Towards an EU-Africa Project

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Outline

- Status

- The SEE Experience

- The Opportunity
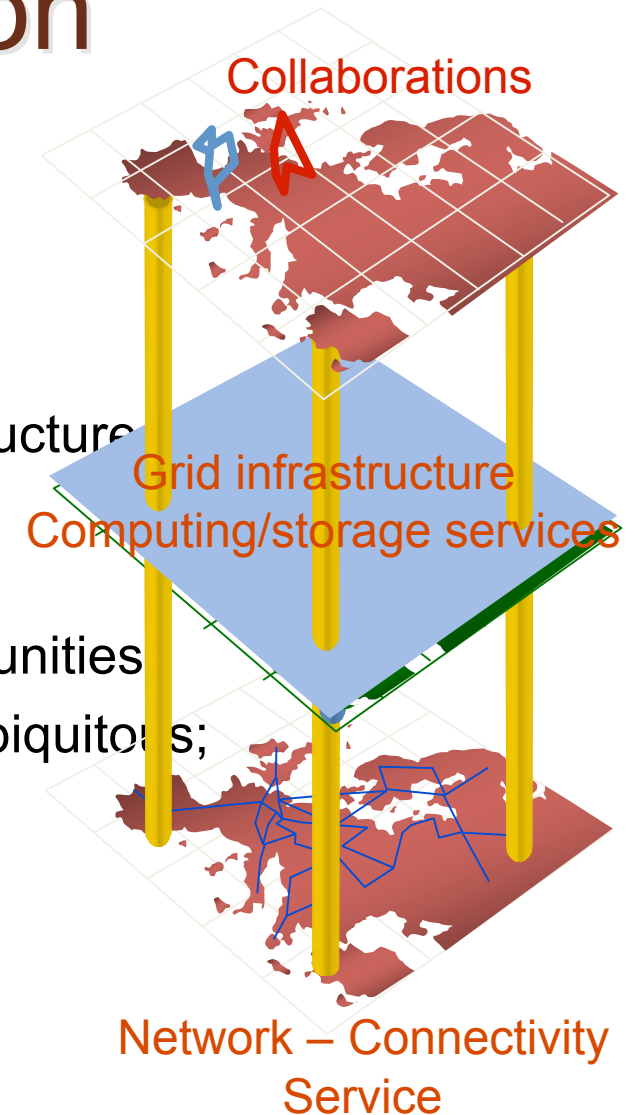
- A Phased Grid Approach

- Steps towards EUAfricaGrid

European Vision
Connnectivity
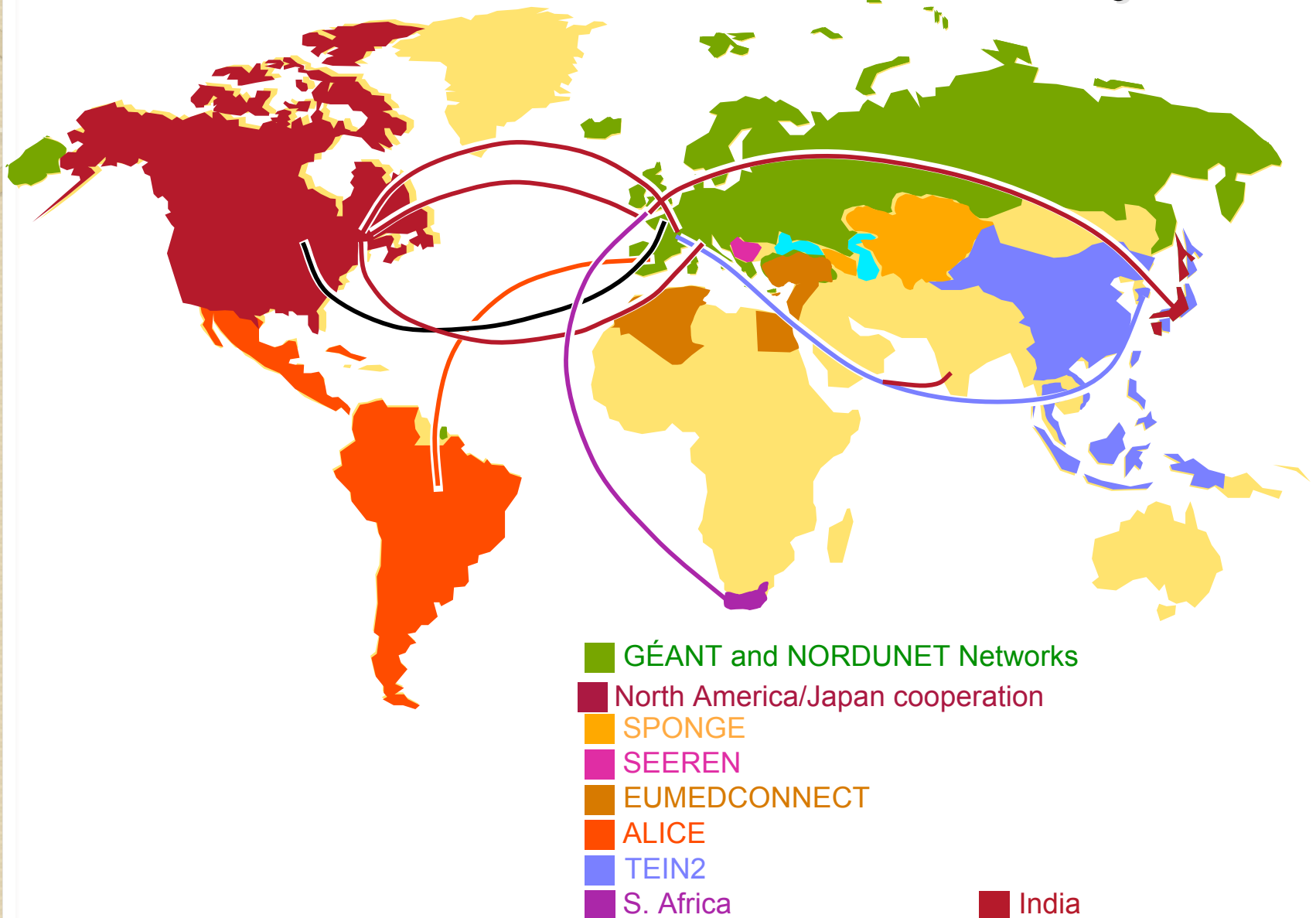Grids
Regional Projects

