

African European Georesources Observation System

Spatial Data Infrastructure (SDI)



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Outline



AEGOS

AFRICA-EUROPEAN GEORESOURCES OBSERVATION SYSTEM

- Project Overview
- AEGOS – SDI
 - data / services
 - hardware / software

Summary



WHY Strengthen the sustainable use of georesources in Africa

- WHAT**
- Design and implement a pan-African infrastructure to exchange geoscientific data
 - Design **user-oriented services** to strengthen use of georesources
 - Create a **network** of geoscientific organisations and users
 - **Capacity building** and training
 - **Support** geoscientific communities and institutional decision-makers for development of relevant public policies
 - **Cooperation** with international initiatives: GEOSS, GMES, INSPIRE, OneGeology, OneGeologyEurope

WHO 23 Geoscientific institutions from Africa and Europe
(geological surveys, ministries of mines, school of mines, international organisations)

WHEN 2008-2011 Preparatory phase: *Design of infrastructure*
2012-2016 Implementation phase: *Establishment of infrastructure*

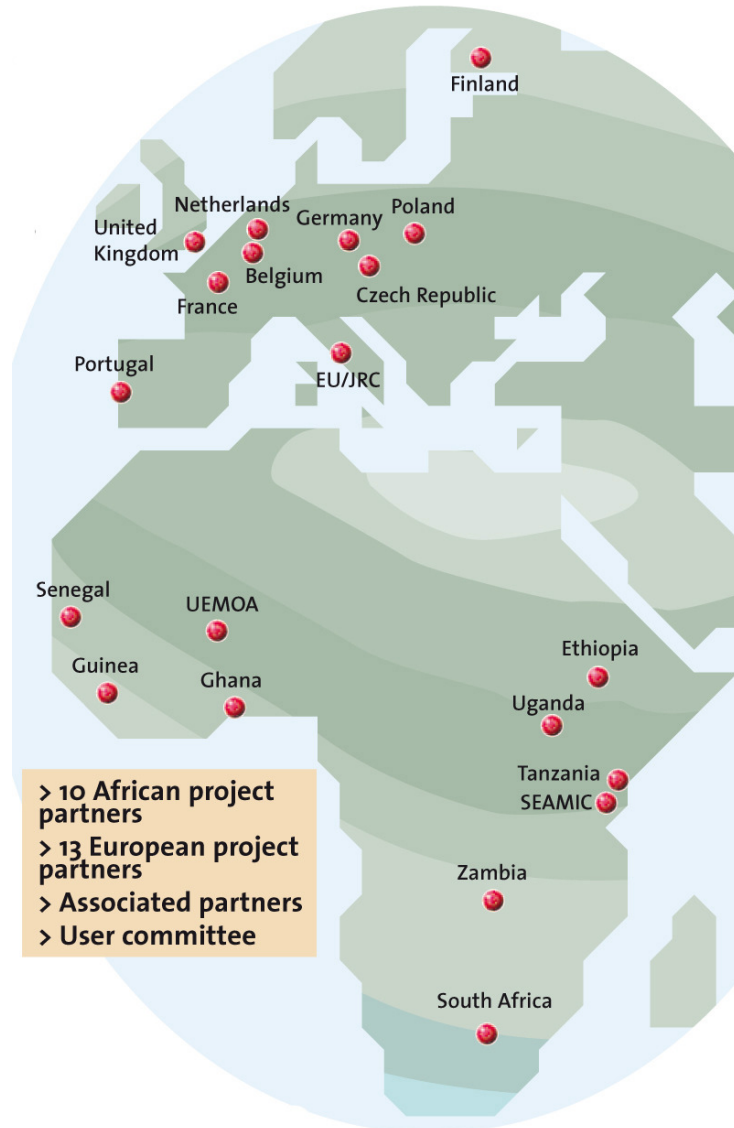


Partners



AEGOS

AFRICA-EUROPEAN GEORESOURCES OBSERVATION SYSTEM



Europe:

- 9 European geological surveys

BRGM, BGR, BGS, CzechGS, GTK, RBINS-RMCA, PGI, INO, INETI

- 1 Consulting engineers

BEAK Consultants, Freiberg

- 3 International Organisations

CIFEG, IRD, JRC

Africa:

- 8 African counterparts: geological surveys, ministries of mines, school of mines

CGS, DNG, GD-SOM-UNZA, GSD, GSE, GSM, IRA, MMI

- 2 International Organisations

UEMOA, SEAMIC, (ECOWAS)

Schedule



AFRICAN-EUROPEAN GEORESOURCES OBSERVATION SYSTEM

2004-2008 Preparation

- AEGOS initiative and project definition by different European geological surveys and geo-related institutions and consultancies

2008-2011 Coordinated Action: *Design of infrastructure*

- Febr. 2009 **Lauching Conference** (Cape Town)
- May 2010 **Mid-term Conference** (Dar Es Salaam)
- April 2011 **Final Conference** (Dakar)



- *EU: 7th Research Programme*

2012-2016 Implementation phase: *Implementation of infrastructure*

- Installation and configuration of infrastructure
- Creation of coordination unit – AEGOS Headquarters / regional centers
- Setting up Web-Services including GIS(?)
- Training



