

# Introduction to Komondor

**National HPC development**

Zoltan Kiss, Head of HPC Dpt.

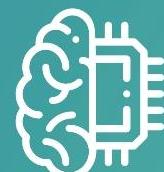
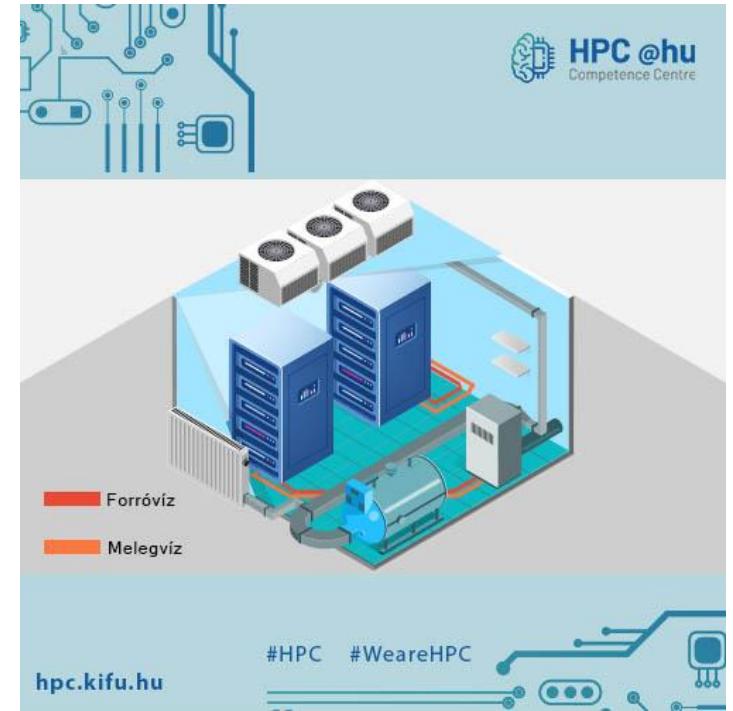
KIFÜ



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Kompetencia Központ

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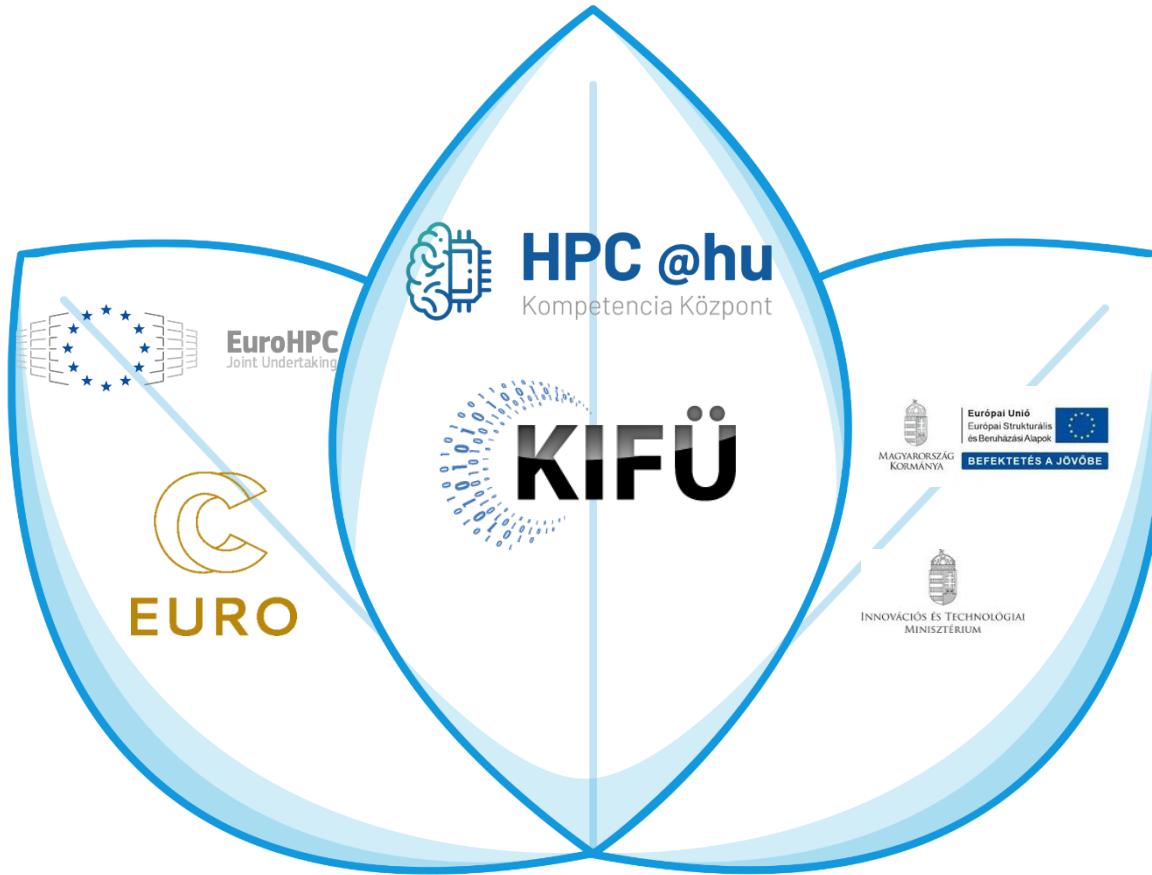
- 🧠 HPC Competence Centre
- 🧠 IT development
- 🧠 HPC infrastructure
- 🧠 Portals
- 🧠 EuroHPC



