



Azure Fundamentals

Lesson Objectives

At the end of this module you will be able to:

- ✓ Understand the fundamentals of Microsoft Azure
- ✓ Get an overview of Azure services
- ✓ Get an idea of Azure portal and its navigation



Microsoft Azure

- Microsoft Azure is a comprehensive cloud platform that enables solutions based on individual challenges and needs - with the benefits of a public cloud service.
- Azure can be described as a growing collection of integrated cloud services that developers and IT professionals can use to build, deploy, and manage applications through a global network of datacenters.



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It is introduced as Windows Azure and renamed as Microsoft Azure in 2014.

With Azure, you get the freedom to build and deploy wherever you want, using the tools, applications, and frameworks of your choice. You can store data using relational SQL databases, NoSQL table stores, and unstructured blob storages, and optionally use Hadoop and business intelligence services to data-mine it. You can take advantage of Microsoft Azure's robust capabilities to enable scalable distributed applications, as well as deliver hybrid solutions that run across a cloud and on-premise enterprise environment.

Microsoft Azure can provide a bridge from your data center to the cloud.

Azure Datacenters



Source: azure.microsoft.com

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Regions

A region is a set of datacenters deployed within a latency-defined perimeter and connected through a dedicated regional low-latency network.

With more global regions than any other cloud provider, Azure gives customers the flexibility to deploy applications where they need to.

Geographies

A geography is a discrete market, typically containing two or more regions, that preserves data residency and compliance boundaries. Geographies allow customers with specific data-residency and compliance needs to keep their data and applications close. Geographies are fault-tolerant to withstand complete region failure through their connection to our dedicated high-capacity networking infrastructure.

Availability Zones

Availability Zones are physically separate locations within an Azure region. Each Availability Zone is made up of one or more datacenters equipped with independent power, cooling, and networking. Availability Zones allow customers to run mission-critical applications with high availability and low-latency replication.

Confidence in the trusted cloud



- Azure has more comprehensive compliance coverage with more than 70 compliance offerings



