Dataspaces & Products

Life is for sharing... with data on your terms
Agenda

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02 Dataspaces | Discover your added value

03 Open Telekom Cloud | Explore all its benefits

04 LivingLab | Easy app development

05 Demo Time

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A dataspace is a decentralized data exchange network, enabling the exchange of metadata and data with trusted partners to raise business values.

- New services for users based on transparency and data sovereignty
- Fair environment for data sharing and exchange
- Reduction of dominance of monopolistic players
- Enhancing efficiency and business potentials in various industry verticals
Why Dataspaces? | Discover your added value

Maximize your business value:
- Resilience
- Sustainability
- Economy
- Traceability
- Legal compliance
- Circular economy

Minimize your efforts and risks:
- QUICK | Connect fast to leading dataspaces
- EFFICIENT | Low effort with automated processes
- ONE4ALL | Participate in all use cases
- SCALABLE | Data chain setup for all company sizes
- SECURE | Trust Anchor & sovereign clouds

T-Systems enables any organization to connect and share data according to Catena-X’s data sovereignty protection.

We support you through your whole dataspace journey!
Catena-X use cases

Sustainability (CO2 Footprint)
CO2 reporting and management along the automotive value chain to calculate and compare real CO2 data in a standardized way

Circular Economy
common goal of the network: to integrate all levels of value creation and to make the circular economy more sustainable, durable and transparent

Traceability
enabling end-to-end tracking of products, components, materials, and software throughout the entire value chain, up to the end of the product life cycle

Real-time control
stabilise manufacturing and delivery processes and ensure greater efficiency for everyone involved with the aid of predictive online control and simulation

Manufacturing as a Service
Bringing together prospective customers, suppliers and on-demand manufacturing platforms for profitable interaction

Digital Twin
use of digital behaviour twins for seamless integration of each product and all its sub-components along the entire value chain
Planning capacities? Assembly, replacement, dismantling, maintenance?

More capacities due to increased home office work? More customer inquiries?

Investment in hardware, server room, cooling, racks?

Use resources simply at the push of a button

Flexibly scale & absorb peak loads

Pay according to consumption (Opex)

Focus on your core business

Certifications & Security all inclusive

Improve ecological footprint

Shortage of skilled workers? Pressure to innovate? Busy keeping systems running?

Processes, systems certified? Data protection, standards?

Your servers are not fully utilized? Power consumption despite low usage?

How the Open Telekom Cloud helps you
Why Dataspaces | Unlock value of your data

- Decentralized infrastructure for trustworthy data sharing in ecosystems
- Data sharing and exchange with full data sovereignty for your business
- A better digital culture where users follow the new rules, ethical use of data
# The pillars of sovereignty

## Sovereignty

<table>
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<tr>
<th>DATA</th>
<th>OPERATION</th>
<th>TECHNOLOGY</th>
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| **Data**  
Data is not accessed, manipulated, deleted or copied by anyone (including cloud provider)  
Encryption outside of the cloud platform or keys are managed outside of the platform or without access from the cloud provider | **Operation**  
The cloud provider can ensure that any provider staff or process/cloud operations cannot compromise the workloads  
Prevention of unauthorized access due to conflicting laws or regulations | **Technology**  
Prevention of dependency on applications or services  
Migration option must be given  
Avoid vendor lock-in - available as "open source" if possible |
Certified & proven secure

Industry-specific
- **StGB §203**: Obligation according to StGB §203 Professional secrecy carriers (doctors, lawyers, ...)
- **SGB §35**: Obligation according to SGB §35 Social data (health insurance, medical clearing offices)
- **BaFin**: Conditions for BaFin, ECB or EIOPA supervised entities in financial sector
- **GxP**: Compliance for regulatory requirements in pharmaceutical industry
- **TISAX**: IT applications for networked automotive industry of the German Association of the Automotive Industry (VDA)

Data Privacy
- **EU Cloud Code of Conduct**: Data processing in accordance with Art. 28 and 40 GDPR
- **Trusted Cloud**: Data protection requirements of the BDSG according to BMIW
- **Trusted Cloud Datenschutz**: Test standard for data protection requirements of the BDSG for cloud computing
- **ISO 27018**: Protection of personal data in the cloud
- **ISO 227001**: Expansion of data protection-specific processes & controls in accordance with ISO 27018

