

IRODS User Group Meeting 2015

Best practices in construction of a nationwide iRODS grid.

Tom Langborg

NSC

Linköping University

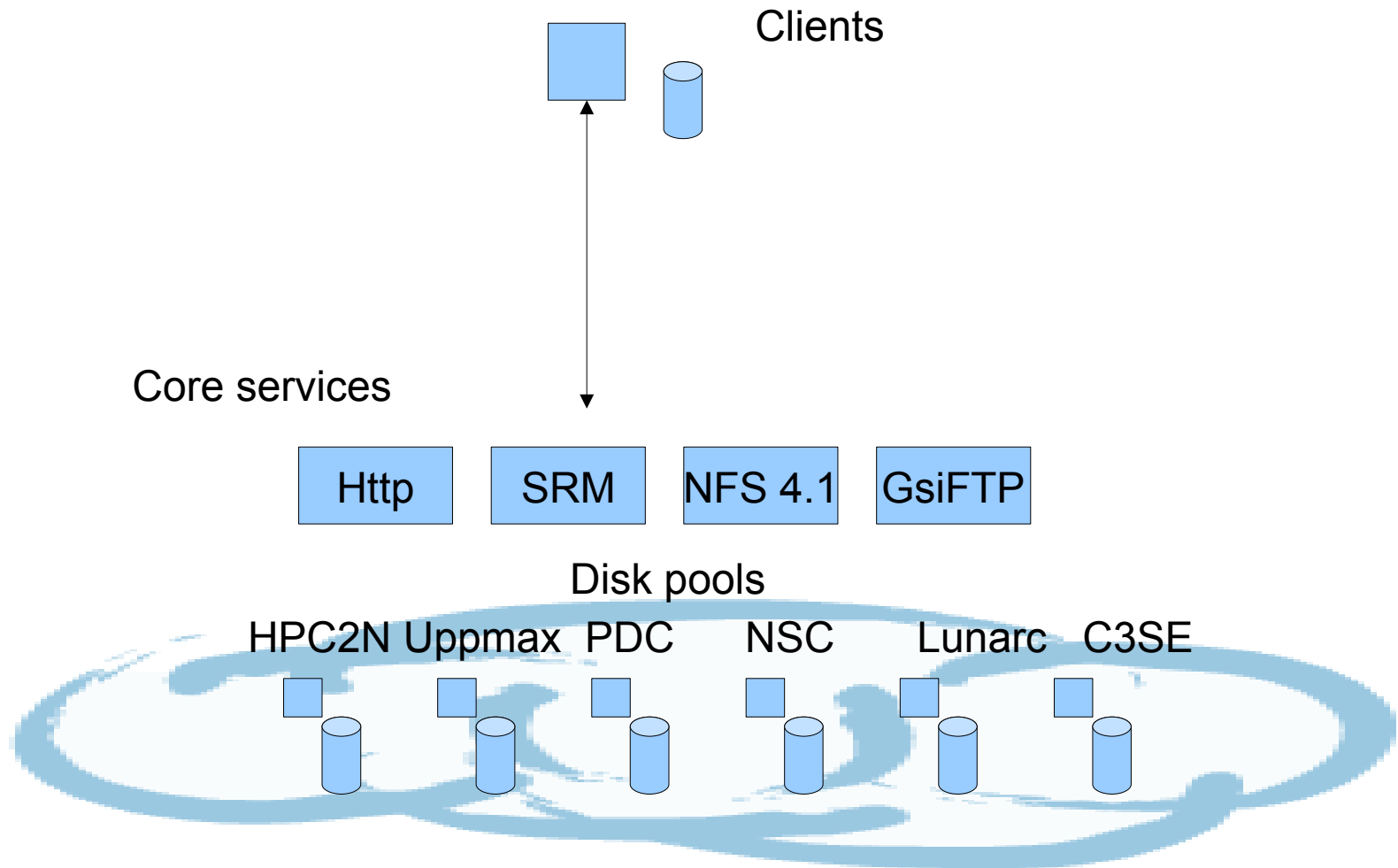
Sweden

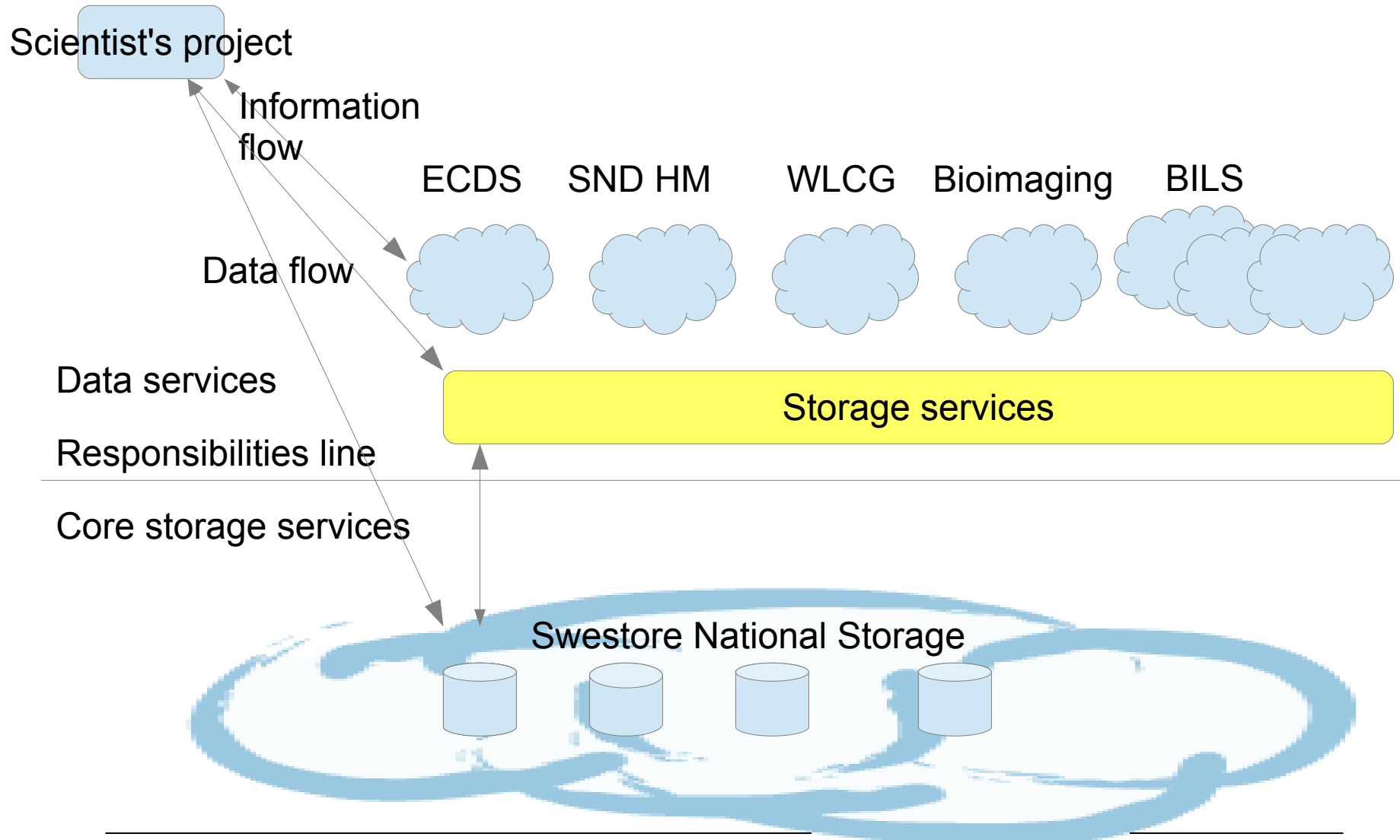
In 2012 we had 2x1 PB storage for national scientific data on dCache.
Distributed storage between six centers with copies in two towns.
Annual growth of 100%.
Could we do better?

1200 km
12ms RTT



- ┆ HPC2N (Umeå)
- ┆ UPPMAX (Uppsala)
- ┆ PDC (Stockholm)
- ┆ NSC (Linköping)
- ┆ C3SE (Göteborg)
- ┆ LUNARC (Lund)





- Not user friendly
- No handling of metadata
- No handling of federation
- No version handling

Started with E-iRODS on top of dCache.

- Security
- Reliability
- Limits
- Enterprise capabilities
- User friendly..

Testing

- First test security and basic functions
- Second, test with load and distance
- Third, test with pilot users..



Security

- Yubikey
- .irodsA
- iDROP

Impact of irodsHost environment setting
 105mb 2900 files
 40 sql questions each file

lphymv

iput

IrodsHost smhi2-irods.nsc.liu.se (iCAT server)

```
zoidberg:~ tom$ time iphymv -r -S sr001p1 -R
demoResc /smhi2/proj/tomtest/irsynctest10/
```

```
real 6m32.383s
user 0m1.802s
sys 0m0.688s
```

irodsHost=smhi2-sr-001.nsc.liu.se (Storage server)

```
zoidberg:~ tom$ time iphymv -r -S sr001p1 -R
demoResc /smhi2/proj/tomtest/irsynctest9/
```

```
real 3m6.142s
user 0m1.107s
sys 0m0.401s
```

irodsHost smhi2-irods (iCAT server)

```
zoidberg:~ tom$ time iput -kKr ./irods3.3/
smhi2/proj/tomtest/irsynctest7/
```

```
real 7m52.911s
user 0m4.303s
sys 0m2.275s
```

irodshost smhi2-sr-001.nsc.liu.se (Storage server)

