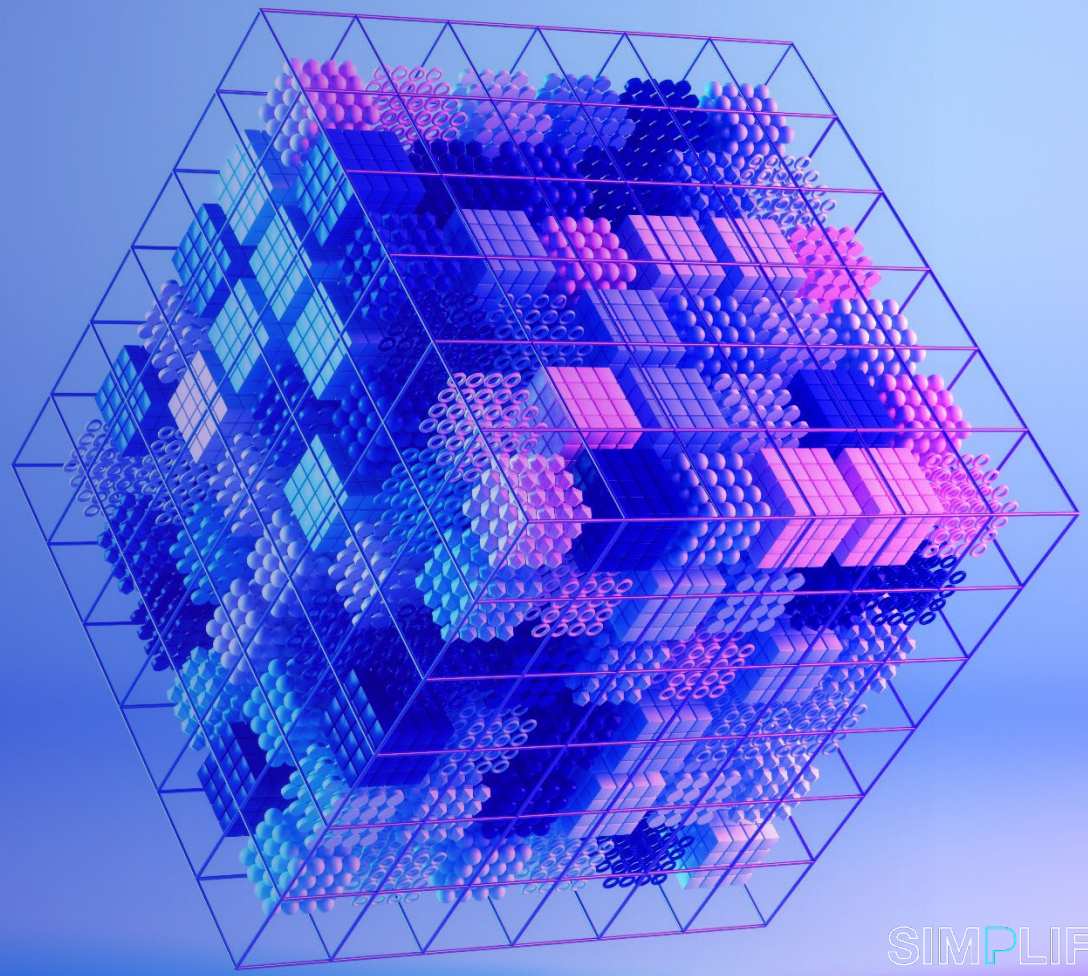
Data#3

Microsoft

Azure Cloud – Modernization of Apps, Data, & AI....are you ready?



John Thiele – Azure Solution Sales Specialist

JuiceIT2025

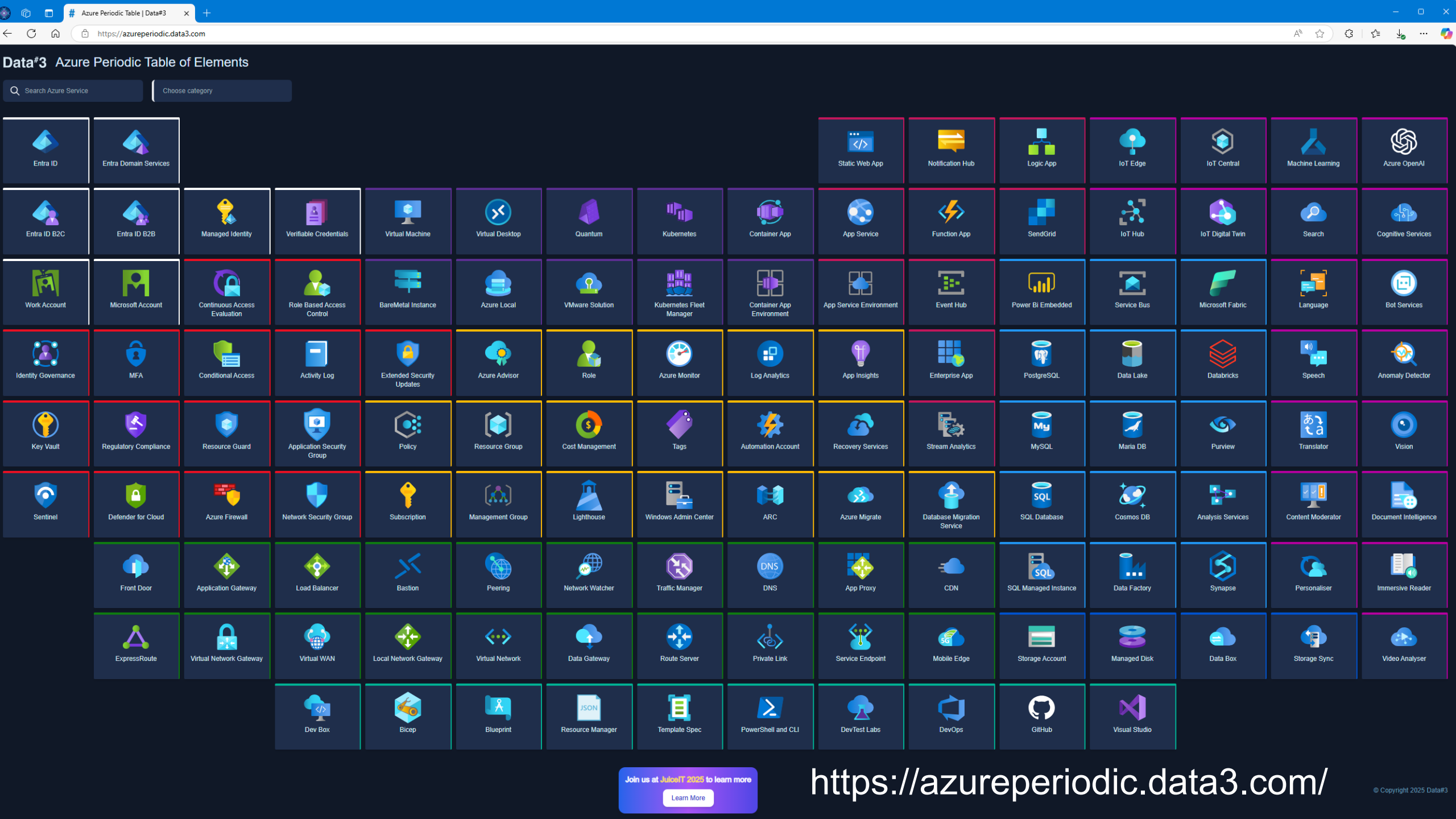
SIMPLIFY
CONNECT
PROTECT

Azure in region – Ten Years In....

