

HYBRID CLOUD FOR SCIENCE



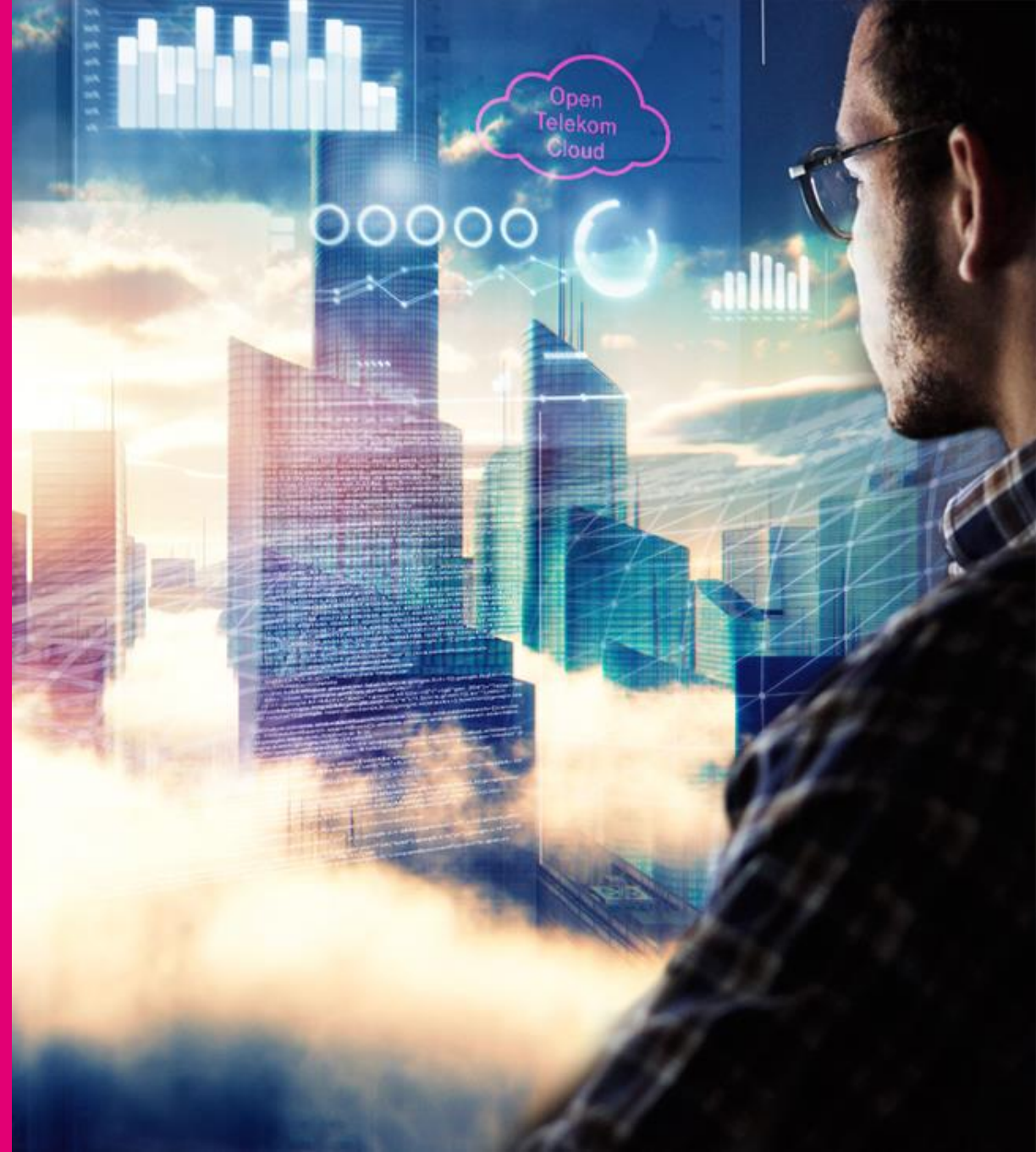
Open
Telekom
Cloud



GridKa School 2018

Team T-Systems/Huawei/Cyfronet/Divia

T · Systems ·



AGENDA

01 Helix Nebula

02 OTC

03 Onedata



01 HELIX NEBULA

