WEEK 14: COURSE SUMMARY

TEKsystems Global Services

WORKFORCE DEVELOPMENT

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REVIEW: WEEK 13

- Familiarize with the Azure Portal interface and navigation.
- Gain practical experience deploying fundamental Azure services.
- Understand the basic configuration options for Virtual Machines, Virtual Networks, and Storage Accounts.
- Learn how to monitor resource health and performance.
- Appreciate the interconnectedness of Azure services.
- Connect hands-on activities to strategic cloud decisions.

- Week 1-2: Introduction to Cloud Technology
- Week 3-5: Cloud Strategy and Architecture
- Week 6-7: Use Cases and Real-World Applications
- Week 8-9: Benefits and Value Proposition
- Week 10-12: Challenges and Risks
- **Week 13: Interactive Simulations and Practical Exercises**
- Week 14 -15: Course Review and Final Assessment

AGENDA

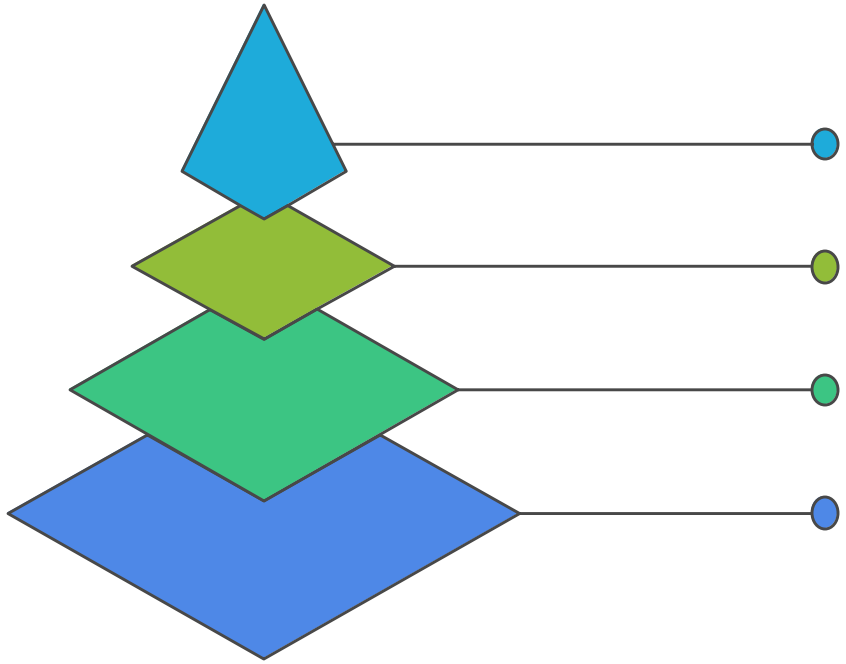
- Leadership's role in defining and aligning cloud strategy with business objectives
- Key Azure services overview: compute, networking, storage, and data platforms for strategic decision-making
- Cost optimization and financial governance using Azure Cost Management, reservations, and tagging
- Security and compliance leadership: Azure Policy, Blueprints, Defender for Cloud, Sentinel, and Key Vault
- Infrastructure-as-Code and DevOps leadership: ARM/Bicep, CI/CD pipelines, and security integration
- Advanced services leadership: AI/ML (Cognitive Services, Azure ML, OpenAI), IoT/edge (IoT Hub, IoT Edge, Stack Edge)
- Hybrid and multi-cloud governance via Azure Arc, Stack, and cross-cloud policy enforcement
- Disaster recovery, business continuity, and backup strategies: ASR, geo-replication, and Azure Backup
- Sustainability and innovation: green cloud practices, emerging technologies (Quantum, blockchain, Orbital)
- Capstone project introduction: objectives, deliverables, team roles, and timeline for real-world solution design

LEADERSHIP'S ROLE IN CLOUD STRATEGY

Leaders must shape and guide the overarching cloud strategy, ensuring technology investments support broader business objectives.

- ❑ Leadership as the driver of cloud strategy
- ❑ Aligning IT initiatives with business goals
- ❑ Creating a vision and setting a roadmap
- ❑ Stakeholder engagement at executive levels
- ❑ Importance of cross-functional collaboration

ESSENTIAL LEADERSHIP QUALITIES FOR CLOUD ADOPTION



Empowering teams with autonomy and accountability

Fostering a culture of innovation and continuous learning

Risk tolerance balanced with governance

Visionary thinking and data-driven decision-making

LEVERAGING AZURE'S GLOBAL INFRASTRUCTURE

- Azure global infrastructure and leadership implications
- Choosing regions and availability zones strategically
- Balancing performance, compliance, and cost considerations
- Leveraging region-specific services for competitive advantage
- Guiding architectural decisions based on business expansion plans