ISO/IEC



CSA/CCM



ITAR



CJIS

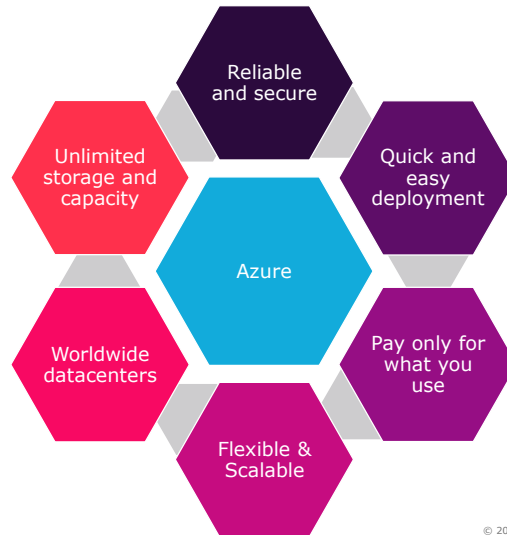


HIPAA



IRS
1075

Benefits of Microsoft Azure

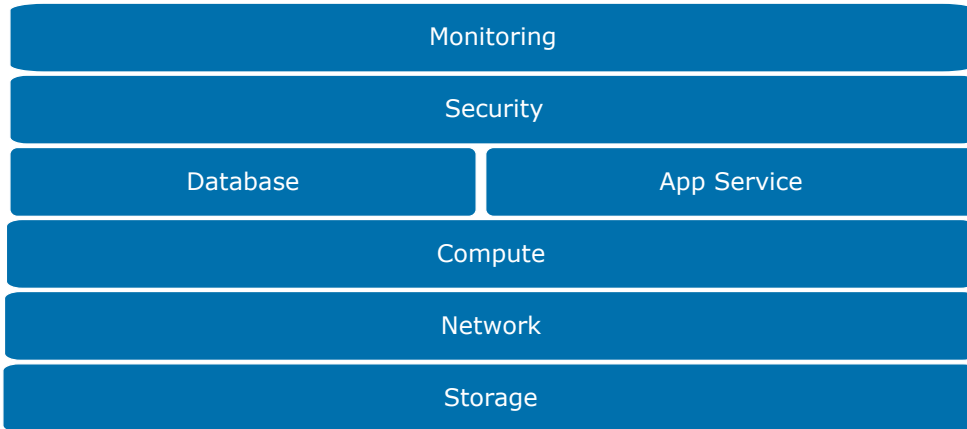


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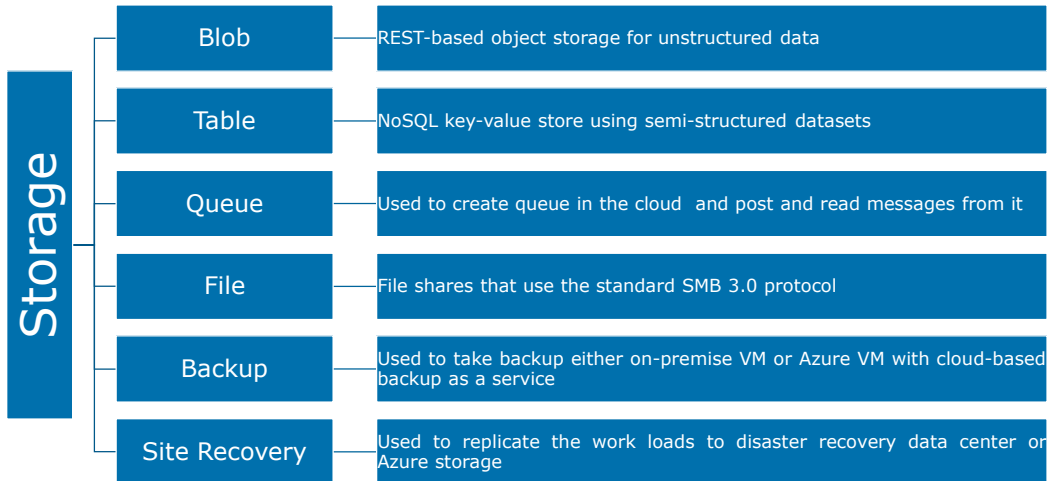
Azure Services



- The world of Azure is large and changes fast. Currently there are 89 main services.



