

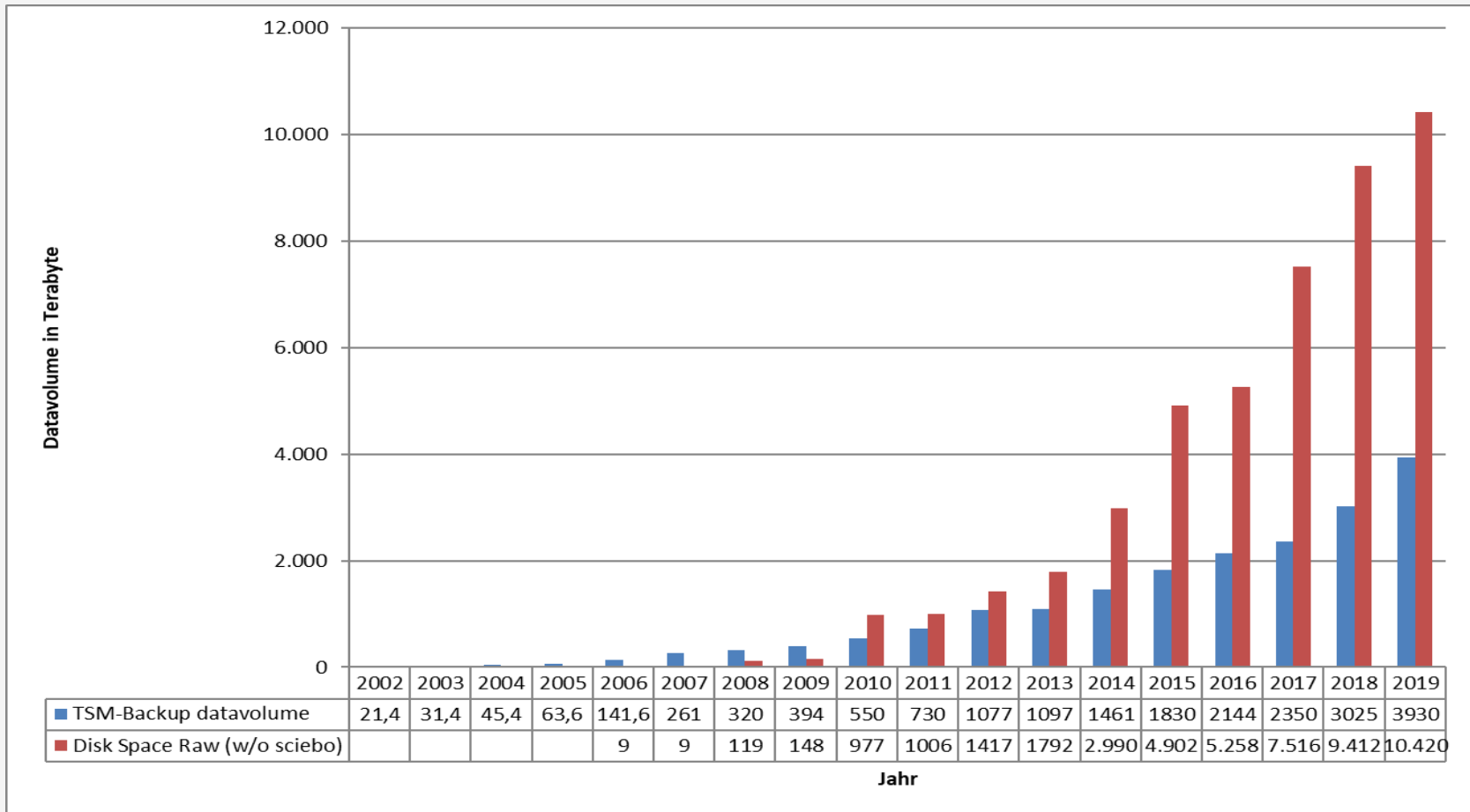
Blueprint for an Open Source On-Premise Cloud to Serve as a Research Data Infrastructure for Universities