Azure – Ten Years In

Azure became available in the region in late **2014**, Azure has now been a part of the local IT landscape for ten years.

Azure services have grown to over **300** types of services, now joined by a range of cutting-edge AI services.


Azure Periodic Table | Data#3
https://azureperiodic.data3.com
Data#3 Azure Periodic Table of Elements
Search Azure Service
Choose category
Entra ID
Entra Domain Services
Static Web App
Notification Hub
Logic App
IoT Edge
IoT Central
Machine Learning
Azure OpenAI
Entra ID B2C
Entra ID B2B
Managed Identity
Verifiable Credentials
Virtual Machine
Virtual Desktop
Quantum
Kubernetes
Container App
App Service
Function App
SendGrid
IoT Hub
IoT Digital Twin
Search
Cognitive Services
Work Account
Microsoft Account
Continuous Access Evaluation
Role Based Access Control
BareMetal Instance
Azure Local
VMware Solution
Kubernetes Fleet Manager
Container App Environment
App Service Environment
Event Hub
Power Bi Embedded
Service Bus
Microsoft Fabric
Language
Bot Services
Identity Governance
MFA
Conditional Access
Activity Log
Extended Security Updates
Azure Advisor
Role
Azure Monitor
Log Analytics
App Insights
Enterprise App
PostgreSQL
Data Lake
Databricks
Speech
Anomaly Detector
Key Vault
Regulatory Compliance
Resource Guard
Application Security Group
Policy
Resource Group
Cost Management
Tags
Automation Account
Recovery Services
Stream Analytics
MySQL
Maria DB
Purview
Translator
Vision
Sentinel
Defender for Cloud
Azure Firewall
Network Security Group
Subscription
Management Group
Lighthouse
Windows Admin Center
ARC
Azure Migrate
Database Migration Service
SQL Database
Cosmos DB
Analysis Services
Content Moderator
Document Intelligence
Front Door
Application Gateway
Load Balancer
Bastion
Peering
Network Watcher
Traffic Manager
DNS
App Proxy
CDN
SQL Managed Instance
Data Factory
Synapse
Personaliser
Immersive Reader
ExpressRoute
Virtual Network Gateway
Virtual WAN
Local Network Gateway
Virtual Network
Data Gateway
Route Server
Private Link
Service Endpoint
Mobile Edge
Storage Account
Managed Disk
Data Box
Storage Sync
Video Analyser
Dev Box
Bicep
Blueprint
Resource Manager
Template Spec
PowerShell and CLI
DevTest Labs
DevOps
GitHub
Visual Studio
Join us at JuiceIT 2025 to learn more
Learn More
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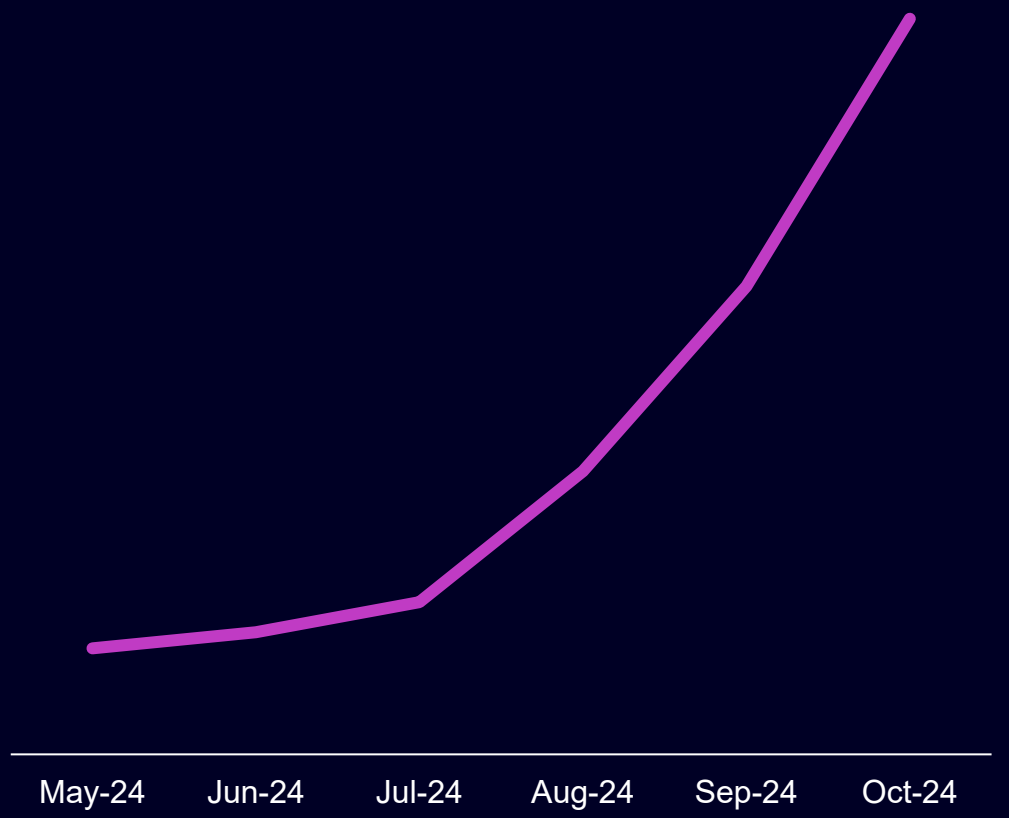
Azure – Continued Investment

- Microsoft is investing $5B over this year and next year to expand it's hyperscale cloud computing and AI infrastructure in Australia, increasing it's computing capacity by 250%.

- Addition of cutting-edge AI services / models.



Azure Open AI Service Consumption

AI-Ready Infrastructure

How do I make Azure AI-Ready?

1. “How did Microsoft get AI Ready?”
2. “How do I operationalize my AI solution?”
3. “What is the baseline landing zone to get the AI solution running?"
4. “How do I get my AI solution to safely access my data sources?”
5. “What are the networking requirements for my AI solution?”
6. “How do we migrate and secure our estate to enable AI at scale?”
7. “How do I secure my AI solution?”
8. “How do I monitor the cost of the AI solution?”
9. “What policies and protocols do I need to comply?”

AI-Ready Infrastructure

Landing Zone

- Enterprise Landing Zone aligned to Cloud Adoption Framework (CAF) and Well-Architected Framework (WAF).
- Segregation of resources.
- Well defined management structure and roles-based access control.

Data

- Unified, readily accessible data.
- Business continuity and data protection.
- Data security and encryption.