Azure Storage Service

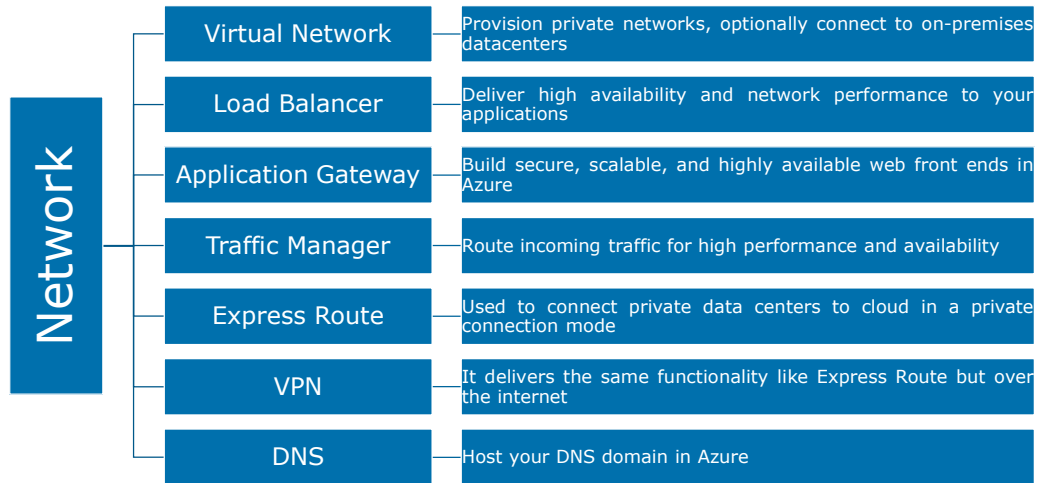


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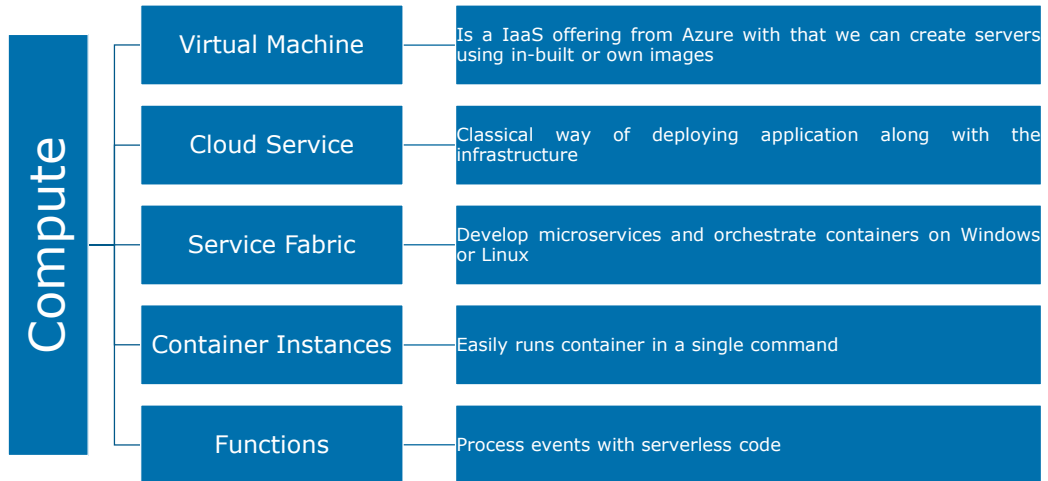
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SMB Stands for "Server Message Block." **SMB** is a network protocol used by Windows-based computers that allows systems within the same network to share files.

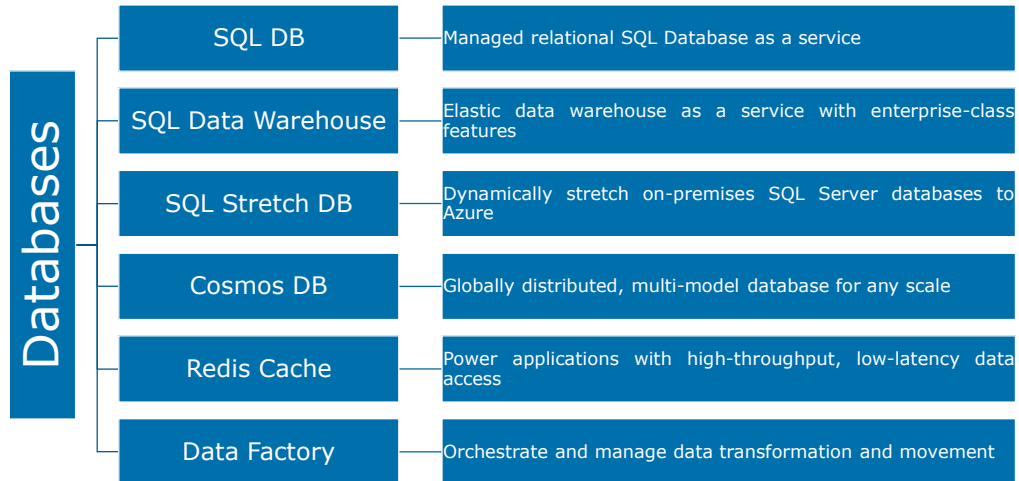
Azure Network Service



Azure Compute Service



Azure Databases



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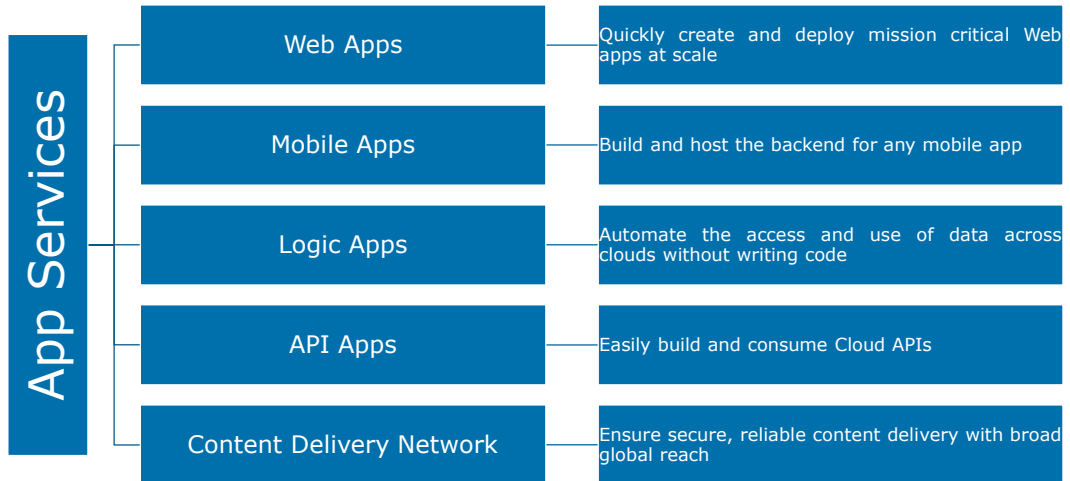
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SQL Data Warehouse is a cloud-based Enterprise Data Warehouse (EDW) that leverages Massively Parallel Processing (MPP) to quickly run complex queries across petabytes of data.

