



**CloudFerro**

# AI – HPC and Cloud integration

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# AI Computing and Data – situation in Europe

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Two worlds – that should interconnect and co-operate

Institutions, academia and research:

- Big investments into HPC infrastructures like:

  - EuroHPC (and AI Factories, planned AI GigaFactories)

  - Space HPC in ESA

- Data Spaces (like e.g. Copernicus Data Space Ecosystem)

Business (local, sovereign service providers)

- IaaS, PaaS, SaaS solutions in the cloud computing model

- data holdings – as a Service (e.g. technical realisation of Copernicus Data Space Ecosystem)

- AI tooling – from IaaS (GPU as a Service) through LLM/Foundation model platforms to managed solutions

# Some features of HPC solutions

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## HPC/AI Factories

- Heavy jobs – model training, numerical models, physical simulations
- Handful of large computational tasks run by a handful of users
- Relative high unit cost for simple resources (storage, „simple” computing)
- Lack of effective IAM solutions and user separation
- Batch job type user governance

# Some features of Cloud Computing solutions

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Cloud solutions – augmentation/extension of HPC power:

- Natural governance of multitenancy, privacy, budgeting/billing, automated provisioning/self service – solution for thousands of users
- Environments for application platforms and automation of tasks (e.g. repetitive tasks as data gathering and continual pre-processing)
- Tooling for prototyping, staging and visualization; tooling for AI inference and application of models
- Access to cheap big data storage (and maybe other IaaS resources)
- Broad connectivity to the outside world with tooling for security and safety

Natural fit between HPC/AI Factories and Cloud Bridges/Extensions (natural place for European cloud industry)

# CloudFerro – highlights

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- **European, technological company** founded in 2015, leveraging over 20 years of experience of its team members in the IT industry
- Provider and operator of **public and private computing clouds and EO platforms around Europe**
- Specialized in storing, processing and publishing/delivering **very large data sets**, like multipetabyte repositories of Earth Observation satellite data (technical operator of CDSE with 80 PB of publicly available data)
- A solid and mature organisation of more than **250 specialists in Poland and Germany**
- Substantial computing resources with record **700+ PB of available storage**
- **Technological autonomy** via Open Source application and full control of technology stack



# Our solution – co-operation between HPC and Cloud, easy access to the data and AI tooling

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- Natural fit between HPC/AI Factories and Cloud Computing Bridges/Extensions
- Private/public clouds placed close to HPC installations
  - User governance including segmentation and billing
  - HPC and AI tooling
  - Broadband connectivity between HPC and Cloud
  - Big storage for input data and computing results
  - Cloud connectivity (and security) to the outside world
- Easy, broadband access to data platforms – CDSE first
- AI data and tooling close to HPC – embeddings, CF Sherlock, managed kubeflow, mlflow

# Why CloudFerro – access to data

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- 80+ petabytes of EO data and computing infrastructure
- **Copernicus Data Space Ecosystem (CDSE)**: the full and up-to-date authoritative source for **all ESA Sentinel user data**, Copernicus services, Copernicus Contributing Missions (VHR), **80+ PB** of data and growing
- **CREODIAS**: a CDSE-synchronized data offer and APIs with **computing infrastructure** (GPUs, k8s clusters) ready for embedding computation
- Natural place for **operational embeddings generation**: fresh data availability, highest timeliness, data already in processing pipelines