Network

- Well-defined virtual network topology.
- Azure network security (Firewall, DDoS, NSG's, Network Watcher).
- Private Endpoints and Private Links.
- Azure DNS, DNS Zones, and Private DNS Resolver.

Security

Defender for Cloud: secure your Azure services, threat protection for AI workloads.

Sentinel: raise AI solution security posture with SIEM, automation, and response.

Front Door Services/WAF/DDoS: leverage edge services for CDN, web-application firewall, and DDoS protection.

APIM: apply enhanced security controls for APIs.

Security Copilot: manage security posture with natural language response and threat intelligence.

Management

Azure Monitor and Log Analytics: manage with application logs, dashboard reports, monitoring, and alerting.

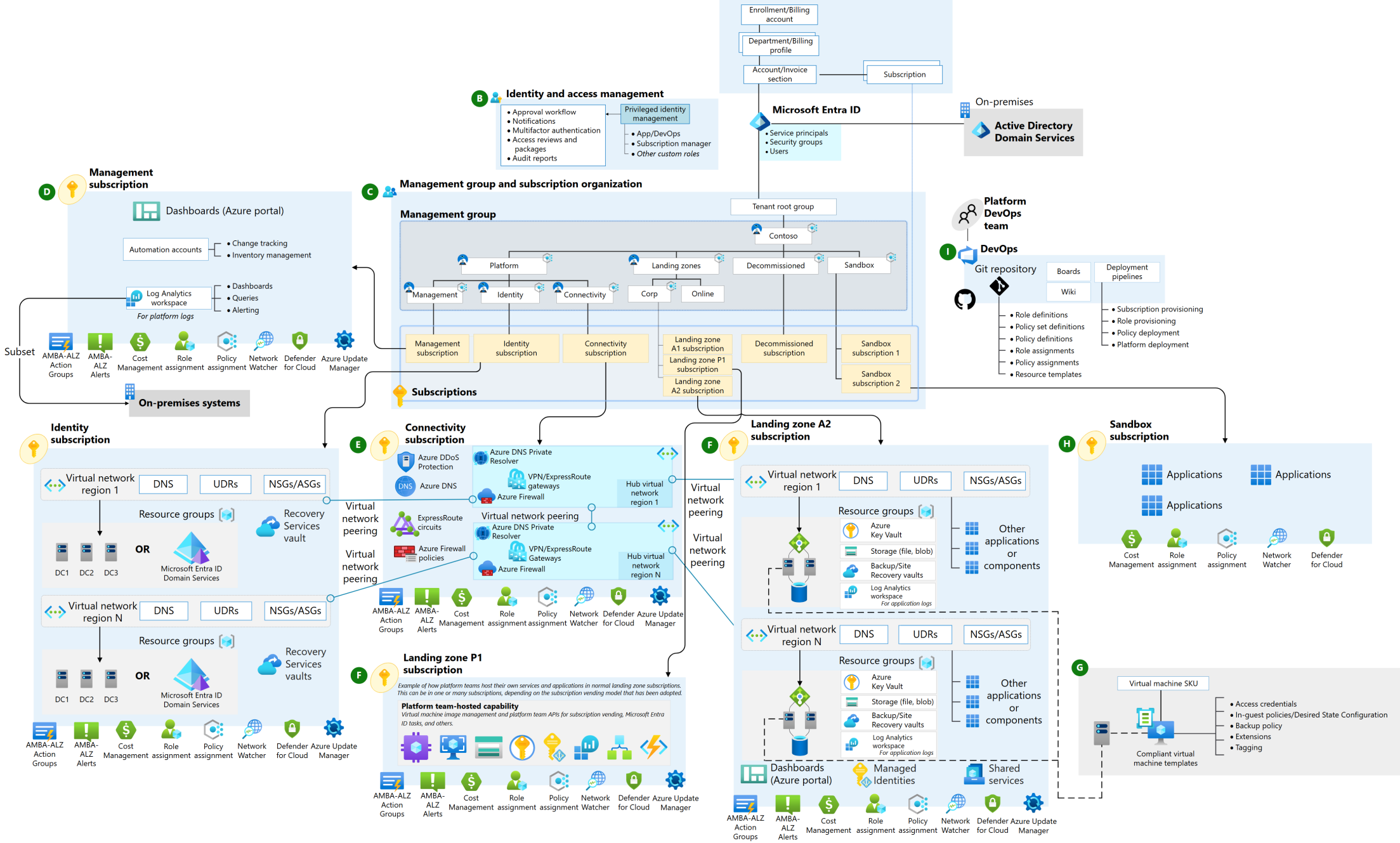
Azure Policy: use Azure Policies to audit/enforce compliance settings for applications, data, and infrastructure.

Azure Copilot: enhance management with an AI assistant that knows your environment.

Landing Zones and Core Infrastructure

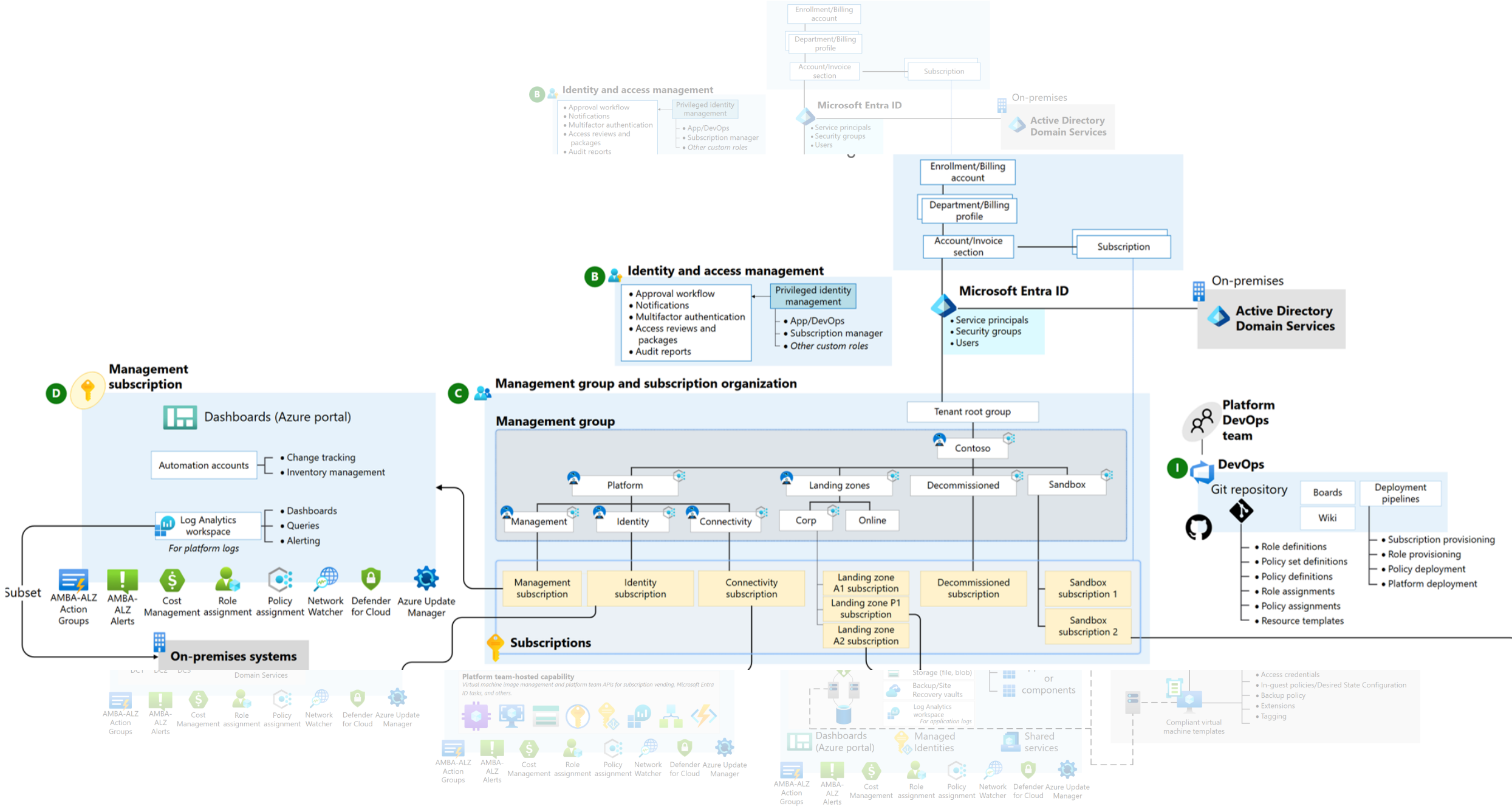
Azure Landing Zone – a Foundation for Azure

