Cloud Based VDI with OpenStack

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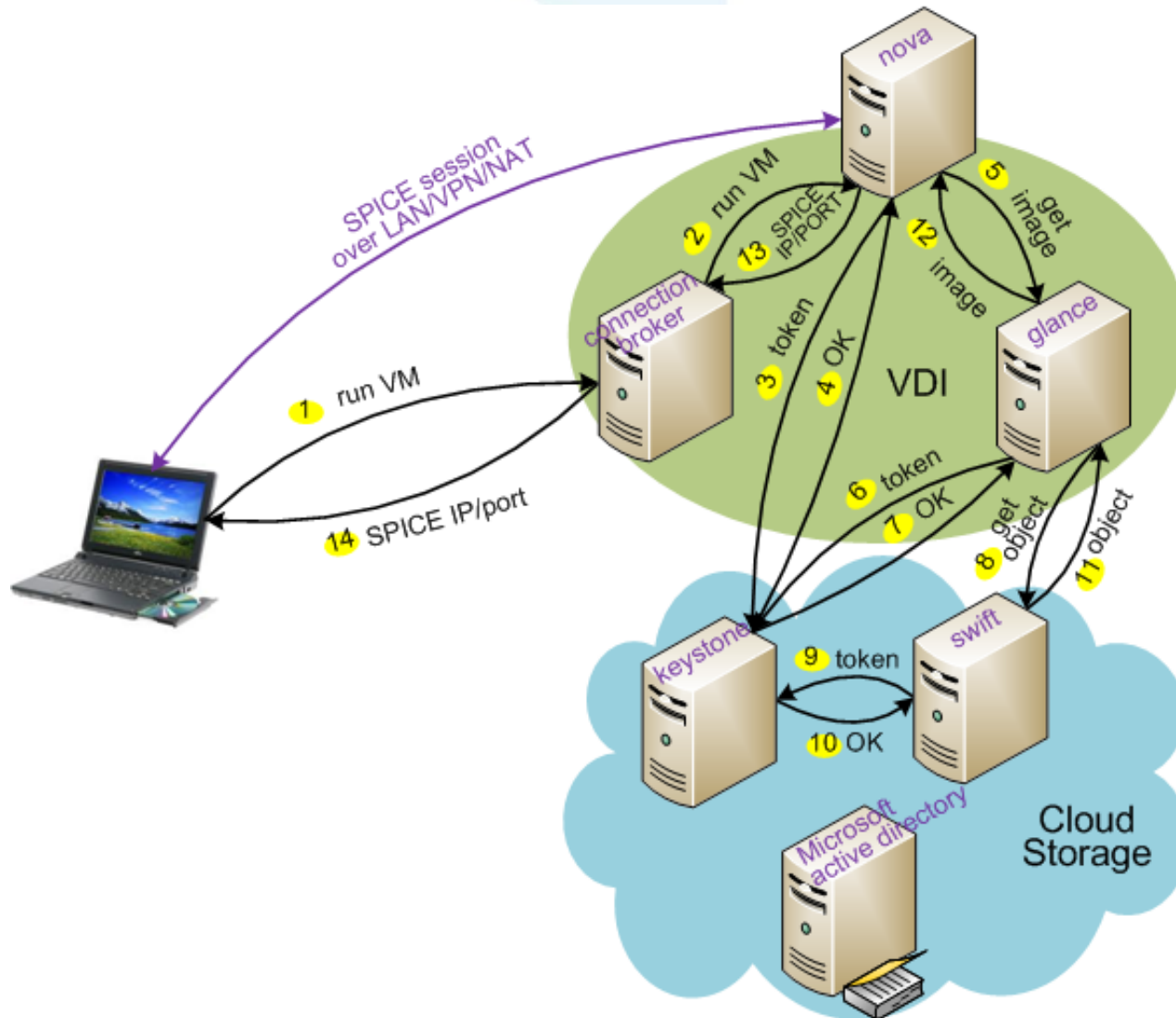
Agenda

