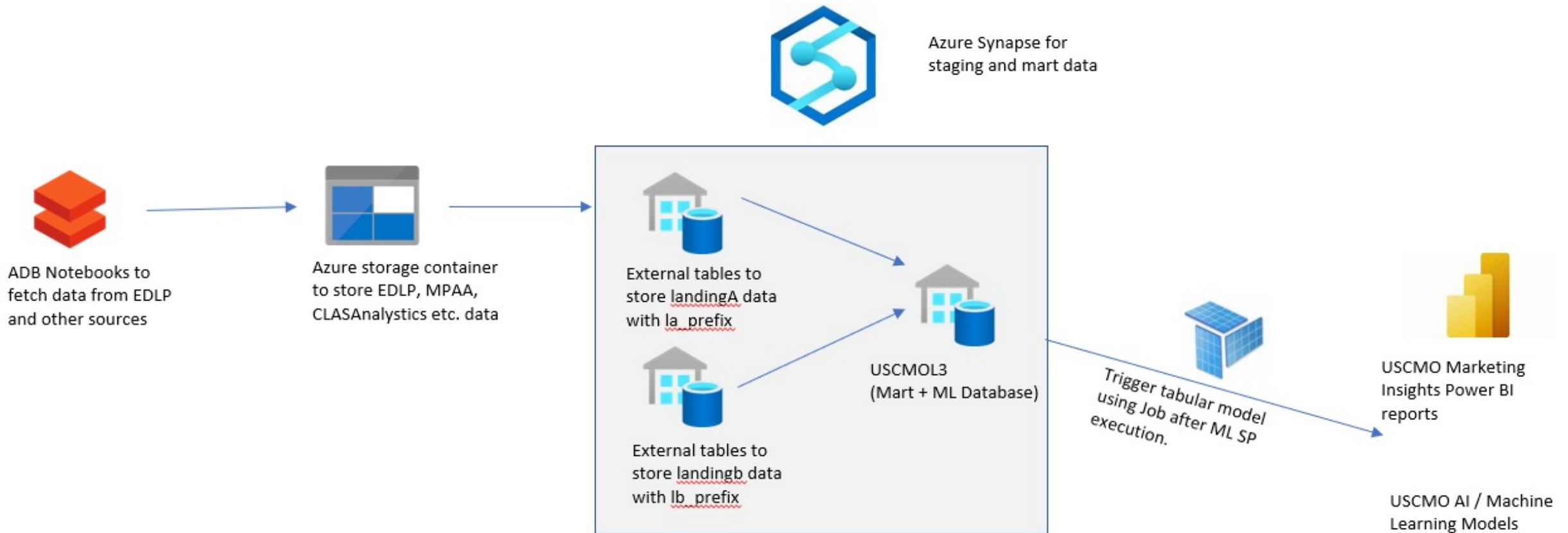


Key Data Science Initiatives

1. Sales Daily Recommender
2. AI BOT to prioritize Marketing leads for sellers
3. ML based sales goals and processes
4. Proactive Sales investments

1. Marketing customer journeys and next best actions
2. Marketing goal setting
3. Marketing predictive investments

Data Architecture | at Marketing



Azure | Fundamentals

Feature Name	Feature Description
What is Azure	<p>The Azure cloud platform is more than 200 products and cloud services designed to help you bring new solutions to life—to solve today's challenges and create the future. Build, run, and manage applications across multiple clouds, on-premises, and at the edge, with the tools and frameworks of your choice.</p>
Azure Portal	<p>https://portal.azure.com/</p> <p>Build, manage, and monitor everything from simple web apps to complex cloud applications in a single, unified console.</p> <ul style="list-style-type: none">- Services blade- Security Center Tool- Cloud Shell: PowerShell / Bash

Azure | Fundamentals ...

Feature Name	Feature Description
Security Center	<p>Manage Security & protect your data</p> <p>A unified infrastructure security management system that strengthens the security posture of your data centers, and provides advanced threat protection across your hybrid workloads in the cloud - whether they're in Azure or not - as well as on premises.</p> <p><i>From <https://docs.microsoft.com/en-us/azure/security-center/security-center-introduction></i></p>

Demonstration:

- Azure Portal <https://portal.azure.com>
- Cloud shell <https://shell.azure.com>

Data Platform | Azure Storage

Feature Name	Feature Description
What is Azure Storage	<p>The Azure Storage platform is Microsoft's cloud storage solution for modern data storage scenarios. Core storage services offer a massively scalable object store for data objects, disk storage for Azure virtual machines (VMs), a file system service for the cloud, a messaging store for reliable messaging, and a NoSQL store.</p>
Azure Blobs	<p>Azure Blob storage is Microsoft's object storage solution for the cloud. Blob storage is optimized for storing massive amounts of unstructured data.</p> <p>Access Tool</p> <ul style="list-style-type: none">• Azure PowerShell• Azure CLI• Azure Storage REST API

Data Platform | Azure Storage ...