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Digitalization = Data Deluge

digital storage space at Münster University



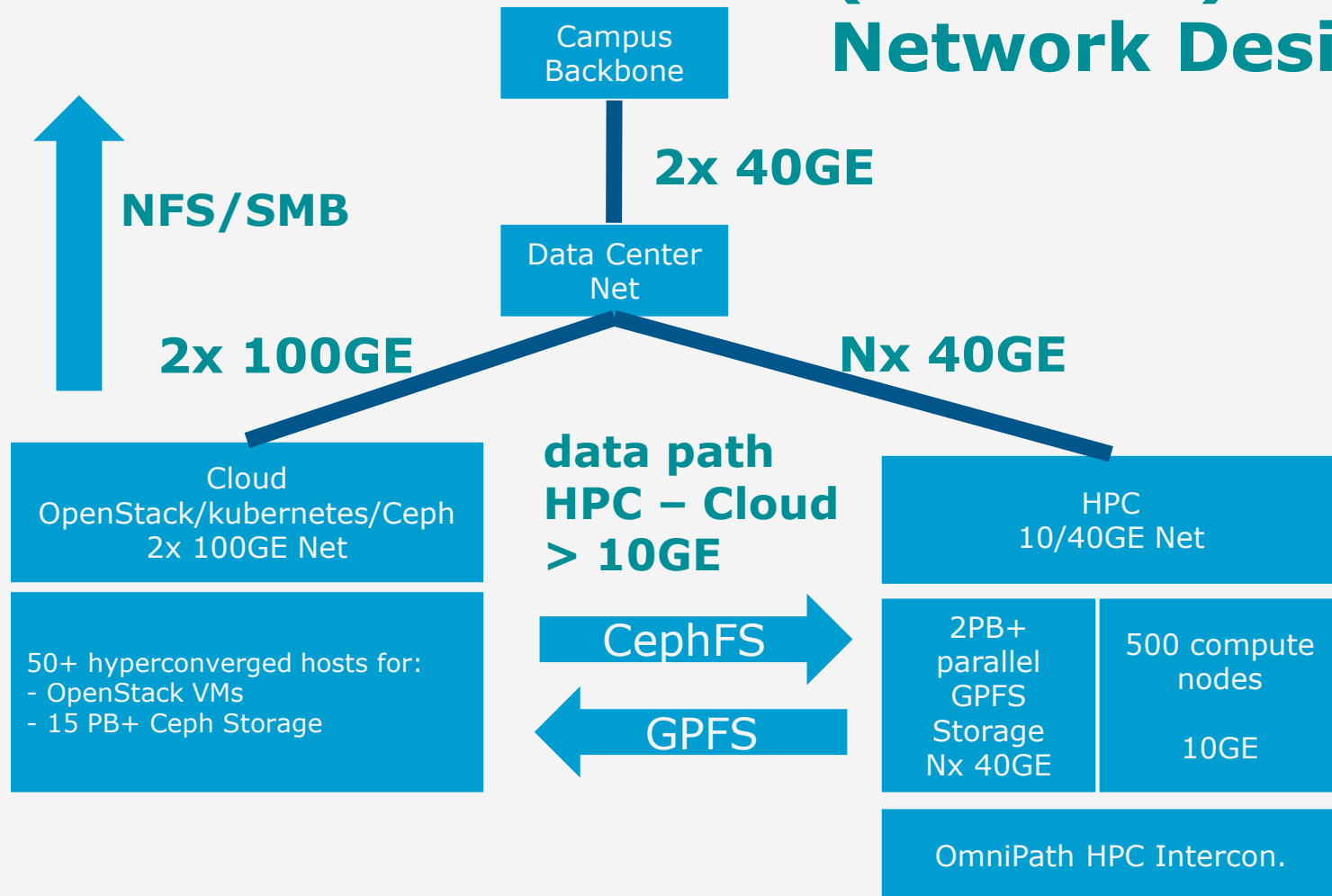
The challenges of Digitalization for HE & Research IT – demands on infrastructure