Enterprise Enrolment and Billing	The right Azure licensing agreement type, billing model.
Identity and Access	Well-defined roles-based access control (RBAC), secure access to resources.
Network Topology	Structured virtual network topology supporting network security and connectivity to on-premises.
Resource Organization	Management groups, assignment of resources in subscriptions / resource groups, naming, and tagging.
Security and Compliance	Defender for Cloud, Microsoft Sentinel, Microsoft Cloud Security Benchmark, built-in security initiatives
Governance	Azure Policy.



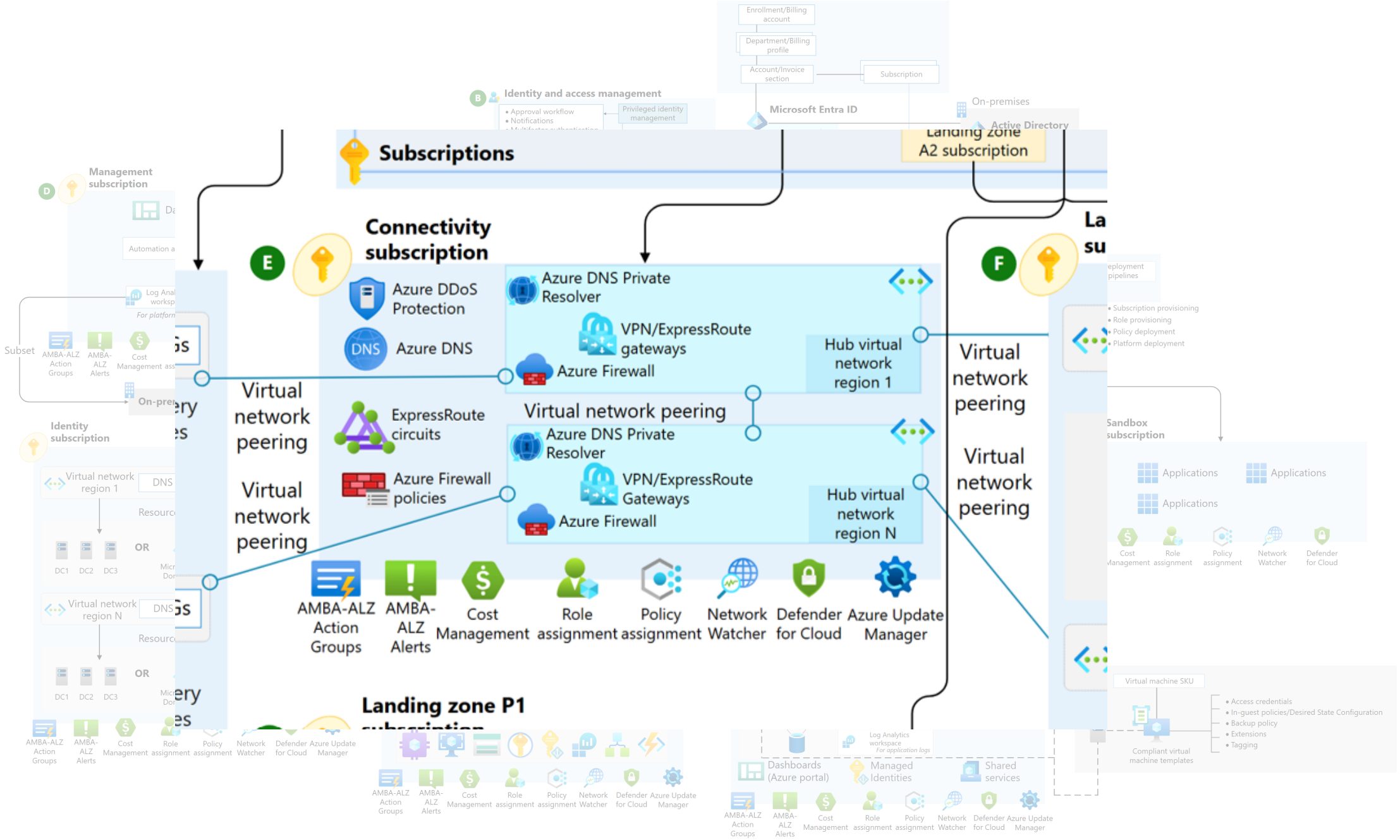
Microsoft Azure

Version: 2025-02-12



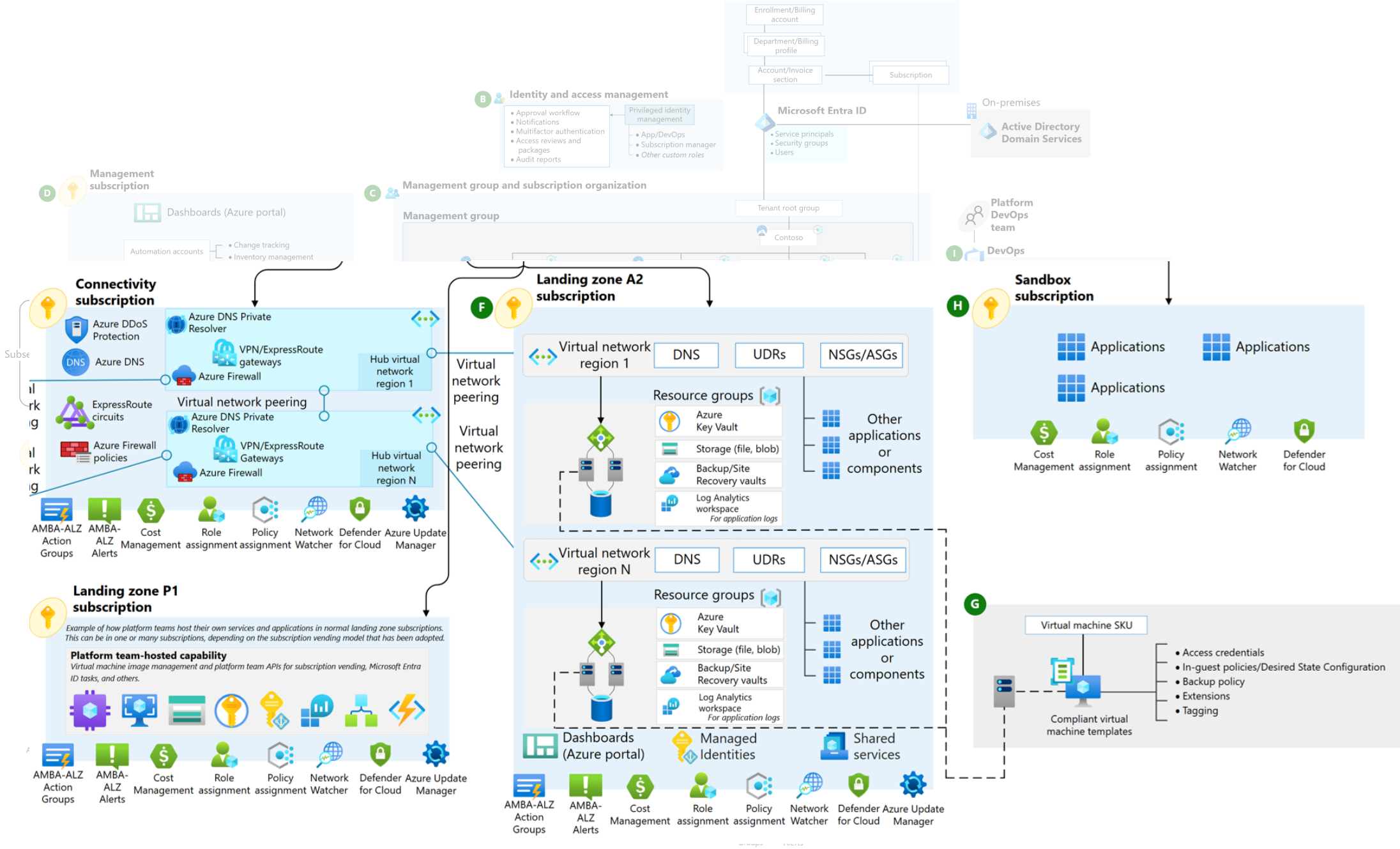
Microsoft Azure

Version: 2025-02-12



Microsoft Azure

Version: 2025-02-12



Microsoft Azure

Version: 2025-02-12

Azure Landing Zone Deployment

- Manual
- Use of Accelerators
  - Microsoft
  - Data#3
- Infrastructure-as-code
  - Bicep
  - Terraform

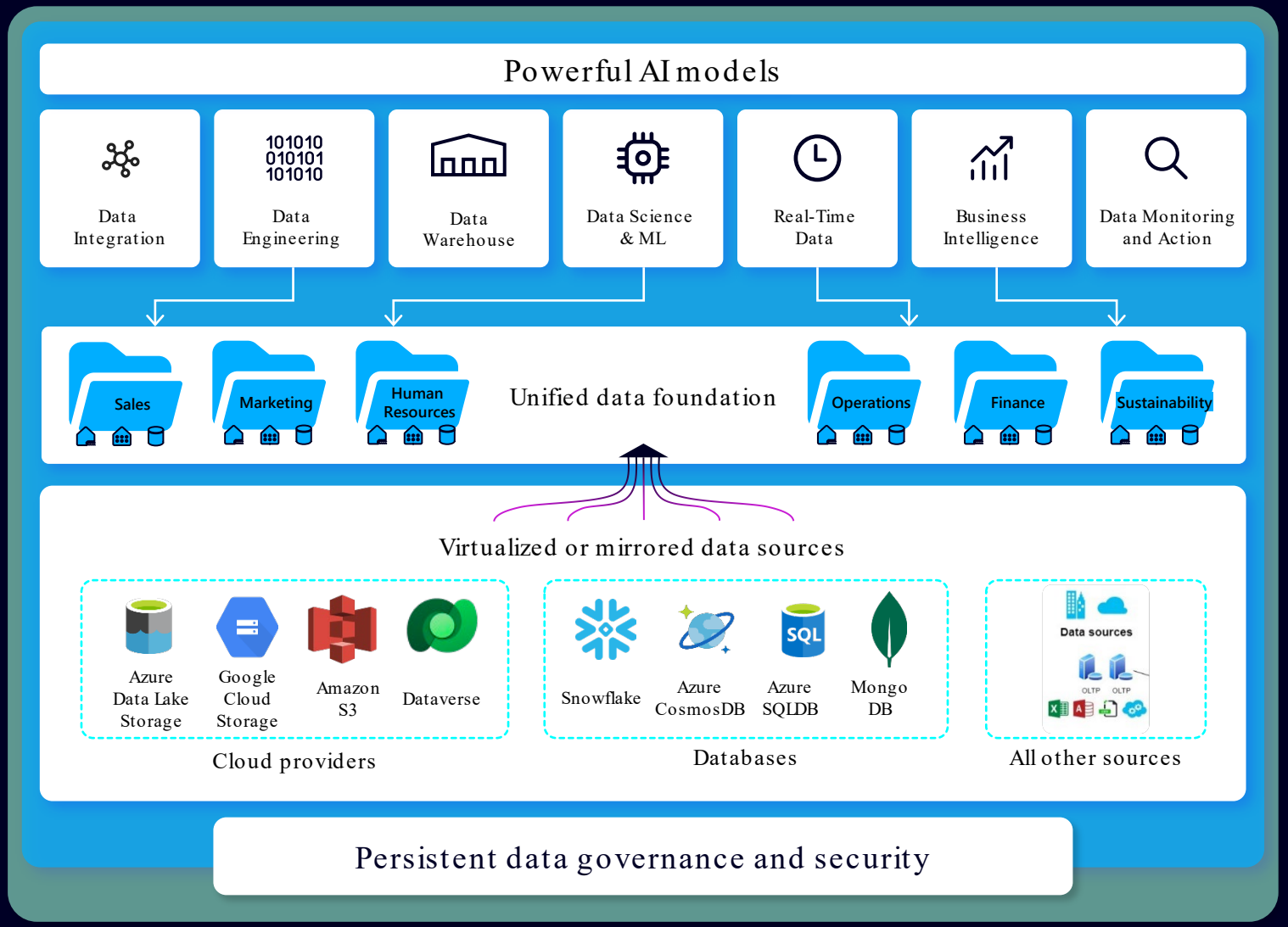
Data and Analytics – a Foundation for AI