Structure



SOURCES OBSERVATION SYSTEM

**AEGOS coordinated action:
A charter for network development and
design of observation system**

**WP7: AEGOS as a geoscientific
Contribution to GEOSS, in the context
of INSPIRE European Directive**

CGS
BGS

**Operational procedures for
data management**

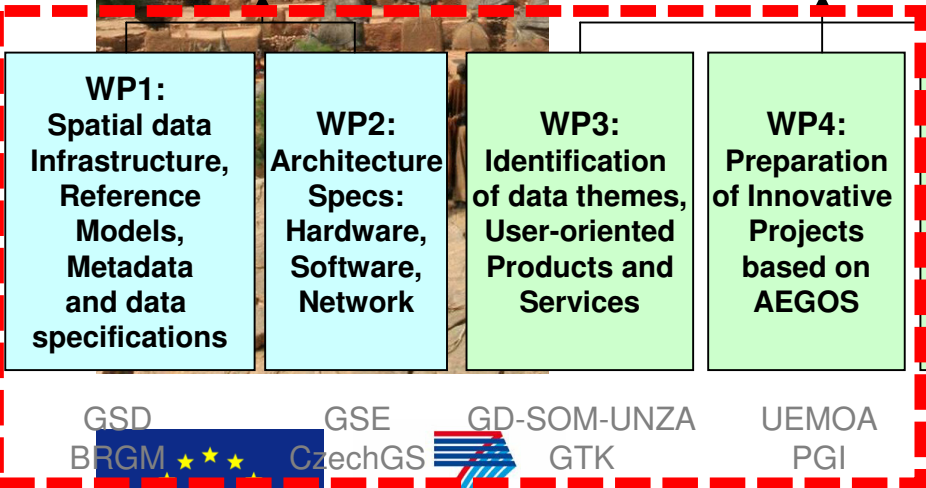
**User-oriented products
and services**

**Human
resources**

**WP8:
Project
Management**

**T8.5:
Sustainable
AEGOS
infrastructure**

**WP9:
Information and
dissemination
system of the
Support Action**



**WP1:
Spatial data
Infrastructure,
Reference
Models,
Metadata
and data
specifications**

**WP2:
Architecture
Specs:
Hardware,
Software,
Network**

**WP3:
Identification
of data themes,
User-oriented
Products and
Services**

