Cloud Computing: Open Stack Part I

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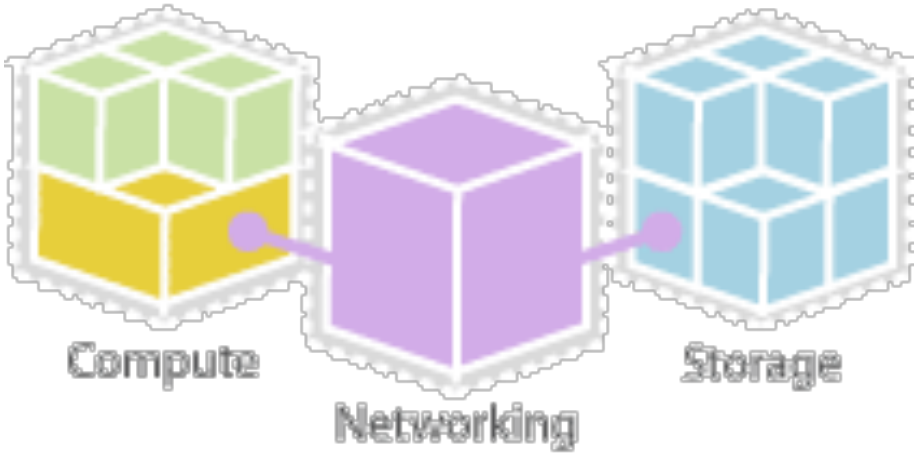
Open Stack



Open Stack Cloud features

1. On-demand self-service: Users can automatically provision needed computing capabilities, such as server time and network storage, without requiring human interaction with each service provider.

2. Network access: Any computing capabilities are available over the network. Many different devices are allowed access through standardized mechanisms.

3. Resource pooling: Multiple users can access clouds that serve other consumers according to demand.

4. Elasticity: Provisioning is rapid and scales out or is based on need.

5. Metered or measured service: Cloud systems can optimize and control resource use at the level that is appropriate for the service. Services include storage, processing, bandwidth, and active user accounts. Monitoring and reporting of resource usage provides transparency for both the provider and consumer of the utilized service.

Service Models

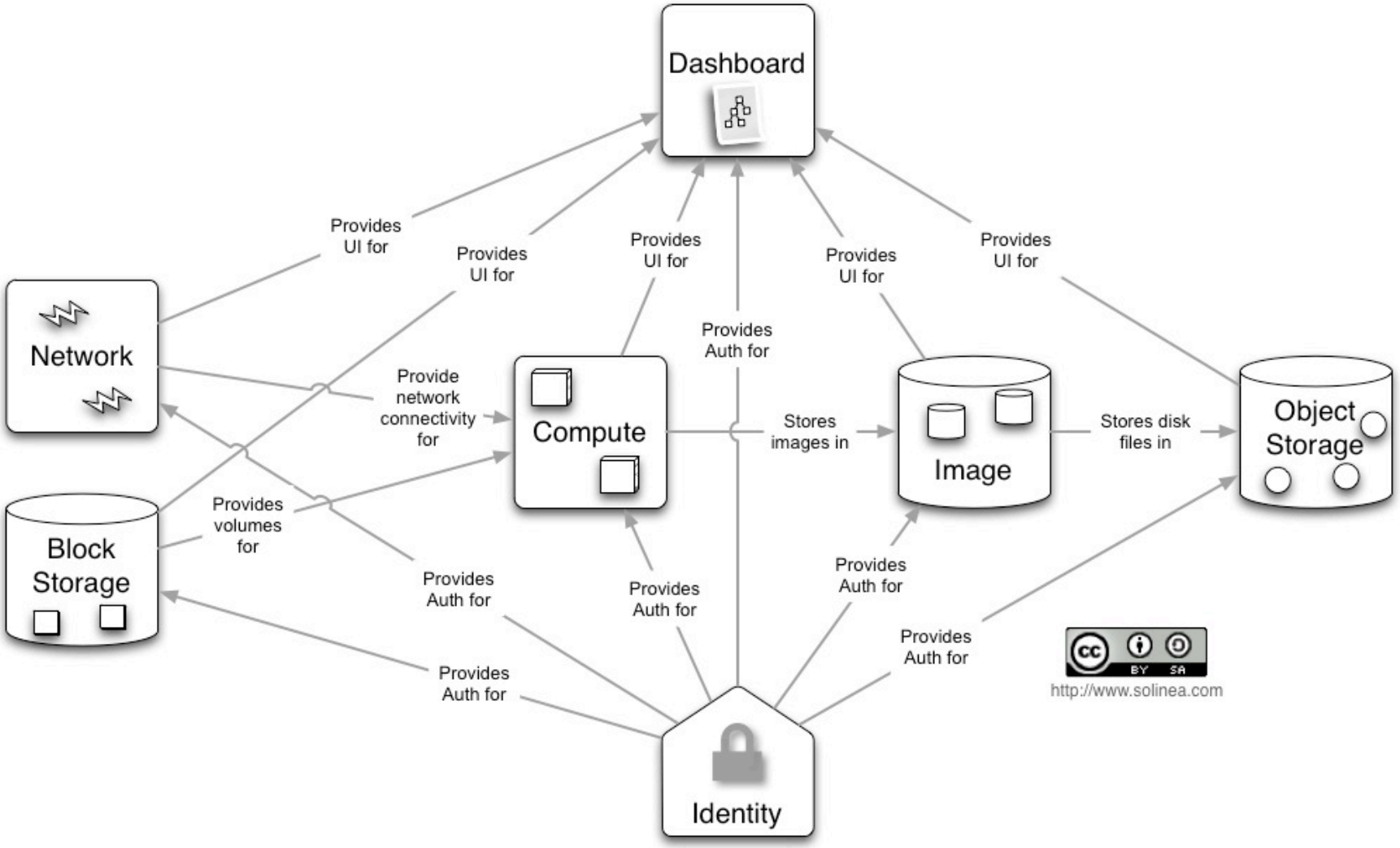
Cloud computing offers different service models depending on the capabilities a consumer may require.

SaaS: Software as a Service. Provides the consumer the ability to use the software in a cloud environment, such as web-based email for example.