STATUS

The European Vision

- enfrastructure
- eScience
- A European-wide Grid infrastructure
  on top of a broadband networking infrastructure
  - Integrate computing power, storage, sensors, instruments and databases.
  - Open to wide user and provider communities
  - Transparent, reliable, pervasive and ubiquitous;
  - Secure; provide trust across multiple administrative domains.
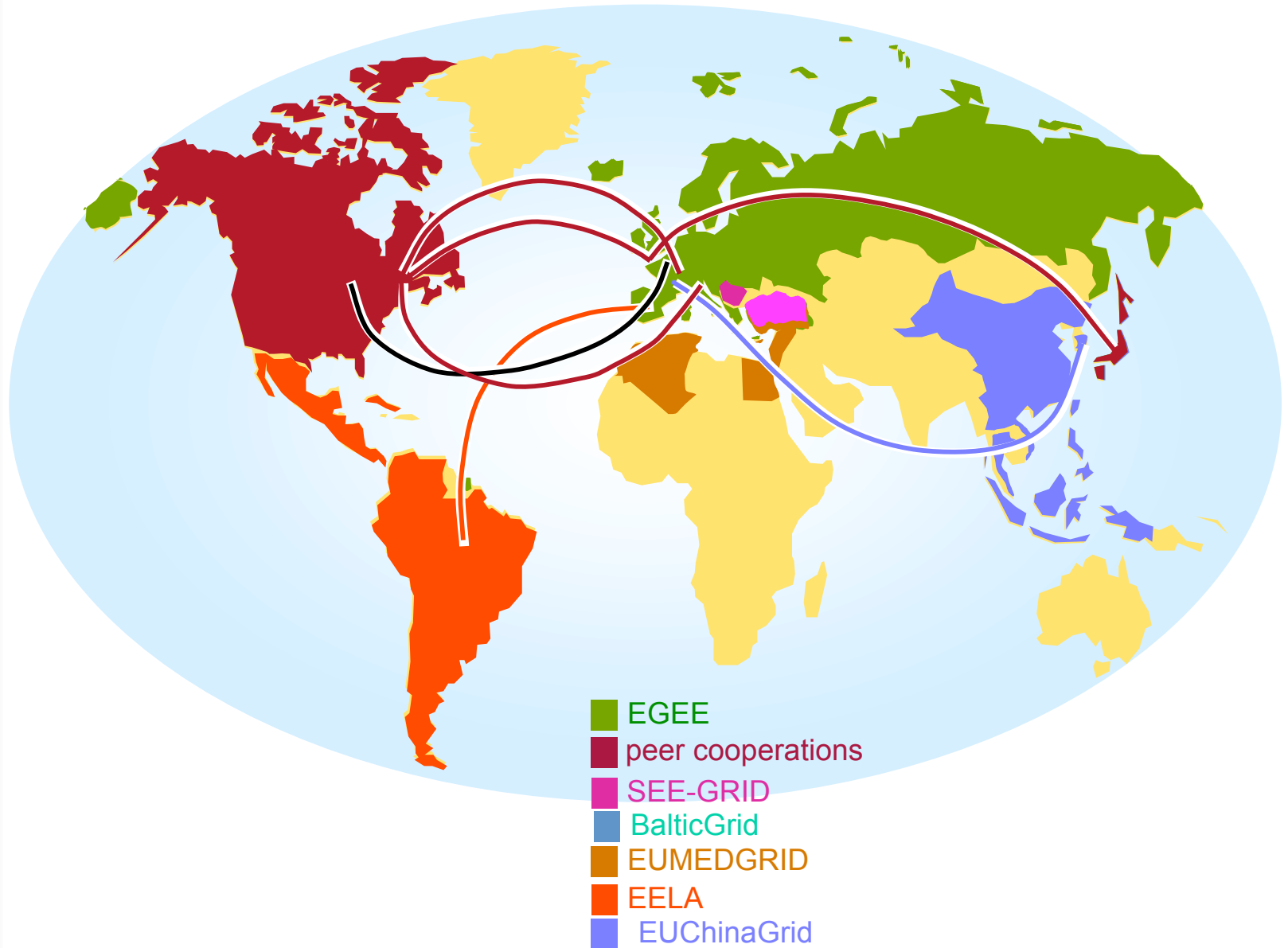 - Provide better service to its users.

