HELMHOLTZ

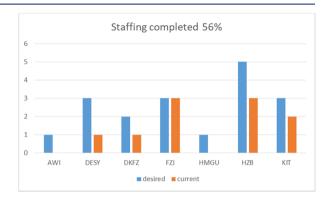
RESEARCH FOR GRAND CHALLENGES



Team



- target 18 FTE from 7 centres
- Status now: 10 positions filled
- 56 % of the jobs are staffed.



- team organizers:
 - AWI: Jörg Matthes
 - DESY: Patrick Fuhrmann
 - DKFZ: Marc Hemberger
 - FZJ: Daniel Mallmann
 - HZB: Ingo Heinzel
 - KIT: Klaus Scheibenberger

- team member known so far:
 - FZJ: André Giesler,

Franz Bläsen,

Sander Apweiler,

Tim Kreuzer

HZB: Andreas Klotz,

Annette Spicker,

Laura Schollmaier

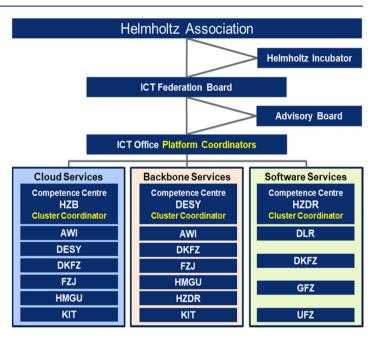
KIT: Claudius Laumanns,

Matthias Knoll

Activities



- Kick off Workshop of all HIFIS Centres (January)
- Setting up of
 - competence teams
 - communication structures
 - governance structures
- Workshop on common approach for access to Helmholtz Cloud resources at KIT (April)
- AAI in collaboration with Backbone started in April
- Phone conferences of the Cloud Service Centres every two weeks (since June)
- HIFIS Communication platform was set up in June: nubes.Helmholtz-Berlin.de
- Cloud-Portal Technology activities started with a meeting with EGI on their Marketplace in August
- Start of the survey of offers and needs in all Helmholtz Centres (June)



Survey - how it works

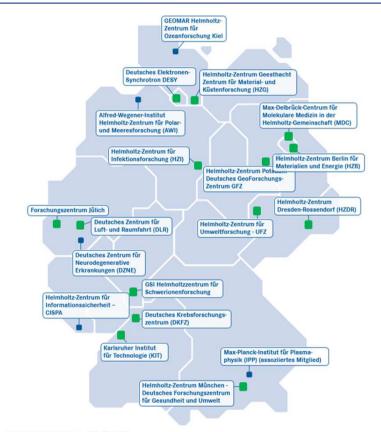


- As announced in the proposal, we travel to each centre to record needs and offers.
- First service ideas have been taken from the proposal to fill a spreadsheet which served as a basis for the survey.
- The workshops in the centres are divided into two parts (about 2 hours each)
 - In the first part, we discuss with the representatives of the IT departments in order to identify possible offers and known requirements.
 - In the second part, we talk to representatives from the scientific community to find out what cloud services are already in use and where future needs are seen.
- We currently capture every service idea, regardless of any rating or relevance to others.

Survey Journey - Statistics



- The tour started at the end of June at the UFZ in Leipzig.
- Yesterday we visited the 15th centre with the Helmholtz Zentrum Geesthacht.
- still open: AWI, CISPA, DZNE, Geomar
- So far, we have spoken with a total of 85 IT representatives and
- 97 people from the scientific community took part in the workshops.
- We have already seen all research areas in the HGF
- Completion is planned until the end of 2019.



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Survey – Impressions



- So far, we have found an outstanding interest in infrastructure services and better collaboration services.
- Of particular interest are high-quality combined services composed of various services or building blocks (scientific data, Algorithms (e.g. Software, Jupyter notebooks), execution infrastructure (e.g. hpc, htc, gpu))
- The state of provision and usage of cloud services varies greatly in the centres, so there are many institutes that will benefit from offered services.
- pain points of the scientists are e.g.
 - easily usable compute & storage resources (OpenStack, Docker, ...)
 - sync & share solutions involving external parties
 - solutions for collaborative document processing







At the moment a total of

57 Services in 4 Servicegroups and99 particular Services

are in the survey.