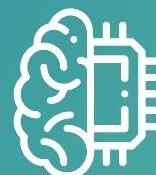
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# HPC ecosystem

Competence Centre and  
SME relations

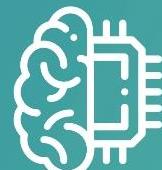
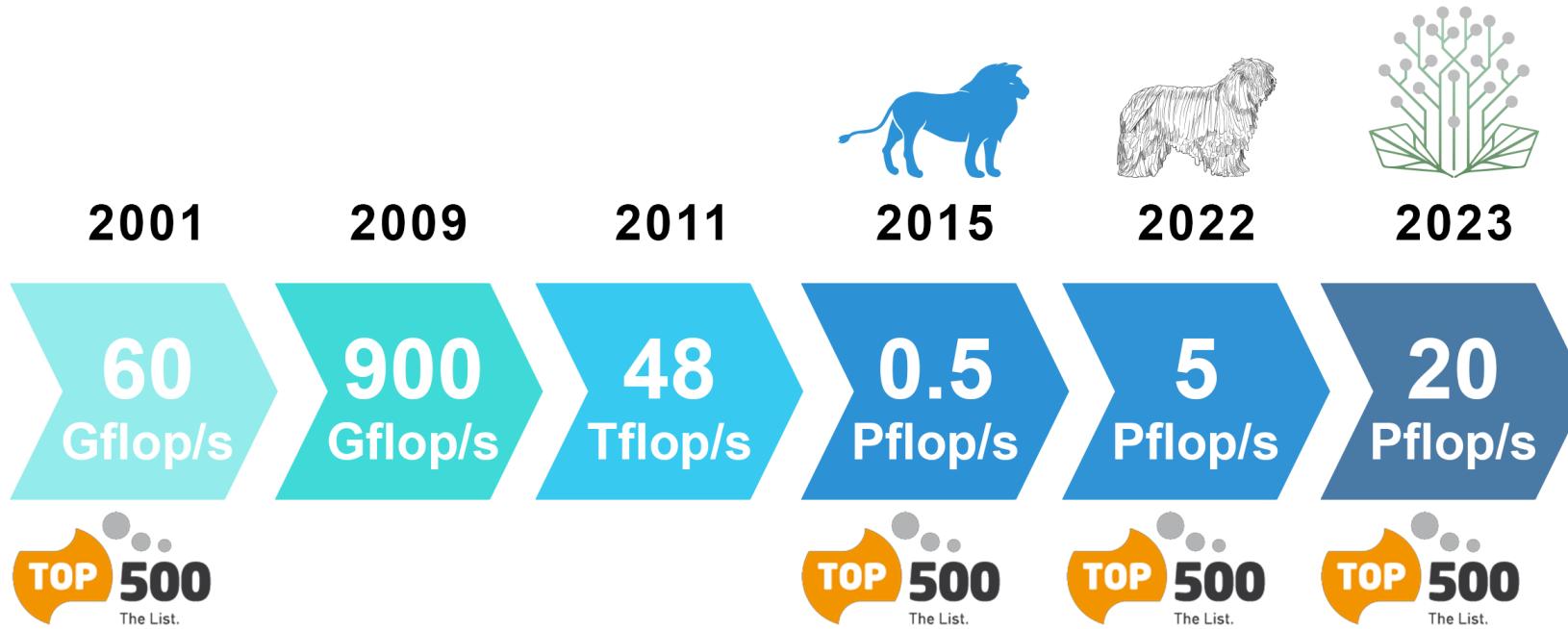


