

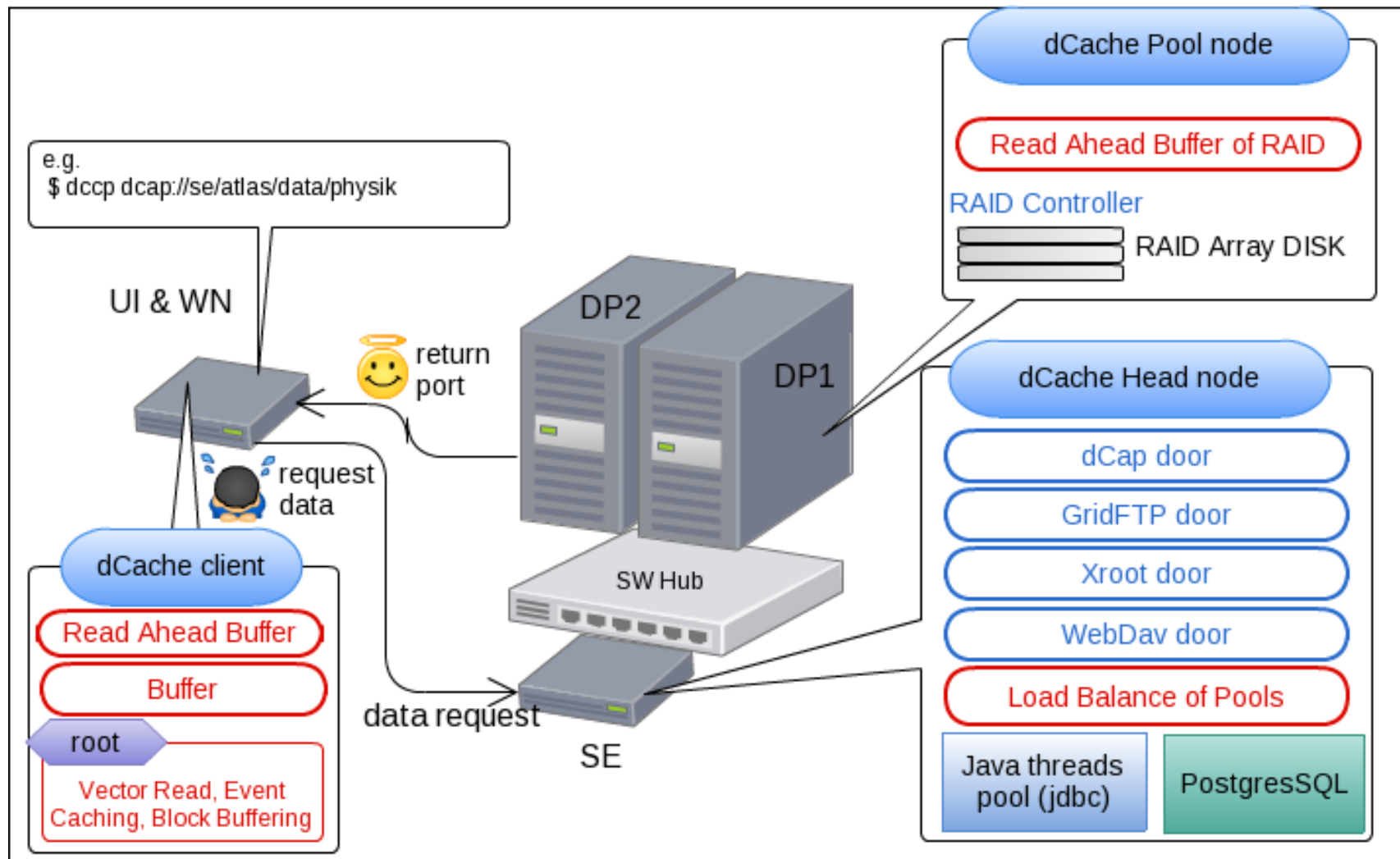
dCache configuration in the WLCG Tier-2, in practice (for v2.2.4 on SL6.5 64bit, for the ATLAS experiment)