POP QUIZ:

When planning a multi-region deployment of a globally scaled web application in Azure, which strategy best minimizes cross-region data transfer costs while ensuring high availability?
A. Deploy synchronous transactional replication across regions
B. Utilize geo-redundant storage for static assets and an Azure Traffic Manager with priority routing
C. Use Azure Front Door for dynamic content caching combined with local read replicas in each region
D. Implement Azure Site Recovery to replicate VMs in real time across zones

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COST OPTIMIZATION LEADERSHIP IN AZURE

- Setting cost-management KPIs and reporting cadence
- Championing use of Azure Cost Management + Billing
- Encouraging adoption of Reserved Instances and Savings Plans
- Driving culture of “think cost” in architecture reviews

SECURITY GOVERNANCE & LEADERSHIP IN AZURE

- Establishing security as a board-level priority
- Mandating Azure Defender for Cloud and Microsoft Sentinel
- Implementing Role-Based Access Control (RBAC) policies
- Overseeing encryption standards (in transit and at rest)

POP QUIZ:

An organization must enforce a policy where all new storage accounts encrypt data using customer-managed keys stored in Azure Key Vault without manual intervention. Which Azure service or feature should a leader mandate to achieve this automatically?

A. Azure Role-Based Access Control (RBAC) with a custom security group

B. Azure Policy with a “Require Storage Account to Use Customer-Managed Keys” initiative assignment

C. Azure Blueprint with embedded Key Vault resources

D. Azure Blueprints combined with Azure Defender for Cloud recommendations

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REGULATORY COMPLIANCE & LEADERSHIP WITH AZURE

Azure Policy Leadership

Leading regulatory compliance using Azure Policy. This involves creating and managing policies.

Cloud Deployment Alignment

Aligning cloud deployments with regulatory requirements like GDPR. This ensures data protection and privacy.

Continuous Audit Processes

Establishing continuous audit processes using Azure Monitor. This helps in identifying and addressing compliance issues.

Overseeing Certifications

Managing third-party compliance certifications like ISO 27001. This validates adherence to industry standards and regulations.

Policy Review Mandates

Mandating periodic policy reviews and updates to maintain compliance. This ensures policies remain effective and relevant.

ORGANIZATIONAL CHANGE MANAGEMENT FOR CLOUD TRANSFORMATION

- Crafting communication plans to address stakeholder concerns
- Facilitating training programs: Azure fundamentals, role-specific upskilling
- Identifying and championing change agents within teams
- Measuring adoption metrics and adjusting change strategies accordingly

GROUP ACTIVITY

- Divide into executive teams (CEO, CIO, CFO, CISO roles)
- Each team must decide on a hybrid vs. multi-cloud strategy for a hypothetical global retailer
- Define KPIs for performance, cost, security, and compliance
- Present decisions in a 10-minute mock board meeting