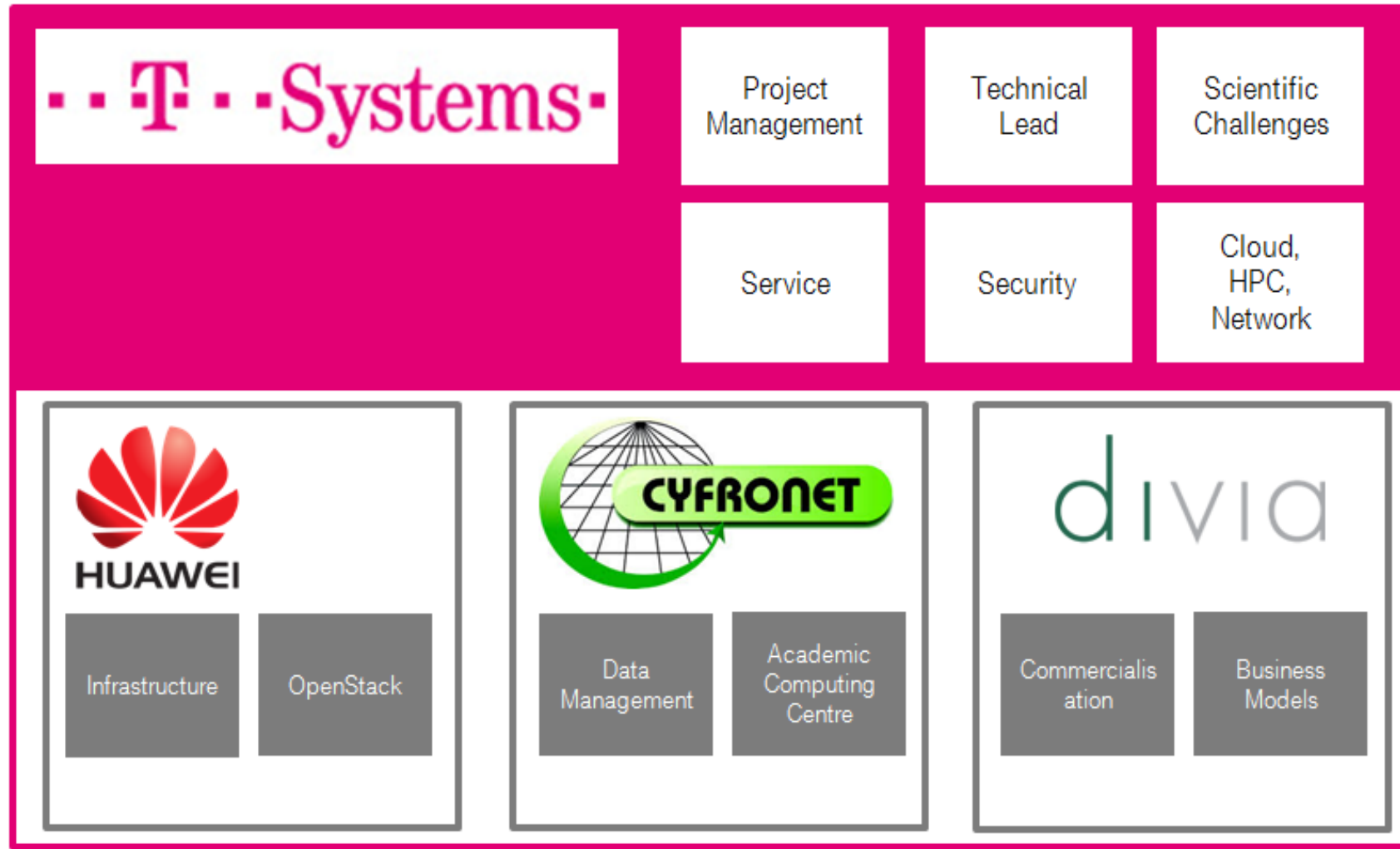
KIT Training URL:

https://auth.otc.t-systems.com/authui/federation/websso?domain_id=979221326666498ea468bdb739ac36cf&idp=kitt raining&protocol=saml

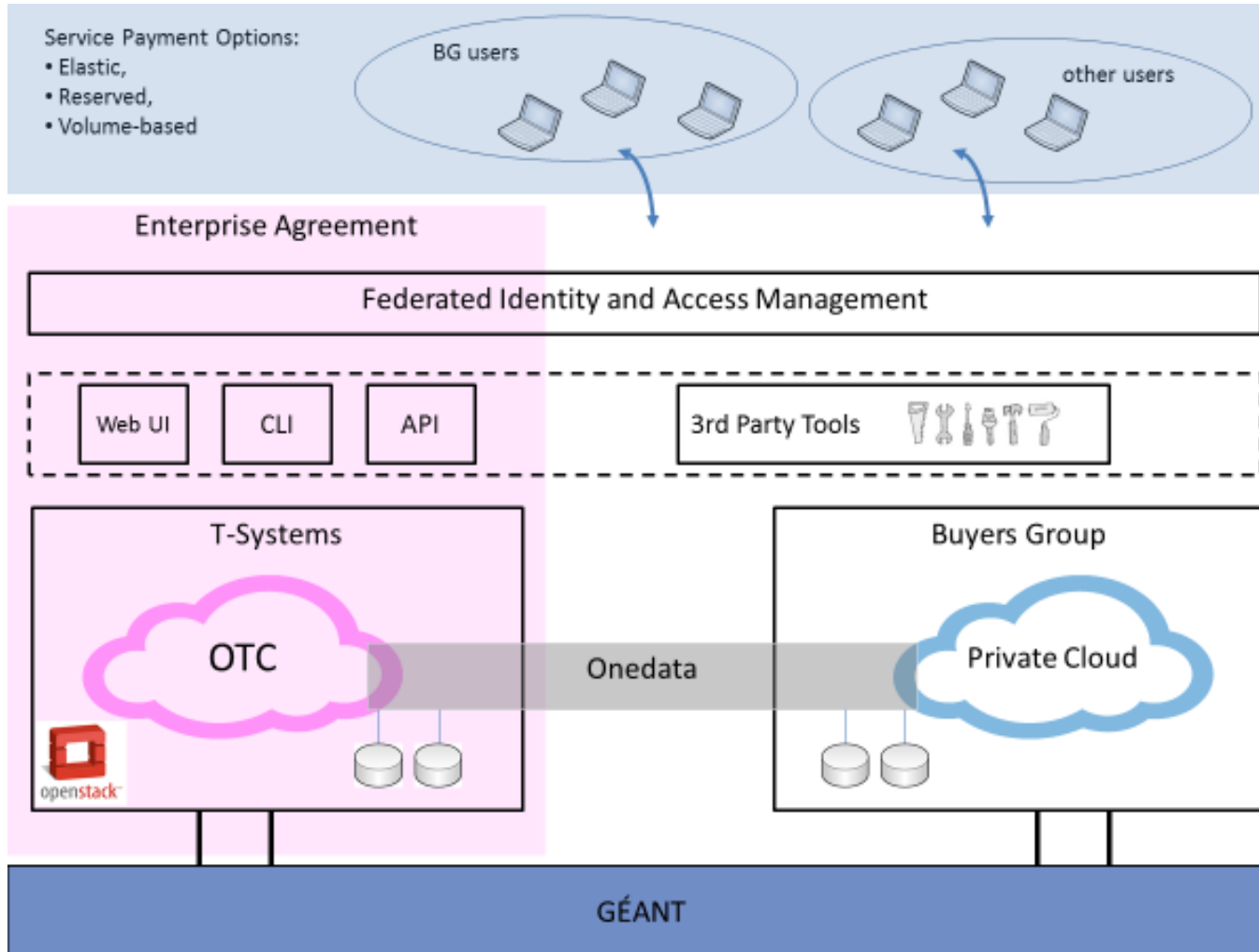
Dedicated URL:

<https://auth.otc.t-systems.com/authui/public/custom/selectMetadata.html#/selectMetadata>

T-SYSTEMS HNSCICLOUD TEAM



HNSCICLOUD PILOT – T-SYSTEMS HYBRID CLOUD SOLUTION

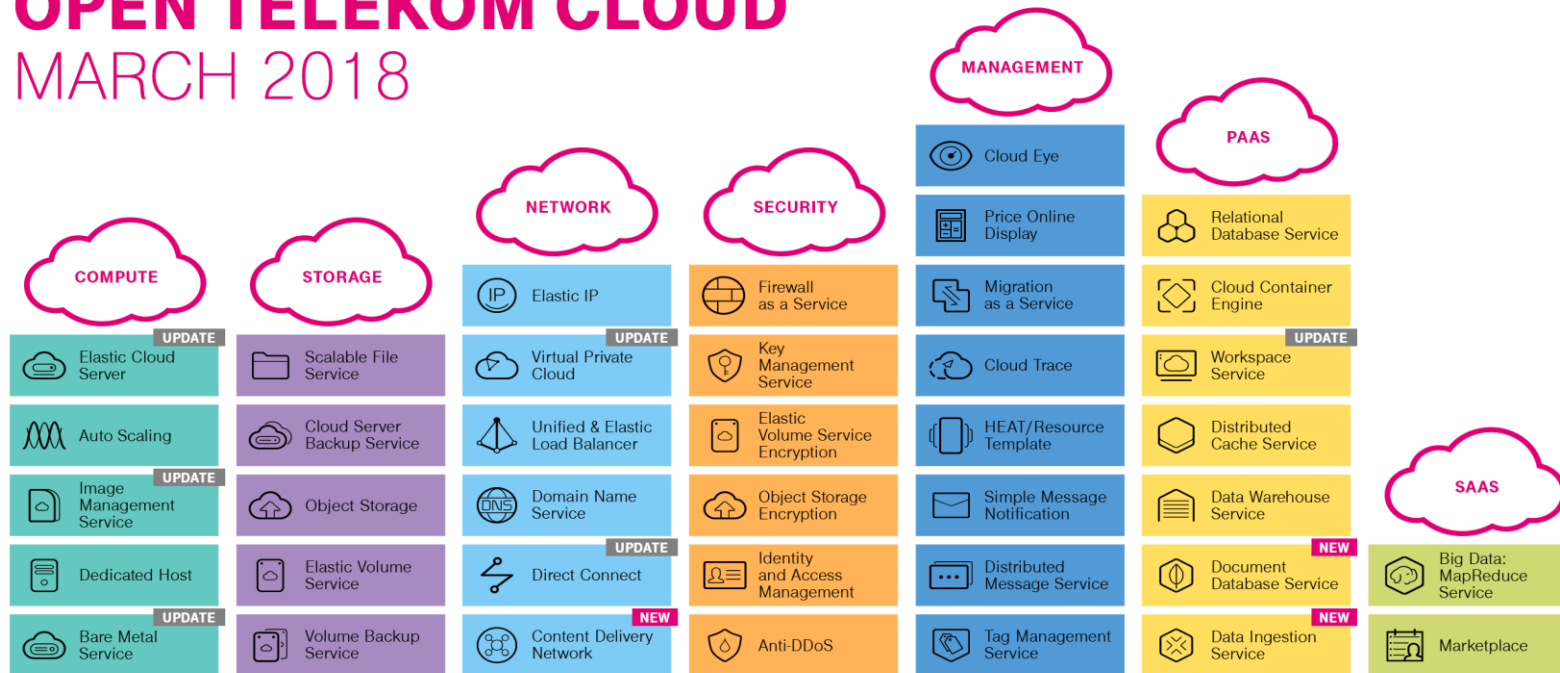


- Open Telekom Cloud
 - OpenStack®
- GÉANT Network Connectivity
- Onedata
- EduGain, ELIXIR
- HPC as a Service
- Cloud Container Engine
- Financial Dashboard
- Support
 - Cloud Service Desk
 - Project Support Service

OPEN TELEKOM CLOUD – SERVICE OVERVIEW

<https://cloud.telekom.de/en/infrastructure/open-telekom-cloud/specifications/>

OPEN TELEKOM CLOUD MARCH 2018



T . . . www.telekom.de/open-telekom-cloud

Also available: **Enterprise Agreements***, **Financial Dashboard***
*Only for customers who have a contractual relationship with T-Systems International GmbH, Hahnstraße 43, 60528 Frankfurt, Germany.