Challenges Generating Value from Data

- Siloed systems, poor-quality data
- Costly integration and ongoing maintenance
- Technical platforms requiring advanced skills and limited resources
- Data governance and security risks
- Lagging BI and AI adoption

‘AI is only as good as the data it’s trained on’

Unify Your Data Estate



Microsoft Fabric

The unified data platform for the era of AI

- Data Factory
- Analytics
- Databases (Preview)
- Real-Time Intelligence
- Power BI
- Partner Workloads

- AI
- OneLake
- Purview

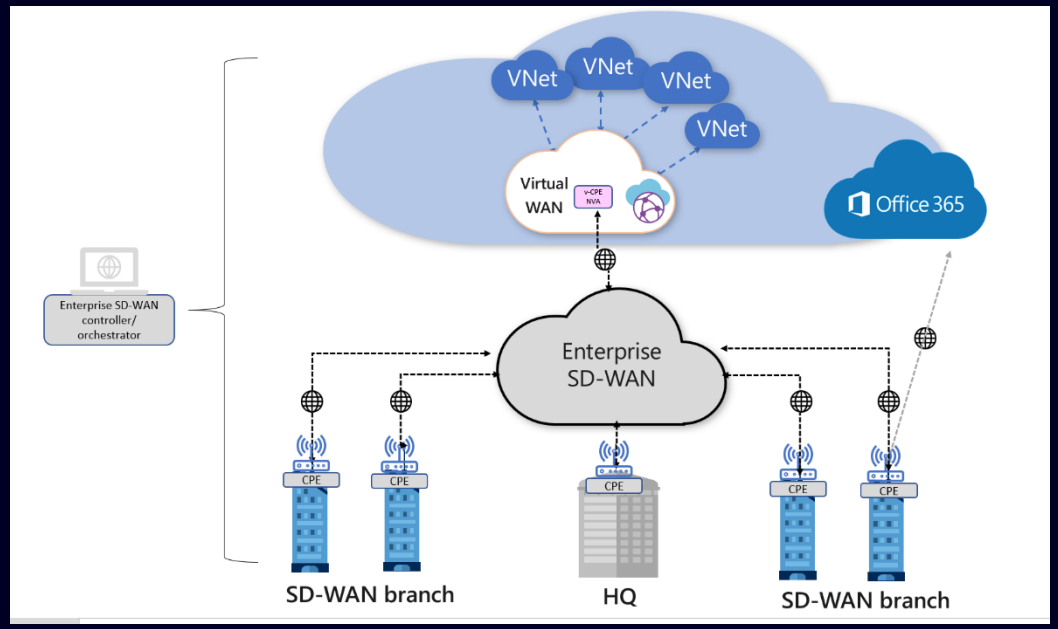
Networking

Network Considerations

- Azure network topology and connectivity to on-premises
- Azure network security
  - Firewall (Azure Firewall, 3rd party firewalls)
  - NSG's
  - Azure Front Door services /Application Gateway / Web Application Firewall
  - DDoS
  - Network Watcher
- Private Endpoints and Private Links.
- Azure DNS, DNS Zones, and Private DNS Resolver.

Networking – the Rise of 3rd party NVA's

- 3rd Party Firewalls (e.g. Palo Alto NGFW)
  - Supporting centralised management of firewalls across Azure, on-premises, and other clouds
  - Can be available as a VM based appliance or PaaS service
- SD-WAN
  - Providing integration into SD-WAN (Cisco, Meraki, etc.)



Security and Compliance

Microsoft Cybersecurity Reference Architecture

Security modernization with Zero Trust Principles

aka.ms/MCRA

Security Operations / SOC

Microsoft Security Experts
Defender Experts | Detection and Response Team (DART)

Managed Security Operations
Using Microsoft Security

Microsoft Defender XDR
Unified Threat Detection and Response across IT, OT, and IoT Assets
Incident Response | Automation | Threat Hunting | Threat Intelligence

Microsoft Security Copilot (Preview)

Microsoft Sentinel
Cloud Native SIEM, SOAR, and UEBA

Cloud	Endpoint	Office 365	Identity	SaaS	Data	OT/IoT	Other
Azure, AWS, GCP, On Prem & more	*Workstations, Server/VM, Containers, etc.*	*Email, Teams, and more*	*Cloud & On-Premises*	*Cloud Apps*	*SQL, DLP, & more*	*devices*	*Tools, Logs, & Data*

Software as a Service (SaaS)

Microsoft Defender for Cloud Apps
- *App Discovery & Risk Scoring (Shadow IT)*
- *Threat Detection & Response*
- *Policy Audit & Enforcement*
- *Session monitoring & control*
- *Information Protection & Data Loss Prevention (DLP)*

Microsoft Entra Internet Access

Identity & Access

Conditional Access – Zero Trust Access Control decisions based on explicit validation of user trust and endpoint integrity

Endpoints & Devices

Unified Endpoint Management (UEM)
Intune | Configuration Manager

Microsoft Defender for Endpoint
Unified Endpoint Security
- Endpoint Detection & Response (EDR)
- Web Content Filtering
- Threat & Vuln Management
- Endpoint Data Loss Protection (DLP)

Hybrid Infrastructure – IaaS, PaaS, On-Premises

Defender for Cloud – Cross-Platform Cloud Security Posture Management (CSPM)

Secure Score
Compliance Dashboard

On Premises Datacenter(s) *3rd party IaaS & PaaS* Microsoft Azure

Extranet
- NGFW
- Edge DLP
- IPS/IDS/NDR
- Microsoft Entra Private Access & App Proxy *Beyond User VPN*

Intranet
- Azure Arc
- Azure Local

Express Route
Private Link

Azure Marketplace

- Azure Firewall & Firewall Manager
- Azure WAF
- DDoS Protection
- Azure Key Vault
- Azure Bastion
- Azure Lighthouse
- Azure Backup
- *Security & Other Services*

Information Protection

Classification Labels

Microsoft Purview
Information protection and governance across data lifecycle
Discover → Classify → Protect → Monitor

File Scanner
(on-premises and cloud)

Data Governance
Advanced eDiscovery

Compliance Manager

Microsoft Entra

Passwordless & MFA
- Hello for Business
- Authenticator App
- FIDO2 Keys

Entra ID Protection
- Leaked cred protection
- Behavioral Analytics

ID Governance
Microsoft Entra PIM
External Identities

Defender for Identity

Active Directory

Securing Privileged Access – aka.ms/SPA

Entra Permission Management – Discover and Mitigate Cloud Infrastructure Permission Creep

Privileged Access Workstations (PAWs) - Secure workstations for administrators, developers, and other sensitive users

Security Posture Management – Monitor and mitigate technical security risks using Secure Score, Compliance Score, CSPM: Defender for Cloud, Microsoft Defender External Attack Surface Management (EASM) and Vulnerability Management

