OE – Azure Fundamentals (5th Sem)

Module 5: **Azure SLA & Service Lifecycles**

1. Service Level Agreement (SLA) in Cloud Computing

A Service Level Agreement (SLA) in cloud computing is a formal contract or agreement between a cloud service provider (CSP) that promises to deliver in terms of uptime, availability, security, and support.

Service Level Agreement (SLA) in this context:

Uptime: The SLA might guarantee that the email service will be available 99.9% of the time during a month, meaning it can only be down for a maximum of around 43 minutes in a 30-day period.

Data Backup: The SLA might specify that the provider will perform daily backups of your email data and retain it for 30 days, ensuring data recovery in case of data loss.

Security: It could outline security measures like encryption and regular security audits to protect your email data from unauthorized access.

Support: The SLA may promise 24/7 customer support with response times defined for different levels of issues. For example, critical issues will have a response time of 1 hour, while non-critical issues might have a 24-hour response time.

Penalties: There could be penalties or compensation outlined in the SLA if the provider fails to meet the agreed-upon service levels. For instance, if they don't meet the uptime guarantee, you might receive service credits or refunds.

Real Life Example: - Imagine you're a business owner (the customer) who relies on a cloud-based email service provided by a company like Microsoft through their Office 365 platform.

2. Service Lifecycles in Cloud Computing

The service life cycle in Azure, Microsoft's cloud computing platform, can be simplified into a few key stages, with a real-life example involving a car purchase:

Design & Development:

This stage involves planning and designing your cloud solution. You decide what services and resources you'll need to build your application or run your business processes in the cloud.

Real-life Example: When buying a car, this is similar to choosing the car's make, model, and specifications. You decide what features and capabilities are essential for your needs.

Deployment & Provisioning:

Here, you create and configure the necessary resources in Azure. This could include virtual machines, databases, storage, and networking components.

Real-life Example: After choosing a car, you go to the dealership and purchase the vehicle. The car is then prepared, equipped with options, and made ready for your use.

Operations & Management:

This stage involves the day-to-day management and monitoring of your cloud resources. You ensure that everything is running smoothly, and you might scale resources up or down as needed.

Real-life Example: After buying the car, you regularly maintain it by getting oil changes, checking tire pressure, and ensuring it's in good working condition.

Security & Compliance:

You implement security measures, set up access controls, and ensure compliance with regulations to protect your data and resources.

Real-life Example: You might install a car alarm, use security features like a steering wheel lock, and ensure your car complies with local traffic laws.

Monitoring & Optimization:

Continuously monitor your cloud services' performance and costs. Optimize resource usage to ensure cost-effectiveness.

Real-life Example: Track your car's fuel efficiency and maintenance costs. Adjust your driving habits to optimize fuel consumption and reduce expenses.

Scaling & Adaptation:

Based on changing needs, you can scale resources up to handle increased demand or down to save costs.

Real-life Example: If you need more passenger capacity, you might upgrade to a larger car. If you're looking to save on fuel costs, you might switch to a more fuel-efficient model.

Backup & Recovery:

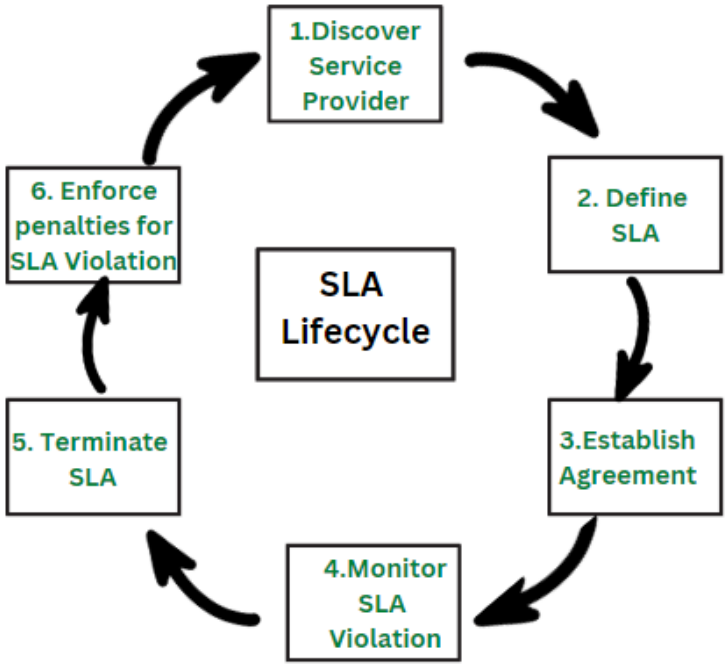
Implement data backup and recovery strategies to protect against data loss and ensure business continuity.

