DESY – JRA 2 – Existing Infrastructure

- Virtualization
  - XEN: in production. large scale virtualization platform. Currently no GPU virtualization.
  - VMWARE: in production. Mostly for essential services. Currently no GPU virtualization.
  - OpenNebula: meanwhile decommissioned
  - OpenStack: small infrastructure up&running, not yet in production.

- Virtual OS' supported
  - SL5/6, Centos 7, Ubuntu 14, Debian 8
  - Windows 7, 2008, 2012

- Non-virtual (real) resources for remote data analysis
  - HPC nodes (incl. GPGPUs) with IB backbone and native GPFS access to experiment data (via IB)
  - Interactive & batch computing
  - dCache archival (>10PB)
  - Portal for data transfer, staging, access management

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- Remote access for Petra3, Flash users
  - Full graphical access with Starnet FastX
    - CPU based rendering. GPU utilization via VirtualGL
    - Supports remote access via web browser (entire desktop session in a browser)
  - ssh based login via dedicated gateway
  - Access to compute nodes (interactive, batch, HPC, GPUs) and experimental data.
  - Archival of raw and intermediate data (semi-automatic)
  - OS: RedHat EL6/7
  - No virtualized hardware used in this context (except for the gateway)

- Analysis software
  - Pre-packaged (RPMs, DEBs) and/or
  - Pre-installed on network drives. AFS hosted sw globally available.
  - Plenty of photon science apps, incl. wide spectrum of commercial apps (also available for external users)
  - Recently started docker deployment (still more of a test)
  - very recently started to test jupyter(hub)

DESY – JRA 2 – tasks

- Focus on Software deployment
- Docker:
  - Application frameworks via Docker
  - Integration of Docker into slurm, htcondor (cloud) for remote job submission
- Portal:
  - jupyterhub as a lightweight portal / e-notebook might be an interesting alternative.
  - Web-like access to compute resources (FastX, Nice DCV, jupyter etc) are probably good enough for our use cases.
  - Cloud deployment via jupyter/docker?
  - 3D visualization in the cloud via FastX, DCV?
  - Web-based portals are overrated.
- Use cases:
  - Tomography sounds good.
  - Could imagine to go beyond the usual workflow, e.g. integration of bio-mechanical simulations & things alike

- Mainly expect contributions to tasks : T1, T2, T5 (~expertise 2-4,6,10)
- Depending on the implementation: T3, T4