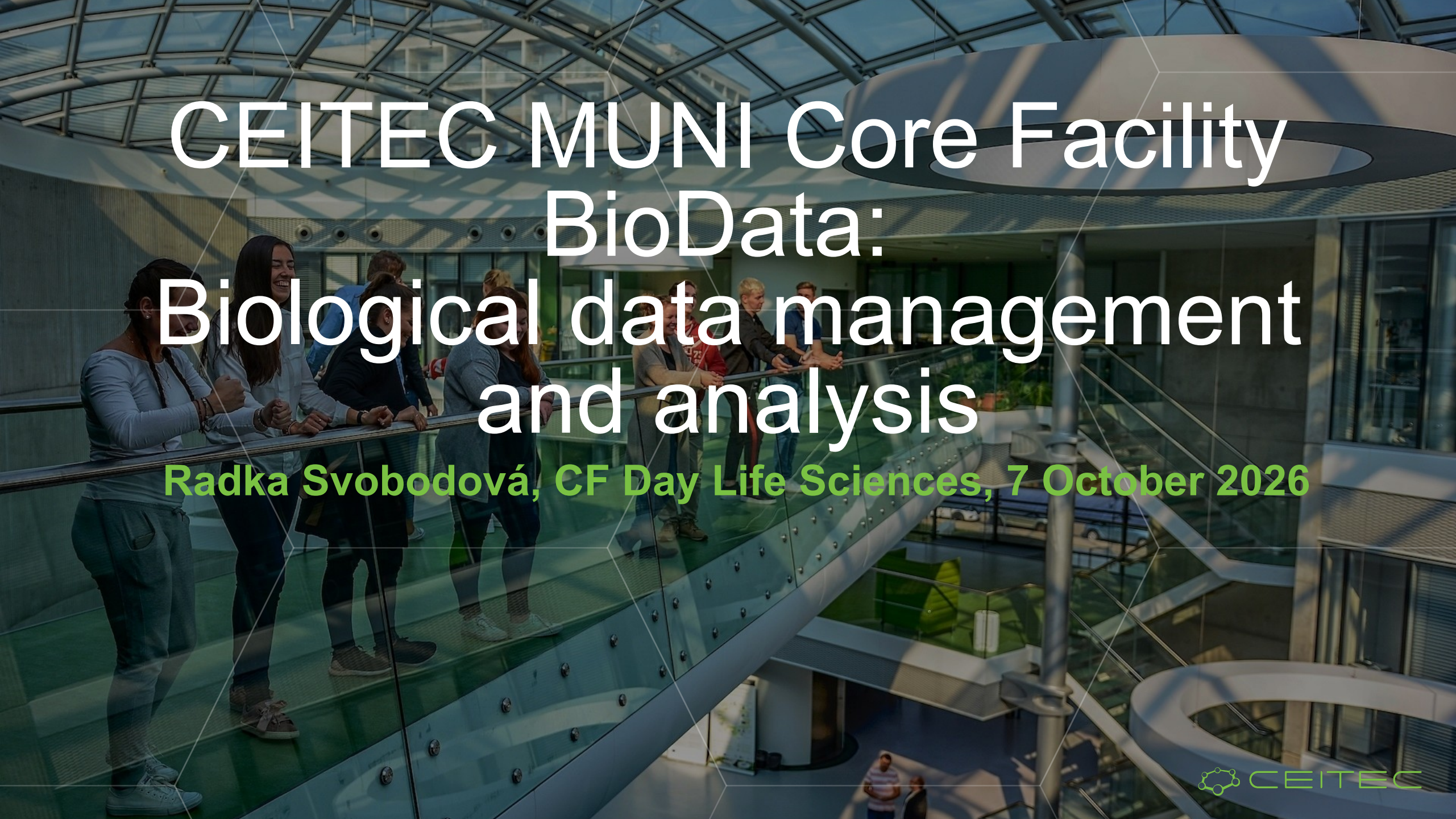




CEITEC MUNI Core Facility BioData: Biological data management and analysis

Radka Svobodová, CF Day Life Sciences, 7 October 2026

How can we support your research?

We can help you with **your data**



We can help you with **structural bioinformatics**

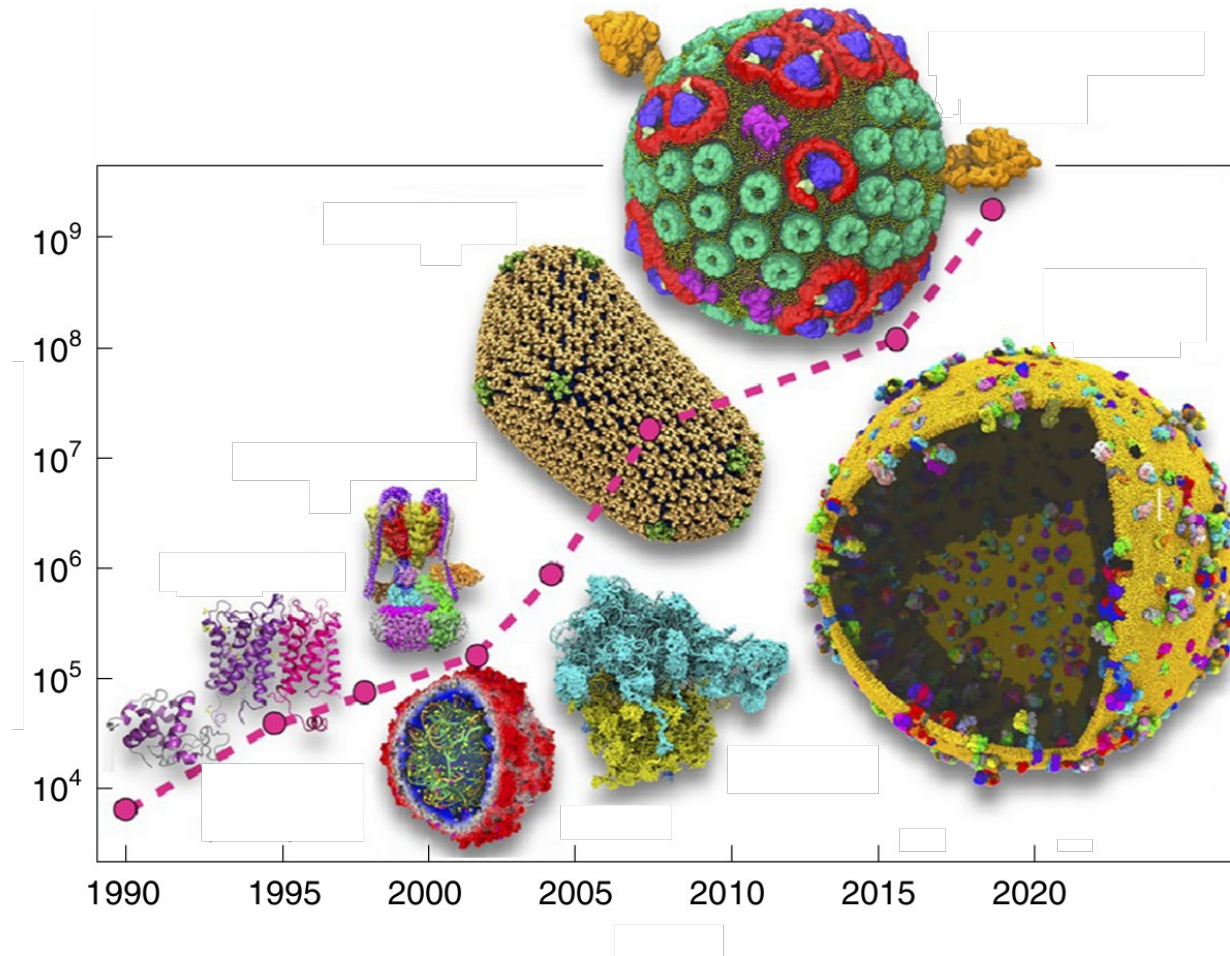


Our expertise:

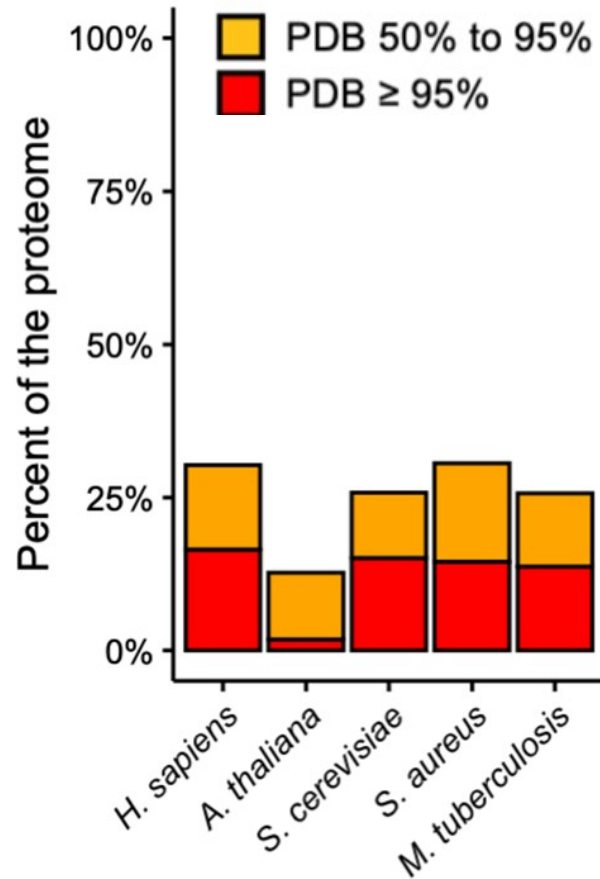
- Computer science
- Data management
- Structural bioinformatics



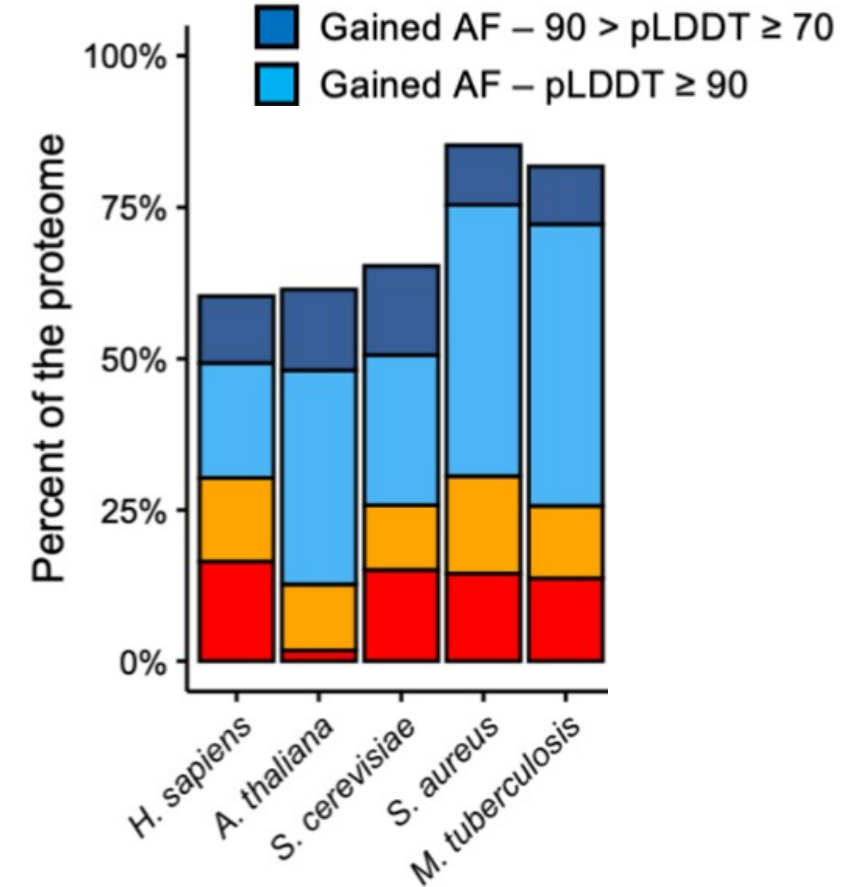
Why data management?



Why data management?

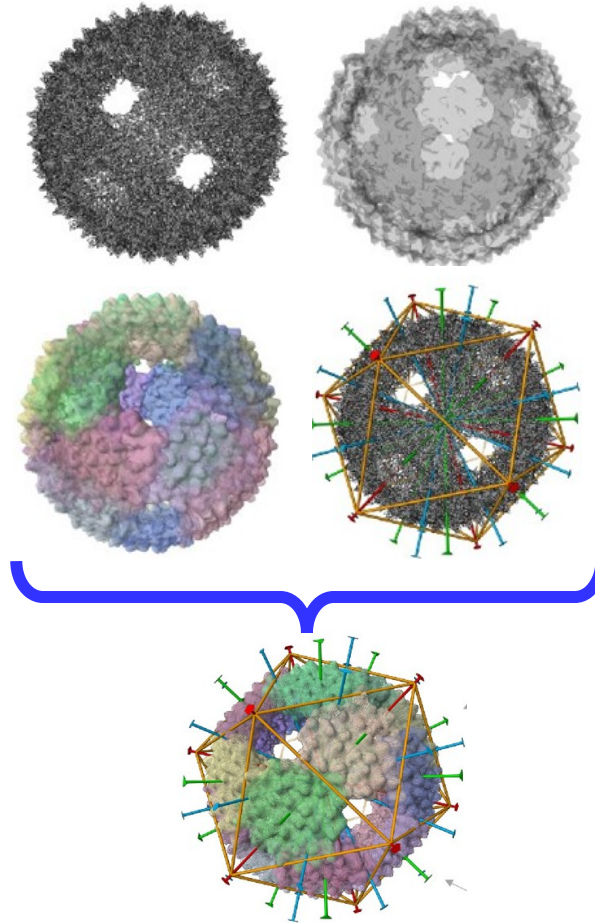


AI
(AlphaFold)



Porta-Pardo E., Ruiz-Serra V., Valentini S., Valencia A. (2022). *The structural coverage of the human proteome before and after AlphaFold*. **PLoS computational biology**, 18(1), e1009818.

Why data management?



Charesheanu A., et al. (2023). *Mol* Volumes and Segmentations: visualization and interpretation of cell imaging data alongside macromolecular structure data and biological annotations*. **Nucleic Acids Research**, 51(W1), W326-W330.  CEITEC

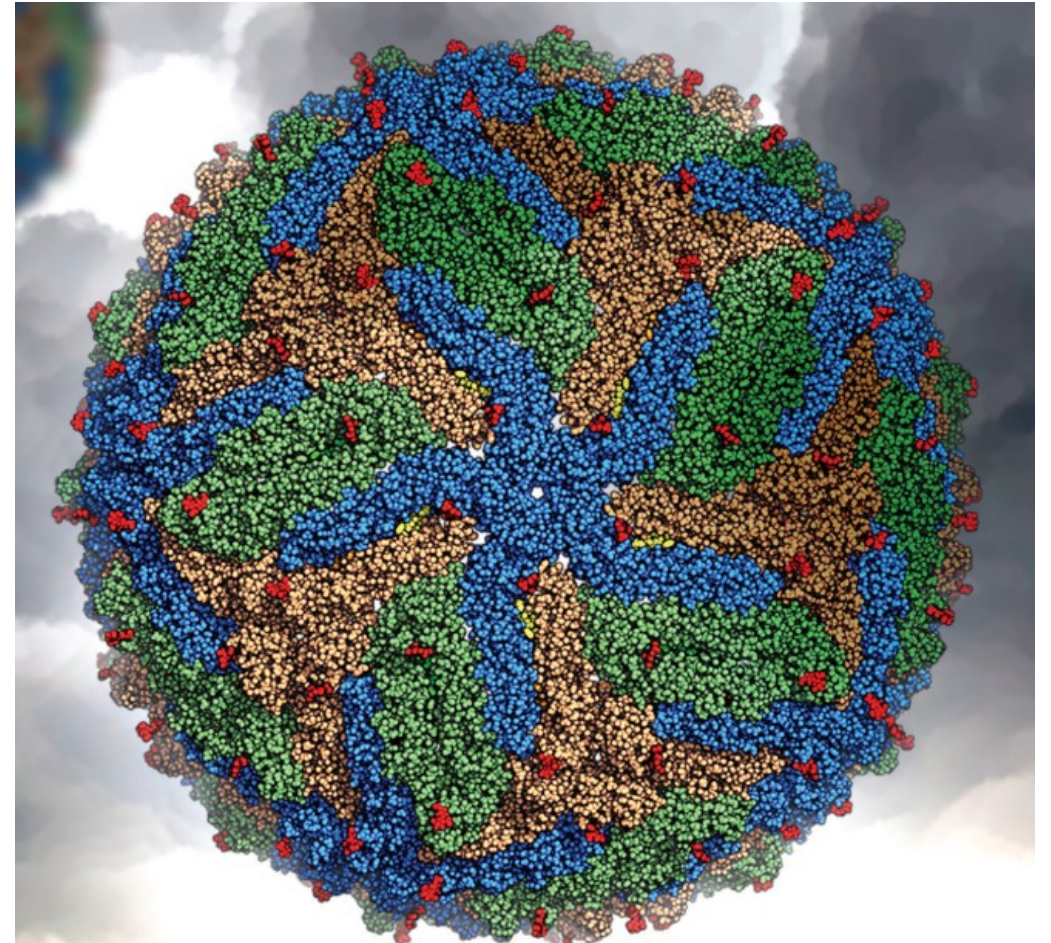
Why data management?

