

IBM OpenStack

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Sponsor and Mentors

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What is OpenStack?

- OpenStack is an Infrastructure as a Service (IaaS) application that controls pools of:
 - Compute Nodes
 - Storage Nodes
 - Networking Resources
- Users control and deploy resources through a web portal
- Similar to AWS, Google Compute, and Microsoft Azure
- Current release is Grizzly

Opportunity

- Improve existing OpenStack infrastructure
- Provide scalable solutions and on-demand resources for current C.S. department computing needs
- Ease the use and management of resources
- Cater the environment for the users
- Facilitate the deployment and use Hadoop

Use Cases and Benefits

- Student and Researcher VMs
 - C.S. Systems Administrator
- Hadoop
 - Dr. Ludwig and Dr. Denton
- Education
 - Linux Course and Cloud Course
- Thin-clients and Resource Management
 - College of Engineering Technical Support
- Documentation

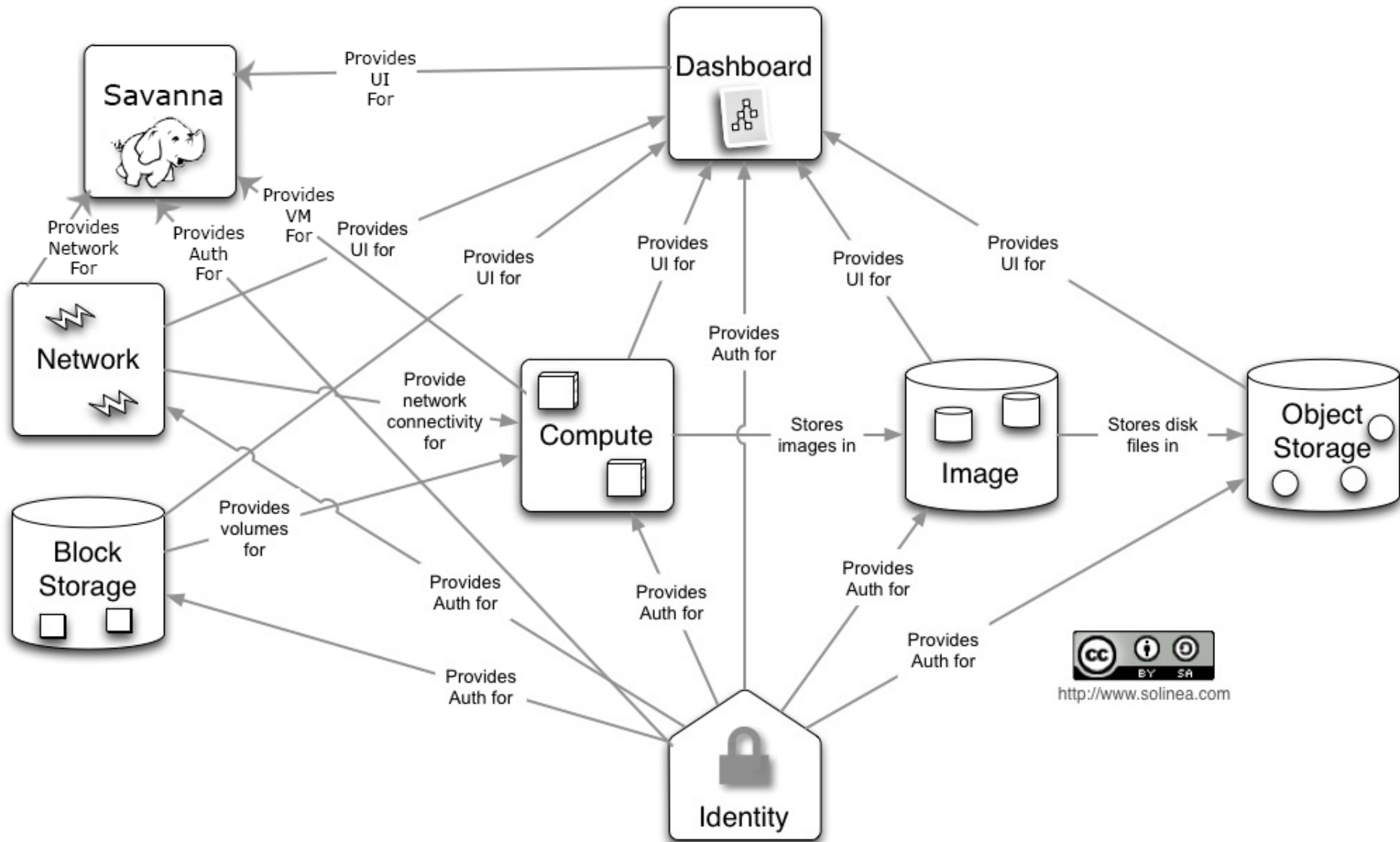
Hadoop and OpenStack

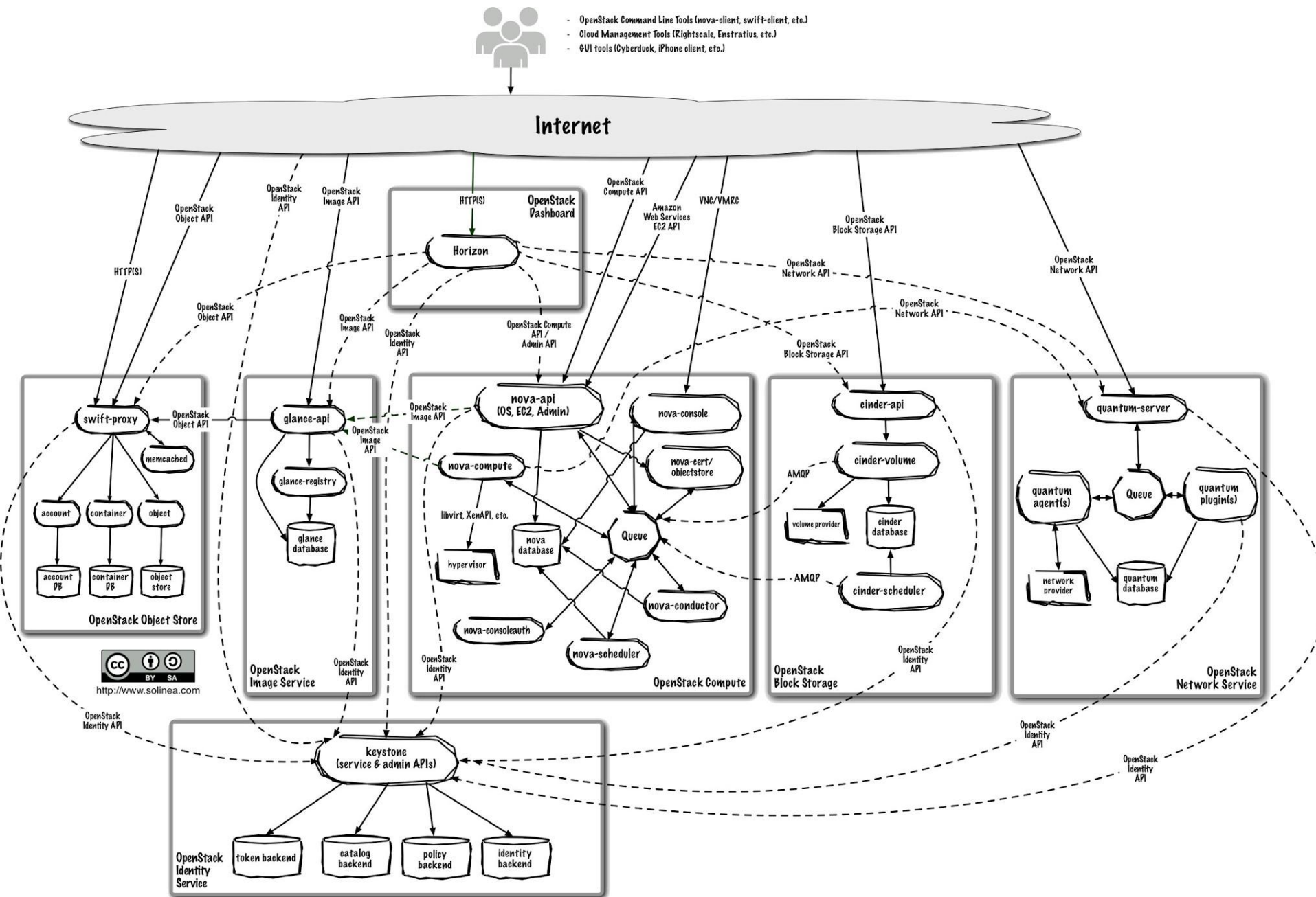
- OpenStack Savanna
 - Elastic Hadoop implementation for OpenStack
 - Similar to Amazon Elastic MapReduce
 - Provision, deploy, and destroy clusters on-demand
 - Control over node configurations using templates
 - Integration with Horizon (OpenStack dashboard)
 - REST API
 - Planned features: integration with Swift (object storage)