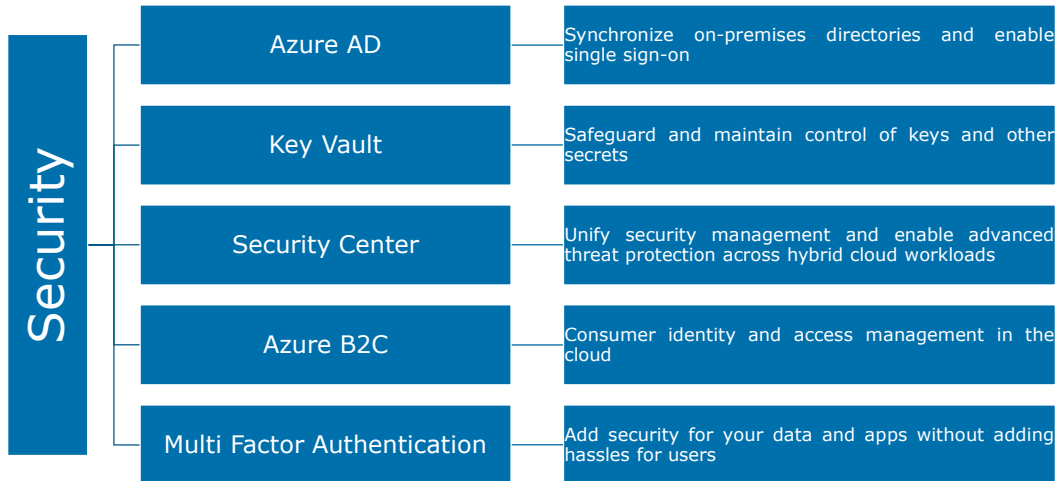
Azure Data Factory service is a fully managed service for composing data storage, processing, and movement services into streamlined, scalable, and reliable data production pipelines. Developers can use Data Factory to transform semi-structured, unstructured and structured data from on-premises and cloud sources into trusted information

Azure Redis Cache is based on the popular open-source Redis cache. It is typically used as a cache to improve the performance and scalability of systems that rely heavily on backend data-stores. Performance is improved by temporarily copying frequently accessed data to fast storage located close to the application. With Redis cache, this fast storage is located in-memory with Redis Cache instead of being loaded from disk by a database.

