

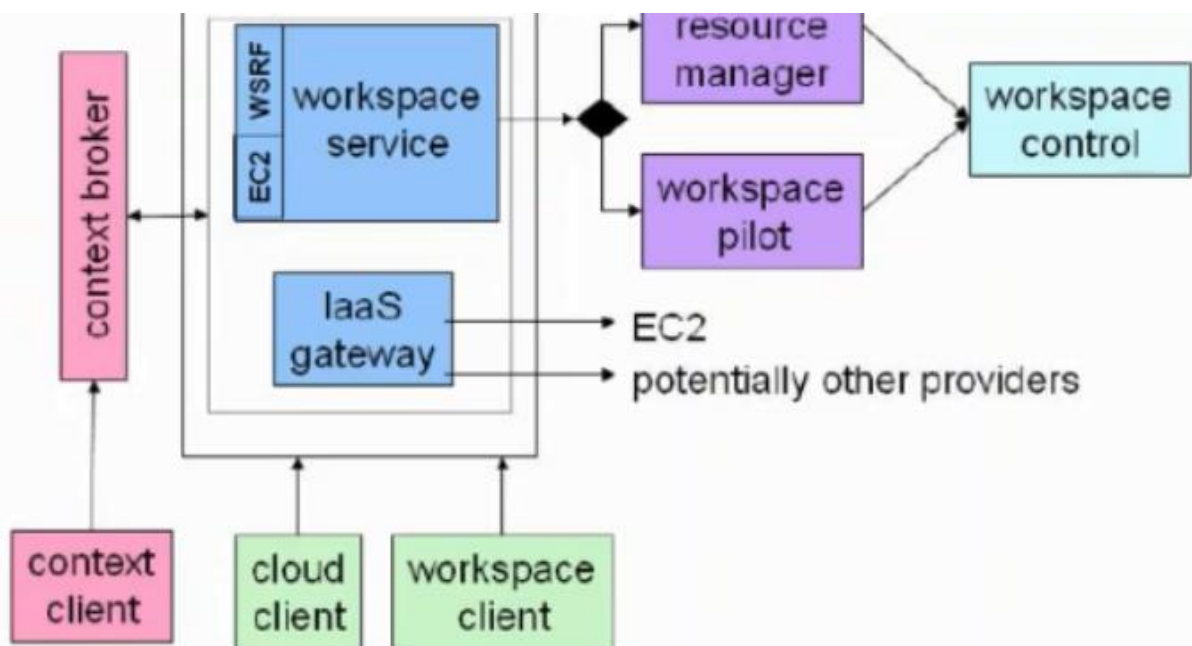
Nimbus
is a
powerful
toolkit
focused
on



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.

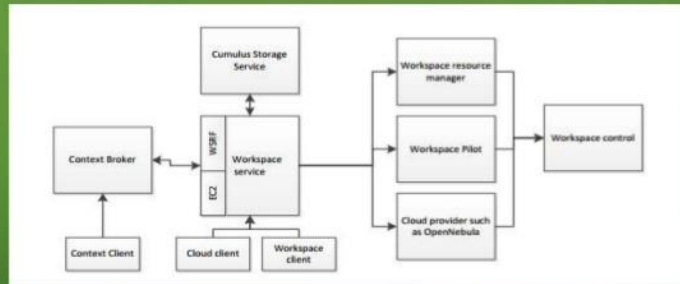
Nimbus

- 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.

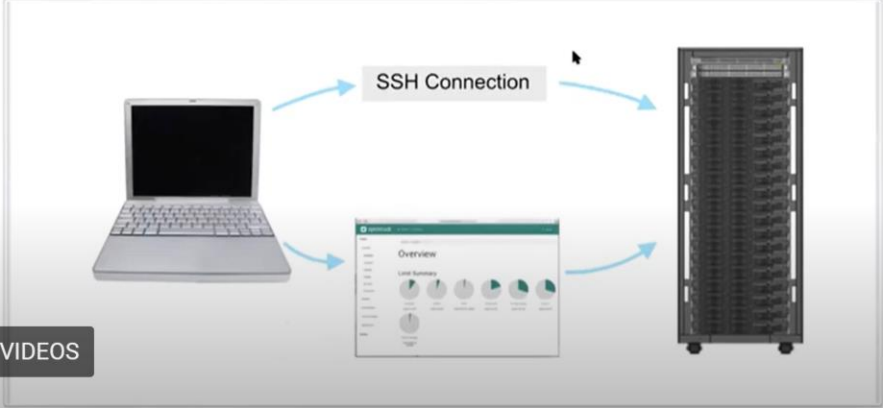


Two roles with Nimbus

Introduction to Nimbus

Tasks performed when using Pawsey's cloud computing. The first is the typical role you have with your local laptop or desktop computer, ie using the processing and storage resources available to you to perform your research. This might include: moving, cleaning and visualising data; writing and or installing programs to analyse data. The difference with cloud computing is of course you are working remotely, rather than on a local machine. The primary means by which this is done is via a Secure Shell (SSH) over a Command Line Interface (CLI). You will begin using SSH in episode 4.

The second role is an administrative and management role, wherein you monitor, allocate, and manage the resources allocated to your project. This is achieved via a web-based interface, the Nimbus dashboard. From your dashboard you are able to create, configure, start, stop, modify, and delete instances within your project. This episode begins your exploration of the dashboard.



```

graph LR
    Laptop[Laptop] -- SSH Connection --> Server[Server Rack]
    Laptop -- Overview --> Dashboard[Nimbus Dashboard]
    Dashboard -- SSH Connection --> Server
  
```

MORE VIDEOS

Activity: Log in to Nimbus

7:31 / 36:18 • Two Roles

Go to the Nimbus login page. This is the URL for the Nimbus login.

Watch later Share

YouTube

References:

Introduction to Nimbus

1. https://www.google.com/search?q=ntroduction+to+Nimbus&rlz=1C1JJTC_enIN981IN981&oq=ntroduction+to+Nimbus&aqs=chrome..69i57j33i10i160l2.806j0j7&sourceid=chrome&ie=UTF-8#fpstate=ive&vld=cid:8fe679b1,vid:5yItRsdleE4