OpenStack Cinder Deep Dive

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Cinder's Mission

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To implement services and libraries to provide on-demand, self-service access to Block Storage resources via abstraction and automation on top of other block storage devices.

Cinder drivers

Cinder is an abstraction layer for around 80 storage backends:

- Open: LVM, GlusterFS, Ceph, NFS...
- Proprietary: NetApp, SolidFire, Dell, EMC, HPE, Fujitsu, Hitachi, IBM, Lenovo, VMWare, Violin, Quobyte, Scality, Tegile...
- Protocols: iSCSI, NFS, RBD, Fiber Channel, proprietary...
- Backup: Swift, RBD, GlusterFS, NFS, IBM TSM

Required features

- Volume Create/Delete
- Volume Attach/Detach
- Snapshot Create/Delete
- Create Volume from Snapshot
- Get Volume Stats
- Copy Image to Volume
- Copy Volume to Image
- Clone Volume
- Extend Volume

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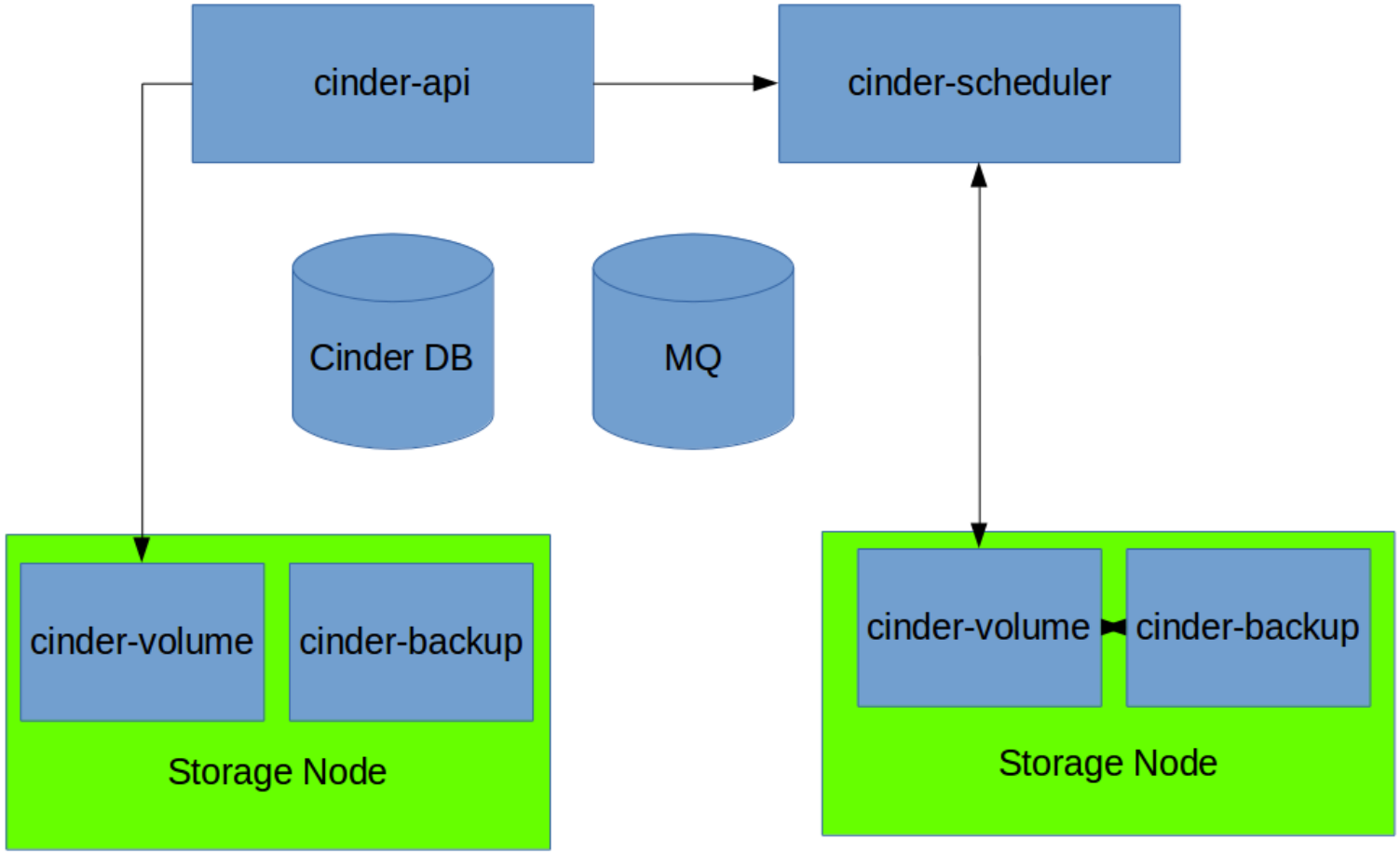
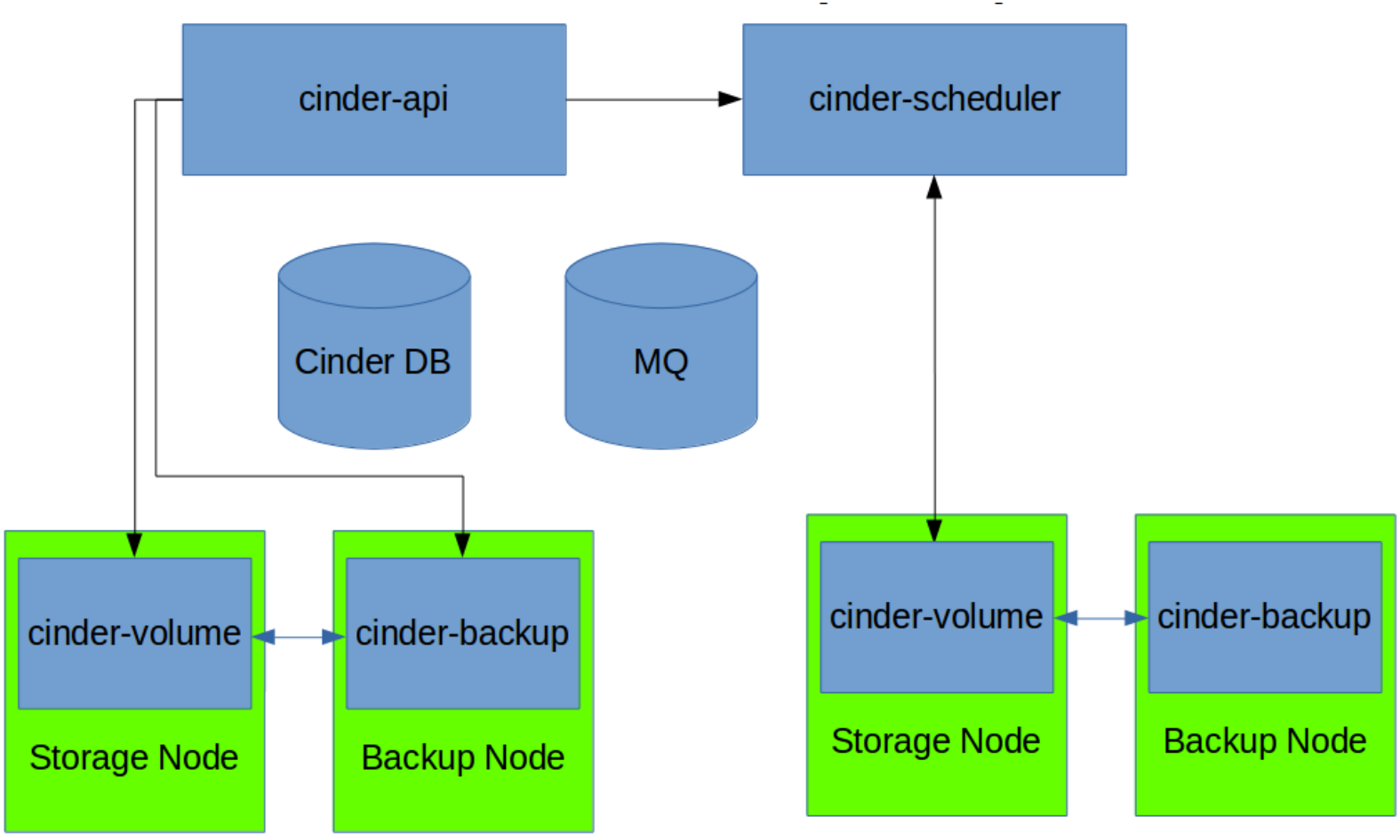
- *QoS support*
  - Moderate number of supporting drivers