CLOUD CONTAINER ENGINE (CCE)



USE CASE: Application Updates

- Introduction of application changes is a critical point in application operation
- Even in cloud scenarios rollouts of new software features tend to take some time
- Containers enable rollout of updates in seconds with minimum downtime
- Fast rollback is possible

DESCRIPTION

- Enables containers on Open Telekom Cloud
- Using Docker and Kubernetes
- Graphical toolkit available

BENEFIT

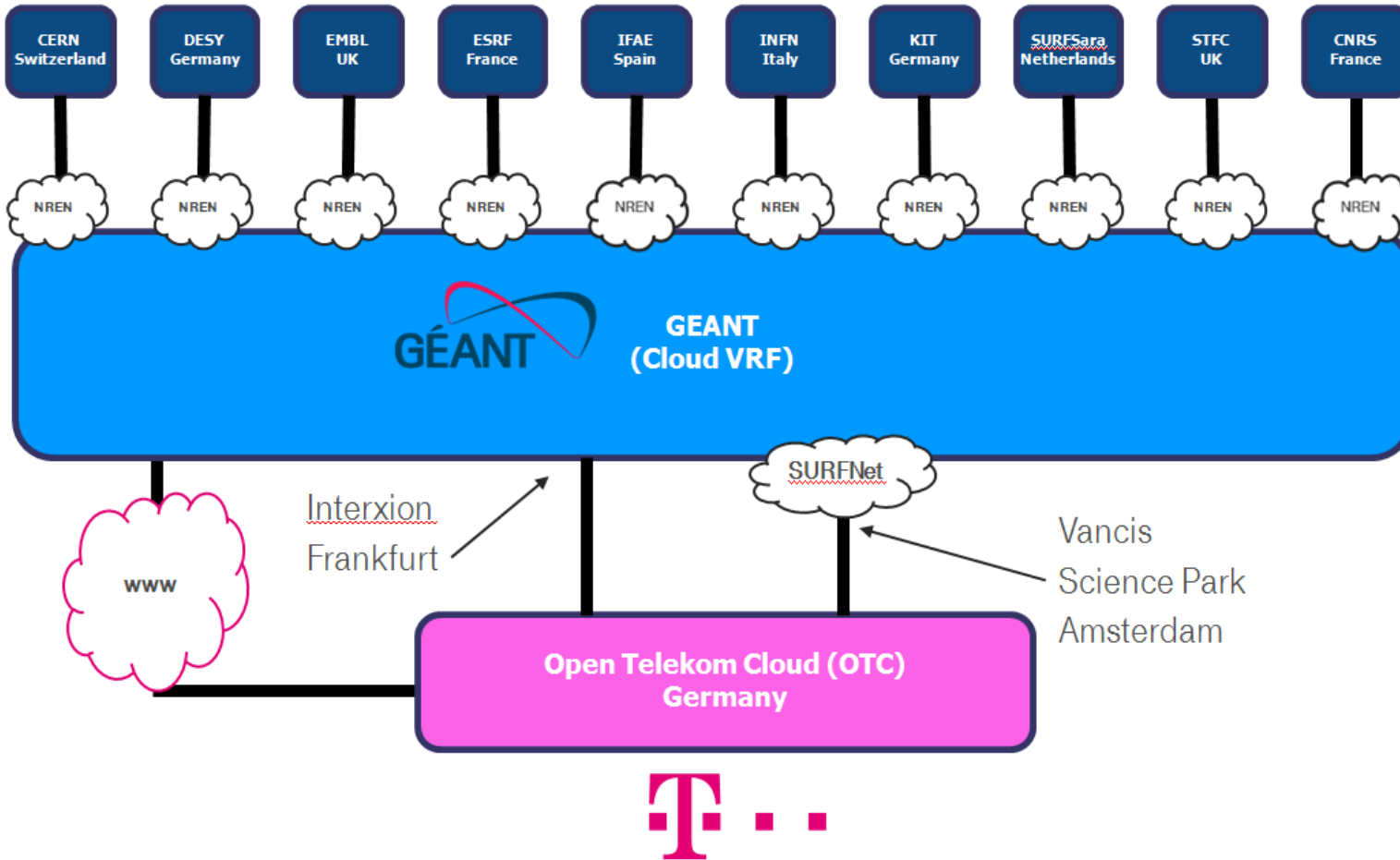
- Platform-independence
- Easy rollout and transfer of applications
- Optional Multi-AZ HA

ADVANCED FLAVORS

Price Calculator: <https://cloud.telekom.de/en/infrastructure/open-telekom-cloud/price-calculator>

