ARE YOUR HIGH PERFORMANCE CAPABILITIES AT THE LIMIT?

Experience the Power of Open Telekom Cloud

- High performance capabilities without invest and commitment
- Access to top-notch technology
- Simple, on-demand access

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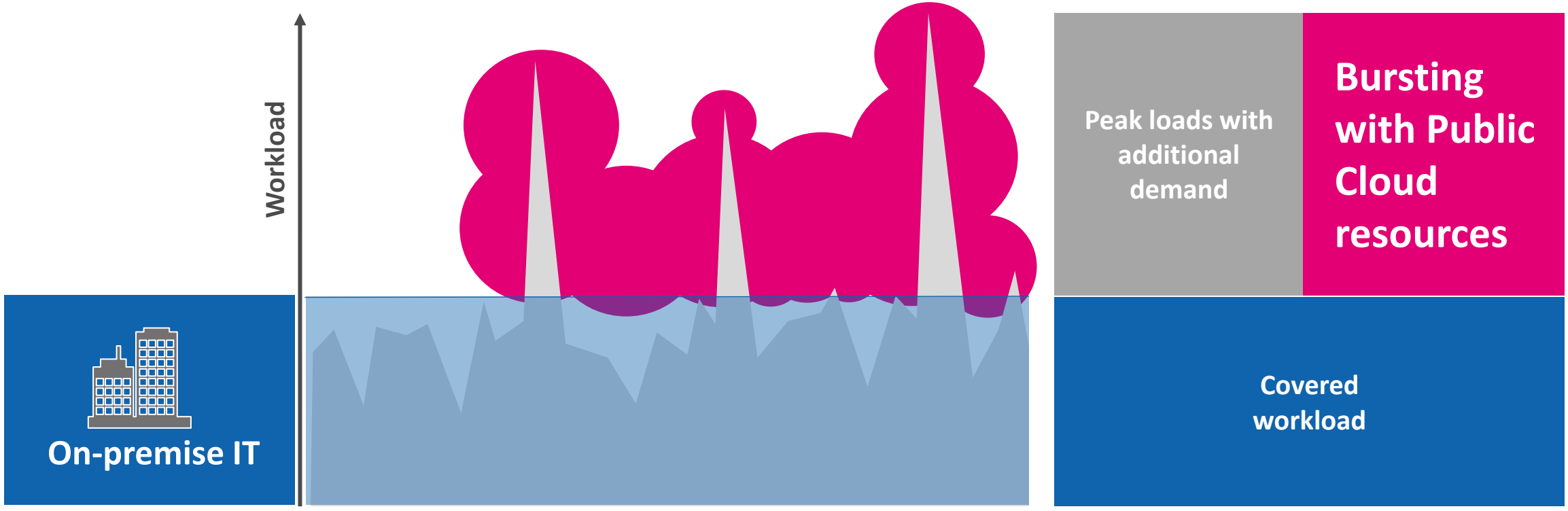
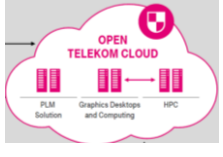
HOW OFTEN DO YOU EXPERIENCE THAT?
USE THE CLOUD AS ENHANCEMENT!



T-SYSTEMS AND HIGH PERFORMANCE COMPUTING - OPTIONS

	Finance	Health	Pharma	Science	Manufacturing	Automotive	Media
Use case	**Risk analysis**	**Genome analysis**	**Simulation and scientific Computing**		**Simulation crash and material**	**Autonomous driving**	**Content rendering**
Infrastructure	Open Telekom Cloud	Open Telekom Cloud	hww + Open Telekom Cloud		hww + Open Telekom Cloud	Open Telekom Cloud **+ Dedicated + Edge**	Open Telekom Cloud
Platform	**HPC as a Service By T-Systems Solution for Research** Incl. Scheduler, Middleware, Devops, …						
Software / application	**with third party**	**with third party**	**Scientific computing by SfR**		**PLM Cloud by T-Systems** 	**AD-DTP for autonomous driving by T-Systems**	**with third party**

EUROPEAN SCIENCE CLOUD
HYBRID MODEL FOR COMPUTING CAPACITIES

The Challenge

- Storing, managing and processing large quantities of scientific data (YOY growth by 50 PB+)
- High upfront investment, up to 6 months of IT delivery
- Addressing more than 70 million people in science and research