Architecture (pre-Mitaka)



Architecture (since Mitaka)



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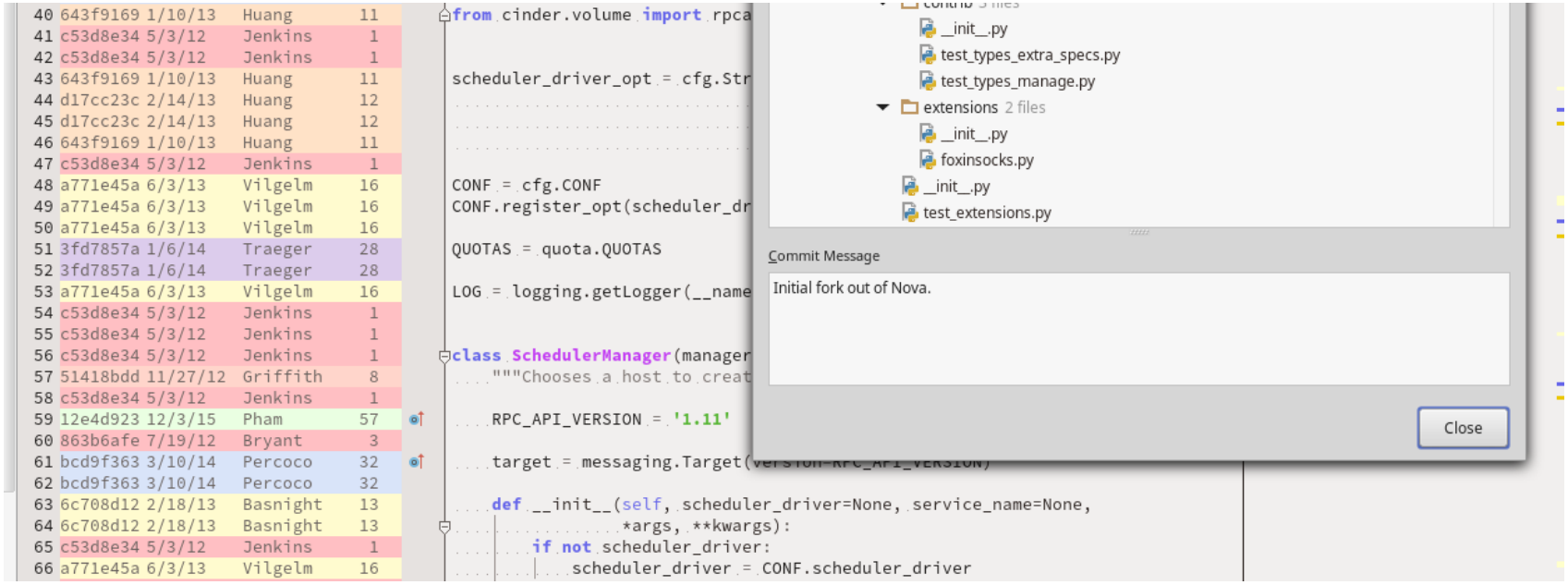
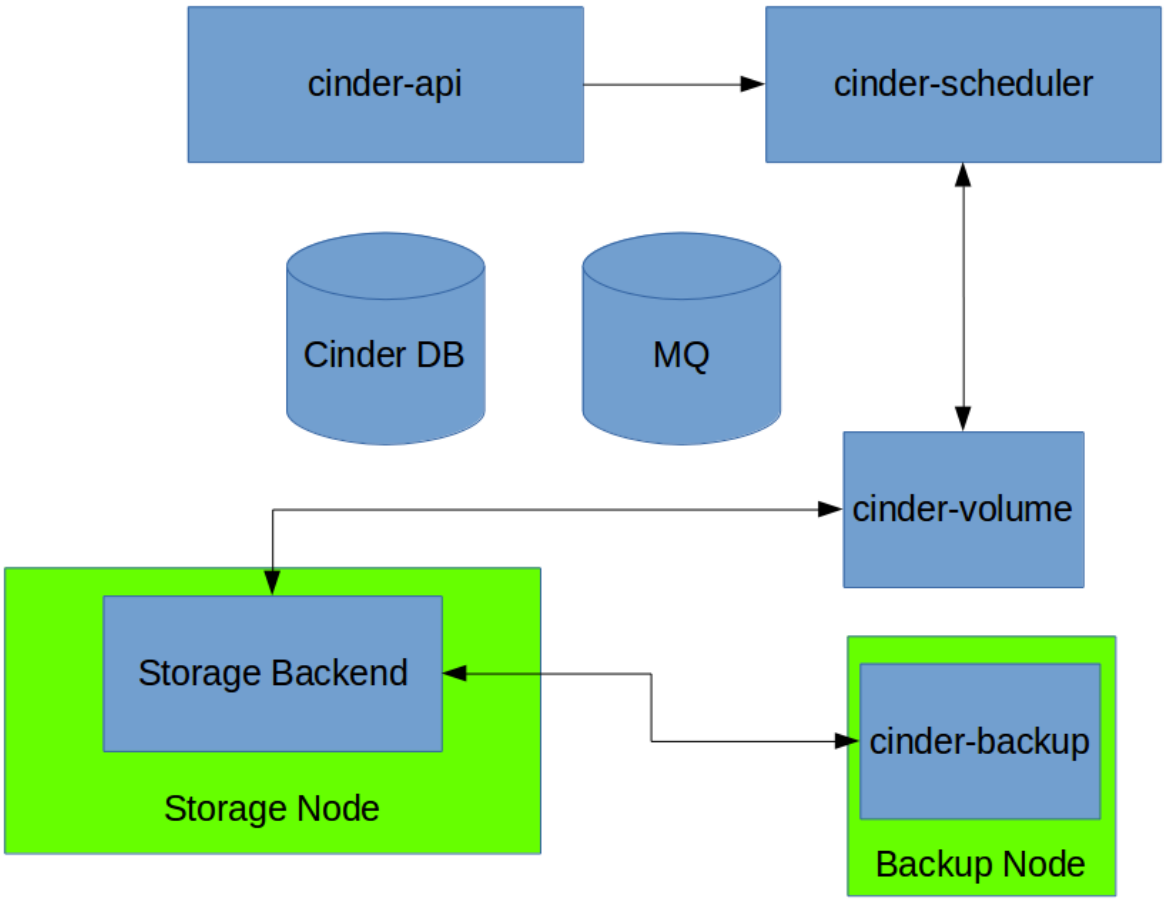