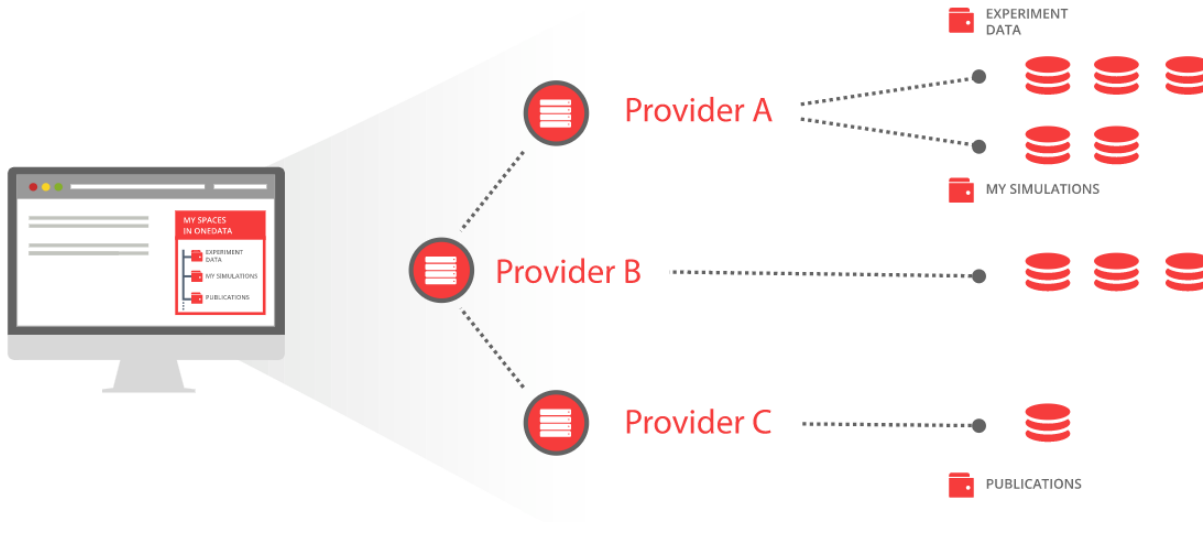
vCPU	RAM [GB] + additional resources				
	High Performance	GPU	Workspace	Disk intensive	FPGA
2	4, 8, 16		4		
4	8, 16, 32	8 + vGPU	8 (+1 vGPU)****	32 + 3,6 TB 32 + 5,4 TB	128
8	16, 32, 64	16 + vGPU, 64 + GPU**, 64 + GPU***	16 (+ 1 vGPU) ****	64 + 7,2 TB 64 + 10,8 TB	128 / 256 88 + Xilinx VU9P
12					256
16	32, 64, 128 128*, 256*	128 + 2 GPU***		128 + 14,4 TB 128 + 21,6 TB	470
18					445
24				192 + 21,6 TB	
32	64, 128, 256, 256*	256 + 4 GPU***		256 + 28,8 TB	940
36				256 + 43,2 TB	890
60				540 + 43,2 TB	
	XEN/*KVM	XEN/KVM	XEN	XEN	XEN KVM

HNSCICLOUD - HIGH-LEVEL NETWORK CONNECTIVITY



Highlights

- 40Gbit
- 2 ways (Frankfurt / Amsterdam)



STORAGE FEDERATION AND MULTI-TENANCY

- Ease of access to distributed data in hybrid cloud
- Secure data sharing between users

