

sum

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Technology

1. Computing

- a. Azure vm -iaas
- b. Azure container instances -paas
- c. Kubernetes service AKS
 - i. Open source lib, tens hundreds
- d. Azure functions - serverless
 - i. Pay for compute time
- e. Azure virtual desktop
 - i. Run multiple simultaneous user
- f. Azure app service -paas
- g. Service fabric
 - i. cloud / perm, microservices
- h. Batch
 - i. Large scale, spot vm, cheap

2. Storage

= HA

- a. Blob storage - serverless
 - i. Page blob, block blob, append blob
 - 1. Page blob found containers bladed, VHD files store, 8TB
- b. Disk storage
 - i. Virtual volume attach to VM, SSD HDD, encrypted
- c. File storage
 - i. Cloud/ prem
 - ii. Must mount it (assigning a drive letter or path), or UNC path
- d. Queue
 - i. Messages between apps
- e. Table - NoSQL
 - i. Unstructured data
- f. Databox
 - i. Rugged briefcase
- g. Archive
 - i. Long term cold storage, cheap, rehydrate
- h. Datalake
 - i. Big data from multiple source, structure / unstructured
 - ii. Storage repo for raw data
 - iii. Need quires
 - iv. Only pay for run jobs

3. Database & analytics

- a. cosmos db - paas, NoSQL, 99.99%
 - i. Unstructured or jASON
- b. SQL - paas
 - i. Autoscale, relational
- c. Sql managed instance
- d. Mysql, postgresql, mariadb

4. Big data and analytics

- a. Synapse analytics - paas, HA
 - i. Data warehouse
 - ii. Sql quires
- b. HDInsight
 - i. Open source framework
- c. Databricks
 - i. Apache spark based
 - ii. Big data
 - 1. Databricks sql
 - 2. Data sci & engineering
 - 3. Machine learning

5. Application integration service

- a. Notification hub
 - i. send from backend
- b. Service bus - MaaS, hybrid

Event hub - PaaS	BIG data streaming and real time event ingestion
Stream analytics	Serverless, multiple source simultaneously, cloud to edge
Logic apps	
Api apps	
Api management	

6. Developer & mobile tools

- a. SingalR
- b. App services -paas
- c. Visual studio

Security

1. Trust centre
 - a. Public website, provide security, privacy and compli
2. Online MS privacy statement
 - a. What, how, purpose for data processing
3. Compliance programs

CJIS	USA, FBIs
CSA	3rd party, cloud provider
GDPR	EU residents
Eu model clauses	data transfer from eu to outside
HIPAA	USA, hospital stuff
ISO/IEC	International organisation, cloud pro
MTCS, multi tier	Singapore, iaas, paas, saas
NIST CSF	USA, commerce. Cybersecurity
UK gov g-cloud	certification, for cloud service used b
FIPS 140-2	US & canadian gov, cryptographic

4. Azure AD - identity access & management , issue security
 - a. External source
 - i. Office 365
 - ii. Azure portal
 - iii. SaaS apps
 - b. Internal
 - i. Apps in your internal network
 - ii. Workstations on prem
 - c. SSO authentication
 - d. Can federate identities from on-prem and cloud, or

Privileged identity management PIM	Control access
Azure AD identity protection	Sign in risk <ul style="list-style-type: none"> • Anony • MFA User risk

- e. 4 editions
 - i. 99.99% for basic and premium
 - ii. No SLA for Free

5. Azure security centre

- a. Infrastructure security manager - good visual for you

Regulatory compliance dashboard	track companies
JIT VM	Only access VM v secure

6. Key vault

- a. Stores & encrypt administrative credentials

Secrets management	Tokens, pwd, certifica
Key management	Keys
Certificates managements	SSL certificates, for in
Hardware security module	FIPS 140-2 (multi) -3(

7. Ddos protection

- a. FREE
- b. STANDARD - generates reports

8. Azure firewalls

- a. Vnet attach to firewall as point of entry --> multiple
 - i. Centrally enforce
 - ii. Static public IP
 - iii. HA, no need load balancer
 - iv. Deployment can span multiple Azs for HA, no
 - v. Additional cost for inbound / outbound data tra

NSG	Firewall
Filter for one single VNET	multiple V
Applied at subnet level, or VM level on NIC	Protect en

- d. Xamarin
 - i. Mobile app framework

7. Devops

Azure boards	kanban
Azure pipeline	CI/CD
repo	Version control
Azure test plans	Test and ship
artifacts	Add artifacts to ci/cd
DevTest labs	Can use ARM template Deploy & remove VM