Biological data are:

- Interesting
- Larger + more complex
- Expensive

The data deserve to be:

- Findable
- Accessible
- Interoperable
- Reusable



Services of CF BioData

DATA

Data management and IT support

- Data management solution
 - Collect data
 - Store data
 - Share data
 - ...
- Development/hosting of a website or a web application



BIO

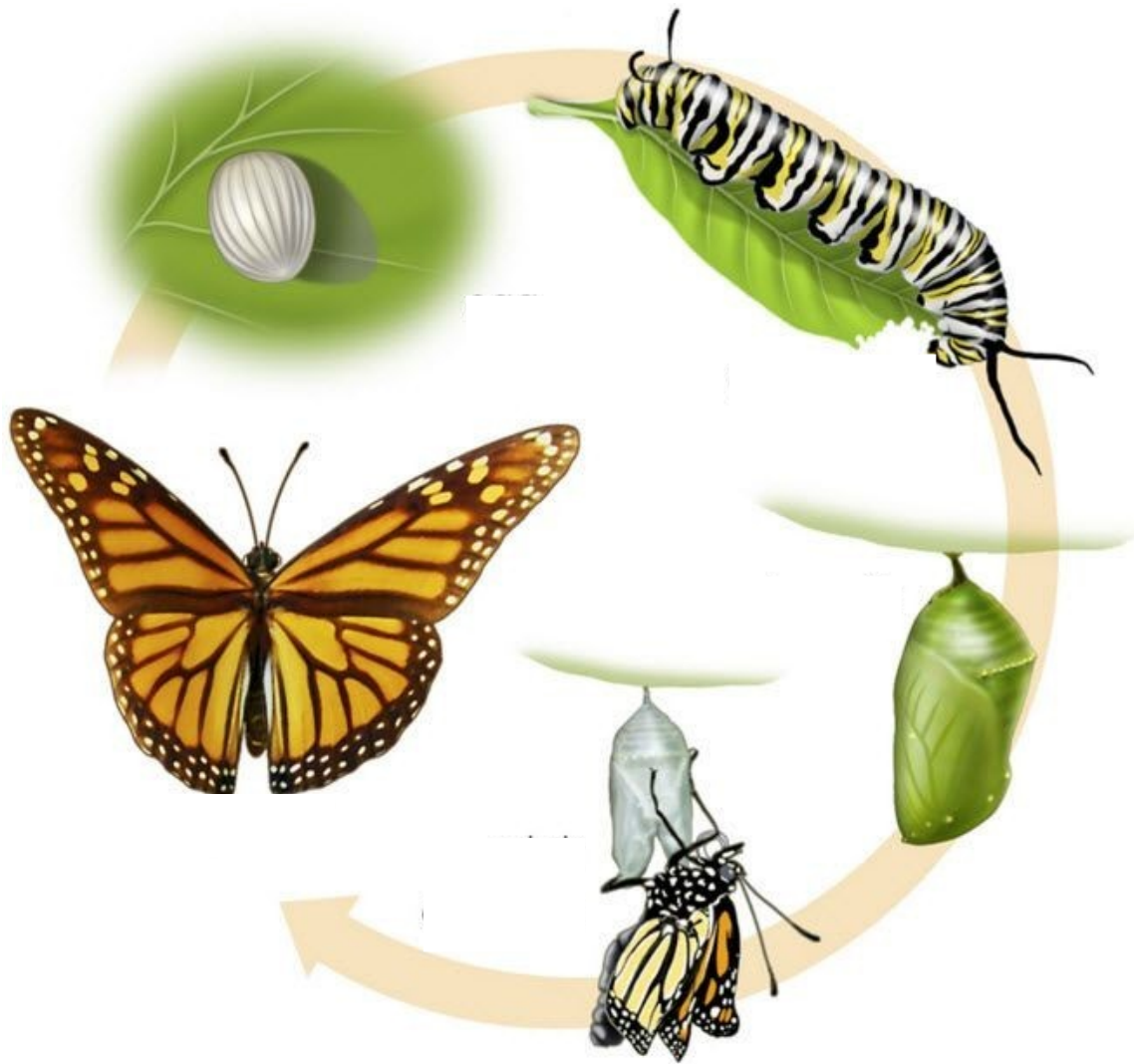
Structural bioinformatics

- Validation and deposition
- Visualization and analyses
- Bioinformatics tools



Our Data services + examples

Data life cycle



Data management solutions

- **Collect:**

- Obtain data from measuring devices
- Get data from ELN (Electronic Lab Notebook)

- **Process & Analyse:**

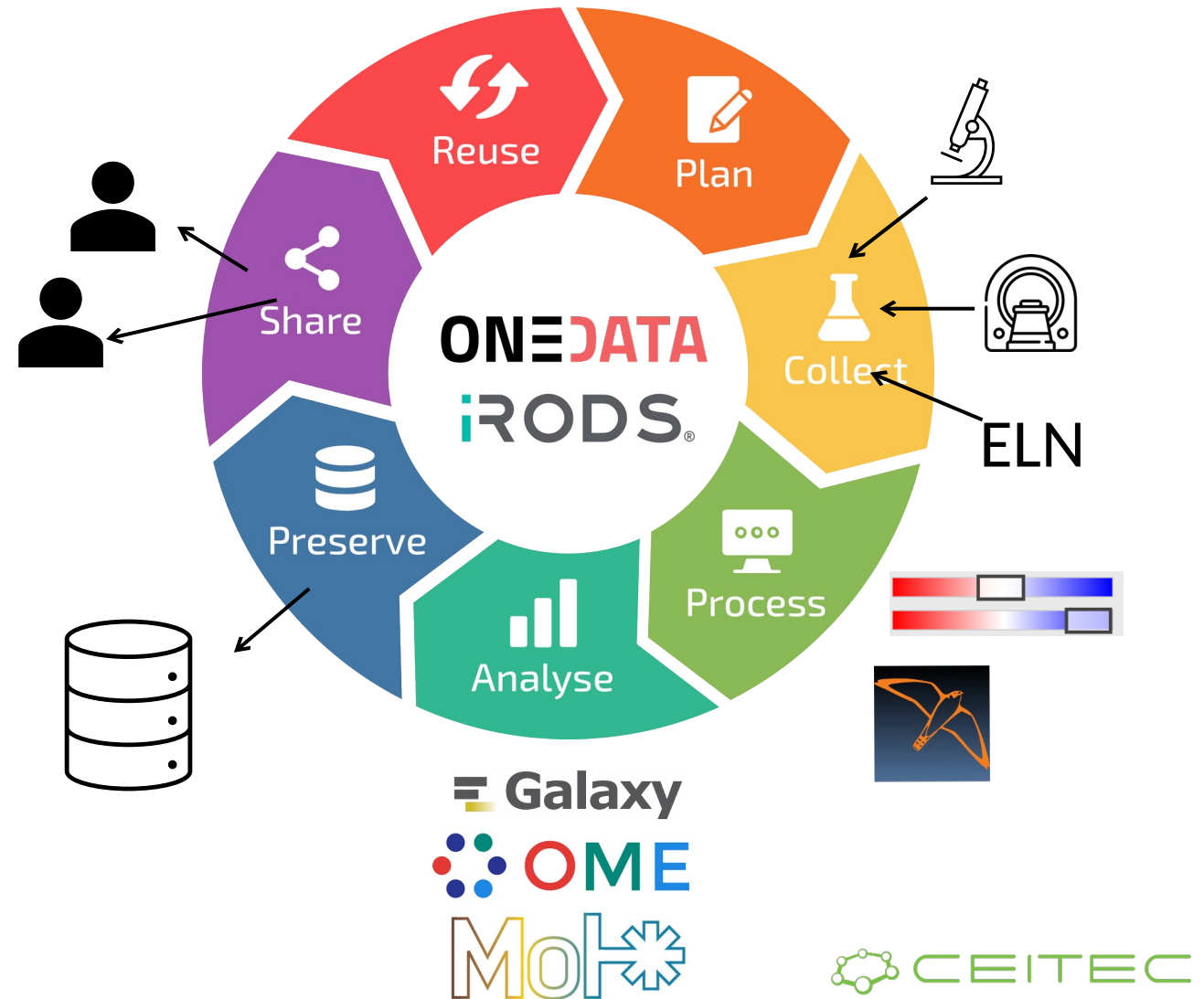
- Execute software on data

- **Perserve:**

- Store data to repositories

- **Share:**

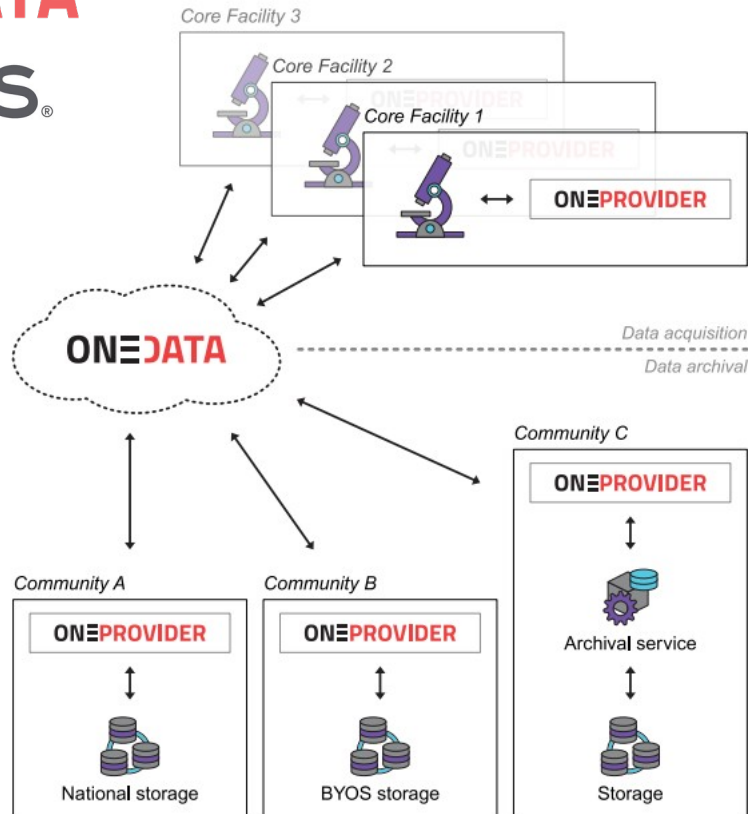
- Make data accessible to selected users
- Publish datasets
- Handle sensitive data



Our tools

Supported tools

- **ONE[≡]DATA**
- **iRODS®**

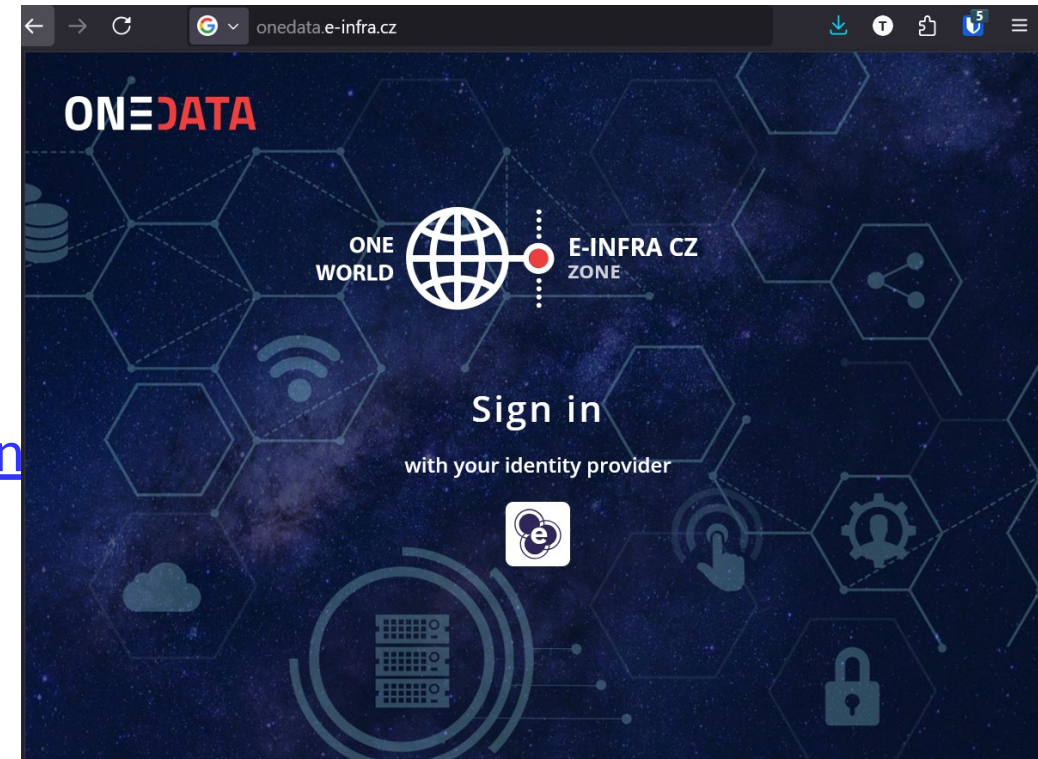


Developed tools

- Onedata extensions:
 - Onedata Drive
 - Metadata Reader
 - Onedata2Invenio
- **DAREG (DATaset REGistry)**
- **DAREG Lab Client**
- **GROMACS MetaDump**

Success story: ONEDATA became an e-infra service

- From 06/2026
- Infrastructure service:
onedata.e-infra.cz
 - Integration with AAI (Perun e-INFRA CZ)
 - Monitoring
 - Documentation and user support docs.onedata.e-infra.cz
- Demo available
- Currently available to all e-INFRA CZ users



Success story: Our first published data management tool

GROMACS MetaDump (<https://gmd.ceitec.cz>)

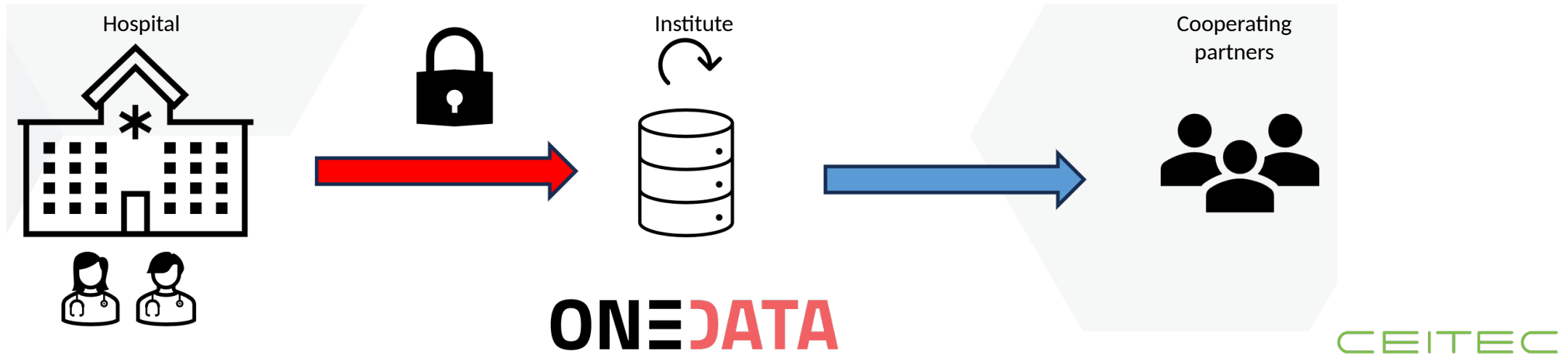
- Reads GROMACS MD files (.tpr, .top, .gro)
- Detects and extracts metadata
- Stores them in MD metadata schema:

System	Simulation	Administrative
Water Model	Force Field	Title
Box Size	Temperature	Creator
Box Shape	Pressure	Creation Year
	Simulation Length	Publishing Institution
Simulated Object	Time Step	Software
Protein	Interactions	Version
Ligand	QM Options	
Solvent	...	

Rošinec, A., Slanínáková, T., ... Svobodová, R. (2025). Gromacs MetaDump: a tool for extracting GROMACS simulation metadata. *Journal of Cheminformatics*, 17(1), 160.

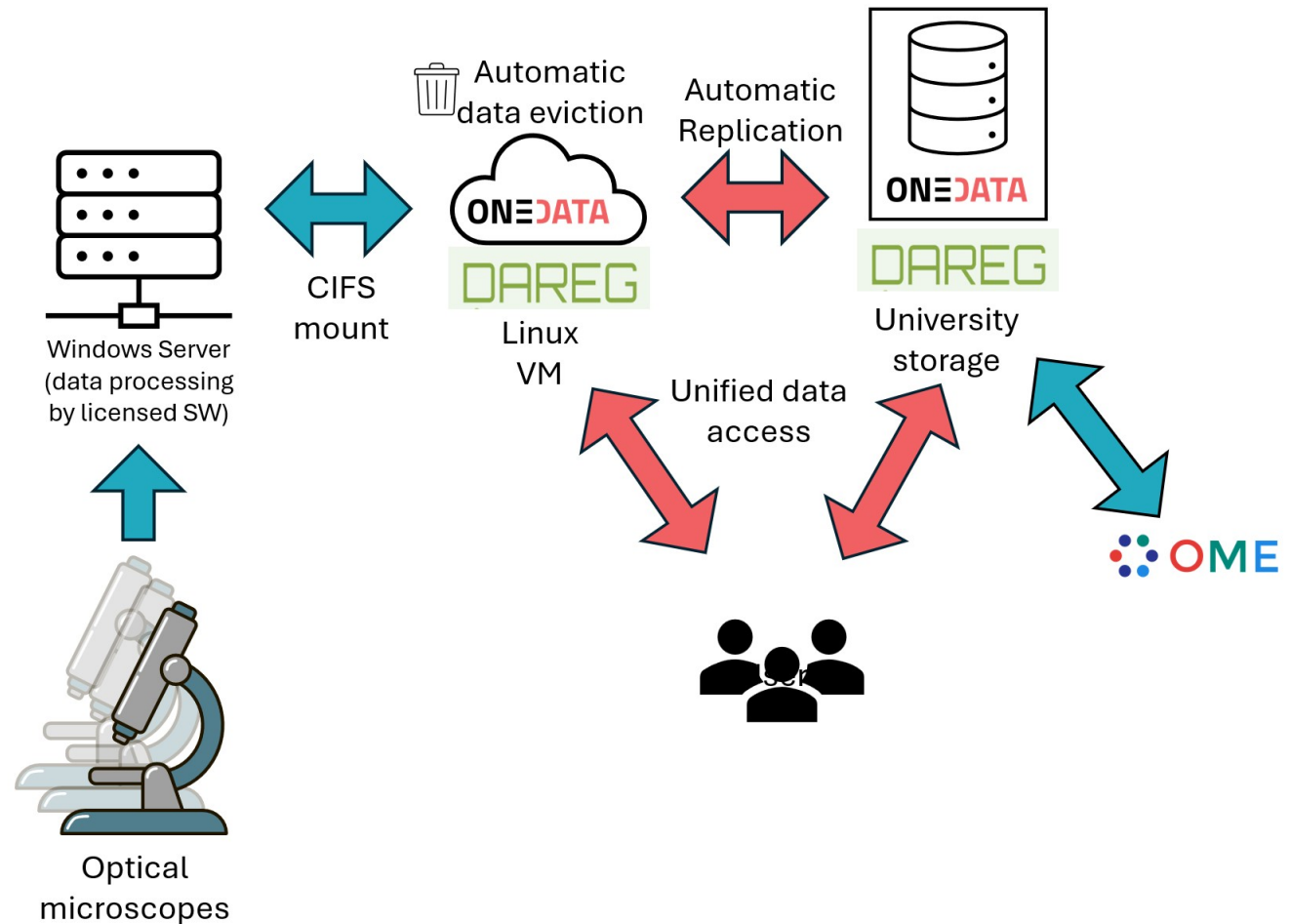
Use case: Data management solution for FN Olomouc