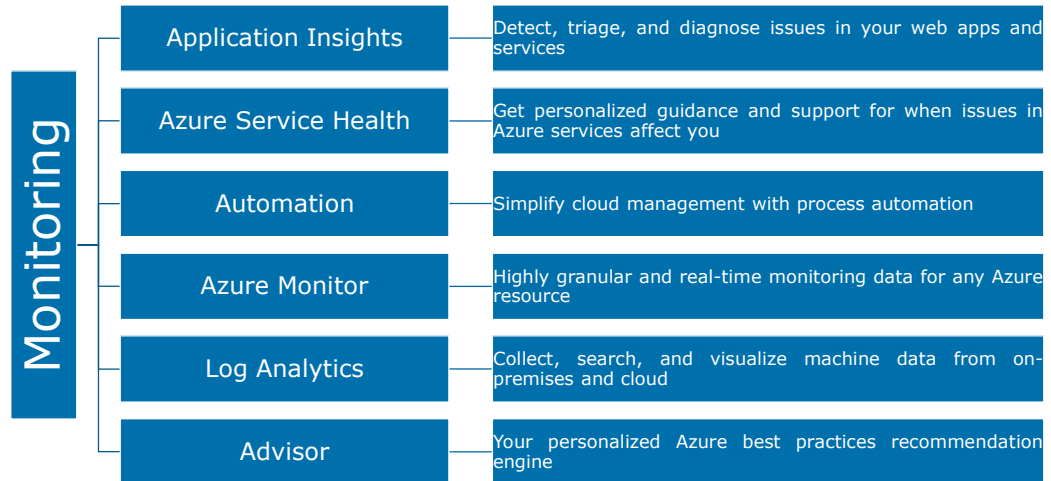
Azure App Services



Azure Security



Azure Monitoring

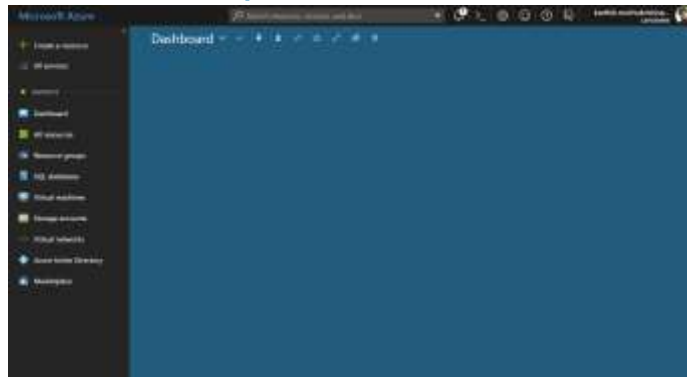


Microsoft Azure Portal



- Azure portal helps us to view and manage all of your applications in one unified hub

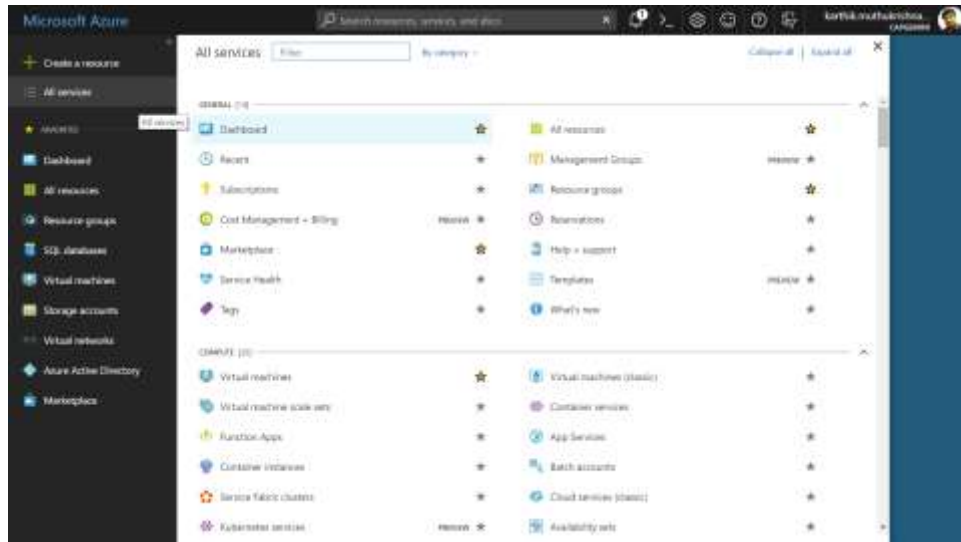
portal.azure.com



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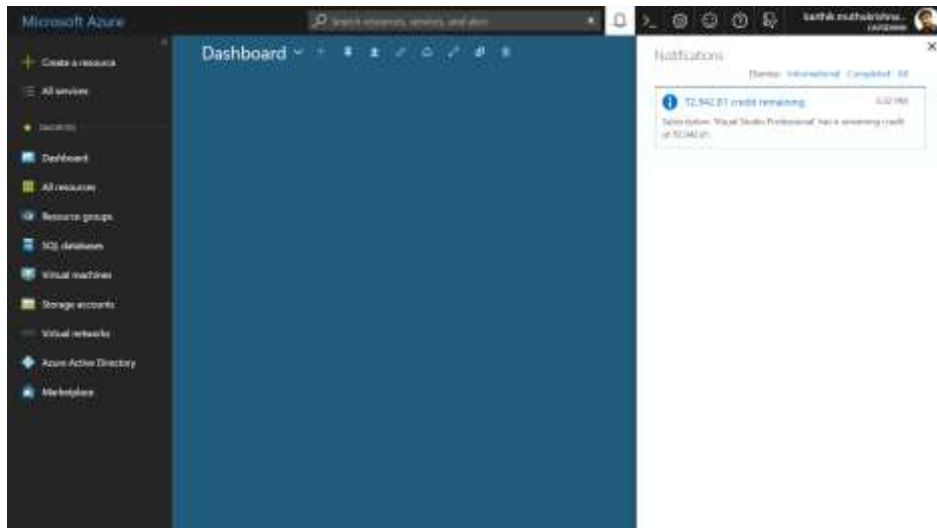
Accessing All the Services



