e-infrastructure

CAPACITIES

Deploying Multiscale Applications on European e-Infrastructures

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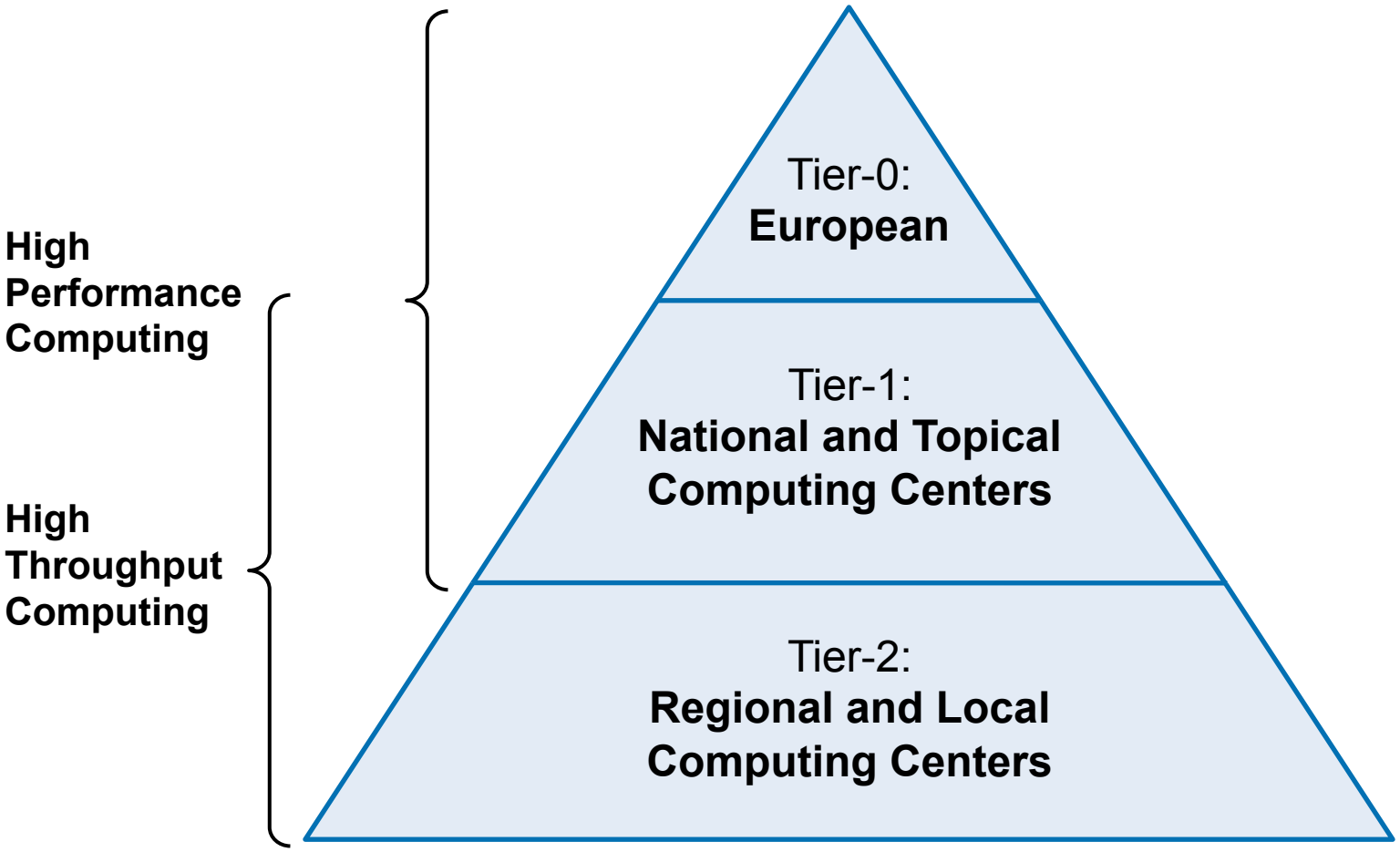
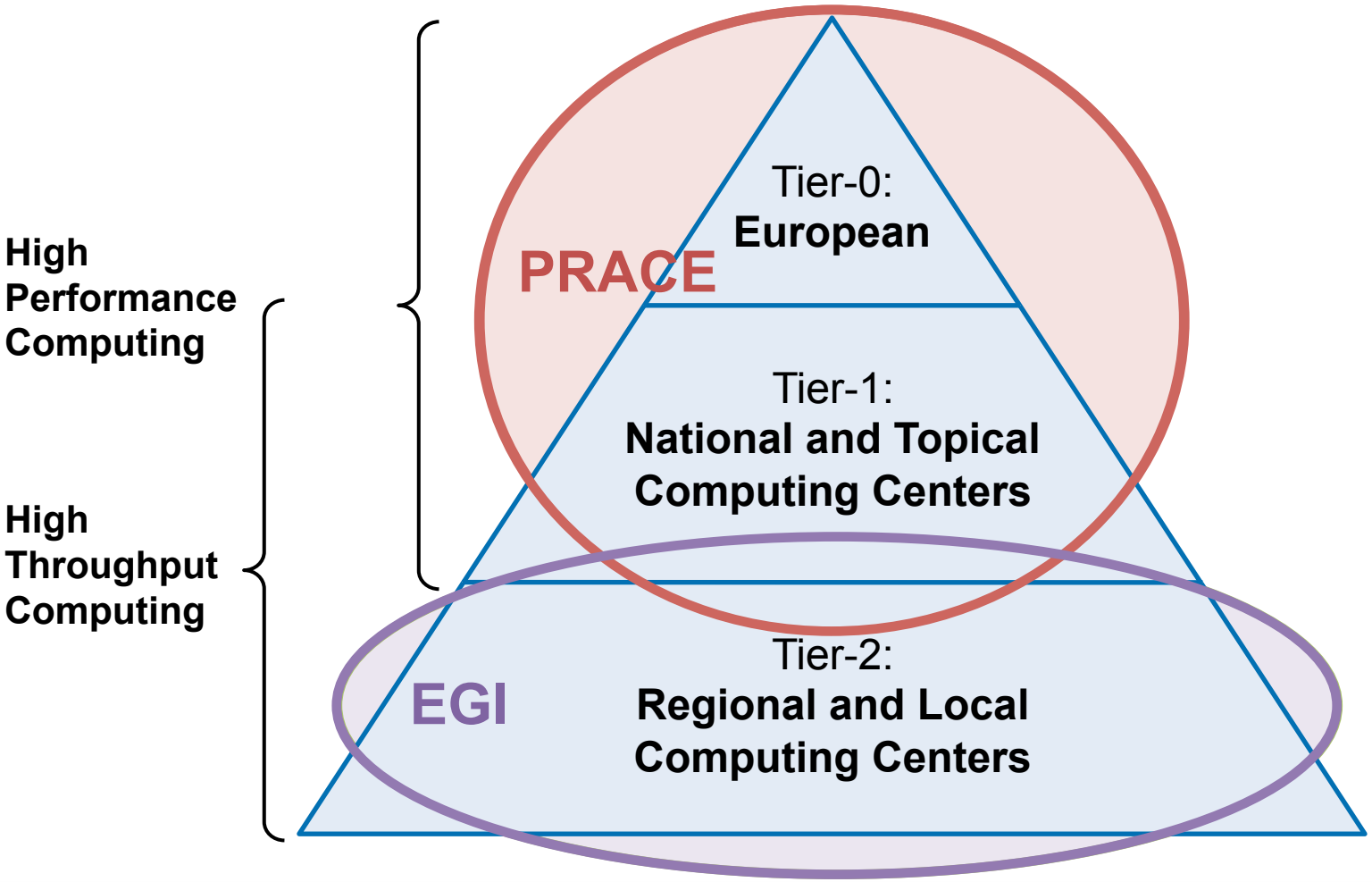
Outline