- Secure transfer of measured data from hospital
- Storage and processing (anonymization)
- Data handover to project partners

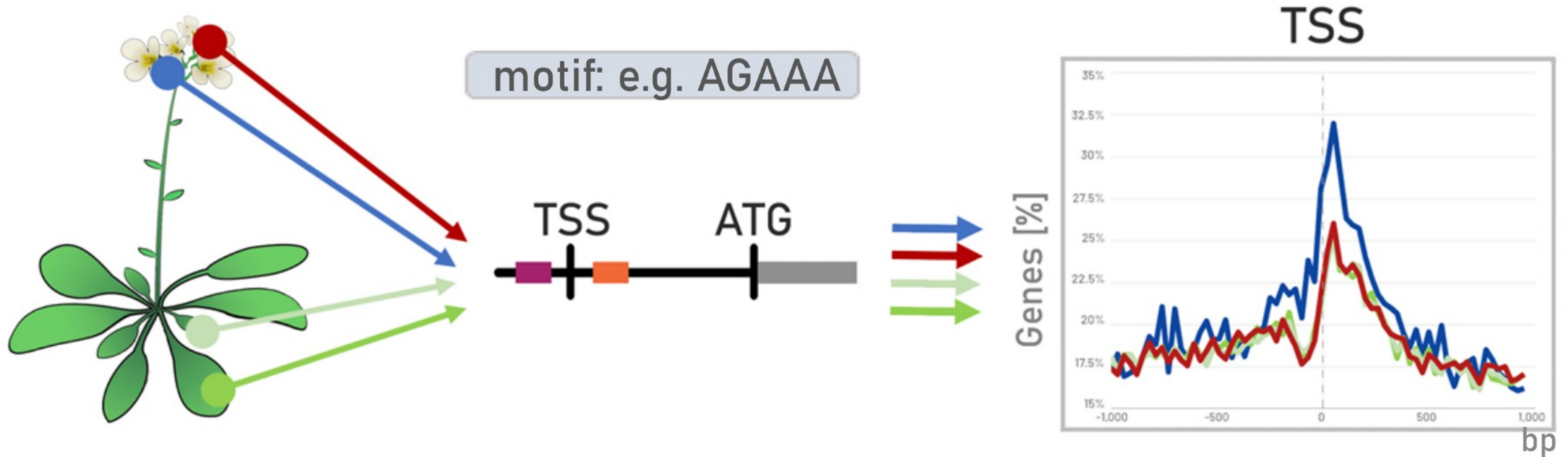


Use case: Data management solution for CF CELLIM

- Several microscopes
- Processing via proprietary SW
- DAREG & Onedata
 - Datasets evidence
 - Data sharing
 - Transfer to OMERO



Use case: Web application GOLEM

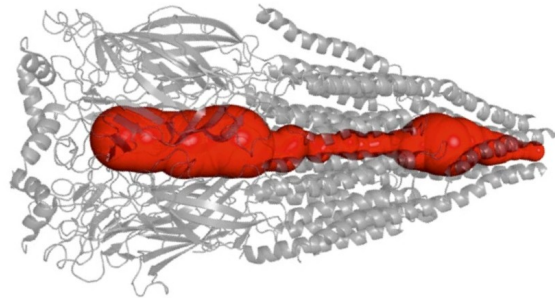
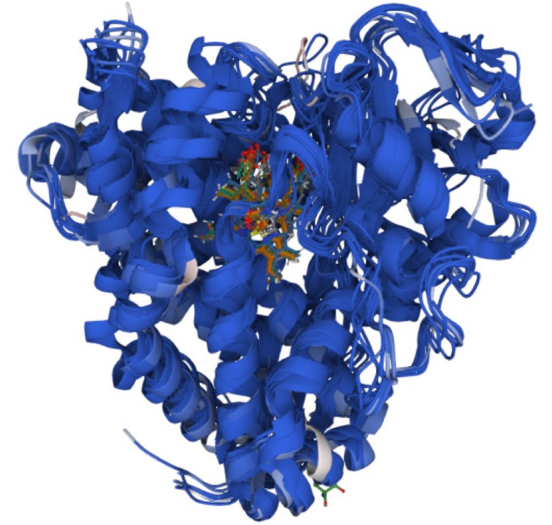


Nevosád, L., Klodová, B., Rudolf, J., Raček, T., Přerovská, T., Kusová, A., Svobodová, R.... Procházková Schrumpfová, P. (2025). GOLEM: A tool for visualizing the distribution of Gene regulatOry eLEMents within the plant promoters with a focus on male gametophyte. *The Plant Journal*, 121(5), e70037.

Our Bio services + examples

Structural bioinformatics support

- Validation and deposition of experimental data
- Analyses of protein structures
 - Experimental
 - Predicted
- Providing and development of bioinformatics tools



Structural bioinformatics tools – new

PDBCharges (<https://pdbcharges.biodata.ceitec.cz>):

Calculation of partial atomic charges on experimental protein structures from PDB

ACC (<https://acc.biodata.ceitec.cz>)

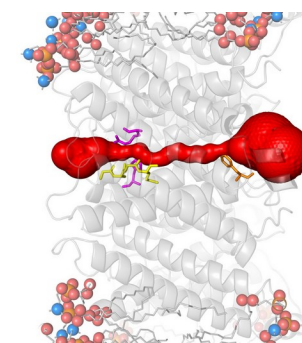
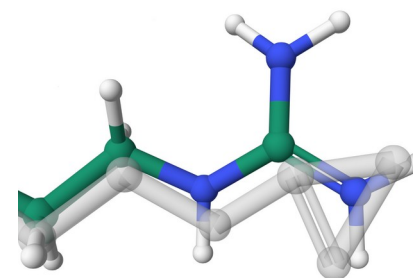
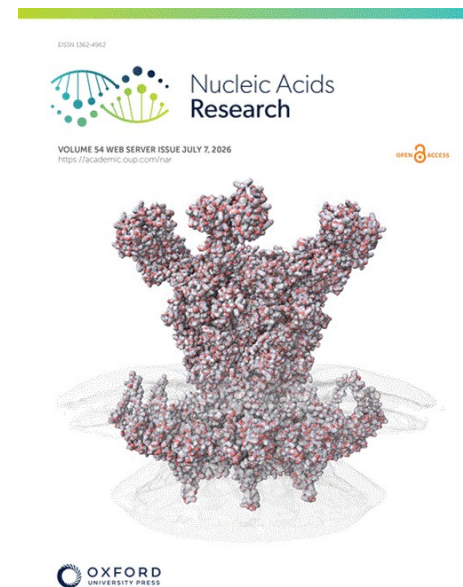
Calculation of partial atomic charges on organic molecules

MOLEonline (<https://moleonline.cz>)

Detection of channels and pores in proteins

PROPTIMUS LIVE (<https://proptimus.ceitec.cz/live>)

Fast optimization of protein structures



Published in **Nucleic Acids Research** and **Bioinformatics** 2025-2026

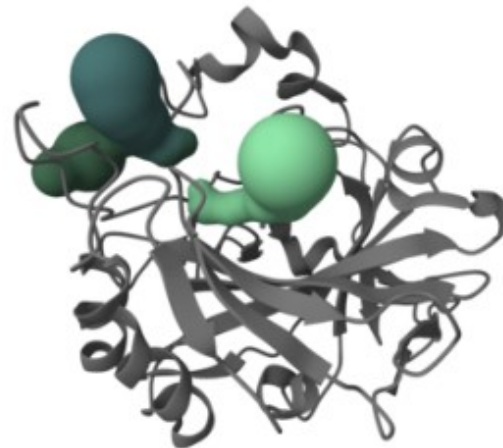
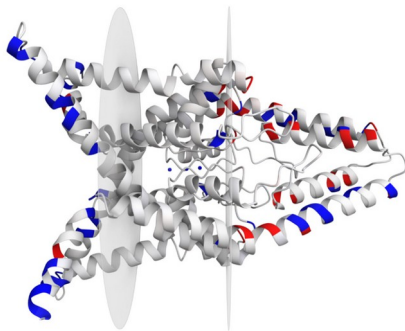
Structural bioinformatics training

Software tools for structural bioinformatics

3-day workshop

Next date: 8. 2. – 10. 2. 2027

available both to researchers and students (as a subject [C2145](#))



Other information

Cooperation & Funding

- **ELIXIR & ELIXIR CZ**
 - Node at Masaryk University
 - funding from 2021
- **EOSC**
 - National repository platform
 - BioSimCZ - repository of molecular simulation data
 - Bio/Health/Food cluster
 - funding from 2024
- **EMBL-EBI**
 - Cooperation with Protein Data Bank, CATH, etc.

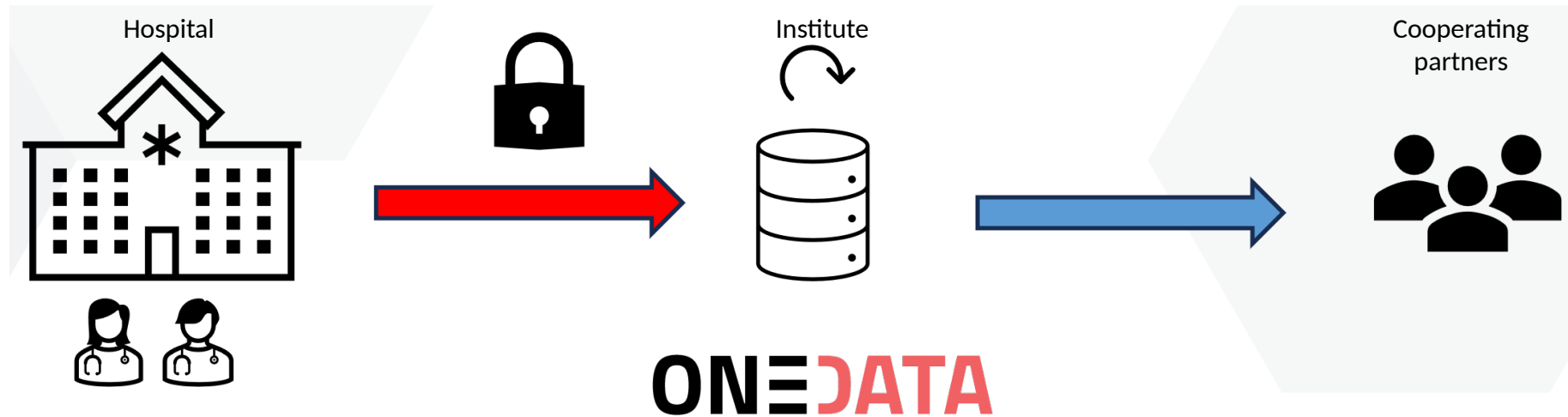


Acknowledgement text

- *„Biological Data Management and Analysis Core Facility of CEITEC Masaryk University, funded by ELIXIR CZ research infrastructure (MEYS Grant No: LM2023055), is gratefully acknowledged for supporting the research presented in this paper.“*

Summary

- For researchers: We can help you with **data management**



- For students: Join us and **do research / build infrastructure** with us





ceitec_brno



CEITEC_Brno



CEITEC



CEITEC -
Central European
Institute of Technology

Thank you for your attention! Questions?

Radka Svobodová
radka.svobodova@ceitec.muni.cz
<https://biodata.ceitec.cz>



CEITEC

SensitiveCloud

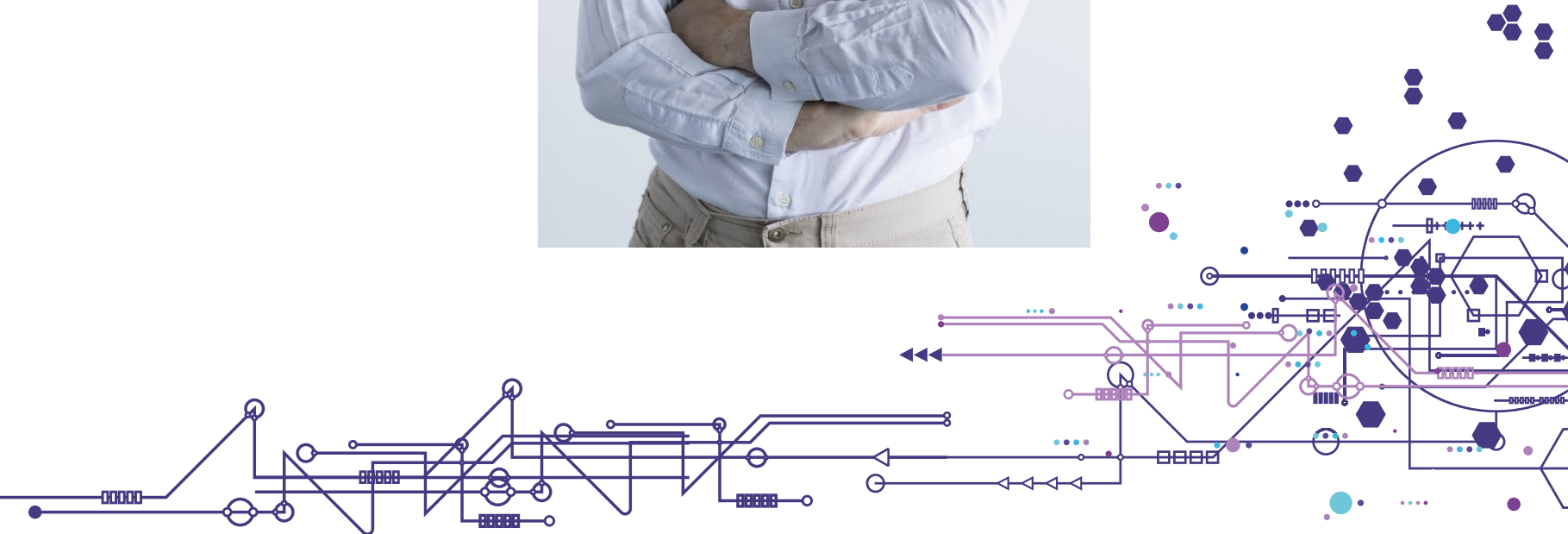
Core Facility Day Life Sciences 2026

Michal Růžička <ruzicka@ics.muni.cz> et al.

Michal Růžička



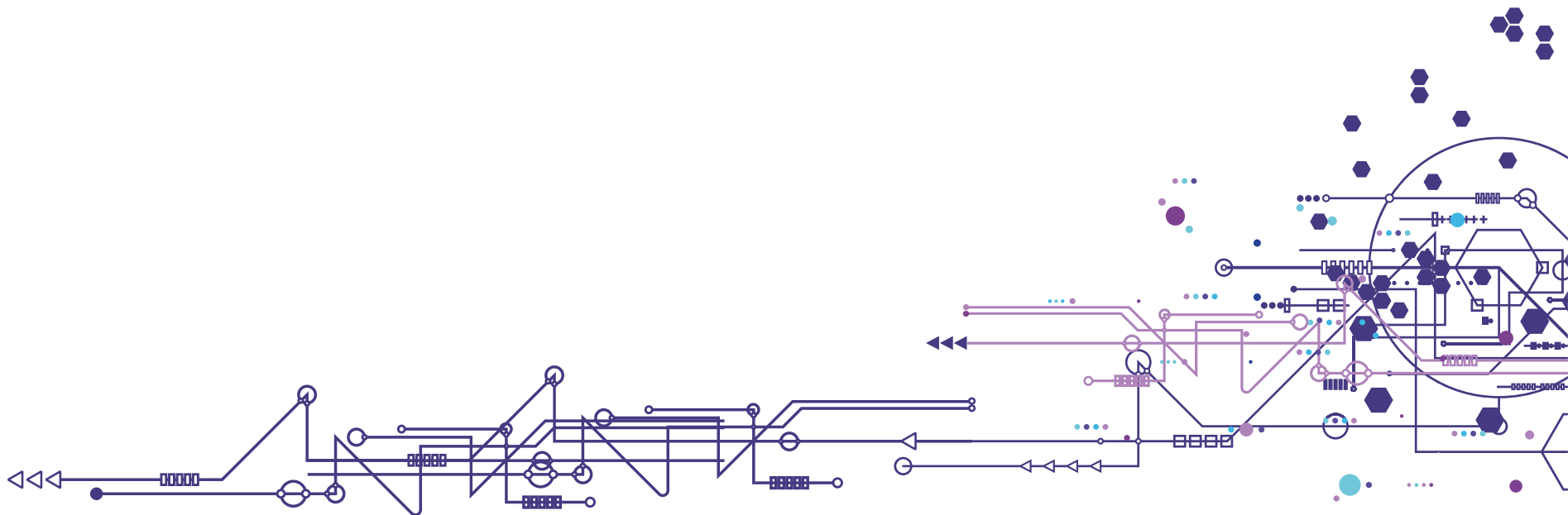
- ICS MU, **Advanced Data Management**, department head
- FAIR data, Open Science, sensitive data, data security, digital libraries
- ORCID  <https://orcid.org/0000-0001-5547-8720>
- ruzicka@ics.muni.cz





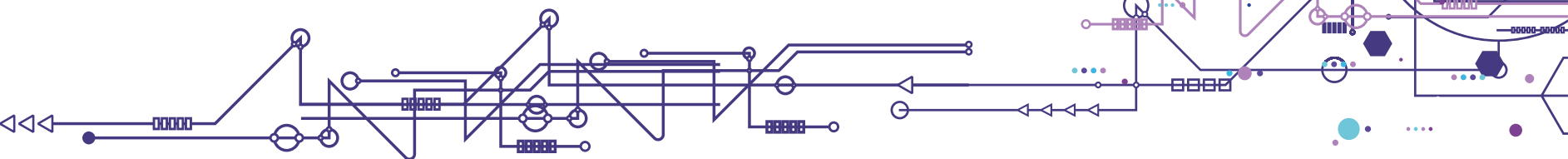
Why?