Windows 11 & 10 Security
- *Network protection*
- *Credential protection*
- *Full Disk Encryption*
- *Attack surface reduction*
- *App control*
- *Exploit protection*
- *Behavior monitoring*
- *Next-generation protection*

IoT and Operational Technology (OT)

Azure Sphere

Microsoft Defender for IoT (and OT)
- *ICS, SCADA, OT*
- *Internet of Things (IoT)*
- *Industrial IoT (IIoT)*
- *Asset & Vulnerability management*
- *Threat Detection & Response*

Defender for Cloud – Cross-Platform, Multi-Cloud XDR
Detection and response capabilities for infrastructure and development across IaaS, PaaS, and on-premises

Defender for APIs *(preview)*

People Security

Attack Simulator | Insider Risk Management | Communication Compliance

GitHub Advanced Security & Azure DevOps Security
Secure development and software supply chain

Threat Intelligence – 65+ Trillion signals per day of security context

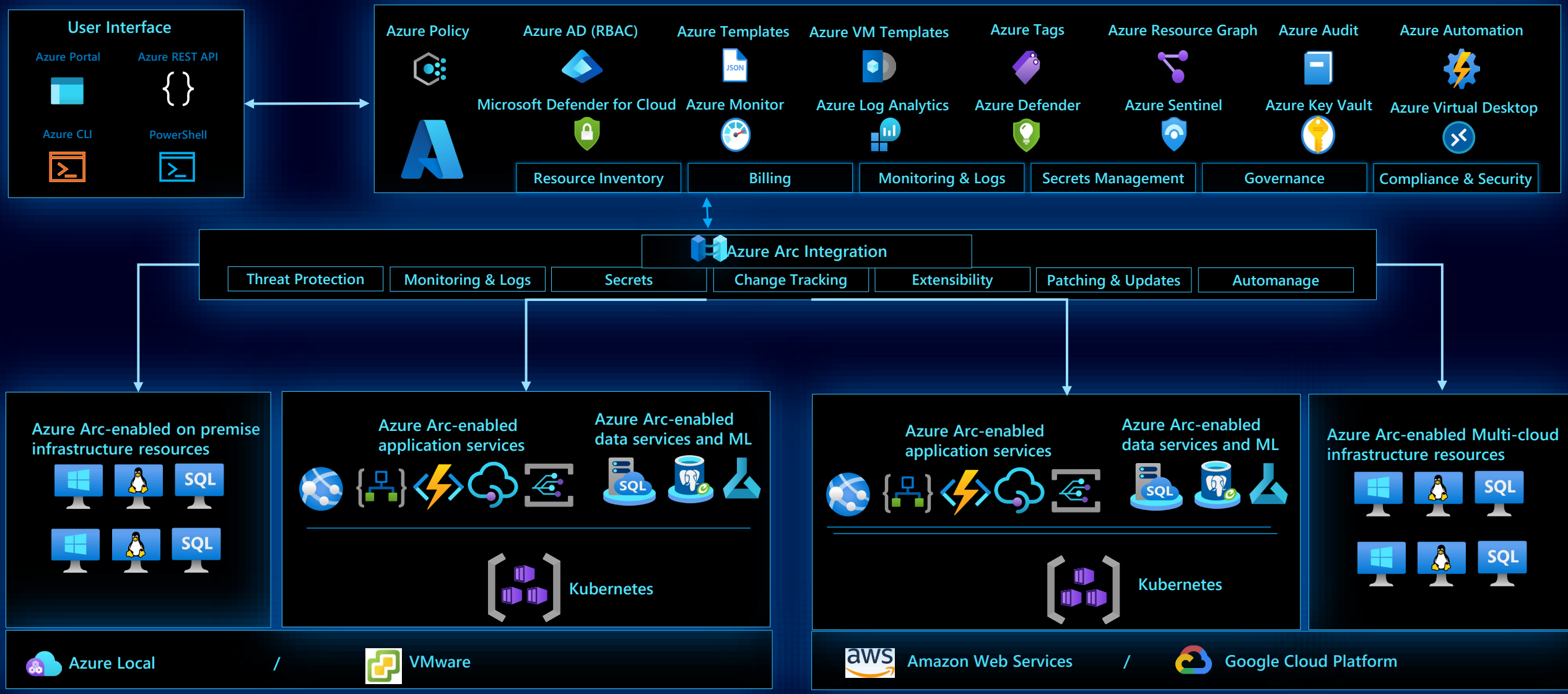
Service Trust Portal – How Microsoft secures cloud services

Security Development Lifecycle (SDL)

Azure Security and Compliance

Secure Privileged Access	Entra ID | MFA | Conditional Access | Privileged Identity Management | Break Glass
Encryption and Keys	Encryption in transit / at rest, Key Management Services, Certificate Management, Audit Usage
Security Logging and Alerting	Azure Log Analytics, Sentinel, Defender for Cloud
Vulnerability Management	Azure Update Management, Vulnerability Assessment
Security Controls	Azure Policy, Microsoft Cloud Security Benchmark, Built-in compliance initiatives, Defender for Cloud
Edge and Network Security	Azure Front Door Services, App Gateway, APIM, Azure Firewall

Management


User Interface
Azure Portal
Azure REST API
Azure CLI
PowerShell
Azure Policy
Azure AD (RBAC)
Azure Templates
Azure VM Templates
Azure Tags
Azure Resource Graph
Azure Audit
Azure Automation
Microsoft Defender for Cloud
Azure Monitor
Azure Log Analytics
Azure Defender
Azure Sentinel
Azure Key Vault
Azure Virtual Desktop
Resource Inventory
Billing
Monitoring & Logs
Secrets Management
Governance
Compliance & Security
Azure Arc Integration
Threat Protection
Monitoring & Logs
Secrets
Change Tracking
Extensibility
Patching & Updates
Automanage
Azure Arc-enabled on premise infrastructure resources
SQL
SQL
Azure Arc-enabled application services
Azure Arc-enabled data services and ML
SQL
Kubernetes
Azure Local
/
VMware
Azure Arc-enabled application services
Azure Arc-enabled data services and ML
SQL
Kubernetes
Amazon Web Services
/
Google Cloud Platform
Azure Arc-enabled Multi-cloud infrastructure resources
SQL
SQL

