**CLOUD APPLICATION AND DEVELOPMENT**

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**Explain what Keystone, CLI programming, and instance creation are in OpenStack.**

**Keystone :**

The identification service component of the OpenStack cloud computing architecture is called Keystone. For all of the OpenStack services, it offers a centralised authentication and permission system. Within the OpenStack system, Keystone enables administrators to create, manage, and revoke user accounts as well as to grant roles and permissions to users and services.

It supports a number of authentication methods, including identity federation, token-based authentication, and password-based authentication. Role-based access control (RBAC), another feature of Keystone, enables administrators to manage access to resources according to the roles and privileges of users.

**CLI Programming**

Developers and administrators can communicate with OpenStack services via to the command-line interface (CLI) that OpenStack offers. It is an effective and adaptable method for managing OpenStack resources, such as instances, networks, and storage volumes, provided through the OpenStack CLI. Shell scripts and other programming languages can be used by developers to automate processes like instance creation and administration using the CLI.

**Instance Creation.**

Launching a virtual machine (VM) instance on an OpenStack cloud is known as creating an instance in OpenStack. A VM image must be chosen, the instance's computational resources (such as CPU, memory, and storage), and its network settings must be specified. The instance can be accessed via a remote console or a remote desktop client and is launched using the OpenStack Compute service (Nova). The ability to deploy and operate applications on OpenStack clouds is made possible through instance creation, which is a critical component of using OpenStack.

The steps involved in creating an instance in OpenStack are as follows:

1.OpenStack dashboard can be accessed here: You must sign in to the OpenStack dashboard in order to create an instance.

2.Use the Compute Service (Nova): To establish an instance, use the compute service (nova) link on the dashboard.

3.Specify instance specifics: In order to create an instance, you must specify its name, flavour (size), image, network configuration, and security groups.

4.Launch the instance: Once the instance's specifics have been established, launch the instance. The instance will be created, and the dashboard will show you its current status.