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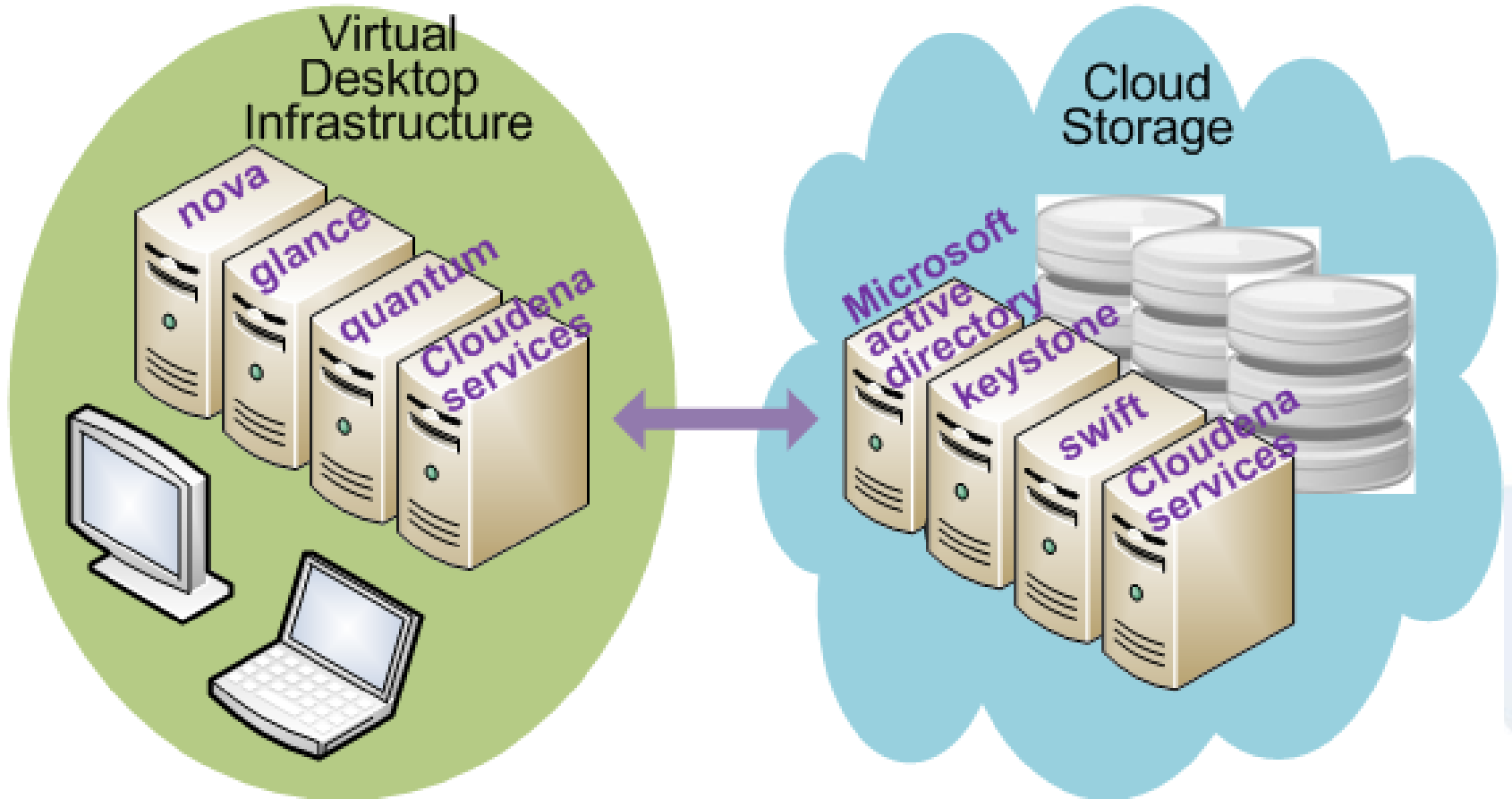
Virtual Desktop Infrastructure (VDI)
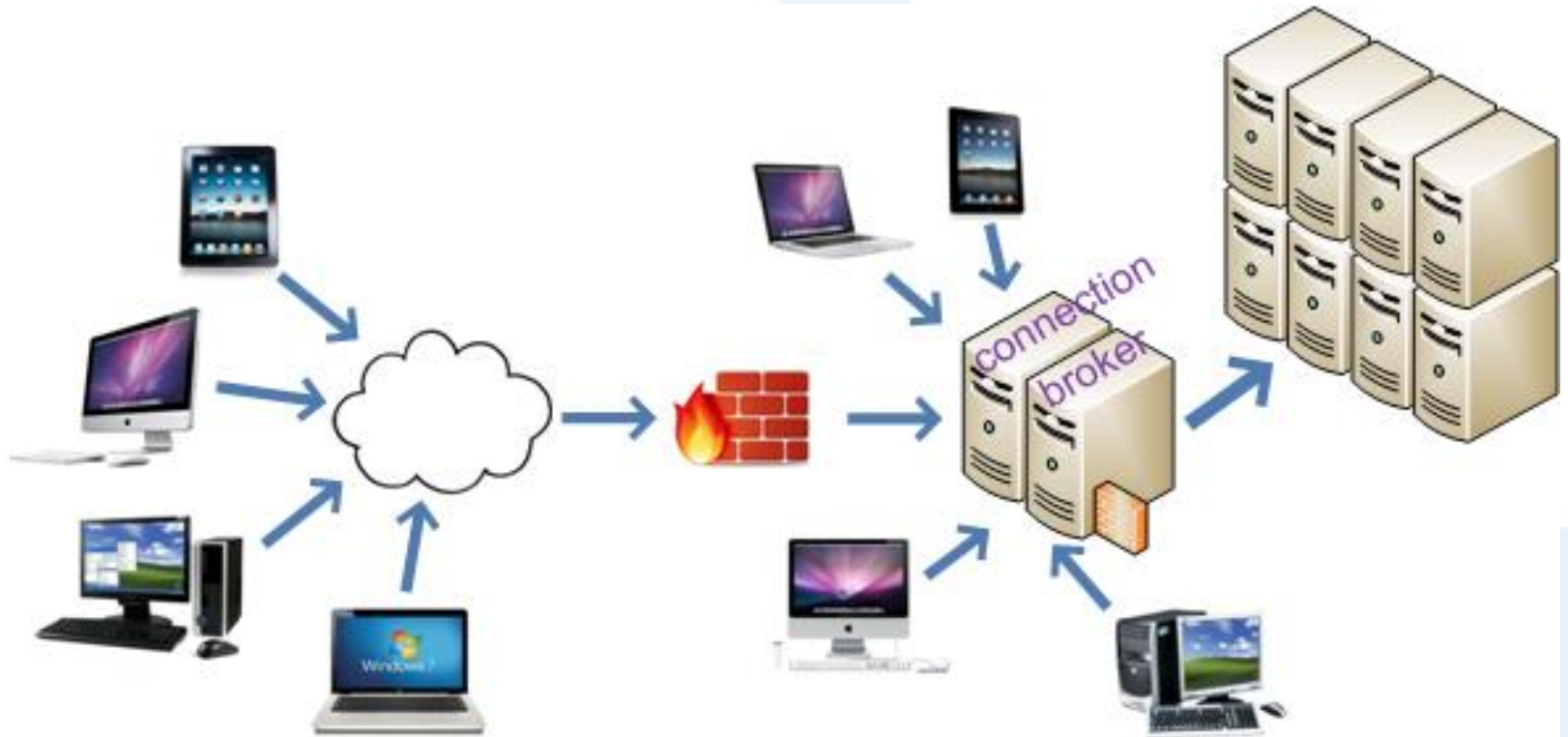
Use Case 1 – Launch a VM

