



BioMedInfra cloud

ELIXIR FI Stakeholder meeting 7.2.2014

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Overview

- Service and hardware
- History of BioMedInfra Cloud
- 2013 in figures
- Near future



”Show me what you’ve got!”

Service and Hardware

BioMedInfra cloud service

- Infrastructure as a Service (IaaS)
 - targeted for organizations, IT-admins
- Computing capacity
 - Virtual machines on dedicated hosts
- Storage capacity ("*computable storage*")
 - Private NFS shares
 - Scratch disk
- Network connectivity
 - lightpaths (OPN) or FUNET internet access
- Open source based software stack

Under the hood - compute

- Dell compute servers
 - 48 x M610 blade servers
 - 72 x C6100 scale out servers
 - 2 x R820 big memory nodes
 - 48GB to 1TB RAM
 - 146GB to 5.5TB local disk
- 4 Dell R710 frontend servers
 - Run middleware and management VMs
- Cisco 5596 10GE switches



Under the hood - storage

- NetApp NFS appliance
 - Virtual, HA, isolated NFS servers
- Three generations of NetApps
 - v3240 (Mykkyver+Murdoc)
 - Storage comes from Hitachi SAN
 - Modest performance (~50-150 MB/sec)
 - FAS3240 (Mikki+Hessu)
 - Good performance (~200-400 MB/sec)
 - **NEW!** FAS6250 (Ender+Bonzo)
 - Nice performance (~600-1000 MB/sec)
 - Larger shares (100TB now, larger later)



Under the hood – storage (contd.)

- ➊ EqualLogic 6000-series hybrid storage
 - SSDs and hard disks
 - For IOPS-demanding apps like relational databases
 - iSCSI at system layer, hidden from the customer
 - 25 TB capacity, more than half still available

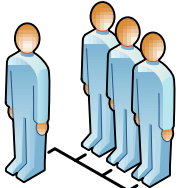
”From the dark ages to the light”