Collaborations

Grid infrastructure
Computing/storage services

Network – Connectivity Service

GÉANT2 Global Connectivity

GÉANT and NORDUNET Networks
North America/Japan cooperation
SPONGE
SEEREN
EUMEDCONNECT
ALICE
TEIN2
S. Africa   India

Grids Global Coverage
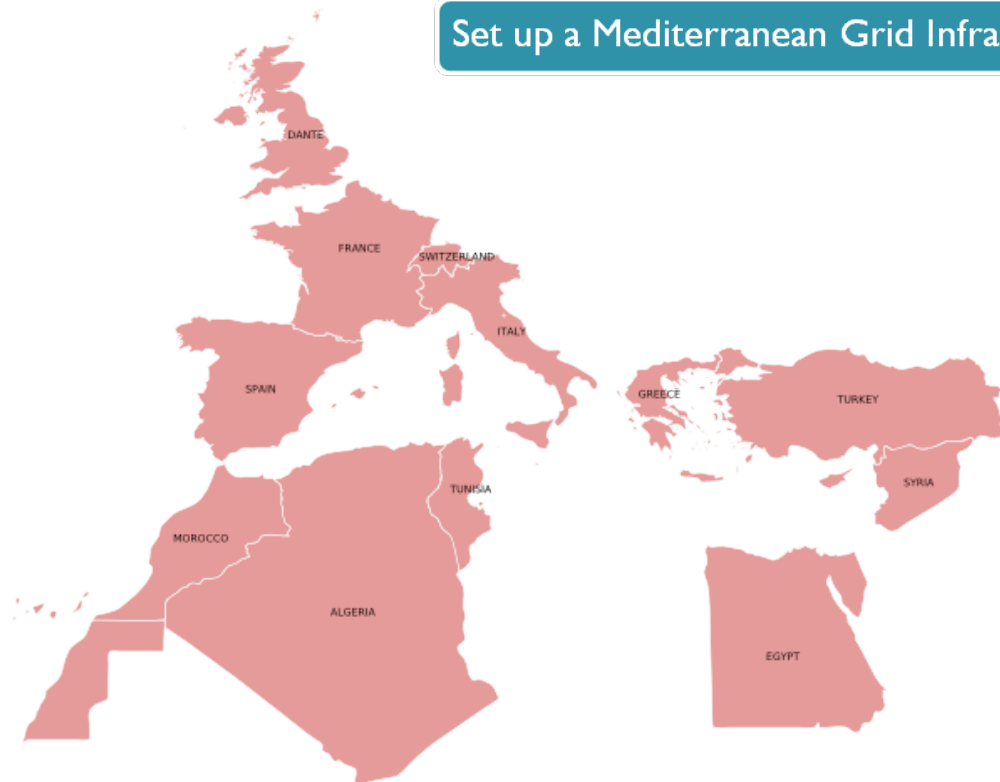

EGEE
peer cooperations
SEE-GRID
BalticGrid
EUMEDGRID
EELA
EUChinaGrid

EUMedGrid

1/1/2006 – 31/12/2007

Set up a Mediterranean Grid Infrastructure
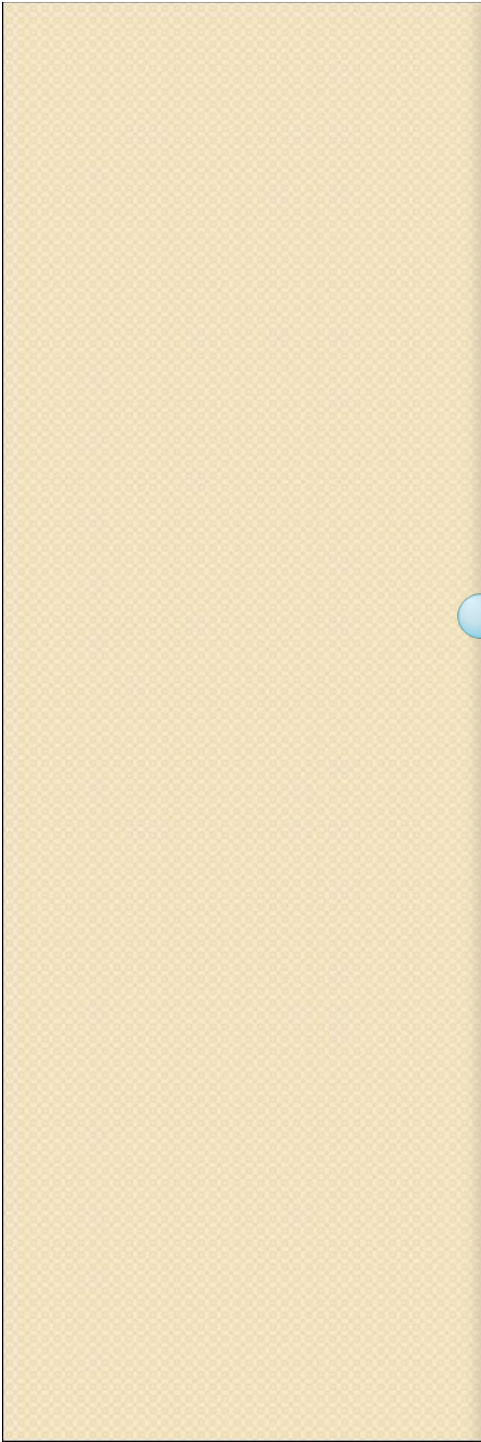
Black Sea Interconnection