Infrastructure  
development



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# 20 years of Hungarian HPC

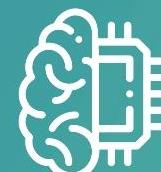
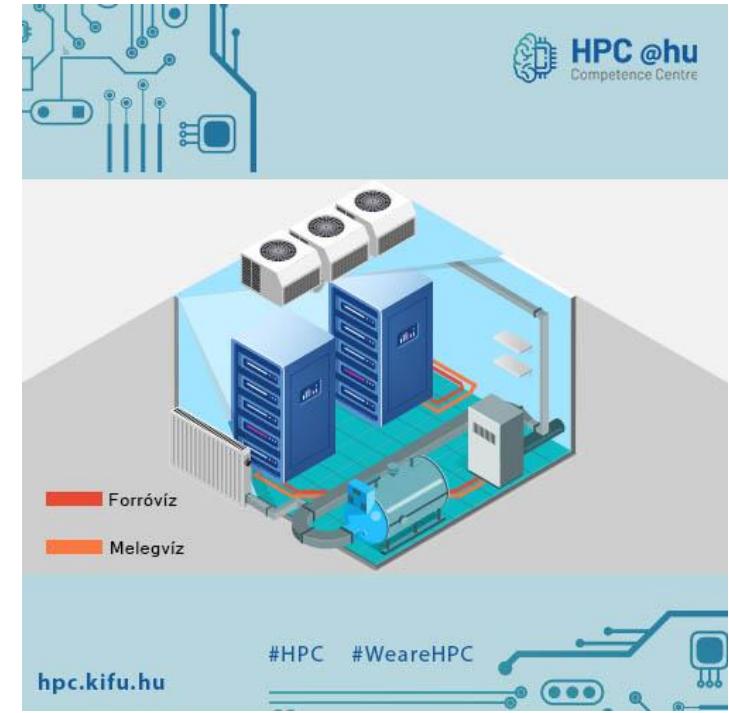


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# Infrastructure development

Hardware

Software



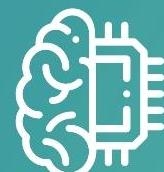
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# Green DC