Use Cases for Sensitive Data Processing Infrastructures



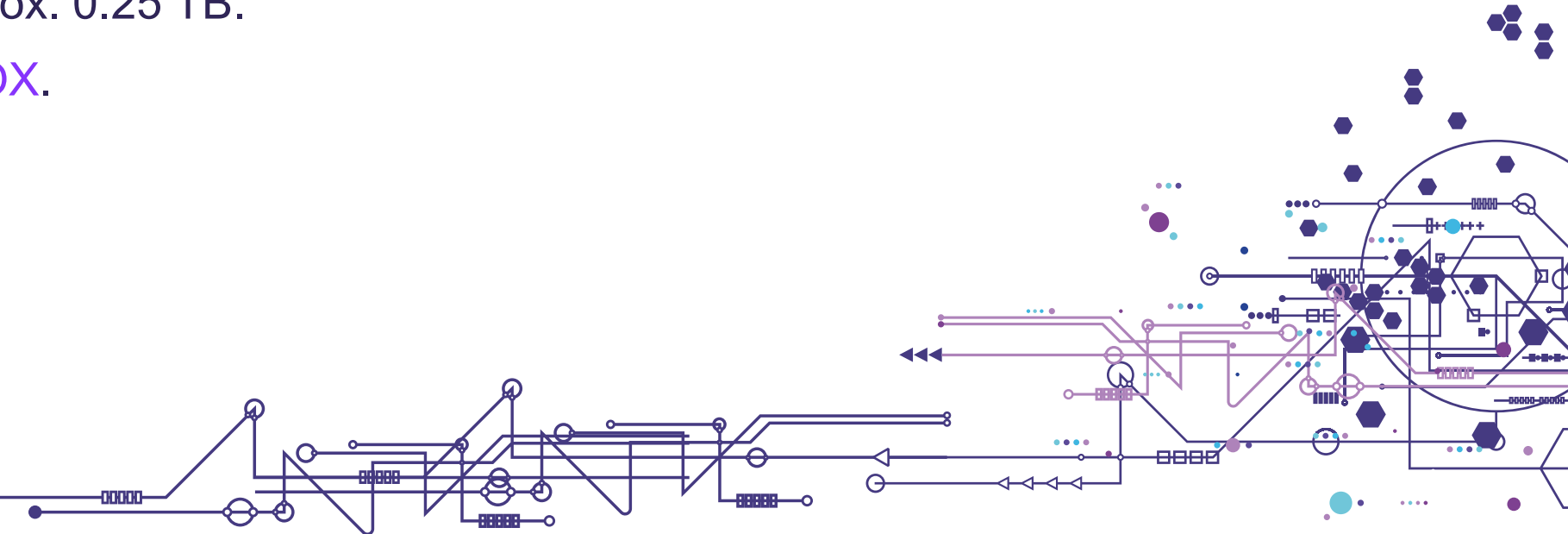
Why We Need Sensitive Data Processing Infrastructures?

- We are doing **research on sensitive data**.
 - Genomics, bio-imaging methods...
 - Sociology, psychology, ...
 - ...sensitive **personal data**.
 - Pharmacy, chemistry, ...
 - ...(potentially) highly **valuable trade secrets** (possible patent, ...).
- We need secure environment for our work.
 - **Not only data storage but also data processing**.
 - Preferably on-premise, under Czech Republic / EU law, ...
- **SensitiveCloud** can be used.
 - <https://www.cerit-sc.cz/infrastructure-services/sensitivecloud>



SensitiveCloud Usage Examples at MU

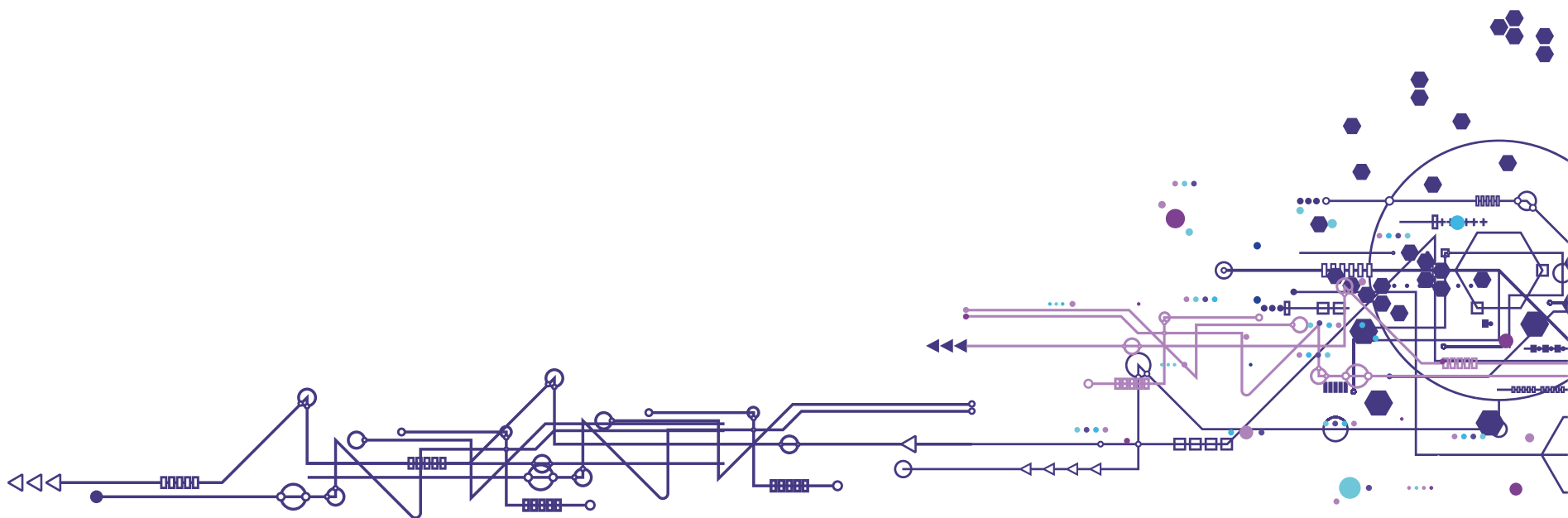
- RationAI (FI MU)
 - Explainable AI methods in digital pathology.
- CEITEC MU, approx. 1.4 PB.
 - The groups of prof. Pospíšilová and dr. Bystrý.
- MOU.
 - Image data, approx. 0.25 TB.
- Others, e.g. RECETOX.





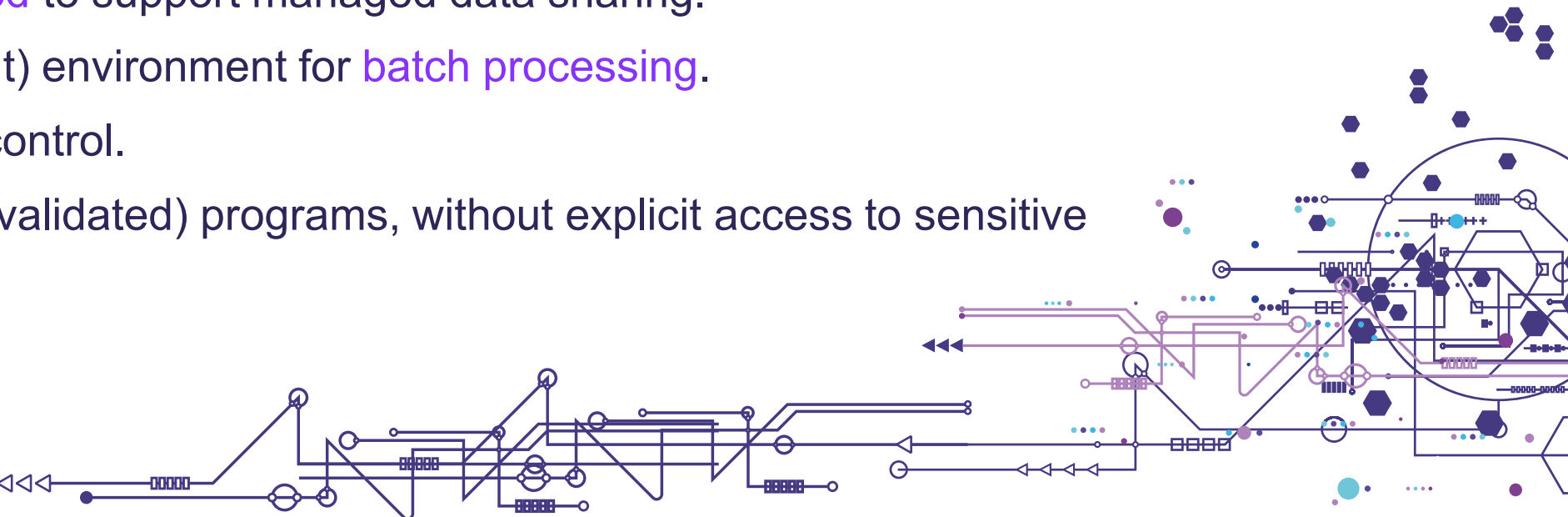
SensitiveCloud

Infrastructure for Sensitive Data Processing



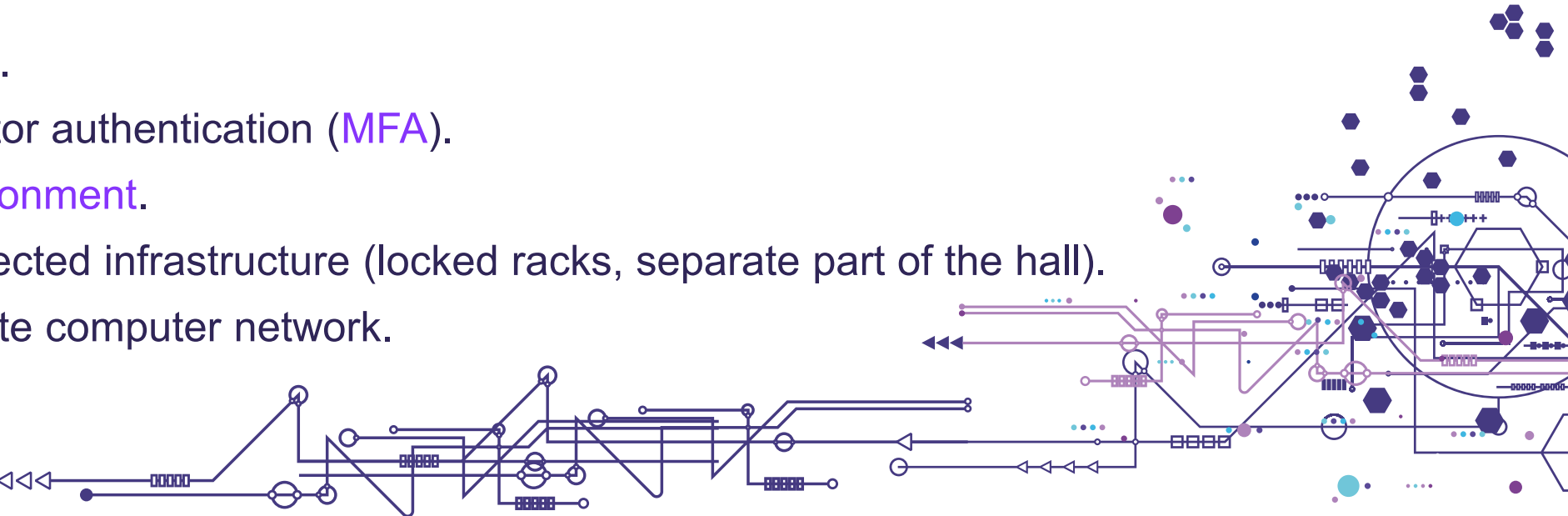
SensitiveCloud in a Nutshell

- Secure environment for storing, sharing and processing data.
- Primarily designed to work with your own sensitive data.
 - The data owner/administrator has full access and control over who can access the data.
 - Possibility of interactive work, mounting your project data storage.
- Gradually expanded to support managed data sharing.
 - Closed (airtight) environment for batch processing.
 - Finer access control.
 - Only running (validated) programs, without explicit access to sensitive data.



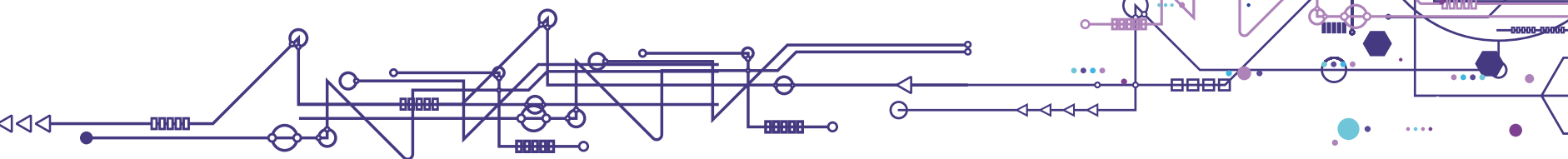
SensitiveCloud in a Nutshell (2)

- The whole environment, including access control, is **certified** according to **ISO 27001**, **ISO 27017**, and **ISO 27018**.
- **Secure** also means **more complicated access** to the SensitiveCloud environment itself.
- **Process approach** to users.
 - Onboarding.
 - Training.
 - Documentation.
- **Mandatory** multifactor authentication (**MFA**).
- **Protecting the environment**.
 - Physically protected infrastructure (locked racks, separate part of the hall).
 - Internal separate computer network.



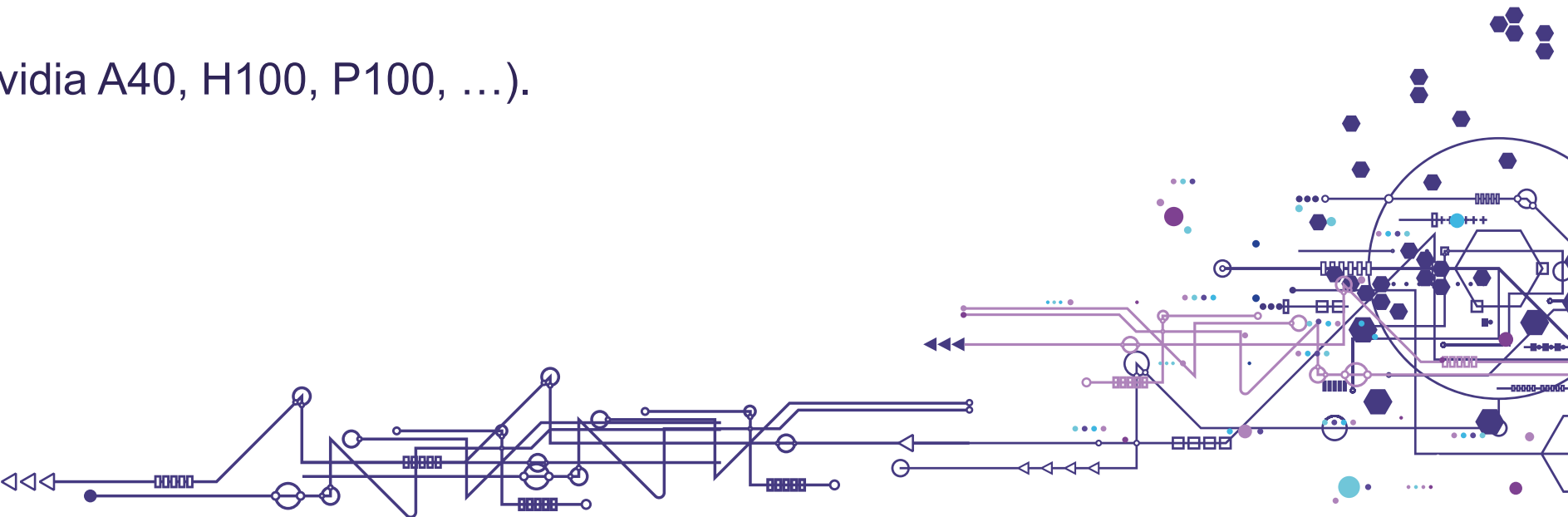
SensitiveCloud Technically

- Storage
 - Historically, it was possible to mount the storage on your own computer as a network drive.
 - Now, greater emphasis on data processing only in the SensitiveCloud.
 - Is your own notebook/desktop secure enough to store sensitive data?
 - Preferred S3 object storage access interface.
- Computations
 - Kubernetes (K8s) cluster.
 - With Rancher web interface.
 - Ready-made applications.
 - JupyterHub, RStudio, ...
 - Recently added OpenStack full virtual machines.
- Authentication and Authorization Infrastructure (AAI).
 - Not only authentication but also authorization.



