



Swisscom Cloud: Managed K8s & Hands-on with Camptocamp

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Agenda

1. Introduction of Swisscom Private Cloud 30 min
 - ESC - Enterprise Service Cloud (platform) + portal demo *Fabien*
2. Introduction of Swisscom Kubernetes Service 30 min
 - KKP - Kubermatic K8s Platform, SKP - Swisscom K8s Platform *Christian & Fabio*
3. Information for the hands-on & Break 15 min
4. Hands-on labs for participants 2h
 1. Bootstrap - Create the Kubernetes Cluster
 2. Init - Install tools *Julien &*
 3. Story - Python based Particle Accelerator *Frederico*
 4. Run - Deploy the lab and play with the metrics
 5. Discover - Observability tools using EBPF

Enterprise Service Cloud

ESC version 3 - Platform and Services

ESC is the Swiss private (community) Cloud for companies, offering IT infrastructure, security, and managed services all from a single source – fully integrated, automated, locally hosted, and flexibly scalable.



Enterprise Service Cloud (ESC) - Topics

- Why Swisscom and ESC Private Cloud
 - ESC Compliance and Certifications
- Enterprise Service Cloud Catalogue
 - ESC Cloud is 4 Datacenters in Switzerland
 - ESC Services and Self-service Portals
- Swisscom Cloud Connectivity Options
- ESC OnPrem Stack in your own DC (same portals, same experience)
- ESC AI Ecosystem and Platform





Why Swisscom & ESC

Experienced experts / Proximity

Regardless of the operating model (on-premise, private, public cloud or hybrid), our 400+ seasoned **cloud specialists** have the experience to support you.

Tailored: A customizable **Private Cloud** with managed services and integration into hybrid Cloud models for your workload and DR strategy



Close at hand / Swissness

We take a local, trustworthy approach to implementing global innovations and are always close at hand to deal with your issues quickly, competently and directly.

Network and Cloud **operation and data storage are in Switzerland**

Secure and confidential

From our networks to our data centers, we consistently ensure the **highest standards of security** which meet your **compliance** requirements. (Sovereignty, local regulations, Swiss Law for data protection)

Network and Cloud services, all with **security by design**.