Gen Kawamura

II. Physikalisches Institut, Georg-August-Universität Göttingen

- This slide shows you minimum configuration of workable dCache in the ATLAS WLCG
- Important points
 - VO role configuration
 - Space reservation token (for ATLAS)
 - Information provider
 - Tuning of PostgreSQL server
 - Tuning of RAID devices in disk pool

- Example: 1 SE + 2 Disk pools
 - SE = head + doors, Pools = Physical RAID disk nodes



- Installing dCache
- Postgresql configuration
- Information provider in WLCG, door and Queue configurations
- ATLAS VO role configuration
- dCache disk pool and pool configuration
- Space reservation takens in ATLAS
- Performance tuning of RAID cards and etc.

- **Installing dCache**
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- Disabling YUM, to avoid unnecessary corruption or dependency problems in the future
- Installing UMD-2
- Installing LCG CA certificate authority files

- Run “**disable_yum.sh**” (download from [here](#))
- Deleting dag, Installing epel and UMD2

```
EPEL_RPM=epel-release-6-8.noarch.rpm
```

```
UMD_RPM=umd-release-2.0.0-2.el6.noarch.rpm
```

```
[ -e /etc/yum.repos.d/dag.repo ] && rm -v /etc/yum.repos.d/dag.repo
```

```
rpm -e epel-release umd-release
```

```
wget http://dl.fedoraproject.org/pub/epel/6/x86_64/$EPEL_VERSION -O  
$HOME/$EPEL_RPM
```

```
yum -y install $HOME/$EPEL_RPM
```

```
wget http://repository.egi.eu/sw/production/umd/2/sl6/x86_64/updates/  
$UMD_VERSION -O $HOME/$UMD_RPM
```

```
yum -y install $HOME/$UMD_RPM
```

```
yum clean all
```

- **Activate certificate authority public keys**

```
# Installing EGI CA
```

```
yum -y install yum-protectbase ca-policy-egi-core fetch-crl
```

```
# activate periodic CRL update
```

```
chkconfig fetch-crl-boot on
```

```
chkconfig fetch-crl-cron on
```


- Installing required packages and dCache

Installing EGI CA

```
yum -y install java-1.6.0-openjdk-devel ruby
```

```
yum -y install postgresql-server postgresql
```

```
yum -y install bdii glue-schema
```

```
yum -y install dcache-server
```

- Basic configurations
 - Tuning on auto vacuum
 - In `/var/lib/pgsql/data/postgresql.conf`
 - `autovacuum = on`
 - Configuring access right for localhost
 - Add following lines to `/var/lib/pgsql/pg_hba.conf`

```
# configuration for dCache chimera and SRM database
local  all          all          trust
host   all          all          127.0.0.1/32  trust
host   all          all          ::1/128      trust
```

- Example of “info-provider.xml” is [here](#)



