GridKa Batch Farm

- 200 new WNs (2U/4node chassis)
  - 2x Intel Xeon E5-2630v4 (10-core, 2.2 GHz)
  - 96 GB RAM
  - 4x 1TB HDD, **120 GB SSD** (/, /cvmfs)
  - **10 GE NIC**
  - 78 kHS06 (@ 32 Job-Slots)
- 80 WNs (AMD) will be retired
- ~210 WNs with 16 instead of 24 slots
  - Better support for high-mem jobs
- Expect another extension soon to (partly) fulfill extra LHC VO requirements
- Deployment still via ROCKS6
  - Future with RHEL/SL/CentOS7?
GridKa Batch System

- **Univa Grid Engine**
  - Smooth operations
  - But licensing doesn’t allow dynamic batch farm extensions as required

- **HTCondor**
  - A lot of experience at KIT IEKP physics institute
  - Now 50kHS06 in HTCondor (with ARC-CEs)
  - 100% HTCondor in April 2017

- **CEs**
  - Retire CREAM-CEs with Grid Engine
  - Use ARC-CEs with HTCondor
  - Explore HTCondorCE
GridKa Disk Storage

- 20PB new disk storage (NEC/NetApp) to be delivered next week
  - Installation in late November, in production early 2017
- GPFS based, IB for data traffic (10 IB Switches), separate Ethernet for GPFS cluster traffic
- 60 Enclosures (12 E5660, 48 DE6600), 8TB HDDs, DDP instead of RAID-6
- 12 NSD Servers, 42 protocol servers (dCache/xrootd)
- 40GE for traffic from protocol servers to outside/Wns
- Occupies 8 new racks
- 3PB extension already planned
- 13.5PB DDN storage to be retired in 2017
  - Data migration via dCache
Storage Installation – New Racks
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Storage Installation – New Racks
Storage Installation – New Racks

- 12 47U Knuerr DCM racks (120cm deep)
- 9 Knuerr DCL cooling units
- ~16kW cooling power per rack
- Modular PDUs with measurement and switching capabilities
GridKa Network

- Replacement of 4 Catalyst routers with 2 Nexus 7710
- Internal backbone: 100G/6-8*10G
- File servers: 40G
Disk Storage
- 6PB of NEC/NetApp storage (same as for Tier-1)
- Replacement for two IBM SONAS systems (2.7PB, 1.5PB) and a DDN cluster (0.5PB)
- 880M files need to be migrated

Cooperation with HPC
- Today users have to copy their data from LSDF storage to HPC storage (Lustre)
- Plan to mount GPFS directly on HPC Nodes
Many other important topics

- Towards Puppet 4
- ELK for dCache and GPFS file information analysis
- IPv6 rollout across GridKa
- More Services under Puppet
- Custom Foreman
- Snapshot tools to help admins puppetize services
- Smart Proxies
- LTO to T10k Migration
- RHEV HCI with Gluster
- HPSS for GridKa and LSDF
Thank you!