**WP4:
Preparation
of Innovative
Projects
based on
AEGOS**

**WP5:
Interoperability,
Interdisciplinarity
in support
of GEOSS**

**WP6:
Definition
of common
strategies for
capacity building
and training**

GSD
BRGM



GSE
CzechGS



GD-SOM-UNZA
GTK

UEMOA
PGI

IRA
JRC

SEAMIC
BGR

BRGM
CGS,
BGR

CGS
CIFEC

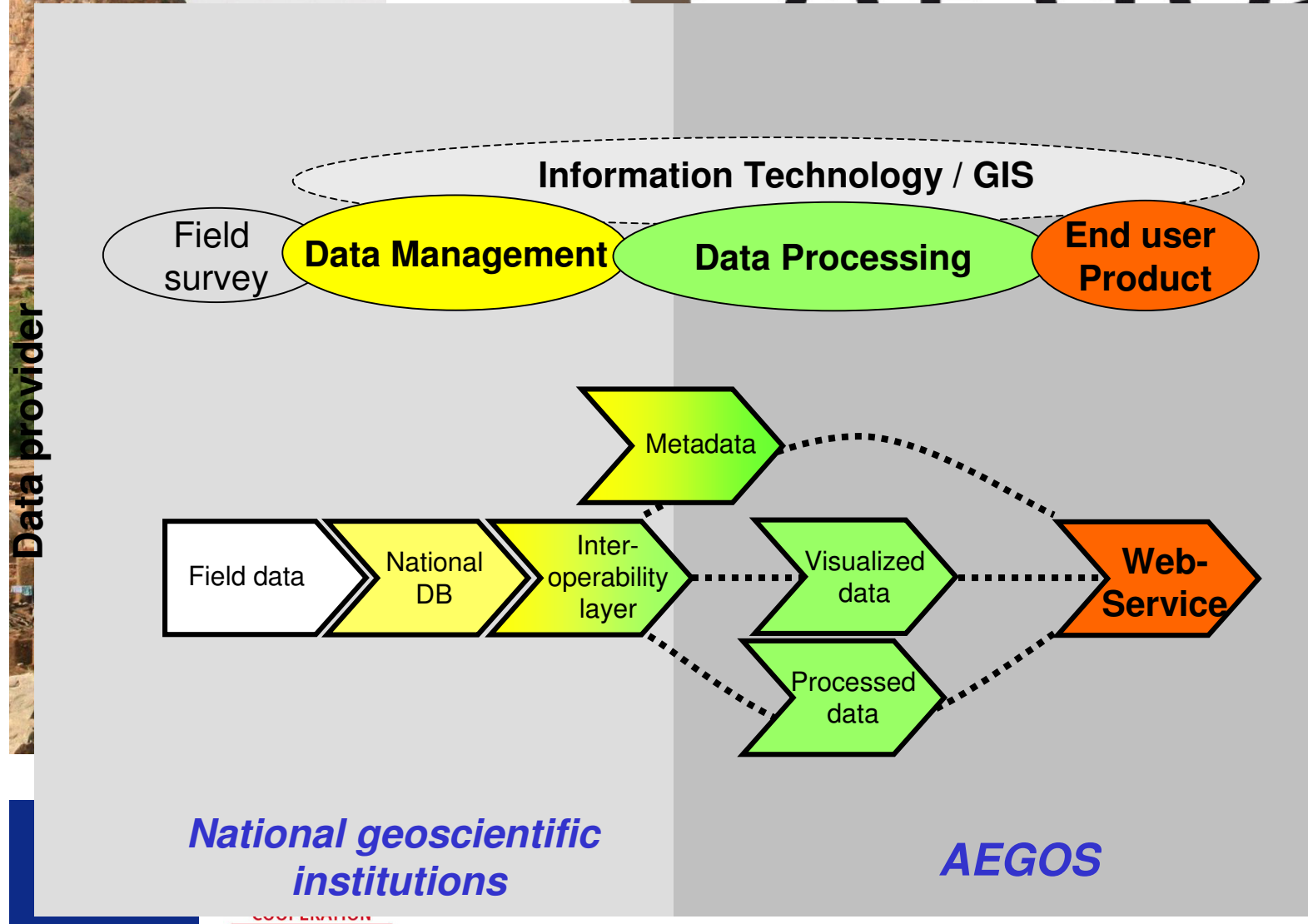
WP = Workpackage

Objectives of AEGOS



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SYSTEM

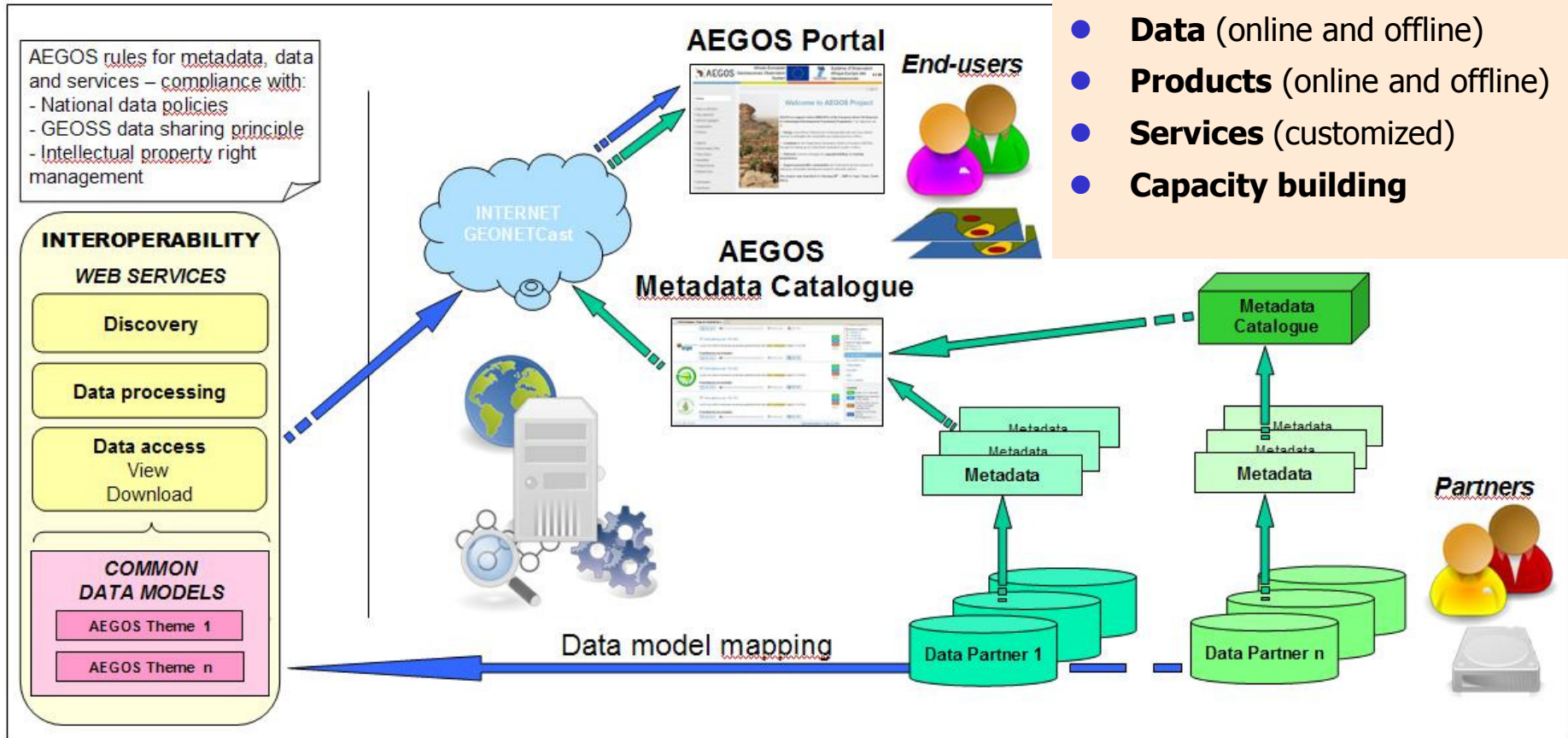


AEGOS-SDI - data / services:

Web-Services infrastructure

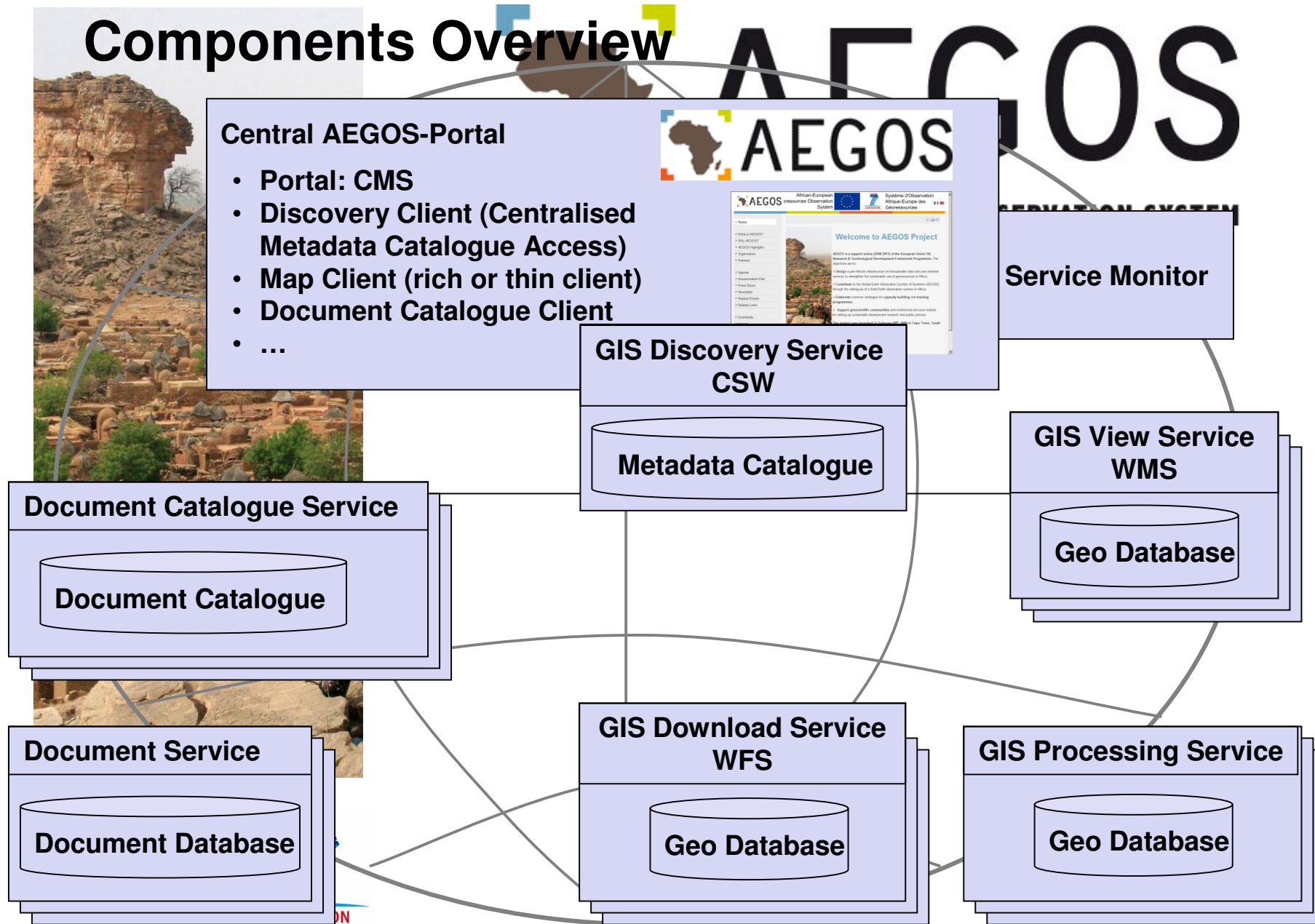


- **Metadata** online
- **Data** (online and offline)
- **Products** (online and offline)
- **Services** (customized)
- **Capacity building**



AEGOS-SDI - data / services:

Components Overview

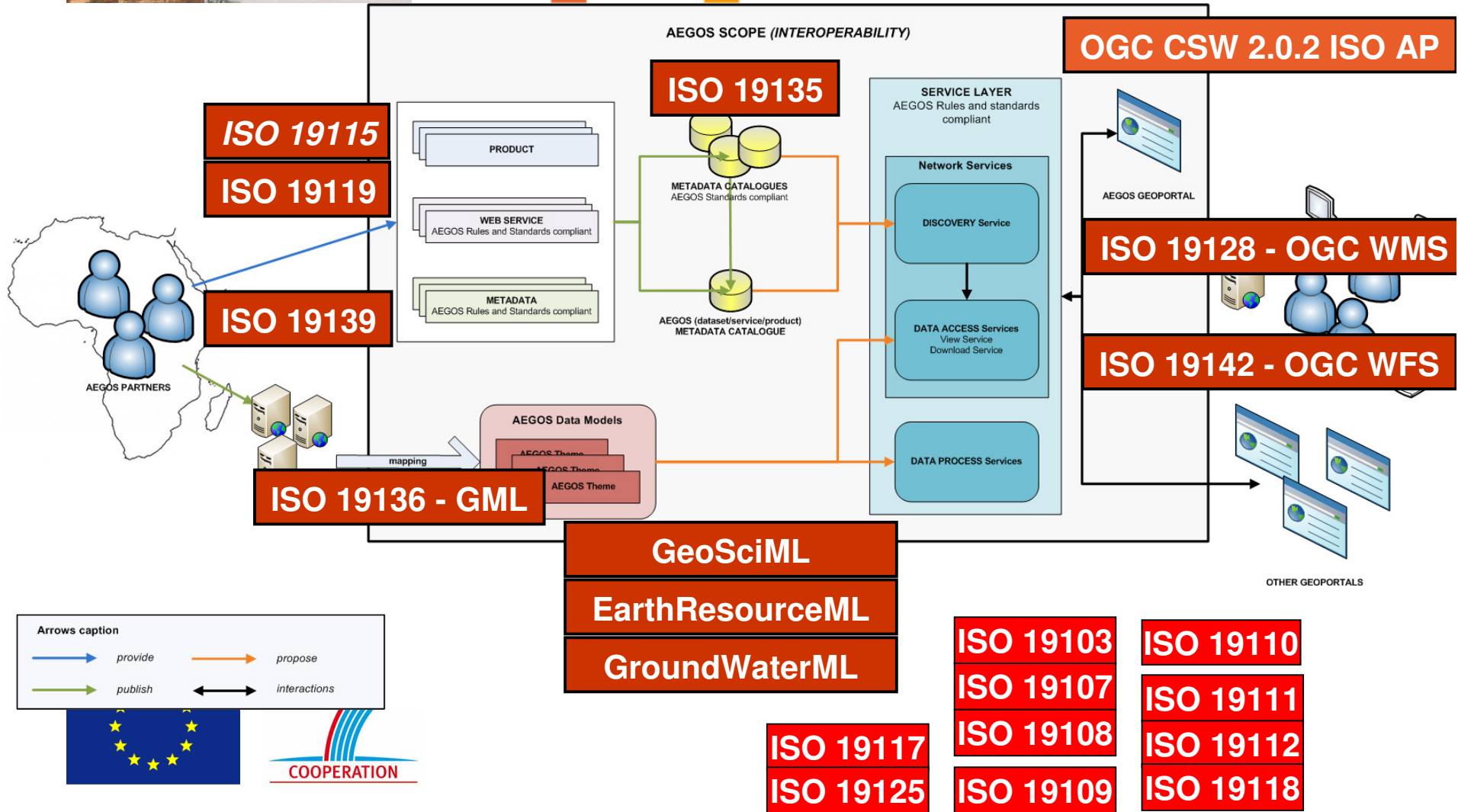


AEGOS-SDI - data / services:

Standards (ISO/OGC/CGI)



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AEGOS-SDI - data / services:

AEGOS data themes



AFRICAN-EUROPEAN GEORESOURCES OBSERVATION SYSTEM

● 4 main themes

- Geology, Mineral resources, Groundwater, Geothermal energy resources

● Complementary data themes

- Geophysics, Geochemistry, Boreholes
- Elevation model, Topographic maps, Remote sensing data
- Administrative boundaries, Land use, Hydrology, Soil, Environment, Agriculture
- Bibliographic data

● Description of the data themes

- Based on:
 - Inventory of existing data in Africa
 - **Existing** data models: GeoSciML, EarthResourceML, GroundWaterML
 - Other initiatives: OneGeology-Europe, INSPIRE

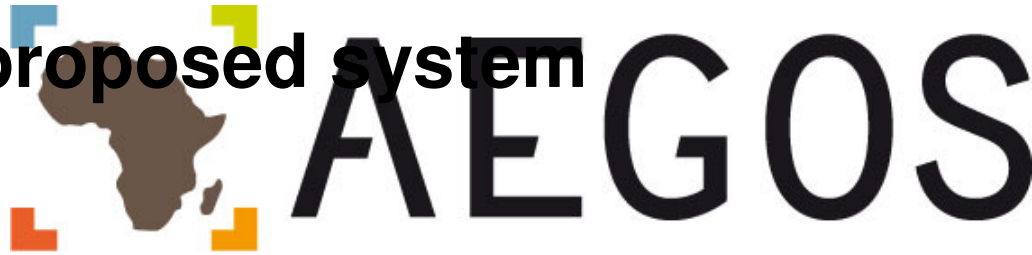


AEGOS-SDI - hardware / software:

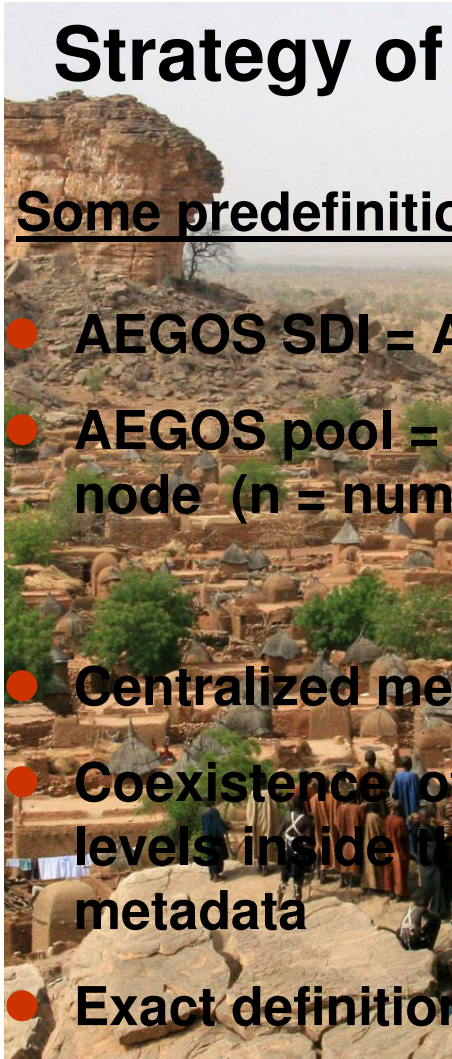
Strategy of the proposed system

Some predefinitions:

- **AEGOS SDI = AEGOS pool + AEGOS workstations**
- **AEGOS pool = AEGOS geoportal node + n * AEGOS standard node (n = number of participants)**
- **Centralized metadata, distributed GIS data**
- **Coexistence of the different interoperability and technological levels inside the AEGOS pool for the data, harmonization of the metadata**
- **Exact definition of AEGOS baselines**