Nova

- A compute cloud for virtual desktop
- Using essex –2, Dec 16, 2011
- Will merge to folsom release

Modification to Nova

- Extended nova API
  - Manage SPICE
  - Manage images
  - Single sign on
- SPICE port management
  - iptables filter for SPICE port
  - Report IP and SPICE port of a VM

Modification to Nova - continue

■ Differential snapshot

- Launch VM with a base image and chains of differential snapshot images

- Merge differential snapshots

- Encryption and decryption of snapshot images

Tuning and Testing

- libvirt parameters for desktop
  - virtio PCI, block, ring, serial (SPICE), balloon, network,
  - ide, qxl, usb
- Image run time location
  - Local versus shared
- nova network
  - One per nova API
  - One per nova compute node
- VM's per server
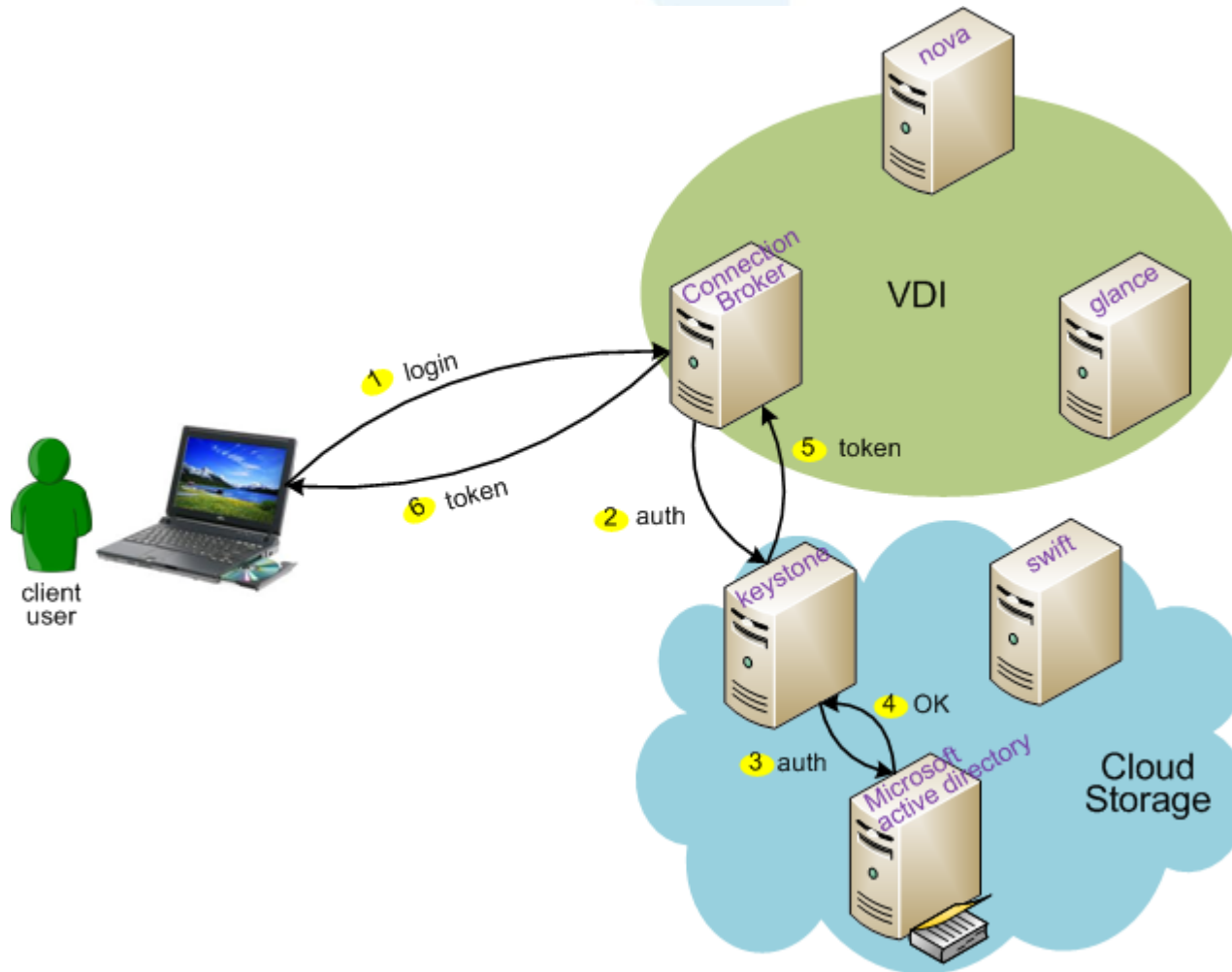- User experience benchmarking