Certifications – Enterprise Serviced Cloud



ISO 14001

Environmental
Management



ISO 9001

Quality
Management



ISO 22301

Business
Continuity
Management



ISO 20000

IT Service
Management



ISO 27001

Security
Management



GAMP 5

Good Automated
Manufacturing
Practice

Reporting

ISAE3402

ISAE3000





Enterprise Service Cloud Catalogue

 Pay-per-Use
Pricing Model

Extended Services



Provider
managed



Professional
Services



Application
Management



Public Cloud
Access



Advanced
Security



Support
ITSM/JIRA



On-Prem
Solution

Cloud Services



Virtual
Machine



Managed
OS



Managed
DBMS



Kubernetes
Service



File Service
Premium



Object
Storage S3



Gateway
Services



Swiss AI
Platform

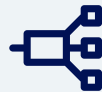
Base Services



Swiss Data
Centers



Storage &
Backup



Network
Overlay



Base
Security



Log & Event
Exposure



Service
Catalogue

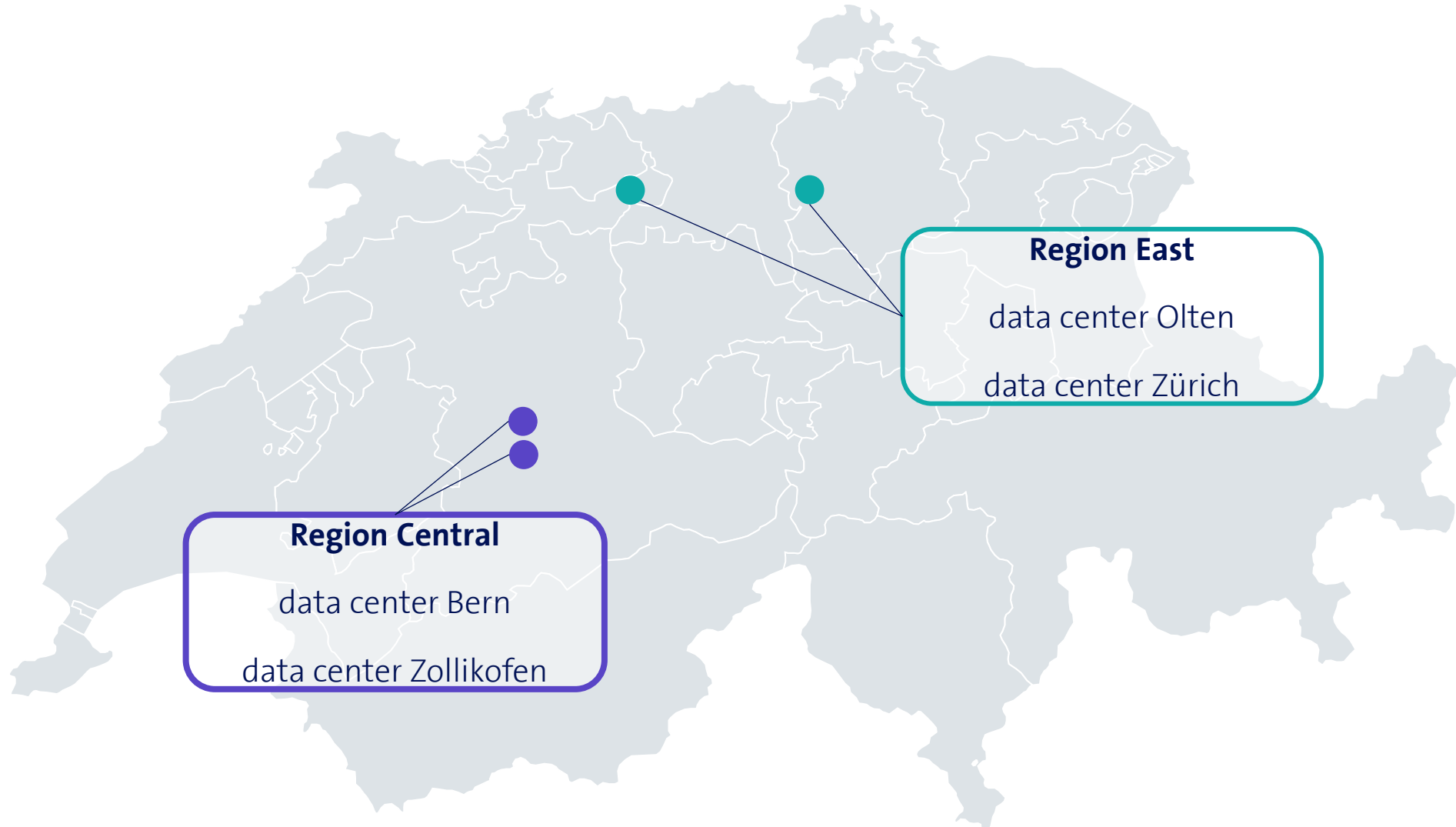


Portal/API



Operated from Switzerland in Swisscom DataCenters

*Enterprise Service Cloud Regions and Tier-4 DataCenters **



* The ESC services Kubernetes (2x3 out of 4) and AI (Zurich as of today) differ from this setup



ESC Services Catalog



Compute Services

- IaaS VM (unmanaged templates)
Option: Managed OS RHEL/Windows
- AI: Platform: GPUaaS, Work Hub, GenAI Studio
- Kubernetes Services (legacy and new)

Storage Services

- File Services – SMB, NFS + iSCSI
Option Kubernetes with NFS/iSCSI CSI
- Object Storage compliant S3

Database Services

- Managed MS SQL / Option: Oracle

Network Services

- Managed Forward/Reverse Proxy

Tenant Management

- Consumption, Reports and Administration

Home

Dashboard

All Instances

All Requests

Compute

IaaS Services

Virtual Machines

AI Platform

Gen AI Studio

Kubernetes Service

New

Managed Kubernetes

Storage

File Service

File Service Kubernetes

Object Storage S3

Databases

Managed MS SQL Server AO

Managed MS SQL Server

Networking

Managed Forward Proxy

Managed Reverse Proxy



ESC Portals: service specific orchestrators

SCO – Swisscom Cloud Orchestrator

- Main portal deploy all service, some service have their own orchestration portal (focus consumption)
- Management of VMs with easy GUI
- Resource isolation and RBAC per "space"

IaaS vCD – vCloud Director (VMware Hypervisors)

- Fine grained management of VM, Template and VM Networks
- Day2 action integrated for Managed OS

NSX Manager - VM Distributed Firewall UI

- Control DFW Firewall objects and policies (tags)

KKP – Kubermatic Kubernetes Platform portal

- Management of Kubermatic projects (RBAC, Quotas)
- Kubernetes cluster deployment and lifecycle

IA Platform - ClearML Portal for GPUaaS

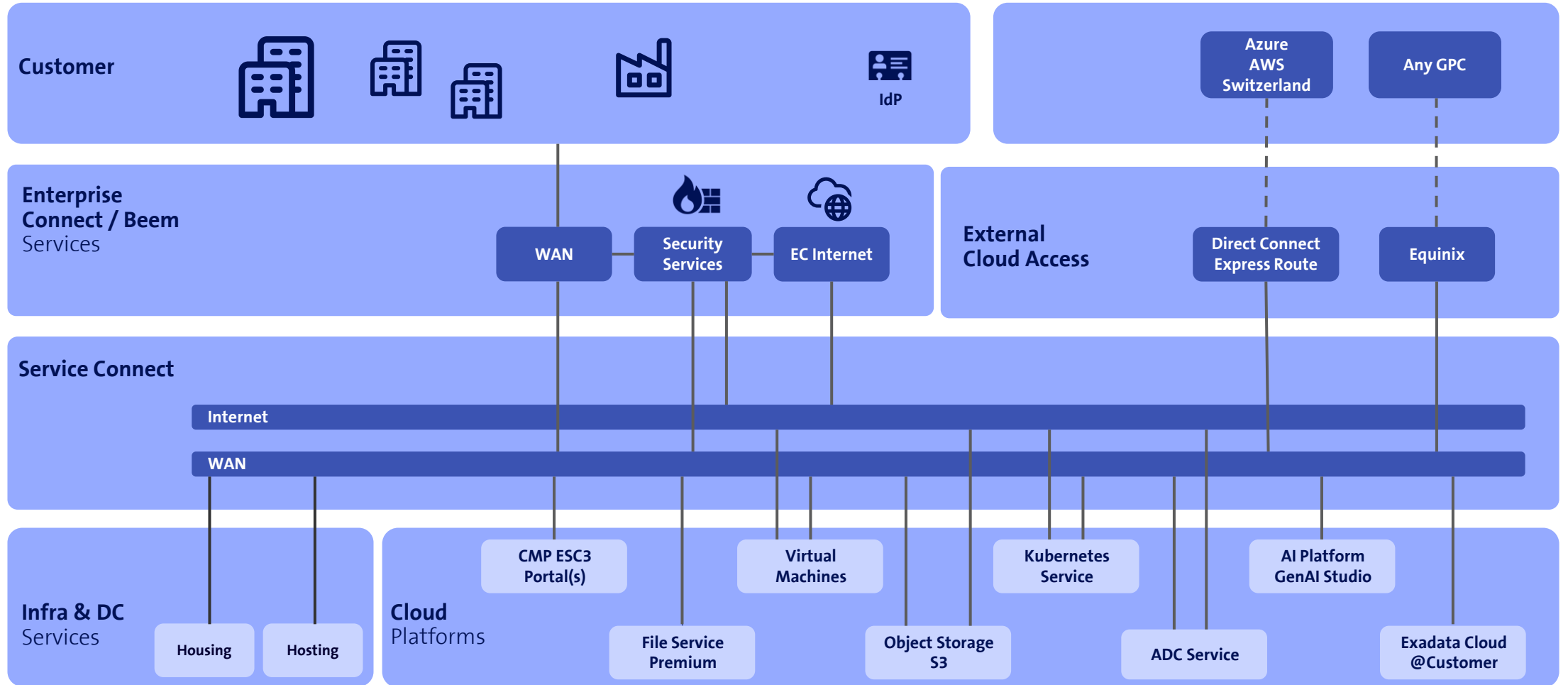
- GPU as a Service: orchestrate container on GPU hosts for inference or training – expose AI API endpoint
- K8s cluster with H100 (training) and L40S (inference)