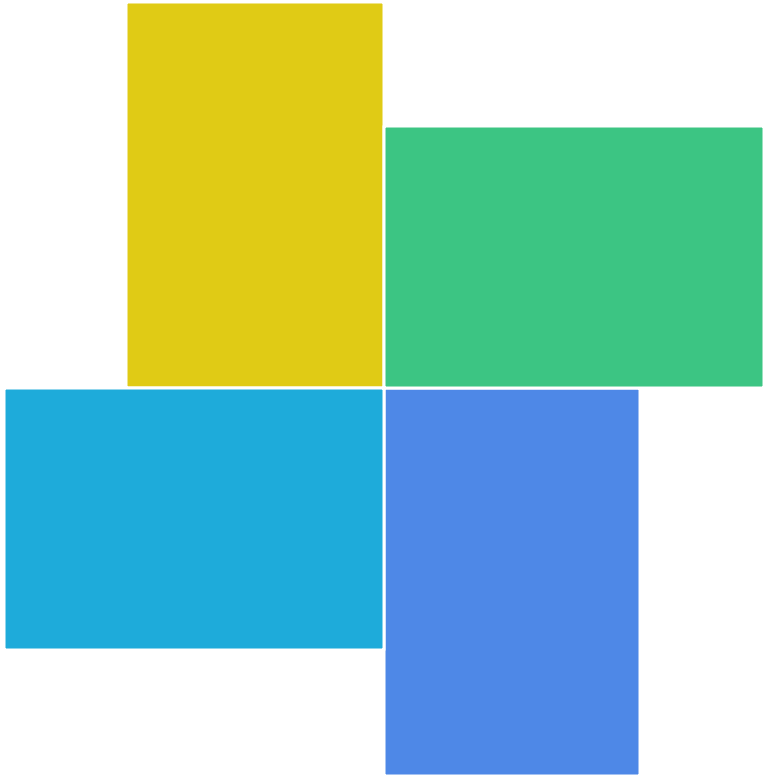
BUILDING CROSS-FUNCTIONAL CLOUD TEAMS

Motivation Incentives

Motivate team with rewards and opportunities

Collaboration Promotion

Encourage teamwork through shared resources



Skill Identification

Determine necessary skills for team

Role Establishment

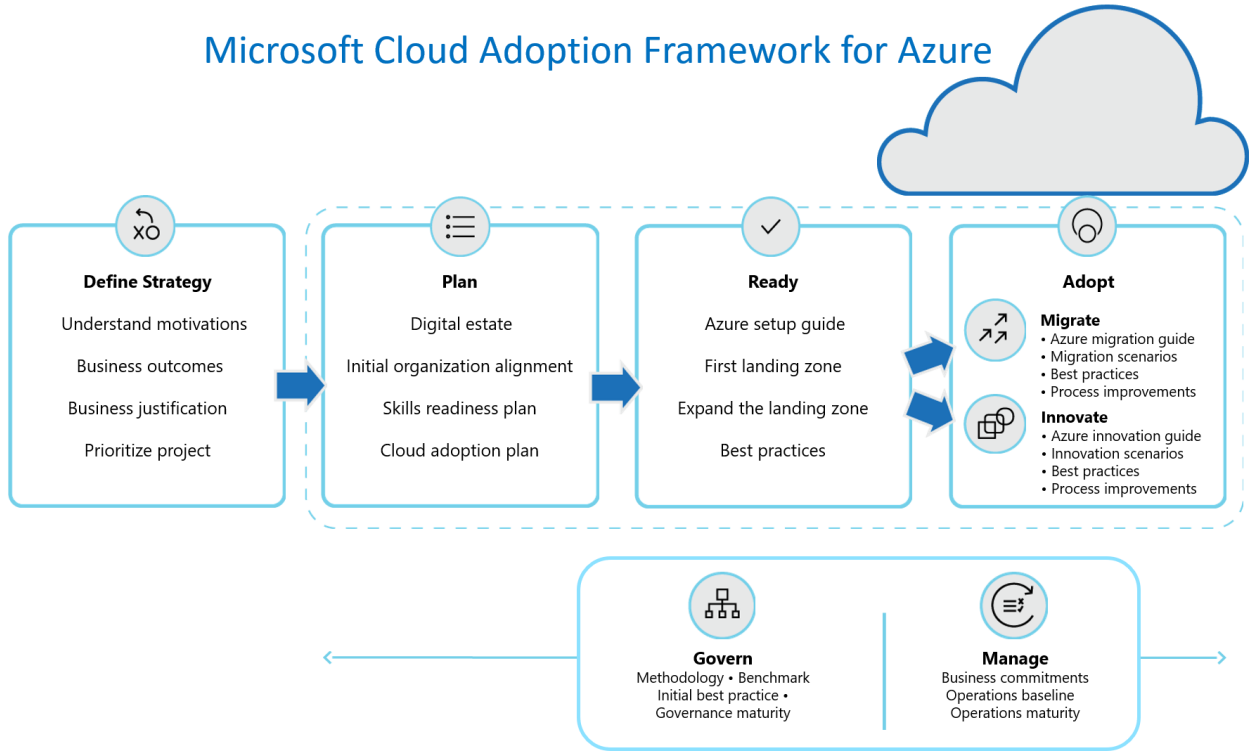
Define roles and responsibilities clearly

FOSTERING A CLOUD-FIRST CULTURE

- ❑ Embedding “cloud-native by default” in project charters
- ❑ Encouraging “fail fast, learn fast” experimentation (sandbox environments)
- ❑ Recognizing and scaling successful POCs into production
- ❑ Documenting and sharing best practices in an internal knowledge base

UTILIZING MICROSOFT CLOUD ADOPTION FRAMEWORK

- Customizing CAF phases to organizational context (Strategy, Plan, Ready, Adopt, Govern, Manage)
- Assigning CAF “champions” to guide each phase
- Utilizing CAF tools: Azure Migrate, Readiness score assessments
- Tracking CAF milestones via dashboards and executive reviews



POP QUIZ:

An enterprise aims to measure organizational readiness before migrating its legacy applications to Azure. Which combination of Azure CAF tools provides a holistic view of technical, process, and people readiness?