Savanna

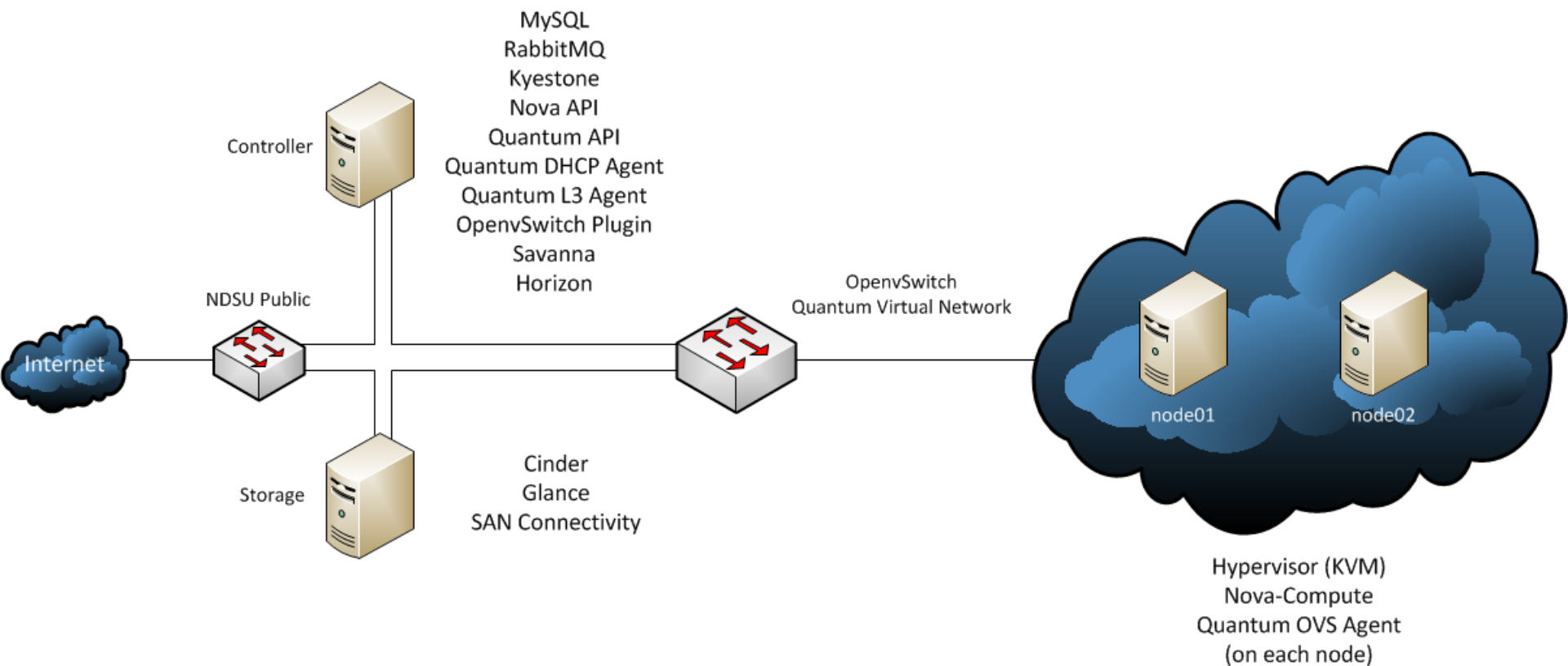
- How does this help?
 - Fast setup and teardown of clusters (elastic)
 - Run multiple Hadoop jobs at the same time
 - Per-tenant resource quotas
 - Isolate clusters with per-tenant networks
 - Only limited by resources committed to the OpenStack deployment

Grizzly





Our Deployment



Currently

- Our current deployment has 20 VCPUs, 45 GB of RAM and 4TB of storage
- Resources are managed on-demand
- Virtual networking
- Web-based dashboard

Demo

Next Steps

- Finish LDAP integration for authentication
- Keep up with OpenStack's rapid updates
- Follow development of Savanna
- Improve awareness of OpenStack and its benefits within the department

Q & A