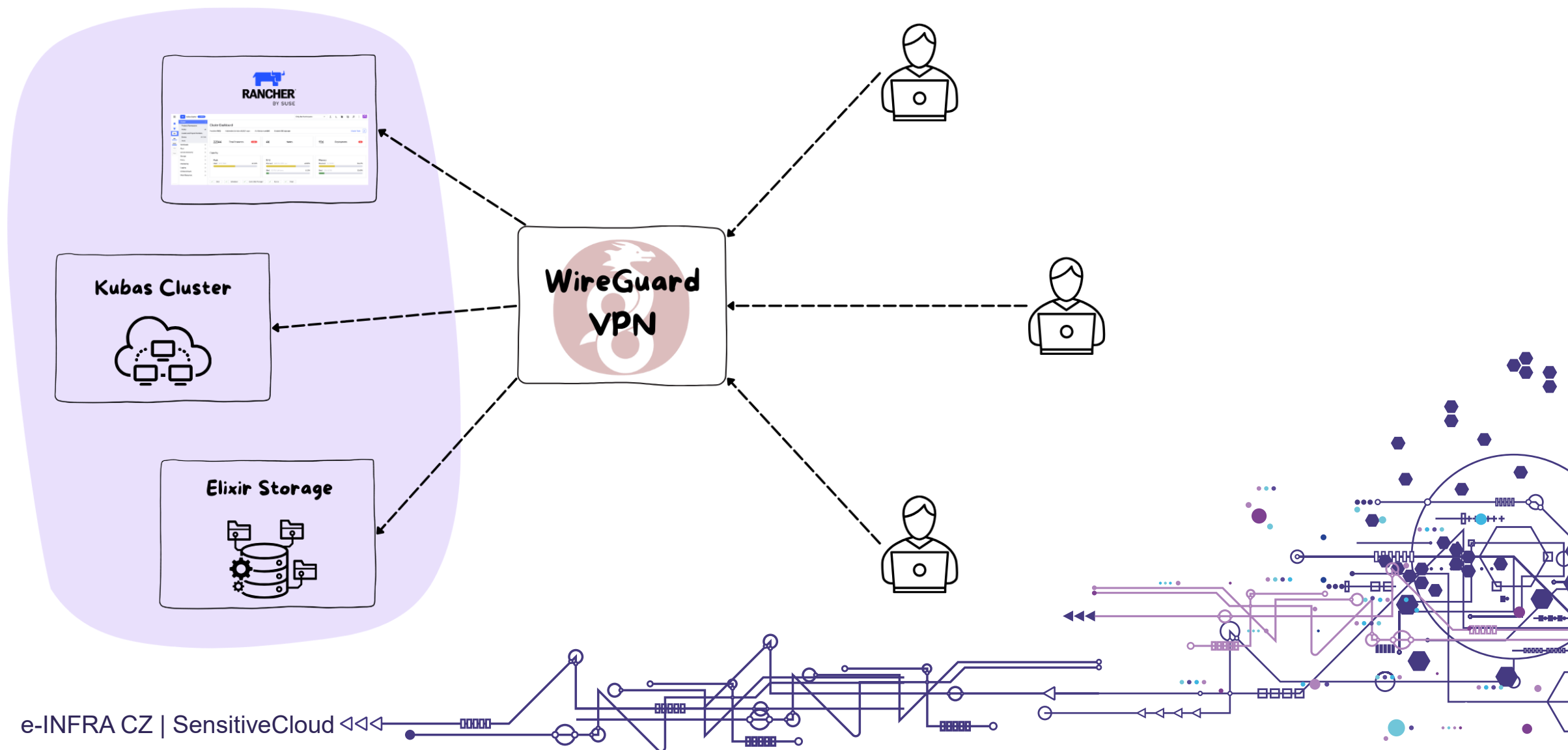
SensitiveCloud Hardware

- Storage
 - On request, the ability to encrypt stored data.
 - Capacity 3.8 PB, of which 1.7 PB occupied.
 - Capacity increased recently.
- Computations
 - ~ 1k CPU
 - GPU cards (Nvidia A40, H100, P100, ...).
 - Nvidia DGX.



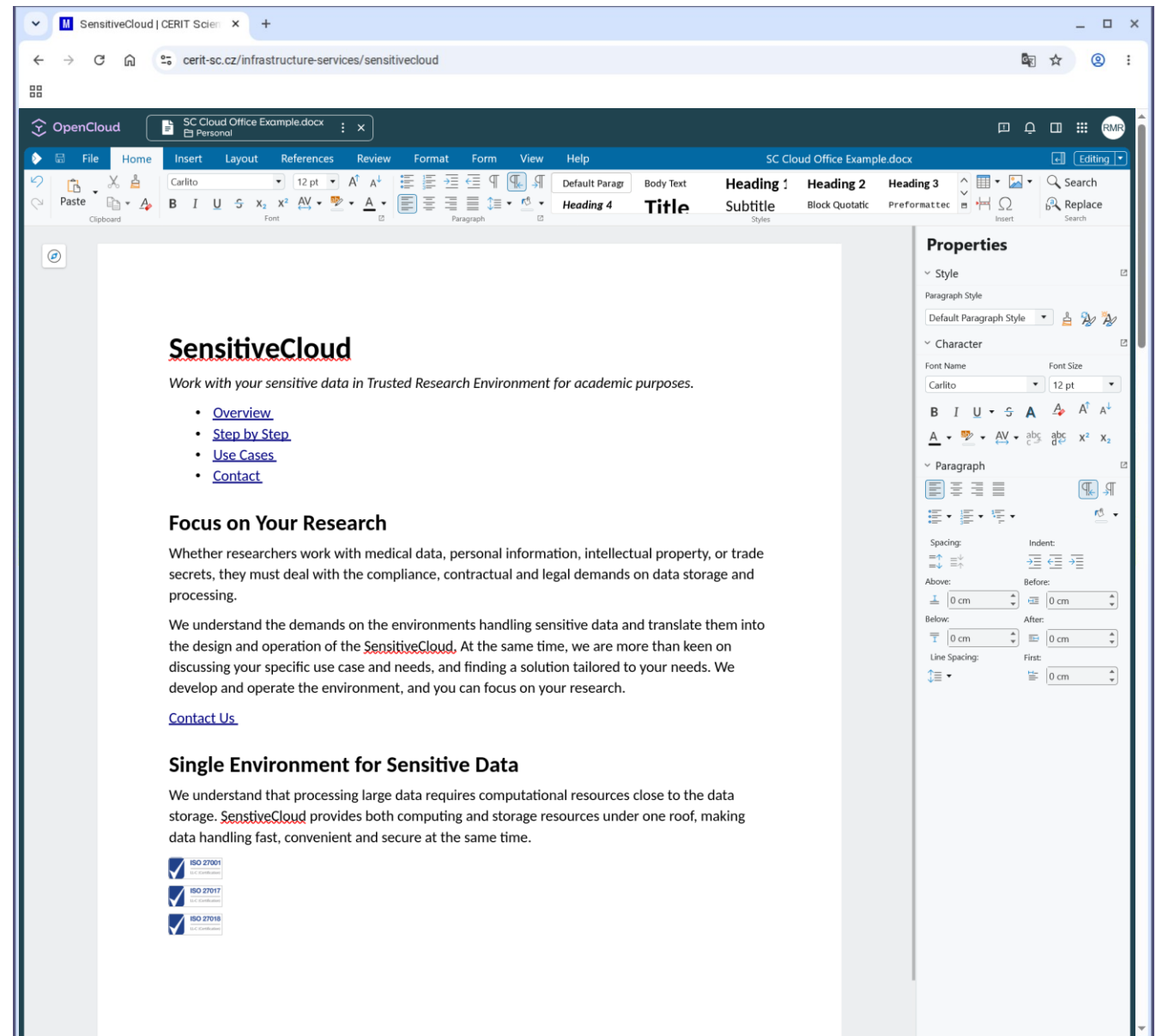
SensitiveCloud Connection

Sensitive Cloud



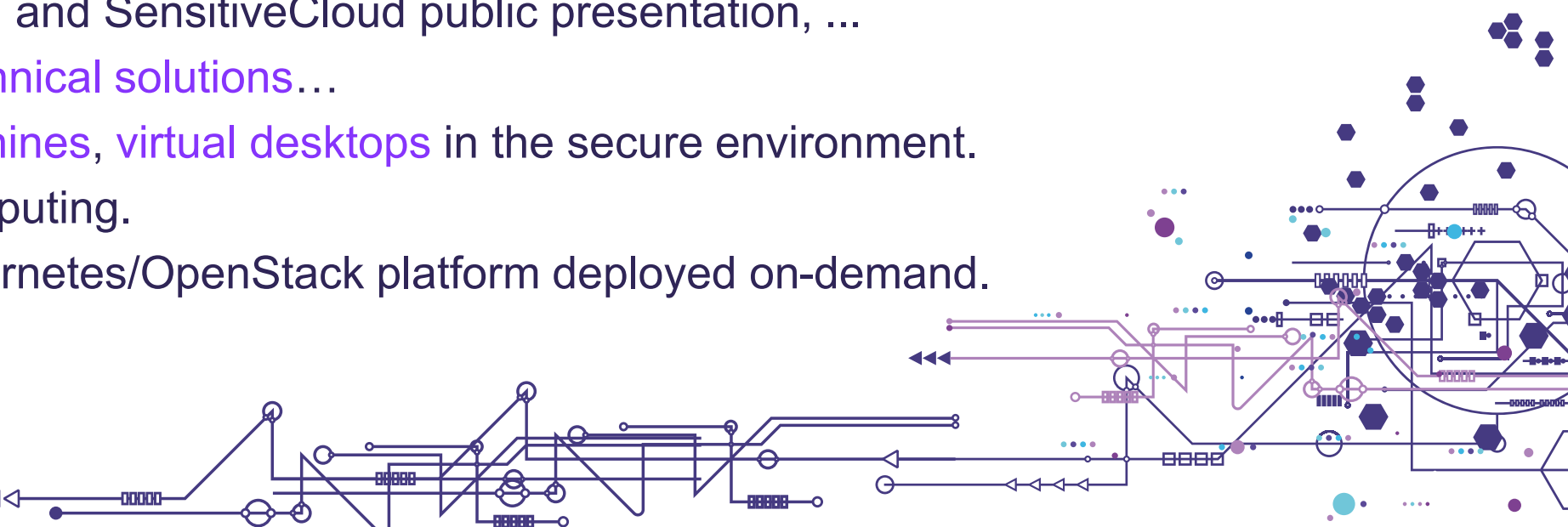
SensitiveCloud Usage Examples

- Web applications
 - Jupyter Notebook
 - RStudio
- Database support (PostgreSQL)
- AI Large language models are available in the SensitiveCloud.
- Cloud office document editing and management will be ready soon.



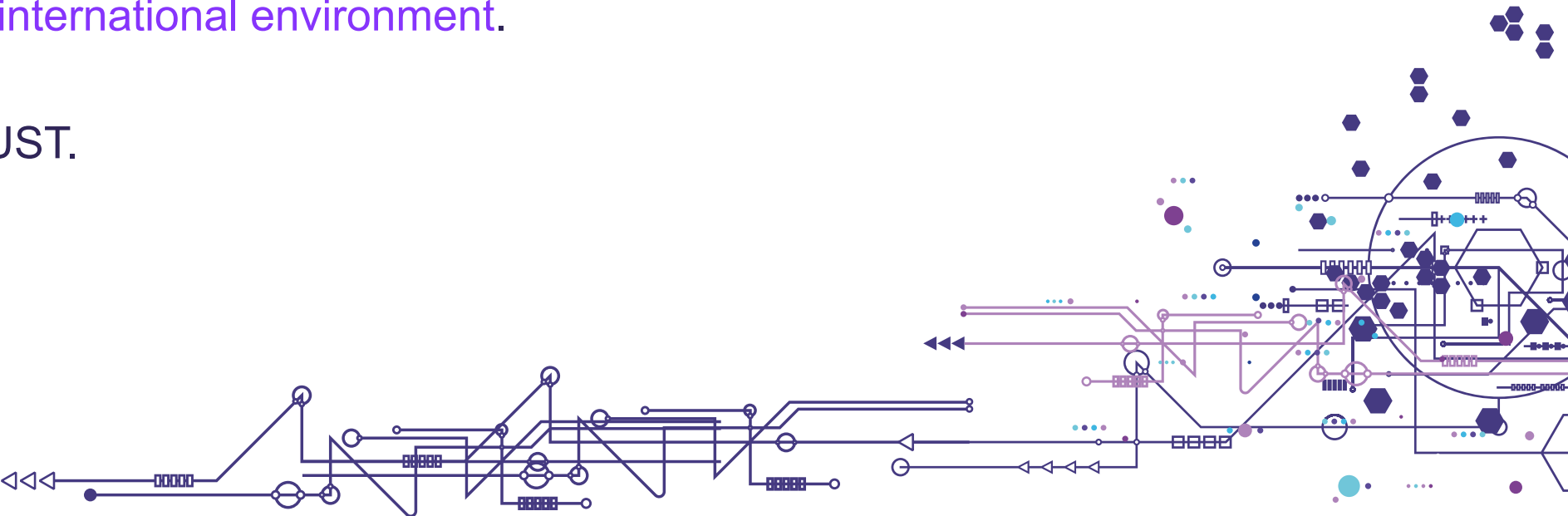
Continuous Process

- ISO 27k is about **continuous** planning, monitoring and **improvements**.
- In the **process** of applying for projects planning to use SensitiveCloud.
 - Possible extension of hardware resources.
 - Possible new integrations with infrastructures.
 - Possible new use-cases.
- Continuous improvements of processes, technical security measures, onboarding process, and SensitiveCloud public presentation, ...
- **Thinking of new technical solutions...**
 - Full **virtual machines**, **virtual desktops** in the secure environment.
 - Zero-Trust Computing.
 - Dedicated Kubernetes/OpenStack platform deployed on-demand.



Part of the Wider Ecosystem

- Key environment for working with sensitive data at the national level.
 - ELIXIR/FEGA.
 - NRP.
 - Protected data storage in the implementation of NRP.
 - Retains for unstructured (non-repository) data.
 - Further development of the environment will also be supported in OS II.
- Connection to the international environment.
 - GDI.
 - EOSC-ENTRUST.



SensitiveCloud Infrastructure

- SensitiveCloud **up and running**.
 - ISO 27k certified.
 - Onboarding process, processes, technical measures, service agreement template, ...
- Continuous **process of improvements**.
 - Projects in progress, FEGA.
 - Thinking of SensitiveCloud 2.0, 3.0, ...



1.

We find out whether SensitiveCloud fulfils your requirements.



2.

We explore all the specifics of your use case and, if necessary, make appropriate changes.



3.

We sign an agreement confirming our duties and expectations.



4.

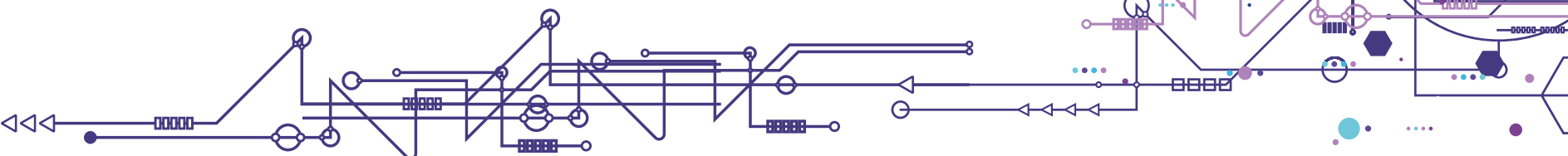
We train you to harness the most of the environment.



5.

You work on your research, and we continuously monitor your needs and satisfaction.

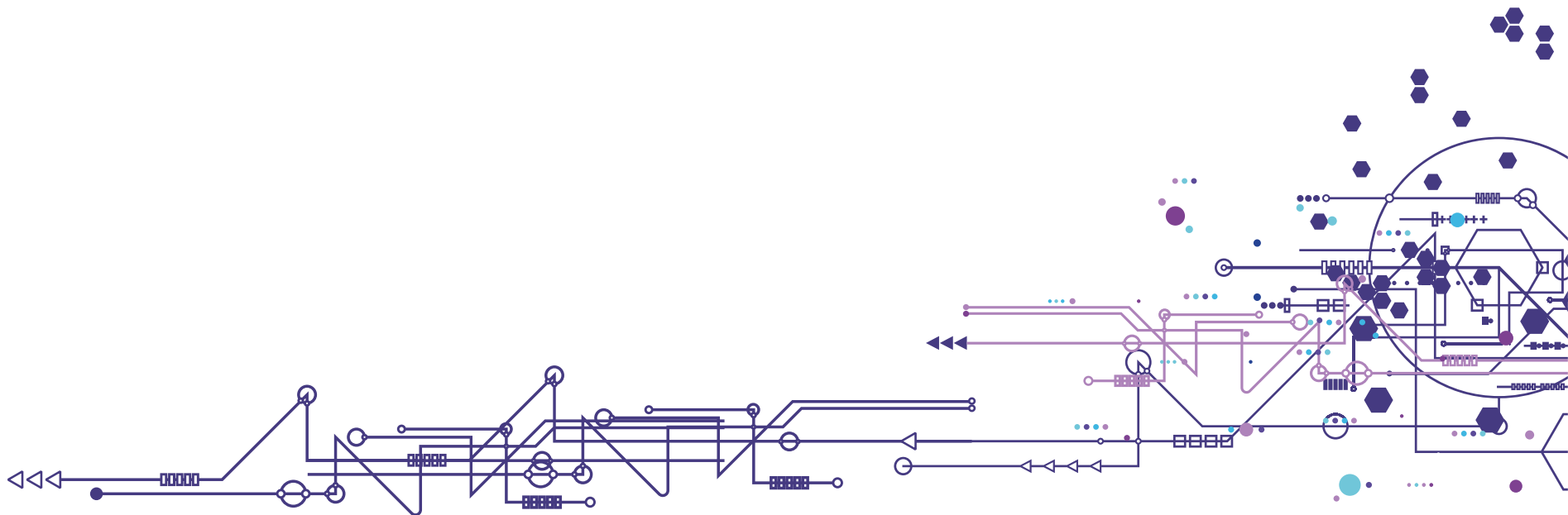
<https://www.cerit-sc.cz/infrastructure-services/sensitivecloud>

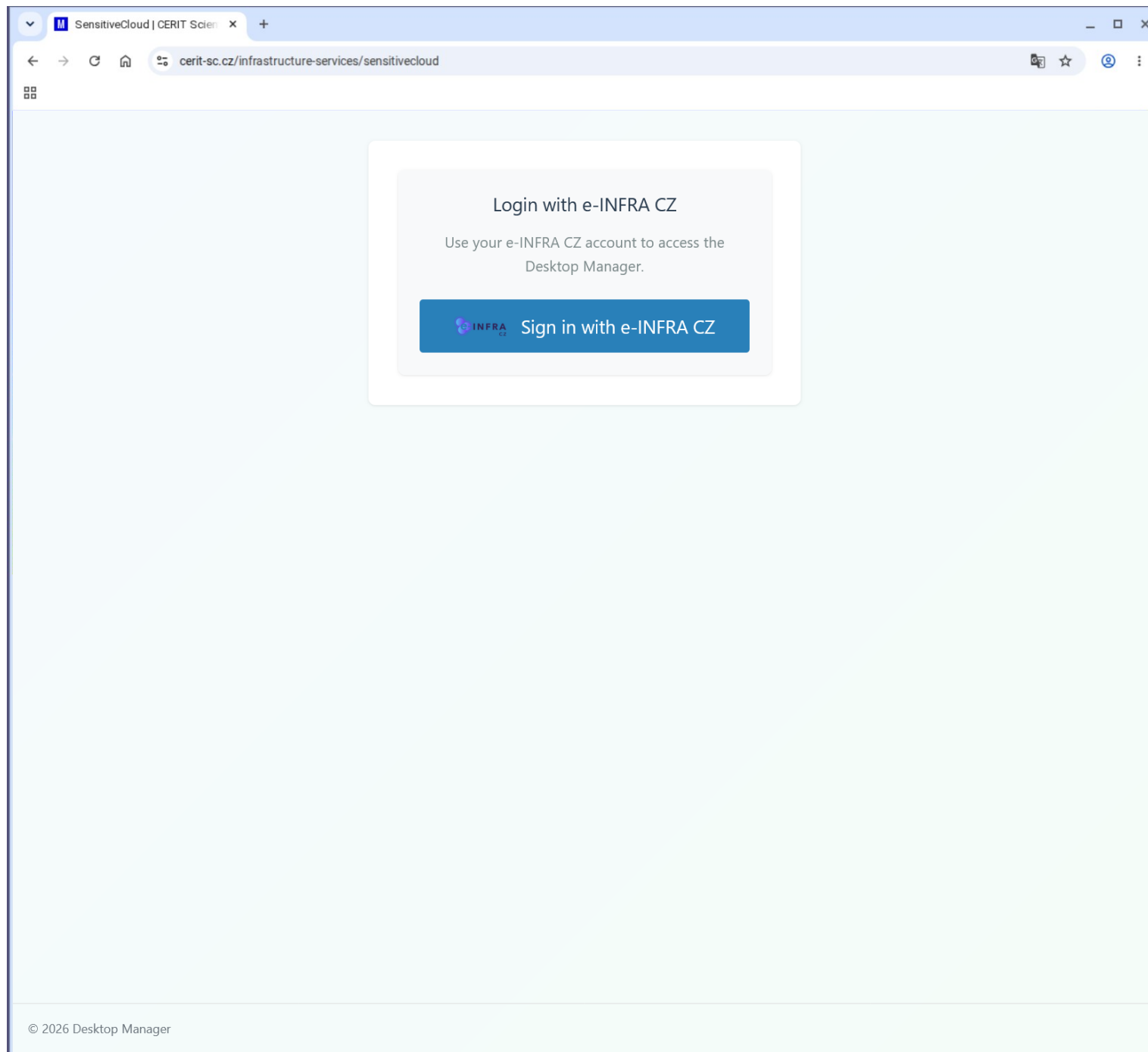




Secure Desktops

SensitiveCloud Solution for Highly-Interactive Data Processing





SensitiveCloud | CERIT Scienc

cerit-sc.cz/infrastructure-services/sensitivecloud

Dashboard

Desktops

Users

API Tokens

Configurations

Storage

Logout

My Desktops

Connect to your virtual desktops



No desktops available

You don't have any desktops yet. Create your first desktop to get started.