A. Azure Migrate Assessment + Azure Well-Architected Review
B. Azure Migrate Assessment + CAF Readiness Score + Azure DevOps Boards
C. CAF Readiness Score + Azure Policy Compliance Scan + Azure Monitor Logs
D. CAF Readiness Score + Azure Migrate Assessment + Azure Blueprint compliance checks

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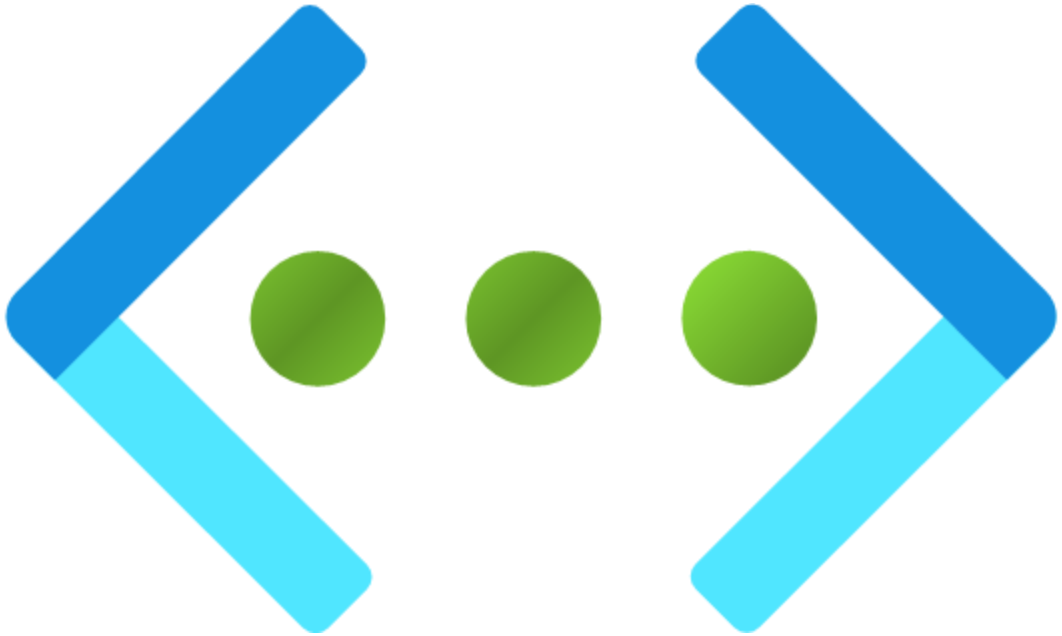
CORE AZURE COMPUTE SERVICES & LEADERSHIP IMPLICATIONS

- ❑ Azure Virtual Machines (VMs) and scale sets
- ❑ Azure App Service (PaaS) for web/app hosting
- ❑ Azure Functions for serverless microservices
- ❑ Azure Container Instances & Azure Kubernetes Service (AKS)

KEY AZURE NETWORKING SERVICES & LEADERSHIP

- Azure Virtual Network (VNet) design and segmentation
- Azure ExpressRoute vs. VPN Gateway for on-prem connectivity
- Azure Front Door and Application Gateway for global traffic management
- Azure Load Balancer and Traffic Manager for high availability



AZURE STORAGE SERVICES LEADERSHIP MUST KNOW

- Azure Blob Storage (hot, cool, archive tiers) and lifecycle policies
- Azure Files vs. Azure NetApp Files for file share requirements
- Azure Cosmos DB (multi-model, global distribution, SLAs)
- Azure Data Lake Storage Gen2 for big data analytics

AZURE RELATIONAL DATABASE SERVICES OVERVIEW

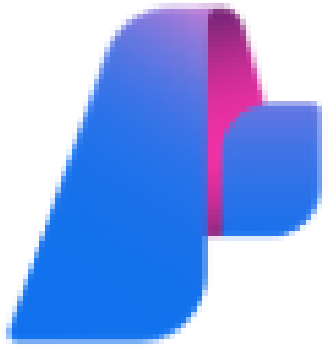
Azure Synapse Analytics

Azure SQL

- Azure SQL Database (DTU vs. vCore purchasing models)
- Azure SQL Managed Instance for near-zero code changes from on-prem
- Azure Database for PostgreSQL/MySQL and flexible server options
- Azure Synapse Analytics for data warehousing and analytics at scale

AZURE AI/ML SERVICES & LEADERSHIP OPPORTUNITIES

Azure Cognitive Services: vision, speech, language, decision APIs
Azure Machine Learning for MLOps and model lifecycle management
Azure OpenAI Service and custom GPT integration for enterprise use cases
Azure Bot Service and conversational AI implementation



POP QUIZ:

An organization needs to build an end-to-end MLOps pipeline in Azure. Which combination of services provides model training, registry, automated deployment, and monitoring of model drift?