Real-life Example: You purchase insurance for your car to safeguard against accidents and unforeseen events.

End of Life & Decommissioning:

When a service or resource is no longer needed, you decommission it, which involves shutting down and removing it from Azure.

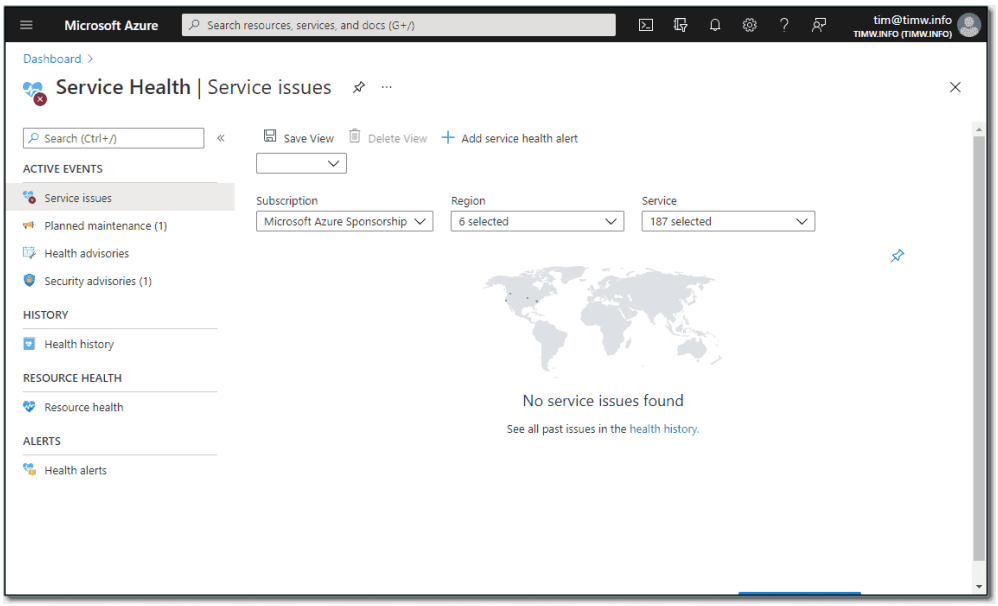
Real-life Example: When you decide to sell or dispose of your car, you go through a process to officially retire it from your ownership.