Glance

- A virtual desktop image repository
- Using essex-4, March 1, 2012
- No modification
- Will upgrade to folsom release

Quantum

- Evaluating and testing
- Will use folsom release
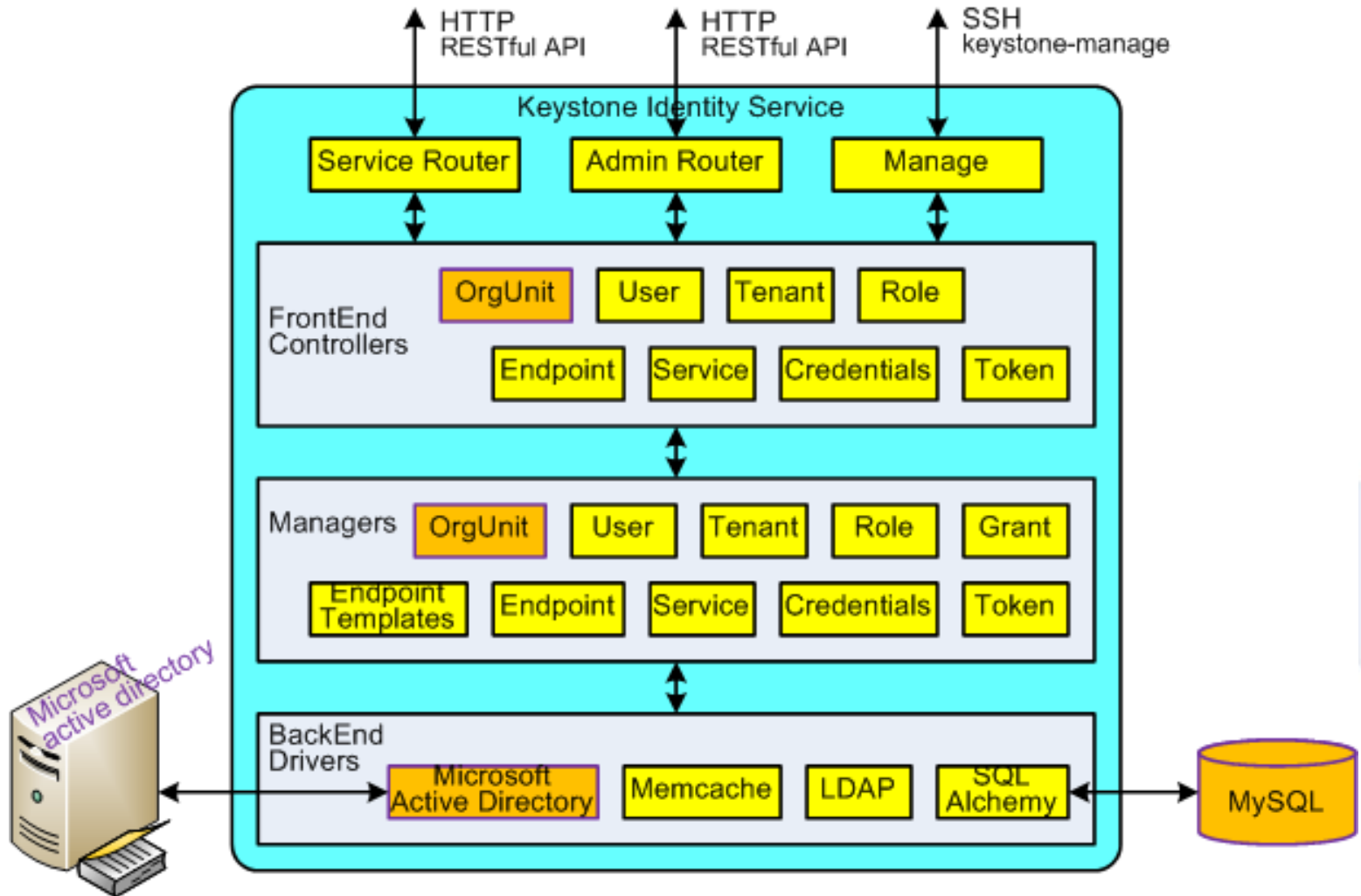
Use Case 2 – User Login