A. Azure Databricks + Azure Container Registry + Azure Monitor

B. Azure Machine Learning workspace with pipelines + Azure Kubernetes Service + Application Insights

C. Azure Synapse Analytics + Azure Functions + Azure DevOps Repos

D. Azure Machine Learning workspace + Azure Container Instances + Azure Data Factory

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POP QUIZ:

A multinational organization requires sub-millisecond failover for mission-critical services across two Azure regions. Which combination of services should leadership prioritize to guarantee minimal downtime?
A. Azure Traffic Manager (Priority routing) + Azure Load Balancer with health probes
B. Azure Front Door + Azure Auto-Scale VMSS with Azure Site Recovery replication
C. Azure Front Door with instant failover capability + Azure SQL Database active geo-replication
D. Application Gateway (regional) + Azure Cosmos DB multi-master replication

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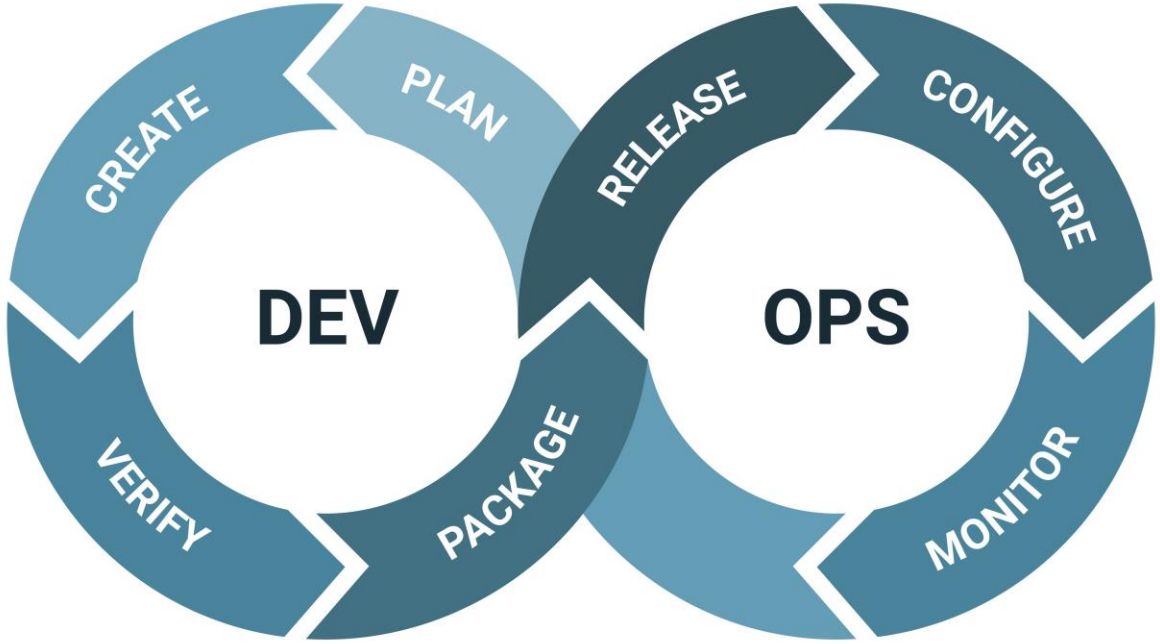
AZURE DEVOPS & CI/CD LEADERSHIP BEST PRACTICES

- Emphasizing Infrastructure-as-Code (IaC) with ARM, Bicep, or Terraform
- Setting up Pipelines: Build, Test, Release flows in Azure Pipelines
- Enforcing security gates in pipelines: SAST, DAST, container scanning
- Defining branching strategies (GitFlow, trunk-based) and release policies