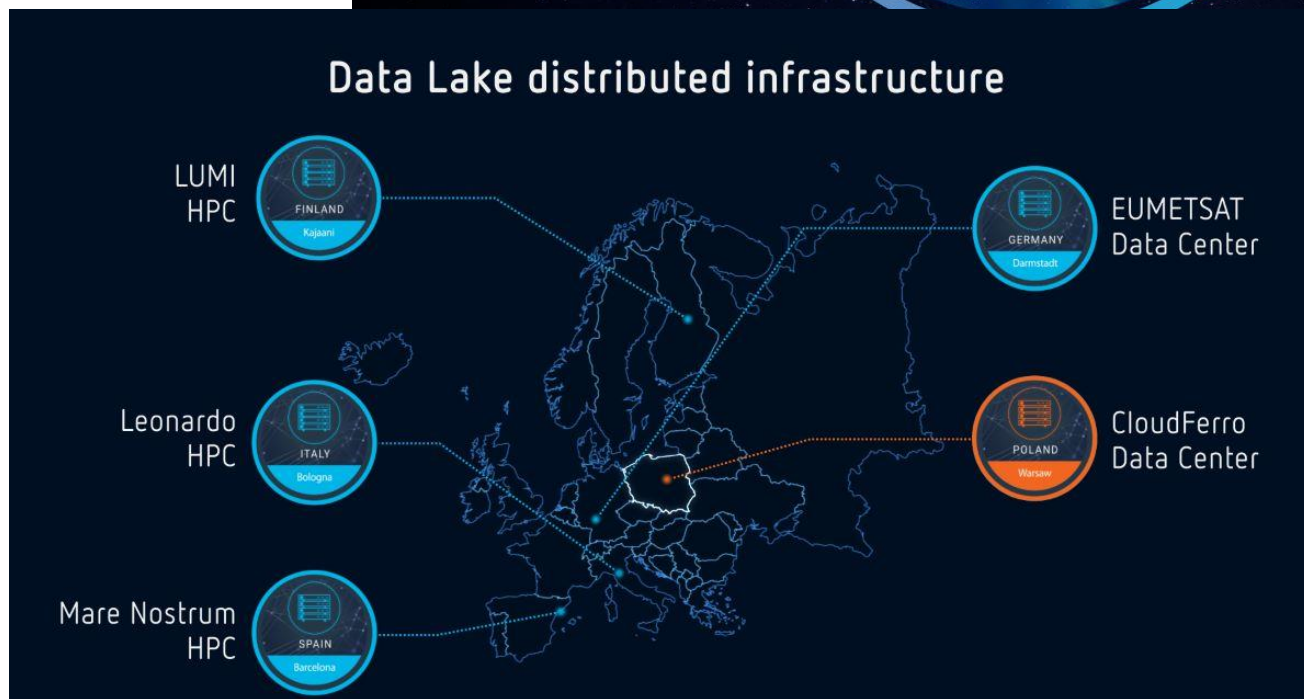
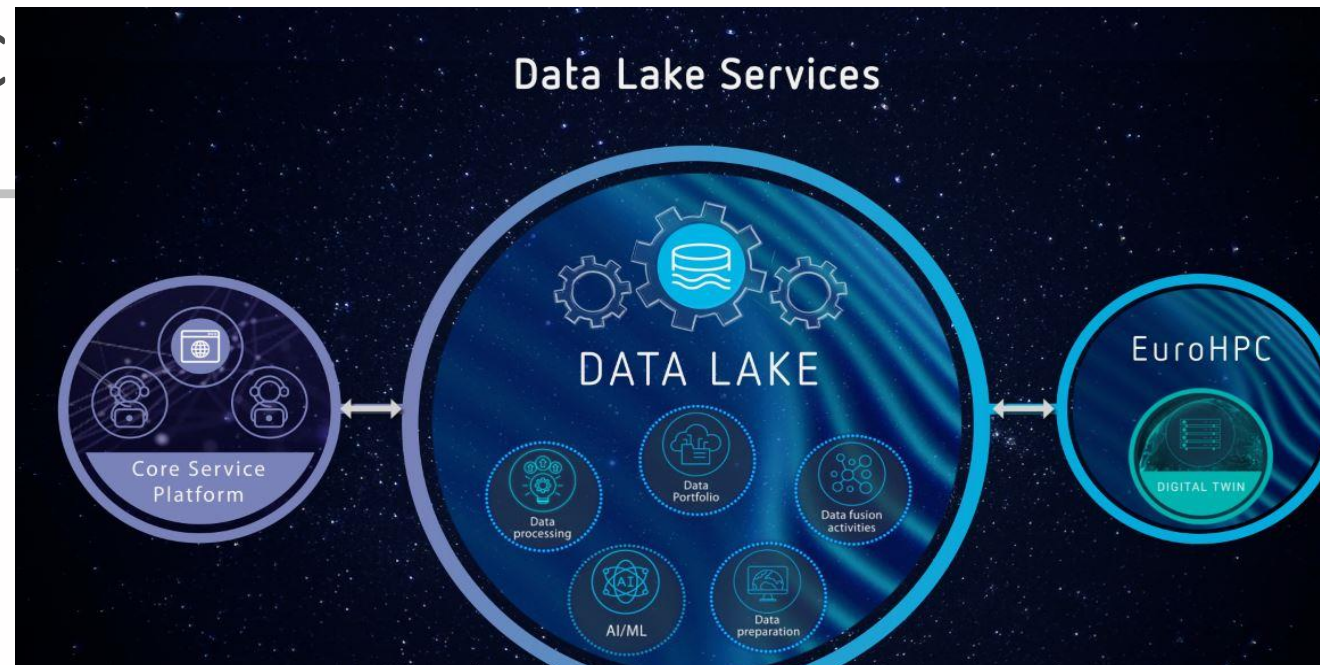