Starts in 2008, 24 months

Connect South Caucasus to GÉANT

Greece
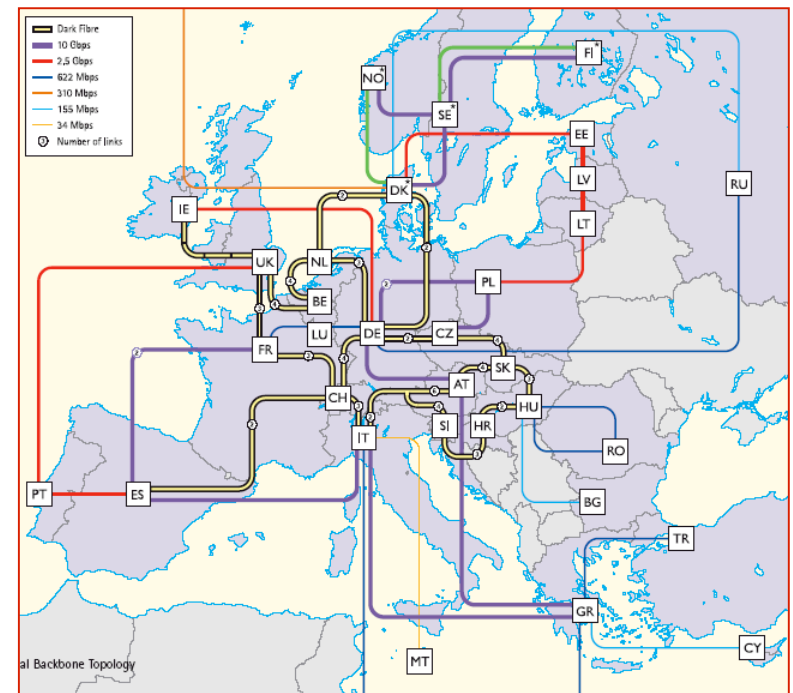
Turkey

Georgia

Armenia Azerbaijan

SEE: Regional Vision
SEE: Timeline
SEEREN
SEELight: SEE lambda Facility
The SEE-Grid Initiative
SEE-GRID-2 Partners
SEE-GRID-2 Objectives
Sustainability
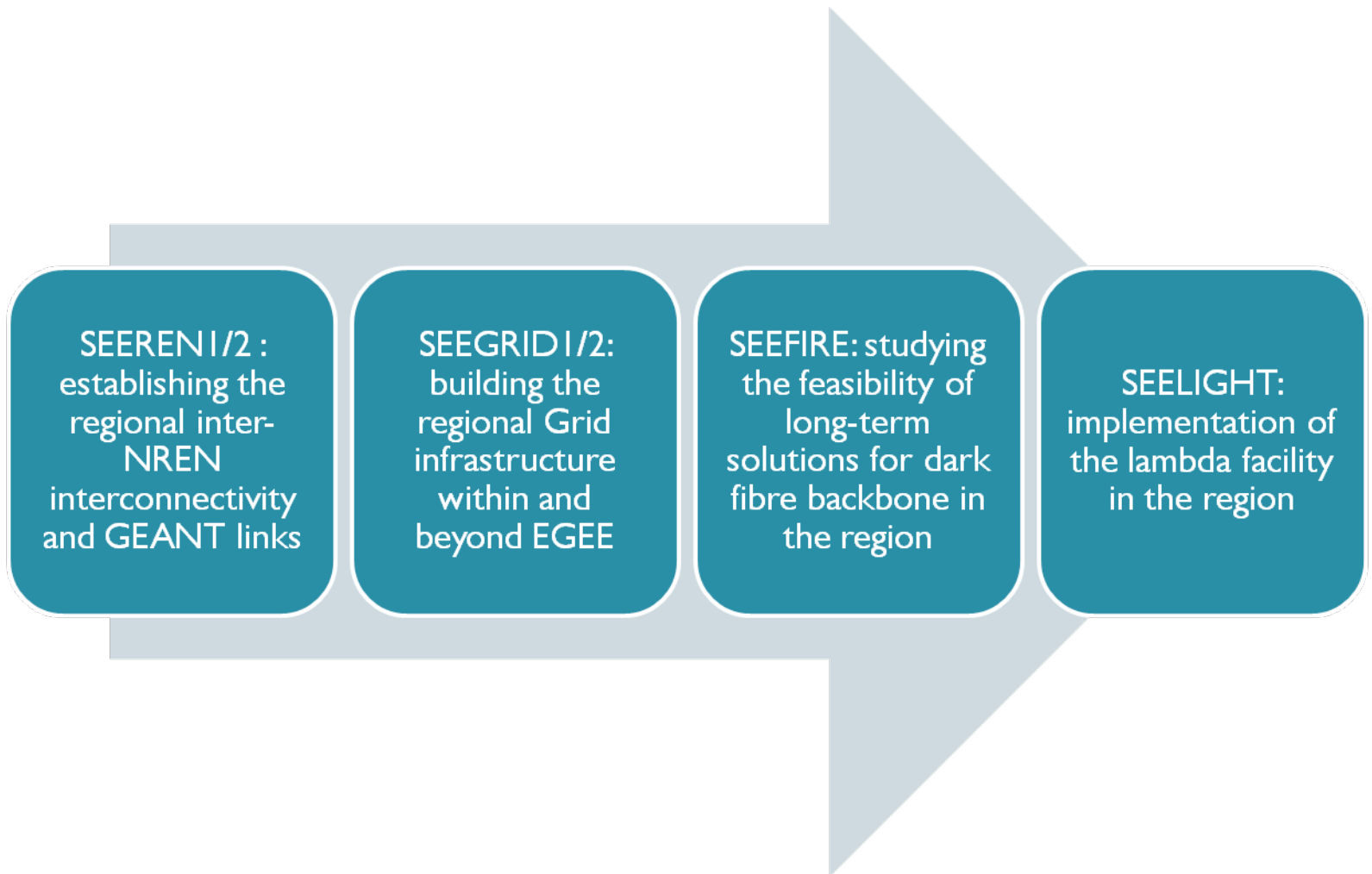NGI Status
SEE-GRID-2 in Numbers

THE SEE EXPERIENCE

SEE: Regional Vision

- Ease the digital divide in SEE
- Reconstruction, stabilisation
- Scientific and educational cooperation between EU MS and SEE
- Disseminate eInfrastructure technologies