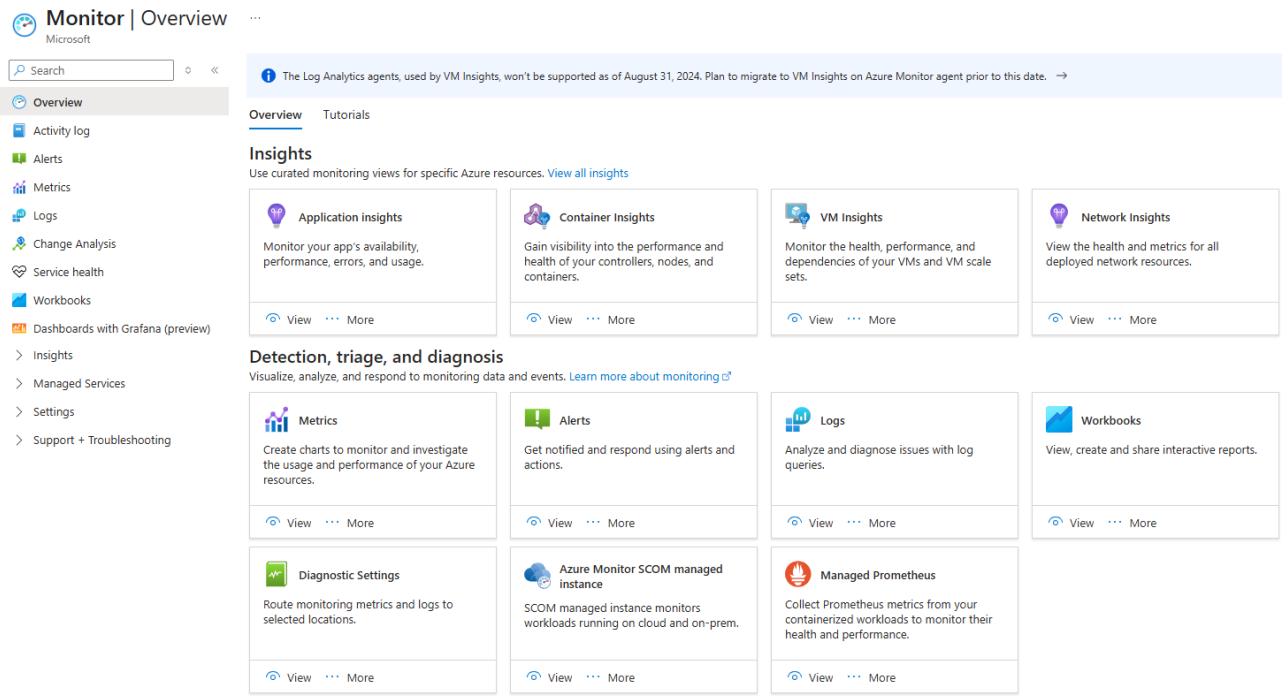


AZURE GOVERNANCE TOOLS OVERVIEW FOR LEADERS

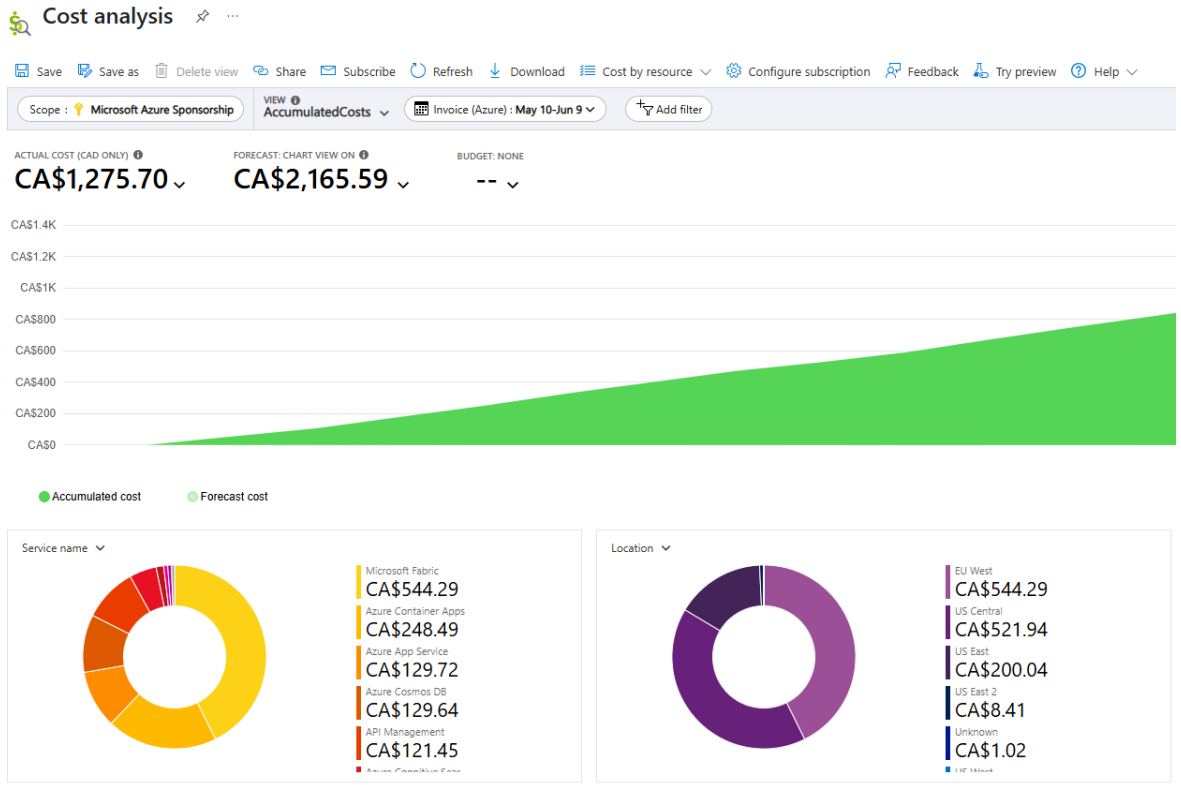
- Azure Policy for enforcing naming, tagging, resource SKU, and location rules
- Azure Blueprints to package policies, role assignments, and ARM templates together
- Management Groups and subscription hierarchy for enterprise-scale governance
- Azure Cost Management for budget alerts and chargeback allocations