- 98 Service offerings
- 301 Service requests

Proposal based Services Overview									
Service Group	Datum 23.09.2019	Datum 23.09.2019							
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Analytic machines	_	Storage (HDF)	OpenStack				Provider		Comment
GPU compute Service Virtual Deskto	_		OpenStack OpenStack/Storage/HAF (e.g. HeAT Library) POUC Cluster		oposal				
Virtual Desktop Infrastructure Backup/Archive Redundancy Service Large Data Transfer Communication		GPU Cluster	ATTibra	Proposal		2,0		9,00	
Large Data Transfer Service		- oraster	th dibrary)	Propo	sal	3,00	-	11,00	
Community		NetBackup		Propos	sal	3,00 5,00	\rightarrow	6,00	
		z.B. Globus Toolkit		UFZ		2,00		10,00	
		_		UFZ DESY	-	5,00		3,00	
Helmholtz Metadata Service Reference Data Sets		GitLab, GitLab-Cl	$\overline{}$	DESY	\rightarrow	2,00		7,00	
				Proposal	-	_	†°	,00	_
Elektronisches Laborbuch (LIMS) Online Survey Service		IGSN Service		Proposal		3,00 0,00	8,0	00	
Science Source	OpenBIS	FZ				5,0			
LimeSur		imeSurvey	- GF	_			4,0	0	
	-		HZ	В		2,00 5,00	3,00		
JupyterHub Service	\rightarrow		FZJ			2,00	6,00	_	
Collaboration	Ro	dare	UFZ		\perp	-,00	6,00	\perp	
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			DESY FZJ		1,00	4,00	\vdash	_	

Survey – Best of



- Top 3 Infrastructure Services
 - On demand compute (14)
 - GPU compute Service (13)
 - On demand storage (12)

- Top 3 Community/Scientific Services
 - Software Development Services (14)
 - JupyterHub Services (9)
 - R-Studio, R-Shiny, R-Project (8)

- Top 3 Collaboration Services
 - Sync & Share incl. Cloud Office (12)
 - Discussion Channel (12)
 - Project Management (11)

Survey – next steps



- Complete the survey, revise it and send it to the centers again for a vote
- Evaluation and priorisation
- Complete a service canvas with the potential service provider
- Providing Cloud platform implementation timeline
 - First common AAI
 - Agreement on the depth of integration
 - Implementation prototype
- HIFIS Cloud Governance structure
 - HGF Governance Framework for Cloud provider (by HGF management)
 - Agreement on compensation of additional external cost

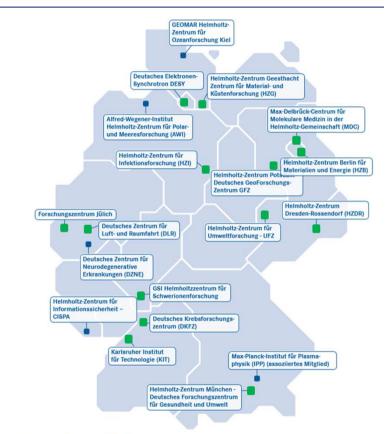
Survey Journey – Special Thanks to



my congenial travel companion

Uwe Konrad (HZDR)

- the UFZ, which agreed to be the first center where we could verify our procedure
- all the centres visited for their helpful organisation, warm welcome and productive cooperation.



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Questions?