SEE: Timeline

SEEREN1/2 : establishing the regional inter-NREN interconnectivity and GEANT links

SEEGRID1/2: building the regional Grid infrastructure within and beyond EGEE

SEEFIRE: studying the feasibility of long-term solutions for dark fibre backbone in the region

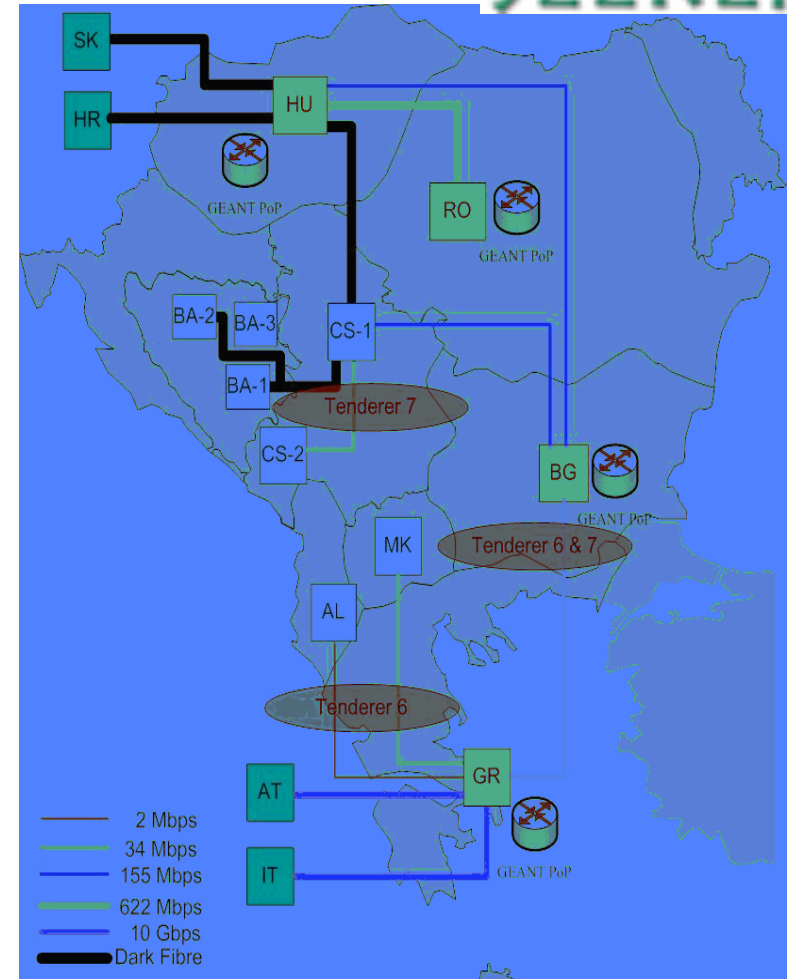**SEELIGHT:** implementation of the lambda facility in the region

SEEREN

South-Eastern European Research and Education Network

- Interconnects the Research and Education Networks of AL, BA, BG, MK, RS, HU, RO, MO and GR among them and to GEANT.
- Launched and entered stable operation on Jan. 2004.
  - in 2005 connectivity is co-funded by GEANT2.
  - 2006: SEEREN2, 2,5ME
- Constitutes today the SEE segment of GEANT
- Distributes the Network Management & Operations to competent Academic Groups in the Region (the Virtual Network Operations Center – VNOC concept developed by GRNET).
- SEEREN enacted a communication channel between the SEE scientific community. Refocused the R&E community in their common endeavors

More at: www.seeren.org

SEELight: SEE lambda Facility

- Project for the deployment of an advanced regional network infrastructure (lambda network facility) for R&E, under the Hellenic Plan for the Economic Reconstruction of the Balkans (HiPERB).
- Budget 20-30ME. Started.
- SEELight is the response to the need of SEE for high-quality research and education. The project will:
  - help create a viable economy-of-scale model for the region to **reduce networking costs per country**,
  - **support the evolving needs** of SEE R&E communities in the fields of domestic and international data communications,
  - serve as a **testbed for development of new services**, and allow the SEE R&E community to participate in international networking activities
  - assist the SEE countries to achieve their development goals, support the growth of their National Research & Education Networks (NRENs), accelerate research, fuel national and regional economic growth, and aid their integration with the rest of Europe.
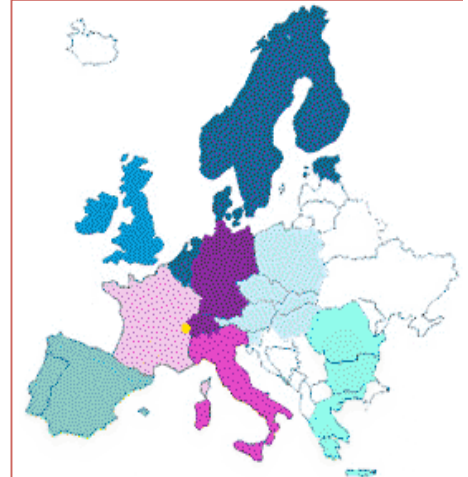
The SEE-GRID Initiative