AZURE MONITORING & OBSERVABILITY LEADERSHIP

- Azure Monitor: metrics, logs, alerts, and dashboards
- Log Analytics workspaces for centralized log ingestion and querying
- Azure Application Insights for application performance management (APM)
- Azure Service Health alerts for service-level issues and maintenance



AZURE COST TOOLS & LEADERSHIP ENFORCEMENT



- Azure Cost Management + Billing for budgeting, forecasting, and anomaly detection
- Azure Advisor recommendations for right-sizing VMs, purchasing reservations, and enabling auto-scale
- Azure Reserved Instances and Savings Plans procurement strategy
- Tagging and resource grouping for chargeback and show back reporting

GROUP ACTIVITY 2: COST OPTIMIZATION WORKSHOP

Given a mock subscription report:

- Identify top 3 cost-saving opportunities using Azure Cost Management recommendations
- Prepare a brief action plan (e.g., purchase reservations, implement autoscale, archive data)
- Present findings and projected annual savings to the class

HYBRID CLOUD STRATEGY WITH AZURE ARC & STACK

- Extending Azure management to on-premises servers and Kubernetes clusters via Azure Arc
- Enabling on-premises Azure services with Azure Stack HCI or Azure Stack Hub
- Ensuring consistent security policies and governance across hybrid environments
- Deciding which workloads stay on-premises vs. migrate to Azure

MULTI-CLOUD STRATEGY & INTEROPERABILITY LEADERSHIP

- Understanding Azure Arc's multi-cloud management capabilities (AWS, GCP integration)
- Leveraging APIs and container portability with Kubernetes standards
- Negotiating vendor SLAs and support models for multiple cloud providers
- Balancing risk of vendor lock-in versus operational complexity

Google Cloud

POP QUIZ:

A global enterprise must enforce that all new Azure Kubernetes Service (AKS) clusters use private clusters with Azure AD integration for authentication. Which governance strategy ensures automatic enforcement on creation?

A. Create a custom Azure Policy definition that audits AKS clusters and logs misconfigurations to Log Analytics

B. Use an Azure Blueprint that includes the built-in policy “AKS clusters should use private clusters” and “AKS clusters should integrate with Azure AD”

C. Configure Azure Security Center regulatory compliance controls for container workloads

D. Leverage Azure Policy initiative “Kubernetes cluster security” with not scopes set at the resource group level

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POP QUIZ:

A financial services company wants to enforce identical security and tagging policies across VMs running in Azure and EC2 instances running in AWS. Which approach best addresses this from an Azure-first governance perspective?

A. Deploy Azure Arc-enabled servers on EC2 instances, then assign Azure Policy at the management group level

B. Configure AWS Organizations and Service Control Policies (SCPs) to mirror Azure Policy definitions

C. Use Terraform to provision both Azure and AWS resources with identical tags, relying on Terraform state for compliance

D. Deploy Azure Sentinel with data connectors for AWS CloudTrail and AWS Config to monitor compliance but not enforce it

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AZURE SECURITY SERVICES PRIORITY FOR LEADERSHIP

- Microsoft Defender for Cloud (formerly Security Center) for workload protection
- Azure Sentinel for Security Information and Event Management (SIEM)
- Azure Firewall and Azure DDoS Protection for network security
- Azure Key Vault for secrets management, encryption keys, and certificates

AZURE IDENTITY SERVICES & ACCESS MANAGEMENT LEADERSHIP

- Microsoft Entra ID (formerly Azure Active Directory) for user and application identity
- Role-Based Access Control (RBAC) best practices: least privilege and custom roles
- Multi-Factor Authentication (MFA) and Conditional Access policies
- Privileged Identity Management (PIM) for just-in-time elevation and audit