Keystone

- An authentication system for cloud storage, as well as virtual desktop session
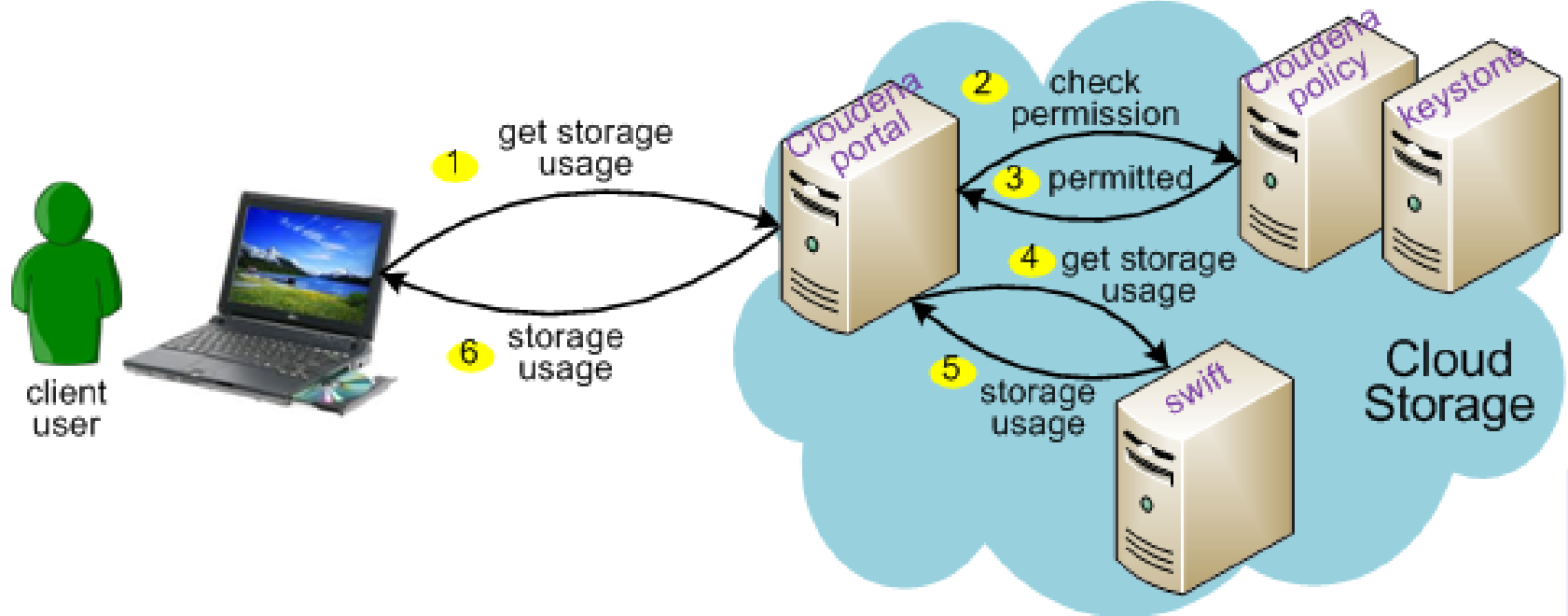- Using essex-3, January 26, 2012
- Merging to folsom-2

Keystone – essex-3

Modification to Keystone

- Microsoft Active Directory (AD) backend
- Support domain, organizational unit
- Will support security and distribution groups
- Will merge with Keystone AD backend
  - https://blueprints.launchpad.net/keystone/+spec/ad-ldap-identity-backend

Use Case 3 – Check Policy

Policy Outside of Keystone

- Role based access control (RBAC)
- Keystone roles
  - super admin, cloud admin, operation admin, client user
- Users of each role has permission to perform certain actions
- Example VDI rule for client user
  - Publish golden image
- Example Cloud Storage rule for client user
  - Get own storage usage

Policy Outside of Keystone - continued

- Will merge with Keystone V3 API and RBAC
  - https://blueprints.launchpad.net/keystone/+spec/implement-v3-core-api
  - https://blueprints.launchpad.net/keystone/+spec/rbac-keystone-api
  - https://blueprints.launchpad.net/keystone/+spec/rbac-keystone

Swift

- Unstructured storage, as well as an object storage for virtual desktop images
- Using 1.4.9, April 2, 2012
- Merging to folsom-2

