SNS College of Technology

Department of Information Technology

19CSB302-COMPUTER NETWORKS

UNIT-5 APPLICATION LAYER

Azure

K.S Mohan ,AP/IT
SNSCT

Microsoft Azure

MICROSOFT AZURE, WHAT IS IT?

Microsoft Azure is a CLOUD COMPUTING platform and infrastructure, created by Microsoft, for building, deploying and managing applications and services through a global network of Microsoft-managed data centers.

- PaaS + SaaS + IaaS
- Always up and on - 99.95% availability SLA
- Hybrid Ready

Google

The practice of using a network of remote servers hosted on the internet to store, manage and process data, rather than a local server or personal computer.

WHAT IS CLOUD COMPUTING?

amazon web services

It refers to the on-demand delivery of IT resources and applications via the internet with pay-as-you-go pricing.

CLOUD SERVICES

Infrastructure (as a Service)

You manage:
- Applications
- Data
- Runtime
- Middleware
- O/S

Managed by vendor:
- Virtualization
- Servers
- Storage
- Networking

Platform (as a Service)

You manage:
- Applications
- Data

Managed by vendor:
- Runtime
- Middleware
- O/S
- Virtualization
- Servers
- Storage
- Networking

Software (as a Service)

Managed by vendor:
- Applications
- Data
- Runtime
- Middleware
- O/S
- Virtualization
- Servers
- Storage
- Networking

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AZURE SERVICES

- COMPUTE SERVICES
- WEB & MOBILE
- DATA & STORAGE
- ANALYTICS
- NETWORKING
- HYBRID INTEGRATION
- IDENTITY & ACCESS MANAGEMENT
- MEDIA & CDN
- DEVELOPER SERVICES
- MANAGEMENT

COMPUTE SERVICES

VIRTUAL MACHINE

- Software version of computer; configure and maintain according the needs
- Gallery to choose OS
- Upload & Attach own VHD

CLOUD SERVICES

- Deploy highly-available, infinitely scalable apps.
- Focus on apps, not hardware
- Support – Java, Node.js, PHP, Python, .NET and Ruby
- Integrate health monitoring / load balanch9ing
- Automatic OS and application patching

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BATCH

- Cloud enable batch and cluster applications
- Auto-scale on work in the queue
- Monitor job process

WEB & MOBILE

WEBSITES
- Fully managed PaaS
- Support MS SQL, MySQL, Document DB, Mongo DB, Redis
- Azure Table storage
- Access on-premises data through V Net

Mobile Services
- Cloud backend for a mobile app
- Push notification to individual or dynamic audience segments
- Store data in SQL, Table Storage, Mongo DB

API Management
- Take any backend and publish API
- Bring modern formats like JSON and REST to existing API
- Consolidate multiple back ends into single endpoint

Push Notifications
- Send push notification to any platform from any backend
- Use with any backend, cloud or on-premises
- Millions of devices with single API call
- Tailor notification by audience, language, location

DATA & STORAGE

SQL AZURE

- A relational database-as-a-service.
- Scalable to thousands of databases
- Predictable performance
- Data protection via auditing, restore & geo-replica

DOCUMENT DB

- Fully managed, highly-scalable, NoSQL document database
- Rich query over a schema-free JSON data model
- Fast SSD storage and optimized database service
- Support non-blocking I/O with familiar SQL / LinQ / Rest features

CACHE

Three types:
- Redis Cache – built on open source Redis
- Managed Cache – built on app-fabric cache
- In-role Cache – built on app-fabric ache, self-hosted cache

DATA & STORAGE

STORAGE

- Blobs, Tables, Queues and Files
- Manage petabytes of storage
- Geo-redundant storage
- Premiums storage 50,000 IOPS per VM
- 500 TB total storage per storage account

STORSIMPLE

- Effectively manage data growth
- Simply storage and data protection
- Accelerate disaster recovery and improve compliance

AZURE SEARCH

- Search-as-a-service for web and mobile app development
- Helps to define schema for indexing structures, index with metadata and query with analytics features which would be used to build search driven solution
- Enable sophisticated search functionality

ANALYTICS

HD INSIGHT	MACHINE LEARNING	STREAM ANALYTICS	DATA FACTORY
• Scale to petabytes on demand • Developing Java, .NET and more • Signup a Hadoop Cluster in minutes • Visualize your Hadoop data in Excel	• Model your way • Deploy in minutes • Expand your reach	• Perform Real-time Analytics • Correlate across multiple streams of Data • Rapid development with familiar Languages like SQL	• Compose Storage, movement and processing pipelines • Monitor data pipeline health • Transform structured and unstructured data

NETWORKING

VIRTUAL NETWORK ⟨•••⟩

- Private network in the cloud
- IaaS + PaaS together
- Build a hybrid infrastructure you control
- Industry standard site-to-site IPSec VPN
- 99.9% uptime SLA for VPN gateway

TRAFFIC MANAGER

- Three traffic load-balancing method: Failover, Performance & Weighted round robin
- Distribute your app traffic equally or with weighted values
- Seamlessly combine on-premises and cloud
- Improved app performance, CDN

EXPRESS ROUTE

- A faster, private connection to Azure
- Increased reliability and speed up to 10 Gb/sec
- Lower latency
- Higher security
- Partners