History of BioMedInfra cloud – short
version

2010



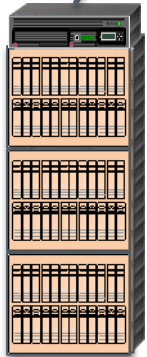
FIMM



Helsinki

OPN

Edge switch

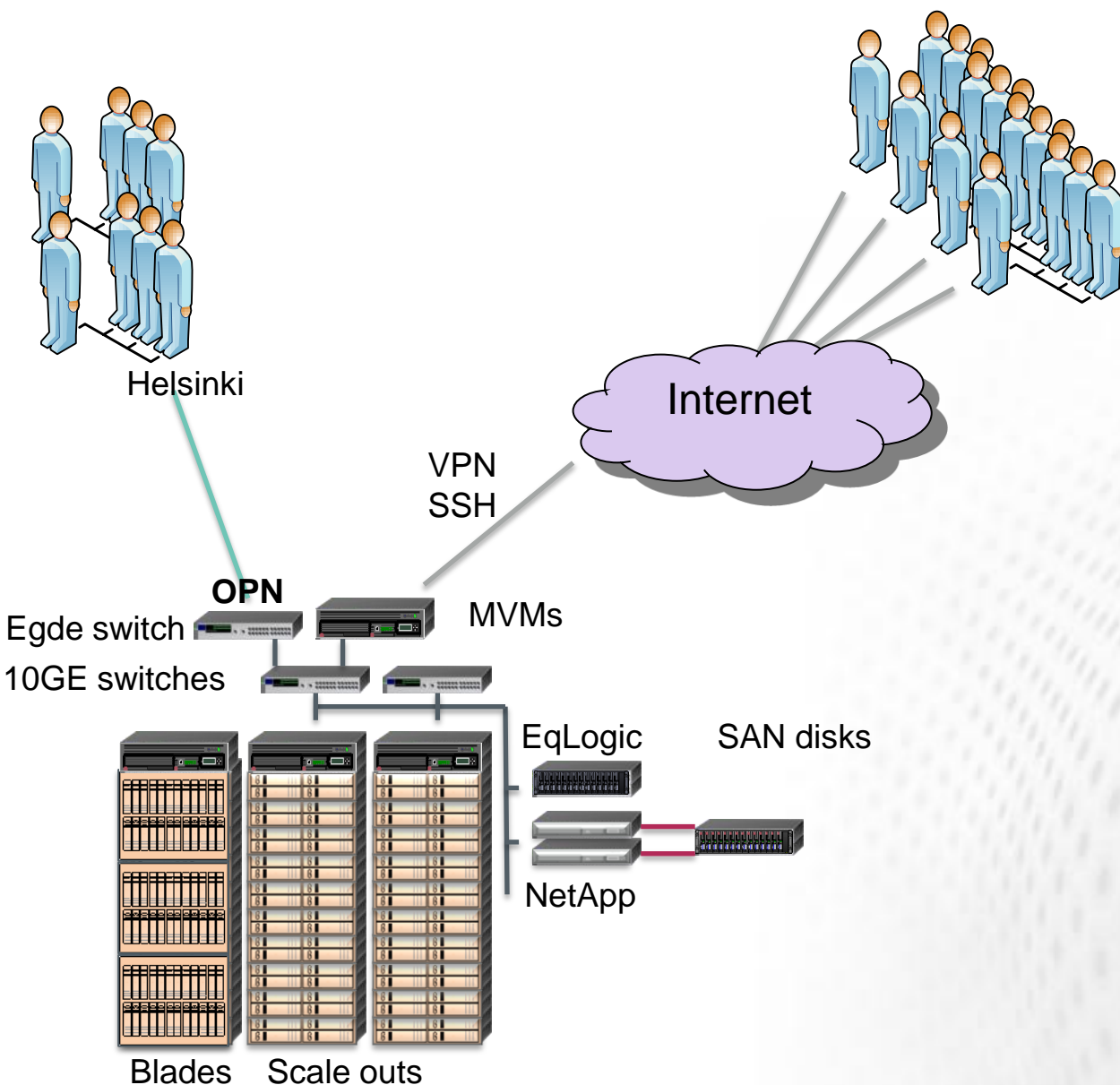


Blades

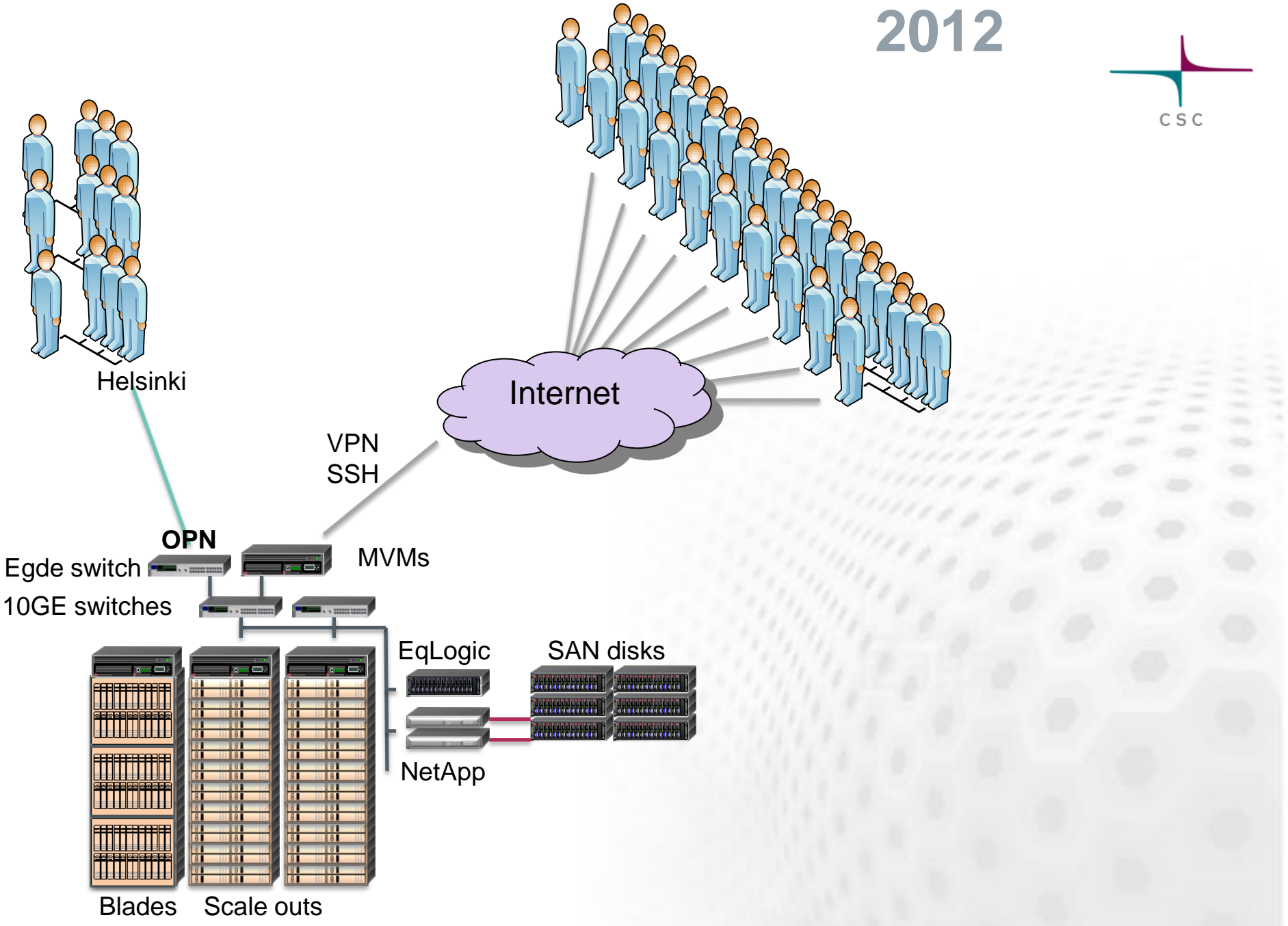