Create Desktop

Quick Links

Manage your resources

Desktops

Manage your desktops

View Desktops

Storage

Manage your persistent storage volumes

View Storage

Desktop Configurations

Manage desktop configurations

View Configurations

Users

Manage system users

View Users

API Keys

Manage API keys

View API Keys

API Documentation

Explore the API with Swagger UI

View API Docs

Successfully logged in



SensitiveCloud | CERIT Scienc... x

cerit-sc.cz/infrastructure-services/sensitivecloud

DashboardDesktopsUsersAPI TokensConfigurationsStorageLogout

Users

Manage user accounts

Add User

Username	Full Name	Email	Actions
admin-1633180b	RNDr. Michal Růžicka Ph.D.	ruzicka@ics.muni.cz	View DetailsDelete

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Dashboard Desktops **Users** API Tokens Configurations Storage Logout

Users

Manage user accounts

Add User

Username	Full Name	Email	Actions
admin-1633180b	RNDr. Michal Růžicka Ph.D.		View Details Delete

Add New User

Requirements:

- Username must be at least 3 characters long
- OIDC Subject Identifier (sub) is required
- Other user information will be filled from OIDC during first login

Username: *

OIDC Subject Identifier (sub): *

This is the unique identifier from the OIDC provider.

☐ **Admin User**

Administrators can manage users and desktop configurations.

[Add User](#) [Cancel](#)

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cerit-sc.cz/infrastructure-services/sensitivecloud

Dashboard

Desktops

Users

API Tokens

Configurations

Storage

Logout

API Tokens

Manage API access tokens

Create New Token

API tokens allow you to interact with the Desktop Manager API from external applications or command-line tools. Tokens have the same permissions as your user account and can be revoked at any time.

Note: When you create a new token, you'll only see the token value once. Make sure to copy it immediately. All API requests using these tokens should use the Authorization header: Authorization: Bearer <token>

Your API Tokens

You haven't created any API tokens yet.

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The logo for eINFRA CZ, featuring a stylized 'e' inside a circle, followed by the text 'INFRA' in a large, bold, sans-serif font, and 'CZ' in a smaller font below it.

21

SensitiveCloud | CERIT Scienc... x

cerit-sc.cz/infrastructure-services/sensitivecloud

Dashboard

Desktops

Users

API Tokens

Configurations

Storage

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API Tokens

Manage API access tokens

Create New Token

API tokens allow you to interact with the Desktop Manager API from external applications or command-line tools. Tokens have the same permissions as your user account and can be revoked at any time.

Note: When you create a new token, you'll only see the token value once. Make sure to copy it immediately. All API requests using these tokens should use the Authorization header: Authorization: Bearer <token>

Your API Tokens

You haven't created any API tokens yet.

Create New API Token

Token Name *

e.g., CI/CD Pipeline, Personal Script

Description

What will this token be used for?

Expires After (days)

30 days

Create Token

Cancel

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DashboardDesktopsUsersAPI TokensConfigurationsStorageLogout

Desktop Configurations

Manage container configurations for desktops

Name	Description
default-tumbleweed	openSUSE Tumbleweed with XFCE. Built a
default-ubuntu	Ubuntu 22.04 with XFCE.
default-ubuntu-browsers	Ubuntu 22.04 with XFCE, Firefox and Chro

Add Configuration

Create Desktop Configuration

Name *

Description

Docker Image *

Resource Allocation

Minimum CPU Cores *

Maximum CPU Cores *

14

Minimum RAM *

Maximum RAM *

4GB16GB

Internet Access

☐ Allow Internet access

Access Control

☒ Make this configuration public

Public configurations are available to all users. Private configurations are restricted to specific users.

	Internet Access	Access	Actions
ti RAM	Allowed	Public	EditDelete
ti RAM	Forbidden	Public	EditDelete
ti RAM	Allowed	Public	EditDelete



SensitiveCloud | CERIT Scienc

cerit-sc.cz/infrastructure-services/sensitivecloud

Dashboard Desktops Users API Tokens Configurations **Storage** Logout

Storage Management

Manage persistent storage volumes

Add Storage

Storage Type: *

New NFS storage Existing S3 bucket

Existing PVC

Use an existing SensitiveCloud S3 bucket.

Storage Name: *

Name must consist of lowercase alphanumeric characters or '-', and must start and end with an alphanumeric character.

S3 Endpoint: *

Access Key ID: *

Access Key: *

Bucket Name: *

The bucket must already exist.

☒ Make this PVC public (available to all your team members)

Confirm Cancel

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SensitiveCloud | CERIT Scienc... x +

cerit-sc.cz/infrastructure-services/sensitivecloud

Dashboard Desktops Users API Tokens Configurations Storage Logout

Desktops

Manage your desktops

Add Desktop

Add Desktop

Desktop Name Requirements:

- Name must start with an alphabetic character and end with an alphanumeric character
- Only lowercase letters, numbers, and hyphens allowed
- Maximum length is 12 characters

Desktop Name: *

tb-demo

☒ Persistent Home Directory

When enabled, your home directory contents will be preserved between sessions.

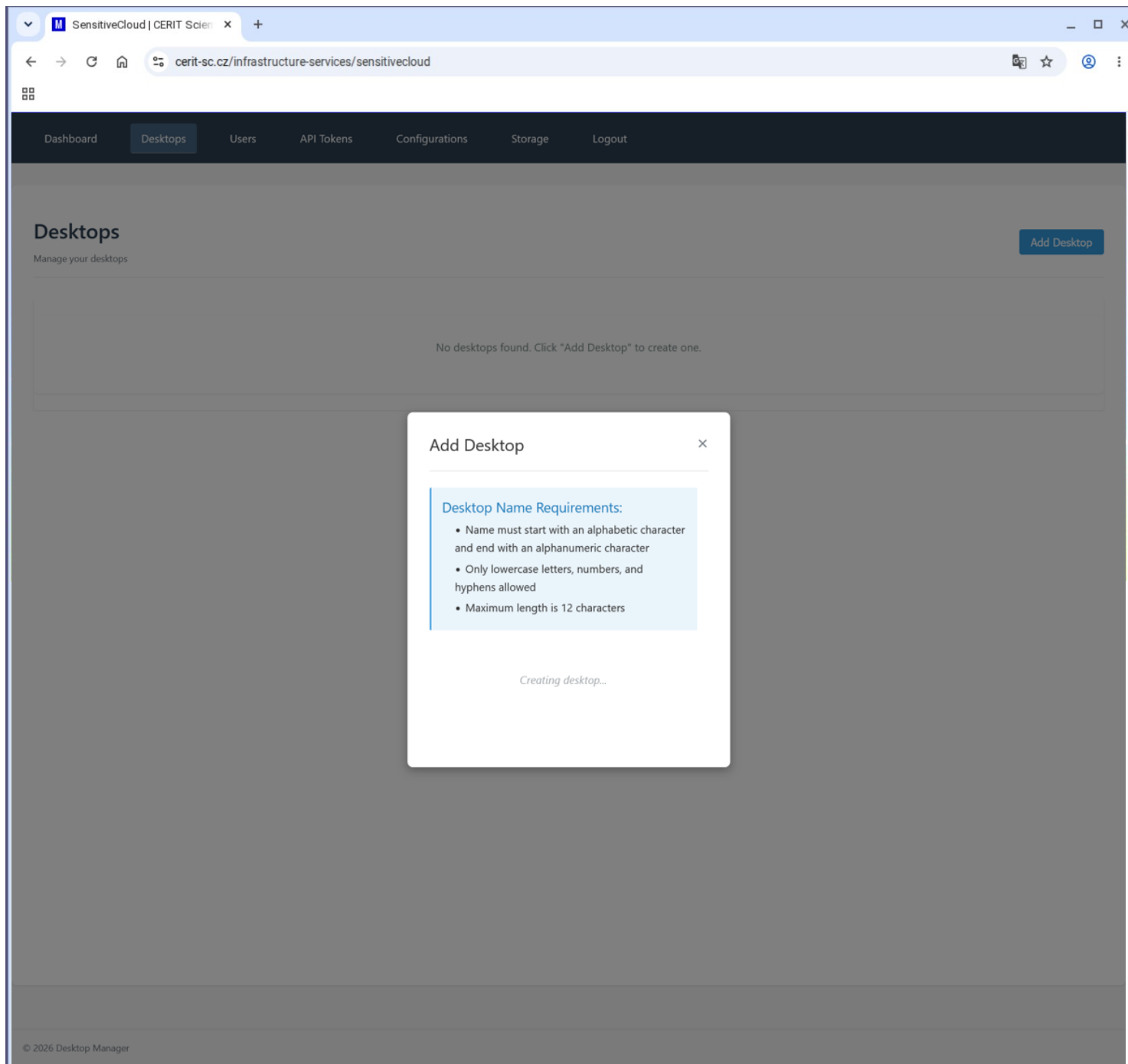
Desktop Configuration: *

default-tumbleweed

Select a desktop configuration to use for this desktop.

Create Desktop Cancel

© 2026 Desktop Manager



SensitiveCloud | CERIT Scienc... x

cerit-sc.cz/infrastructure-services/sensitivecloud

Dashboard

Desktops

Users

API Tokens

Configurations

Storage

Logout

Desktops

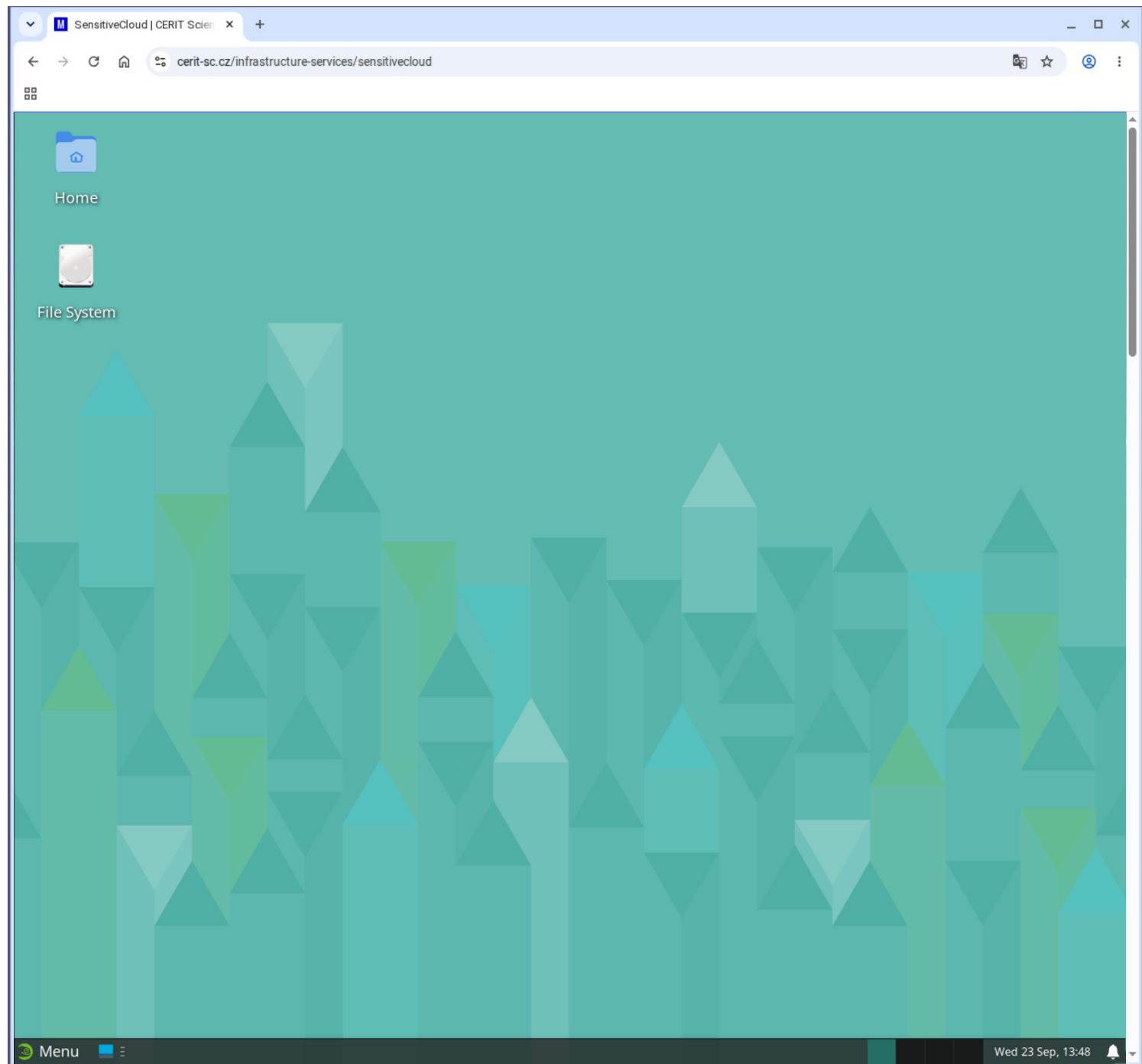
Manage your desktops

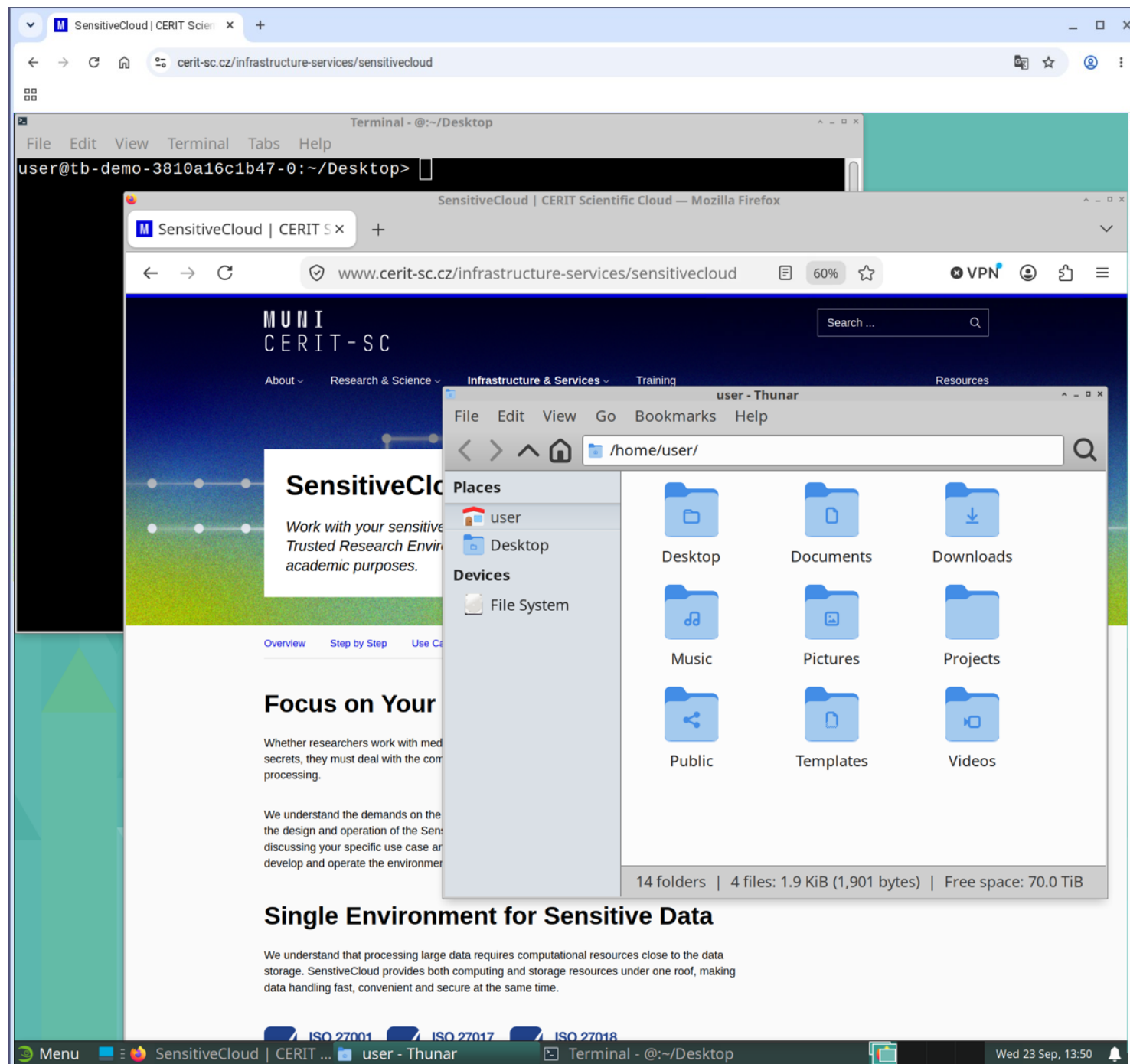
Add Desktop

Name	Created At	Created By	Persistent Home	Desktop Configuration	Actions
tb-demo-3810a16c1b47	2026-09-23T13:44:56.218948	admin-1633180b	Yes	default-tumbleweed	ConnectStop