HYBRID INTEGRATION

BIZTALK SERVICES

- Simple, powerful, and extensible cloud-based message processing / integration service
- Extend on-premises to the cloud – Hybrid Integration

SERVICE BUS

- Helps to develop, design & configure loosely couple messaging between on premises / cloud services
- Types – Relay & Brokered messaging
- Offerings – Relay services, Queues, Topics, Subscription

BACKUP

- Simple reliable cloud integrated backup
- Reliable offsite backup target
- Efficient incremental backups
- Geo-replicated backup

SITE RECOVERY

- Automated protection and replication of VMs
- Customizable recovery plan
- Replicate to – and recover in – Azure

IDENTITY & ACCESS MANAGEMENT

ACTIVE DIRECTORY

- Identity and Access Management for the cloud
- SSO to any cloud and on-premises app
- Integrate with on-premises AD
- Enforce Multi-factor Authentication with SaaS

MULTI-FACTOR AUTHENTICATION

- Added security for the data and application
- Safeguard access with mobile app, phone call, SMS
- Real time fraud monitoring and alerts

MEDIA & CDN

MEDIA SERVICE

- Deliver any media on virtually any devices, anywhere
- Content protection – DRM
- CDN with global reach
- Support Flash, iOS, Android, HTML5 and Xbox

CDN

- Fast and modern global delivery network for high-bandwidth content
- Lower latency
- Massively scalable
- Improved availability and performance

APPLICATION INSIGHTS

- Detect issues, solve problems and continuously improve your web applications
- Availability, performance monitoring and alerts
- Track adoption and usage with pages, events & metrics
- Analyse application's usage
- Support ASP, .NET and HTML

MANAGEMENT

SCHEDULER	AUTOMATION	OPERATION INSIGHTS	KEY VAULT
• Call service inside/outside of Azure • Execute scripts • Run jobs on any schedule – now, later, recurring • Invoke web service endpoints over HTTP/HTTPs	• Automate all those frequent, time-consuming, and error-prone cloud management tasks • Integrate with any service using PowerShell scripts	• Collect, combine, correlate and visualize all your machine data • Manage and forecast the capacity of your infrastructure • Assess the safety and security of your servers • Proactively avoid workload problems	• Safeguard cryptographic keys used by cloud apps and services • Create and import encryption keys in minutes • Reduce latency with cloud scale and global redundancy

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STATISTICS

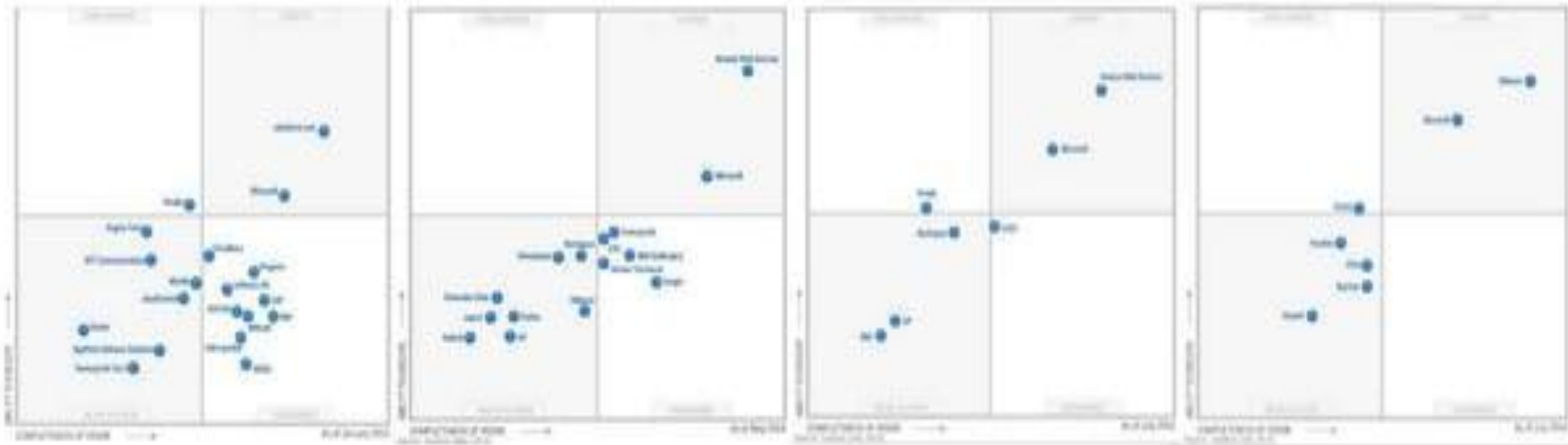|		
>57% Fortune 500 using Azure	>250K Active Websites	>1 Million Databases in Azure
>300 Million AD Users	>2 Million Requests/sec	>20 Trillion Storage Objects
	>30 Million Authentication/wk	>1 Million Developers registered with visual studio online

INDUSTRY RECOGNITION

Gartner Magic
Quadrant for Ent App
**Platform as a Service
(PaaS)**

Gartner Magic
Quadrant for Cloud
**Infrastructure as a
Service (IaaS)**

Gartner Magic
Quadrant for
**Public Cloud
Storage Services**

Gartner Magic
Quadrant for
**Virtualization
Technology**

MICROSOFT is Leader in all four Gartner MQs

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