AI PaaS – GenAI Studio (Vellum)

- Customizable AI models, workflow, fine-tuning, ...



Swisscom Cloud Connectivity





ESC OnPrem: The Swisscom Private Cloud – in your own Datacenter

The instantiated services workload continue to run even if connectivity with provider is lost.

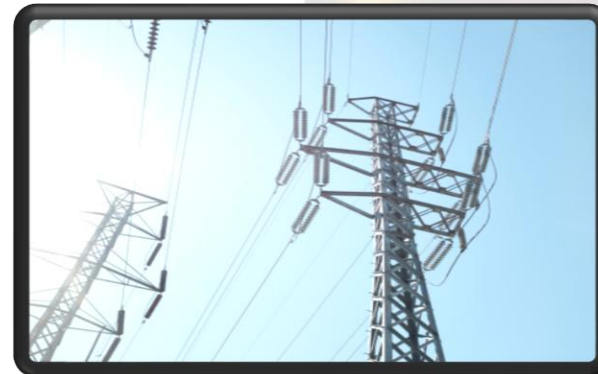
Same self-service Portal/API for both Cloud and OnPrem.

Issues to solved for critical infrastructure:

- Geopolitical situation
- Cyberattack / **Disaster Recovery**
(Local and remote immutable backups)
- **Power shortage** / power supply failure
- **Data sovereignty** (exit strategy)
- Skills and staff shortages

Monthly charged (pay as you grow)

