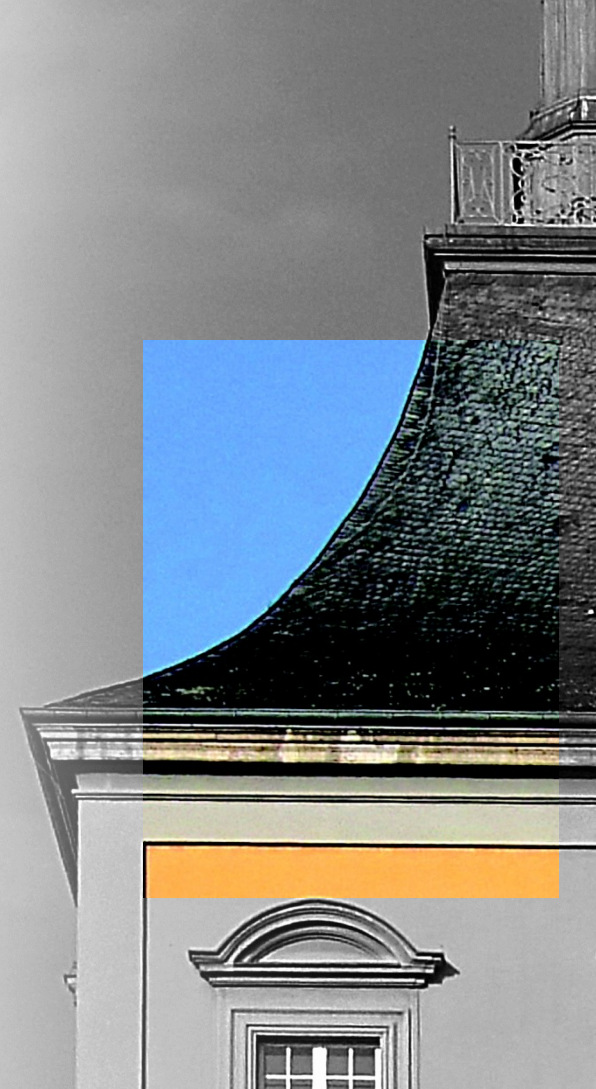


U BONN APPLICATION: „COMPUTE SITE IN A BOX“

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A BRIEF HISTORY

- Originally applied for funding as associated partner in ErUM → proposal declined
- Still we presented our ErUM related work at Munich Kick-off workshop
- Work considered useful, discussions started how to make use of work within ErUM
- Presented first ideas during Aachen workshop
 - Ideas refined, „Compute Site in a Box“ was born
 - Checked options with DESY PT
- Write-up finished, waiting for „green light“ from DESY PT

„COMPUTE SITE IN A BOX“ IN A NUTSHELL

- Develop and test new approaches to integrate tier 3 resources into a single point of entry provided by large computing centres (e. g. tier 1s)
- Fully automated deployment (provide Puppet modules for all services)
- Spread developed technology and know-how
 - Exploit results from stage 1 and roll out developed strategy on more tier 3 sites
 - foster collaboration between ErUM members and spread knowledge by means of schools and workshops
- Request 1 FTE to do the work

COOPERATION TIER 1 ↔ TIER 3

- Provide/“hide“ resources of tier 3s behind single point of entry run at tier 1 centres
 - Keeps number of sites manageable for computing operations teams of experiments → simplifies troubleshooting
 - Tier 3s can contribute to grid computing without running full spectrum of grid services → reduces hurdles to contribute and diminishes load on tier 3 operators (often overloaded with local tasks)
- Two pillars
 - Job management
 - Data management

JOB MANAGEMENT PLANS

- Fully automated deployment of HTCondor CE at GridKa (replacing current ARC CE) as entry point
 - Nice integration with HTCondor
 - Needs adaptations to run in the European grid ecosystem (originally developed for OSG environment)
- Commission COBaID/TARDIS opportunistic resource manager at U Bonn → see talk tomorrow morning
 - Abstraction layer between resource user and resource provider allowing to optimally use heterogeneous opportunistic resources (like VMs of a cloud provider or slots in a HPC/HTC cluster)
 - Developed at KIT (M. Fischer, M. Giffels, E. Kühn, M. Schnepf, et al.)

DATA MANAGEMENT PLANS

- Soften data locality („data lake model“) to gain more flexibility for opportunistic resource usage
- Switch from old SRM to more flexible XRootD and HTTP protocols
- Compare different data access models
 - Classical (copy data to local site before running jobs), distribute data to WNs via
 - Distributed file system
 - RedirPlugin (developed by GSI)
 - XRootD

DATA MANAGEMENT PLANS (CONT'D)

- Use XRootD caching mechanisms
 - XCache
 - XRootD Disk Cache Local Access (developed by GSI)

Cache location can be

- Distributed file system
- Local WN disks
- Use coordinated caching as provided by NaviX (developed by KIT)
 - Job management knows which WNs have cached which data → data-aware job distribution

COOPERATION AND COMMUNICATION

- Distribute technology and know-how among ErUM partners
- „Compute Site in a Box“ serves as example for other tasks from area A and B
- Planned activities
 - Close collaboration with U Mainz and GSI, deploy „Compute Site in a Box“ in Mainz and Darmstadt as early adopters
 - Roll out „Compute Site in a Box“ on more partner sites
 - Close collaboration with developers of XRootD caching technologies/plugins, COBaID, TARDIS and NaviX
 - Organisation of schools to spread all results obtained in task areas A and B

COOPERATION AND COMM. (CONT'D)

- Organisation of schools and collecting teaching material to spread all results obtained in task areas A and B
- Communication with astro (particle) physics, hadron and nuclear physics communities to ensure knowledge exchange
- Stay in contact with tier 2 sites

TIMELINE

- Draft of application ~finished since July. Collecting and integrating feedback since then.
- Plan to submit as soon as we obtain „green light“ by DESY PT
- Envisaged project runtime: January 2020 until September 2021

Thank you for your attention!

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