Swift
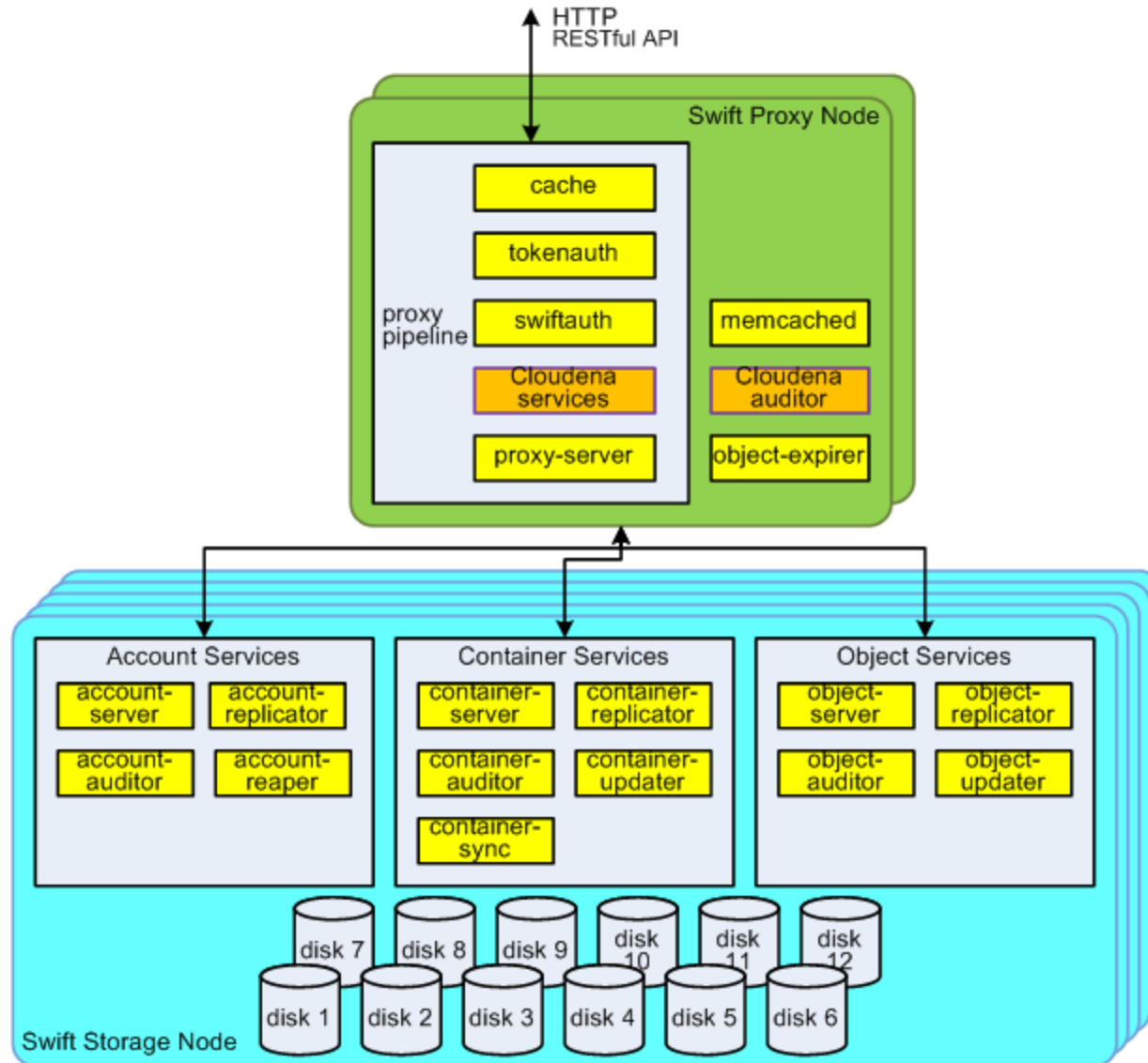
Modification to Swift

- Support upload > 5GB
- Extended API for storage quota
    - Enforce storage quota per user, organization unit (OU), domain
    - Report storage and bandwidth usage
- Metadata search
- Will merge with Swift blueprints
    - https://blueprints.launchpad.net/swift/+spec/large-single-uploads
    - https://blueprints.launchpad.net/swift/+spec/storage-quotas