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Notification Icon



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Portal Settings

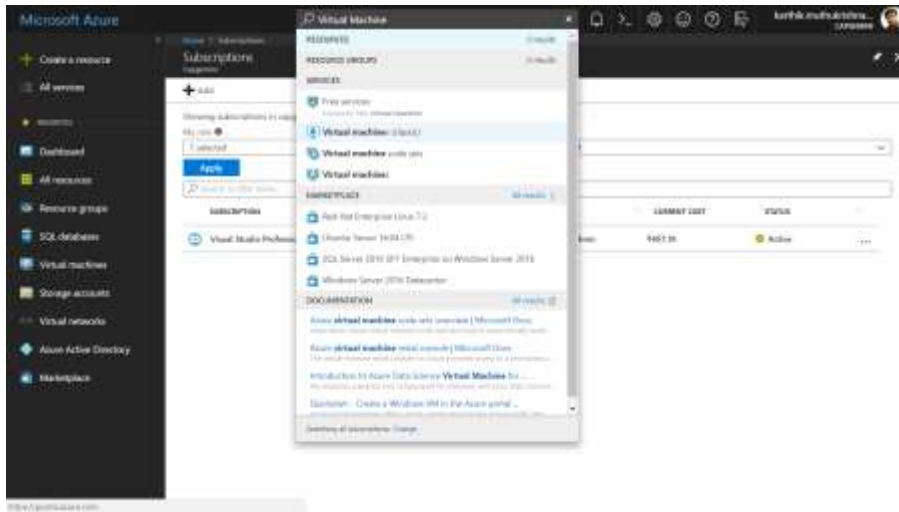


The screenshot displays the Microsoft Azure Portal interface. On the left is a dark sidebar with navigation options: 'Create a resource', 'All services', 'Subscriptions', 'Dashboard', 'All resources', 'Resource groups', 'SQL databases', 'Virtual machines', 'Storage accounts', 'Virtual networks', 'Azure Active Directory', and 'Marketplace'. The main area is a blue 'Dashboard'. On the right, the 'Portal settings' pane is open, showing options for 'Sign-in and when it matters' (set to 'None'), 'Choose a theme' (with 'Dark' selected), 'High contrast theme' (with 'None' selected), 'Send notifications' (with 'On' selected), 'When double click on dashboard to change theme' (with 'On' selected), 'Language (browser default)' (set to 'English'), and 'Regional format (browser default)' (set to 'English (United States)'). At the bottom of the settings pane are links for 'Restore default settings', 'Export all settings', and 'Delete all settings and restore defaults', along with 'Apply' and 'Cancel' buttons.

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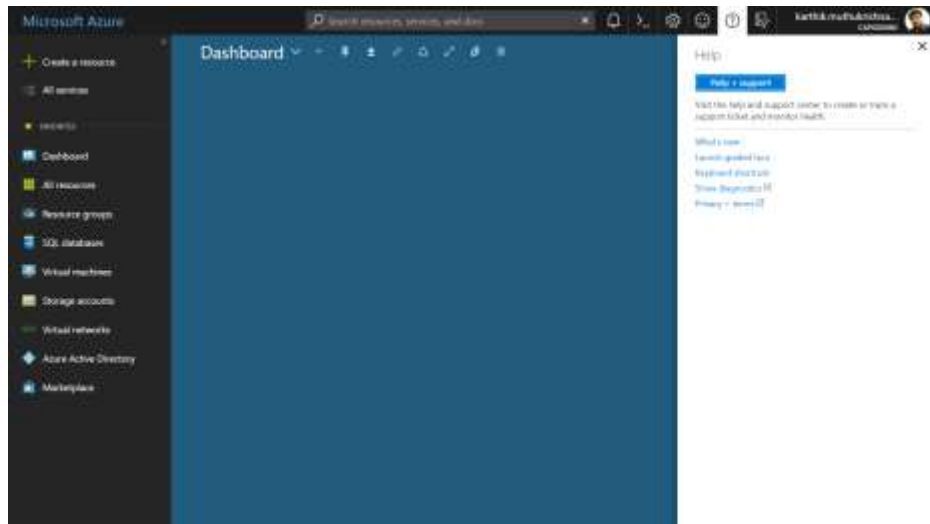
Azure Search(resources, services, and docs)



