EGI Federated Clouds
Task Force & Infrastructure

Michel Drescher, EGI.eu
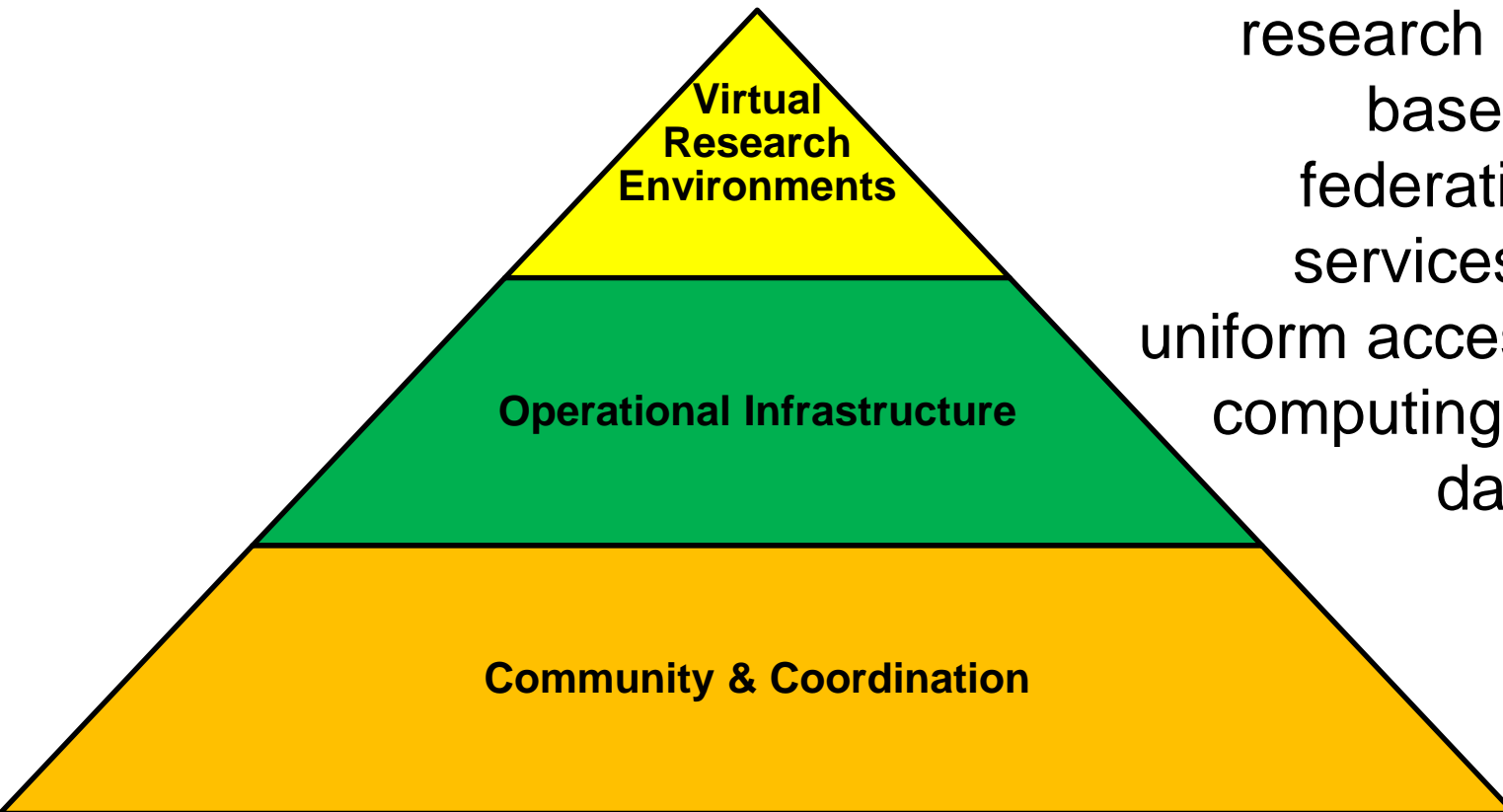
Ian Collier, STFC,