Use Case 4 – Update Ring Files
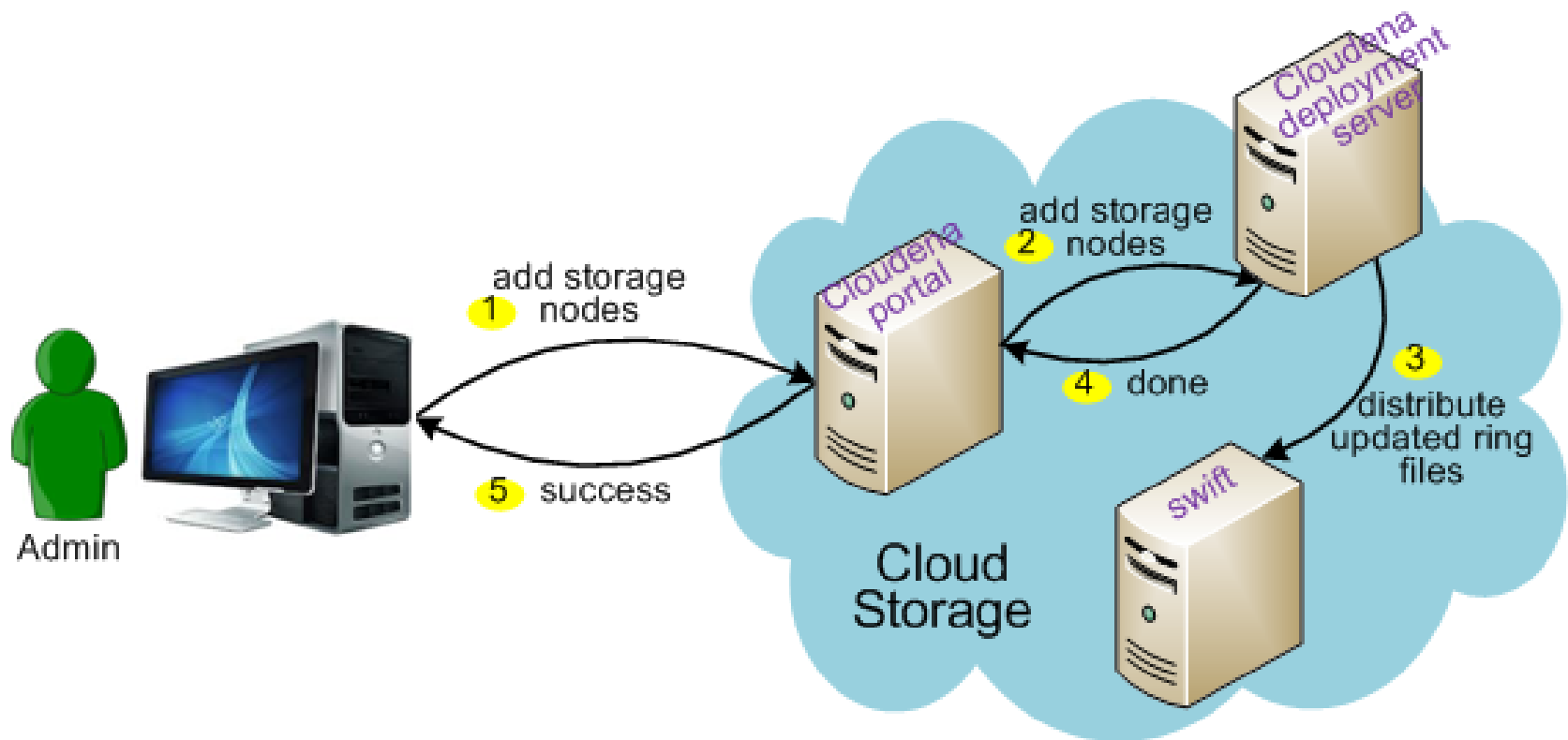
Ring Server outside of Swift

- Build new rings
- Updated rings after add/delete storage nodes or disks
- Automatically push updated ring files to all proxy servers and storage nodes
- Will merge with Swift blueprint
  - https://blueprints.launchpad.net/swift/+spec/ring-builder-server

Use Case 5 – Disaster Recovery
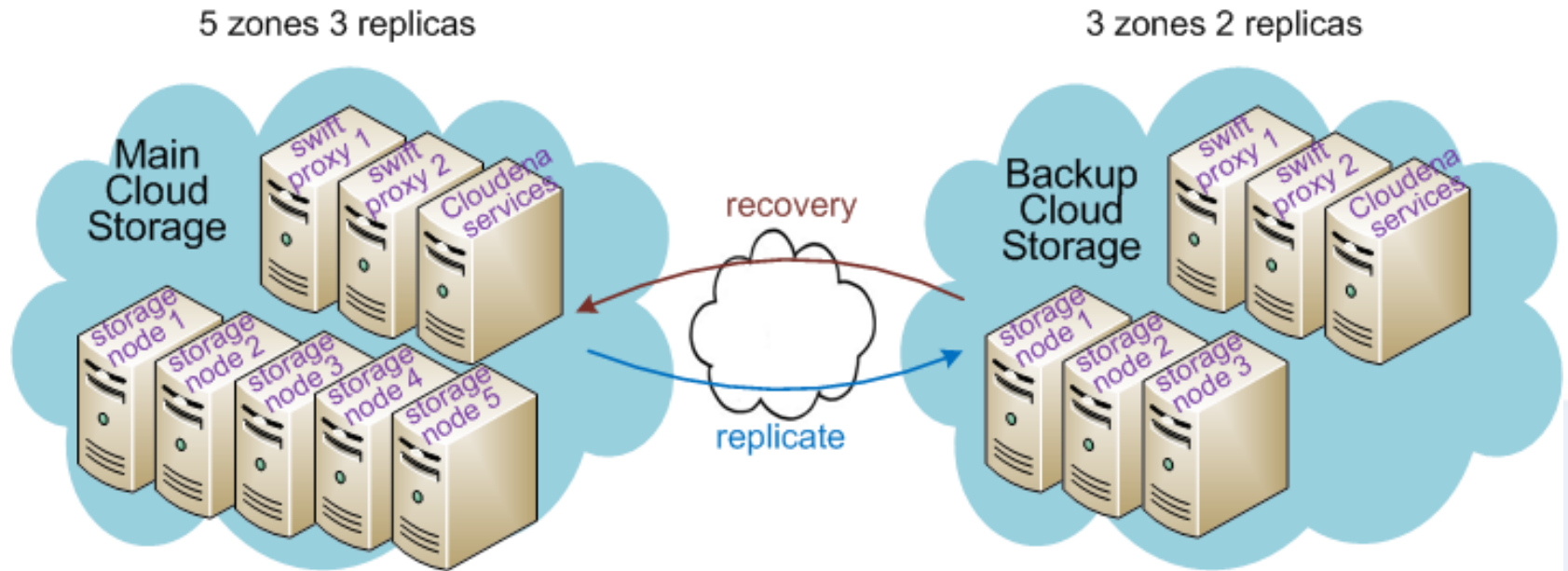
Tuning and Testing