CSC Keilaniemi, Espoo



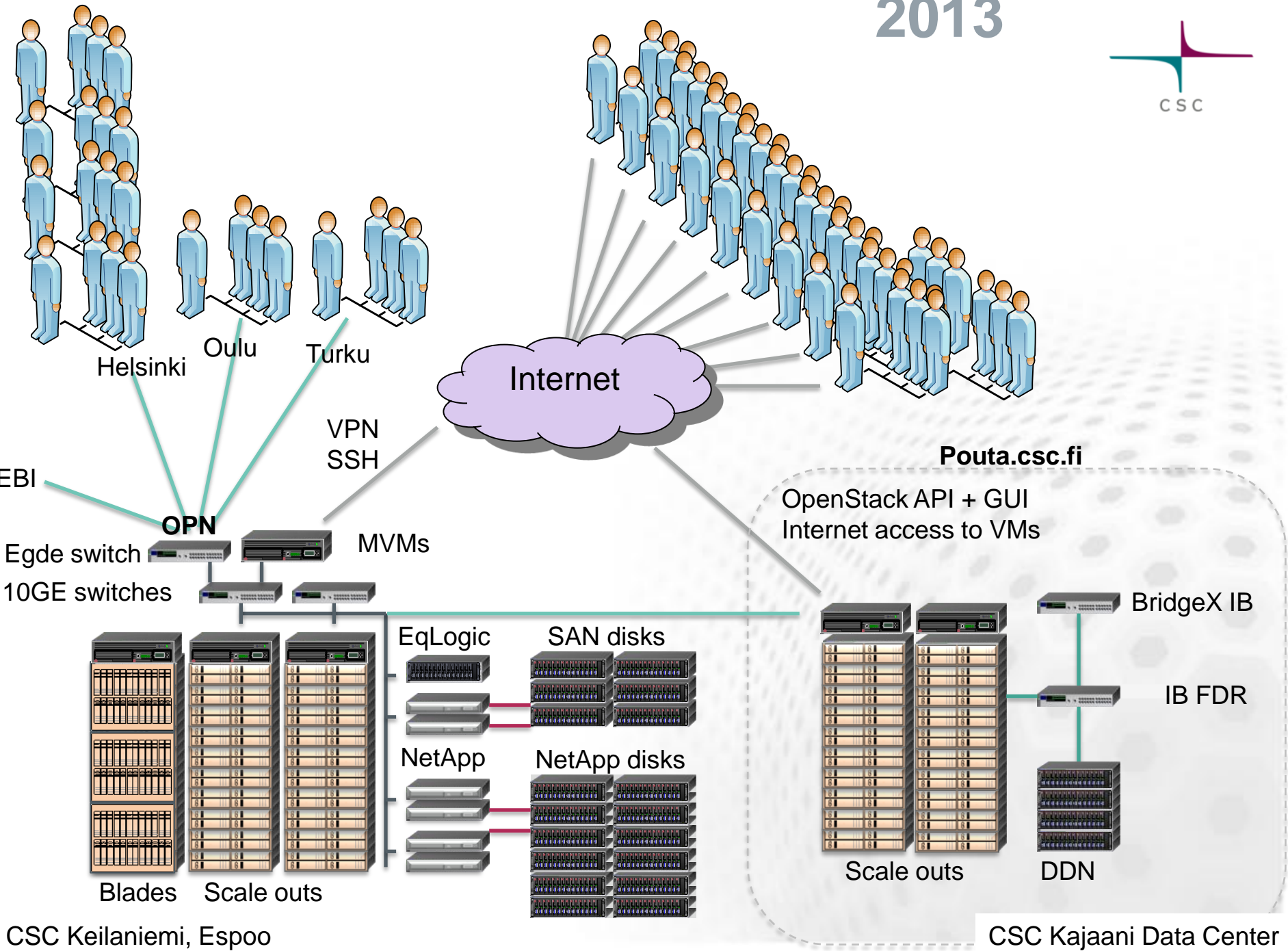
2011



2012



2013