DISASTER RECOVERY & BUSINESS CONTINUITY LEADERSHIP

- Defining Recovery Time Objective (RTO) and Recovery Point Objective (RPO) for critical workloads
- Choosing replication strategies: Azure Site Recovery vs. SQL Database Geo-Replication vs. Cosmos DB multi-master
- Testing DR plans through regular failover drills, documenting postmortem findings
- Allocating budgets for DR resources (secondary regions, replicated storage, network costs)

BACKUP VS. DR: AZURE SERVICES LEADERSHIP MUST KNOW

- Azure Backup for VMs, SQL databases, and file shares (snapshot-based, instant restore)
- Azure Blob Storage immutable storage (write once, read many) for compliance workloads
- Azure Archive Storage for long-term retention of cold data (WORM compliance)
- Azure Site Recovery for orchestrated failover vs. Backup for point-in-time restore

EDGE COMPUTING & IOT LEADERSHIP WITH AZURE

- Azure IoT Hub for device provisioning, telemetry ingestion, and command/control
- Azure IoT Edge for running AI workloads at edge devices (offline scenarios)
- Azure Stack Edge for on-prem AI inference and integration with Azure AI services
- Ensuring security at the edge: device attestation, TLS, and TPM-based credentials

AZURE SUSTAINABILITY & GREEN CLOUD LEADERSHIP

- Azure's commitment to 100% renewable energy and carbon-negative operations by 2030
- Enabling resource right-sizing and autoscale to minimize energy waste
- Choosing energy-efficient Azure regions or data centers with lower PUE (Power Usage Effectiveness)
- Encouraging application architects to adopt serverless and container platforms for optimized resource usage

INNOVATION WITH AZURE QUANTUM & EMERGING TECHNOLOGIES

- Azure Quantum: Q# development, simulators, and hardware access partnerships (IonQ, Honeywell)
- Blockchain integration: Azure Blockchain Service vs. trusted consortium models with Confidential Ledger
- Exploring serverless container runtimes (e.g., Azure Container Apps with Dapr integration)
- Evaluating Azure Orbital for satellite communication and data ingestion at scale

LEADERSHIP METRICS: KPIS & ROI MEASUREMENT

- Defining measurable KPIs: cost savings, time-to-market, uptime, security incident reduction
- Building an executive dashboard with Power BI and Azure Monitor data pipelines
- Conducting quarterly ROI reviews: comparing pre-cloud vs. post-cloud operational metrics
- Adjusting strategy based on KPI outcomes (pivot vs. persevere decisions)

COMMUNICATION STRATEGY FOR CLOUD ADOPTION LEADERSHIP

- Crafting an executive narrative: business benefits, risk mitigations, and cost rationale
- Engaging C-suite and board members with concise, metrics-driven presentations
- Developing town halls and internal blogs for organization-wide updates
- Establishing feedback loops: surveys, suggestion boxes, and regular Q&A sessions

GROUP ACTIVITY 3: PITCHING CLOUD ROI

- Each group prepares a 5-slide “board deck” summarizing a hypothetical migration of an on-prem application to Azure
- Slides must include: cost comparison, projected productivity gains, security/compliance benefits, and timeline
- Groups present to “executive panel” (role-played by peers) for feedback and Q&A
- Executive panel to score pitches on clarity, business alignment, and persuasion

REFLECTION

Task: Individually write down one key insight from today's session
Focus: Reflect on how integrated risk management can be applied in your role
Discussion: Share your insight with a partner or small group
Documentation: Record your reflection in your personal action plan worksheet
Outcome: Strengthen your personal commitment to continuous improvement

COURSE REVIEW

1. Azure Migrate as a Centralized Hub

Azure Migrate serves as a unified platform for assessing and migrating on-premises servers, infrastructure, applications, and data to Azure. It provides tools for both assessment and migration, streamlining the transition process.

2. Importance of the Azure Migrate Appliance

Deploying the Azure Migrate appliance is crucial for discovering on-premises servers and collecting metadata and performance data. This appliance facilitates the assessment and migration planning phases.

3. Assessment of Migration Readiness

Before initiating migration, it's essential to assess the readiness of on-premises VMs. Azure Migrate provides insights into compatibility, performance, and cost estimations, aiding in informed decision-making.

4. Replication and Migration Process

The lab demonstrates the steps to replicate on-premises Hyper-V VMs to Azure, including configuring replication settings and initiating the migration. This process ensures minimal downtime and data integrity.

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NEXT WEEK: CAPSTONE

- Build a comprehensive cloud solution on Azure addressing a real-world scenario
- Emphasis on leadership deliverables: executive summary, architecture diagram, governance plan
- Team roles: Cloud Architect, Security Lead, Finance Analyst, Operations Manager, Project Sponsor
- Timeline: 3 hours to complete, 1-hour final presentations

Q&A AND OPEN DISCUSSION


THANK
YOU