- In main cloud storage
    - Audit objects for integrity, but not impact regular traffic
    - Timely container sync, but not impact regular traffic
- In backup cloud storage
    - Rapid container sync for fast recovery

Use Case 6 – Content Delivery Network
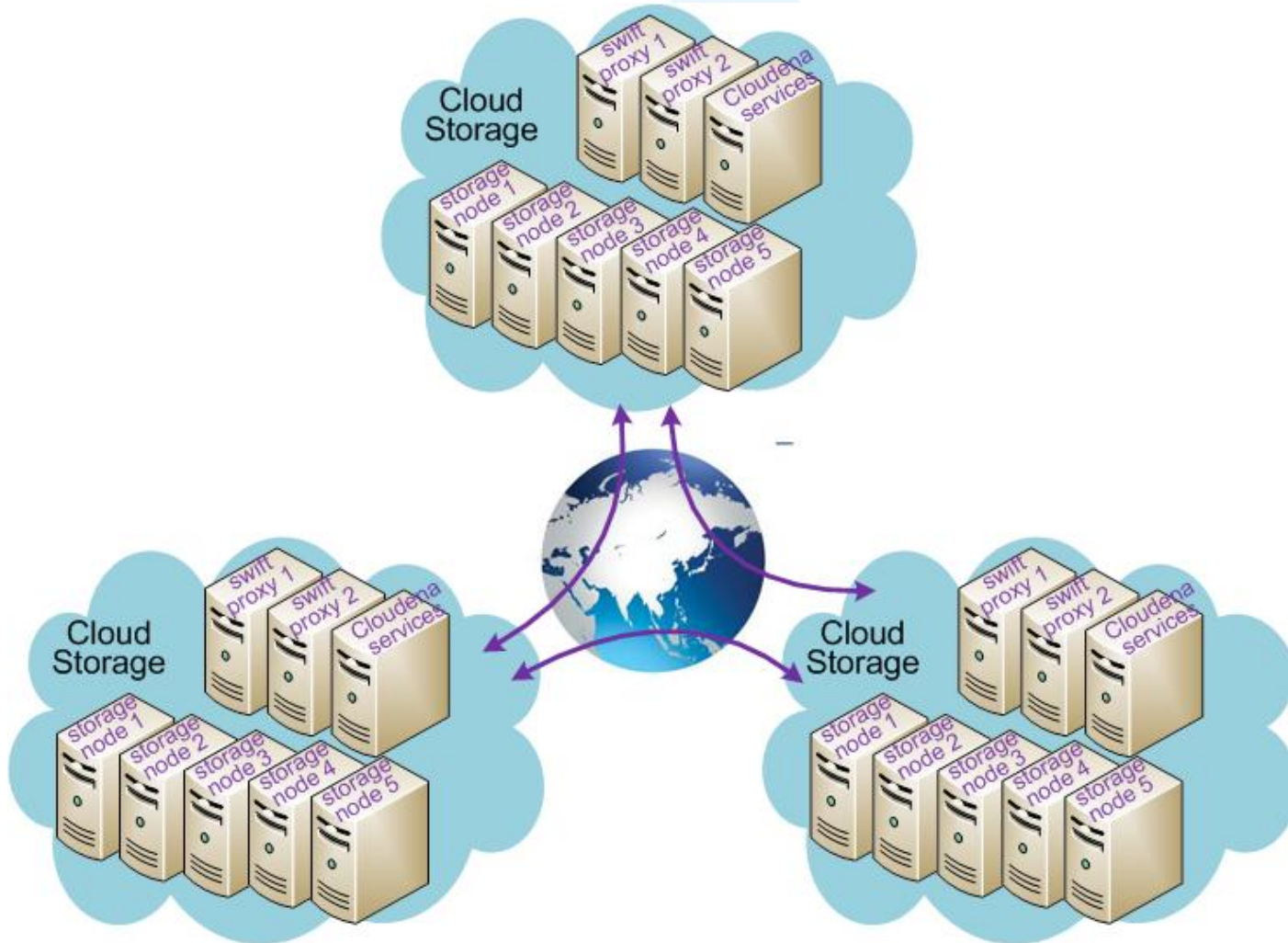
On Top of Swift

- Global file lock
- Access control
- Object compression and decompression for transfer

Thank You