8. ARM

- a. IaC, write code to manage your infrastructures (VM, storage, OS)
 - b. JASON
9. Azure quickstart template
- a. Lib of pre-made ARM

11. VNET and SUBNET

- a. CIDR RANGE
- b. SUBNET
 - i. Public - web app
 - ii. Private - database

Isolation & segmentation	vnet & subnet
Azure resource to resources VM to VM	VNET, Service endpoints (resource type e.g. storage acc & database)
On-prem to cloud	VNET gateway (gateway subnet) <ul style="list-style-type: none"> • VPN gateway <ul style="list-style-type: none"> ○ Point to site = outside to corporate ○ Site to site = your local VPN gateway to azure <ul style="list-style-type: none"> • Need 2 VPNs ○ Network to network • Expressroute <ul style="list-style-type: none"> ○ High security, > bandwidth, don't go public
Route	
Filter network traffic	NGS
Connet VNET	Virtual network peering - links vnet together

12. Cloud native network service

- a. Azure dns
- b. VNET
- c. Load balancer - OSI level 4, transport
 - i. Public
 - ii. Private/internal
- d. Azure Application gateway - OSI level 7, HTTP

13. Enterprise networking

- a. Azure front door
- b. VNET gatwat

14. Content delivery network CDN

- a. Web content to users

15. Azure traffic manager

- a. DNS layer, route traffic by directing DNS request
- b. Failover to backup systems

16. Azure DNS

17. Scale sets

- a. Group identical VM together, automatically increase or decrease VM/server amount
- b. Based on cpu, memory etc.
- c. Predefine schedule - elasticity
- d. Load balancer determine traffic scale set scale

18. IoT

IOT Central	lot to cloud
lot hub	Comomucation between iot
lot egde	
Sphere service	Communication iot device to platform
Windows 10 iot core	Commercilize on windows 10 core

19. AL?ML

- a. ML services
- b. Cognitive service

20. Serverless - HA, scalable, cost-effective

- a. Event-driven scale, response to events / trigger
- b. Abstrction of server
- c. Microbilling

kubernetes	
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When you deploy a VM, only 2 ports opened, SSH port 22 default). You need to add security rule **via either NSG or F** user to your VM on **TCP port 80 (HTTP protocol)**

9. Azure info protection (AIP)

- a. Protect emails, documents encrypted.
- b. Restried access & rights
- c. Integrate security to office apps

10. Azure Application gateway

- a. OSI level 7
- b. Can attach a web app firewall WAF

11. Azure advance threat protection ATP

- a. Intrusion detection / protection IDS/IPS
- b. On-prem AD signals, detect threats, compromised i

12. Security development lifecycle SDL

- a. Before ending service, minimum 12 months notices

13. Azure policies

- a. JASON format
- b. Create, management, assign policies - based on bus
- c. manage Azure resources compliance across **multipl**

14. RBAC

- a. Manage access control
 - i. Security principles
 - 1. Users
 - 2. Group
 - 3. Service principles - security identity
 - 4. Manage identity - AD, auto
 - ii. Role definition
 - 1. Owner - read, grant, create upate delet
 - 2. Contributor - not grant
 - 3. Reader - read only
 - 4. Access - grant only
 - iii. Scope - Policies, permissions or administrativ
 - 1. Management group
 - a. Use muti scopes, signals to send a
 - 2. Subscription
 - 3. Resource group

15. Azure blueprint

- a. Deploy multiple resource templates / artifaces
 - i. Role assignment
 - ii. Policy assignments -apply permissions to scop
 - iii. ARM templates
 - iv. Resrouce groups
 - v. the blueprint is assigned at the **subscription l**

16. Lock resrouces

17. Azure monitor

- a. Collects metrics and logs, cloud or on prem
- b. Create alters , dashboards
- c. Can monitor multi events across multi subscription,

Azure application insights	Function anomalies of
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18. Azure sentinel

- a. Security analytics and threat intelligences
- b. SIEM - security info event management, SOAR - aut
- c. Use AI, pay for what you use, no upfront
- d. Use Azure monitor data

19. Azure service health

- a. Info about current and upcoming issues
 - i. Service impacting events
 - ii. Planned maintenance
 - iii. Others changes

Azure status	service outages
Azure services health	Health of service in your region
Resrouces health	health of your cloud resources lik

20. Azure advisor

- a. Best practices
- b. Dashboard:

Reliability	
Security	threat detect
Performances	
costs	reduce overall spending
Operational excellence	Workflow efficiency

Azure functions	Stateless, stateful
Azure logic apps	Stateful
Blob storage	
Event grid	