Chapter-5
Azure SLA and Service Lifecycles

Topic-1: Familiarity with Azure Service Level Agreements (SLAs):

- **Azure Service Level Agreement (SLA)** is a contract between Microsoft and its customers outlining the service levels customers can expect from Azure. It defines the availability and performance standards for **Azure services** and the support customers can expect from Microsoft.
- The **Azure** SLA sets out the minimum service level that Microsoft guarantees its customers. The SLA covers various metrics, including uptime, performance, and customer support response times.
- The Azure SLA is critical for businesses that rely on cloud services. It ensures that companies can access reliable, high-performance, and secure cloud services that meet their needs. By providing clear and transparent service level agreements, Microsoft can help businesses to manage their expectations and make informed decisions about their cloud deployments.
- The Azure Service Level Agreement (SLA) includes several components, including:
    - **Service Availability:** The SLA guarantees a certain level of availability for each Azure service, which is expressed as a percentage of uptime in a given billing period.
    - Service Credit: If the SLA is not met, customers are eligible for service credits that can be applied to future Azure invoices.
    - **Exclusions:** The SLA may exclude certain situations, such as planned maintenance windows, force majeure events, or customer actions.
    - **Claim Process:** Customers must follow a specific approach to claim service credit, including providing details about the outage and Microsoft's response and resolution time.
    - **Remedies:** The SLA outlines the remedies available to customers if the SLA is not met, which may include service credits, technical support, or other options.
- Azure Service Level Agreement (SLA) offers several benefits, including:
    - **Guaranteed Uptime:** Azure SLA guarantees a minimum uptime for your services, which means you can be confident that your applications and services will be available to your customers when needed.
    - **Predictable Performance:** Azure SLA guarantees a predictable level of performance for your services, which means that you can plan and optimize your application and services accordingly.
    - **Compensation for Downtime:** If Azure SLA fails to meet the uptime guarantee, you are entitled to service credits, which can be used to pay for your Azure services.
    - **Improved Customer Satisfaction:** By providing reliable and predictable services, Azure SLA can help improve customer satisfaction and loyalty.

Topic-2: Azure service lifecycle:

Private Preview:

- Private Previews are generally the first release of a product and customers are invited to try the service to help provide feedback, to understand if the service is something that is needed as well as help to shape the future of the product.
- Generally there is a limited number of customers that are invited into a private preview and these customers are expected to spend time with the Product Group* providing their feedback of the product.
- All preview services are provided "as is" and aren't covered by any Service Level Agreements (SLA). They are generally not supported by customer support either, however some support is

provided via the Product Group. There is also no guarantee that a preview feature will go into General Availability.
- Previews are generally free of charge.

Public Preview:

- After a product has went through the private preview stage, the next stage is a larger public preview. Again this is used to understand customers needs and help shape the future of the product. Private Preview offerings are often advertised on the Azure blogs or places such as Twitter.
- Again, as with the private preview, all preview services are provided "as is" and aren't covered by any Service Level Agreements (SLA). Again though, previews are generally free of charge.
- Getting involved with the private or public previews is a great way of testing services and help drive products in the direction that would be useful for you and your organisation.

General Availability (GA):

- When a service goes GA it is in full production mode. It is fully supported by SLAs, customer support and is viable for production workloads. Now that the service is live it is also chargable.

Topic-3: Composite SLA:

- A composite SLA in Azure refers to the combined uptime guarantee for a scenario where your application relies on multiple Azure services. It essentially calculates the overall availability you can expect when these services work together.
- **Individual SLAs:** Each Azure service has its own SLA with a specific uptime guarantee (e.g., 99.95% uptime for Azure Virtual Machines).
- **Composite SLA Calculation:** When multiple services contribute to your application, their individual SLAs are multiplied to estimate the composite SLA for your entire application.
- **Example:** Composite SLA Calculation
  Imagine your application uses Azure App Service (hypothetical SLA: 99.95%) and Azure SQL Database (hypothetical SLA: 99.99%). If either service experiences an outage, your application will be unavailable.
- Composite SLA = App Service SLA * SQL Database SLA = 99.95% * 99.99% ≈ 99.94%
- **Key Points:**
  - **Lower Overall Uptime:** Due to the multiplicative nature of the calculation, a composite SLA is typically lower than the individual SLAs of the involved services.
  - **Importance of Design:** The architecture and design of your application can impact the composite SLA. Redundancy and high availability features can help mitigate the impact of outages in individual services.
  - **Not a Guarantee of Zero Downtime:** Even with a high composite SLA, occasional outages can still occur due to unforeseen circumstances.
- **Benefits of Composite SLAs:**
  - **Realistic Expectations:** By understanding how composite SLAs work, you can set realistic expectations for your application's overall uptime based on the underlying Azure services.
  - **Informed Design Decisions:** Considering composite SLAs during the design phase of your application can help you choose services and implement features that contribute to higher overall availability.
  - **Improved Risk Management:** Understanding potential downtime implications can help you develop mitigation strategies and ensure business continuity in case of outages.