Contribute to building a Pan-EU eInfrastructure by expanding the "eInfrastructure inclusion" into South-East Europe
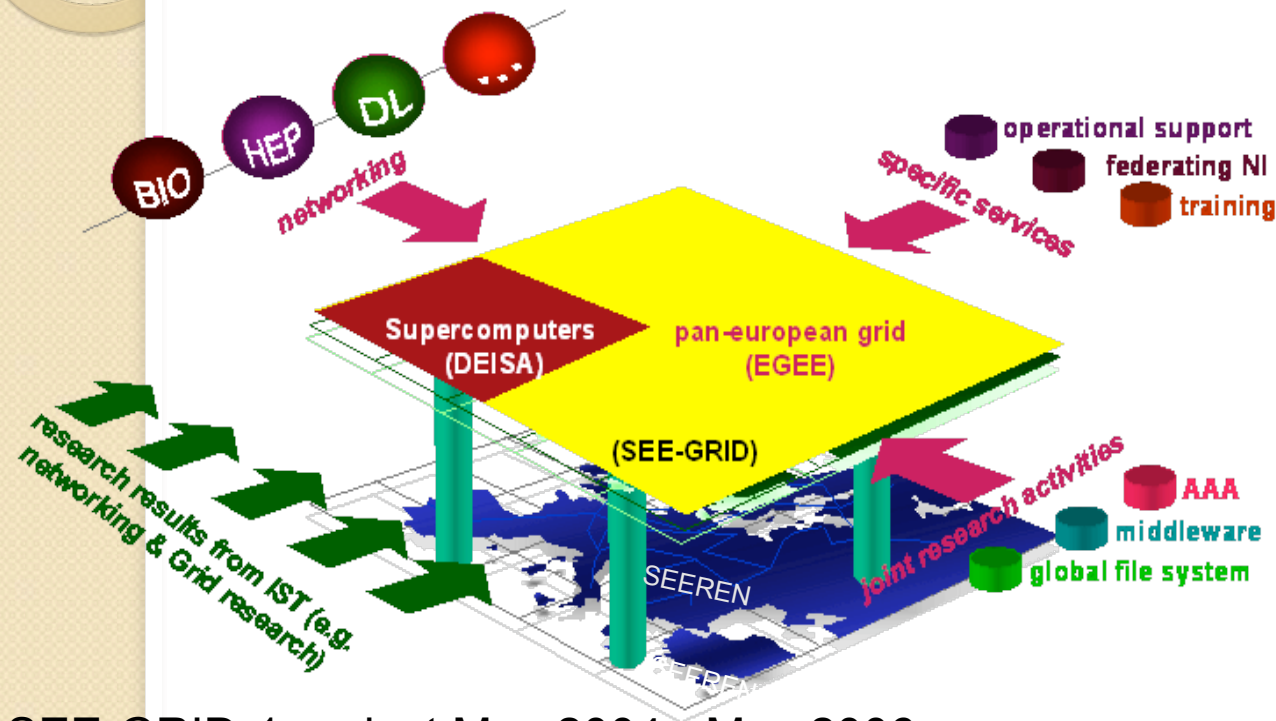
SEE-GRID-1 project May 2004 - May 2006
SEE-GRID-2 project May 2006 - May 2008

SEE-GRID-2: Partners

Start date:	01/05/2006
Duration:	24 months
Total Budget:	2,002,691 €

Contractors

GRNET	Greece
CERN	Switzerland
SZTAKI	Hungary
IPP-BAS	Bulgaria
ICI	Romania
TUBITAK	Turkey
ASA/INIMA	Albania
UoBL	Bosnia-Herzegovin
UKIM	FYR of Macedonia
UOB	Serbia
UoM	Montenegro
RENAM	Moldova
RBI	Croatia
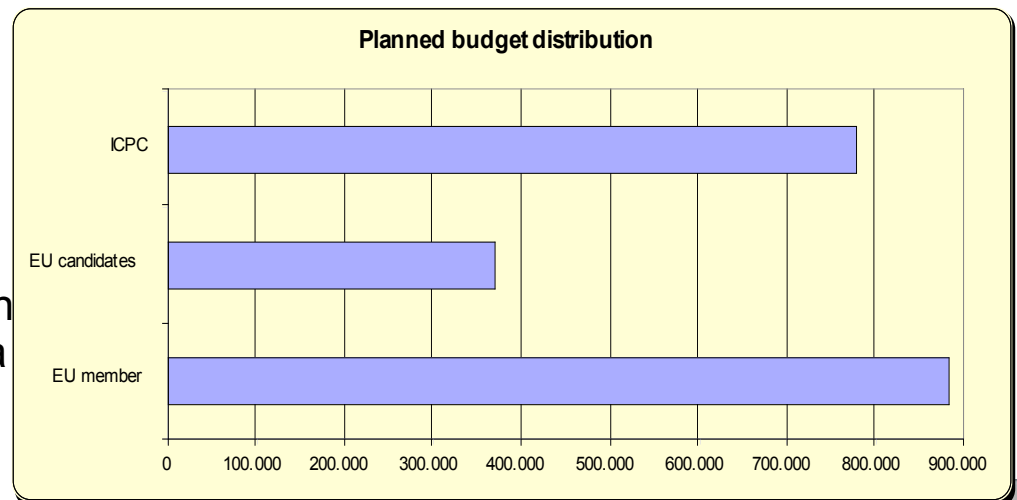
Third Party / JRU mechanism used

27 universities / research centrers

Planned budget distribution
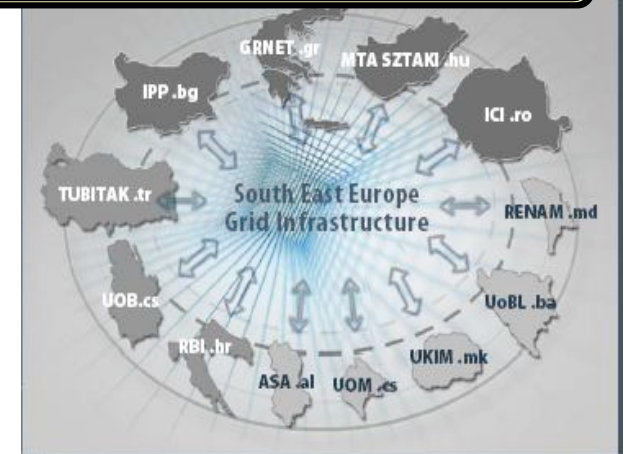
SEE-GRID-2 Objectives