# Why CloudFerro: Cloud and HPC

## Destination Earth Data Lake (EUMETSAT)

- Private Cloud locations at main HPC centers in Europe
- Big overall infrastructures: 60+ PB of storage, 23 500+ CPUs
- Connectivity with HPC (100G+) and outside world
- Provision of data (e.g. Copernicus)
- Data and computing services
- Governance (IAM and billing)

Other projects as well





# Why CloudFerro: AI Computing & GPU as a Service

AI-Ready Virtual Machines: **Flexible. Instant. Optimized.**

- **NVIDIA L40S** - Available in both Passthrough Virtualized and cost-efficient Spot instances
- **NVIDIA H100** - Full support for both PCI and high-performance HGX configurations
- **NVIDIA H200** - Coming soon (Q2 2025) - Book your instance today

*From nimble 4GB setups to powerful multi-hundred GB nodes — adaptable to any workload.*



# AI Endpoints: Text & Vision Models On Demand

**CloudFerro Sherlock** delivers powerful models with European data sovereignty:

- **Privacy by design** — we never store, log, or review your prompts or AI responses
- **100% European infrastructure** with all servers within EU borders
- **Leading AI models** — access to state-of-the-art language and vision capabilities
- **Drop-in compatibility** — identical API to OpenAI for seamless migration
- **Transparent pricing** — simple token-based billing with no hidden costs

```
from openai import OpenAI
import os

# Set your API key and base URL
client = OpenAI(
    api_key=os.environ[ 'SHERLOCK_API_KEY' ],
    base_url="https://api-sherlock.cloudferro.com/openai/v1"
)

# Specify your model
model = "Llama-3.3-70B-Instruct"
```



# Streamlined MLOps (Coming Early 2026)



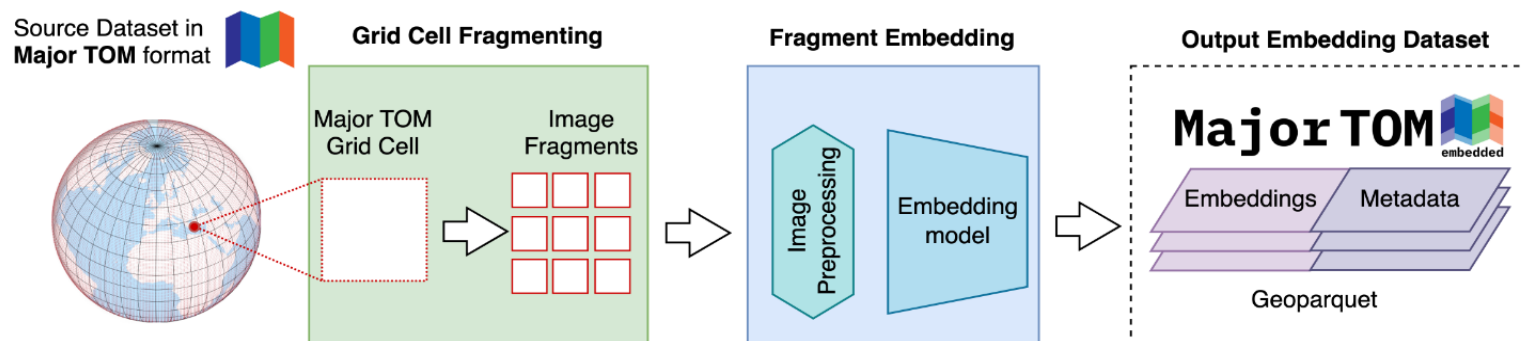
Our upcoming machine learning platform will eliminate the complexity of AI development:

- **Ready-to-use ML environment** — pre-configured Kubeflow with notebooks, pipelines, and model serving
- **Feature store integration** — consistent data handling between training and production
- **No Kubernetes expertise needed** — we handle all infrastructure management
- **Streamlined for Earth Observation** — optimized for satellite data processing workflows

This platform will complete our AI ecosystem, connecting with our GPU infrastructure and GenAI endpoints to provide a comprehensive toolkit from data preparation to model deployment.