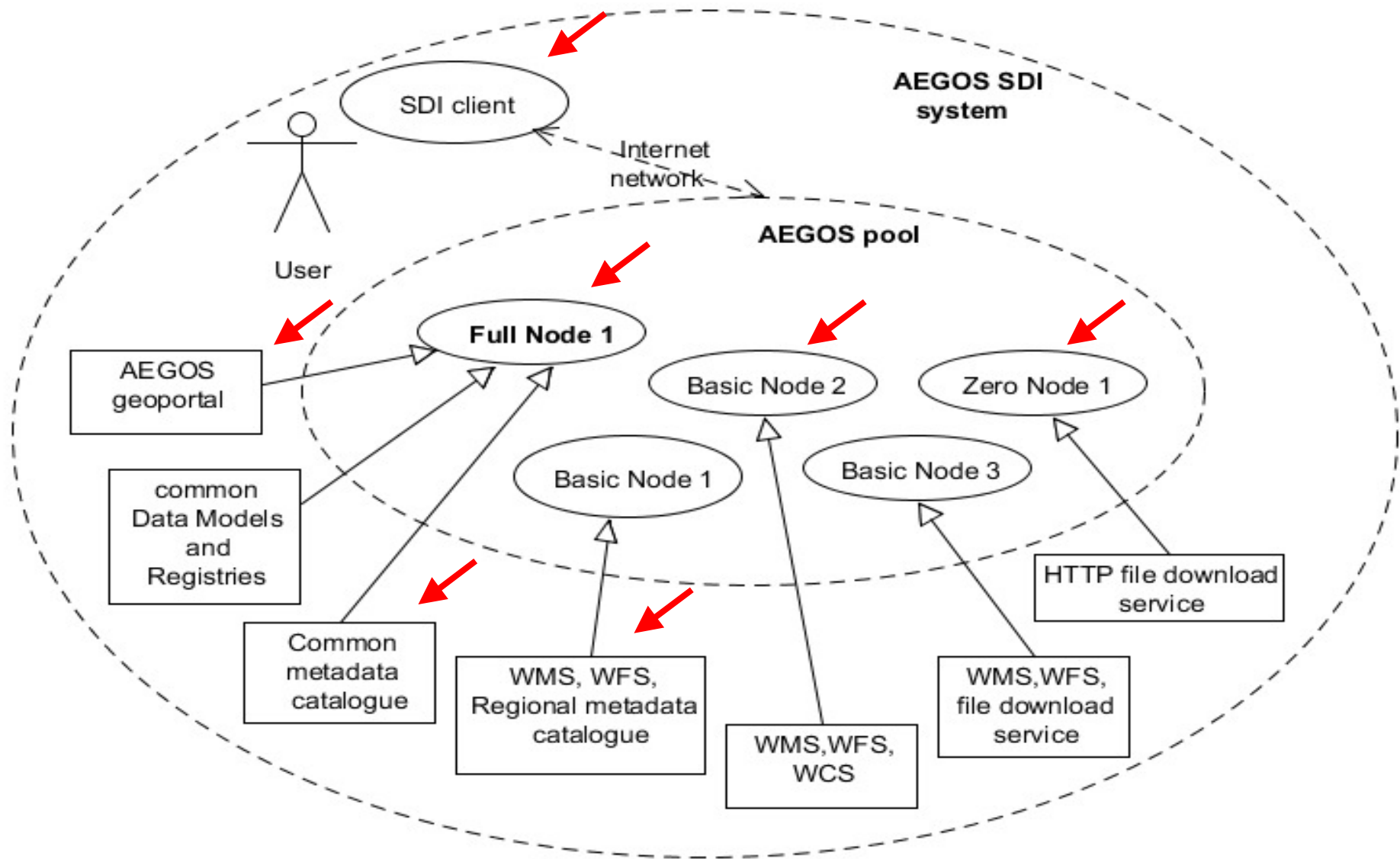
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AEGOS-SDI - hardware / software:

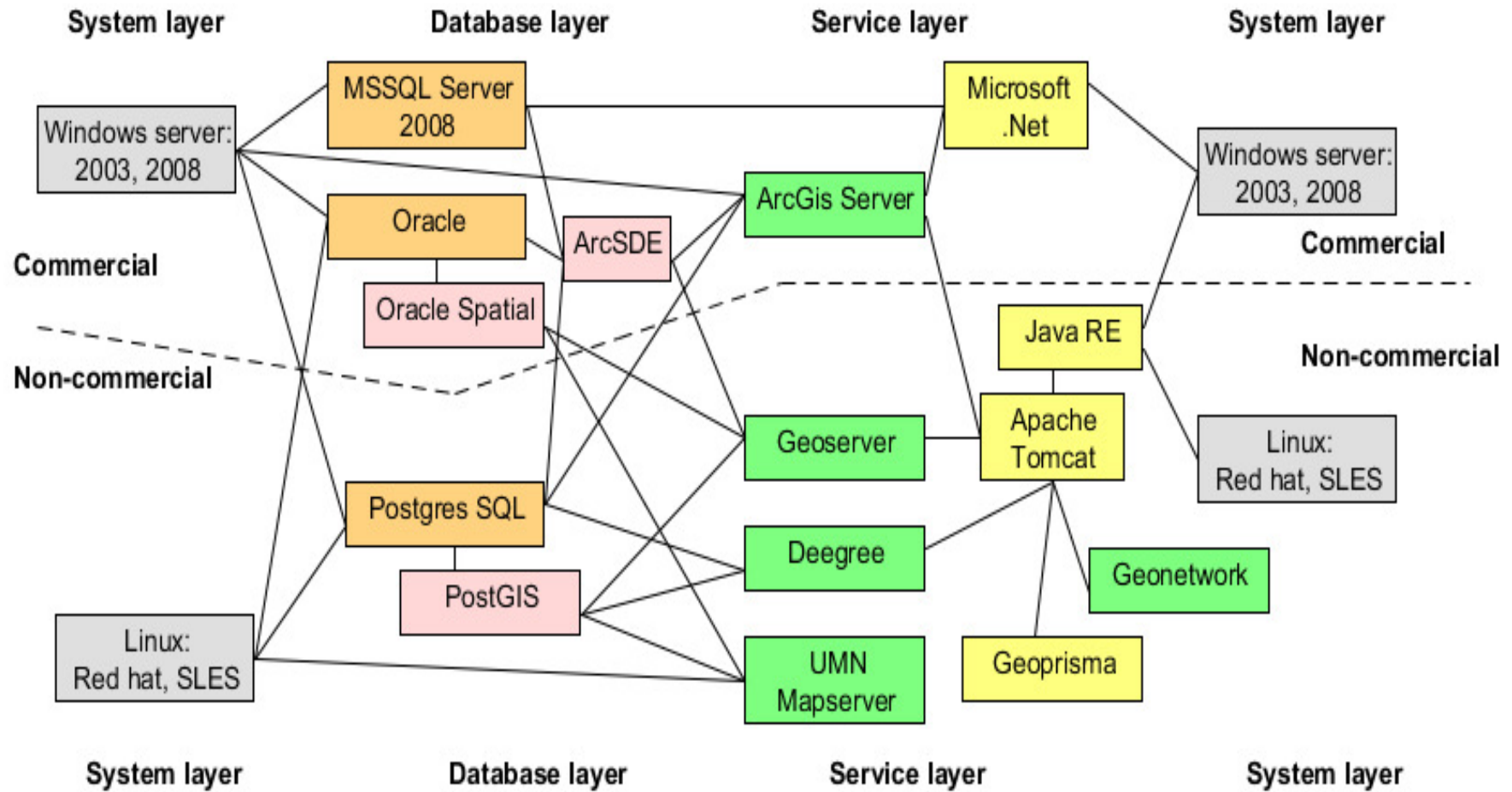


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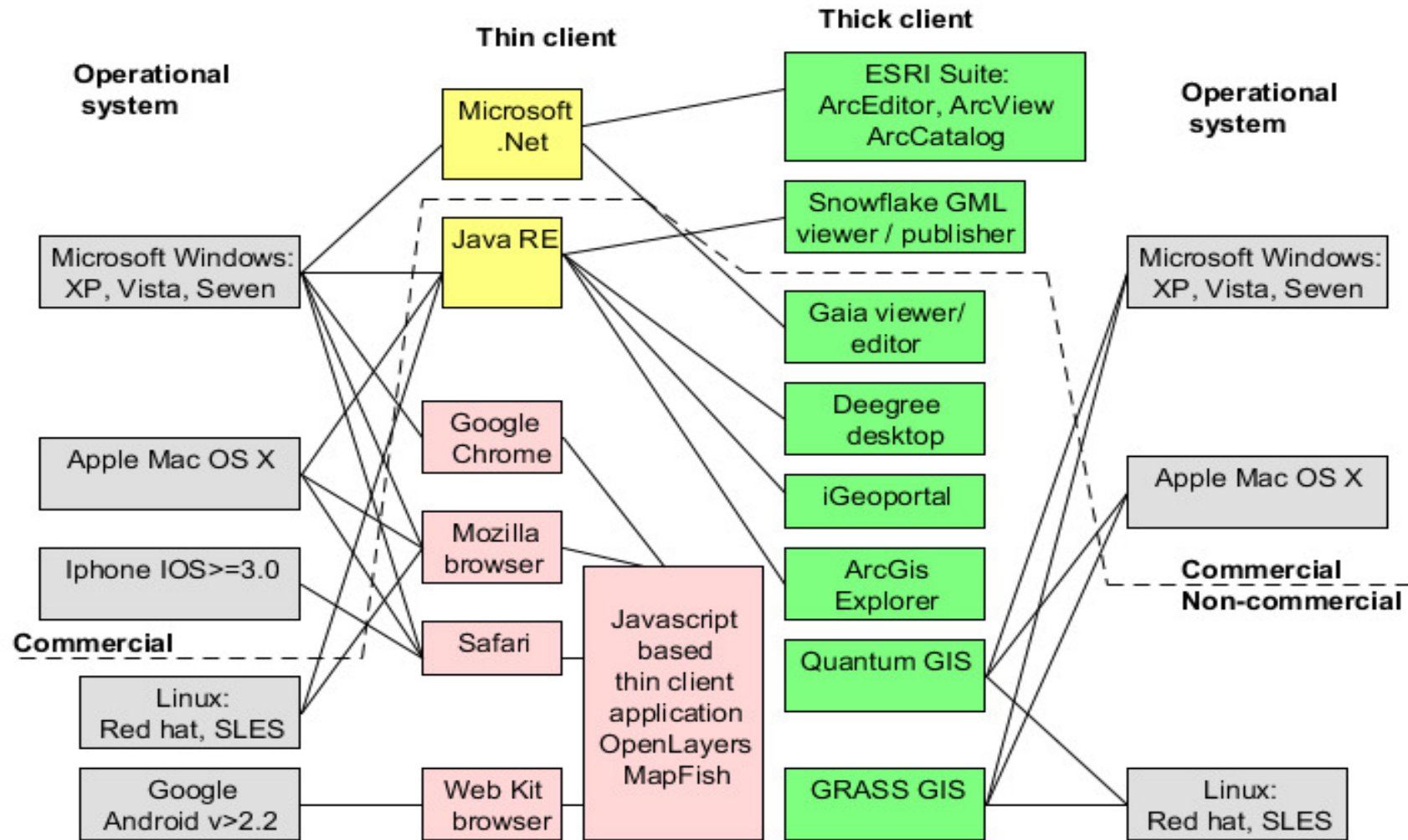
AEGOS-SDI - hardware / software:

Node Components



AEGOS-SDI - hardware / software:

Client Components



AEGOS-SDI - hardware / software:

Starter Kit (Software-DVD)

AEGOS Starter Kit

AEGOS SDI Workstation DVD

Linux-based boot
Installation packages for
Mozilla browser, plugins (Firebug)
Java Runtime Environment
Java SDK Kit
[Google Chrome documentation]
Deegree desktop, IGeoDesktop
Gaia 3.5
Qantum GIS
Grass GIS
PHP 5.0
Perl 5.10 distribution
Python
PostgresSQL, PostGIS
Geonetwork workstation dist.

OGC WFS, WMS, WCS, CSW,
KML, GML documentation

AEGOS documentation

data samples and training
examples

AEGOS participant's node DVD

Red Hat Linux distribution, SUSE Linux distribution
Java Runtime Environment, Java SDK Kit
Apache web server, Apache Tomcat 6
PostgresSQL database, PostGIS
Geoserver (.war), Geonetwork (.war),
Geoprisma (.war),
Deegree suite (.war)
UMN mapserver
PHP 5.0, Perl 5.10
MapGuide

OpenLayers, MapFish, GUI Javascript libraries

OGC WFS, WMS, WCS, CSW,
KML, GML documentation

AEGOS documentation

data and metadata samples and training
examples

AEGOS-SDI - hardware / software :

Starter Kit (Hardware)

15 AEGOS nodes:

- Mid-end Server as an Application Server
- Mid-end Server as a Database Server
- Low-end server for presentation layer
- Uninterruptible Power Supply (UPS)
- Rack with all network units

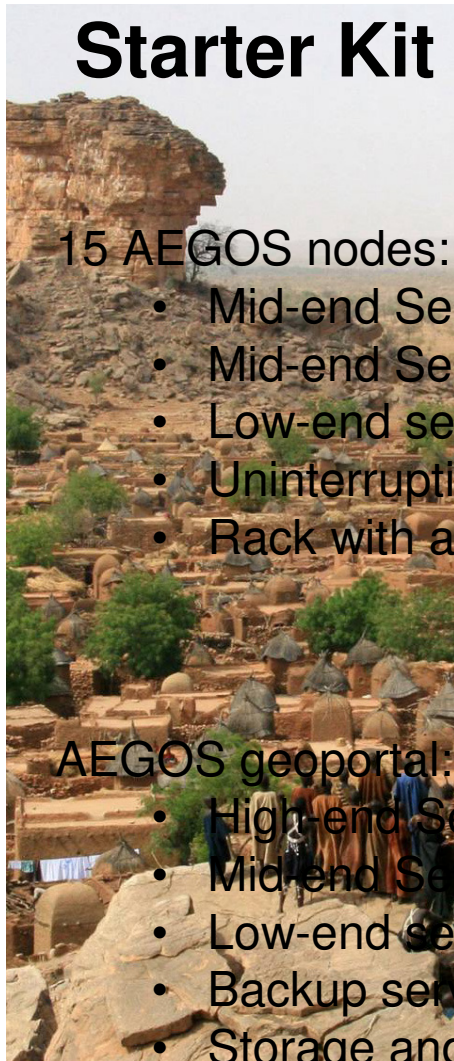
AEGOS geoportal:

- High-end Server as an Application Server
- Mid-end Server as a Database Server
- Low-end server for presentation layer
- Backup server as an Application server
- Storage and Backup System 20TB capacity
- Rack with all network units



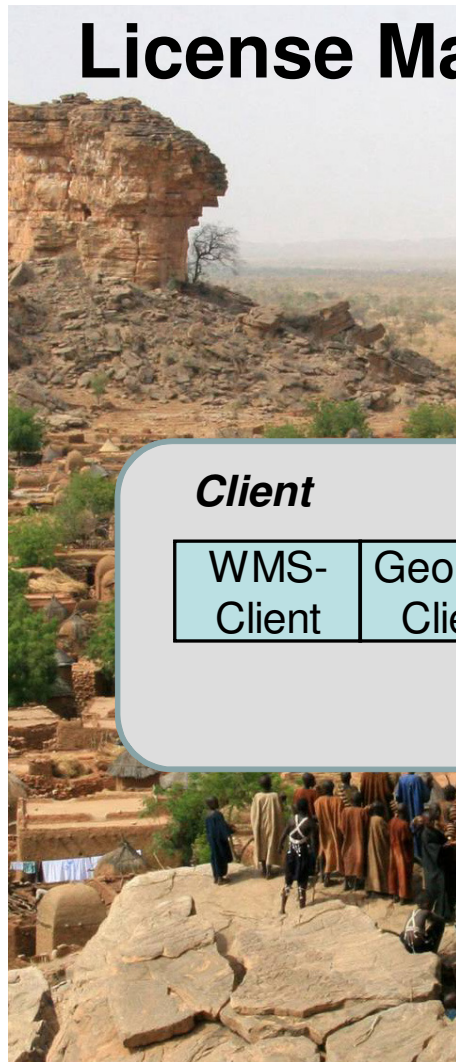
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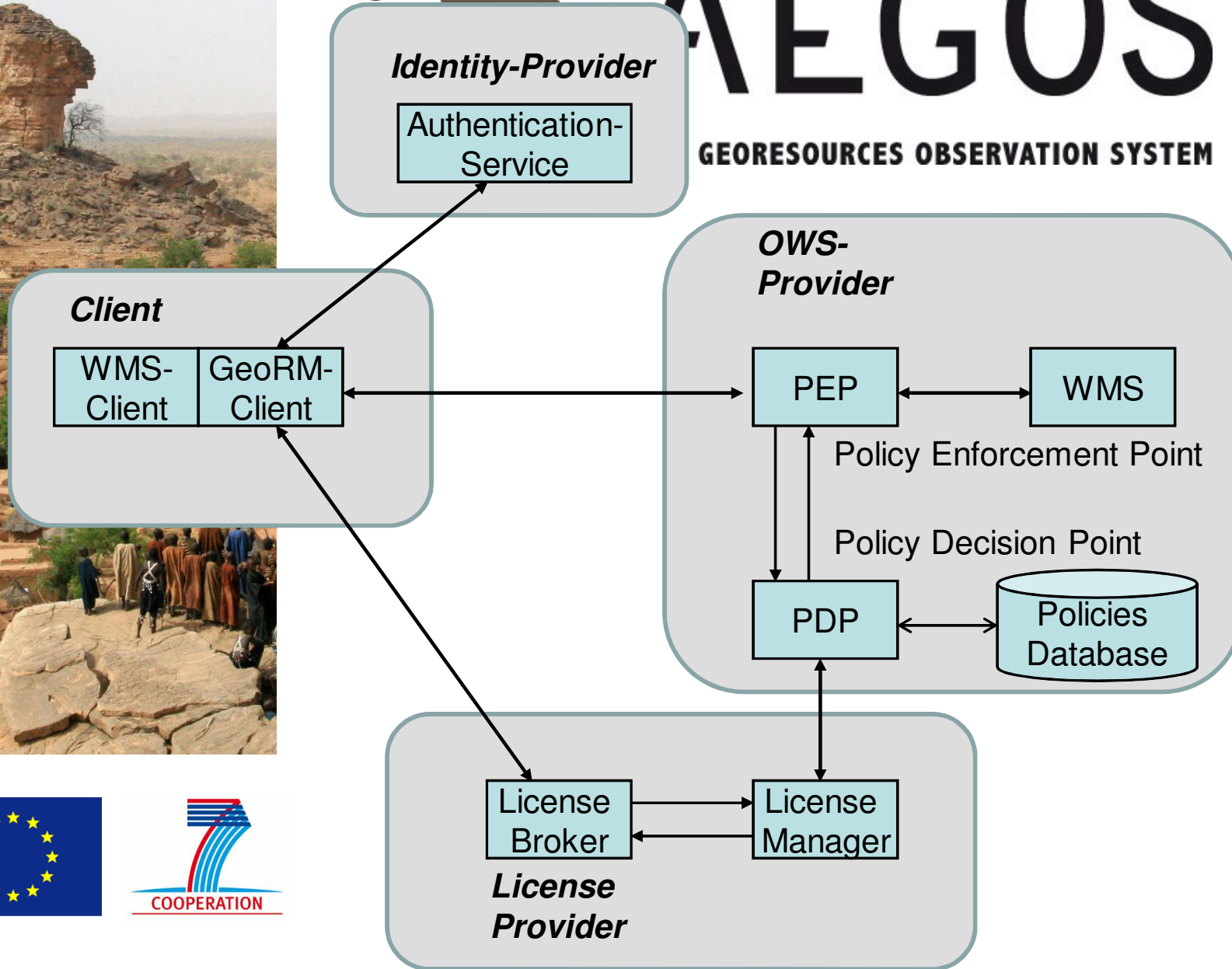
AEGOS-SDI - further problems:

License Management/ PRM



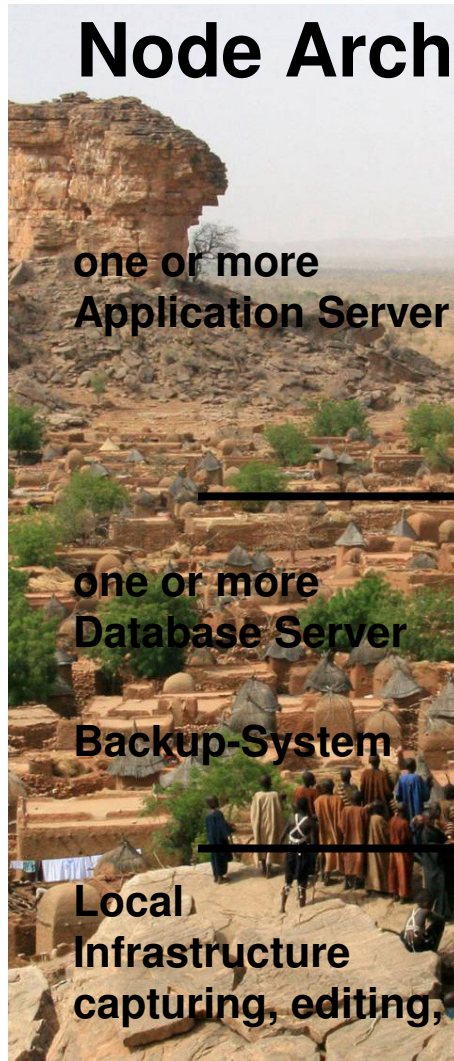
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GEORESOURCES OBSERVATION SYSTEM