- Deluge of digital (research primary) data – Petabytes - hard to move (networks!)
 - Long term availability and preservation
 - Implement FAIR principles – findable, accessible, interoperable, reusable
 - Collaboration on data
 - Accommodate various (eScience) environments
 - (Very) scalable Storage – with fast connect to (flexible – VM to HPC batch) Compute
 - Sustainable on the long term:
 - **Financially and technologically - hardware and software**
 - **Migration to future hardware generations (for decades)**
 - Unify operations environment of eScience/Research and general IT (Virtualization! Storage!)
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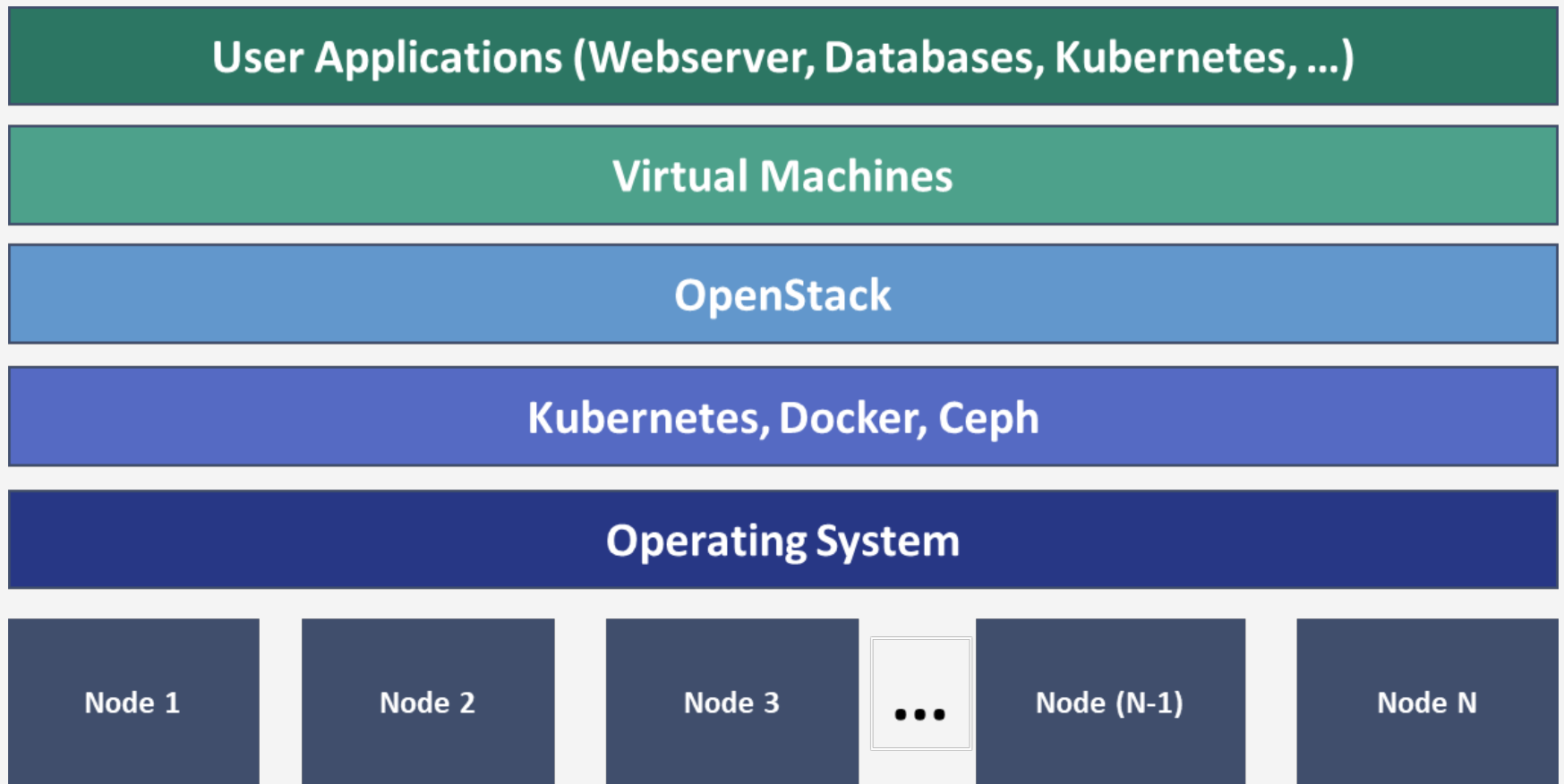
The elements for the solution