- European e-Infrastructure Ecosystem
- European e-Infrastructures
  - MAPPER
  - EGI
  - EUDAT
  - PRACE
- Tools and services for multiscale computing

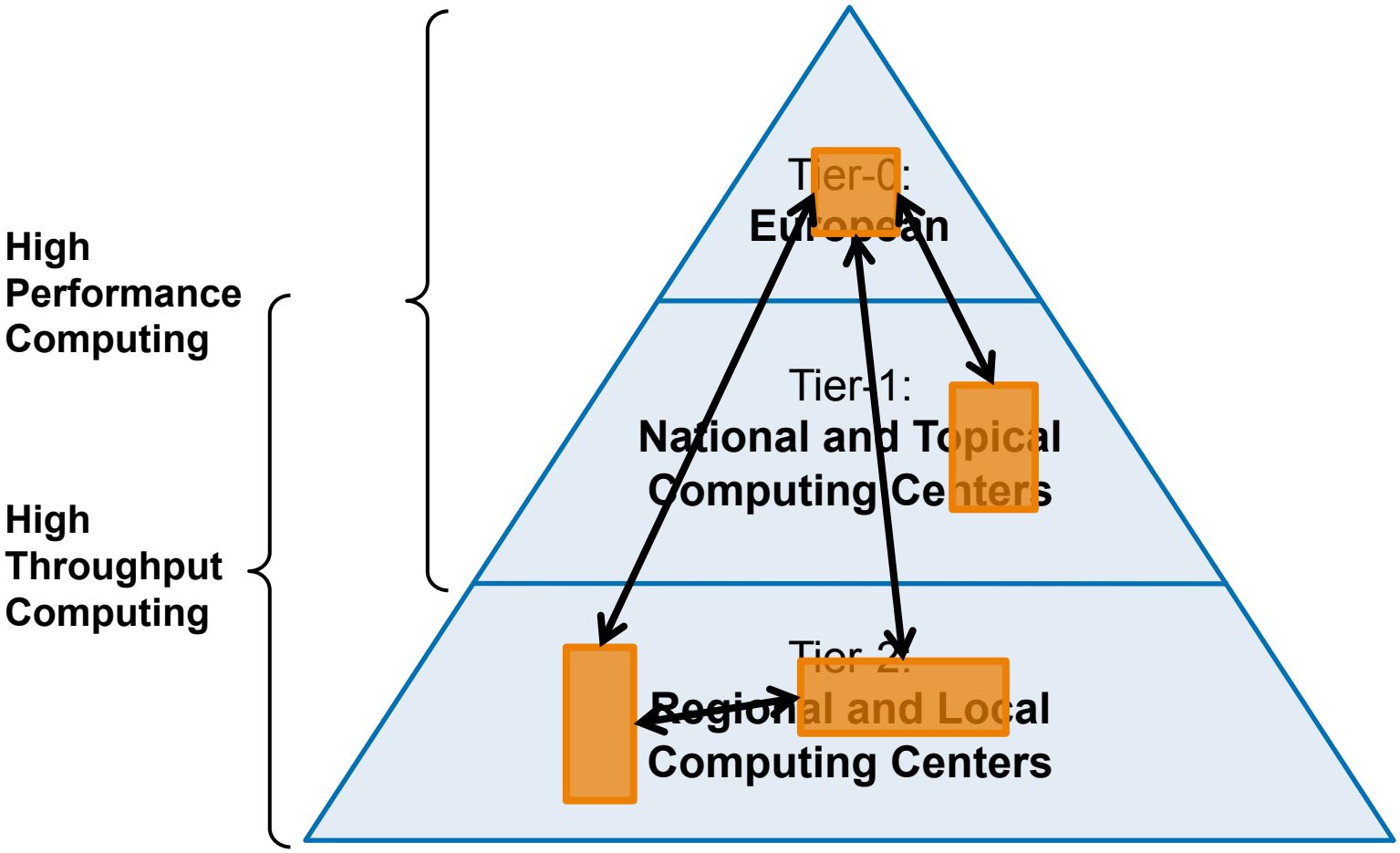
European Computing Infrastructures



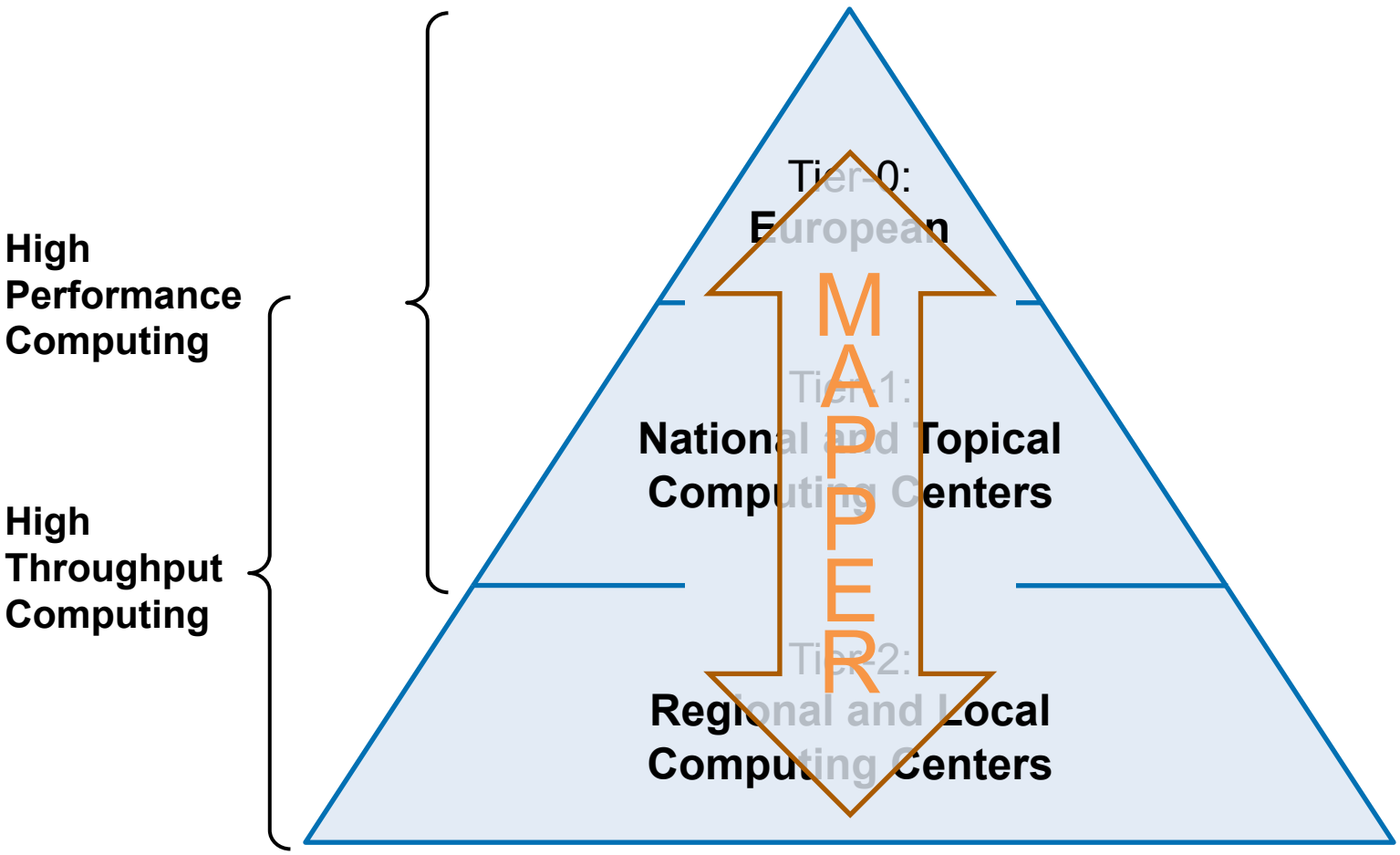
European Computing Infrastructures



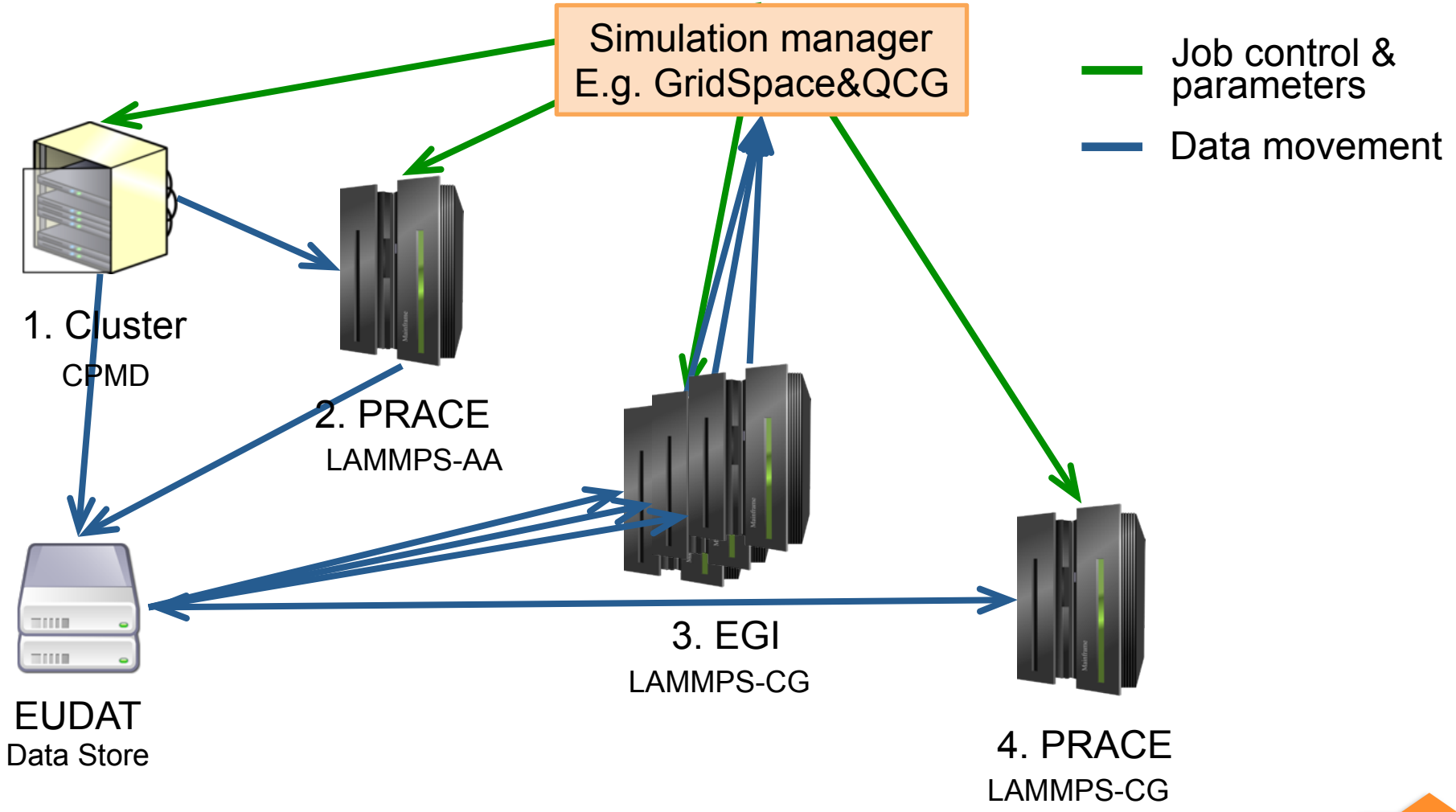
Multiscale Computing



Multiscale Computing



Nanomaterial use case



Resources & Services

- MAPPER e-Infrastructure
- European e-Infrastructures
  - EGI
  - EUDAT
  - PRACE
- National and regional service providers
- Shared academic facilities
- Local resources and services

MAPPER e-Infrastructure

- High throughput and high performance computing resources
  - Development, testing, debugging
- Tools and services for multiscale computing
- Training materials and documentation
- Support services

EGI

- European Grid Infrastructure

  Enables access to computing resources for European researchers from all fields of science, from High Energy Physics to Humanities.

- Legal entity: EGI.eu
  - Coordinates NGIs
- National and regional resources
  - ~500 resource providers

EUDAT

- European Data Infrastructure