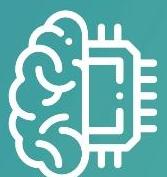
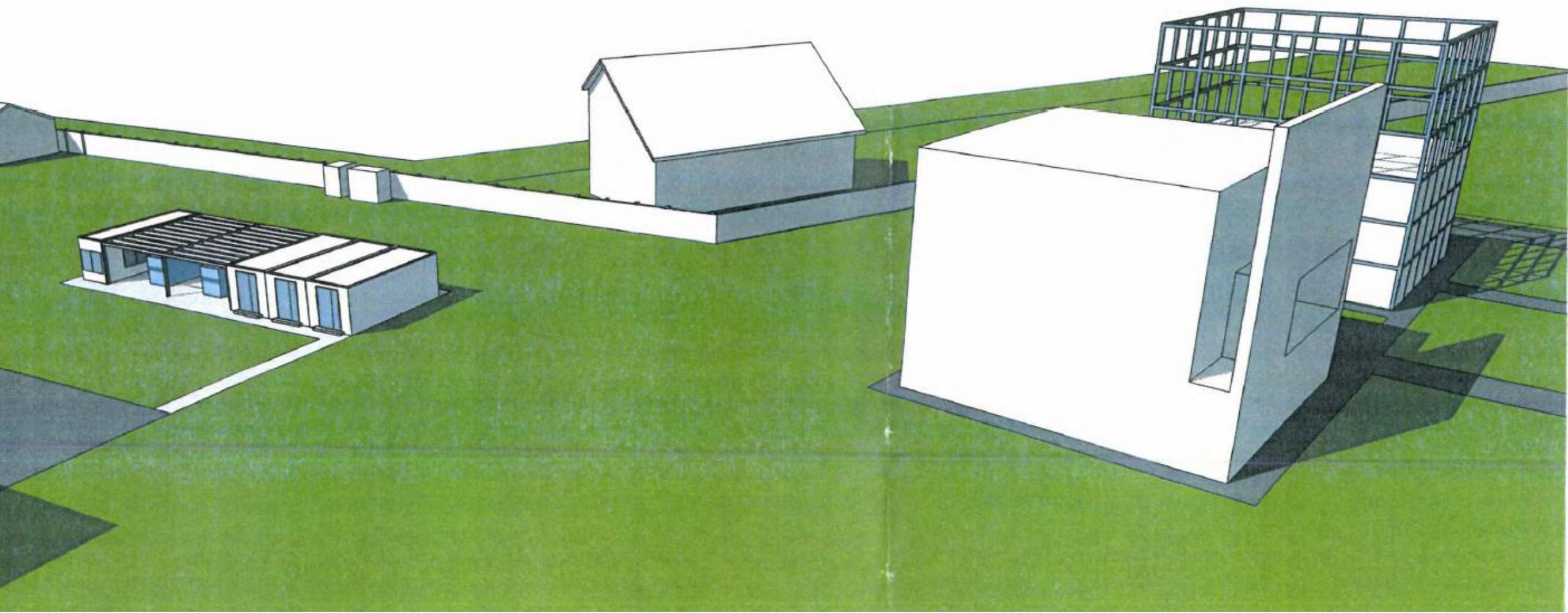
- 💡 Hot water used
- 💡 90% air cooled

## 2022 Q3 – 5+ PF HPC

- 💡 Efficiency
- 💡 Extreme density
- 💡 Award winning building designer
- 💡 In Debrecen Campus

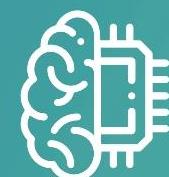


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# Komondor



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# CRAY EX EXASCALE INFARSTRUCTURE



1.5 ExaFlops (US)



2 ExaFlops (US)



550 Pflops (EU)



180 Pflops (US)

COMPUTING



## Hewlett Packard Enterprise



All Flash entry point (6U)  
Up to **80/50 GB/sec** read/write  
and **115 TB** capacity\*

Disk entry point (10U):  
**15 GB/sec** and  
**315 TB** capacity\*

All Flash base rack: > 1TB/sec and up to 4.5 PB capacity\*

- Expansion rack: > 2 TB/sec and 4.6 PB\*

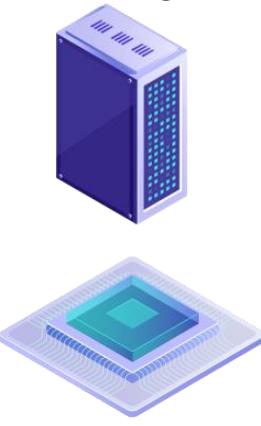
Disk base rack: 90 GB/sec and 7.5 PB capacity\*