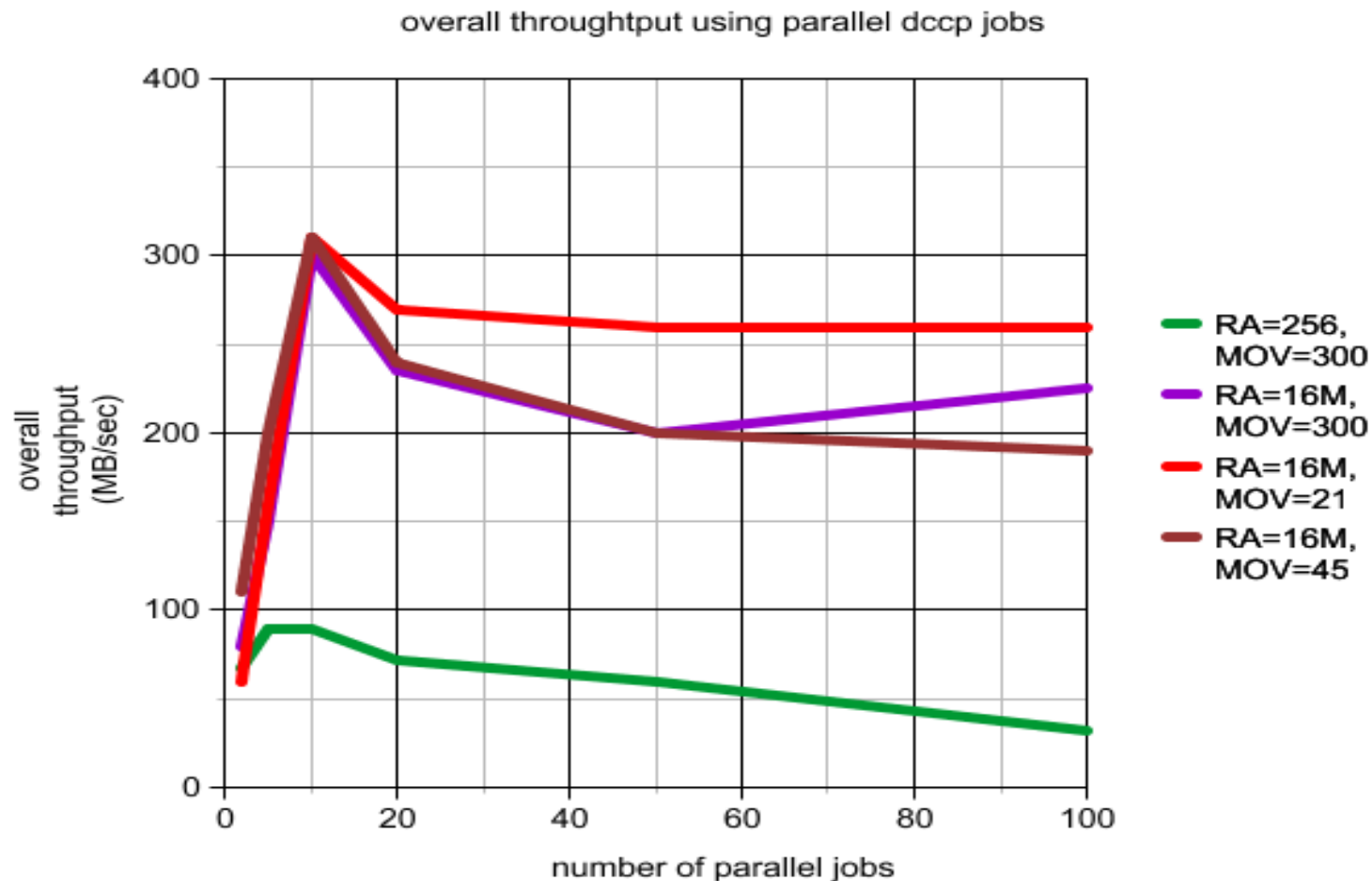




Space Reservation tokens in ATLAS

- One important parameter is “read ahead buffer size” for block devices. This tuning is effective when num of parallel requests > 20 .
 - e.g. (/dev/dm-0 is a logical RAID disk)
 `blockdev --getra /dev/dm-0`
 - 64 MByte (512 Byte * 131072 Blocks) is sufficient
 `blockdev --setra 131072 /dev/dm-0`

- Example: performance with parallel copy jobs



- Do not forget to optimize jvm memory
 - in `/etc/dcache/dcache.conf`
`dcache.java.memory.heap=2048m`
`dcache.java.memory.direct=2048m`
- Gaining performance of PostgreSQL
 - Very typical tuning parameters
 - in `/var/lib/pgsql/data/postgresql.conf`
 - `max_connections` = more than 1000
 - `shared_buffer` = 25% of memory
 - `effective_cache_size` = 50% of memory