Security and Compliance in Azure

INTRODUCTION TO AZURE



Kevin James
Technical Lead and Training Architect

datacamp

Think security



Security and compliance is vital.

- Safeguarding data
- Maintaining customer trust
- Global regulations
- Stops disruptions

Azure Security Center

Unified security management

- Advanced protection
- Recommendations provided
- Insights for Azure resources



Azure Policy



- Enforces standards
- Consistent compliance
- Operations practices

Azure Blueprints

- Consistent deployments
- Combines templates and policies
- Organization standards



Blueprints

Data Protection and Identity

Robust data protection.

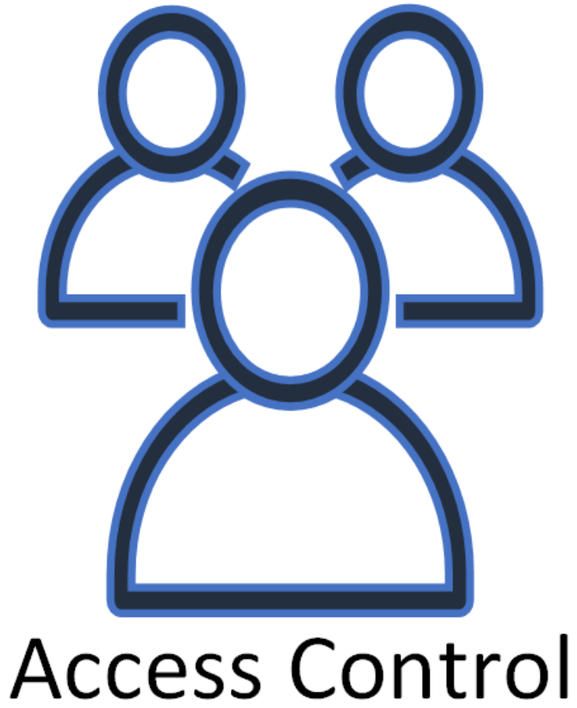
- Encryption
- At rest and in transit
- Defense against breaches



Data Protection and Identity

Access control

- Role-based access control (RBAC)
- Define custom/predefined roles
- Assign them to users/groups



Data Protection and Identity

Azure Key Vault:

- Manage sensitive assets
  - cryptographic keys
  - certificates
  - app secrets
- Logging



Data Protection and Identity

Classify and label sensitive data.

- Discover, Classify, Protect
- Govern sensitive information
- Data oversight
- Data Regulation
- Safe sharing



Azure Information Protection

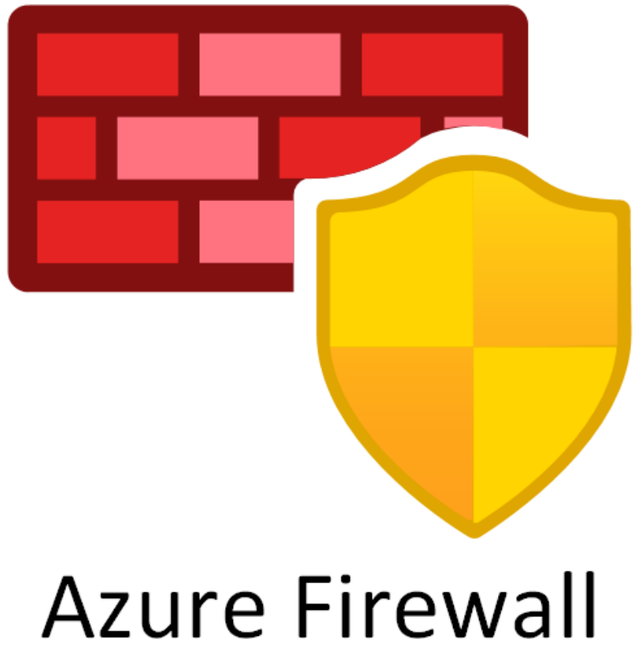
Network Security



Comprehensive network protection.

- Network Security Groups
- Filter inbound and outbound traffic
- Set and enforce security rules

Network Security



Azure Firewall is a cloud-based security service.

- Threat protection and network filtering

Network Security



Distributed Denial of Service.

- Azure DDoS Protection
- Safeguard Azure applications
- Protect against denial of Service attacks

Azure Sentinel

Cloud-based Security Information and Event Management (SIEM) system.

- Integrates with your Azure environment
- Can be used with a wide variety of sources
- Uses intelligent analytics to preemptively spot threats
- Cost efficient model



Compliance

Committed to compliance standards

- Global e.g., ISO/IEC 27001
- US Government Standards e.g FedRAMP



Let's practice!

