

# DILIGENT: Deploying Virtual Research Environments on-demand



Diligent

**Demo**

From Digital Objects  
to Content across  
eInfrastructures

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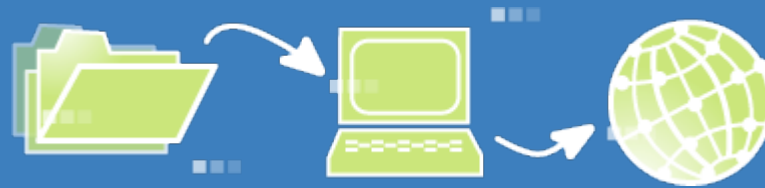
Univ. of Athens





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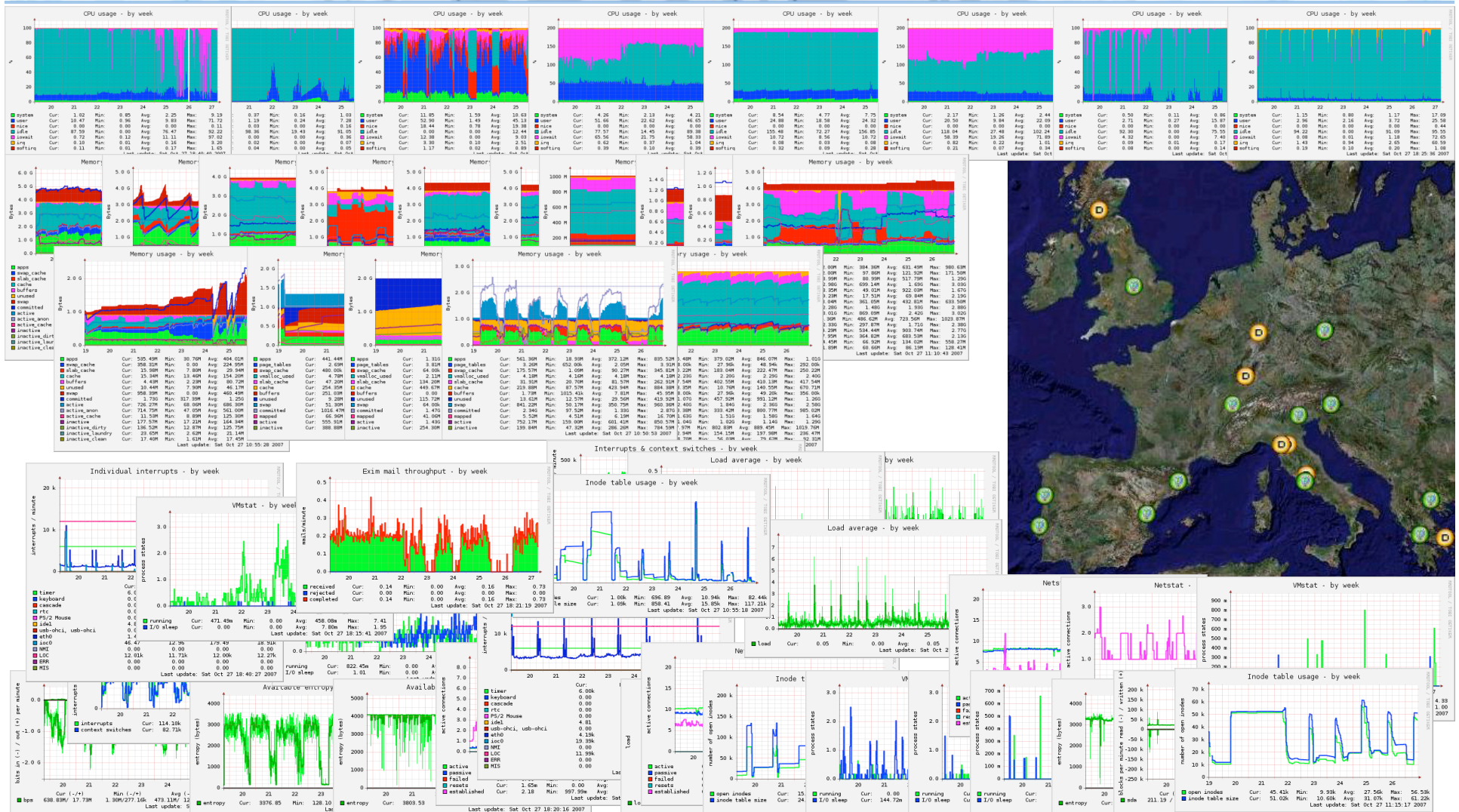
# VRE Management