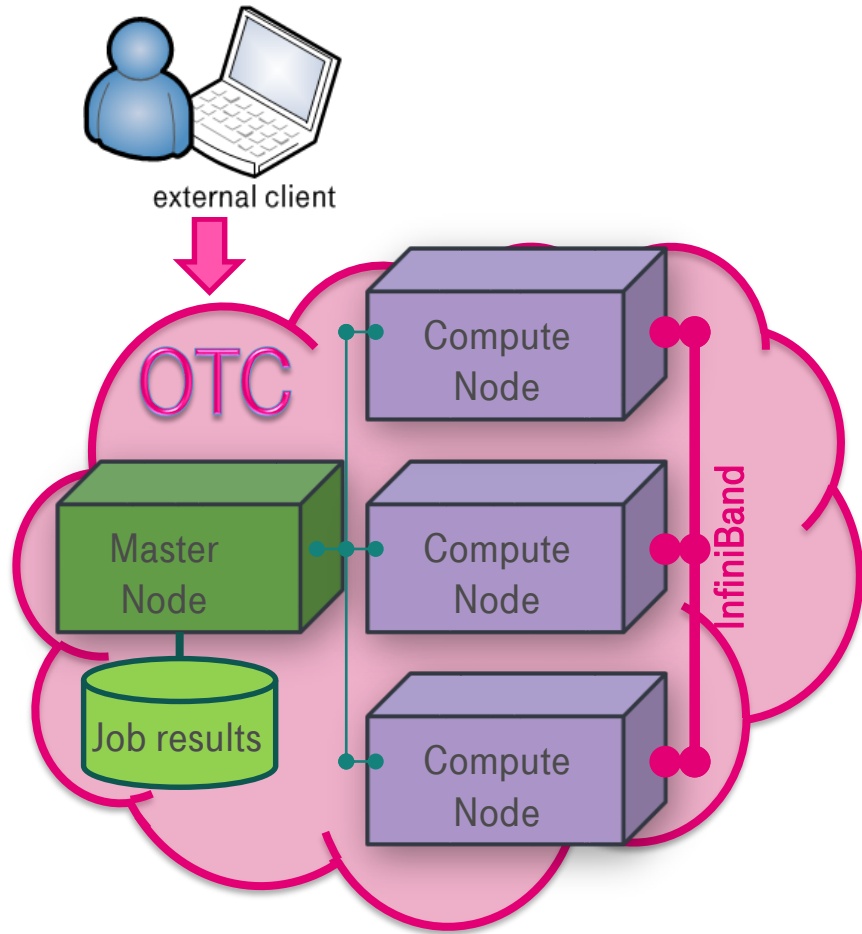
UNIFIED TRANSPARENT ACCESS TO HYBRID-CLOUD STORAGE RESOURCES

- Transparent data access across hybrid-cloud deployment based on POSIX and CDMI

<https://onedata.org>

<https://onedata.hnsc.otc-service.com>

HPCAAS ON THE OTC: FDMNES USE CASE

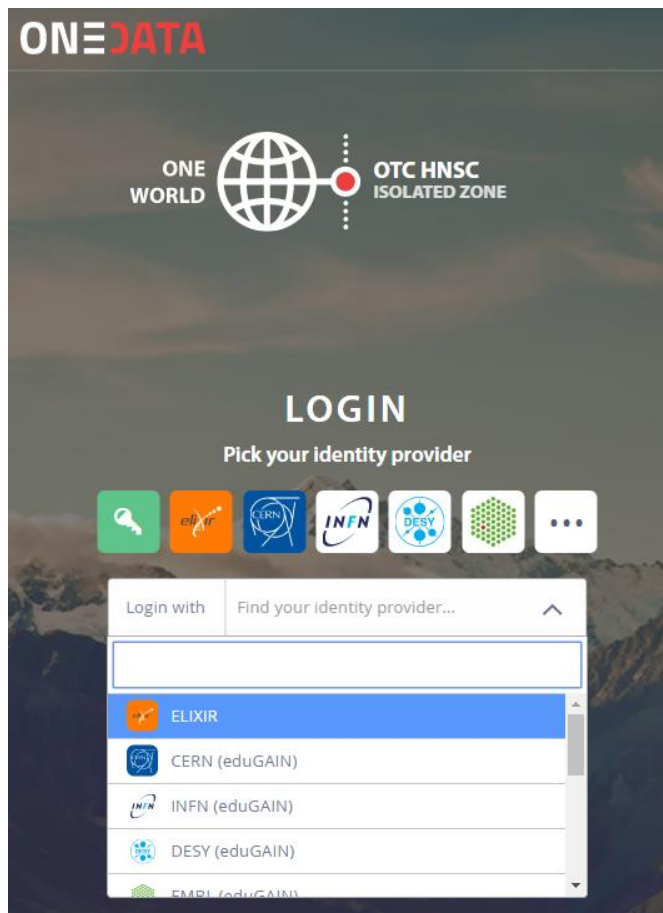


- HPCaaS on the OTC uses a command named “CFN” (CloudFormationN)
- Workflow (high level):
 1. Create cluster (on local pc)
 2. Enter master node
 3. Submit job (on master node)
 4. Execute job
 5. Auto-delete compute nodes after job termination
 6. Keep results
- Planned integration in context of HNSciCloud: SLURM

Example master flavor: s2.medium.1 (cheaper, exists longer)

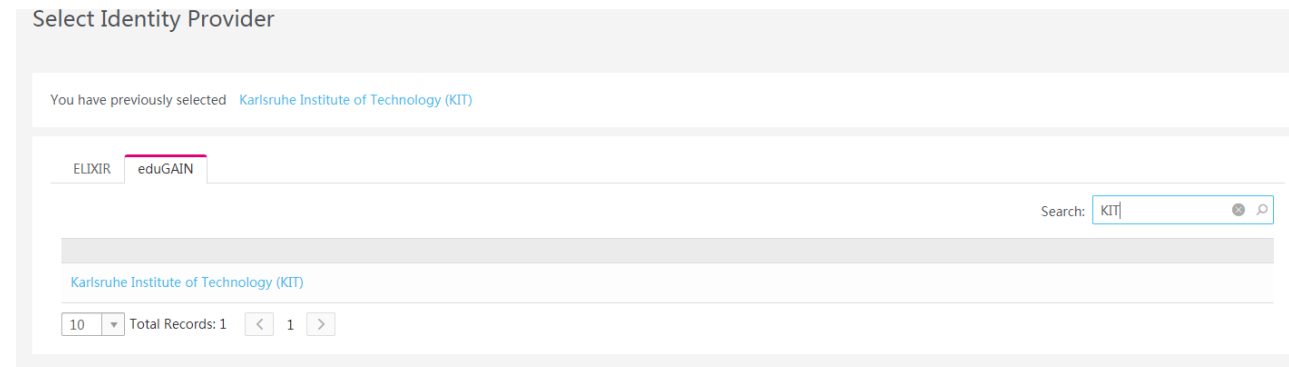
Example compute flavor : h2.3xlarge.10 (more expensive, auto-deleted after job-end)