Topic-4: Planned Maintainance:

- Planned maintenance refers to scheduled periods where Microsoft performs maintenance activities on the Azure cloud infrastructure. This maintenance ensures the ongoing reliability, performance, security, and feature improvements for Azure services.
- **Key aspects of planned maintenance in Azure:**
    - **Notifications:** Microsoft proactively notifies Azure customers about upcoming planned maintenance events. These notifications are typically delivered through the Azure portal, email, or service health notifications.
    - **Maintenance Windows:** Planned maintenance is usually carried out during designated maintenance windows. This timeframe is chosen to minimize disruption to user workloads. The duration of the window can vary depending on the maintenance complexity.
    - **Impact on Users:** The impact of planned maintenance on your Azure resources can vary. In some cases, maintenance might be entirely transparent, with no noticeable downtime. However, for certain maintenance activities, there might be a brief service interruption or performance degradation.
    - **Self-Service Maintenance Option:** For some Azure services (like Virtual Machines), Azure offers a self-service maintenance option. This allows you to choose a specific time window within the designated maintenance window to restart your VMs to minimize disruption to your workloads.
- **How to Prepare for Planned Maintenance:**
    - **Stay Informed:** Regularly check the Azure service health notifications and your email for announcements regarding upcoming planned maintenance.
    - **Identify Impacted Resources:** Review the notification details to understand which Azure services or resources might be affected by the maintenance.
    - **Plan for Downtime:** If the maintenance might cause service interruptions, consider scheduling non-critical tasks outside the maintenance window or implement high availability strategies for your applications.
    - **Self-Service Option (if available):** For services offering self-service maintenance, choose a suitable time window within the designated window to restart your resources and minimize downtime.

    - **Regional Rollouts:** Planned maintenance might be rolled out gradually across different Azure regions to minimize overall disruption.
    - **Microsoft's Commitment:** Microsoft strives to minimize the impact of planned maintenance on customer workloads. They are committed to providing clear communication and offering options for self-service maintenance whenever possible.

Topic-5: Azure Service Health:

- Azure offers a suite of experiences to keep you informed about the health of your cloud resources. This information includes current and upcoming issues such as service impacting events, planned maintenance, and other changes that may affect your availability.
- Azure Service Health is a combination of three separate smaller services.
- Azure status informs you of service outages in Azure on the **Azure Status page**. The page is a global view of the health of all Azure services across all Azure regions.
- The status page is a good reference for incidents with widespread impact, but we strongly recommend that current Azure users leverage Azure service health to stay informed about Azure incidents and maintenance.

- **Service health** provides a personalized view of the health of the Azure services and regions you're using.
- This is the best place to look for service impacting communications about outages, planned maintenance activities, and other health advisories because the authenticated Service Health experience knows which services and resources you currently use. The best way to use Service Health is to set up Service Health alerts to notify you via your preferred communication channels when service issues, planned maintenance, or other changes may affect the Azure services and regions you use.
- **Resource health** provides information about the health of your individual cloud resources such as a specific virtual machine instance.
- Using Azure Monitor, you can also configure alerts to notify you of availability changes to your cloud resources.
- Resource Health along with Azure Monitor notifications will help you stay better informed about the availability of your resources minute by minute and quickly assess whether an issue is due to a problem on your side or related to an Azure platform event.
- **Key components of Azure Service Health:**
    - **Azure Status:** This is a global view of the health of all Azure services across all Azure regions. It provides a quick and centralized location to check for any ongoing service outages or disruptions that might have a widespread impact.
    - **Service health:** This personalized view focuses on the health of the Azure services and regions you're actively using. It provides insights into:
    - **Active events:** This includes ongoing service issues, upcoming planned maintenance activities, and health advisories relevant to your specific Azure environment.
    - **Past events:** Service Health maintains a history of past health events (up to 90 days by default) for your reference.
    - **Health alerts:** You can configure Service Health to send alerts via various channels (email, SMS, push notifications) when issues arise that might impact your resources.