Participants in EGI

- **E**uropean
  - Over 35 countries
- **G**rid
  - Secure sharing
- **I**nfrastructure
  - Computers
  - Disk and tapes
  - Data Archives
  - Digital Libraries
  - ….
- EGI.eu @ Amsterdam
  - Dedicated organisation
  - Coordination for Europe
  - 26 staff

EGI Vision
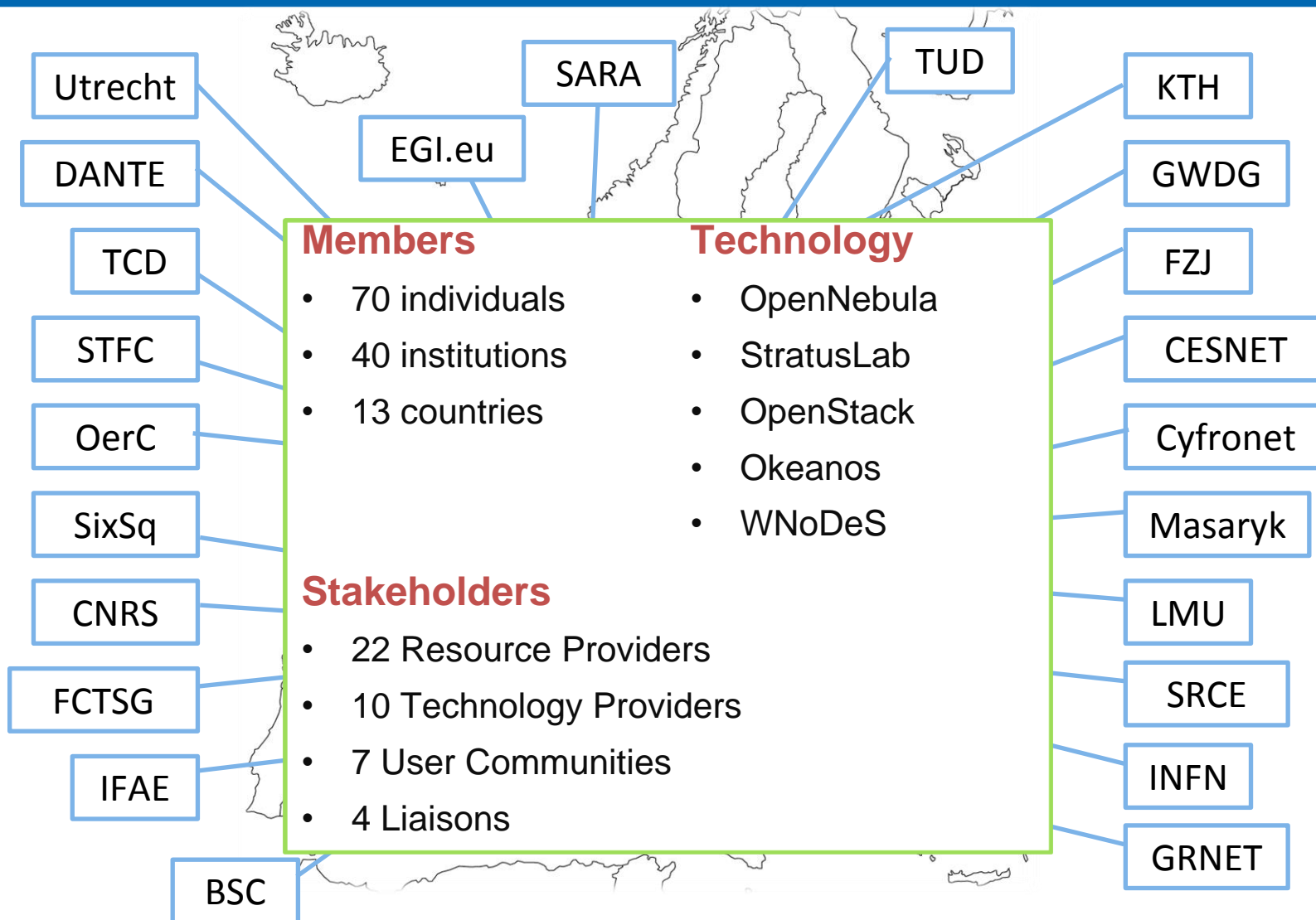
EGI 2020 Strategy:
http://go.egi.eu/EGI2020

To support the digital European Research Area through a pan-European research infrastructure based on an open federation of reliable services that provide uniform access to national computing, storage and data resources.