FEDERATED IDENTITY AUTHENTICATION

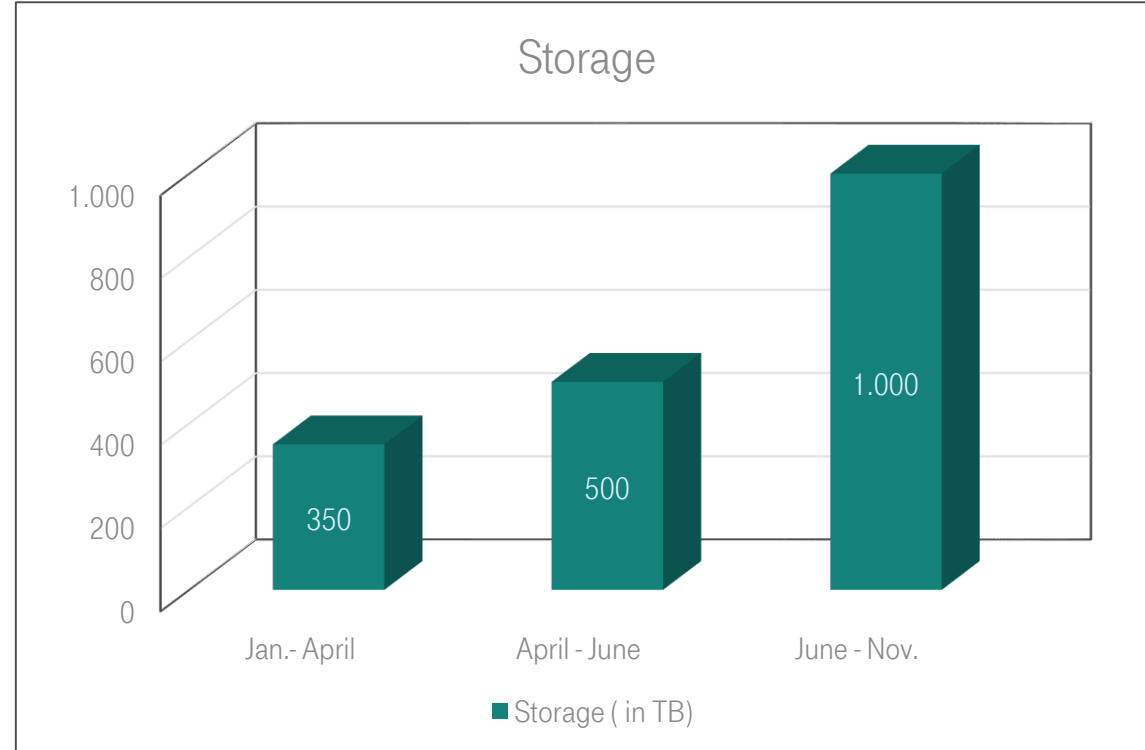
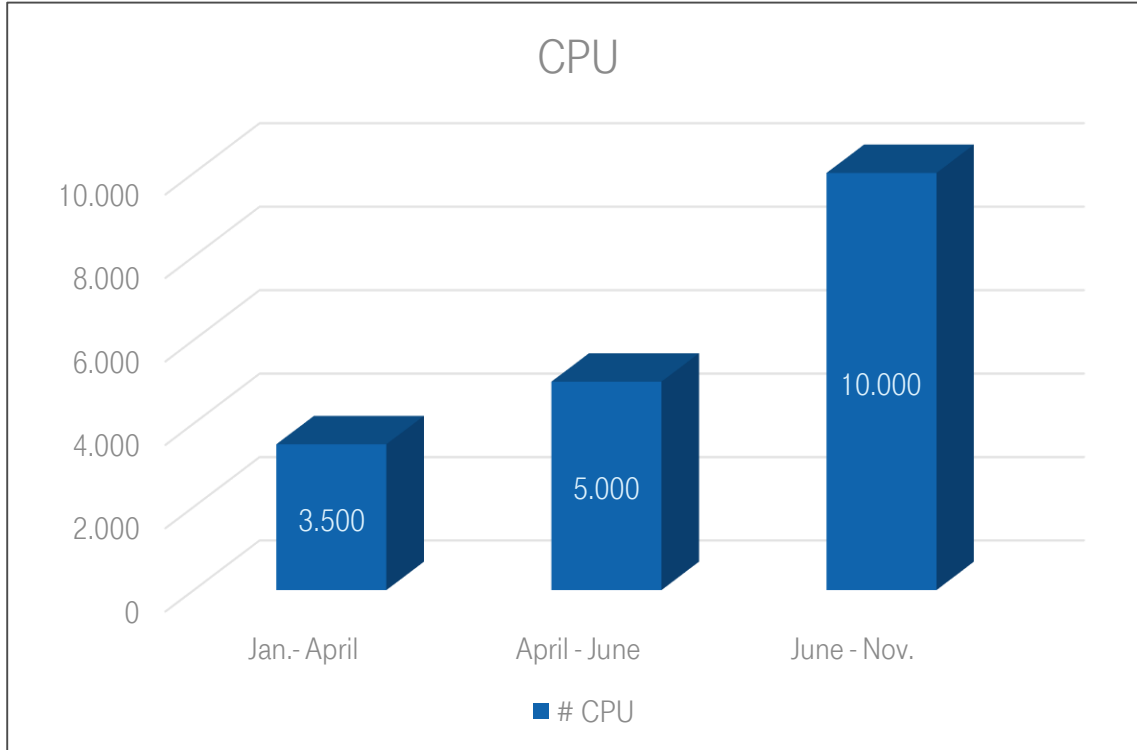


Integration of eduGAIN/Elixir into OTC-IAM

- Established on SAML-standard.
- Including conversion rules with rights assigned to a tenant or sub-tenant.
- A federated user can be assigned admin rights and create appropriate right for sub-tenants.
- Onedata access through additional SAML connection.
- Both OTC and Onedata registered in eduGIAN repository.
- Web UI based login and IdP-creation mechanism, without the need for extraction of IdP-Metadata.