- Open Source - Freeware: cost, openness, sustainability, no vendor lock-in
 - Software Defined Storage – Object Storage – Ceph
 - OpenStack (VMware Future?)
 - Kubernetes - Serverless computing – cloud (micro) service orchestration
 - Deep know how for technologies used in university IT staff
 - Multi university cooperation for joint service design/implementation/operation
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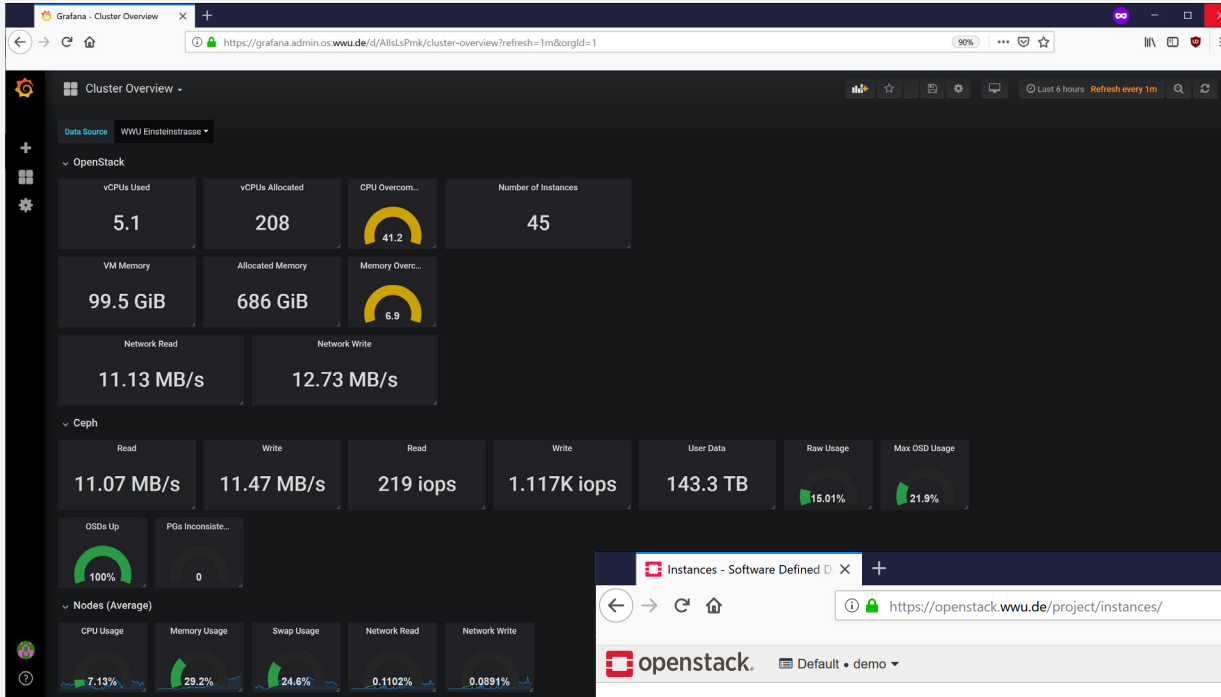
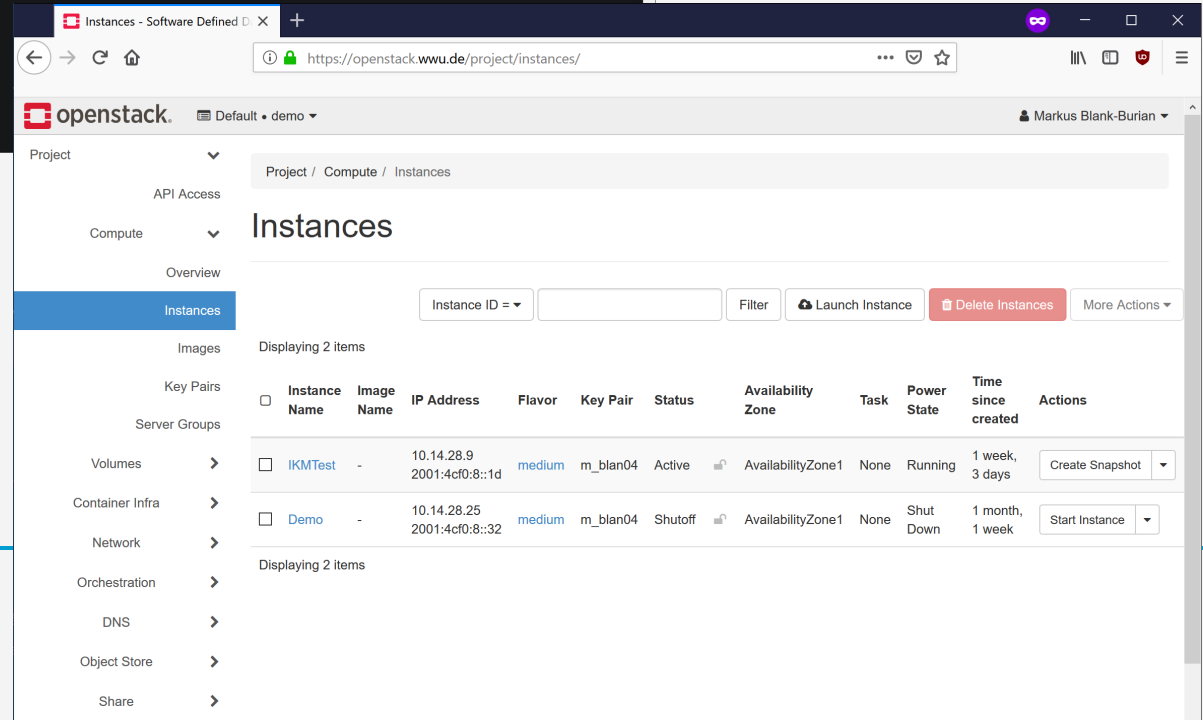
(eScience) Cloud Network Design



