

High-Performance Computing

Enabling the usage of Artificial Intelligence on oil and gas exploration

Workshop Digital Science and Energy



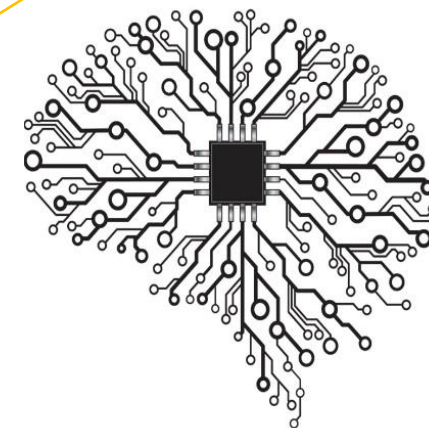
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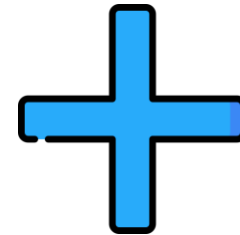
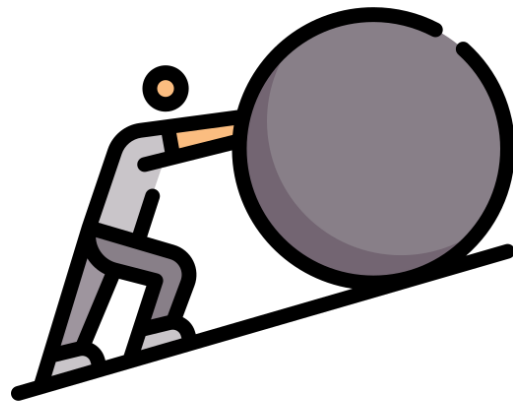
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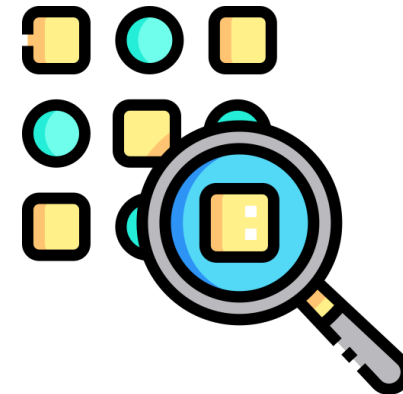


Model building process

Heavy computational burden



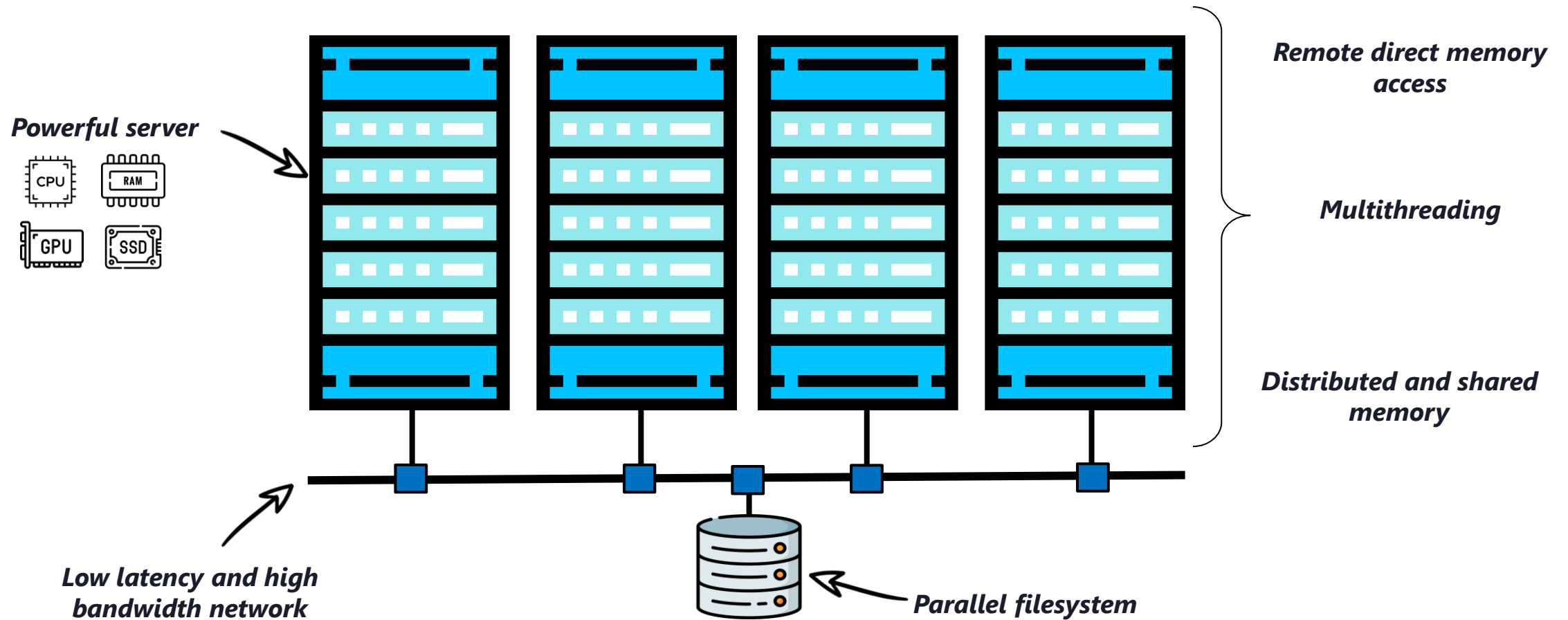
Empirical process



*How to **accelerate** the model-building process?*

When IA meets HPC

Using techniques and resources provided by **HPC systems**

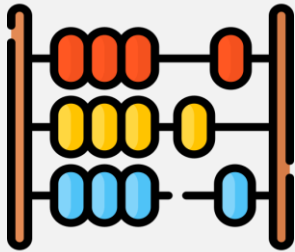


Tatu: the Petrobras' supercomputer for AI

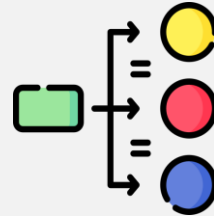
- **36** computing nodes
- **4608** processing cores
- **224** GPU Nvidia A100
- **72 TB** of main memory
- **1 PB** of local storage
- **333 TB** of parallel filesystem



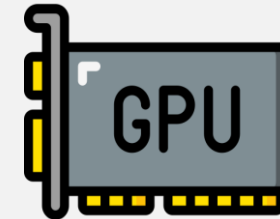
Efficient usage of resources



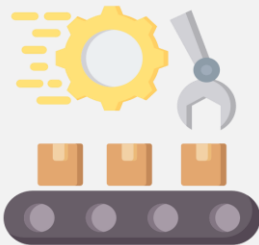
Using mixed precision



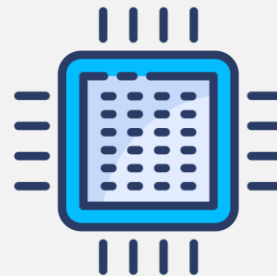
Implement distributed training



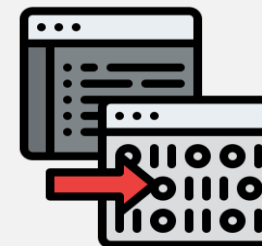
Enable special capabilities



Build an efficient data pipeline



Set hardware affinity



Compile the model

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Thank you!

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