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Cloud Application and Development.

Prepare a Document for major openstack component that include nova, neutron, cender, glance, swift and horizon.

OpenStack is an open-source cloud computing platform that enables organizations to manage and control large pools of compute, storage, and networking resources through a web-based dashboard or via APIs. It provides a set of core services, including:

- Compute (Nova): A service for managing and provisioning virtual machines.
- Storage (Swift and Cinder): Services for managing and provisioning block and object storage.
- Networking (Neutron): A service for managing and provisioning virtual networks.
- Image (Glance): A service for managing and distributing virtual machine images.
- Identity (Keystone): A service for managing authentication and authorization.

OpenStack also has a number of optional services, such as:

- Orchestration (Heat): A service for automating the deployment and management of complex cloud applications.
- Telemetry (Ceilometer): A service for collecting and analyzing usage and performance data.
- Database (Trove): A service for provisioning and managing databases.
- Backup (Barbican): A service for managing and encrypting backups.

OpenStack is a complex and powerful platform, and deploying and managing it can be challenging. It is recommended to have a team of experts with experience in cloud computing, virtualization, and Linux administration to manage an OpenStack deployment.

Overall OpenStack is a powerful and flexible platform for building and managing cloud environments, and it is widely used by organizations of all sizes, across a variety of industries.

Various openstack components:-

1. Nova: The compute service for OpenStack, responsible for launching and managing virtual machines. Nova provides the ability to create and manage instances, or virtual machines, within an OpenStack cloud. It also provides a simple API for interacting with instances, and supports a variety of hypervisors, including KVM, XEN, and VMware. Nova also supports various features such as live migration, auto-scaling, and resource scheduling.

2. Neutron: The networking service for OpenStack, responsible for managing network connectivity and security for virtual machines. Neutron provides a range of networking capabilities, such as virtual networks, load balancing, and firewall functionality. It also supports a variety of plug-ins and drivers, allowing it to integrate with different networking technologies. Neutron also allows to create multiple networks, subnets and it also allows to isolate different tenants by creating separate VLANs.

3. Cinder: The block storage service for OpenStack, responsible for managing and providing access to persistent storage for virtual machines. Cinder provides a simple API for creating and managing block storage volumes, and supports a variety of storage backends, including LVM, Ceph, and Fibre Channel. Cinder also allows to attach multiple storage volumes to instances, take snapshot and backup of the volumes.

4. Glance: The image service for OpenStack, responsible for managing and distributing virtual machine images. Glance allows users to discover, register, and retrieve virtual machine images. It also supports image storage in a variety of backends, including local disk, object storage, and S3.

5. Swift: The object storage service for OpenStack, responsible for providing scalable and reliable storage for unstructured data. Swift provides a simple API for creating and managing objects and object containers. It also supports data replication and sharding, ensuring data durability and availability.

6. Horizon: The dashboard service for OpenStack, providing a web-based user interface for managing and interacting with OpenStack services.

Horizon allows users to easily create, manage, and monitor resources within their OpenStack cloud. It also provides a simple and intuitive user interface for managing resources and services, such as instances, networks, and storage volumes.

Each of these components can be installed and configured independently, but they all work together to provide a complete cloud computing platform for managing and scaling infrastructure.