- Sustainable development
- Upgrade infrastructure
- Strengthen human network

Sustainability

- National Grid Initiative (NGI) concept strongly supported by SEE-GRID-2; input to EGI concept

- SEE-GRID guideline on the NGI set-up procedure: cook-book

- Ongoing national-level actions towards:
  - NGI national-level and government recognition
  - NGI optimal structuring
  - NRN cooperation
  - eInfrastructure national strategy
  - National-level policies
  - National-level projects
  - Technical independence

NGI Status

MGKK
2003

CRO_GRID
01/04

RoGRID
05/05

NGI-BA
03/06

AEGIS
04/05

MGI
11/06

MARGI
04/05

BGCC
01/03

HellasGrid
11/03

TR-GRID
09/03
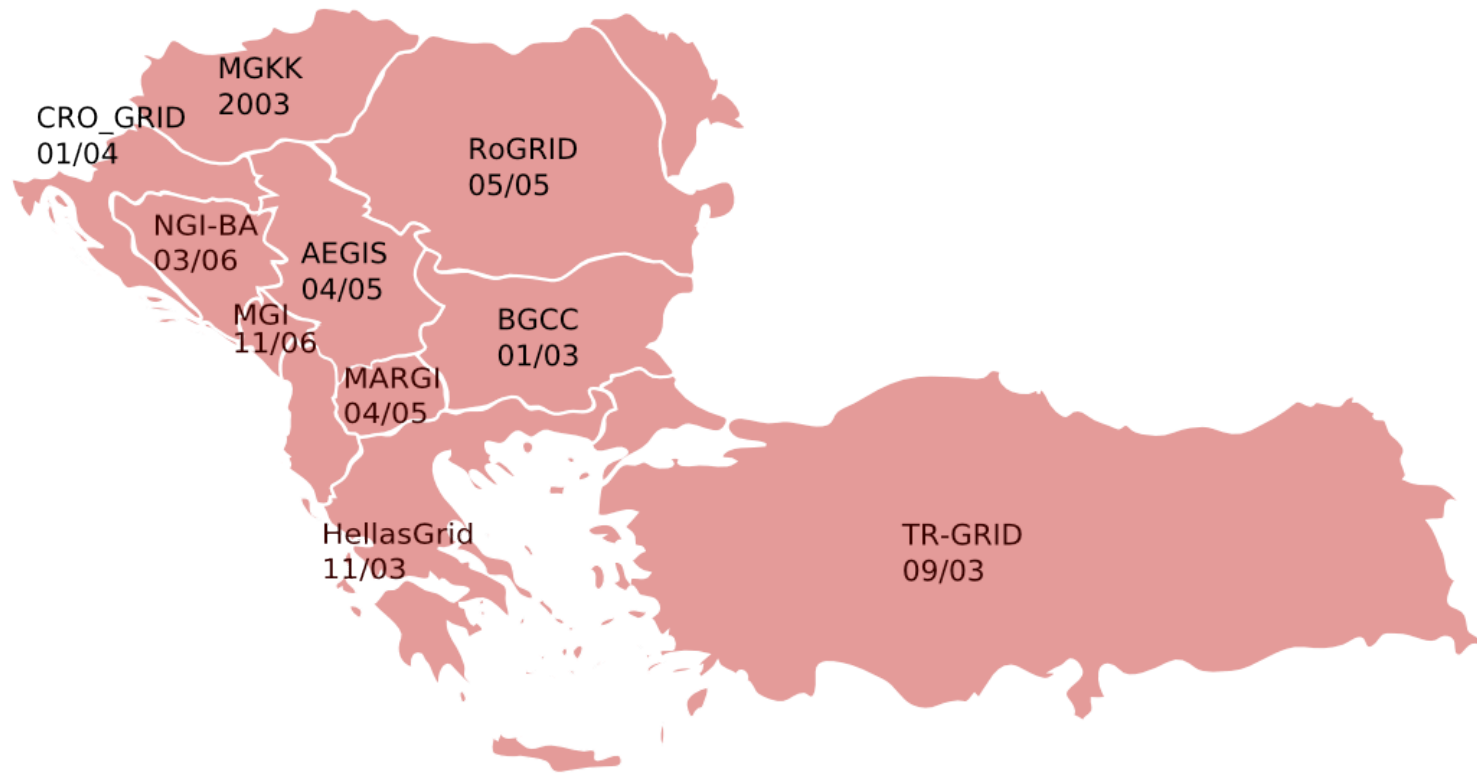
SEE-GRID-2 in numbers

- **Project**
  - Total Budget 2.028.886 Euros of which EC funding 2.002.691 Euros
  - Total partner institutions 40; contracting partners 13
  - Number of countries represented by project partners 12
- **Infrastructure**
  - Number of sites in the SEE-GRID infrastructure: 31
  - Number of countries in the SEE-GRID infrastructure: 12
  - Number of CPUs available to users 24/7: > 950
  - Storage capacity available to users 24/7: > 24 TB disk
- **Users**
  - Number of Virtual Organisations using the SEE-GRID infrastructure: > 6 Regional & national, 8 EGEE VOs
  - Number of application domains making use of the SEEGRID infrastructure: more than 10
  - Number of registered users: > 175
  - Number of active users: > 57
  - Number of scientists benefiting from the existence of the SEE-GRID infrastructure: ~ 300
  - Number of jobs: 600 jobs/day for SEE-GRID VO only
- **Trained People > 250**
- **Disseminated to > 4000 people**