Scalable solution: S, M, L, XL stack size





Enterprise Service Cloud OnPrem scope of service

Extended Services



Provider
managed



Professional
Services



Application
Management



Public Cloud
Access



Advanced
Security



Support
ITSM/JIRA



On-Prem
IT Solution

Cloud Services



Virtual
Machine



Managed
OS



Managed
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Kubernetes
Service



File Service
Premium



Object
Storage S3



Gateway
Services



Swiss AI
Platform

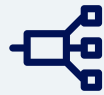
Base Services



Swiss Data
Centers



Storage &
Backup



Network
Overlay



Base
Security



Log & Event
Exposure



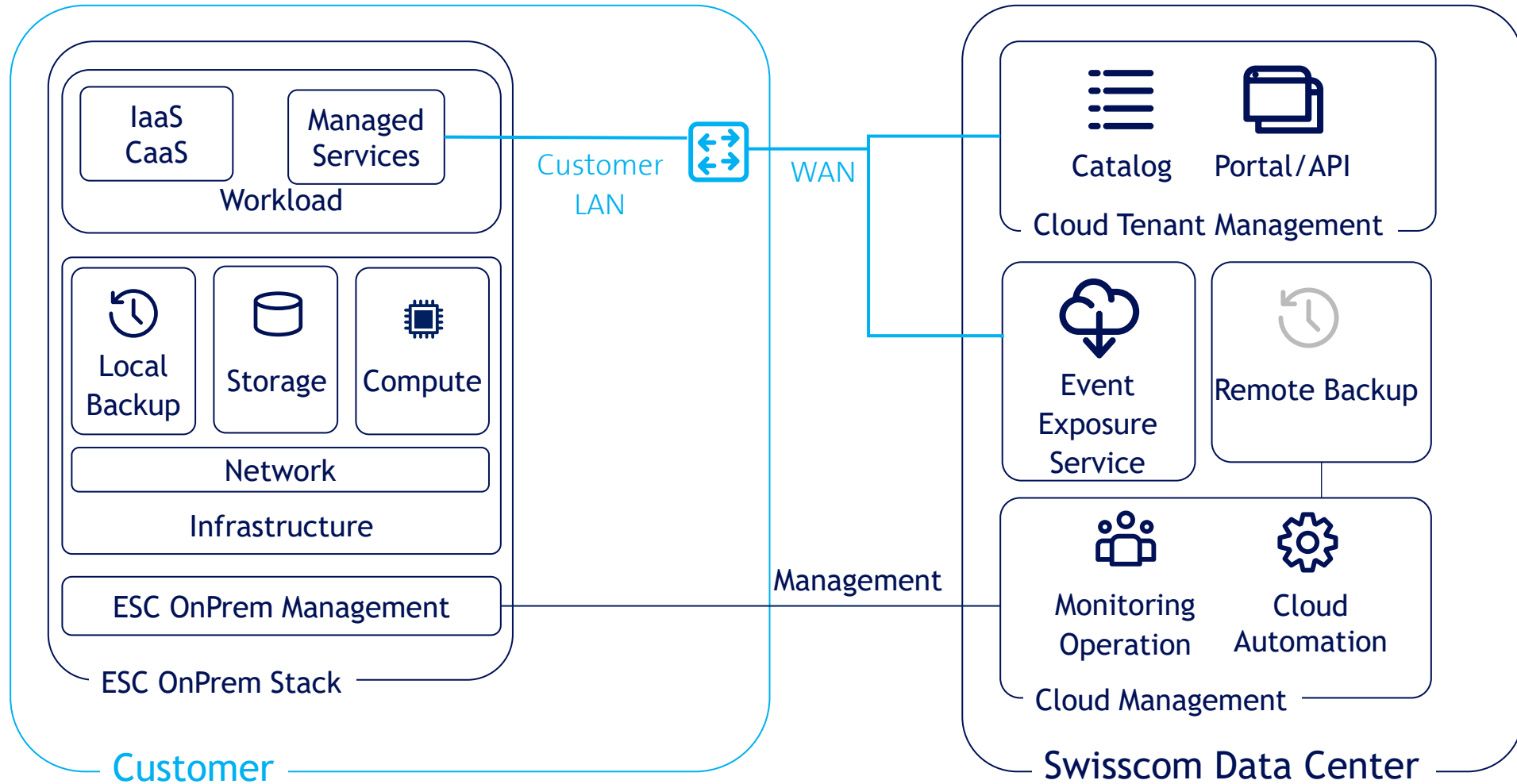
Service
Catalogue



Portal/API





ESC OnPrem High-Level Architecture





Partially or fully managed by Swisscom

You decide which cloud services you want to manage and which to outsource to us – wherever your workload is based.

 Customer Service Manager	 Support
Partially managed by Swisscom <div><div><div>on</div><div>off</div></div> Cloud Managed Services</div> <div><div><div>on</div><div>off</div></div> Support and Reliability</div> <div><div><div>on</div><div>off</div></div> Operation and Lifecycle</div> <div><div><div>on</div><div>off</div></div> Professional Services S, M, L</div> <div><div><div>on</div><div>off</div></div> Managed Application Services</div>	Fully managed by Swisscom <div><div><div>on</div><div>off</div></div> Cloud Managed Services</div> <div><div><div>on</div><div>off</div></div> Support and Reliability</div> <div><div><div>on</div><div>off</div></div> Operation and Lifecycle</div> <div><div><div>on</div><div>off</div></div> Professional Services S, M, L</div> <div><div><div>on</div><div>off</div></div> Managed Application Services</div>
<div><div><div>on</div><div>off</div></div> Basic Functionalities</div>	
Infrastructure	



Composing products to support all needs of a private AI platform end-to-end

Swiss AI Platform

<https://digital.swisscom.com/products/swiss-ai-platform/info>

Inference Endpoints (private/public)

- Access to a wide range of models hosted on the Swiss AI Platform through APIs (LLMs, embedding & more)
- Users: Software Engineers, Data Engineers, Business User with technical knowhow
- Pricing: Token-based with a fixed base

GenAI Studio

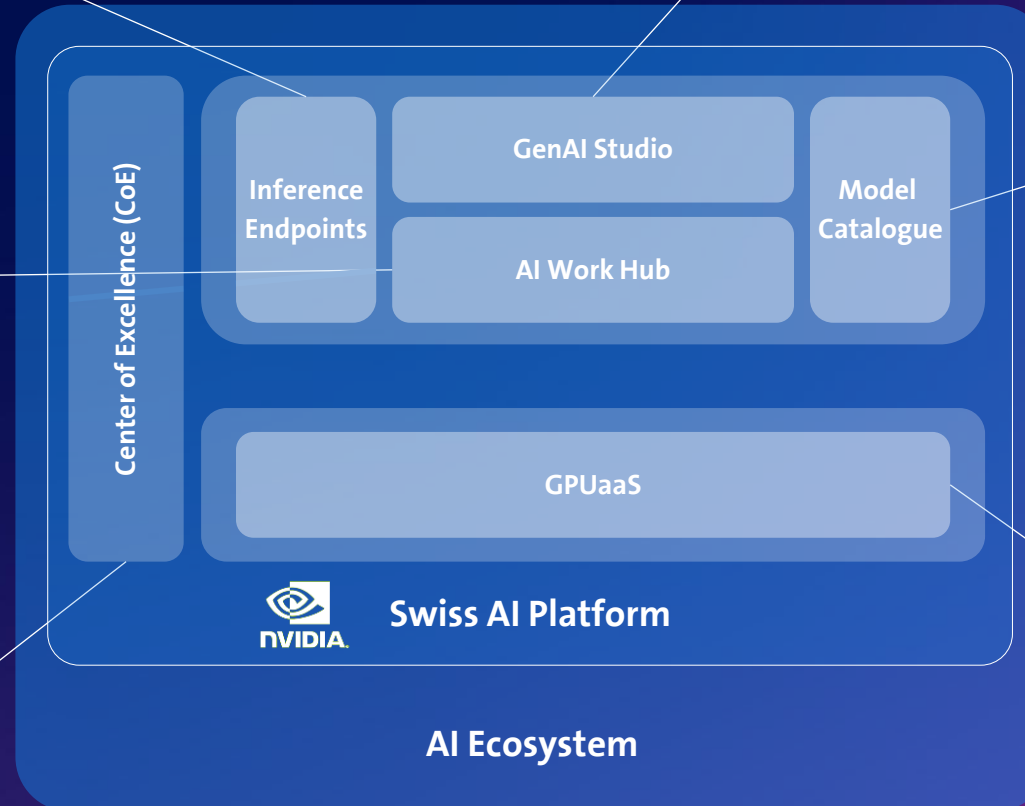
- Service offering for easy access to GenAI services (e.g., inference, retrieval augmented generation) through API endpoints → Login, create access credentials, select model, RAG it, if needed, and deploy.
- Users: Software Engineers, Data Engineers, Business User with technical knowhow
- Pricing: Token-based for inference and a surcharge for RAG-ing