Ants Finke

Hauptabteilung Informationstechnik (IT)
IT-Leiter

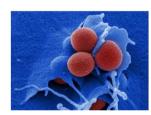
Heimholtz-Zentrum Berlin für Materialien und Energie GmbH Hahn-Meitner-Platz I | 14109 Berlin El +49 30 8002 -43767 | Fax +49 30 8062-42457 Mobil +49 174 3180599 | ants.finke@helmholtz-berlin.de www.helmholtz-berlin.de

Starting Position



- Top position of Helmholtz research relies increasingly on cross-centre collaboration and international cooperation
- Growing importance of cloud access to common data treasure and -services
- Rapidly growing data exchange from research instruments requires excellent data networking
- Recognise the significance of a sustainable software development for the research process



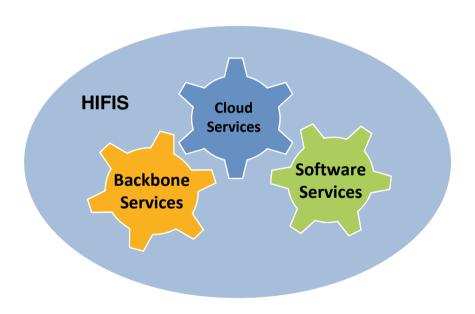




Services enabling networking



- Cloud Services
 federated platform for proven first class
 cloud services
- Backbone Services
 high-performance trusted network
 infrastructure with unified basic services
 (e.g. authentication)
- Software Services
 platform, training and support for high-quality, sustainable software development



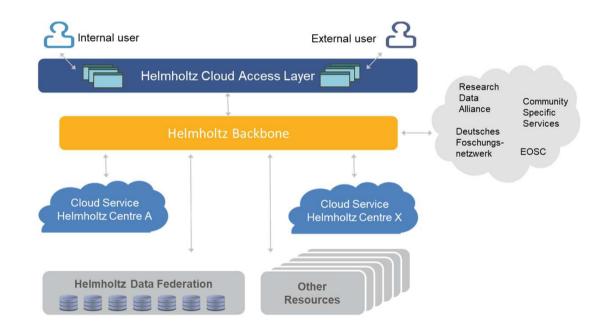




Task: Development of a federated Cloud Infrastructure

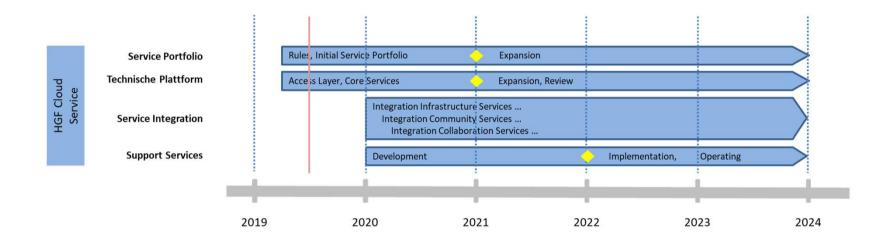
Access to and integration of Cloud Services like ...

- Infrastructure as a Service
 - On demand Cloud Storage
 - Cloud Computing
- Scientific Services
 - Analysis Pipelines
 - Data and Software Repositories
 - Experiment Frameworks
 - Simulation & Visualisation
- Collaborative Services
 - Sync&Share
 - Tools



Plan - Timetable

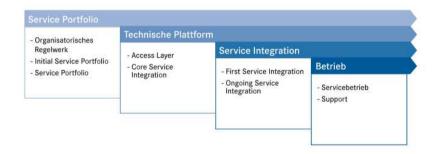


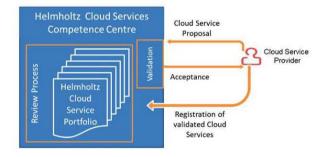






- First Services were taken from the proposal working group.
- All centres are surveyed to record further offers and needs.
- The recorded services are to be evaluated with regard to prioritization and implementation possibilities.
- An organisational framework must be documented.