Security
- **ISO 27001**: Information security management system
- **ISO 27017**: Cloud-specific controls
- **ISO 9001**: Quality management standards
- **ISO 22301**: Business continuity management system
- **ISO 20000-1**: Service management systems
- **ISO 14001**: Environmental management
- **Tier III**: Data center resilience
- **Bundesamt für Sicherheit in der Informationstechnik**: Cloud Computing Compliance Criteria Catalogue
- **AICPA SOC**: Controls over financial reporting
- **AICPA SOC**: Proof of effectiveness of the „Service Trust“ Principles
- **SOC 3**: Public report on security, availability and confidentiality

- **DIN EN 50600**: Construction and operation of a Data center

[https://www.trusted-cloud.de/cloudservices/2667/Open-Telkom-Cloud-based-on-OpenStack.html](https://www.trusted-cloud.de/cloudservices/2667/Open-Telkom-Cloud-based-on-OpenStack.html)
From Europe for Europe

- **GDPR compliant**
  - Operation in European data centers
  - Managed by Telekom (EU only)
  - Audited data protection according to European law

- **Sovereign**
  - Sovereignty over data & encryption - data sovereign
  - Open platform due to OpenStack - technology sovereign
  - Operated by Telekom - operationally sovereign

- **Secure**
  - Independently tested security
  - Meets industry-specific requirements

- **Reliable**
  - 99.95% Availability
  - 24/7 available
  - Zero Outage – Quality Assurance Program

- **Data privacy**
- **Data security**
- **Legal certainty**
- **Schrems II compliant**
Sustainability

100% electricity from renewable energies
honoured with the Platinum Award for Green Data Center Co-Location

PUE Values of 1.28 (Madgeburg/Biere) & 1.40/1.46 for Almere & Aalsmeer
30% less energy consumption than comparable data centers

Establishment, implementation, maintenance and continuous improvement of Environmental-management

Energy-management

ISO 14001
ISO 50001

Gold Status - LEED Rating (certified von USGBC)

Make data centres climate neutral by 2030
https://www.climateneutraldatacentre.net/signatories/

Sustainable Datacenter

Sustainability Initiative with Fraunhofer IFF

Photovoltaics
Wind-energy
Efficient Computing
Heat recovery
Improved cooling technology
and much more...

Open Telekom Cloud, November 2023
Product: DIH LivingLab

**Plug & Play**
Easy, user-friendly product for quick onboarding to delight our customer’s data transformation journey

**Managed Service**
Focus on the development of use case apps. Infrastructure and complexity of data space technology will be managed by T-Systems

**Cloud Agnostic**
Our cloud-agnostic connections run on any cloud and/or on-prem - *Sovereign-all-the-way with GCP*

**Trustful**
T-Systems powered managed services and support infrastructure with highest security and compliance standards

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**The Telekom Advantage**

- Managed services with standardized packages and prices pioneered, orchestrated & integrated by T-Systems
- 360° tailor made support packages for end-to-end data space onboarding at standard price
- +5 years of experience in the field of data spaces
- Easy & quick automated setup – deployed with Ready to use and out-of-the-box data space
Build | App Development

Target Group
Companies of all sizes
App Builders

Features

- Upgrade existing apps or create new to **benefit from dataproducts**
- **You focus on your apps** - we maintain the dataspace that powers it
- Based on Semantic Web technology for dataspaces
- managed service with minimal effort
- **Support for App conceptualization** (e.g. semantic modelling) and development (e.g. frontend design)

Your dataspace sandbox

Managed service platform

App development

- Tools
- Identity
- Support

Speed up time to market with best-in-class data sovereignty protection
Our services

Compute
- Virtual machines
  - Different Instance groups
    - Memory optimized/High Performance/GPU
- Dedicated Hosts
- Bare Metal Server
- Images for VMs
  - Windows Server 12/16/19, Ubuntu, Red Hat, SUSE Enterprise, Debian etc.
- Automatic Scaling
  - CPU, Storage, Memory, Bandwidth and many more
- Container
  - Container
  - Container Image Repo
    - Docker
- Storage
  - Block storage
  - Object storage
  - File storage
  - Backup
  - Data Transportation
  - Disaster Recovery
  - File storage
    - Block & file storage, VM