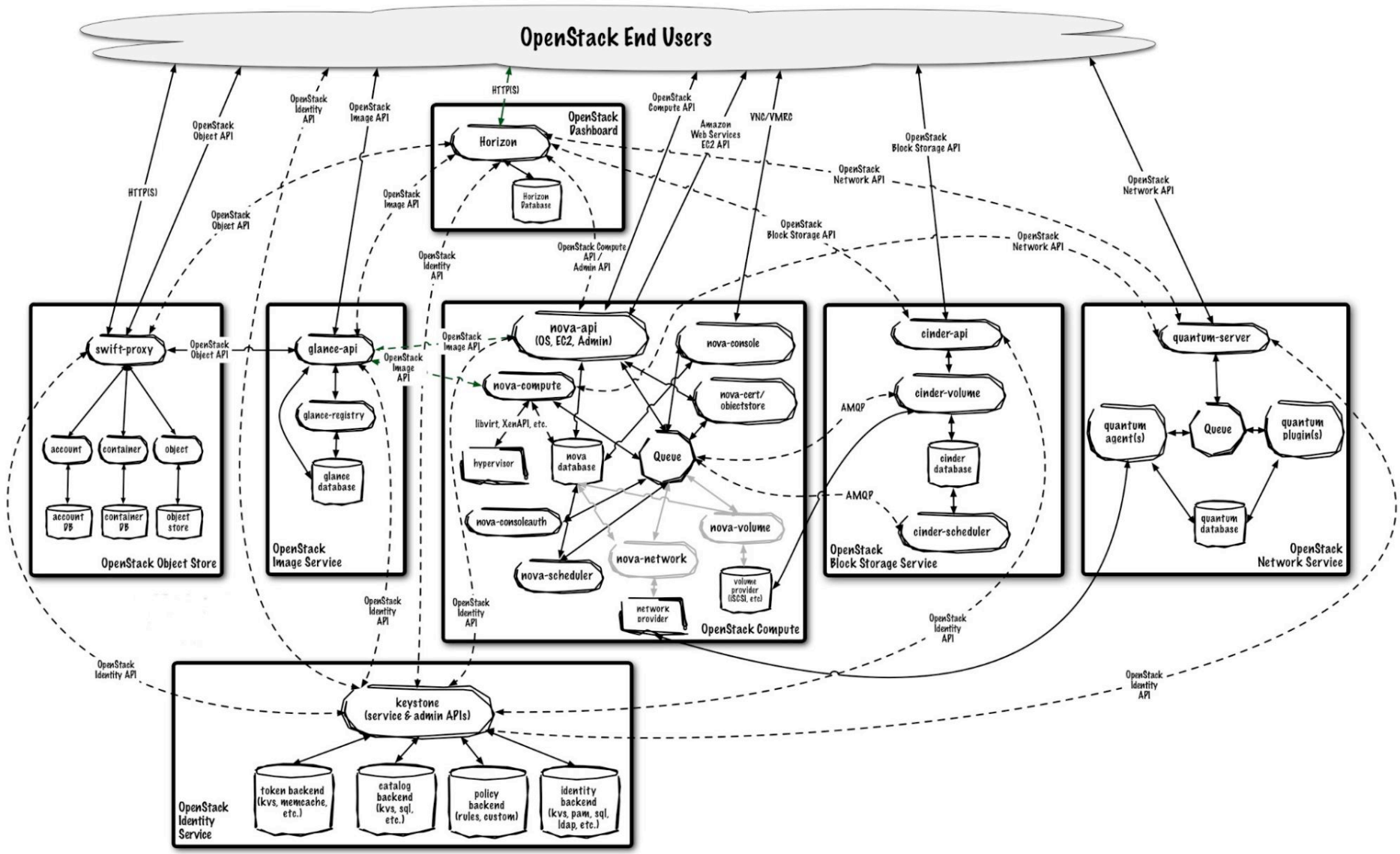
PaaS: Platform as a Service. Provides the consumer the ability to deploy applications through a programming language or tools supported by the cloud platform provider. An example of platform as a service is an Eclipse/Java programming platform provided with no downloads required.

IaaS: Infrastructure as a Service. Provides infrastructure such as computer instances, network connections, and storage so that people can run any software or operating system.