- Expansion rack: 120 GB/sec and 10 PB\*

\*usable capacity

# komondor

20 000+  
CPU mag



CPU 0,7+  
petaflops

CPU

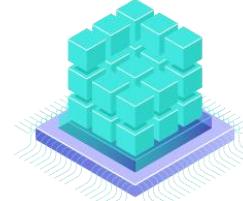
200+  
GPU



GPU 4+  
petaflops

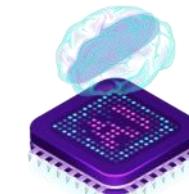
GPU

Big Data 9+ TB  
memory



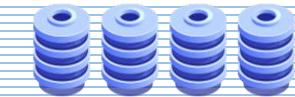
BIG DATA

8GPU/node



MI

10 PB



Tape archive

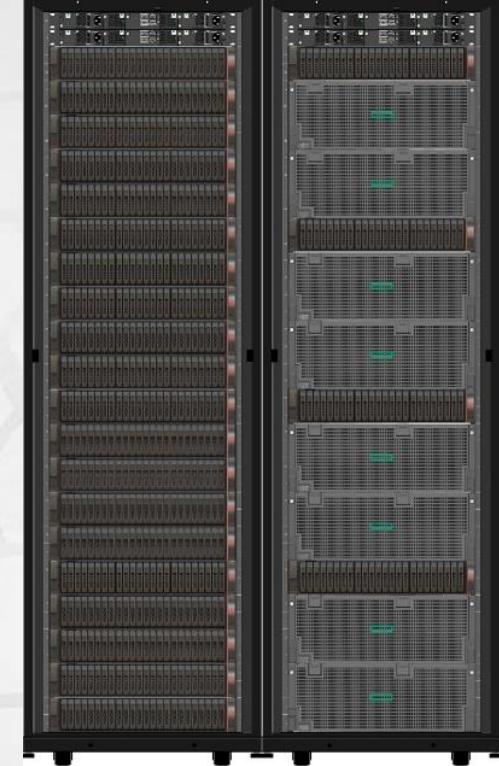
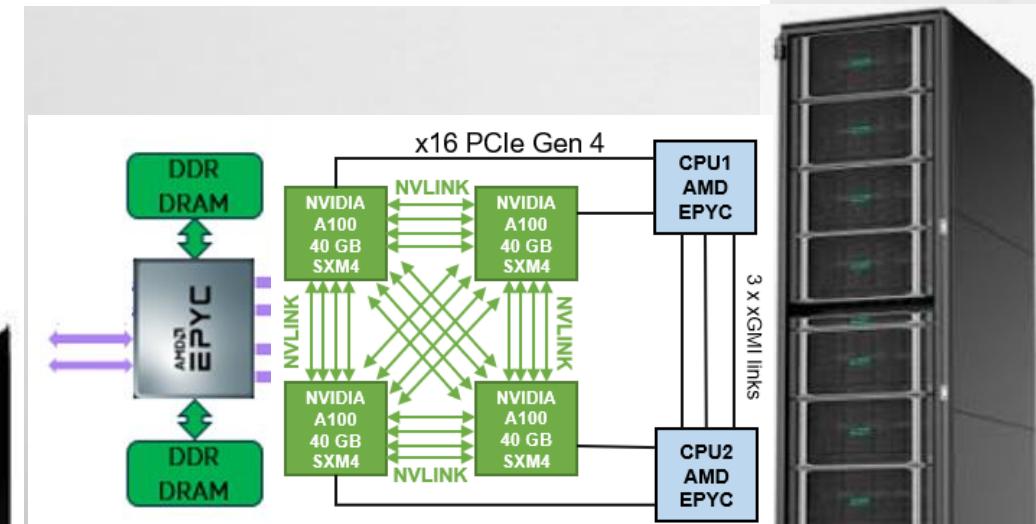
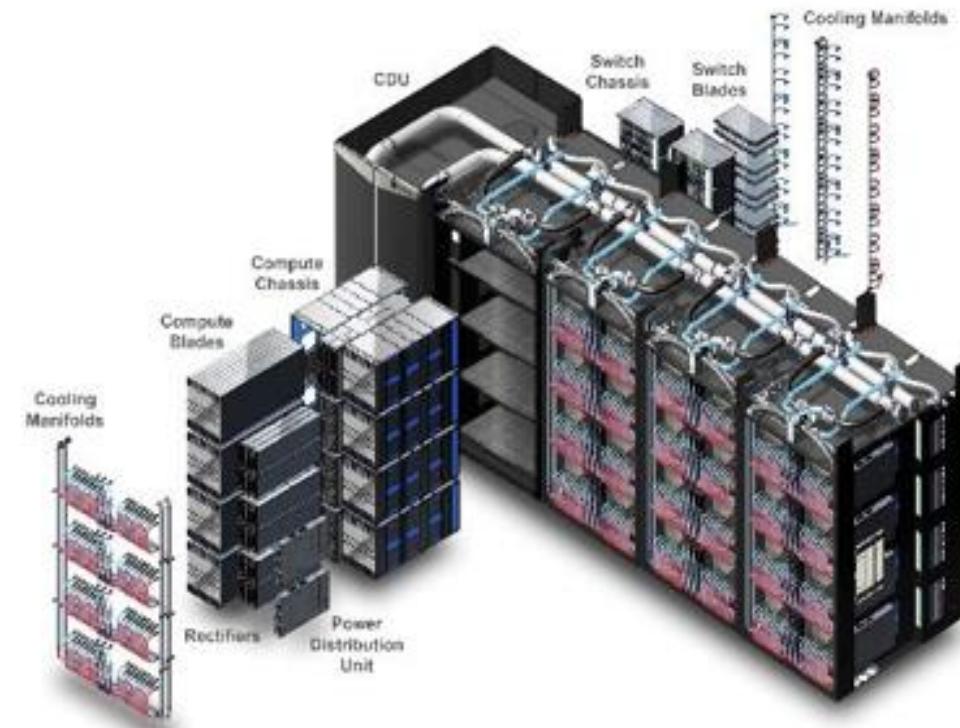
2 PB