© 2026 Desktop Manager





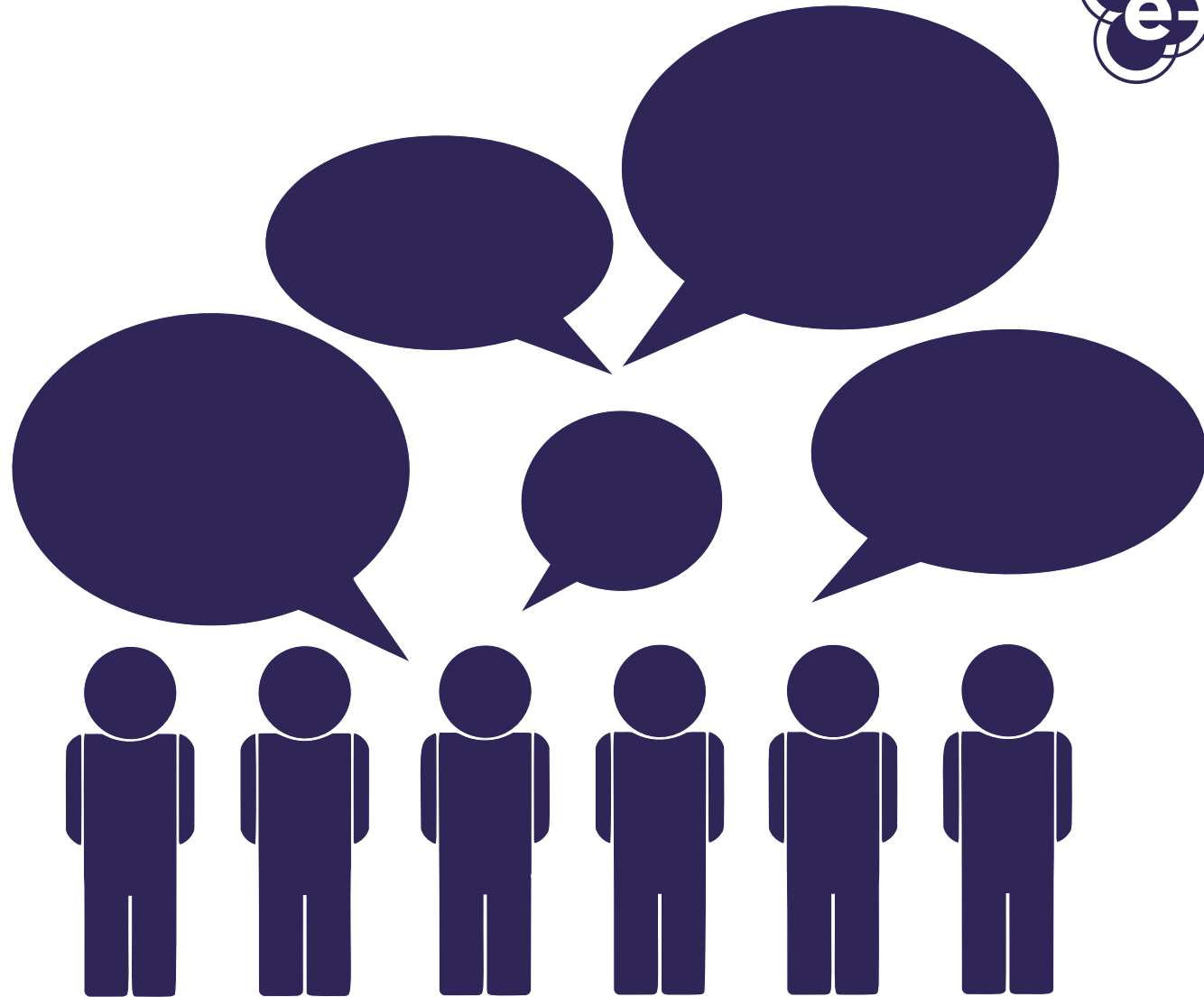


The screenshot displays a desktop environment with three main windows:

- Terminal Window:** Shows a command prompt with the user `user@tb-demo-3810a16c1b47-0:~/Desktop>`.
- Web Browser Window:** Displays the SensitiveCloud website. The URL is `www.cerit-sc.cz/infrastructure-services/sensitivecloud`. The page features a dark blue header with the MUNI CERIT-SC logo and navigation links. The main content area includes a section titled "SensitiveCloud" with the tagline "Work with your sensitive data in a Trusted Research Environment for academic purposes." Below this, there is a section titled "Focus on Your" followed by text about researchers working with medical secrets. At the bottom, a section titled "Single Environment for Sensitive Data" discusses the need for computational resources close to data storage.
- File Manager Window:** Shows the file system structure for the user. The left sidebar lists "Places" (user, Desktop) and "Devices" (File System). The main pane displays a grid of folders: Desktop, Documents, Downloads, Music, Pictures, Projects, Public, Templates, and Videos. At the bottom, it shows statistics: "14 folders | 4 files: 1.9 KiB (1,901 bytes) | Free space: 70.0 TiB".

The desktop environment includes a taskbar at the bottom with icons for the Menu, SensitiveCloud, CERIT, user - Thunar, and Terminal. The system clock indicates "Wed 23 Sep, 13:50".

Discussion



Source: [Communicate_communication_conference_2028004](#) od [OpenClipart-Vectors](#) z [Pixabay](#)

e-INFRA CZ: Bits and Bytes for Research

In the age of AI

e-INFRA CZ – CERIT-SC

- CERIT-SC infrastructure services for research
 - Kubernetes container infrastructure (including Sensitive Data processing)
 - OpenStack virtualization infrastructure
 - **Managed applications**
 - Foldify – Easy protein folding
 - JupyterHub – AI-enabled Jupyter Notebooks
 - **LLM services**
 - API
 - Chat
 - Community: <https://element.cloud.e-infra.cz> join and discuss about AI

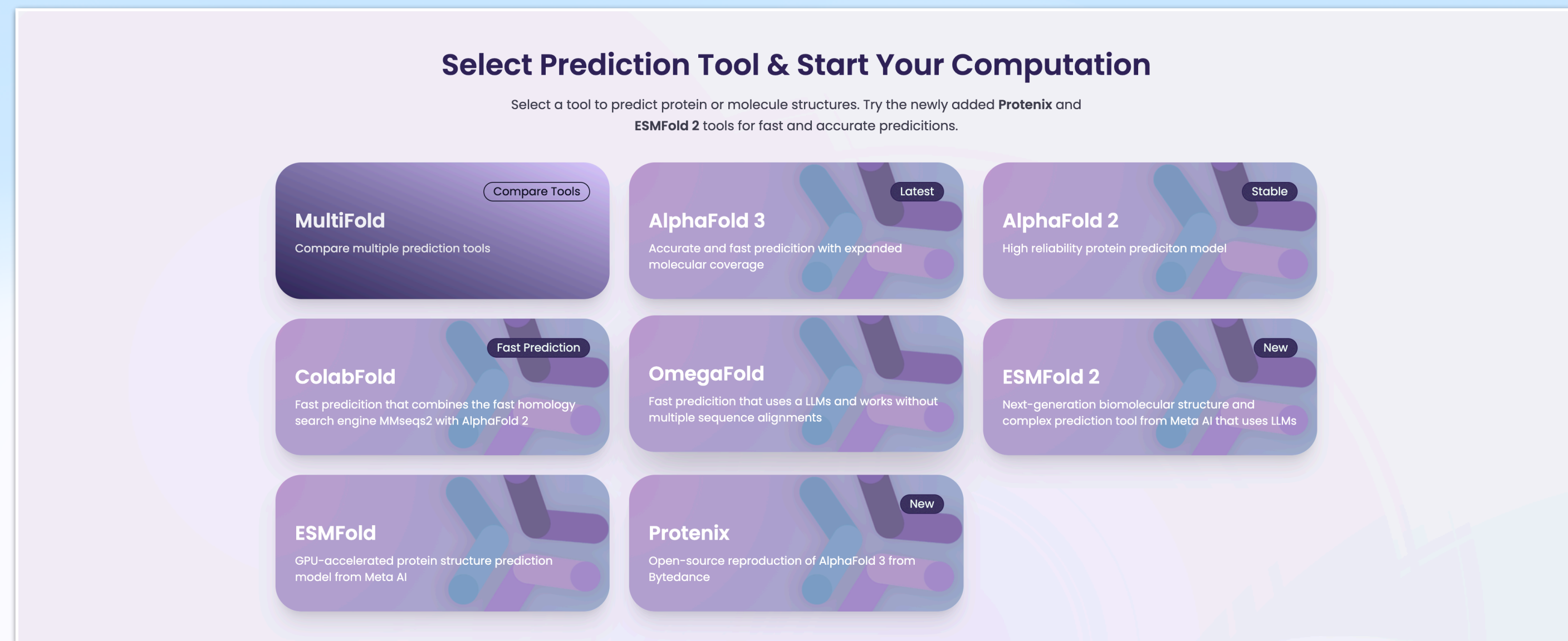
Kubernetes Infrastructure

- GitHub Project →
Docker image →
Kubernetes manifests → <https://myapp.dyn.cloud.e-infra.cz>
- Workflow pipeline → Nextflow → Kubernetes
- Sequencing machine → data storage → data processing in Kubernetes
- Preconfigured "one-click" applications
 - Maxquant, Knime, OrthoVenn 3, Ridom Seqsphere, RStudio, OverLeaf
 - Miss one? Ask k8s@cerit-sc.cz

Managed Applications – Foldify

<https://foldify.cloud.e-infra.cz>

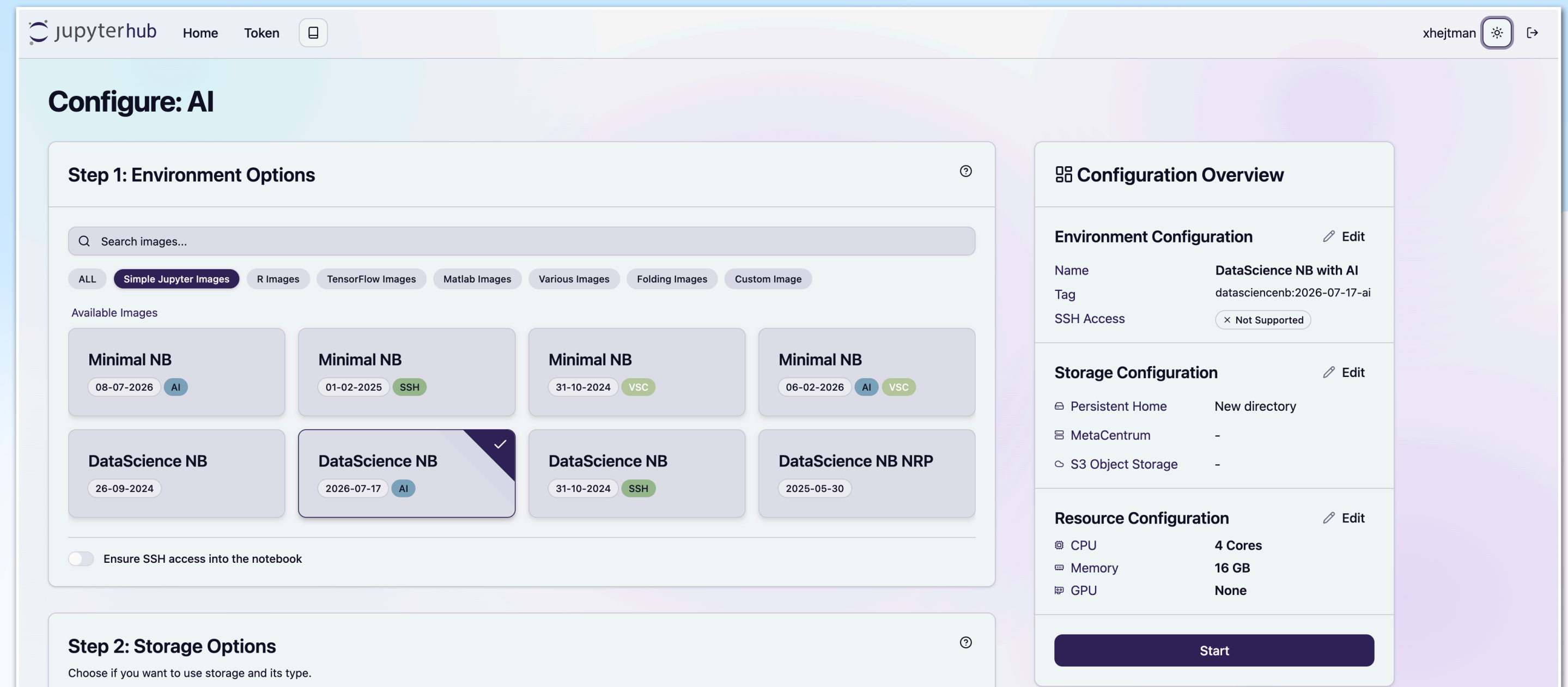
- Web application for protein folding
- Supports multiple tools
 - AlphaFold 3
 - ESMFold 2
 - Protenix
 - ColabFold
- MultiFold – results from multiple tools for comparison



Managed Services – JupyterHub

<https://hub.cloud.e-infra.cz>

- Jupyter Notebooks
- AI integration
 - Minimal notebook
- DataScience
- RStudio
- NRP integration



Managed Services – JupyterHub Chatbook

File Edit View Run Kernel Git Tabs Settings Help

Untitled.ipynb

Open in... Chatbook [conda env:base] *

Notebook Intelligence

User 15:08:17

create simple panda example into the current notebook

Claude Code 15:09:17

5 tool calls

Adding markdown cell

Adding code cell

Adding code cell

Adding code cell

Saving notebook

Let me run the cells so you can see the output:

Running cell

Calling tool 'mcp_nbi_run-cell'...

Parameters

{"cell_index": 1}

Running cell

Calling tool 'mcp_nbi_run-cell'...

Parameters

{"cell_index": 2}

Running cell

Calling tool 'mcp_nbi_run-cell'...

Parameters

{"cell_index": 3}

Reading cell output

Ask Notebook Intelligence...

Untitled.ipynb

Simple Pandas Example

A quick demo of creating a DataFrame and doing basic operations.

[2]: import pandas as pd

Create a simple DataFrame from a dictionary

data = {

"name": ["Alice", "Bob", "Charlie", "Diana"],

"age": [25, 30, 35, 28],

"city": ["Berlin", "Munich", "Hamburg", "Cologne"]

}

df = pd.DataFrame(data)

df

[2]:

	name	age	city
0	Alice	25	Berlin
1	Bob	30	Munich
2	Charlie	35	Hamburg
3	Diana	28	Cologne

[3]: # Basic operations

print("Average age:", df["age"].mean())

Add a new column

df["age_in_months"] = df["age"] * 12

Filter rows

adults_over_28 = df[df["age"] > 28]

adults_over_28

Average age: 29.5

[3]:

	name	age	city	age_in_months
1	Bob	30	Munich	360

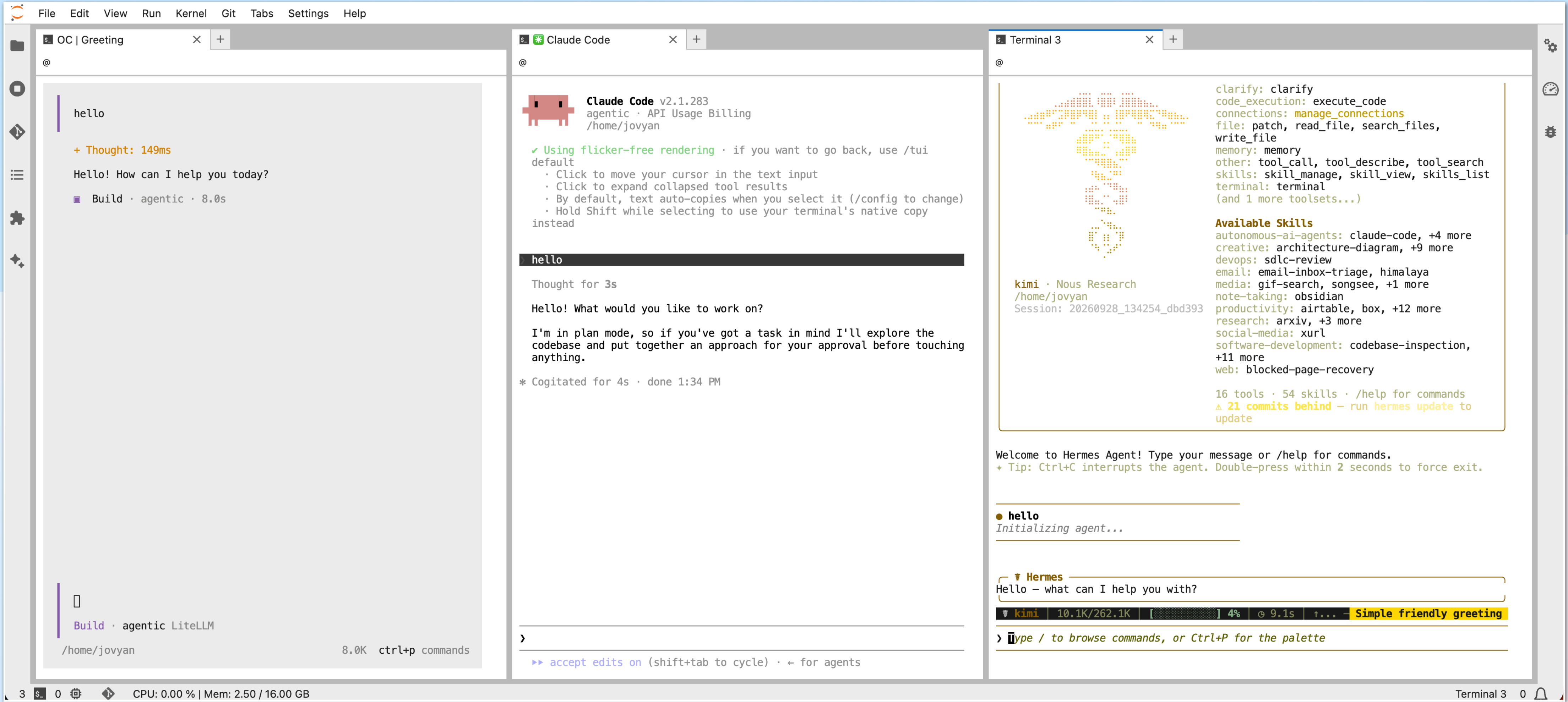
1

Chatbook [conda env:base] * | Idle CPU: 5.00 % | Mem: 1.68 / 16.00 GB

Mode: Command Cell 4/5 Ln 1, Col 1 Untitled.ipynb 1

Managed Services – JupyterHub

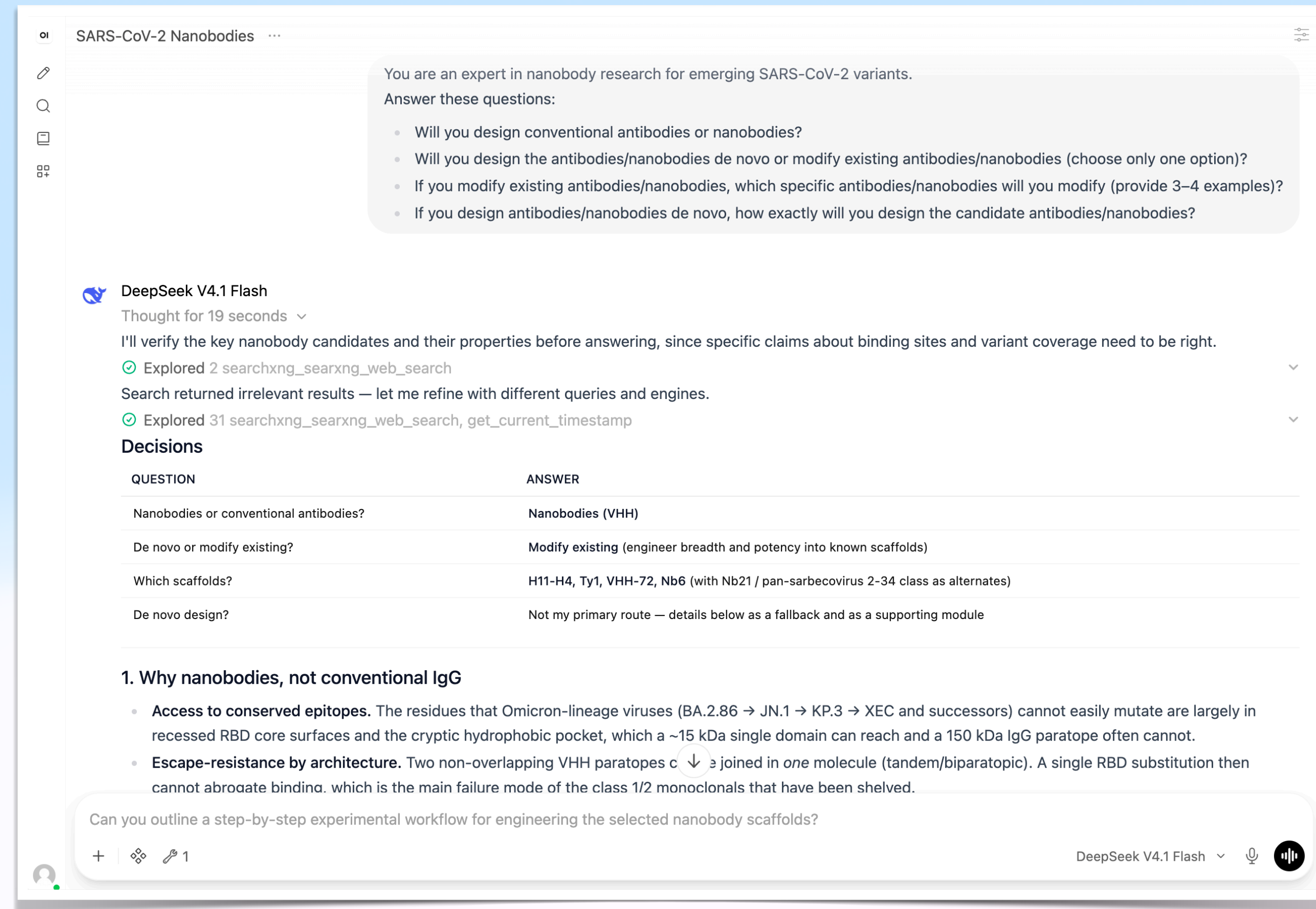
AI Agents



LLM Services – Chat

<https://chat.ai.e-infra.cz>

- Easy-to-use AI in your web browser
- The familiar LLM chat experience
 - Web search
 - Image generation
 - Image editing
- Knowledge and file processing
 - File → "Give me summary" → Summary
 - 70 pages of Ministry report review → "Give me problems and their repetition count"
- FOMO: 3,400 users



LLM Services – API

<https://llm.ai.e-infra.cz/v1>

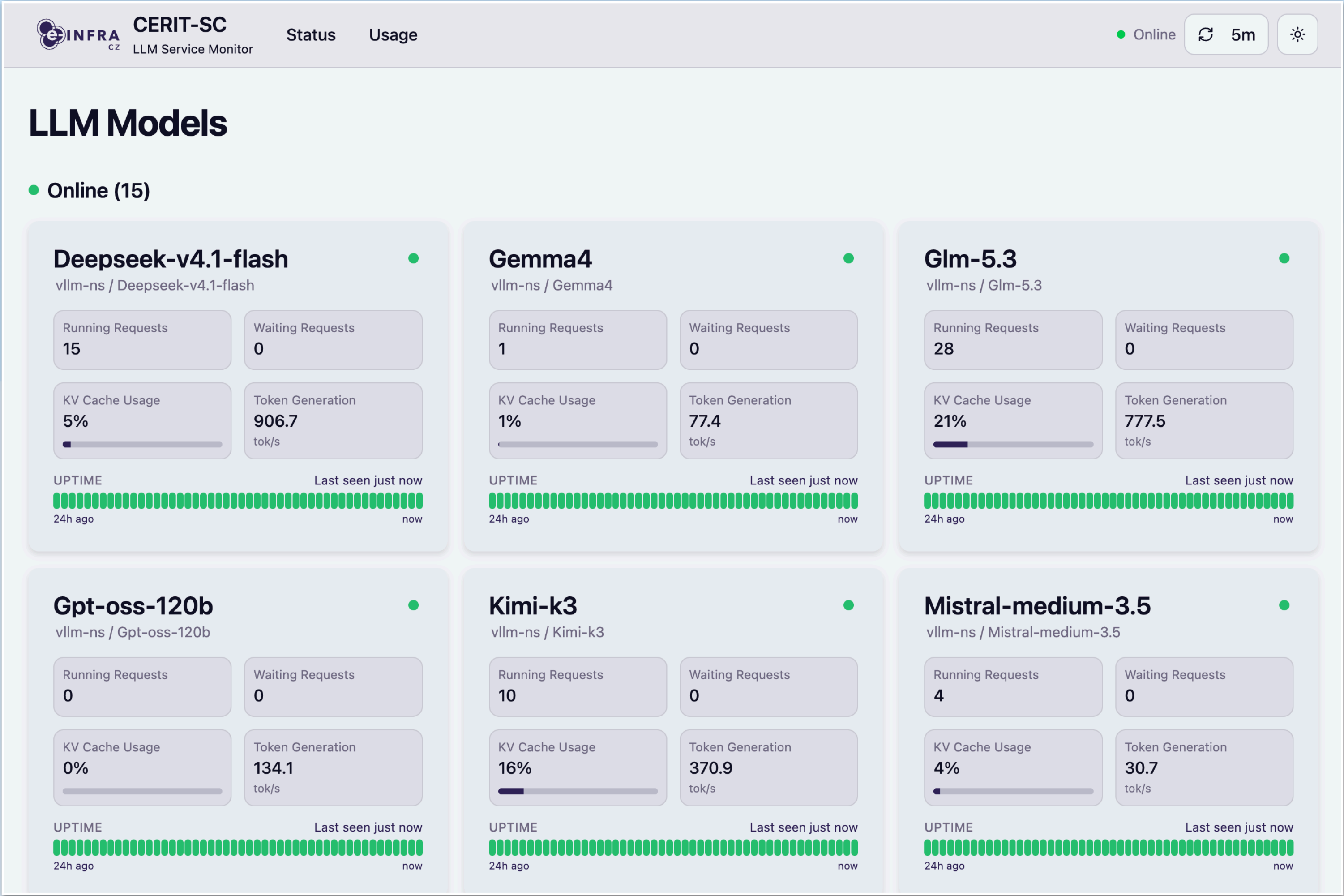
- Advanced AI use
 - Connect your own applications or agents
- Agents
 - *"Plan a CRISPR screen to identify genes that regulate T cell exhaustion, generate 32 genes that maximize the perturbation effect."*
 - *"Perform scRNA-seq annotation at [my data on disk] and generate meaningful hypothesis"*
 - *"Predict ADMET properties for this compound: CC(C)CC1=CC=C(C=C1)C(C)C(=O)O"*
- Agentic systems (harness)
 - Claude Code, OpenCode, Hermes, Codex
 - Biomni

LLM Services – API

- The unbearable lightness of AI Agents
 - Start agent (Claude Code)
 - Type your problem
 - Solve a program error, solve an infrastructure error
 - "Look at this project and deploy it to Kubernetes"
 - ... 7 hours later: project running
 - With proper tools, agents are on par with humans
- Afraid of agents? Try them in the Jupyter Notebook!

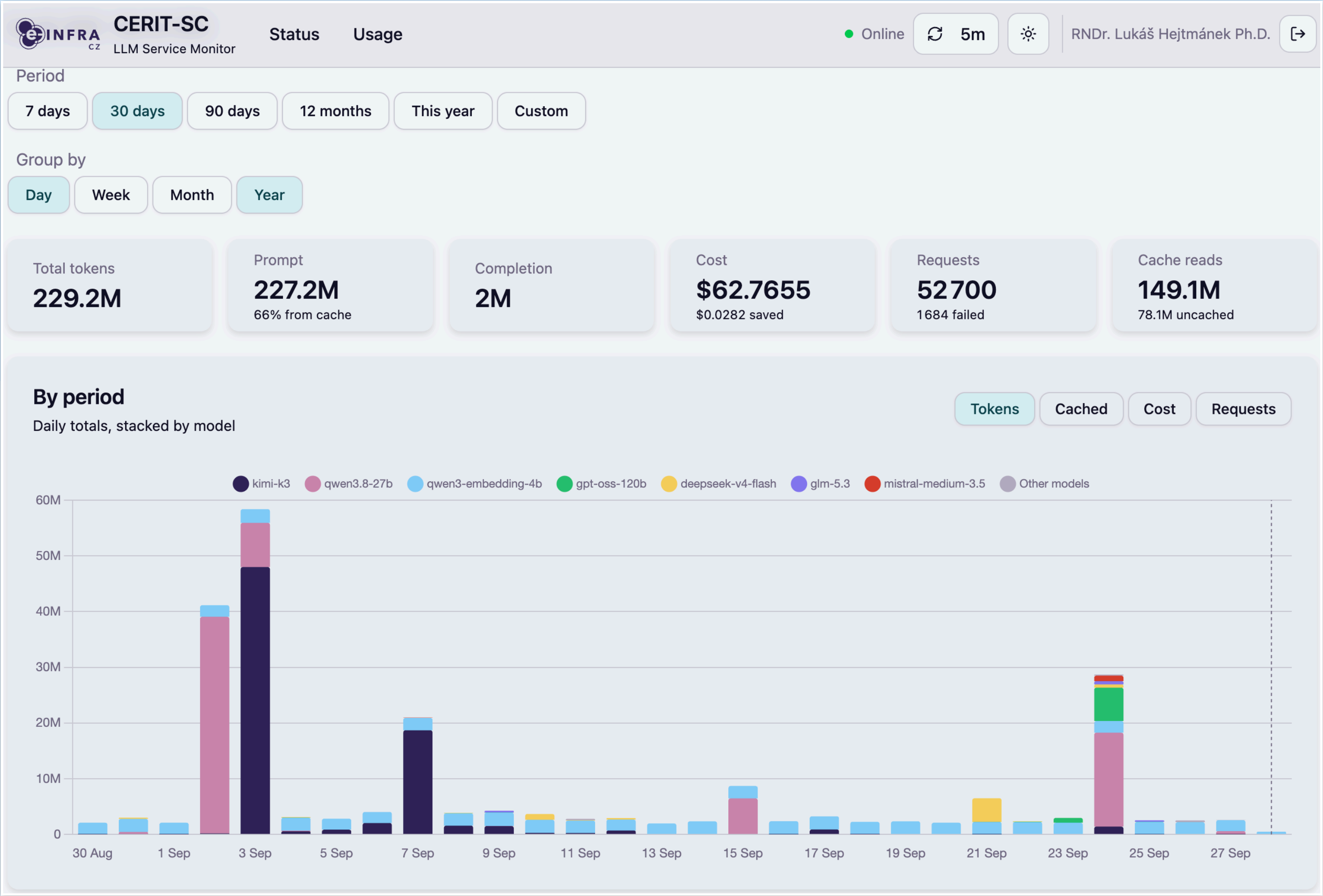
LLM Services – API

<https://llm.ai.e-infra.cz/status>



LLM Services – API

<https://llm.ai.e-infra.cz/usage>



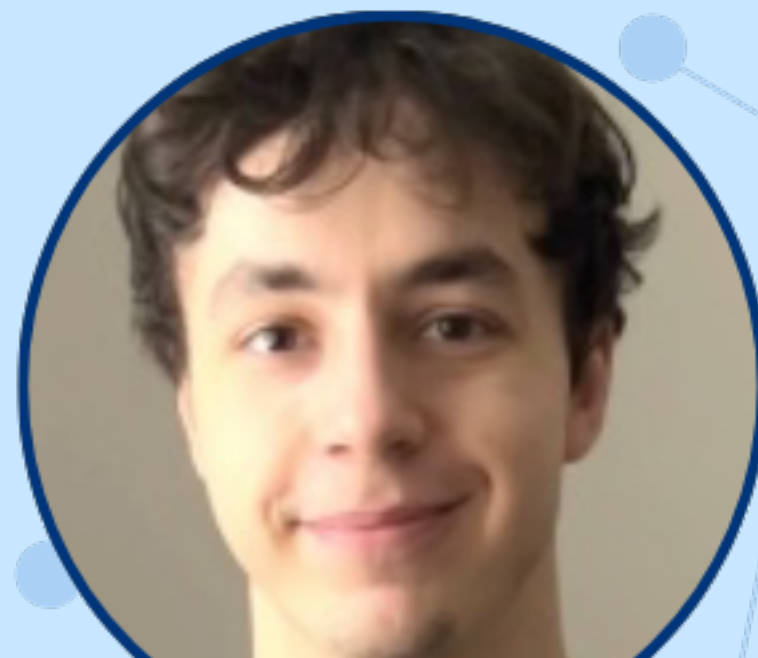
LLM – Behind Scenes

- The big models
 - Kimi-K3, GLM 5.3, DeepSeek 4.1 Flash
- Some others
 - Qwen 3.8 Flash Next, Mistral-Medium-3.5, Gemma 4, GPT-OSS-120B
- Hardware
 - NVIDIA DGX B200, B300
 - NVIDIA H100, RTX Pro 6000

Access

- LLM Services
 - Automatic approval for all active MUNI members
- Other services
 - MetaCentrum account required
- All services are free of charge
- Please acknowledge the infrastructure in publications

Team



SEBASTIÁN BENCSÍK



ROMANA ĎURÁČIOVÁ



KRISTIÁN KOVÁČ



JANA TULIKOVÁ



JOSEF HANDL



LUKÁŠ MARTIŠKA



ROBIN DURNÍK



KRYŠTOF ALBRECHT



ZDENĚK SALVET



MICHAL JÁL

Thank you for your attention

Don't be afraid of AI

k8s@cerit-sc.cz

<https://docs.cerit.io>

<https://blog.e-infra.cz>

MUNI
CERIT-SC

About CERIT-SC

Matej Antol

Matej Antol

Principal manager of the Ips EOSC CZ

- Systemic, strategic project within the Open Science call
- Initiative which develops national ecosystem for FAIR research data management
- <https://www.eosc.cz>

Executive director of CERIT-SC, MUNI

- One of three partners of the national e-INFRA CZ
- <https://www.cerit-sc.cz/>
- <https://www.e-infra.cz/>

Researcher

- Complex and semantic data management
- Data discovery and reuse
- Scientometry on data use in research



About CERIT-SC

Research and e-infrastructure center at MUNI, part of Institute of Computer Science

Research areas

- High Performance Computing
- Sensitive and clinical data management
- Heterogenous data analyses and management
- AI infrastructures
- Research data discovery and re-use
- Data provenance
- Sovereign infrastructures
- Scientometry in relation to research data
- Open Science, EOSC

Part of consortia and other infrastructures – mediator to even more resources

- **e-INFRA CZ** (with the Supercomputing center IT4I and CESNET)
- EOSC and EOSC CZ (environment for FAIR research data, data repositories)
- ELIXIR, BBMRI, ...

Underlying e-infrastructure

- Infrastructure and services for **research data** processing, storage, access, analyses, ...

The infrastructure

Data processing capacities and services

- cloud, batch computing, Kubernetes, **sensitive data, AI computing**
- gateway to supercomputing capacities in Czechia (Metacentrum) and Europe (LUMI), European Grid Infrastructure and others

Data storage

- Capacities to store various research data, namely object storages
- „copy“ storage for scientific and administrative data
- Gateway to data repositories and infrastructure built within EOSC CZ and **National Repository Platform**

Data Access

- Advanced, Europe-wide tested AAI infrastructure – easy and secure access to digital resources

Countless general and specialised applications

- From Jupyter notebooks to AlphaFind

Just two presentations today

On (AI) computing infrastructure – Lukáš Hejtmánek

On Sensitive Data processing – Michal Růžička