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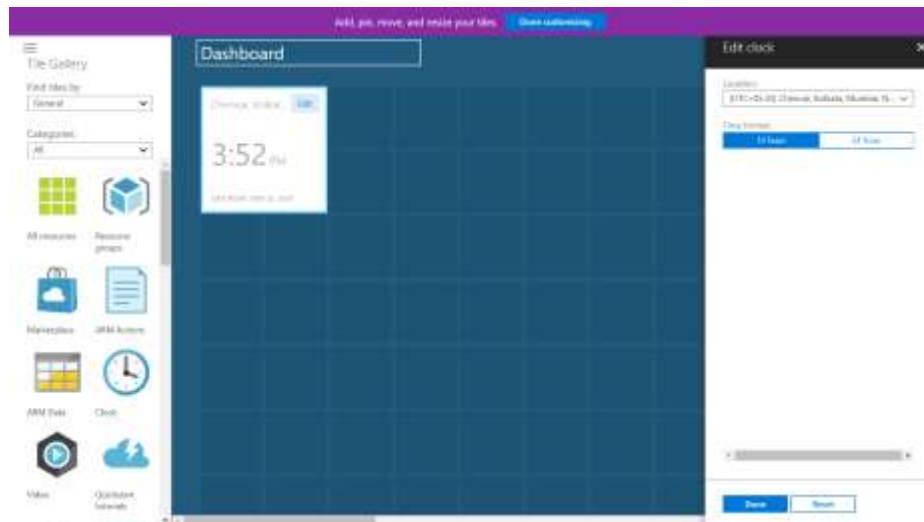
Azure Portal Help



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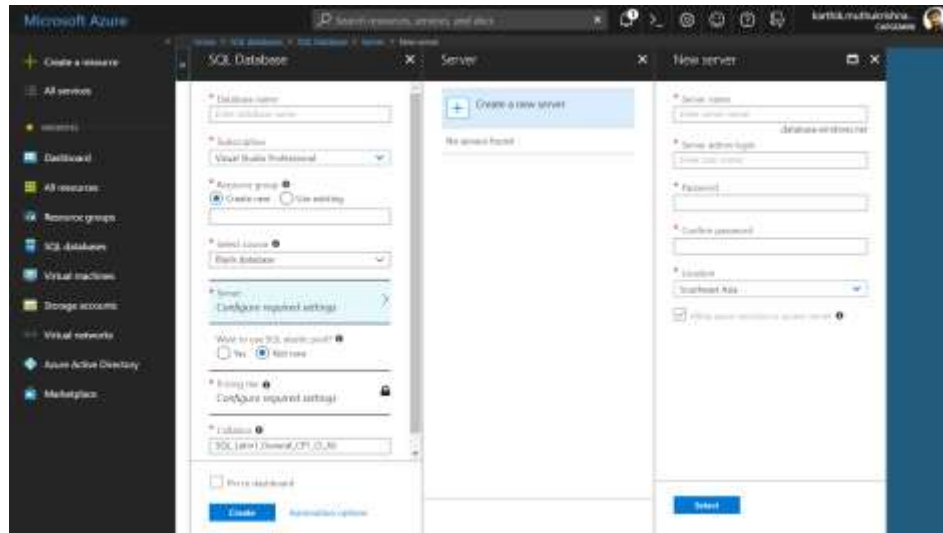
Editing Azure Dashboard



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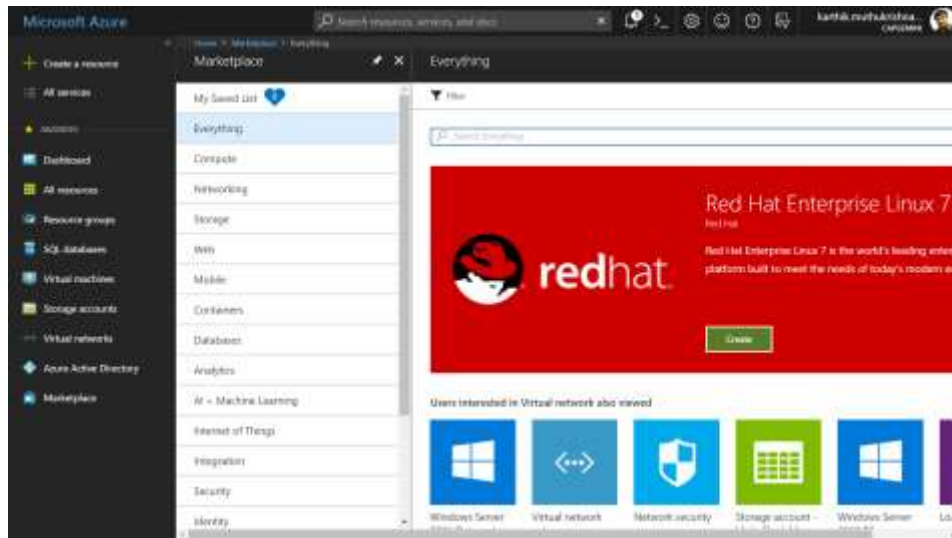
Azure Portal Navigation(Blades)