Feature Name	Feature Description
Authorization	<p>Every request to Azure Storage must be authorized.</p> <ul style="list-style-type: none">• Azure AD: Authorize access to Azure blobs and queues using Azure Active Directory.• SAS: Using Shared Access Signatures (SAS).
Azure Storage Explorer	<p>Azure Storage Explorer helps you upload, download, and manage the data you store in Azure Storage.</p>

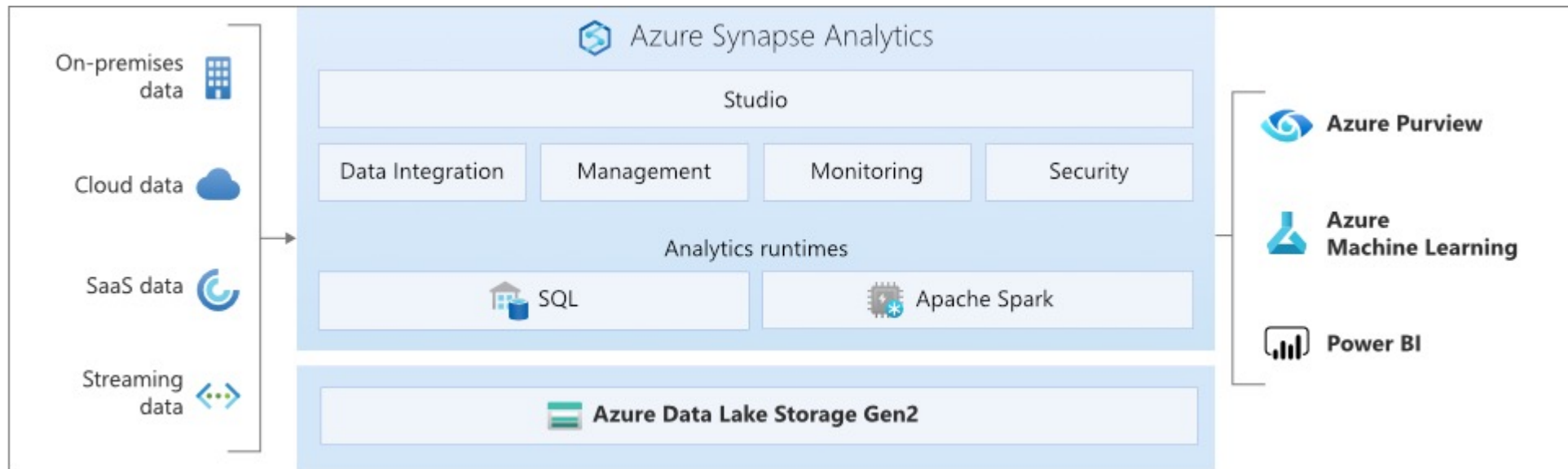
Demonstration:

- Azure Storage Account [wcademodl - Microsoft Azure](#)

Data Platform | Azure Synapse

Feature Name	Feature Description
What is Azure Synapse	Azure Synapse is an enterprise analytics service. Azure Synapse brings together data warehousing , Spark technologies used for big data, Pipelines for data integration and ETL/ELT, and deep integration with other Azure services such as Power BI, CosmosDB, and AzureML.

Diagram of Azure Synapse Analytics architecture.



Data Platform | Azure Synapse ...

Feature Name	Feature Description
Synapse SQL	Synapse SQL is a distributed query system for T-SQL that enables data warehousing . Synapse SQL offers both serverless and dedicated resource models. Transact-SQL T-SQL feature differences in Synapse SQL - Azure Synapse Analytics Microsoft Docs
SQL data storage	data is stored and managed by Azure Storage. The data is sharded into distributions to optimize the performance of the system which can also be choose.
Security	<ul style="list-style-type: none">• SQL username/password• Azure AD• Application identity authentication

Data Platform | Azure Synapse ...

Feature Name	Feature Description
External Table	<p>Polybase enables SQL Server instances to easily access external data sources, like Hadoop, Azure Blob Storage, and etc using the familiar T-SQL.</p> <p>External File Format</p> <ul style="list-style-type: none">CSVORCParquet <p>Use SQL Server 2019 PolyBase to Virtualize a Sybase IQ Database - Microsoft Tech Community</p>

Demonstration:

- Synapse workspace [wcademosynapse](#) - Azure Synapse Analytics

Machine Learning | Azure ML

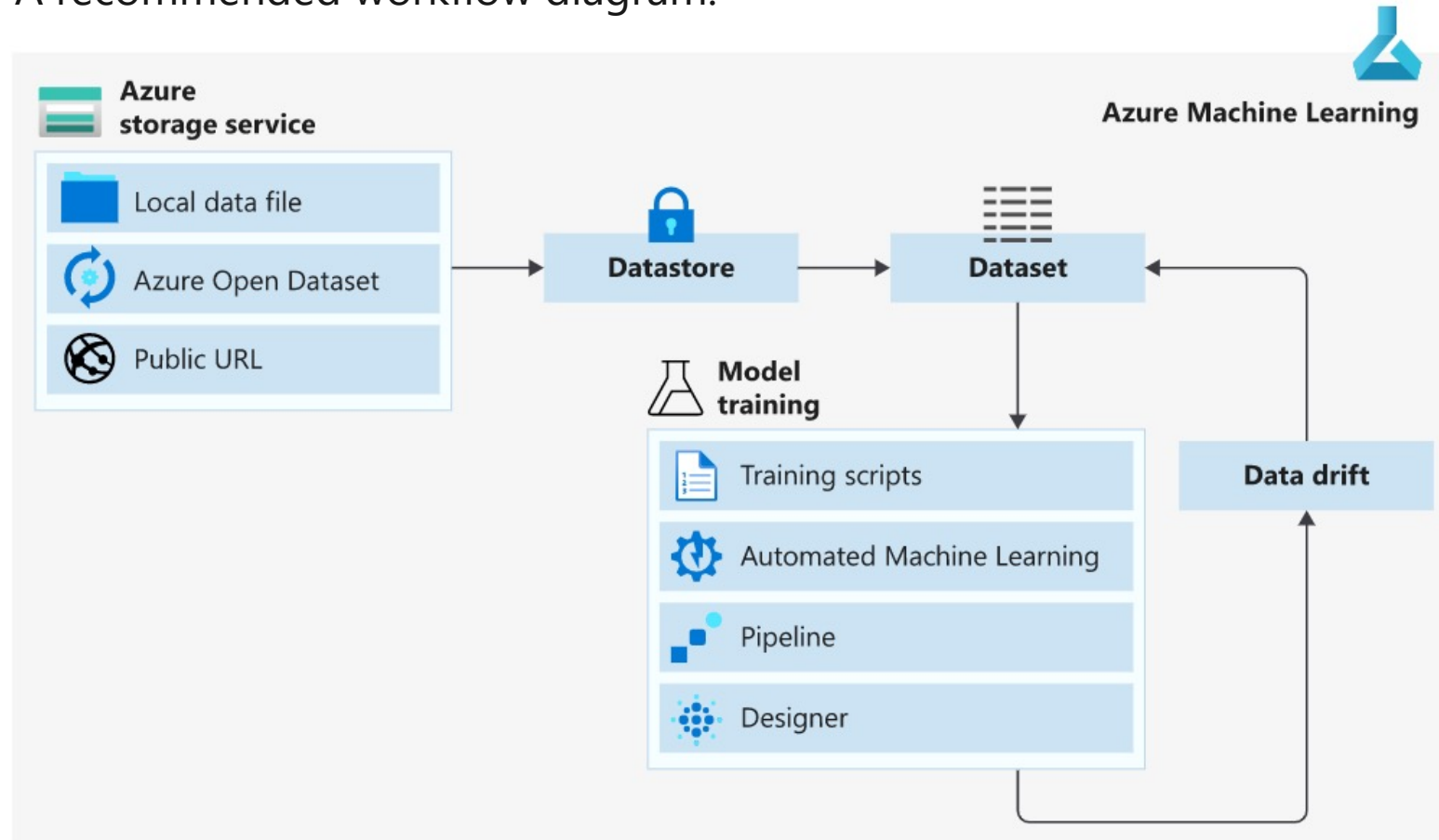
Feature Name	Feature Description
What is Machine Learning	Machine learning is a data science technique that allows computers to use existing data to forecast future behaviors, outcomes, and trends. By using machine learning, computers learn without being explicitly programmed.
Azure ML	<p>Azure ML workspace serves as your one-stop-shop for all your machine learning needs, where you can create and share all your machine learning assets.</p> <p>Use the Azure Machine Learning studio to build, train, evaluate, and deploy machine learning models.</p> <p>https://techcommunity.microsoft.com/t5/azure-ai/improving-collaboration-and-productivity-in-azure-machine/ba-p/2160906</p>

Machine Learning | Azure ML ...

Feature Name	Feature Description
AML - Compute	<ul style="list-style-type: none">• Compute instance: fully managed cloud-based workstation, preinstalled packages(both Python environment and R environment)• Compute cluster: multiple nodes compute which can be used to distribute jobs https://docs.microsoft.com/en-us/azure/machine-learning/concept-compute-instance
AML - Datastores	used to store connection information to Azure storage services so you can refer to them by name and don't need to remember the details.
AML - Datasets	Dataset is a reference to a specific file(s) in your underlying storage. To use that dataset, you can consume it directly in Azure Machine Learning. https://docs.microsoft.com/en-us/azure/machine-learning/concept-data?view=azure-ml-py
AML - Notebooks	A Jupyter notebooks like documents which contains code and rich text elements, and are both readable and can be run to perform data analysis.

Machine Learning | Azure ML ...

A recommended workflow diagram.



Demonstration:

- AzureML: [Notebooks - Microsoft Azure Machine Learning](#)

The End



Thank you!