Movers
The Instrument
The Rules

THE OPPORTUNITY

Movers

- Keen EU Interest
- Good natured competition with our partners in the globe
- Untapped potential
- Parallels between Africa and SEE:
  - Troubled past
  - Big potential

The Instrument

- EU FP7 Programme
- Last relevant call: 09/07
- Current call: 2/08
- Next call: 09/08

The Rules

- Cost €2M - €4 M (€2M+)
- 24 – 36 months
- Partners balanced
- Funding people, not equipment
- Networking + Grids + Applications

Overall Model
1: Human Network
2: Dissemination & Training
3: Pilot Infrastructure
4: Pilot Applications
Strategic Priorities

A PHASED GRID APPROACH
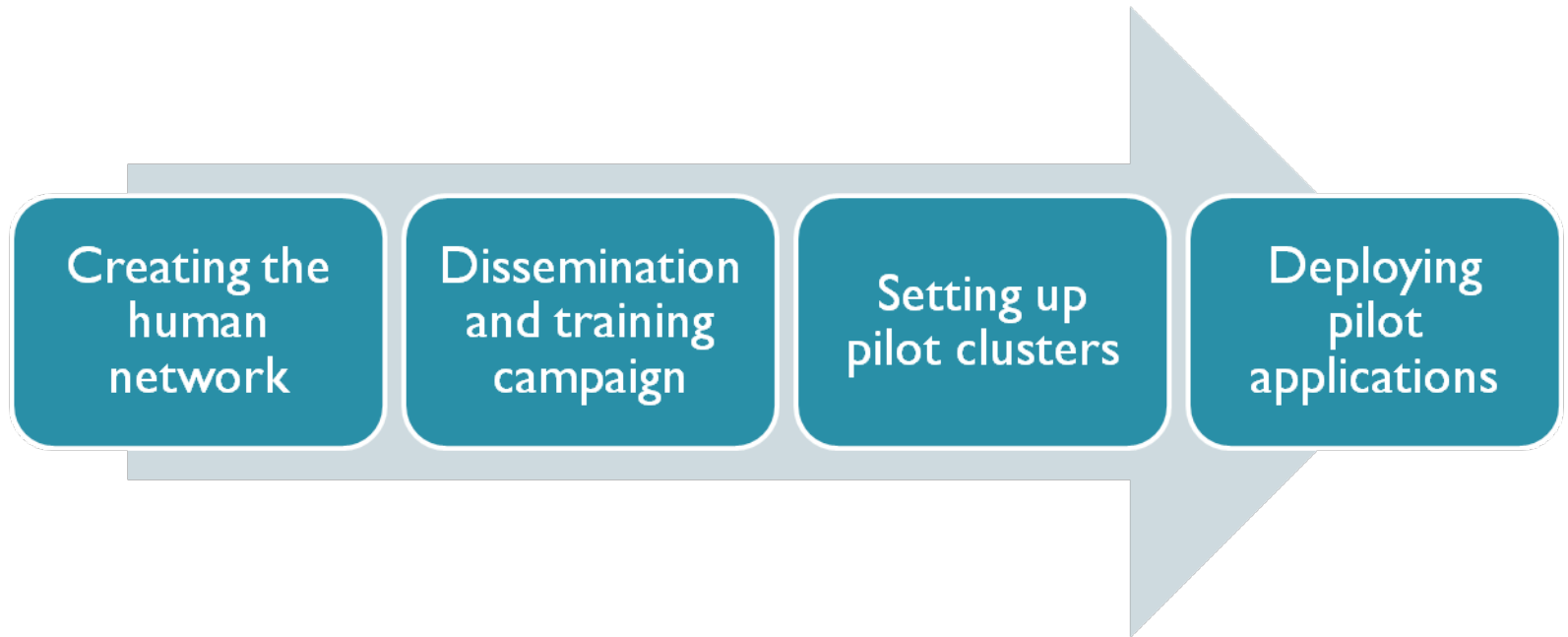
Overall Model

Networking → Grid → Applications

The main issue is lack of NRENs and inter-NREN connectivity in Africa

Still possible to carry out phased soft actions in the Grid area

Phased Grid Approach

Creating the human network → Dissemination and training campaign → Setting up pilot clusters → Deploying pilot applications

1: Human Network

- Research institutes interested in scientific computing.
- Large computing centres.
- Research teams in need of storage/computing facilities for their research.
- International collaborations with Europe in compute-intensive research fields.
- Form a wide community – achieve a critical mass.
- Identify a champion.

2: Dissemination & Training

- Dissemination targeted at:
  - Specific stakeholders
  - Wider research community
  - Policy-makers
- Training targeted at:
  - Grid operators
  - Users

3: Pilot Infrastructure

- Possible without powerful connectivity
- One cluster per country
- Small clusters: 5-10 nodes possible
- Setting up regional core services
- Proof-of principle regional infrastructure, enabling training of operators, training of users, deployment of pilot applications, and encouraging resource sharing culture.

4: Pilot Applications

- As proof-of principle
- As demonstrators to attract local interest and support
- Possibly low on computing, storage and latency requirements
- But demonstrating the Grid principle

Conclusions

- South-East European initiatives managed to bring this unprivileged region to the level of Western European developments within a time span of 3 years.

- An example of how a set of complementary and coordinated activities can achieve rapid development.

- The African Grid initiative can be carried out despite unprivileged status of the network.

- A phased model of soft actions is applicable.

- SEE initiatives are open for discussions, feedback, inputs to other regional initiatives!