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Azure Economics

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Azure Pricing



Managing costs is important.

- Watch your budget and service costs
- Costs will vary depending on services
- Examine the different pricing options

Azure Pricing Calculator



It is a valuable tool.

- Cost forecasting
- Accurate budgeting
- Simulate scenarios and resources
- Pinpoint expenses
- Optimize spending
- Detailed cost breakdowns

Pay as you go

This payment model is simple.

- Pay for usage without upfront fees
- No initial capital needed
- Scale resources flexibly without penalties



Reservations

Azure Reservations and Reserved Instances.

- Commit to single or multi-year terms
  - Significant cost savings over pay-as-you-go pricing



Reservations

Azure Reservations and Reserved Instances.

- Commit to single or multi-year terms
- Significant discounts



Spot Instances



Azure Spot Instances allow bidding on excess capacity to secure virtual machines at discounted rates.

- Uses spare Azure capacity
- Cost-efficient
- Good for short-term workloads
- Balances cost efficiency with compute power

Azure Hybrid Benefit

Azure Hybrid allows you to reuse on-premises licenses that already exist.

- Linux, Windows Server, SQL Server
- Significant cost savings
- Eases migrations to the cloud



Azure Free Account



If you are new to Azure, there are some free services available.

- Free services for 12 months
  - e.g. Azure Virtual Machines, Azure Functions, Azure Key Vault
- Not all services are free
- Free until limits of use are reached
- Check pricing before using services

Azure Cost Management



Azure Cost Management is your dashboard for expenses.

- Monitor and analyze expenses
- Set spending limits
- Optimize resources and budgets
- Break down costs by service and resource group

Total Cost of Ownership

The total cost of ownership is hard to judge.

- Look past upfront prices
- Factor operational benefits and reduced risks
- Consider innovation and revenue potential
- Assess long-term financial outlook
- Weigh total value against initial costs



Cost Optimization

Cost Optimization requires ongoing effort.

- Regularly review resources
- Scale based on needs
- Leverage Azure Advisor



Let's practice!

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Managing Azure Resources

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Azure Resource Manager (ARM)

Deploy and manage Azure resources.

- Directs resources to avoid obstacles
- Centralized management layer
- Template-driven deployment
- Organize resources with tags



Azure Monitor



Insightful monitoring to maximize operational excellence.

- Full-stack monitoring
  - virtual machines, containers, databases, networks and more
- Advanced analytics and intelligent insights
  - resources, performance, security, cost
- Integrated alerting system
  - anomalies or potential issues in real time

Azure Automation



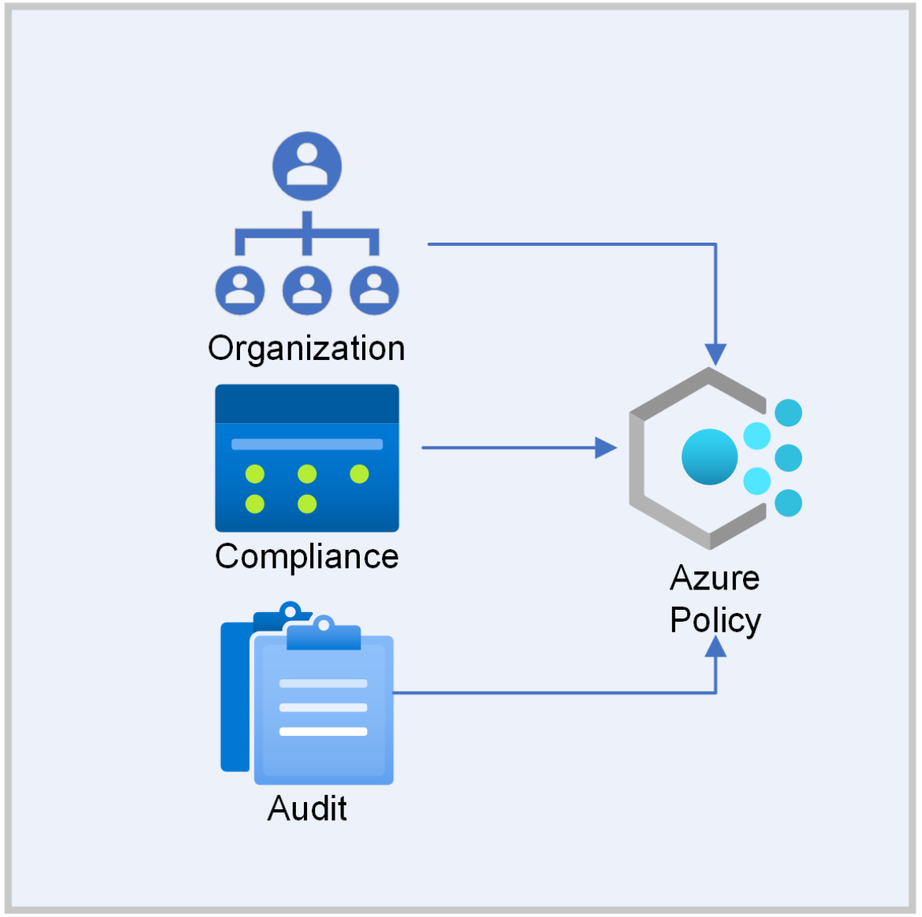
Streamline your operations with intelligent automation.