Ultrafast

STORAGE





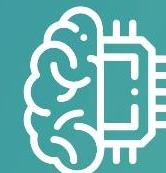
# Software

-  Ansys
-  Amber20
-  Amsterdam Density Functional (ADF)
-  CharMM
-  Gaussian 16
-  Terachem
-  Schrödinger
-  TotalView

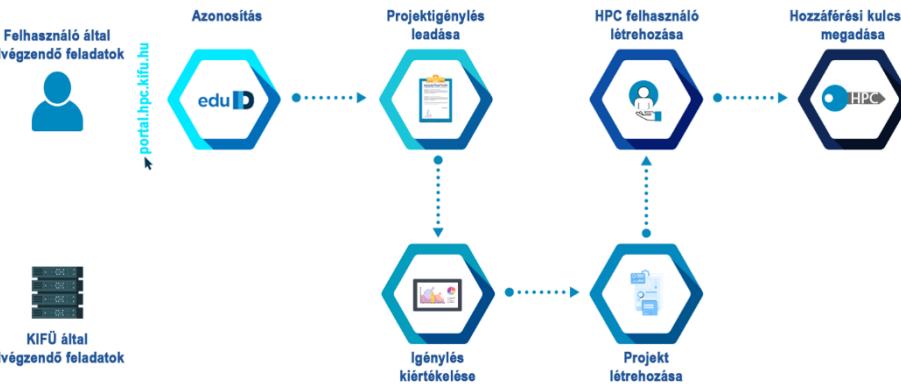


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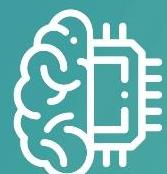
#HPC #WeareHPC