Architecture (non-LVM-backends)



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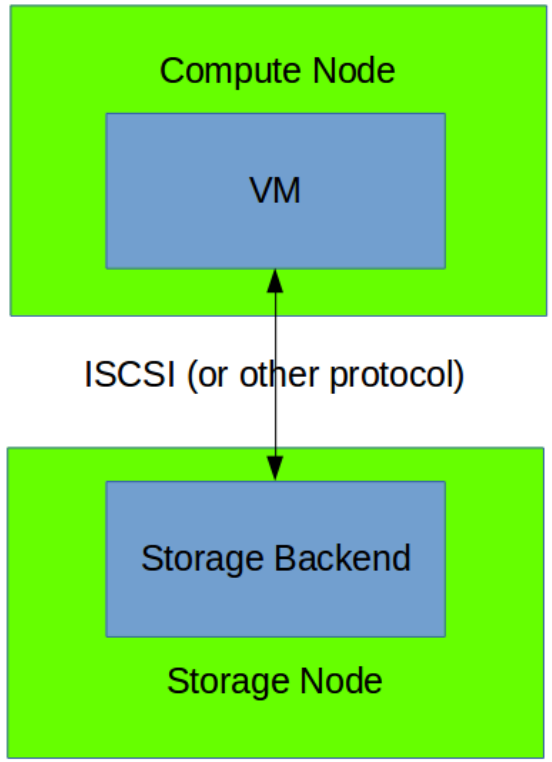

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- Cinder usage outside of OpenStack
  - python-brick-cinderclient-ext project
  - You'll still need DB (MySQL), MQ (RabbitMQ) and Keystone

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- cinder-volume service clustering AKA *c-vol A/A HA support*
  - Right now it is still risky to run multiple c-vols controlling a single storage backend

Thank you!

https://github.com/dulek/openstack-meetup-wroclaw-cinder

remind me to switch to next slide for Q&A

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