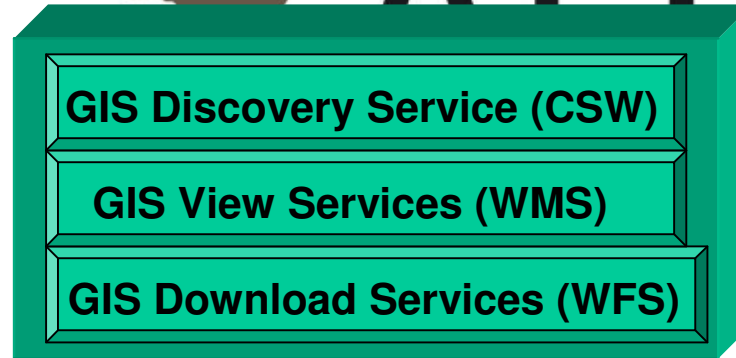


AEGOS-SDI - further problems:

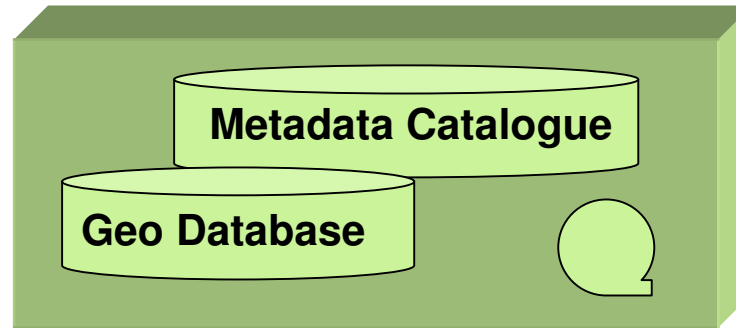
Node Architecture



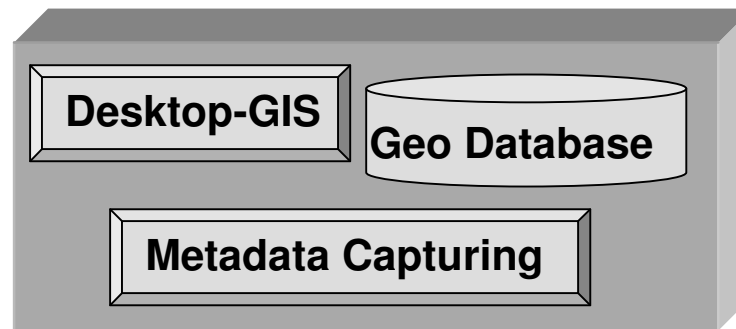
GIS data and
Metadata



*AEGOS conform
SDI content and
structure*



*AEGOS aligned
content and
structure*



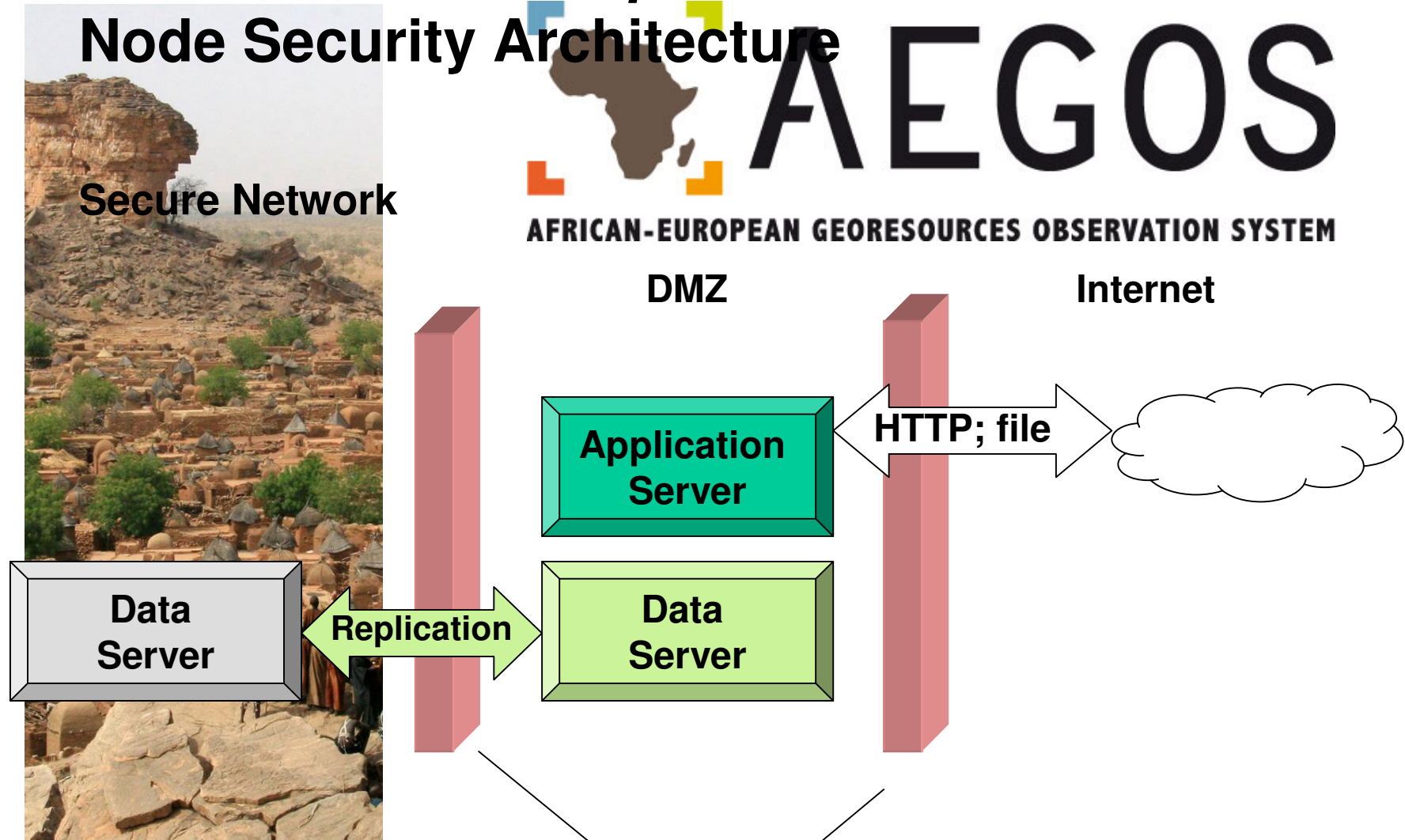
*internal data
structure,
AEGOS
independent*

AEGOS

AEGOS-SDI - further problems:

Node Security Architecture

Secure Network



The AEGOS project team ..

.. says thanks for your interest and patience!



www.aegos-project.org