Microsoft Azure

From Zero to Hero – The Complete Guide

Architecture Summary

When designing cloud architectures for Microsoft Azure, use this summary that will help you design the system select the right resources for the right task.

Area	Resources / Notes
Compute	Virtual Machines (VMs) – When a full control is needed, or dev platform is not supported on any other cloud service (e.g. C++). Can be auto scaled using Scale Set. App Service – PaaS for web apps. Use when system is a web app running on modern platform. Not requiring any setup or configuration. Great integration with authentication providers and Application Gateway. Azure Kubernetes Services (AKS) – If your apps already run on Kubernetes or Docker containers – use it. If you plan to deploy your app using containers – use it.

	Azure Functions – Use for focused, lightweight actions (calculations, conversions, validation etc.). Extremely efficient, beware of cold starts.
Networking	VNet – Virtual Network. By default inaccessible to other VNets. Design your app around VNets using the Hob-and-Spoke model. Subnet – Logical segment inside a VNet. By default accessible from other subnets in the VNet. Network Security Group (NSG) – Filters traffic based on 5 tuples. ALWAYS set up NSG in front of every subnet. Load Balancer – Balances load across various resources based on various algorithms. Works on Layer 4. Use ONLY for internal resources. Application Gateway – Used to expose web endpoint to the outside world. Load balancer, WAF (optional), works on Layer 7. Use in front of App Services.
Data	Relational Databases – Azure SQL (the only resource with 99.995% SLA), Azure MySQL, Azure Postgres NoSQL Database – Cosmos DB (the only resource with 99.999% SLA) Object Store – Blob Storage

Messaging	Storage Queue – Dead simple queueing, no additional cost, max msg size – 64KB Event Grid – Messaging system for Event Driven Architectures, great integration with other services, max msg size – 1MB Service Bus – Advanced queueing solution with advanced features, durable, max msg size – 256KB Event Hubs – Big data streaming, designed for heavy load, Kafka-based. Max msg size – 1MB
Authentication	Azure Active Directory – Identity and Access Manager (IAM), extremely robust, supports MFA, conditional access and more. Great integration with App Services. Azure AD B2C – Simplifies integration with apps for identity scenarios (log in, log out, sign up, etc)
Monitoring	Set up Alerts to get notifications when something goes wrong Use Metrics to see system's status Read Logs to find out what the system did Put important information on Dashboards to get wholistic view Use Tags to categorize the resources

Security	- Close unnecessary open ports of a VM - Use NSG - Use authentication - Encrypt data at rest and at transit - Use KeyVault to securely store secrets - Use Security Center regularly
DR	- Decide between hot and cold DR - Remember – hot DR is much more difficult to design and expensive to implement - Use Traffic Manager or Front Door for automatic routing

I Hope you enjoyed the course, and that it made you a Microsoft Azure expert. Stay tuned to more courses on Azure, which will make you an even better Azure Architect!

For any question or comment contact me at:

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Thanks,

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