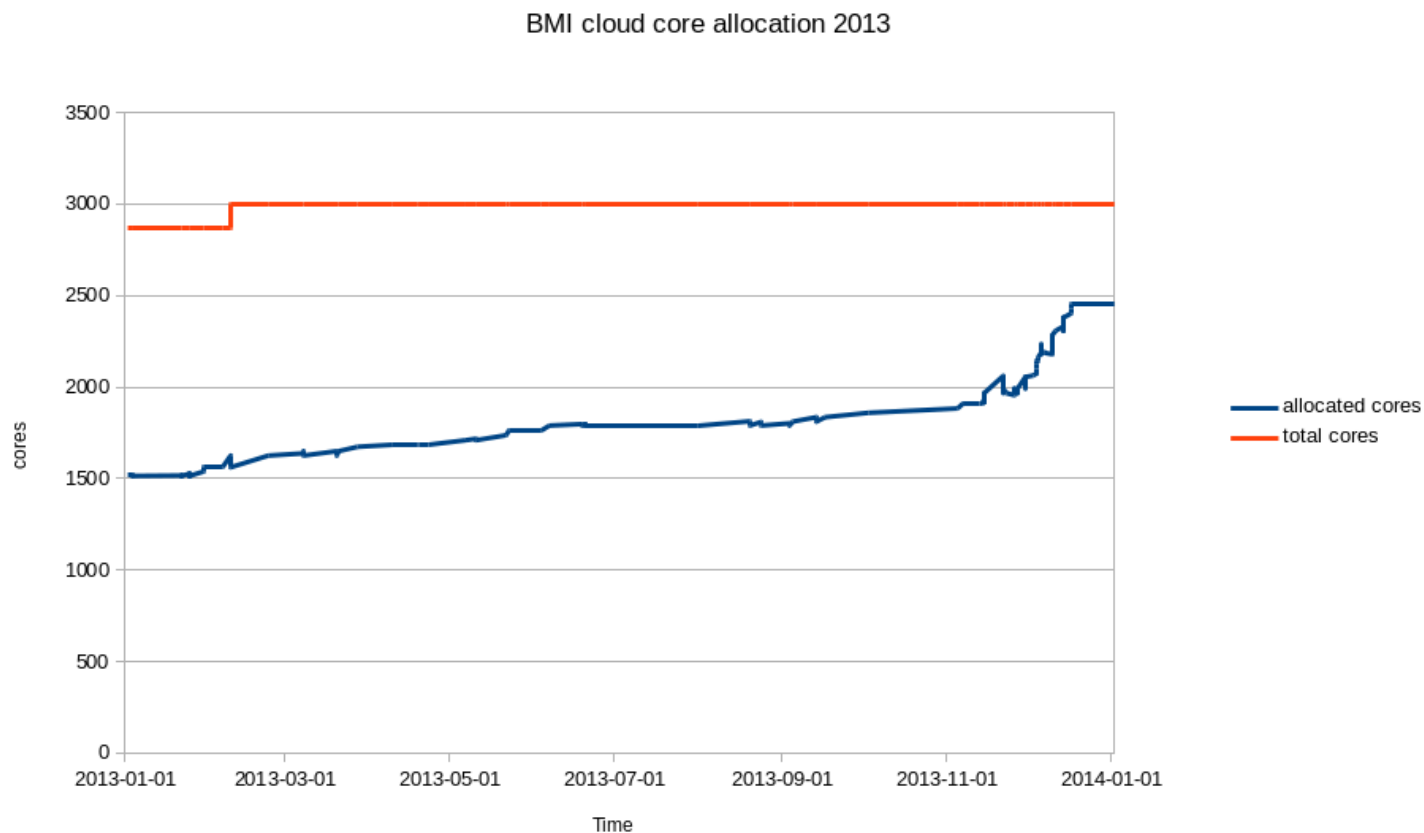
CSC Keilaniemi, Espoo

CSC Kajaani Data Center

”Lies, damn lies,...”

