

Cloud Computing - overview

Network Startup Resource Center



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Main types of "cloud"

- Traditional physical server rental
 - "Metal as a Service" (MaaS)
- Virtual machine rental
 - "Infrastructure as a Service" (IaaS), e.g. EC2
- Software runtime environments
 - "Platform as a Service" (PaaS), e.g. App Engine
- Managed Applications
 - "Software as a Service" (SaaS), e.g. Basecamp

What distinguishes IaaS from just "virtualization"?

- Self-service
 - Users create, manage and destroy their own VMs and storage
- Multi-tenant
 - Multiple users on the same infrastructure, but isolated from each other
- Resource accounting
 - Feeds into billing

Demo of IaaS (user's view)

Open Source IaaS cloud options

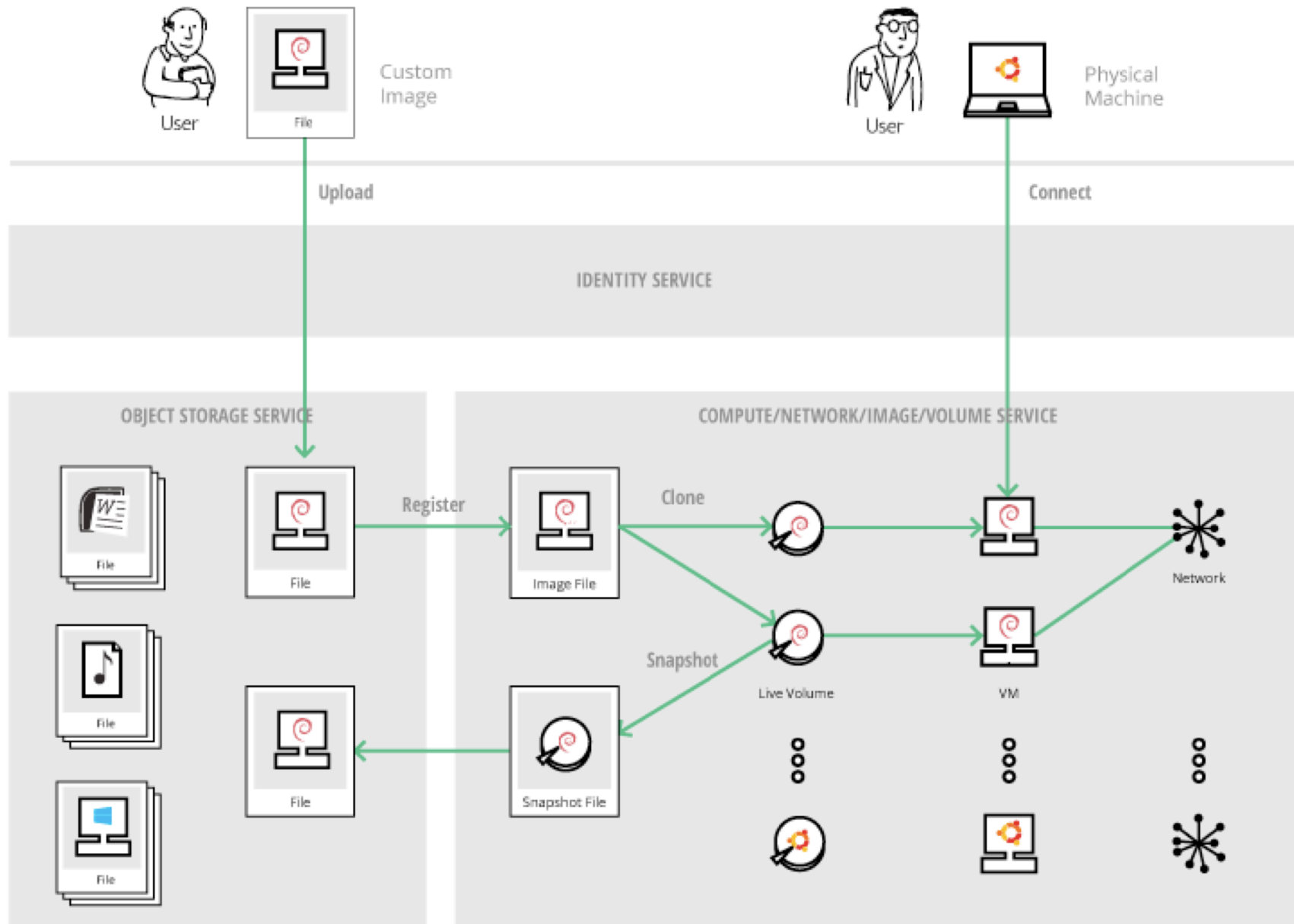
- Eucalyptus
- Openstack (*Rackspace/NASA*)
- Cloudstack (*Apache*)
- Big, monolithic stacks!
 - Difficult to understand and manage
- Driving people to write their own stacks
 - e.g. blog.bytemark.co.uk/wp-content/uploads/2012/12/DesignAndImplementationOfBigV.pdf