3. **Azure Service Health**

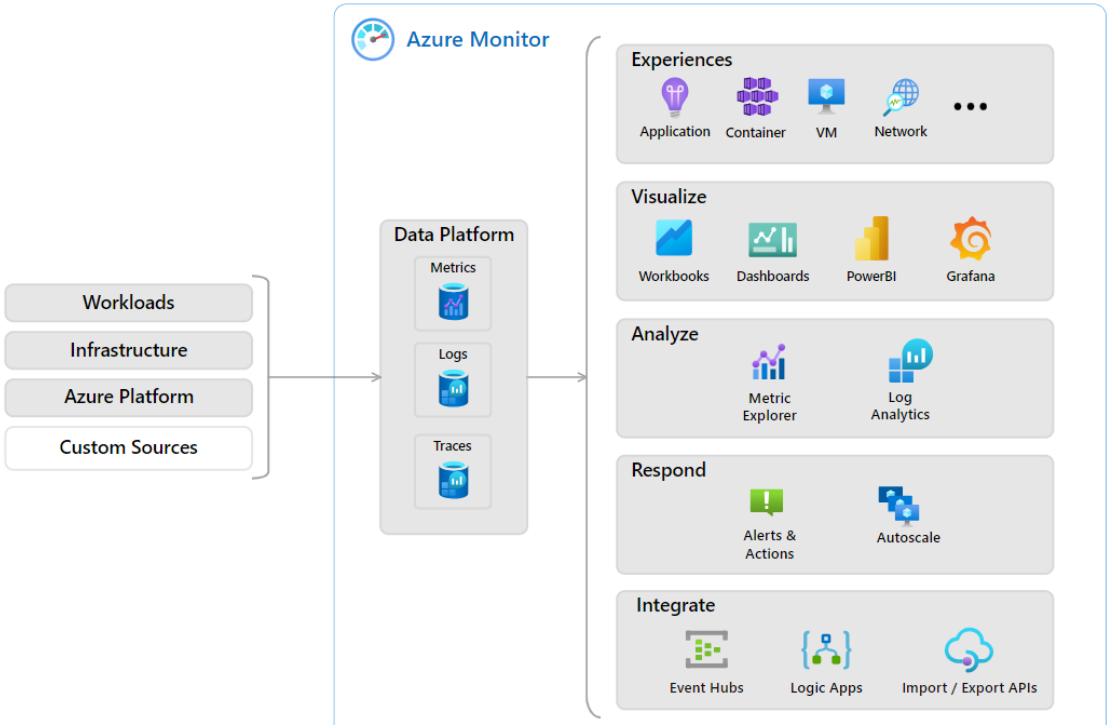
Azure Service Health is like a real-time status dashboard that provides information about the health and availability of Microsoft Azure services. It helps Azure customers stay informed about any issues or incidents affecting their cloud resources.

Real Life Example: Think of Azure Service Health like a weather forecast for your business operations in the cloud. Just as you check the weather to plan your outdoor activities, you use Azure Service Health to plan and manage your cloud-based services.



4. Azure Monitor

Azure Monitor is a platform for collecting data on your resources, analysing that data, visualizing the information, and even acting on the results. Azure Monitor can monitor Azure resources, you're on-premises resources, and even multi-cloud resources like virtual machines hosted with a different cloud provider.