RAMP UP 2018



FINANCIAL DASHBOARD



Highlights

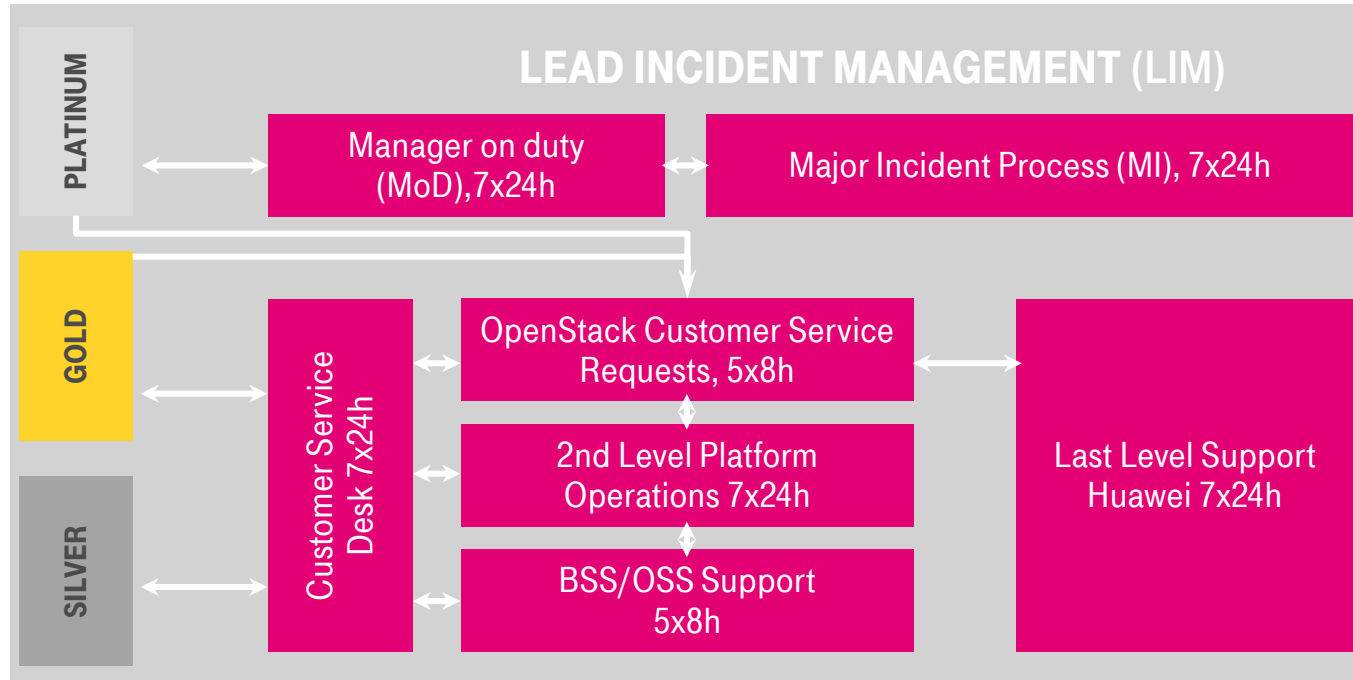
- Global view
- One Dashboard per Institute
- Budget alert
- Dashboard can be customized
- Manually data upload by T-Systems (automated upload in planning)
- Responsive UI design

Functionalities

Benefits

- More transparency of costs
- Budget management
- Open source
- User self-service

SUPPORT



Basic Support

- Technical support for incidents via telephone or e-mail
- 24/7 Access to customer service, docs, white papers and community
- 4 h reaction time
- Critical 24/7
- Non critical 8/5 (8:00 – 17:00, CET)



- HNSciCloud T-Systems support team
- IT architecture consulting
- Training sessions

DOCUMENTATION AND LINKS

Helix Nebula: <https://www.hnscicloud.eu/>

OTC service specification: https://cloud.telekom.de/fileadmin/CMS/Shop/Cloud_Infrastruktur/OpenTelekomCloud/pdf/OTC_Service_Specifications.pdf

OTC specifications: <https://cloud.telekom.de/en/infrastructure/open-telekom-cloud/specifications/>

Compliance: <https://cloud.telekom.de/en/infrastructure/open-telekom-cloud/compliance/>

MyWorkplace: <https://myworkplace.t-systems.com/MyWorkplace/Login.aspx>

OTC console login: <https://console.otc.t-systems.com>

Price calculator: <https://cloud.telekom.de/en/infrastructure/open-telekom-cloud/price-calculator/>

First steps: Create a new virtual private cloud:

https://cloud.telekom.de/fileadmin/CMS/Shop/Cloud_Infrastruktur/OpenTelekomCloud/erste-schritte/first-steps-with-open-telekom-cloud.pdf

Video tutorials: <https://docs.otc.t-systems.com/en-us/video/index.html>

Help Center: Documentation, API documentation: <https://docs.otc.t-systems.com/>

An example HPC Cloud Solution user guide: https://docs.otc.t-systems.com/en-us/hpc/doc/download/20171010/20171010162823_05e727f16e.pdf



02 OTC



03 ONEDATA

THANK YOU.





BACKUP

ADVANCED FLAVORS

GENERAL PURPOSE / DEDICATED GENERAL-PURPOSE FLAVORS (AVAILABLE WITH KVM AND XEN)				
VCPU	RAM [GB]			
1	1	2	4	8
2	2	4	8	16
4	4	8	16	32
8	8	16	32	64
16	16	32	64	128
32	32	64	128	256
60	—	128	256	512

- General purpose flavor: C1, C2, S1, M1 (XEN)
- General purpose flavor: S2 (KVM)
- Dedicated general-purpose flavor: C3 (KVM)