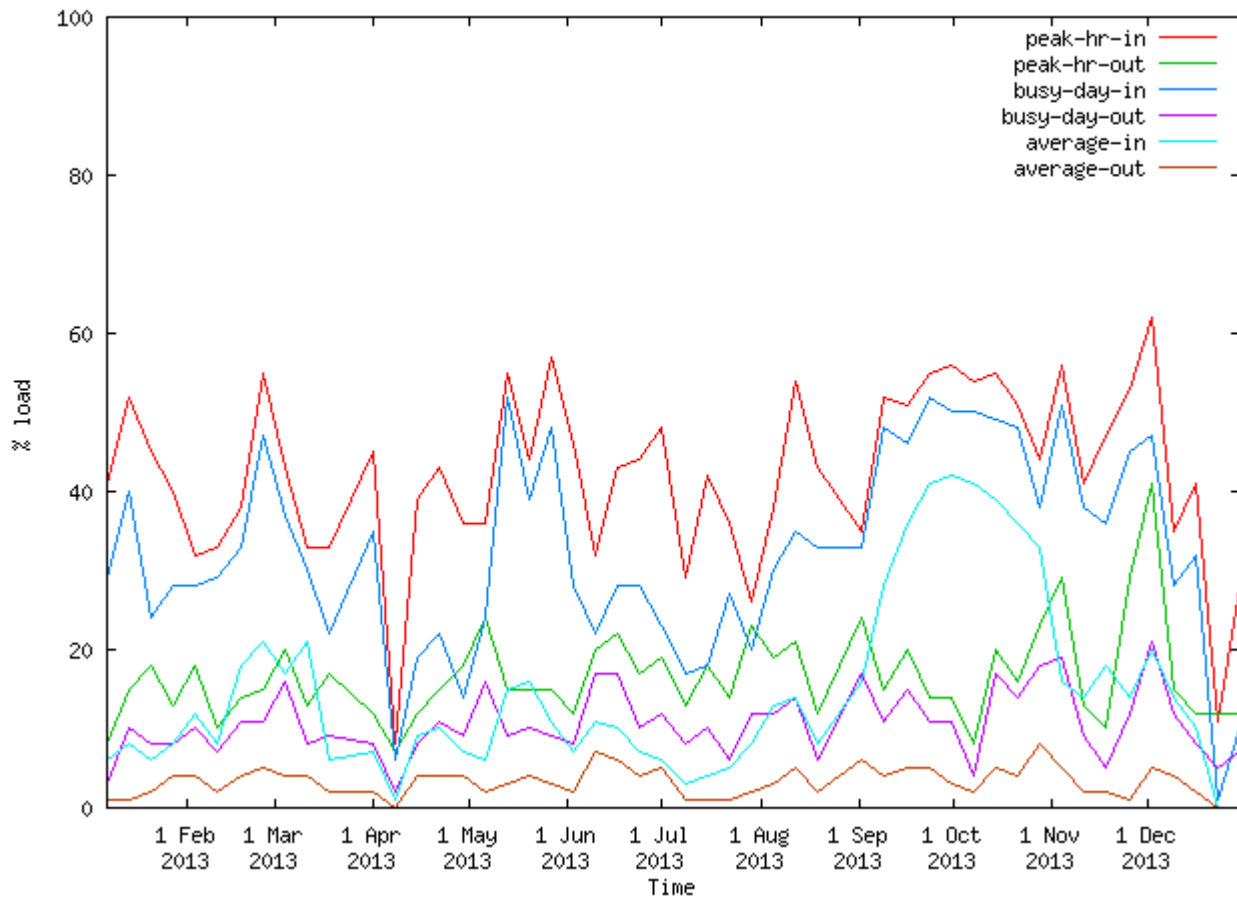
2013 statistics

Running VM core allocation 2013



Helsinki OPN traffic 2013

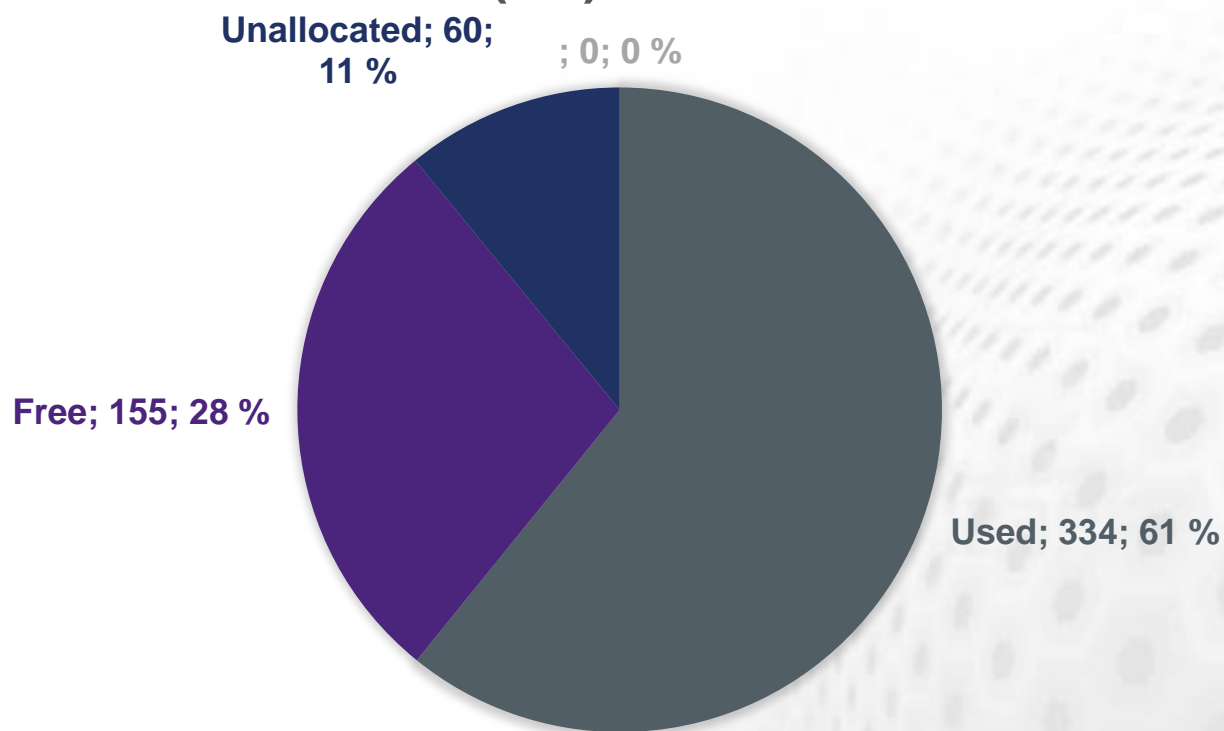
csc-bmi1-sw.1001 weekly load in 2013, capacity 10000000 kbit/s



5.8 PB in
1.4 PB out

NFS storage allocation Dec 2013

CAPACITY (TB) – 550 TB TOTAL



”To boldly go where no service has gone before”

Near future

What will happen in 2014

- Pouta cloud service to production
 - Can host at least non-OPN customers
 - Piloting already with Chipster
- New NetApps will increase the NFS net storage to 1.1 PB
- Active replication of key EBI datasets over lightpath
 - Piloting already done between EBI and KDC
 - Next: Computational access to local Ensembl
 - Suggestions and input are welcome