- Streamlines Azure workflows
- Ensures consistent, scalable management
- Automation of runbooks
  - Automated tasks
- Automates routine IT tasks

Azure Policy

Organizational standards and compliance.

- Integrates company criteria into deployments
- Automated tools align deployments to company standards
- Ingrains a culture of compliance
- Auditing tools highlight outdated systems or practices



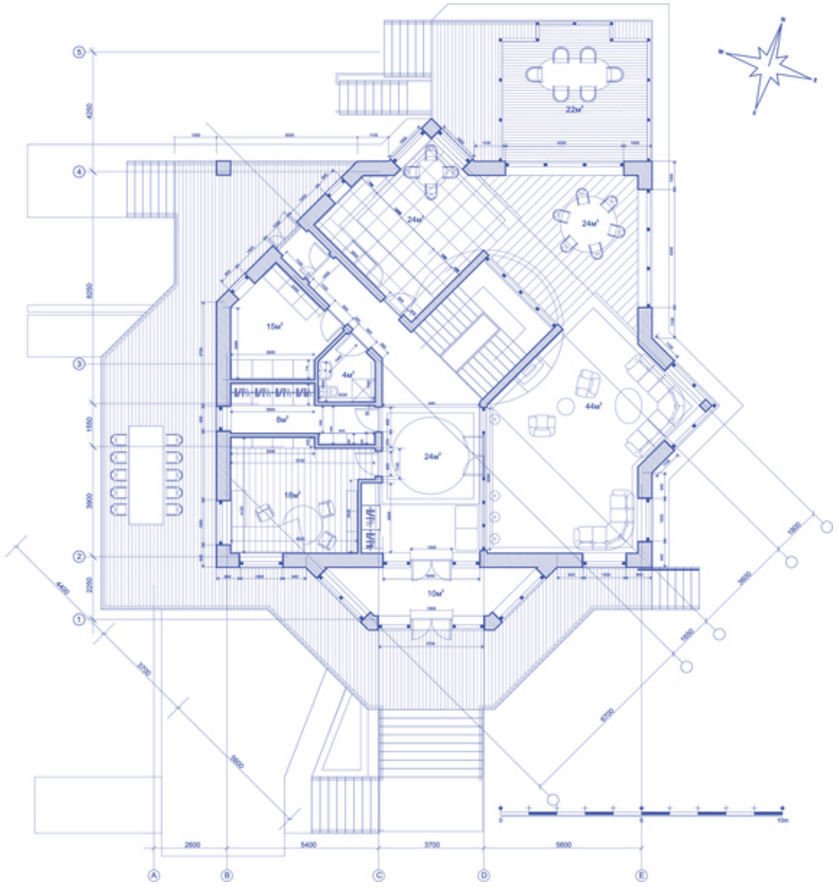
Azure Advisor

Get tailored advice for optimizing your Azure setup

- Personalized best practices
- Optimize resources effectively
- Improve performance, security, and reliability



Azure Blueprints



Helps you structure your Azure resources for consistent deployments.

- Like an architectural template
- Define a repeatable set of resources
- Streamline organizational standards
- Consistent environment setups

Key Takeaways

Reflecting on Azure's robust management toolkit.

- Effective management is crucial
- Azure provides a robust set of tools
- Tailor your approach with Azure's versatility



Let's practice!

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Integration and Migration to Azure

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Migration to Azure

- Migration is a structured journey
- Assessment phase
- Migration process
- Post-migration optimization

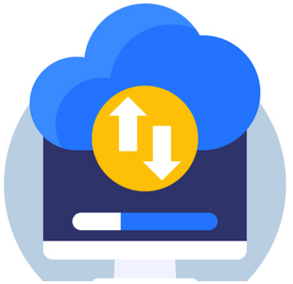


Integration Strategies

- **Lift and Shift** - A fast migration without changes



- **Refactor** - Small changes to obtain cloud benefits



- **Rearchitect** - Redesign maximizing features and efficiency



- **Rebuild** - Start anew in Azure



Hybrid Connectivity



Hybrid connectivity bridges your on-premises environment with Azure.