The cloud stack



Live Metrics, User Self Service

Instances - Software Defined

Project / Compute / Instances

Instances

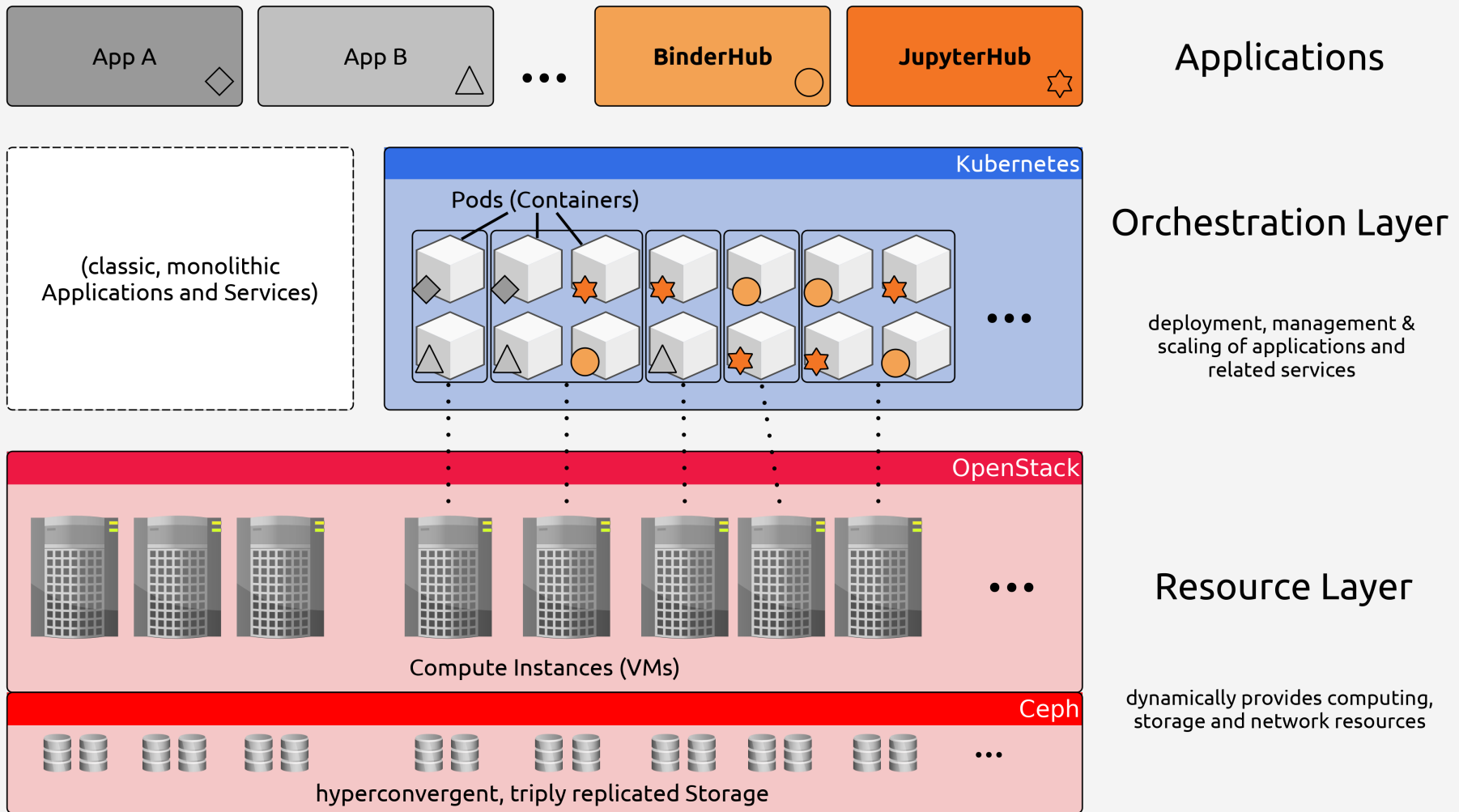
Instance ID = Filter

Displaying 2 items

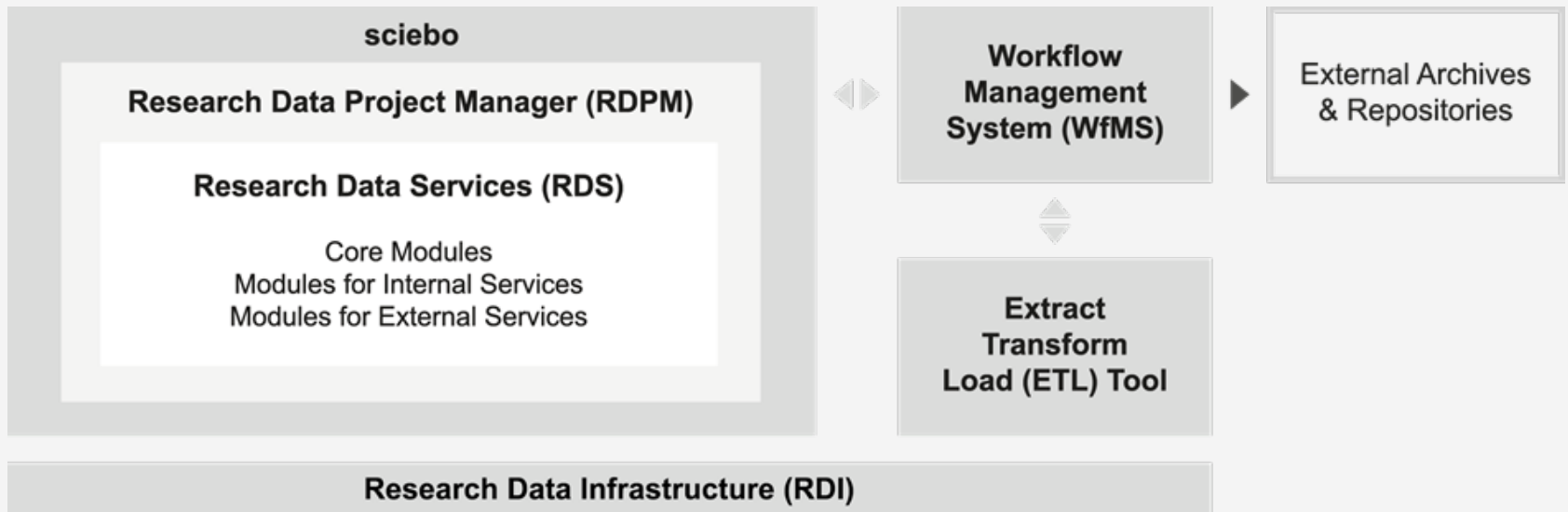
<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Time since created	Actions
<input type="checkbox"/>	IKMTest	-	10.14.28.9 2001:4cf0:8::1d	medium	m_blan04	Active	AvailabilityZone1	None	Running	1 week, 3 days	Create Snapshot
<input type="checkbox"/>	Demo	-	10.14.28.25 2001:4cf0:8::32	medium	m_blan04	Shutoff	AvailabilityZone1	None	Shut Down	1 month, 1 week	Start Instance