AI Work Hub

- Service offering for corporates that evolved within the area of "classical" ML (regression, classifiers, computer vision, NLP) and profit from generative AI.
- Provides access to managed compute infrastructure, large language model collection and many NVIDIA et al. tools and services.
- Enable collaboration across teams (Notebooks, Pipelines, Profilers, MLOps, etc.) for end-to-end lifecycle support.
- Users: Data Scientists, ML Engineers, Data Engineers
- Pricing: User subscription and pay-per-use (e.g. storage)

Center of Excellence

- The Center of Excellence is a pool of experts from Swisscom, NVIDIA, Universities and partners ready to support you end-to-end in your AI journey - Thinking, shaping, developing, deploying and operating your AI solution – tailor-made to your needs.



Model Catalog

- Library of curated open source and to-be-licensed models
- Model (co-)developed by Swisscom
- Users: Data Scientists, ML Engineers, Data Engineers
- Pricing: Token-based surcharge or request based

GPU as a Service (GPUaaS)

- Service offering for companies, startups, universities that want security, reliability and performance of dedicated hardware to run compute intensive scientific experiments or any other custom models – min. 1xL40S up to several DGXs (1 DGX = 8 x H100).
- Bare metal with minimal configuration and monitoring tool provided.
- Users: Software Engineers, Research Engineers, ML Engineers
- Pricing: Pay-per-use or monthly basis



Demo

ESC Portal

- Service deployment (e.g. S3)

vCD/NSX Portals

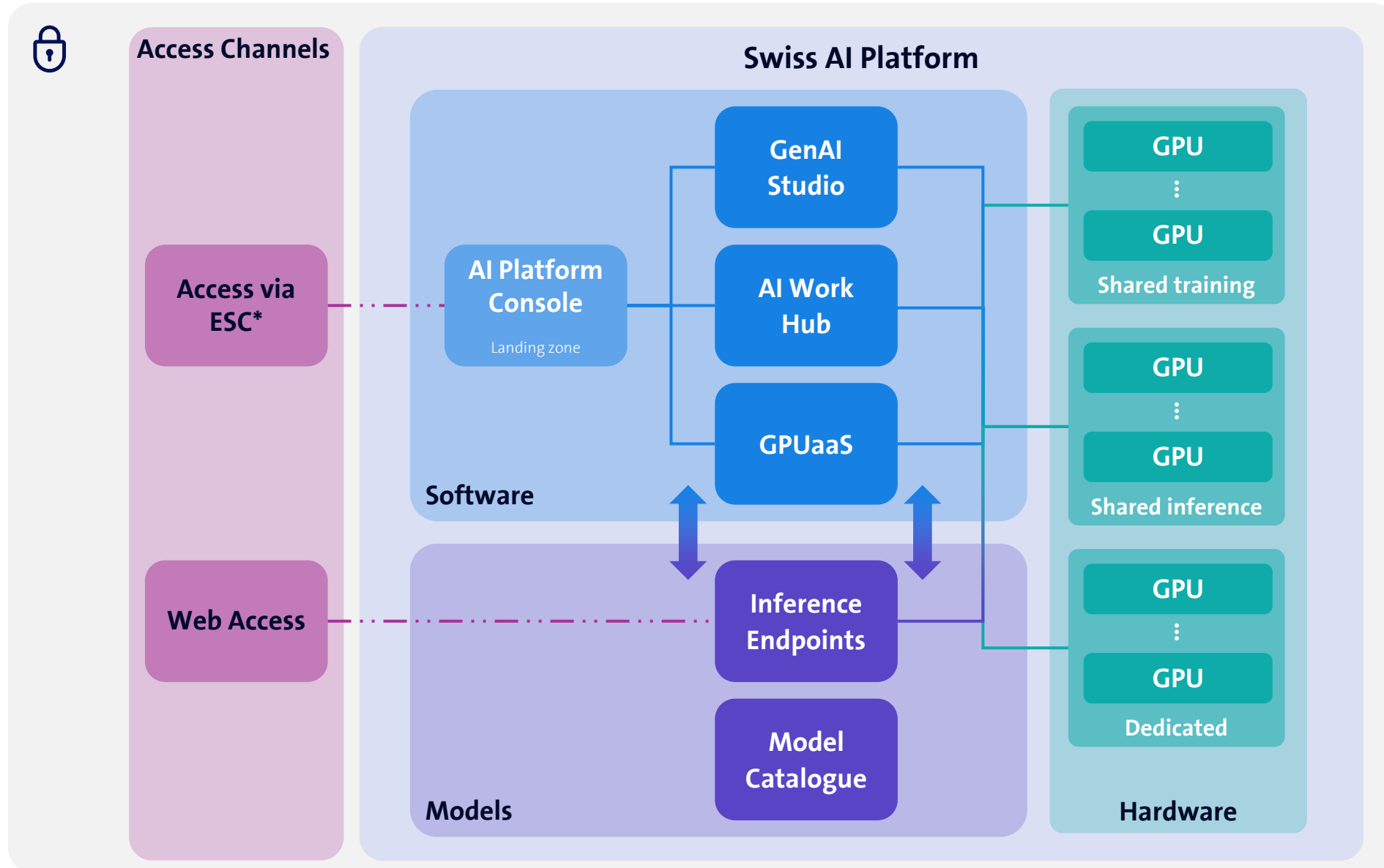
- VM and Distributed Firewall Management