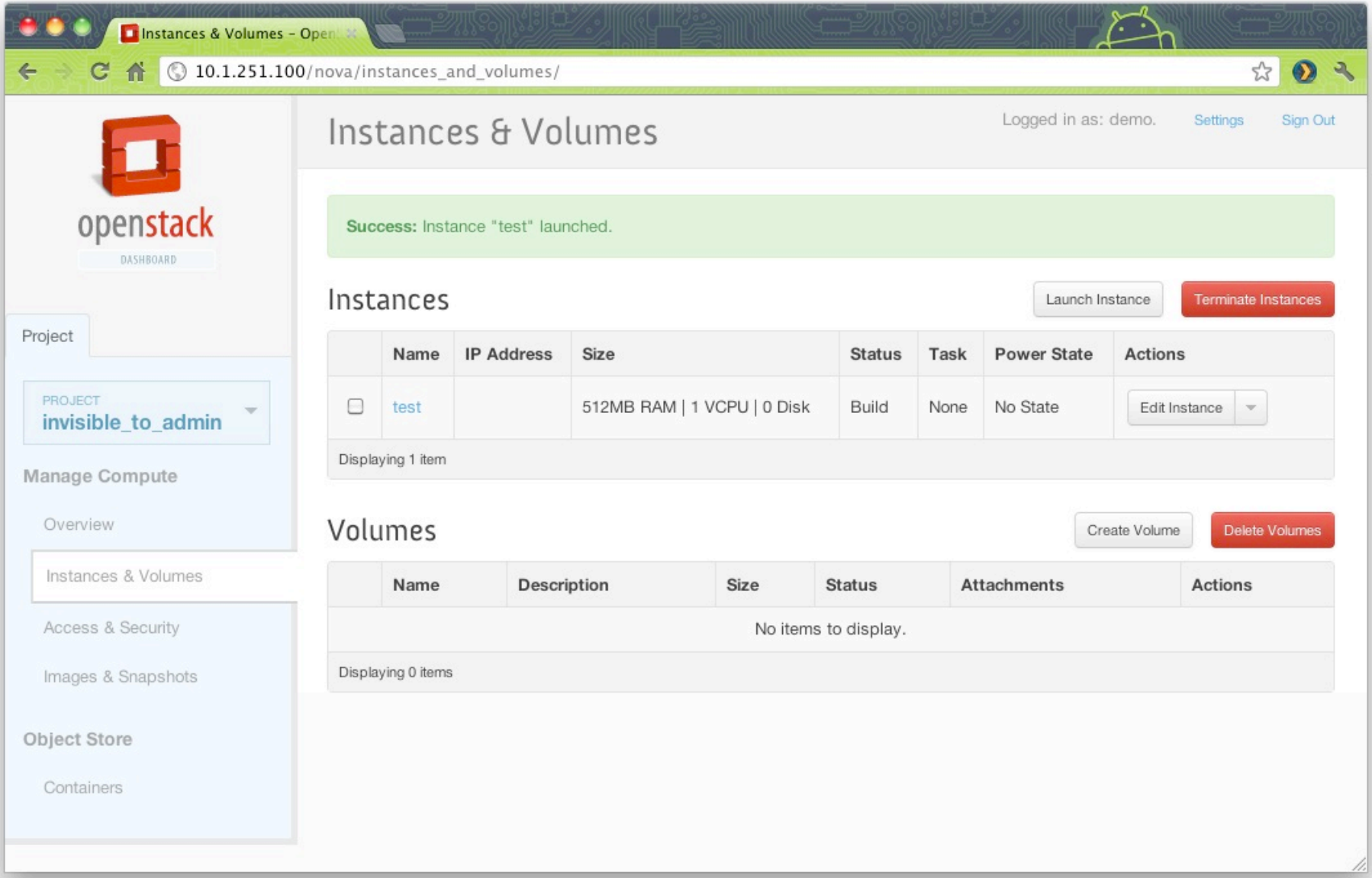
Conceptual Architecture



Open Stack Logical Architecture



Dashboard


Instances & Volumes – Open
10.1.251.100/nova/instances_and_volumes/
openstack
DASHBOARD
Project
PROJECT
invisible_to_admin
Manage Compute
Overview
Instances & Volumes
Access & Security
Images & Snapshots
Object Store
Containers
Instances & Volumes
Logged in as: demo.
Settings
Sign Out
Success: Instance "test" launched.
Instances
Launch Instance
Terminate Instances
Name
IP Address
Size
Status
Task
Power State
Actions
test
512MB RAM | 1 VCPU | 0 Disk
Build
None
No State
Edit Instance
Displaying 1 item
Volumes
Create Volume
Delete Volumes
Name
Description
Size
Status
Attachments
Actions
No items to display.
Displaying 0 items

VM Provisioning: Stage I – Initial State

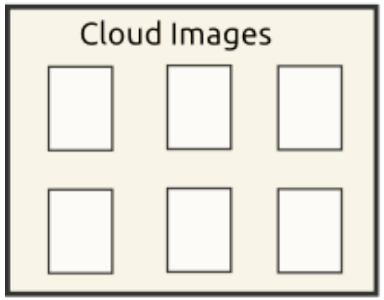
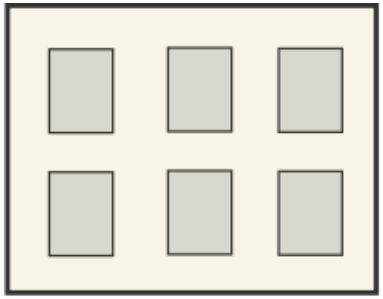