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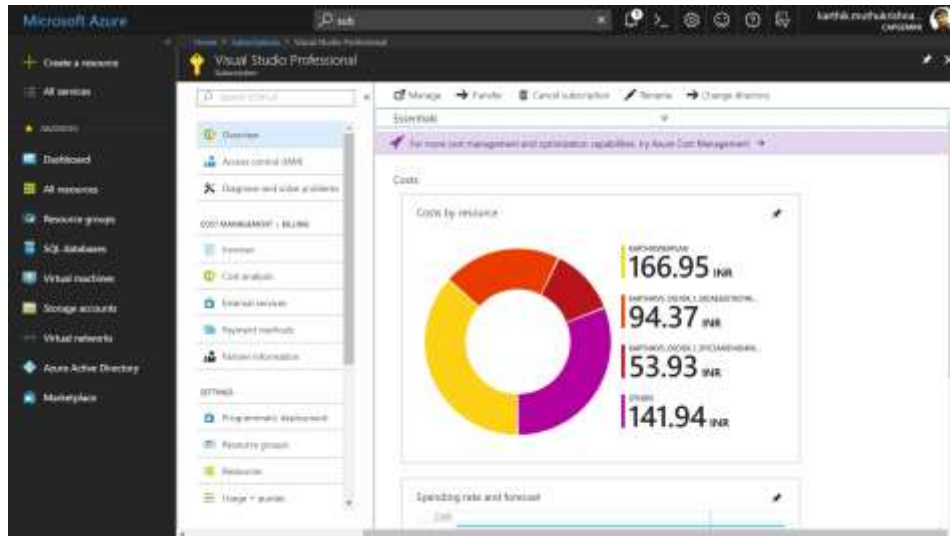
Azure Marketplace



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Azure Subscription Details



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Azure Free Services



Free services

Services free for 12 months with the Azure free account

Services that are included for free with your Azure free account. You can use these services within the limits listed below without getting charged. To learn more, see the [Azure free account FAQ](#).

| Service | Category | Free Tier | Description | Action |
|-------------------------|-----------|--------------------------|---|------------------------|
| Windows Virtual Machine | COMPUTE | 750 hours B1S | Create Windows virtual machines with on-demand capacity in seconds. Learn more | Create |
| Linux Virtual Machine | COMPUTE | 750 hours B1S | Create Linux virtual machines with on-demand capacity in seconds. Learn more | Create |
| Azure Managed Disks | STORAGE | 64 GB x 2 | Get premium, secured disk storage for Azure Virtual Machines with simplified management. Learn more | |
| Azure Blob Storage | STORAGE | 5 GB LRS hot block | | |
| Azure File Storage | STORAGE | 5 GB LRS File Storage | | |
| SQL Database | DATABASES | 250 GB | | |

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Azure Developer Tools



- Although Azure portal is a great way to work with Azure resources, Microsoft offers a comprehensive set of development tools for any developer using any platform or language to deliver cloud applications.

| Tool | Description |
|--------------------|---|
| Visual Studio | Get all the power and capabilities you need to easily develop, debug, deploy, manage and diagnose cloud-scale applications on Azure, using a full-featured IDE |
| Visual Studio Code | Edit and debug code quickly with a lightweight code editor that runs on macOS, Linux and Windows streamlined for building and deploying Node.js and Java apps to the cloud using serverless computing, containers or managed Web Apps |
| SDKs | Download and install language-specific SDKs and tools for your platform of choice, including .NET, Java, Node.js, Python and Go |
| CLIs | Use a Azure CLI / PowerShell command-line interface to create and manage services and automate everyday tasks in Azure |
| REST APIs | REST APIs allow us to interact with nearly every type of resource in Azure programmatically |

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Microsoft Azure can provide a bridge from your data center to the cloud.

Summary



- Microsoft Azure is an open, flexible, enterprise-grade cloud computing platform
- Azure gives customers the flexibility to deploy applications where they need to, by providing more global regions than any other cloud provider
- Using Azure Portal you can view and manage all your applications in one unified hub and stay on top of the things that matter most by pinning them to your dashboard



Summary



- Azure Marketplace is the premier destination for all your software needs which is certified and optimized to run on Azure
- The Azure CLI 2.0 is Microsoft's cross-platform command line experience for managing Azure resources
- Azure PowerShell provides a set of cmdlets that use the Azure Resource Manager model for managing your Azure resources.
- REST APIs allow us to interact with nearly every type of resource in Azure programmatically





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