Swiss AI Portal

- Schedule LLM 2 container images on GPUaaS
 - openai/gpt-oss-20b -> L40S
 - openai/gpt-oss-120b -> 2x H110
- Use Open WebUI Chat



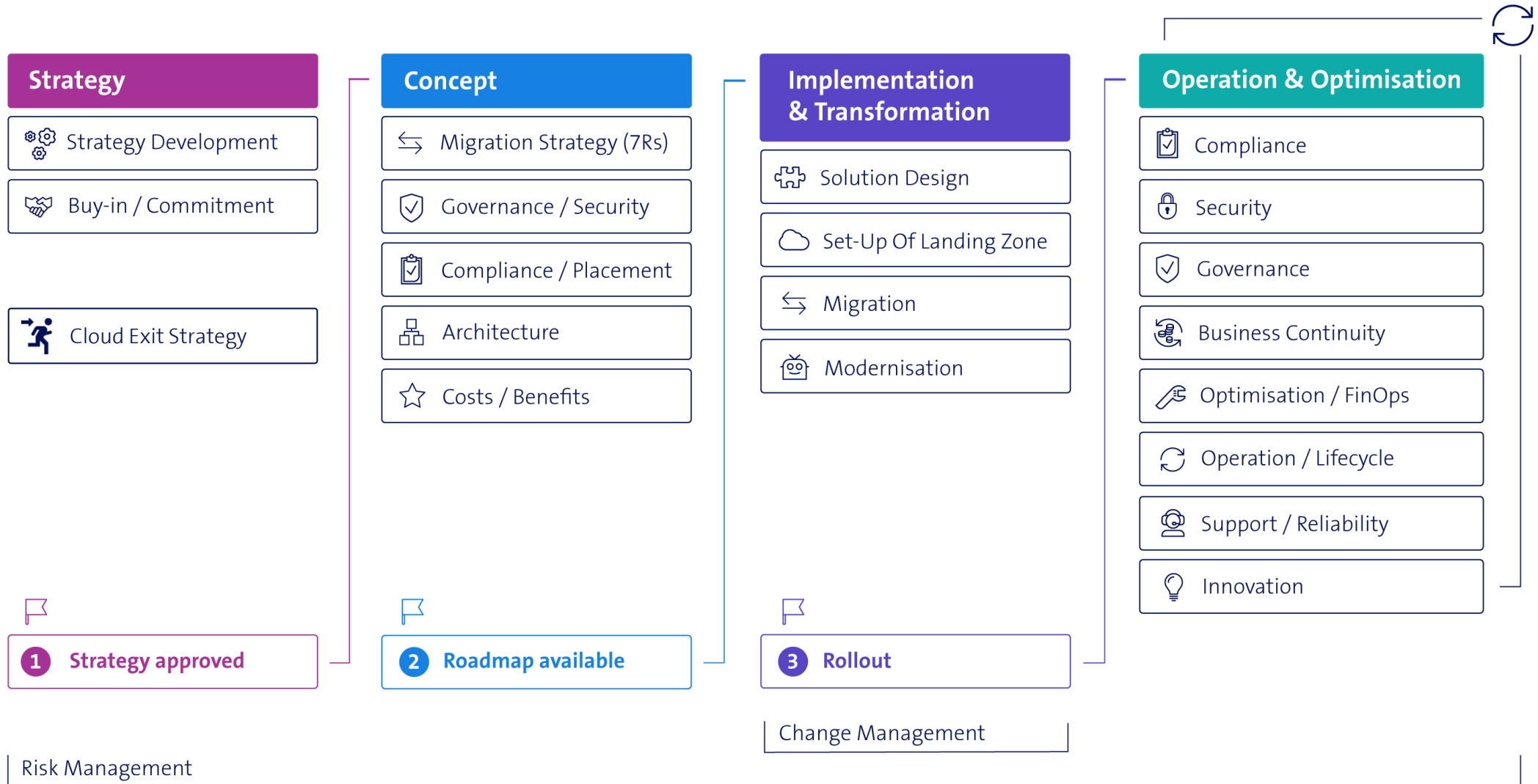
Secure access via ESC and direct access, composed of hardware, software & models Swiss AI Platform landscape





We support you on your journey to the Cloud with Professional Services

Landing Zone for ESC Cloud Onboarding and also ...