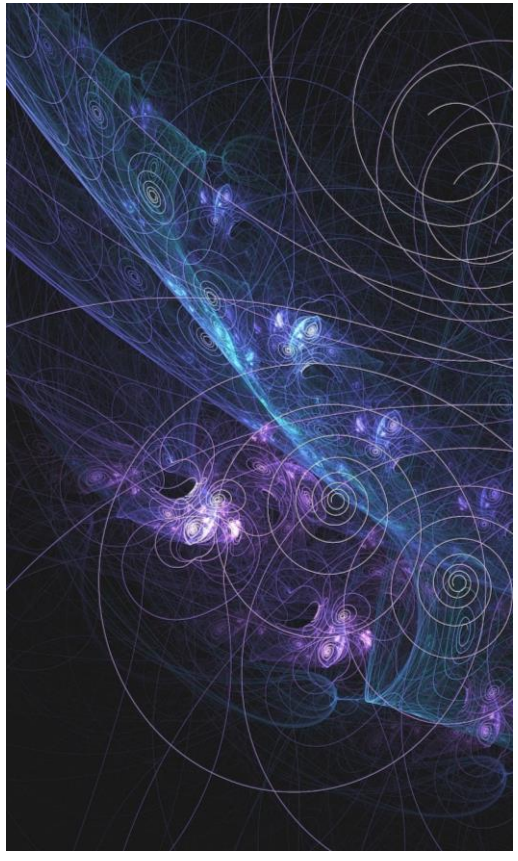
The Solution

- Open Telekom Cloud as a component of the Helix Nebula Science Cloud delivering 500 k + cores of compute power
- Utilization of Open Telekom Cloud for various use cases in particle physics, bioinformatics, etc., especially high-throughput applications
- Utilization of the (10 GB) Géant network for data transfer

The Benefit

- Cost transparency
- Usage-driven activation of additional computing and storage resources (burst resources)
- High performance – leading to better value for money
- OpenStack for simple integration

COMPUTE POWER FOR X-RAY SPECTRA
3DIX – 3D IMAGES FROM EXPERIMENTAL DATA



The Challenge

- Need for huge temporary computing resources to run compute-intensive jobs
- Avoidance of investments in own computing facilities
- Easy usage for scientists: functionality and user-friendliness

The Solution

- Running FDMNES on Open Telekom Cloud
- Simple user interface plus job scheduler for scientists to import/export data and start job
- Transfer of only a few GB for executable, input and output data
- Processing power: 50 – 100 cores (min. 8 GB RAM each)

The Benefit

- Usage-driven activation of computing resources
- On-Demand availability of huge resources
- Reduced load on own systems – availability for other workloads
- Workload fits perfectly to cloud approach

MACHINE ROOM FOR GEOSERVICES
VISTA CONVERTS SATELLITE IMAGES TO YIELD PREDICTION

The Challenge

- YPSILON is an innovative yield forecasting service
- State-of-the-art satellite data and physically-based plant growth modeling are used
- Europe-wide forecasts of crop yield (t/ha) and production (t) need an up-to date satellite data-basis delivering the current crop status
- High level of detail and accuracy over large areas resulting in very high computing needs

The Solution

- Operating Vista's software on Open Telekom Cloud
- Raw data of ~1 GB per satellite scene
- Pre-processing of data requires temporary and large, scalable computing power and enlarges data volume by factor 10
- Usage of cluster of 10*32 CPU general purpose VMs from Open Telekom Cloud for parallel processing of up to 300 satellite scenes

The Benefit

- On-demand capacities for on-demand jobs
- Usage-based costs, no invest necessary
- Easy management of peak loads
- Optional increase of job speed
- Focus on core competency (analytics, application), unburdening from infrastructure management

ANALYTICS FOR ARCHIVES
ARTIFICIAL INTELLIGENCE DOES THE RESEARCH

RAYPACK.AI®
VISUAL COMPUTING BASED ON A.I.

The Challenge

- Set-up a system for automated tagging of video content
- Detachment of manual work
- Encrypted processing of the in-house video archive to the cloud.
- Metadata for AI-based face recognition are encrypted in the cloud

The Solution

- Raypack AI video analyzer
- Self training AI methods for automated tagging
- Open Telekom Cloud GPU flavors
- Users from business departments (journalists) creating models for business analytics