- Virtual Private Networks (VPNs)
- Azure ExpressRoute
- Azure Virtual Wide Area Network (WAN)

Azure Migration Tools

- Azure Migrate
  - Guides the process
- Azure Site Recovery
  - Ensures application availability
- Azure Database Migration Service
  - Eases database transfers

Azure Migrate

Azure Migrate isn't just a tool; it's a complete migration solution.

- Assesses on-premises environment and provides Azure sizing guidance
- Unified dashboard for migration to ensure a smooth cloud transition



Azure Site Recovery



Azure's premier disaster recovery solution.

- Disaster recovery as a service (DRaaS)
- Automate protection of virtual machines to bring up services in an outage
- Failover and failback capabilities and customizable recovery plans

Azure Database Migration Service

It simplifies the process of migrating databases to Azure.

- Supports migration from multiple sources with minimal downtime
- Integrated tools for assessment and guided migration insights
- Ensures secure and compliant data migration



Azure Import/Export



A tool for transferring substantial data volumes to Azure Blob Storage.

- Uses secure physical disks and appliances
- Offline data transfer method
- A shipping service for your data
- Azure provides tracking and management tools

Migration Best Practices

Make a road map for your migration.

- Assessment First
- Start Small
- Test Rigorously
- Phase Your Migration
- Security from Day One



Post-Migration

It doesn't end post-migration.

- Cost Awareness
- Skill Upgrades
- Monitor & Optimize
- Stay Compliant
- Post-migration Analysis



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Wrap-up

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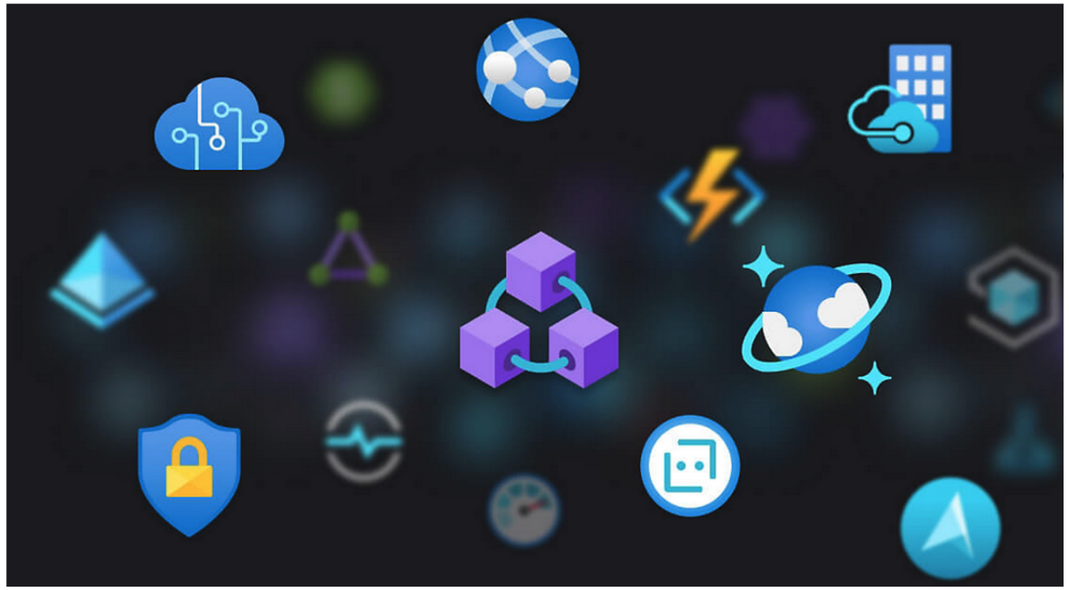
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Chapter One

We learned about Microsoft Azure.

- What is Microsoft Azure
- Overview of Azure's Core Components
- Azure Services Overview



Chapter Two

We discussed several of the services.

- Overview of Azure Compute
- Azure Storage Services
- Data Processing in Azure



Chapter Three

We covered a few topics.

- Security and Compliance in Azure
- Azure Economics
- Managing Azure Resources
- Integration and Migration to Azure



What's next?

Continue your journey with other Cloud Computing courses.

- We have several available on DataCamp
- We have courses on other platforms than just Microsoft Azure

Congratulations!

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