  Support a Collaborative Data Infrastructure which will allow researchers to share data within and between communities and enable them to carry out their research effectively.

- Tools and services for managing
  - Scientific data
  - Big data

PRACE

- Partnership for Advanced Computing in Europe

  Enable and support European scientific discovery and engineering research and development across all disciplines to enhance European competitiveness for the benefit of society.

- Legal entity: PRACE AISBL

PRACE RI

- European and national HPC resources
  - 25 members
- PRACE Tier-0
  - 6 resources
- PRACE Tier-1
  - 19 resources

Application & Allocation

- PRACE
  - Tier-0 preparatory access
  - Tier-0 regular access
  - Tier-1 access (DECI)
- EGI
  - Virtual Organisations (VOs)
  - Virtual Research Communities (VRCs)
  - National Grid resources

AAA

- Authentication
  - Public-key infrastructure
  - Grid security infrastructure
- Authorization
  - Resources and services
- Accounting
  - Compute and storage quotas

Middleware & Services

- Network services
- Data management
- Unified Middleware Distribution
  - QCG
- Advance reservation and co-allocation
- Workflow management
- Federated cloud services

Training & Support

- Documentation, user guides and training material
- Application porting and enabling
- User support and help desk
- Workshops and training events

Summary

- Communicate your requirements
- Don’t hesitate to ask for support
- Foster interoperability between services
- Provide feedback
- Make friends with your regional and national computing centres
- Attend community-focused events
  - EGI Community Forum
  - PRACE User Forum

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Useful Links: MAPPER

- MAPPER
  - http://www.mapper-project.eu
- MAPPER tools and services
  - http://www.mapper-project.eu/web/guest/tools
- MAPPER documentation and training material
  - http://www.mapper-project.eu/web/guest/documents
- MAPPER user support
  - support@mapper-project.eu

Useful Links: EGI

- EGI
  - https://www.egi.eu/
- EGI membership
  - https://www.egi.eu/how-do-I/become_a_user.html
  - https://www.egi.eu/how-do-I/join_or_start_a_community.html
- EGI help desk and user support
  - https://ggus.eu

Useful Links: PRACE

- PRACE RI
  - http://www.prace-ri.eu
- PRACE Tier-0 preparatory access
  - http://www.prace-ri.eu/Preparatory-Access
- PRACE Tier-0 regular access
  - http://www.prace-ri.eu/Application-Guide
- PRACE Tier-1 DECI access
  - http://www.prace-ri.eu/DECI-Projects
- PRACE help desk and user support
  - https://tts.prace-ri.eu/SelfService/