**AWS CLI (Amazon Web Services Command Line Interface)**

**Purpose:**

* The AWS CLI is a unified tool for managing AWS services.
* It allows developers to interact with AWS services, automate tasks, and integrate AWS services with other tools.

**Advantages:**

* Speed and efficiency for repetitive tasks.
* Flexibility for automating complex tasks.
* Integration with CI/CD pipelines.
* Enhanced productivity and flexibility in AWS resource management.

**Use Cases:**

* Create, start, stop, and terminate EC2 instances.
* Upload and download objects to and from Amazon S3.
* Create and manage RDS databases.
* Configure security groups and network ACLs.
* Monitor AWS resources using CloudWatch.

**AWS CLI Configuration:**

* Use the **aws configure** command.
* Input AWS Access Key ID, AWS Secret Access Key, default region, and output format.
* Create named profiles for different AWS accounts or purposes using the **--profile** option.

**AWS Cloud9**

**Activities:**

* Code editing and development in a cloud-based integrated development environment (IDE).
* Collaboration on projects in real-time.
* Code deployment to AWS services like EC2, Lambda, and Elastic Beanstalk.
* Testing and debugging with a built-in debugger.
* Version control integration with Git and Subversion.

**Features:**

* Cloud-based IDE accessible from any device with a web browser.
* Supports multiple programming languages.
* Code completion, linting, and integrated terminal.
* Includes AWS Toolkit for Cloud9 for developing and deploying applications on AWS.

**Benefits:**

* Increased productivity.
* Reduced costs with a cloud-based environment.
* Enhanced collaboration and code sharing.
* Simplified code deployment to AWS services.

**Amazon API Gateway**

**Purpose:**

* Fully managed service for creating, publishing, maintaining, monitoring, and securing APIs at any scale.
* Acts as a "front door" for applications to access backend services.

**Key Benefits:**

* Ease of use.
* Scalability, handling millions of API calls per second.
* Security features including authentication and authorization.
* Comprehensive monitoring and cost-effectiveness.

**Use Cases:**

* Expose data from a backend database to a mobile app.
* Provide a REST API for a microservices architecture.
* Create a public API for a third-party developer community.

**Additional Benefits:**

* Supports multiple API styles: REST, HTTP, and WebSocket.
* Integrates with other AWS services like Cognito, Lambda, and DynamoDB.
* Customizable API responses and version management.
* API throttling for rate limiting.

**Security:**

* Supports various authentication methods, including IAM roles, AWS Signature Version 4, and OAuth2.
* Fine-grained authorization and request validation.
* Throttling to limit requests.

**Logging:**

* Access logs containing request details (method, URL, IP).
* Execution logs with request parameters, response, and errors.

**Finish AWS CLI Installation:**

After unzipping the AWS CLI folder, run **sudo ./aws/install**

**Long-Lasting Connection API:**

**WebSocket API** is used for long-lasting connections.

**AWS CLI User Identity:**

AWS CLI uses the **Access Key ID and Secret Access Key** to determine user identity.

**AWS Cloud9 Supported OS:**

Supported operating systems for AWS Cloud9 are **Amazon Linux 2** and **Ubuntu Server 18.04 LTS.**

**AWS Service for API Gateway Logs:**

**AWS CloudWatch** captures logs for API Gateway.

**AWS CLI Version Check with Docker:**

Use **docker run --rm -it amazon/aws-cli --version** to check the AWS CLI version.

**AWS Service Provisioned with Cloud9:**

An **EC2 instance** is provisioned with AWS Cloud9.

**Install AWS CLI on Windows:**

Use **msiexec.exe /i https://awscli.amazonaws.com/AWSCLIV2.msi** to install AWS CLI on Windows.

**List IAM Users with Profile "Skillsoft":**

Run **aws iam list-users --profile Skillsoft** to list users with the "Skillsoft" profile.

**Check AWS CLI Version:**

Use **aws --version** to check your AWS CLI version.

**Configure AWS CLI Profile:**

Configure the AWS CLI for a profile named "Skillsoft" using **aws configure --profile Skillsoft.**

**Endpoint URL Addition:**

Add the **API route** to the end of the invoking URL to run your endpoint.