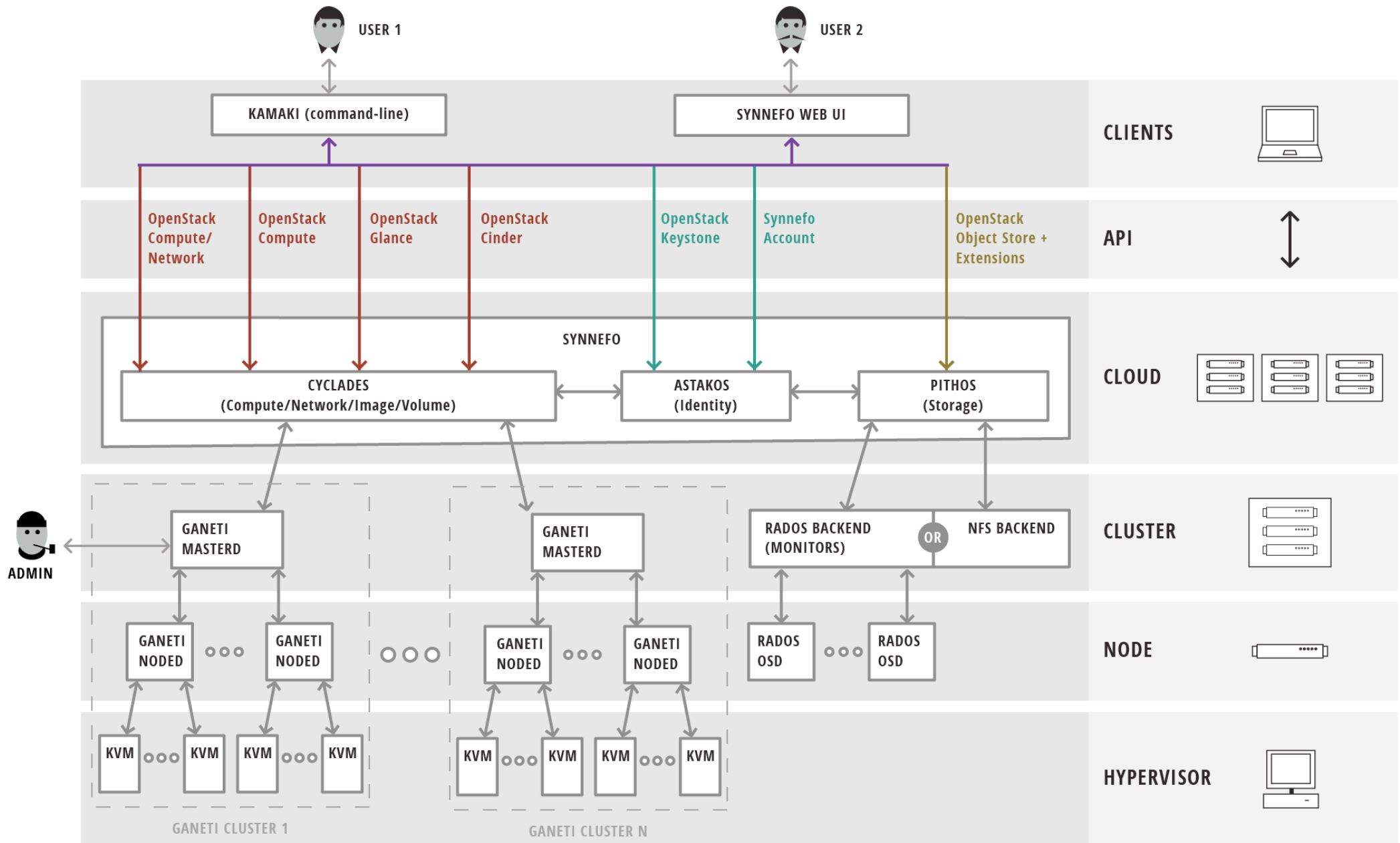
Lightweight options

- Ganeti + ganetimgr (*as used at ViMa*)
 - Basic provisioning of VMs via web tickets
 - Thin front-end to Ganeti cluster RAPI
 - Ideal for university-type environment
- Synnefo
 - A full cloud system on top of one or more Ganeti clusters

Synnefo components

- "Cyclades": compute, network, image, volume
 - Uses Ganeti as backend
- "Pithos": file and object storage
 - Uses Ceph (radosgw) or NFS storage
- "Astakos": identity and account services
- Provides web interface and OpenStack APIs





Synnefo On-line Demo

- www.synnefo.org
 - Click "TRY IT OUT"
 - Log in with your Google/Twitter account
 - Create a VM!
 - Click the console icon for access details
- Demo "live CD" also available
 - Instant single-node cluster
 - Not intended for production use