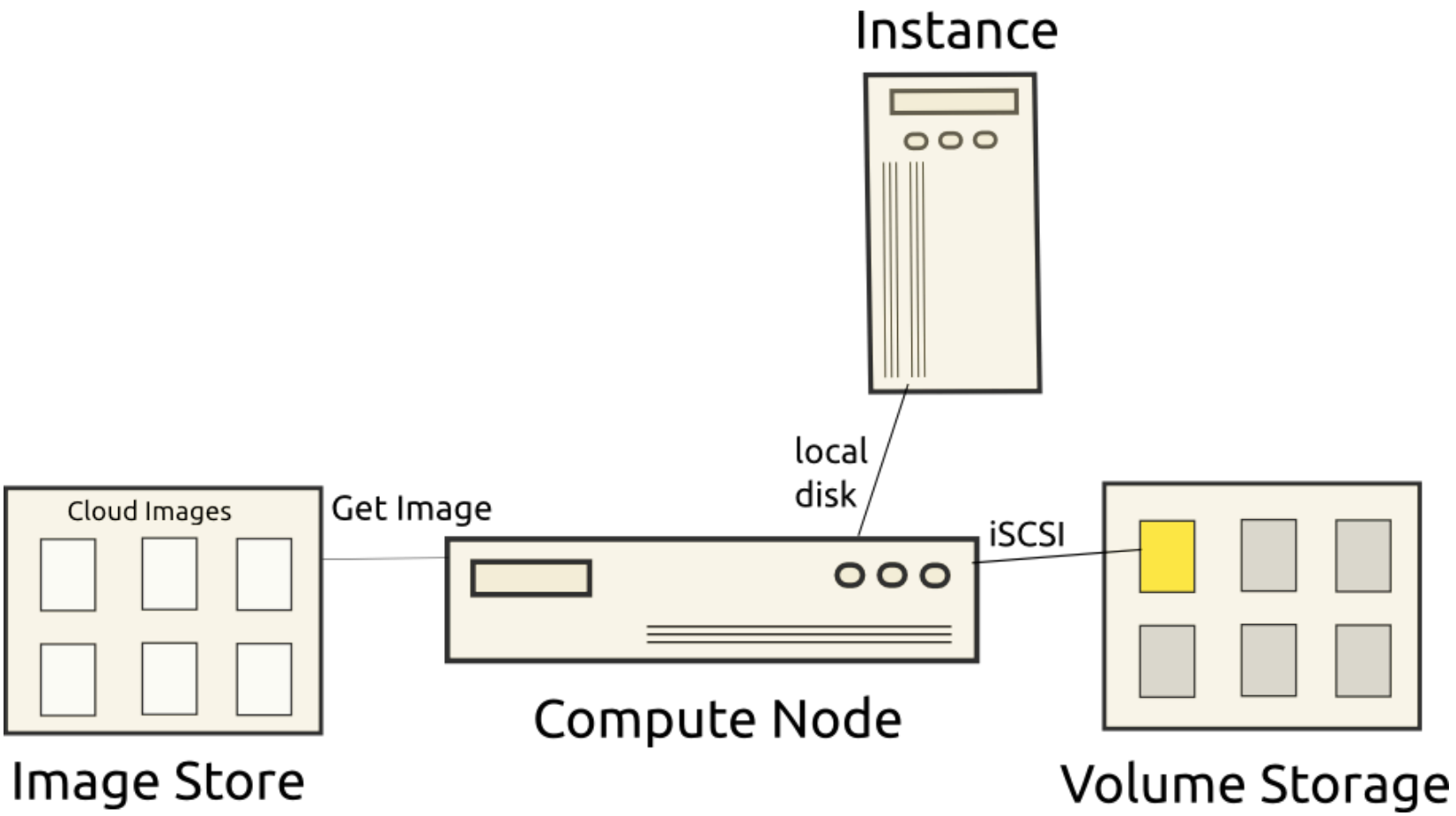
Image Store

Compute Node

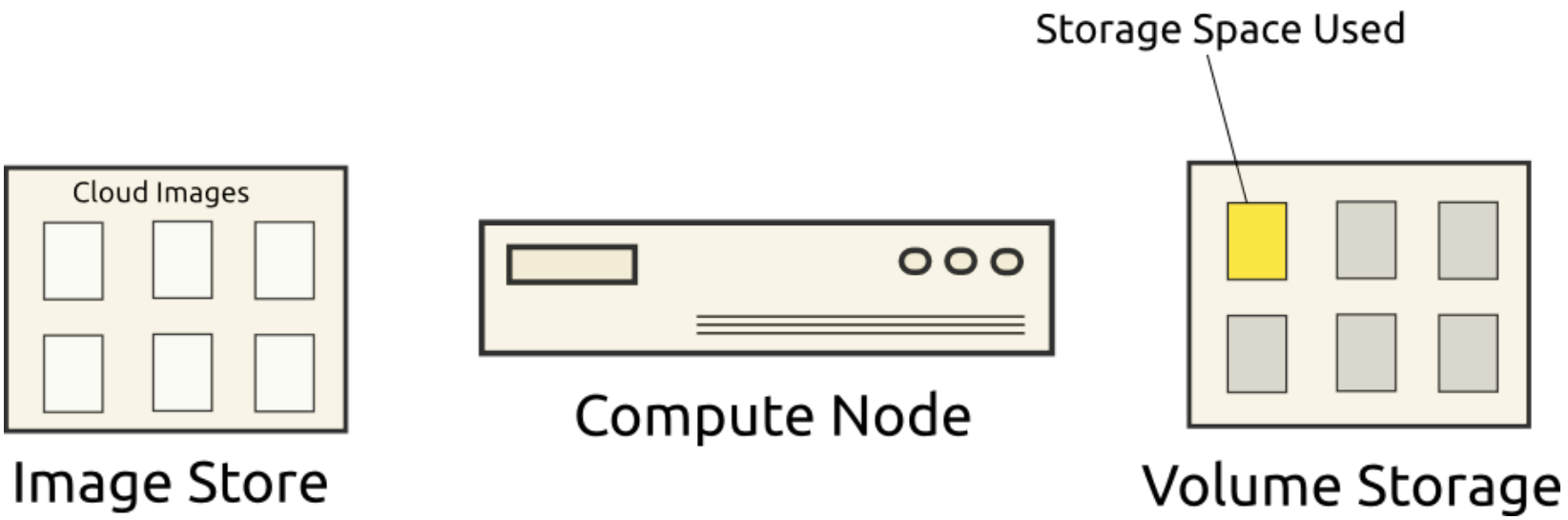


Block Storage