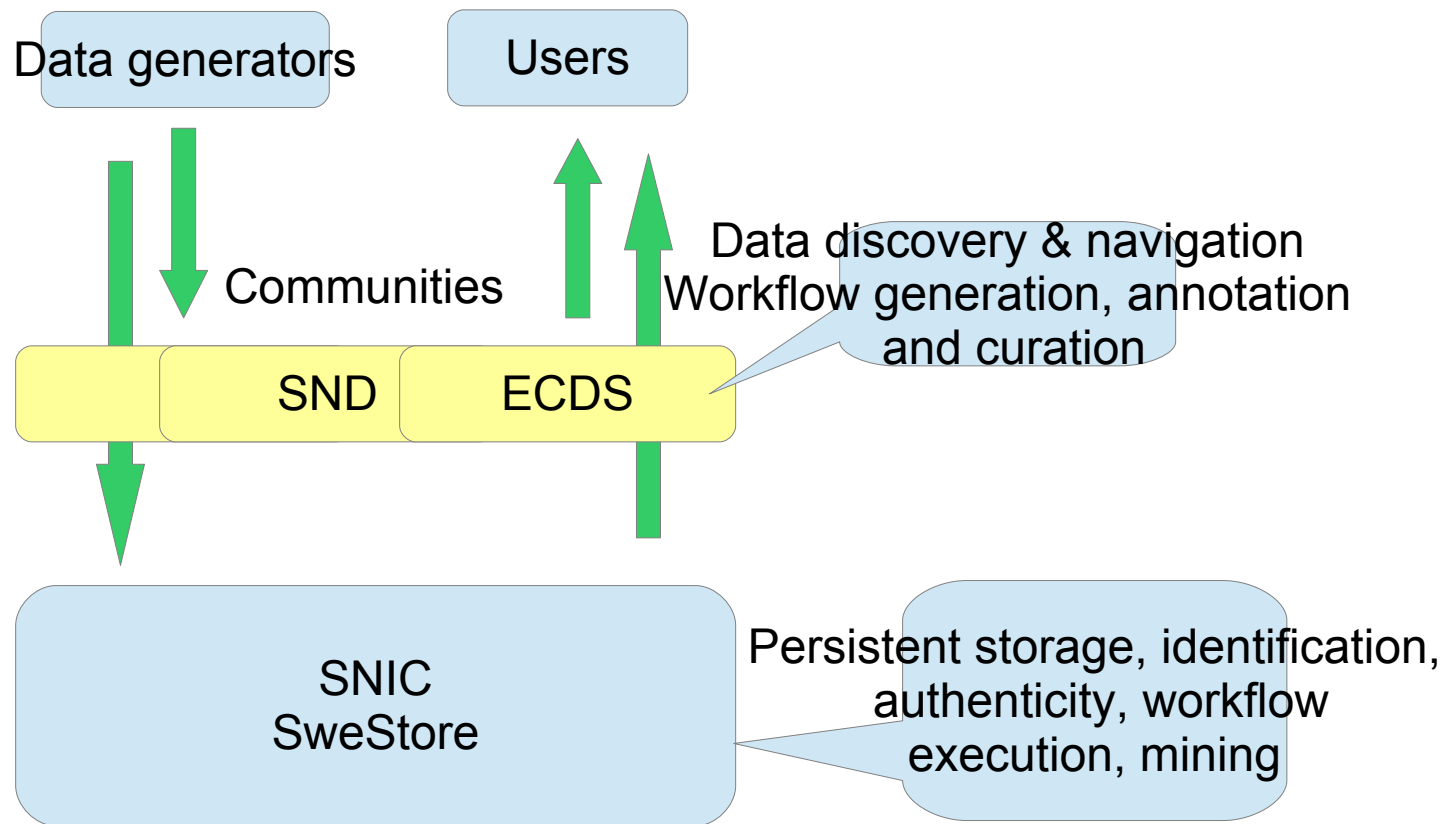
```
zoidberg:~ tom$ time iput -kKr ./irods3.3/
smhi2/proj/tomtest/irsynctest8/
```

```
real 1m23.670s
user 0m4.529s
sys 0m2.082s
```

Advice and experience.

Sportscar or lorry?





- Each center is responsible for their pools.
- Each center got a pledge to fill each year.
- Two centers are responsible for the heads.
- One center is responsible for support.
- Weekly admin meetings.
- Each community applies each year for quota..

IRODS advice

- Don't spread HW geographically
- Use irodshost env. Wise
- Don't use several iRODS installations on same HW
- Test with load and normal user
- Don't use tired storage
- Don't use backup
- Increase capacity with more servers.
- Have a collaboration and workshops with other iRODS installations
- Have a good collaboration with iRODS consortium.

Next phase in enterprise storage

- **Enterprise functions**
 - Disabling users
 - Storage and pool handling
 - Metadata inheritance
- **Performance**
 - Iphymv
 - Files/sec

Question?