Displaying 2 items

Setting up eScience applications on the cloud



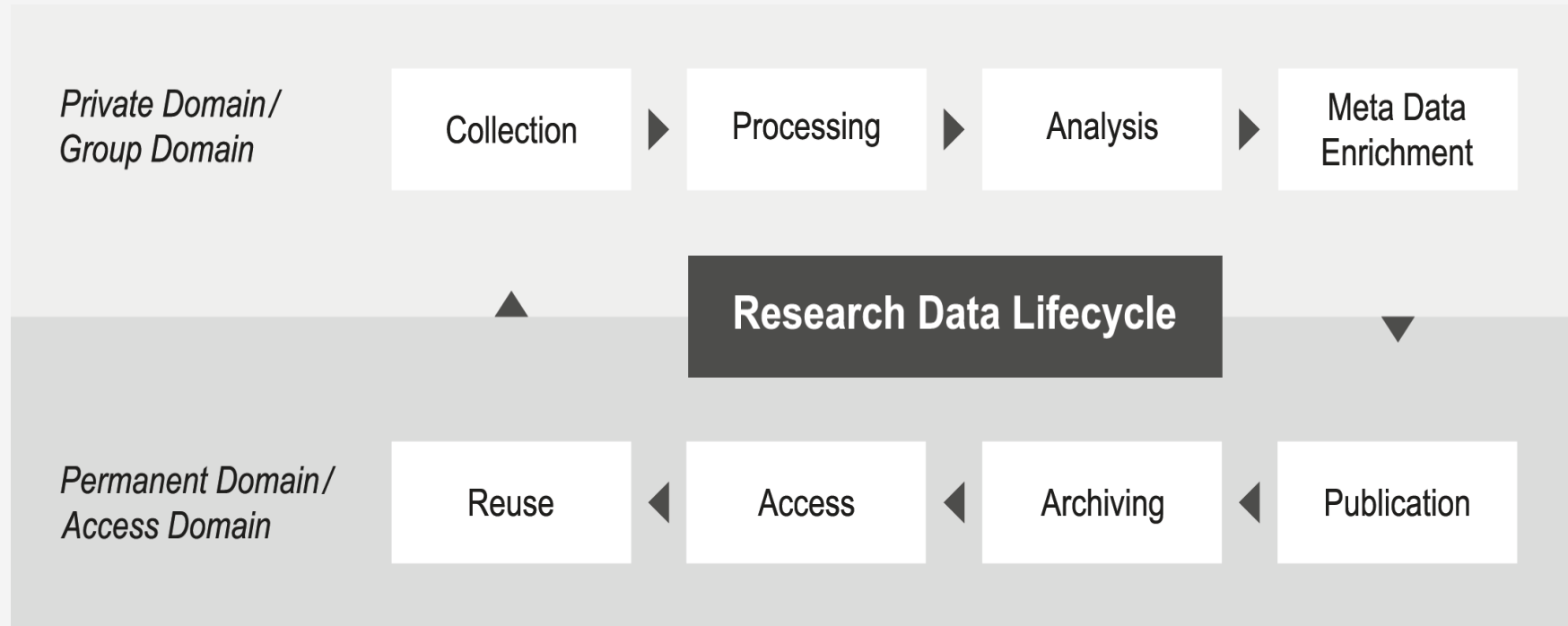
Research Data Services from the sciebo cloud