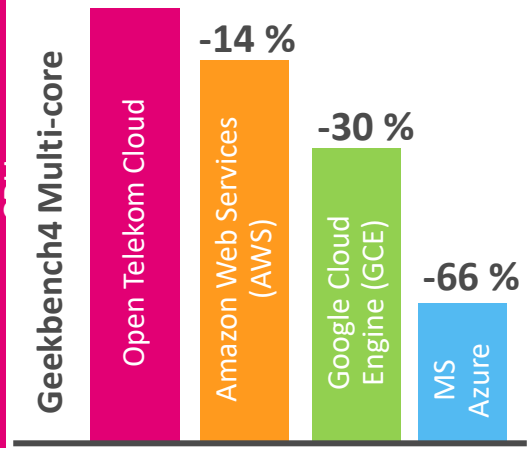
The Benefit

- Using one of the world‘s fastest and most accurate neural networks for visual computing (face, objects, actors, sports, scene understanding)
- Foundation for new business models
- Complete stack from Germany
- High performance through GPU clustering

GREAT PERFORMANCE AND PRICE/PERFORMANCE, GREAT SCALING

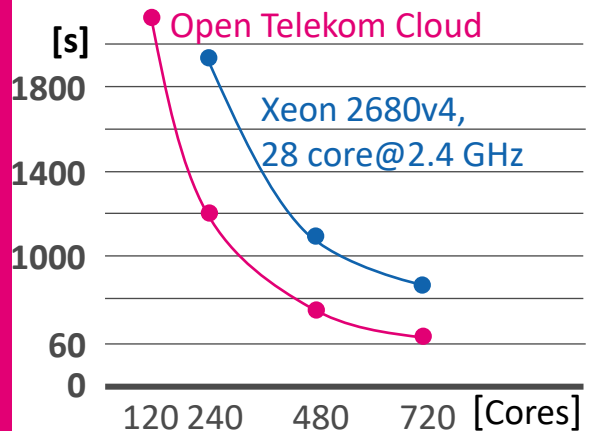
Best avg. price/performance ratio of 2, 4, 8 general purpose

Price/Performance of VMs



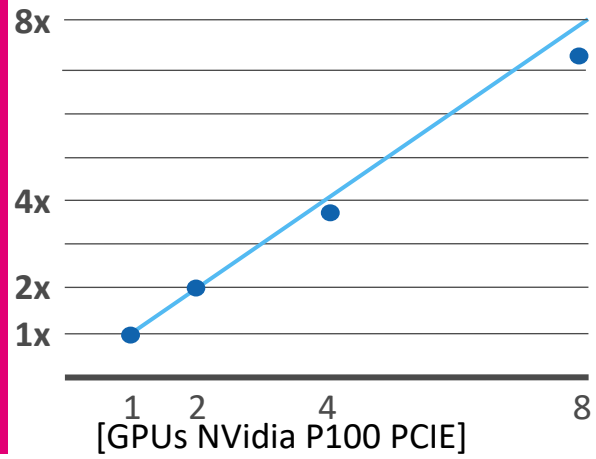
Execution time: Open Telekom Cloud beats physical servers