Network
- Private Network
- Direct Connect
- Network Endpoint
- Virtual Private Network
- Internet-gateway
- Load Balancer
- NAT Gateway
- Private Link Access Service
- Domain Name Service

Database
- Relational
  - MySQL, PostgreSQL, MS SQL
- Document-oriented
  - compatible with MongoDB
- In Memory
  - Redis
- Large Scale DB
  - MySQL, NoSQL Cassandra

Management
- Identity & Access Management
- Status Dashboard
- Ressource Monitoring & Alarming
- Ressource management
- Financial Dashboard
- Online Calculator
- Logging
- Log Tank
- Ressource Tags
- Ressource Templates

Application
- Application management & monitoring
  - Supports Cloud Container
- Notifications
- Distributed Event Streaming
  - Kafka
- API-Gateway

Analysis
- MapReduce
  - Supports Hadoop, Spark, HBase, Kafka, and Storm
- Data Ingestion
  - Supports Apache Spark & Flink based on Kafka, Hbase & Redis
- Data Warehouse
  - Supports MapReduce
- Cloud Search
  - Elastic Search
- Data Processing, Governance & Management

Artificial Intelligence
- ModelArts Develop. Platform
  - Data preparation, algorithms, AI training, AI deployment

Open Telekom Cloud, November 2023
Build | LivingLab in action

LivingLab Demo
Data Intelligence Hub

Data Intelligence Hub - the dataspace
Innovator, Orchestrator and Integrator
presented by
T Systems
Entry Point to your dataspace

- User-friendly **self-service user interface**
- Easy access to the **development toolkit**
  - Identity and access management
  - Secrets and credential management
  - Application management
  - Monitoring
- Built-in **participant validation** to secure a trusted space with **DIH Digital.ID**
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LivingLab: Components and their benefits

Application Management with Kubeapps
- Overview of application and dataspace components
- Deployment and management of use case applications

Identity and Access Management with Keycloak
- Manage users, permissions and access to applications and resources
- Integrates with existing IAM solutions, simplifying the onboarding

Data Exchange with Connector and built-in Participant Validation
- Manage data assets, usage policies and contracts
- Initiate contract negotiations and data transfers with a few clicks

Monitoring with Grafana
- Overview of the performance and usage metrics
- Extend it with KPIs that suit your dataspace and use case applications
Open Telekom Cloud is ranked as **Leader** together with US-hyperscalers.

### Hyperscale Infrastructure and Platform Services

ISG Provider Lens: Public Cloud Solutions and Services 2022

“T-Systems’ broad IaaS/PaaS offerings take into account the high compliance requirements.”

**Strength:**

- "... comprehensive IaaS/PaaS services are offered, which strictly comply with European legislation and data sovereignty”
- “The distance between the two availability areas meets the requirements for geo-redundancy”
- "... European alternative to the large hyperscalers and will continue to strengthen its presence.”
- “Experienced consultants help customers move to cloud, taking into account whether they already have cloud knowledge or are still in the early stages.”

3 twin core data centers with 9 availability zones for short latencies and zero outage

Regions DE & NL fulfil requirements for georedundancy

High security locations

Swiss cloud as an autarkic Community cloud for Swiss customers
Open Telekom Cloud – The cloud for regulated markets

Sovereign
Secure
Compliant
Reliable
State-of-the-art European Cloud Portfolio
Sustainable

Public
Healthcare
Banking & Insurance
Energy
Education
Research & Science

Open Telecom Cloud, November 2023
The Open Telekom Cloud in figures

- > 718,000 vCPUs
- > 4,369,000 GB RAM
- ≈ 100,000 VMs
- ≈ 830 PB Storage
- 3,500 Racks
- > 6,000 m² DC-space
- 25,800 Assets
- Locations: DE, NL, CH*

*CH Region is a Community Cloud

Open Telekom Cloud, November 2023
Benefits with the Open Telekom Cloud

- Fast scalability
- High availability
- High flexibility
- No investments
- Low efforts
- Low carbon footprint
- GDPR compliant
- Proven security
- Sovereign

Open Telekom Cloud, November 2023
Thank you!