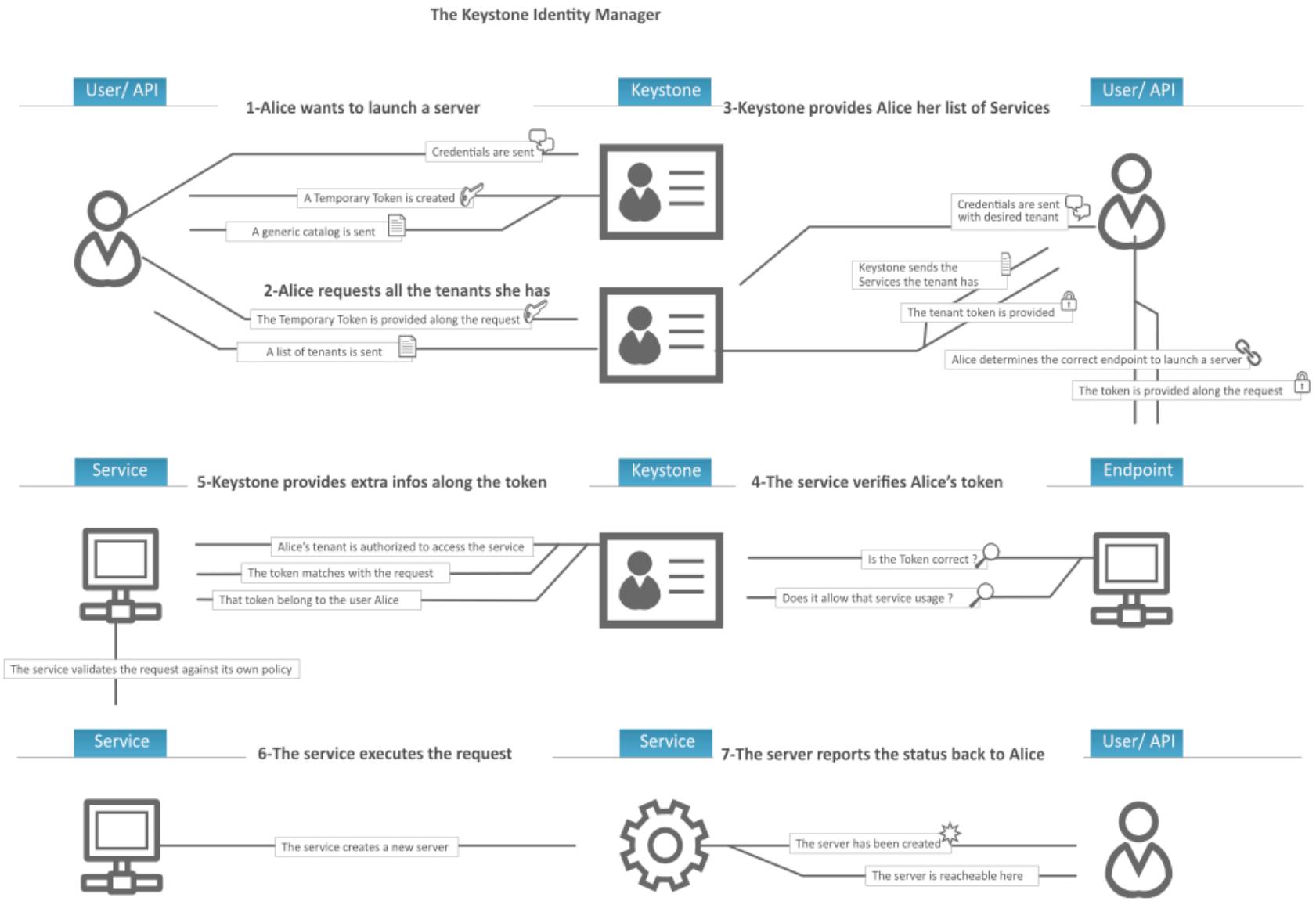
VM Provisioning: Stage II – VM launched



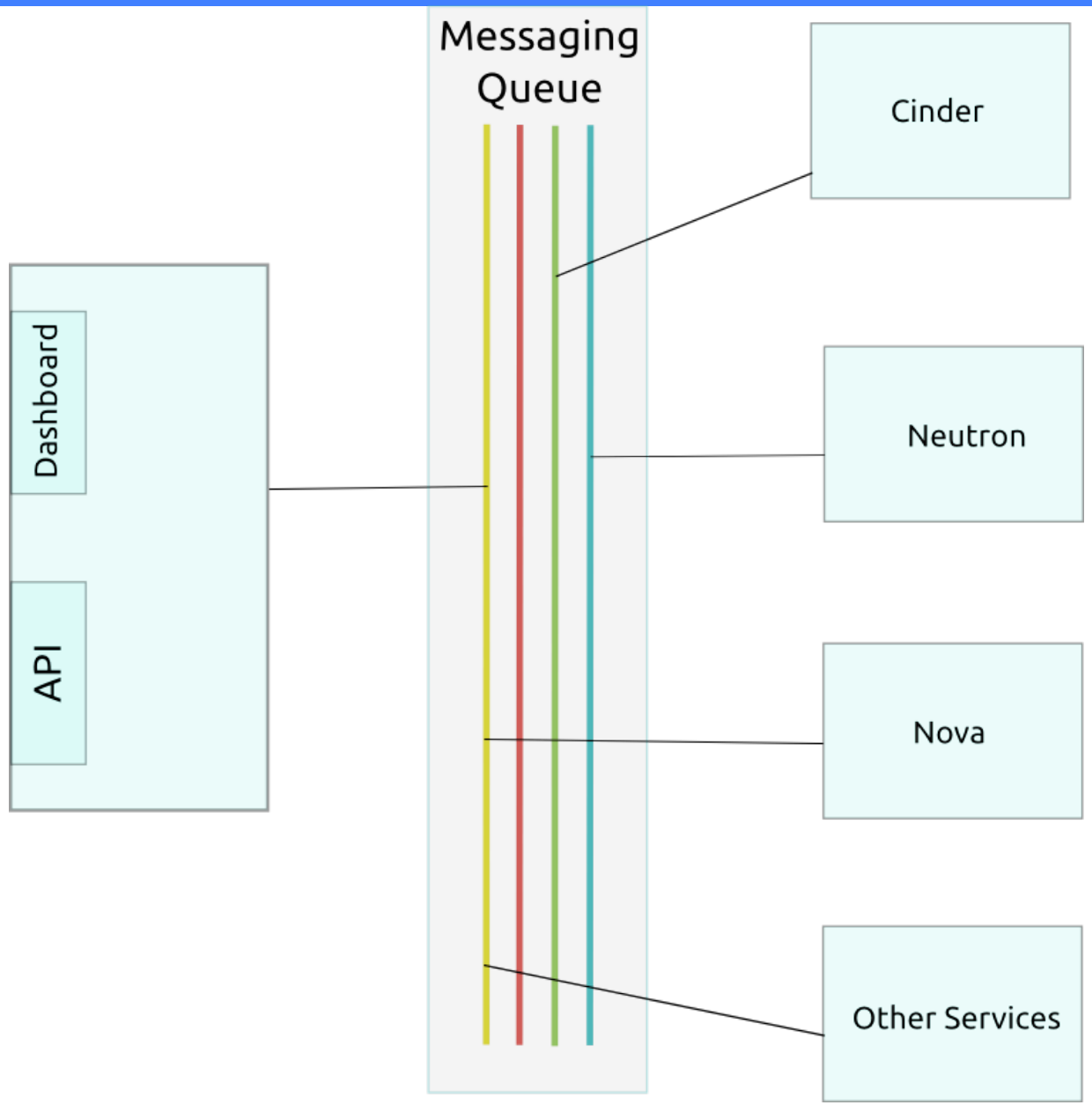
VM Provisioning: Stage III – Storage