Virtual Research Environments

Operational Infrastructure

Community & Coordination

Consistently delivered across countries

- Consistency can only be achieved by standards
  - Provides an open platform for others to join
  - Provides a foundation for further innovation
- Multi-national deployment needs federation
  - Respect the local environment
  - Drive technical and policy alignment where needed

Community driven

Utrecht

DANTE

TCD

STFC

OerC

SixSq

CNRS

FCTSG

IFAE

SARA

EGI.eu

TUD

KTH

GWDG

FZJ

CESNET

Cyfronet

Masaryk

LMU

SRCE

INFN

GRNET

BSC

Members

- 70 individuals
- 40 institutions
- 13 countries

Technology

- OpenNebula
- StratusLab
- OpenStack
- Okeanos
- WNoDeS

Stakeholders

- 22 Resource Providers
- 10 Technology Providers
- 7 User Communities
- 4 Liaisons

EGI FedCloud testbed

- Resources (aggregated over all EGI RPs)
  - 900 CPU cores
  - 16 TB storage
  - Avg. 1 GB/s network I/O via GEANT
- 30 active individuals registered in the FedCloud VO
- Accounting (Mar 2012 – Mar 2013)
  - ???? Accounting records
    - 1900 from 5 OpenNebula sites
    - 200 from 2 OpenStack sites
    - 28 from StratusLab sites
  - Xxx cores
  - Xxx TB RAM
  - Xxx CPU wallclock time
  - Zzz hours median VM execution time

Scientific Use Cases

- **Structural biology** – We-NMR:
  Gromacs training environments.

- **Musicology** – Peachnote project:
  music score search engine and analysis platform.

- **Linguistics** – CLARIN:
  scalable 'British National Corpus' service (BNCWeb).

- **Ecology** – BioVel:
  remote hosting of OpenModeller service.

- **Space science** – ASTRA-GAIA:
  data integration with scalable workflows.

- **Software Engineering** – SCI-BUS:
  simulated environments for portal testing.

- **Software Engineering** – DIRAC:
  deploying ready-to-use distributed computing systems.

Enable an open ecosystem of services

EGI Collaboration Platform
"Tools & Services enabling cross-community collaboration"

