

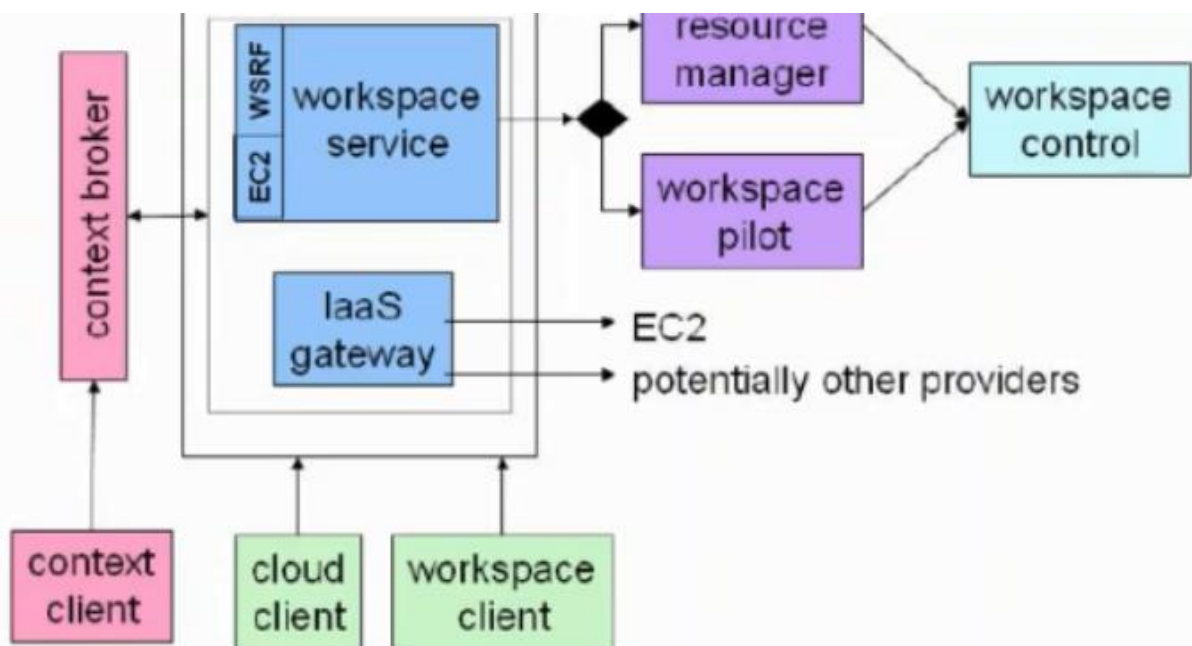
Nimbus  
is a  
powerful  
toolkit  
focused  
on



converting a computer cluster into an Infrastructure-as-a-Service (IaaS) cloud for scientific communities. Essentially, it allows a deployment and configuration of virtual machines (VMs) on remote resources to create an environment suitable for the users' requirements. Being written in Python and Java, it is totally free and open-source software, released under the Apache License.

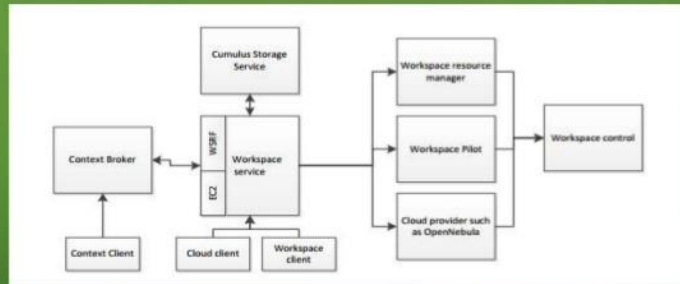
# Nimbus

- Nimbus is another open source IaaS implementation framework which came online September 2005.
- Nimbus allows a client to lease remote resources by deploying virtual machines (VMs) on those resources and configuring them to represent an environment desired by the user.
- It was formerly known as the "Virtual Workspace Service" (VWS) but the "workspace service" is technically just one the components in the software collection.
- Nimbus was designed with the goal of turning clusters into clouds mainly to be used in scientific applications.



# System Architecture And Design

- The design of Nimbus which consists of a number of components based on the web service technology:



## 1. Workspace Service

- Allows clients to manage and administer VMs by providing to two interfaces;
  1. One interface is based on the web service resource framework (WSRF)
  2. The other is based on EC2 WSDL.

## 2. Workspace Resource Manager

- Implements VM instance creation on a site and management.

## 3. Workspace Pilot

- Provides virtualization with significant changes to the site configurations.

## 4. Workspace Control

- Implements VM instance management such as start, stop and pause VM. It also provides image management and sets up networks and provides IP assignment.

## 5. Context Broker

- Allows clients coordinate large virtual cluster launches automatically and repeatedly.

## 6. Workspace Client

- A complex client that provides full access to the workspace service functionality.

## 7. Cloud Client

- A simpler client providing access to selected functionalities in the workspace service.

## 8. Storage Service

- Cumulus is a web service providing users with storage capabilities to store images and works in conjunction with GridFTP.