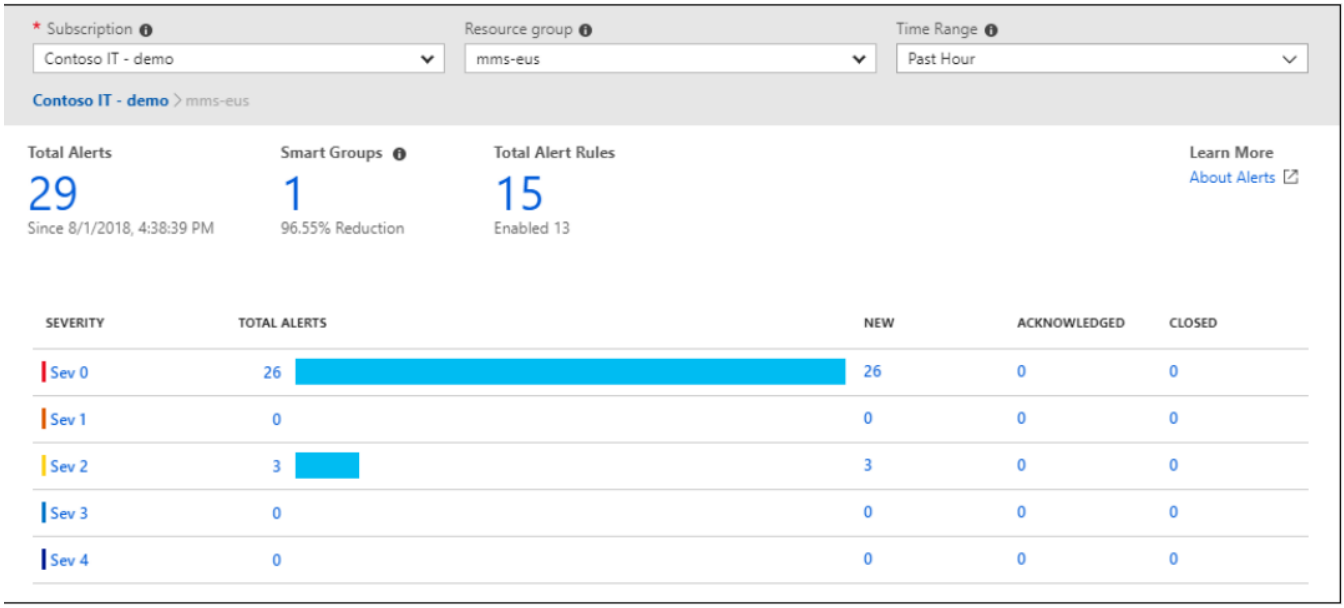
5. Azure Log Analytics

Azure Log Analytics is the tool in the Azure portal where you'll write and run log queries on the data gathered by Azure Monitor. Log Analytics is a robust tool that supports both simple, complex queries, and data analysis. You can write a simple query that returns a set of records and then use features of Log Analytics to sort, filter, and analyse the records.

Real Life Example: A large e-commerce company uses Azure Log Analytics to monitor its online store. It collects data from web servers, databases, and virtual machines. It sets up custom alerts to detect abnormal traffic patterns and high error rates, ensuring that the site remains responsive and available. Security events trigger alerts, helping them respond to potential threats quickly. They use historical data to plan for peak shopping seasons, scale resources accordingly, and manage costs effectively. This proactive approach ensures a smooth shopping experience for customers while maintaining security and cost-efficiency.

6. Azure Monitor Alerts

Azure Monitor, in the simplest terms, is like a set of monitoring tools that allow you to keep an eye on your applications and resources running in Microsoft's Azure cloud platform, just as you might use instruments to monitor the health of a car engine.



7. Application Insights

Application Insights, an Azure Monitor feature, monitors your web applications. Application Insights is capable of monitoring applications that are running in Azure, on-premises, or in a different cloud environment.

There are two ways to configure Application Insights to help monitor your application. You can either install an SDK in your application, or you can use the Application

Insights agent. The Application Insights agent is supported in C#.NET, VB.NET, Java, JavaScript, Node.js, and Python.

Once Application Insights is up and running, you can use it to monitor a broad array of information, such as:

- Request rates, response times, and failure rates
- Dependency rates, response times, and failure rates, to show whether external services are slowing down performance
- Page views and load performance reported by users' browsers
- AJAX calls from web pages, including rates, response times, and failure rates
- User and session counts
- Performance counters from Windows or Linux server machines, such as CPU, memory, and network usage

Not only does Application Insights help you monitor the performance of your application, but you can also configure it to periodically send synthetic requests to your application, allowing you to check the status and monitor your application even during periods of low activity.

8. **Purpose of Azure Advisor**

Azure Advisor evaluates your Azure resources and makes recommendations to help improve reliability, security, and performance, achieve operational excellence, and reduce costs. Azure Advisor is designed to help you save time on cloud optimization. The recommendation service includes suggested actions you can take right away, postpone, or dismiss.

The recommendations are available via the Azure portal and the API, and you can set up notifications to alert you to new recommendations.

When you're in the Azure portal, the Advisor dashboard displays personalized recommendations for all your subscriptions. You can use filters to select recommendations for specific subscriptions, resource groups, or services. The recommendations are divided into five categories:

- **Reliability** is used to ensure and improve the continuity of your business-critical applications.
- **Security** is used to detect threats and vulnerabilities that might lead to security breaches.
- **Performance** is used to improve the speed of your applications.
- **Operational Excellence** is used to help you achieve process and workflow efficiency, resource manageability, and deployment best practices.
- **Cost** is used to optimize and reduce your overall Azure spending.

The following image shows the Azure Advisor dashboard.