Community Platform

Community Platform
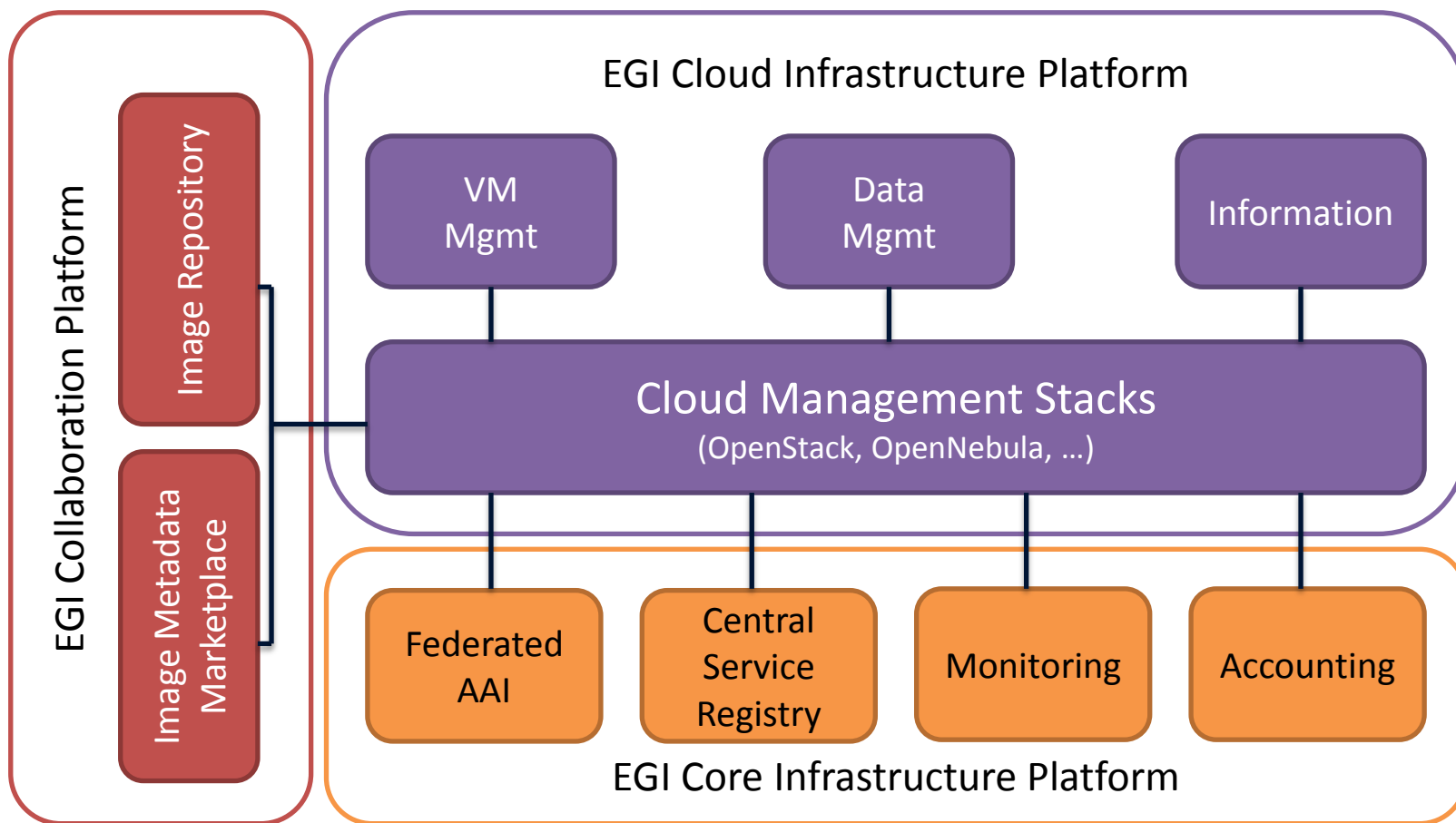
Community Platform
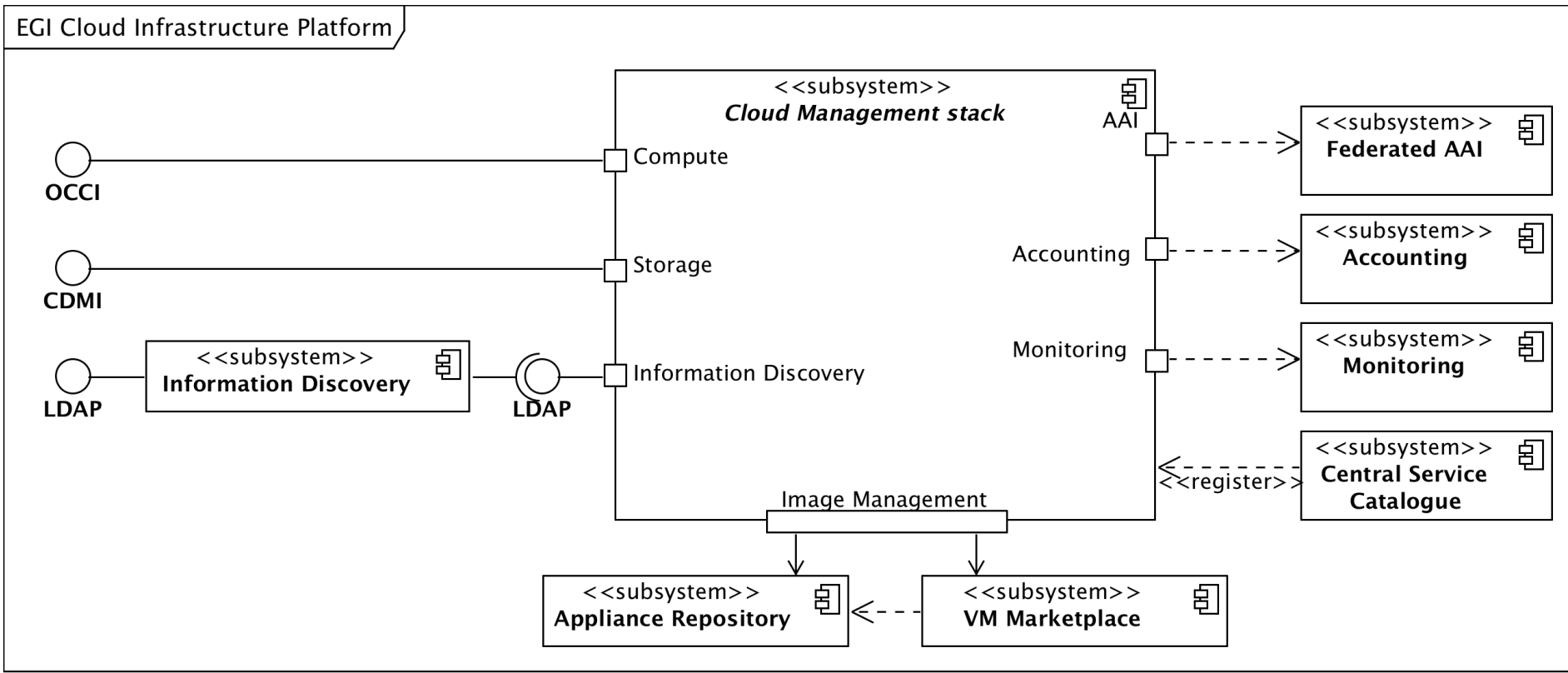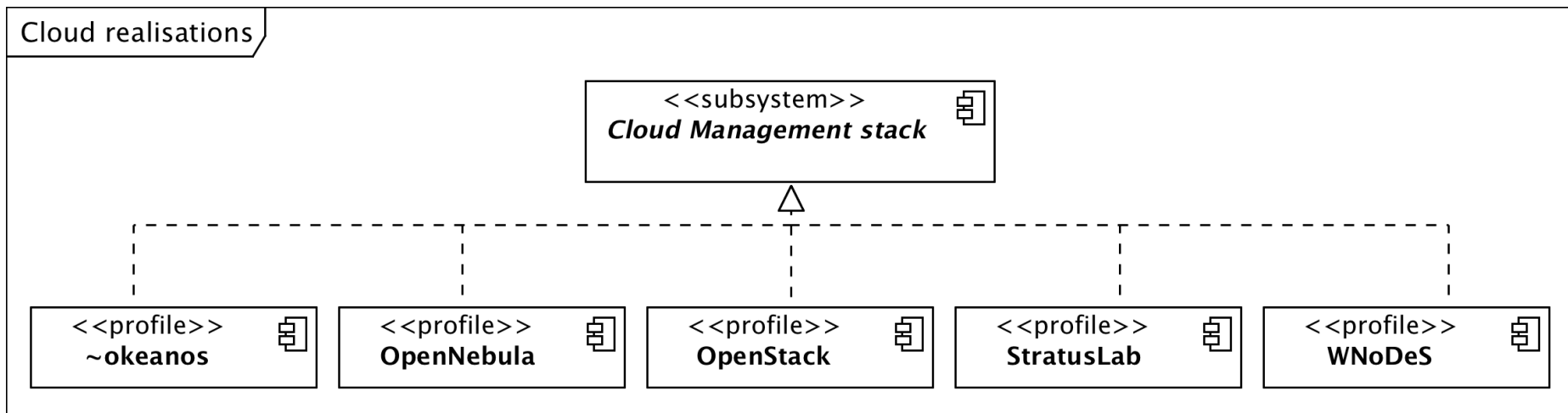
Community Platform

Community Platform

EGI Cloud Infrastr. Platform
"A federated IaaS Cloud infrastructure"

EGI Core Infrastructure Platform
"Operational services necessary for the management of federated DCIs"

Clouds combined with EGI's federation expertise

EGI Collaboration Platform

- Image Repository
- Image Metadata Marketplace

EGI Cloud Infrastructure Platform

- VM Mgmt
- Data Mgmt
- Information

Cloud Management Stacks
(OpenStack, OpenNebula, …)

EGI Core Infrastructure Platform

- Federated AAI
- Central Service Registry
- Monitoring
- Accounting

- Cloud deployments are *abstract* Platform subsystems!
- EGI Cloud Federation duties
  - Defining thin federation layer
  - Define central platform services
  - Test bed coordination
  - Forum for provider communities around Cloud Management stacks