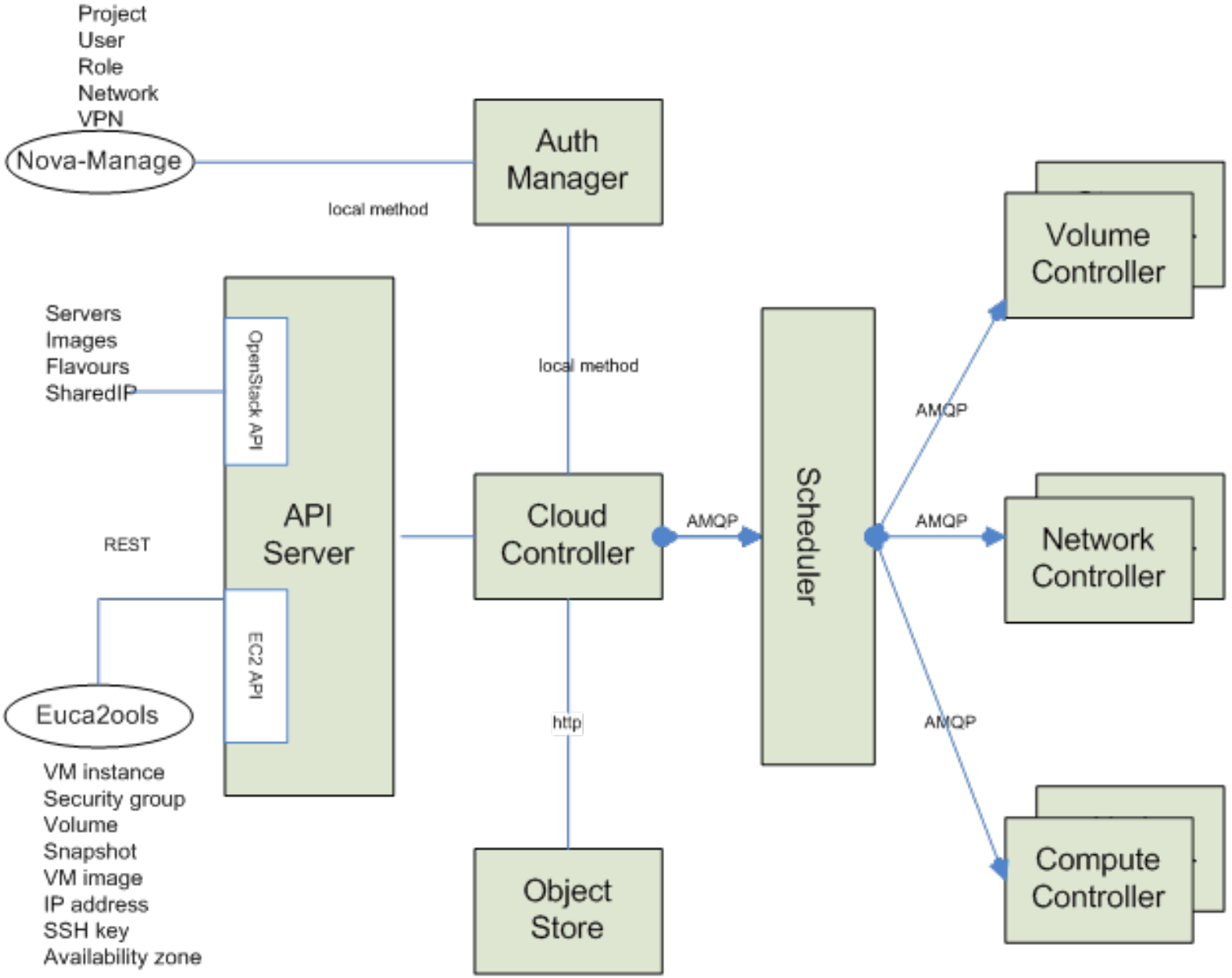
Keystone Service



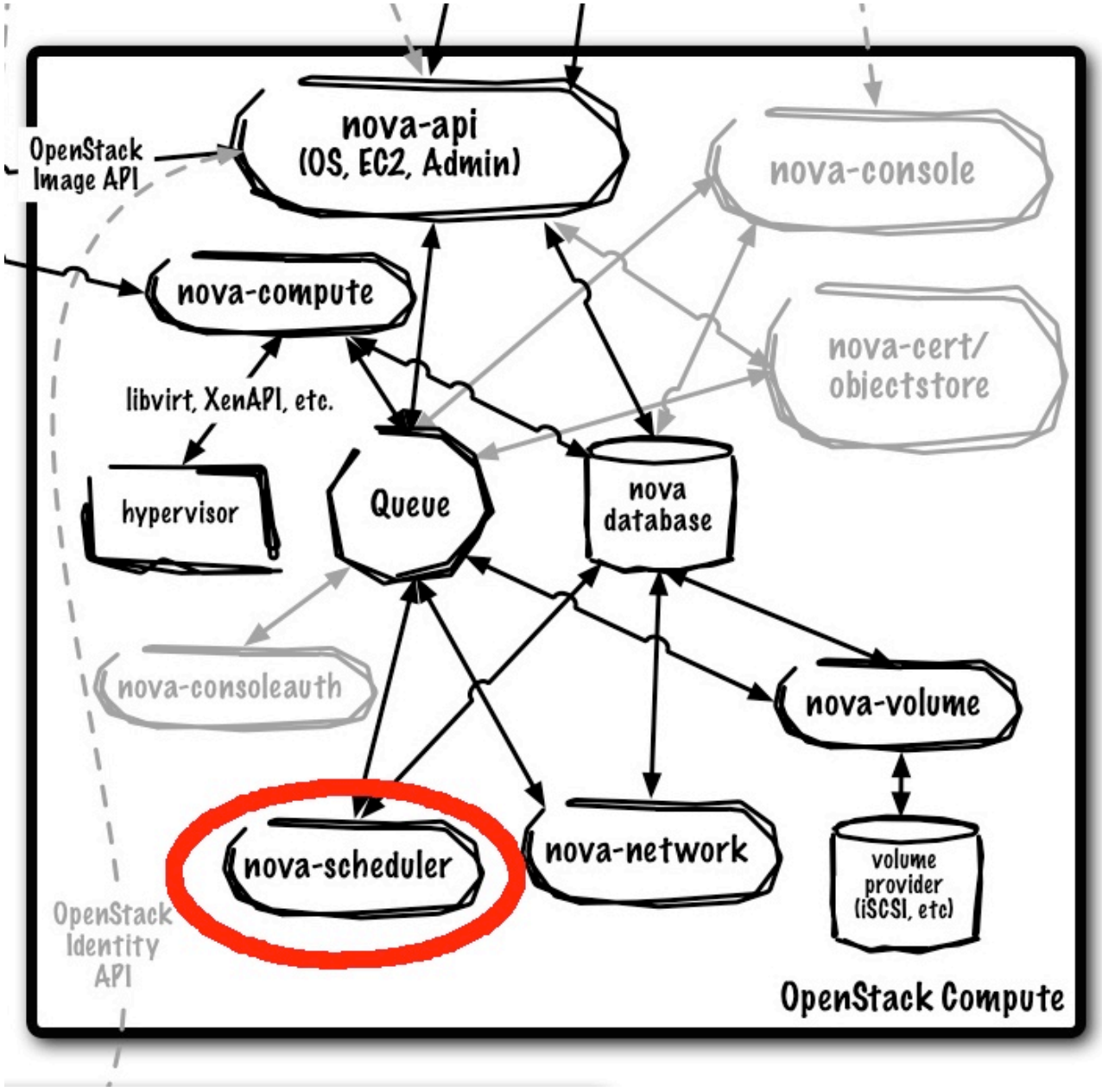
Messaging in OpenStack