Optimising Investments – Cost Management

CLOUD VISIBILITY
- Cost Monitoring
- Inventory
- Utilisation

CLOUD AUTOMATION
- Scaling of Services

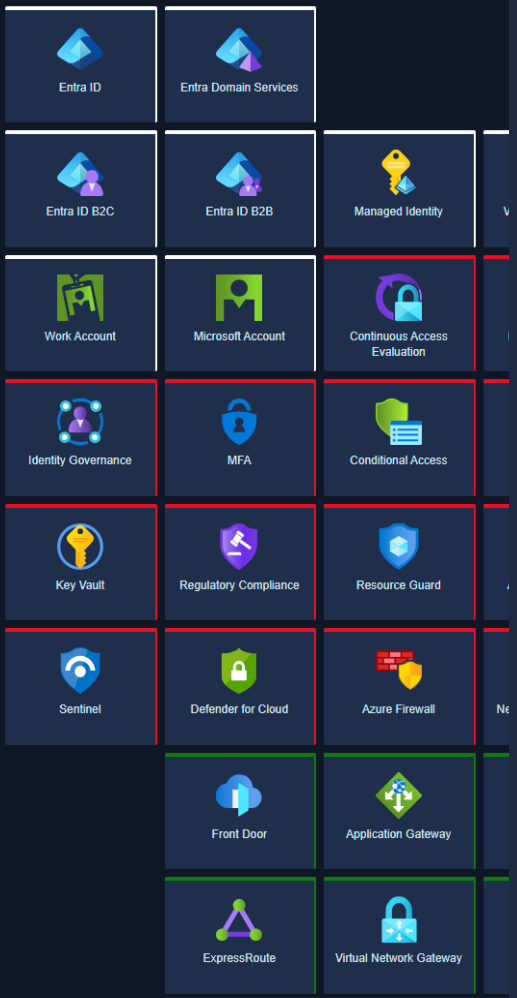
COST OPTIMISATION
- Rightsizing
- Track Wastage
- RI Planner
- RI Utilisation
- Hybrid Benefit Utilisation

GOVERNANCE & REPORTING
- Monthly Reporting
- Budgets and Alerting

COST ALLOCATION
- Resource Allocation
- Tagging

DESIGN
- Cost Estimation

AI Applications



Azure OpenAI

Last Updated: 10th March 2025

Azure OpenAI Service: Unlocking the Power of Advanced AI Models

Technical Overview

Artificial Intelligence (AI) has become a cornerstone of modern innovation, and Microsoft Azure OpenAI Service is at the forefront of this revolution. By integrating OpenAI's cutting-edge models into the Azure ecosystem, organisations can leverage state-of-the-art natural language processing (NLP), computer vision, and generative AI capabilities to solve complex business challenges. Let's dive into the technical architecture and explore the advanced models available in Azure OpenAI Service, including GPT-4.5, GPT-4 Turbo, GPT-4o, DALL-E, Whisper, and more.

Architecture and Scalability

Azure OpenAI Service is built on Azure's robust cloud infrastructure, ensuring enterprise-grade scalability, reliability, and security. The service operates as a managed API, enabling seamless integration into applications without requiring deep expertise in AI model training or deployment. By leveraging Azure's global network of data centres, the service provides low-latency access to AI models, ensuring high performance even for demanding workloads.

The architecture is designed to support multiple AI models, each optimised for specific use cases:

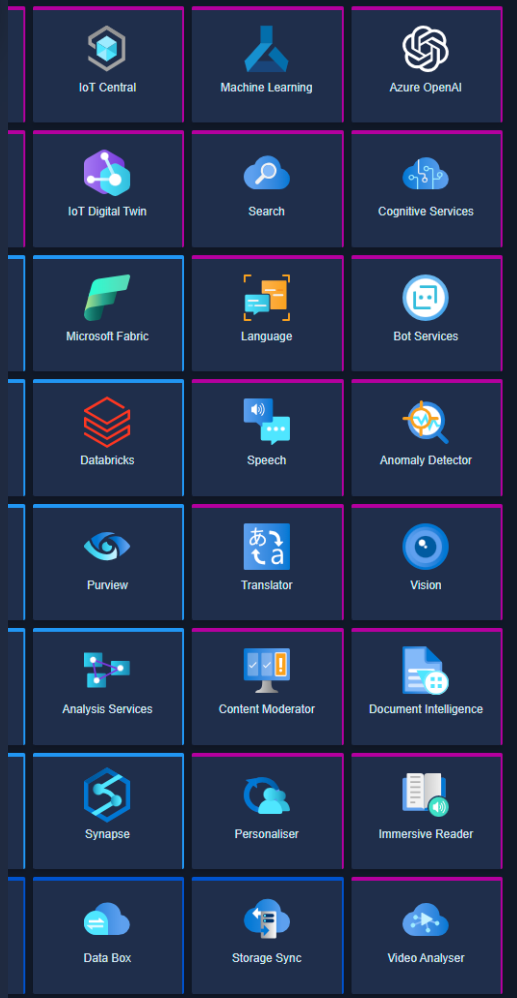
- **GPT-4.5 and GPT-4 Turbo:** These models represent the pinnacle of generative AI, offering unparalleled capabilities in text generation, summarisation, and conversational AI. GPT-4 Turbo is a more efficient variant, designed for high-throughput applications.
- **GPT-4o:** A specialised version of GPT-4 optimised for audio-based applications, such as transcription and voice-to-text processing.
- **GPT-3.5:** A highly capable model for tasks requiring advanced language understanding, such as content creation, sentiment analysis, and code generation.
- **DALL-E:** A generative AI model for creating images from textual descriptions, enabling innovative applications in design, marketing, and content creation.
- **Whisper:** A state-of-the-art model for automatic speech recognition (ASR), supporting multi-language transcription and translation.
- **Embeddings:** These models are designed for semantic search, recommendation systems, and clustering tasks, providing vector representations of text for advanced analytics.
- **Fine-tuning Models:** Azure OpenAI allows organisations to fine-tune models on their proprietary data, ensuring outputs are tailored to specific business contexts.
- **Assistants:** Pre-configured conversational agents built on GPT models, designed for customer service, virtual assistants, and other interactive applications.

Request A Call-Back
Speak To An Azure Expert

Data#3
Knowledge Centre

Azure
Microsoft Product Overview
Microsoft Product Documentation
Microsoft Product Pricing
Microsoft Product News

Listen to Overview



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Getting Started

We're here to help:

Azure Landing Zone:

- Cloud Strategy and Architecture
- Azure Foundation (Landing Zone) Deployment
- Azure Health and Governance Assessments

Data:

- Enterprise Data Strategy
- Data Planning, Capability Workshops, and Roadmaps
- Data and Analytics Design, Proof-of-Value
- Data and Analytics Platform Foundations

Security and Compliance:

- Strategy, Maturity Assessment, Data Governance, Architecture, Regulatory Compliance, Workshops
- Health Assessment
- Sentinel and Defender for Cloud Deployment
- Managed Security (Managed Firewall / Managed Sentinel / Managed XDR / SOC)

Network

- Design and deployment of virtual network topology and configuration (incl. vWAN)
- Hybrid connectivity using ExpressRoute/SDWAN/Site-to-site VPN
- Network security (Azure Firewall/NSG's/3rd party firewalls)

Management

- Design and deployment of management and monitoring services
- Azure Managed Services
- Azure Cost Management

AI

- AI Planning, Use Case Workshops, Capability Roadmaps
- AI Solution Design, Proof-of-Value, Pilot
- AI Platform Foundations

AI-Ready Infrastructure – Get ready!

Align Landing Zone to CAF/WAF

Azure Landing Zone

Prepare your data

Azure Fabric

Extend, segregate, secure your network

Azure Network

Reviev
and co

Secu
Con

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