OpenFoam CFD Benchmark



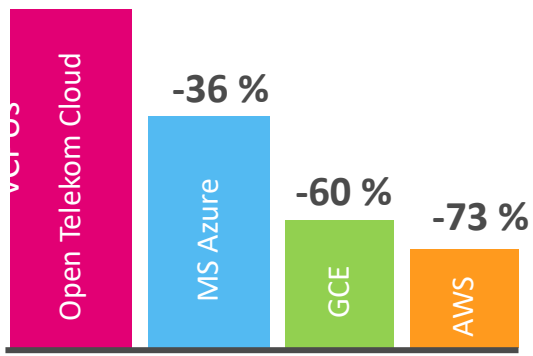
=> Near linear scaling

Deep Learning Caffe + GoogleNet



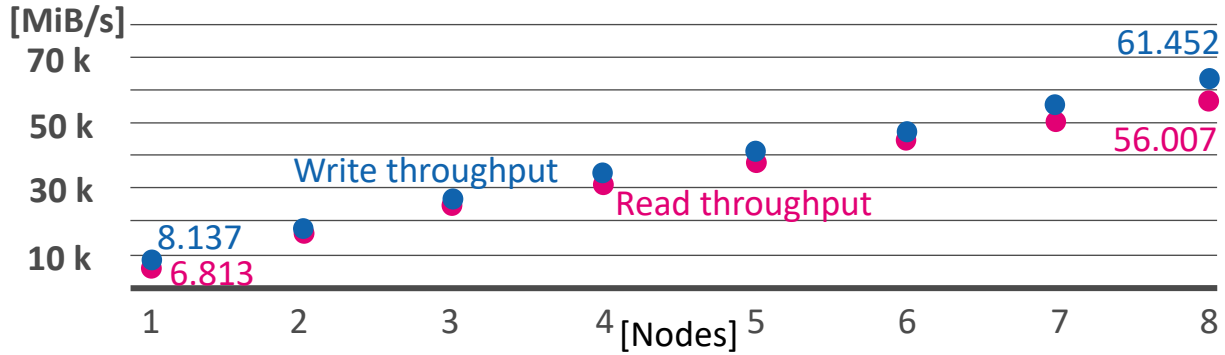
Best performance of high-performance

Multi-Core Performance



Beyond file system throughput, local NVMe

Scalability with number of compute/storage nodes



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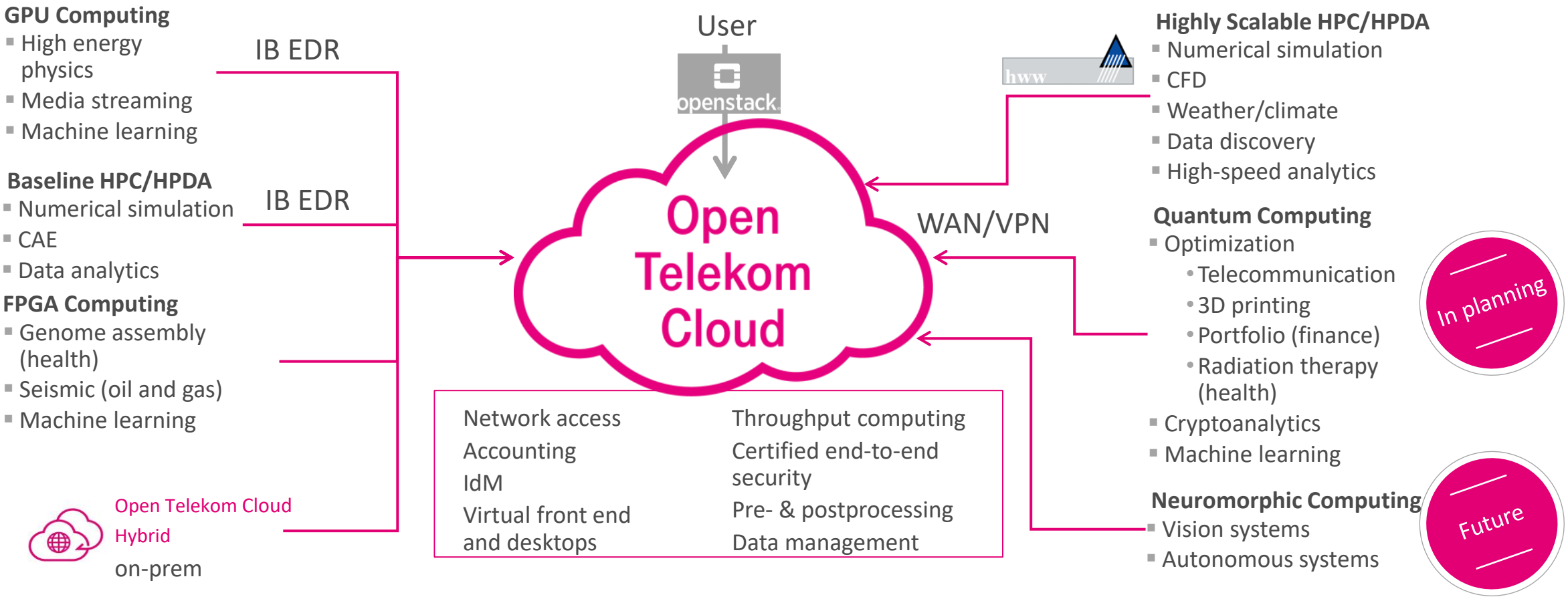
A CLOUD-CENTRIC PROVISIONING CONCEPT FOR DIGITAL SCIENCE AND ENGINEERING



IT‘S YOUR CHOICE

I want to have it from you

Open Telekom Cloud provides the infrastructure and necessary interfaces
- Flavors (HPC, GPU V100, FPGA, Workspace)
- Certification

I want to do it myself

T-Systems provides a individual managed solution as a service
- Flavors (HPC, GPU V100, FPGA, Workspace)
- Certification

I want to do it with you

TSI provides a ready-to-use application
- E.g. Product Lifecycle Management Cloud (PLM*)
- Flavors (HPC, GPU V100, FPGA, Workspace)
- Certification

I need a mix of it all

Thank you!

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higher performance