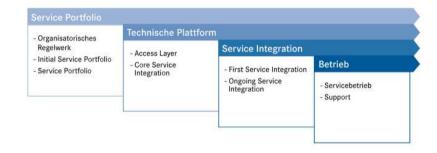


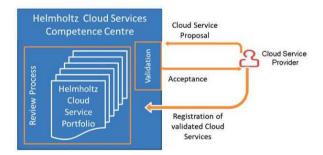






- The technical platform requires close collaboration with the backbone topic.
- First ideas for design and structure will be developed by mid-September 2019.

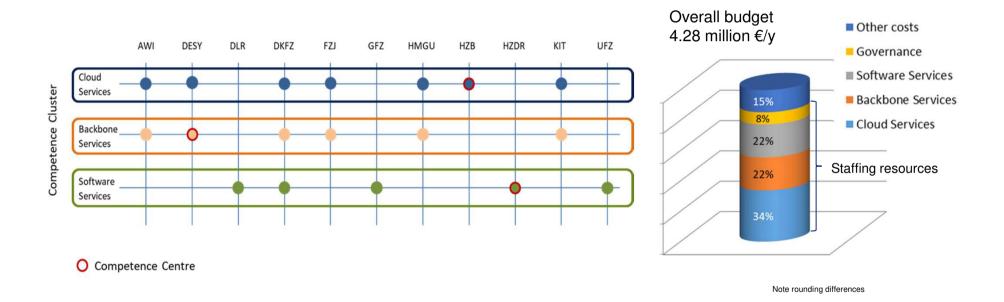




Finance & Structure



Federated approach on a broad basis



Activities

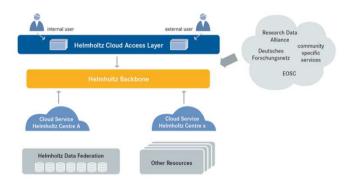


Workshop on common approach for access to Helmholtz Cloud resources

Technical and policy input from

- bwIDM
- HDF AAI

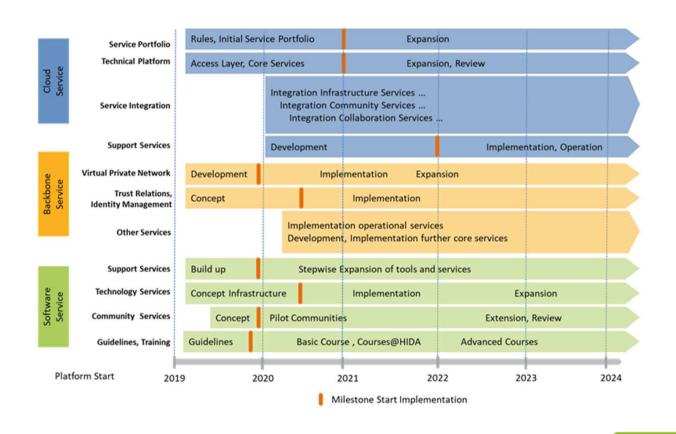
 Discussion on cost models for Helmholtz Backbone Infrastructure and Helmholtz Virtual Private Network





Perspectives





- HIFIS Conference in autumn
- Landscaping of Cloud Services at Helmholtz Centres
- Evaluation System for Cloud Services as basis for Helmholtz Cloud Service Portfolio
- Recruiting difficulties
- Efforts for organisation of staff financing

User Feedback Meetings - Goal



Goal of the meeting:

- Discuss requirements of Cloud Services needed in the areas:
 - Infrastructure (storage, computing, virtual machines and apps, ...)
 - Community (SW development, Jupyter notebooks, data / metadata, ...)
 - Science (R, mathematics, Al Training, ...)
 - Collaboration (Sync&Share, CloudOffice, Event Mmgt., VC/Chat, Project Mmgt., ...)
- Recommend best practice services (external and internal) already used in daily research
 - Advantages and restrictions of "no cost" professional solutions (google & co ...)
 - Open source solutions and their performance (support topic)
- Consider constraints such as
 - Key features
 - Usability and sustainability,
 - Performance and cost.
 - Access control ...