Kubernetes Service





Kubernetes Service

Private Cloud next-gen Kubernetes Offering - Available in ESC



Kubernetes
Cluster-aaS



Customer
Self-Serviced



Fully Automated
Provisioning



Managed by
Swisscom



High availability
across 3 AZ



Variation of Sizes
& Scalable



Pay-per-Use
Pricing Model



Datacenters &
Operations in CH



Advanced Storage
Capabilities



Autoscaling



Support of Hybrid-
Cloud use-cases
(e.g. EKS, AKS Integration)



Extensibility



Key Advantages of Kubernetes Service



Modern, cloud native infrastructure with upstream Kubernetes integration

- Open-source software components
- Certified by CNCF, compatible with upstream Kubernetes
- More lightweight and resource-efficient than platforms like OpenShift
- Self-service Developer and Operations Portal (UI & API)
- Can be combined with additional ESC services such as File Service Kubernetes or S3 Object storage

Efficient management

- Automated Cluster Lifecycle Management (scaling & updates)
- Enhanced Multi-tenancy and Role-Based Access Control
- Advanced Multi-cloud and Edge Support (with full integration support planned)

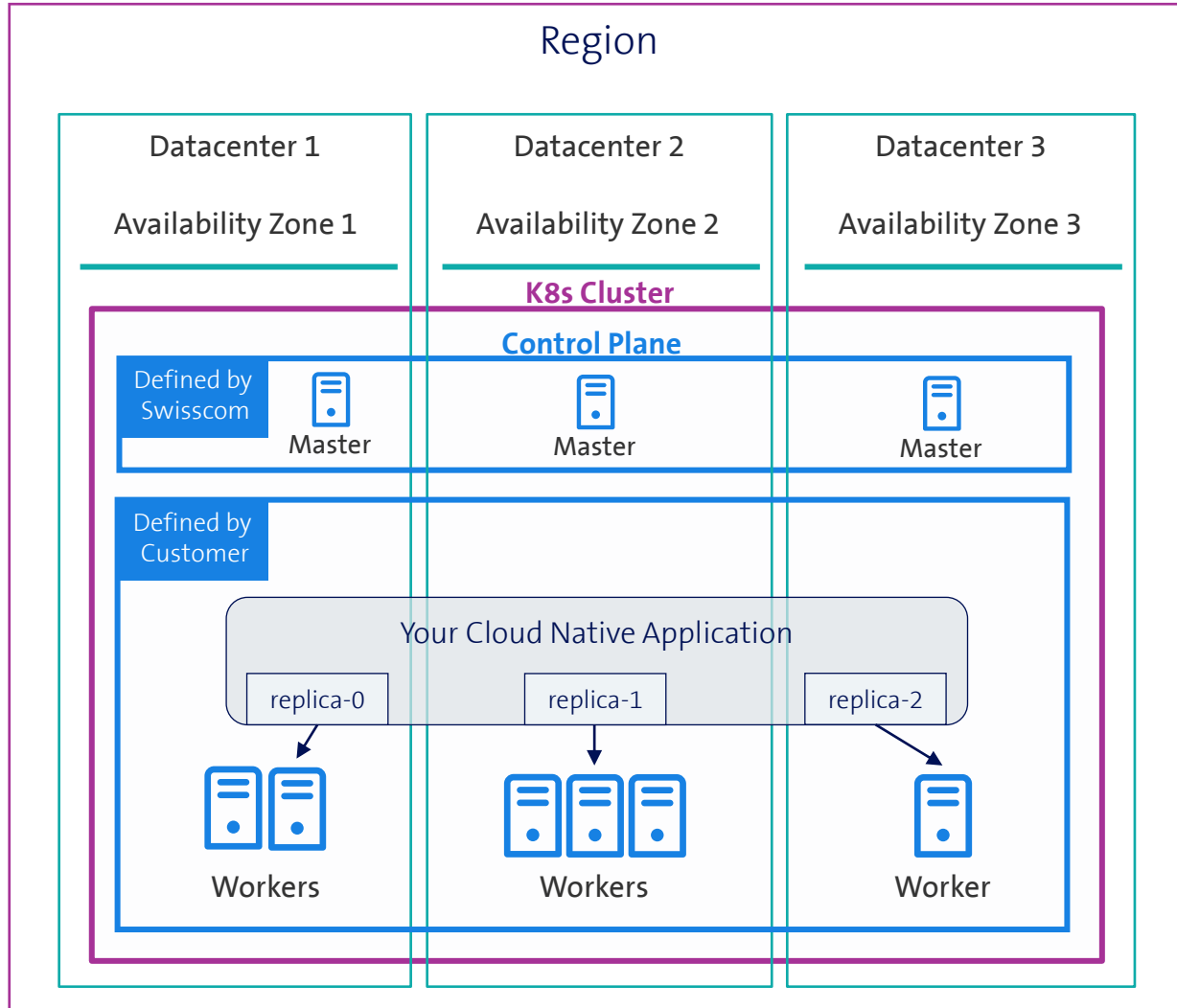


Kubernetes Services Architecture



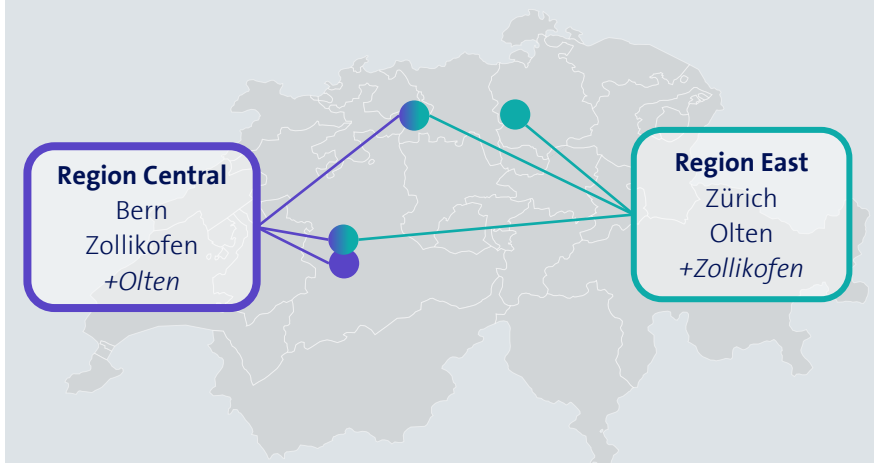
Kubernetes Service

Redundant, HA platform setup



Best practices design

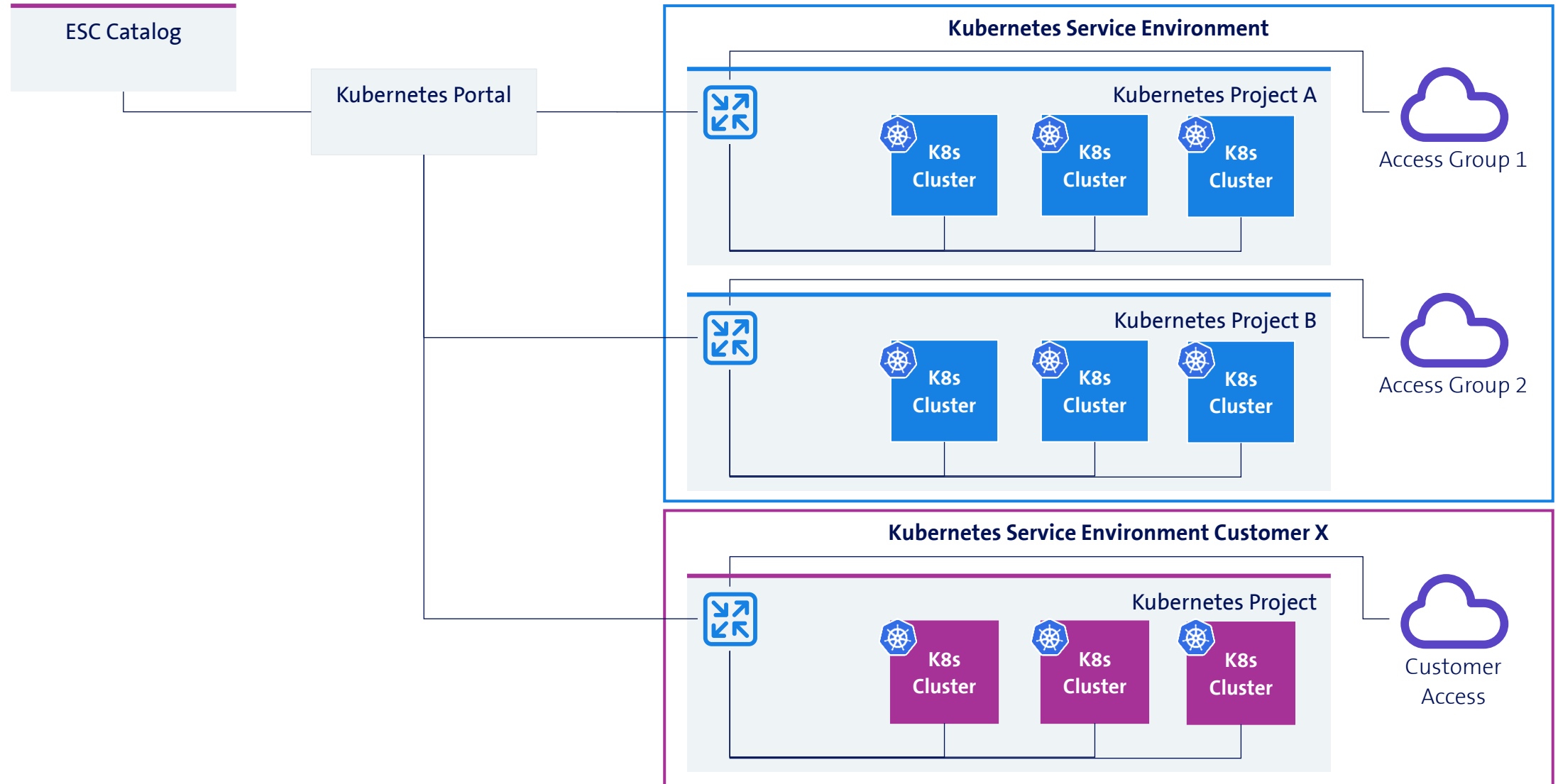
- **Redundancy on all critical layers**
- **No downtime on single failure**
- 4 datacenters located in Switzerland: Bern, Zollikofen, Olten, Zurich
- Kubernetes service stretched across 3 datacenters & 3 availability zones
- Worker Node Pools can freely be placed in all Availability Zones without any restrictions or constraints





Kubernetes Service Environment & Projects

Abstraction levels & access segregation





ESC Kubernetes Service

Sign in



Swisscom Cloud: Managed K8s & Hands-on with Camptocamp

Thank you very much for joining us today – your feedback is highly appreciated



<https://forms.office.com/e/wvFsrT5Wmc>