# CloudFerro for AI: Global embeddings for MajorTOM

In collaboration with



Model	Dataset, global coverage	Bands	No. of embeddings
SSL4EO-S12	Sentinel-2 L1C	13 bands multispectral	56,147,150
SSL4EO-S1	Sentinel-1 RTC	VV + VH	36,748,875
DeCUR-S1	Sentinel-1 RTC	VV + VH	36,748,875
DeCUR-S2	Sentinel-2 L1C	13 bands multispectral	56,147,150
MMEarth	Sentinel-2 L2A	12 bands multispectral	39,727,477,454
SigLIP	Sentinel-2 L2A	3 bands RGB	20,212,974
DINOv2	Sentinel-2 L2A	3 bands RGB	56,147,150

More information



# CloudFerro for AI: Embeddings available on CREODIAS infrastructure

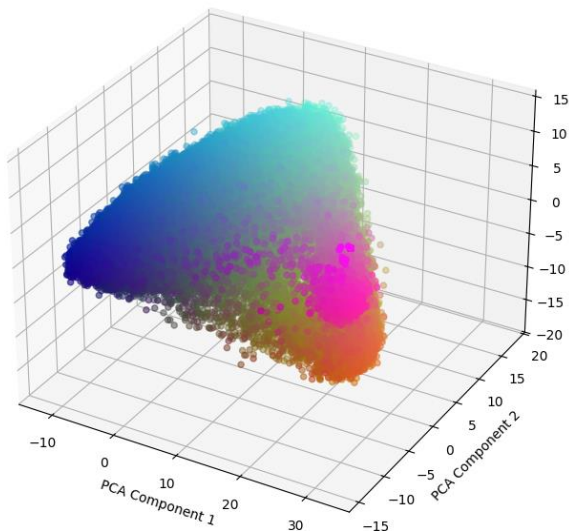
Embeddings available  
from EO DATA storage



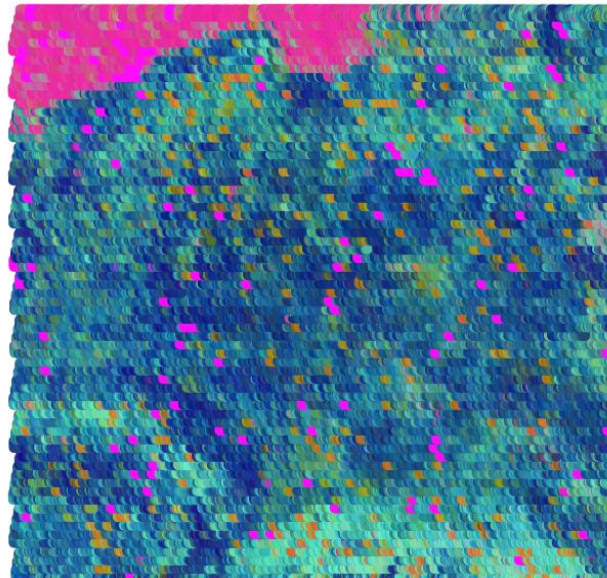
```
import geopandas as gpd
s3_variables = {"endpoint_url": "https://eodata.cloudferro.com",
               "key": "<INSERT PUBLIC KEY HERE>",
               "secret": "<INSERT SECRET KEY HERE>"}

df = gpd.read_parquet("s3://EODATA/auxdata/MajorTOM/embeddings/Core-S2RGB-SigLIP/part_00001-00100.parquet",
                    storage_options=s3_variables)
```

3D PCA RGB Visualization over Poland



Embedding PCA RGB over Poland



CREODIAS

Data Data Explorer Cloud Pricing

CloudFerro Cloud Open Telekom Cloud

Computing:

Computing Services

- Virtual Machines
- Spot Virtual Machines
- Dedicated Servers VM
- GPU Services
- Bare Metals
- Kubernetes

Storage

Additional Services

CloudFerro Services status page

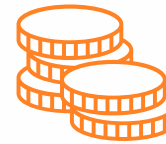
# Company overview

- **CloudFerro** - a European/Polish medium size technological company
- **Cloud computing services, data and platforms** for Space and other advanced markets
- **European sovereignty:** Compliance with EU regulations and standards, fully European company with European competencies, IPRs, resources
- **Proactive R&D and product development**



**EUR 41+mn**

Revenue 2024



**EUR 30mn**

Investments last 2 years



**+40%**

Revenues CAGR 2022 - 2024



**80+ PB**

EO data stored and published



**~250**

employees



**>5 years**

duration of service contracts

## Own tech stack/Open Source



Own IaaS



PaaS built on own and open-source software



Specialized EO tools and apps



# Selected customers and partners

## Key customers



## Agencies & public bodies



## Business



## Science & Education







[www.cloudferro.com](http://www.cloudferro.com)

Thank you!

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