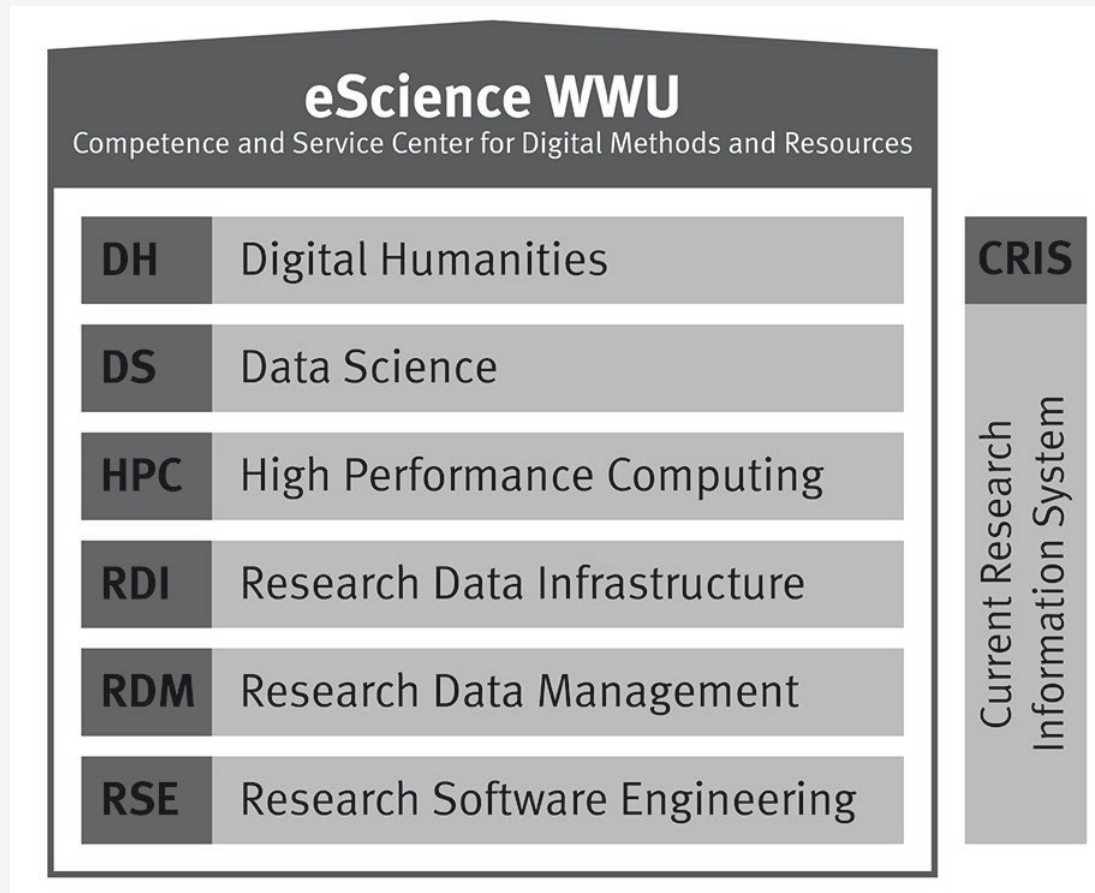
sciebo

owncloud service for 120.000 users in NRW
2300 research project boxes
containers/kubernetes

Supporting Researches throughout the Research Data Lifecycle



The eScience Support Center – eScience WWU Jointly operated by IT center and Library



Thank you for your attention!

Questions?

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