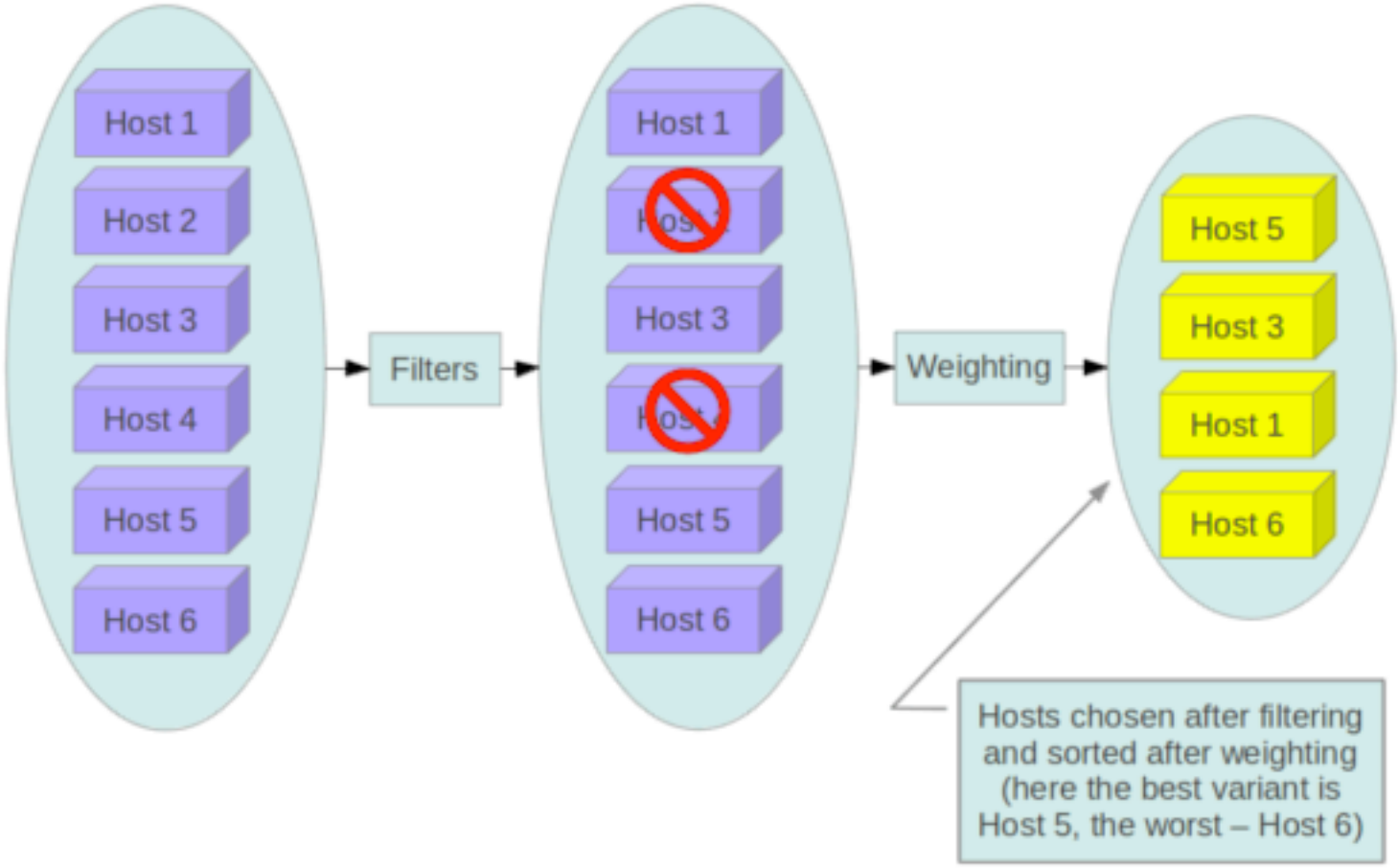
Messaging in Openstack Part II



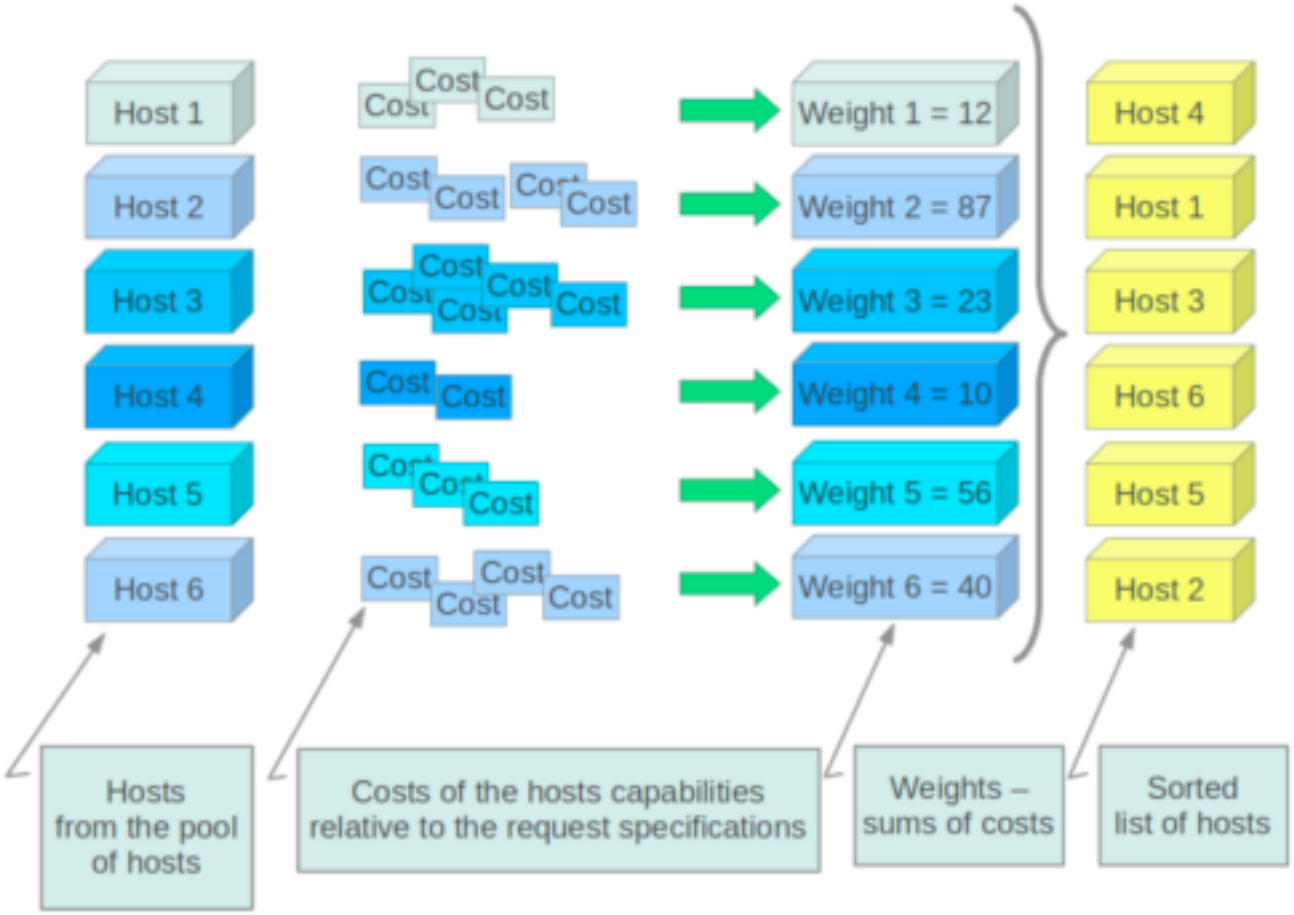
Allocating VM to a hypervisor node