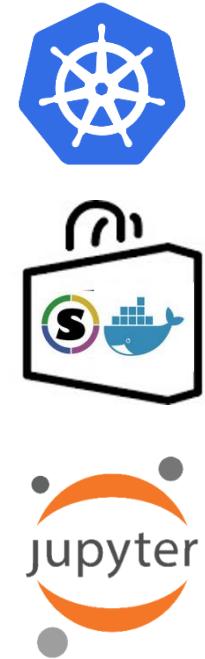
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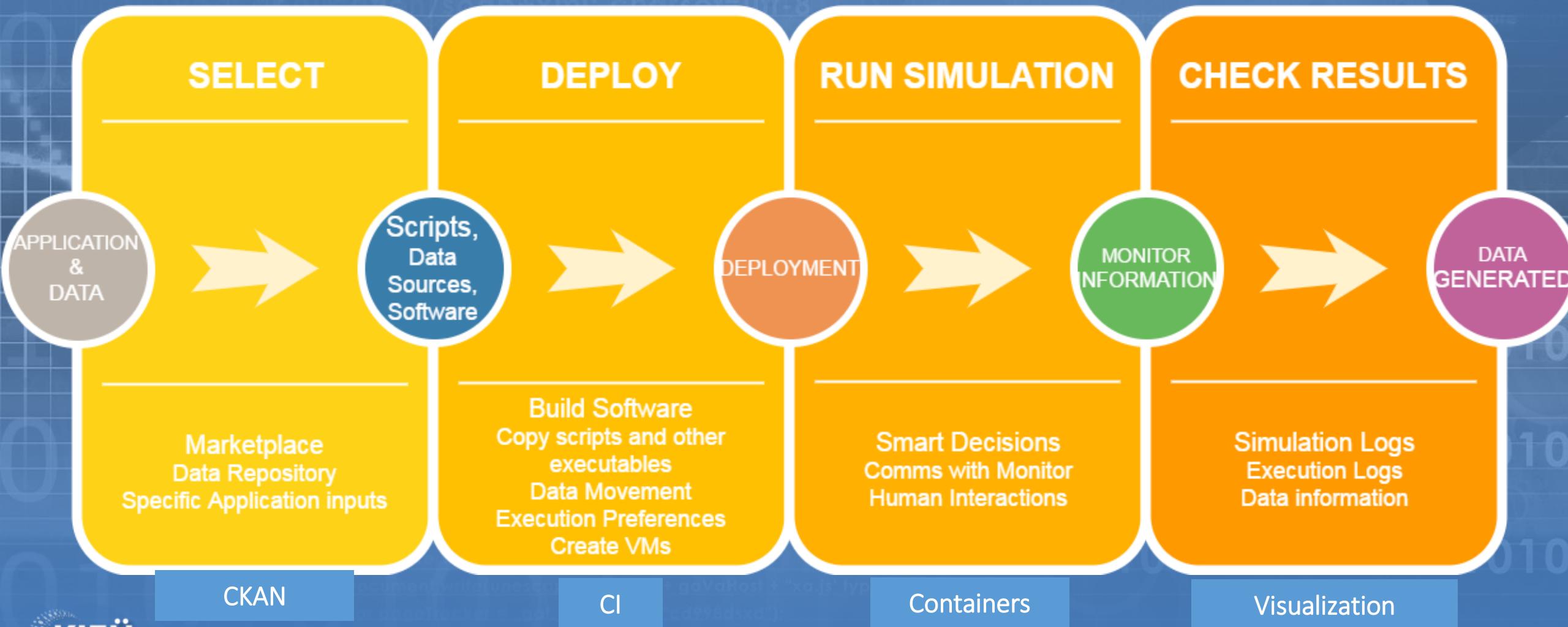
# HPC portal



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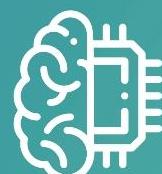


# Deploy workflow - example



# EuroHPC tender (2023)

- 💡 20 PF
- 💡 CPU + GPU + Big Data + MI
- 💡 Multilevel storage system
- 💡 Visualization subsystem
- 💡 Modular architecture
- 💡 Quantum HPC integration
- 💡 HU-DE (Juelich – ITM – KIFÜ) cooperation
- 💡 Portal and software developments



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# Thank you for your feedback!

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