

DB Hardware Planning

Currently have

- 6 dbdev machines, each: 8 cores, 16 GB RAM, 2x1 TB local storage, sudo on each

Better to have (in place of dbdev)

Qserv and webserv dev

- Why needed? Software dev
- What is needed: 8-12 VMs, each: 4 cores, 8 GB RAM, ~50 GB local storage, sudo, access to ncsa /nfs
 - assumption: one machine per developer, occasionally we need more than 1 VM per developer
- When needed: would be nice to have soon
- Typical usage: daily interactive use during working hours, which sometimes happen to extend till midnight or so 😊

Qserv on-demand integration testing

- Why needed? To validate new code
- What is needed: 3 VMs per developer, each: 2 cores, 4 GB RAM, ~20 GB local storage, sudo, access to ncsa /nfs
- When needed:
 - **immediately** (as of July 2015)
- Typical usage: running Qserv distributed integration tests to validate new code. Runs just for a few minutes each time when triggered
- Longer term, say in ~1 year it'd be nice to have few more VMs per developer (say 8)

Qserv continuous integration testing

- Why needed? To hash out hard to predict projects, test things in different configurations under different load
- What is needed: ~40 VMs, each 2 cores, 4 GB RAM, ~20 GB local storage, sudo, access to ncsa /nfs
- When needed: in ~1 year
- Typical usage: running tests 24x7.

Qserv specialized tests


- Why needed? For specialized testing, example: debugging a more complex problem with race conditions, fault tolerance, threading, hard to reproduce problems etc
- What is needed? Configuration will vary depending on what we are testing. In some cases 100 VMs with 1 core 1 GB RAM 10 GB local storage, in some cases 10 VMs with 16 cores 16 GB RAM 1 TB storage.
- When needed? in ~1 year.
- Typical usage: used most of the time during the time period as requested
- Note, this is not needed ad-hoc, can be planned and scheduled few days or weeks in advance

Qserv large scale tests

- Why needed? To test qserv at scale
- What is needed? 25, 50, 100, 150 VMs. Each: 4 cores, 8 GB RAM, at least 100GB per VM
- When needed? up to ~100 in 1 year, more later, perhaps with more cores
- Typical usage: used most of the time during the time period as requested
- Note, this is not needed ad-hoc, can be planned and scheduled 1-2 months in advance

Qserv KPIs

- We are planning to run tests to demonstrate we can meet planned KPIs. This is captured in

 **DLP-645** - Jira project doesn't exist or you don't have permission to view it.

. The bottom line:

Cycle	DR1 Catalog [%]
S15	10
S16	20
S17	30
S18	50
S19	75

S20	100
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Qserv as a service

- Why needed? For SUI. To gain experience with running continuously.
- What is needed?
 - 1/2 year: 4 VM, 8 cores, 16 GB RAM, 2 TB local storage, sudo
 - to serve DC_W13_Stripe82 or equivalent
 - ~2 year time frame: 8-16 VMs, each: 8 cores, 16 GB RAM, 2 TB local storage, sudo
 - could go to much higher numbers (even like 50-100 VMs) if we have funding and if SUI would really find it useful.
- When needed soon
- Typical usage: 24x7 Qserv service for SUI

Webserv as a service

- Why needed? For SUI. To gain experience with running continuously.
- What is needed? 1 VM: 4 cores, 8 GB RAM, small local storage, access to ncsa /nfs
- When needed: **ASAP**
- Typical usage: running webserv and DataCat as a service, continuously

General comments

- We never tested MySQL / Qserv with object store, so we regular file system. Theoretically we could try using /nfs for some lightweight things, but given we always need I/O, that might impact the speed of development.
- We need to be able to put the lsst stack on these VMs, and talk to github, so having access to external network is useful. If that is hard, then we need at least one head node that could talk to both external network and the VMs, with at least 100 GB of storage.
- the VMs need to connect to each other (standard sockets)