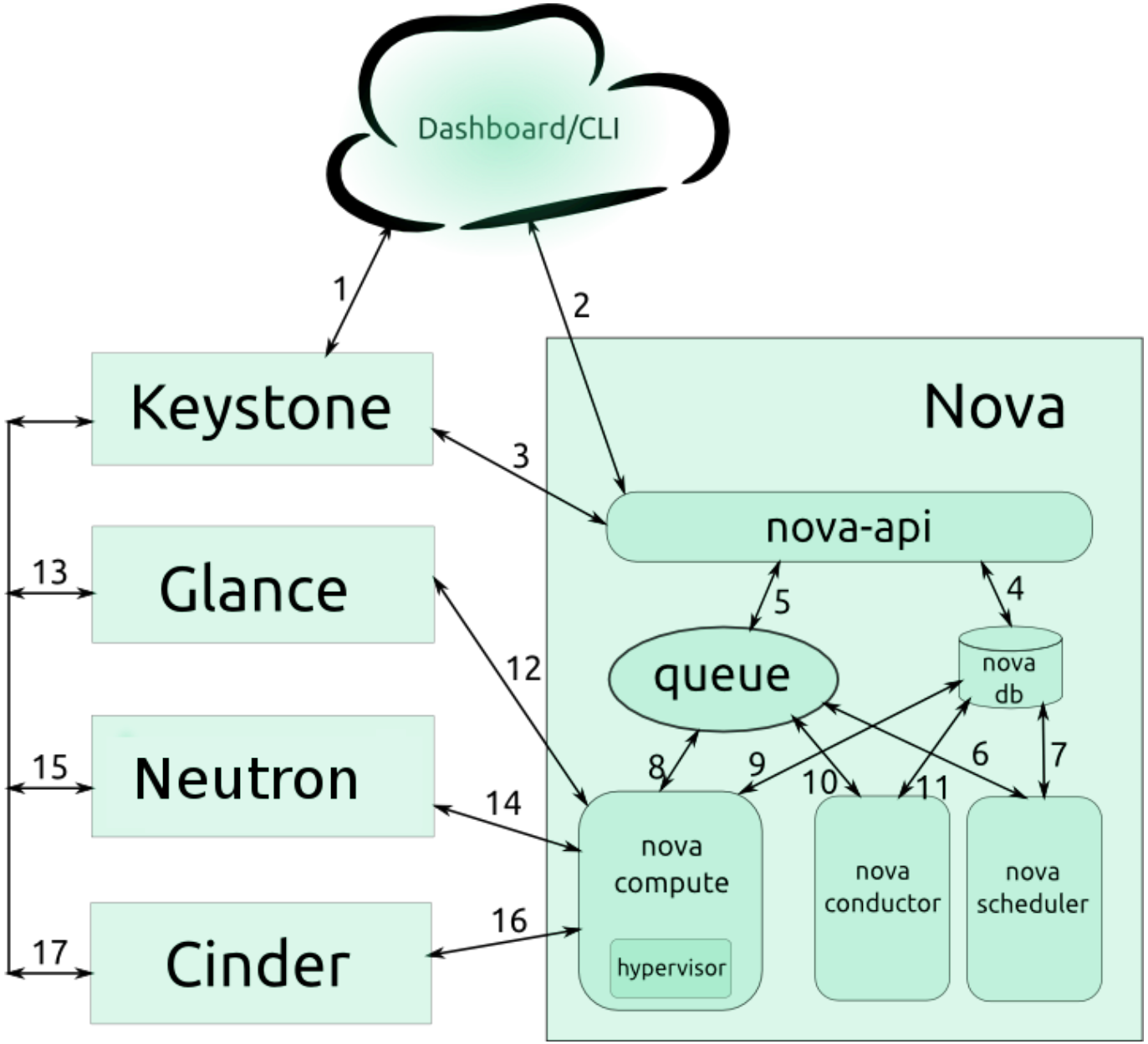
Host Allocation Policy



Calculating Weighted Cost in Nova



Nova VM allocation



Questions and Answers