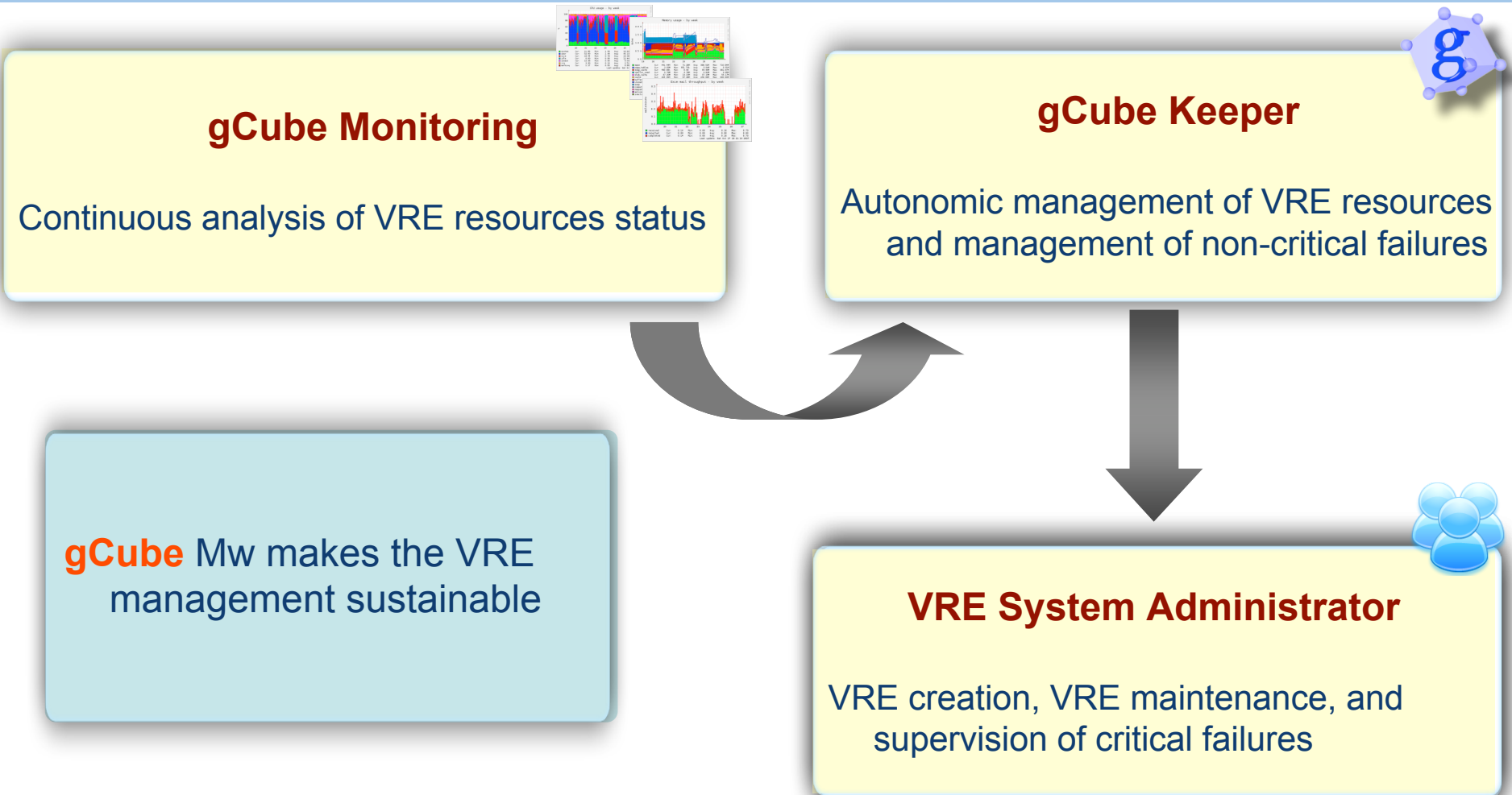


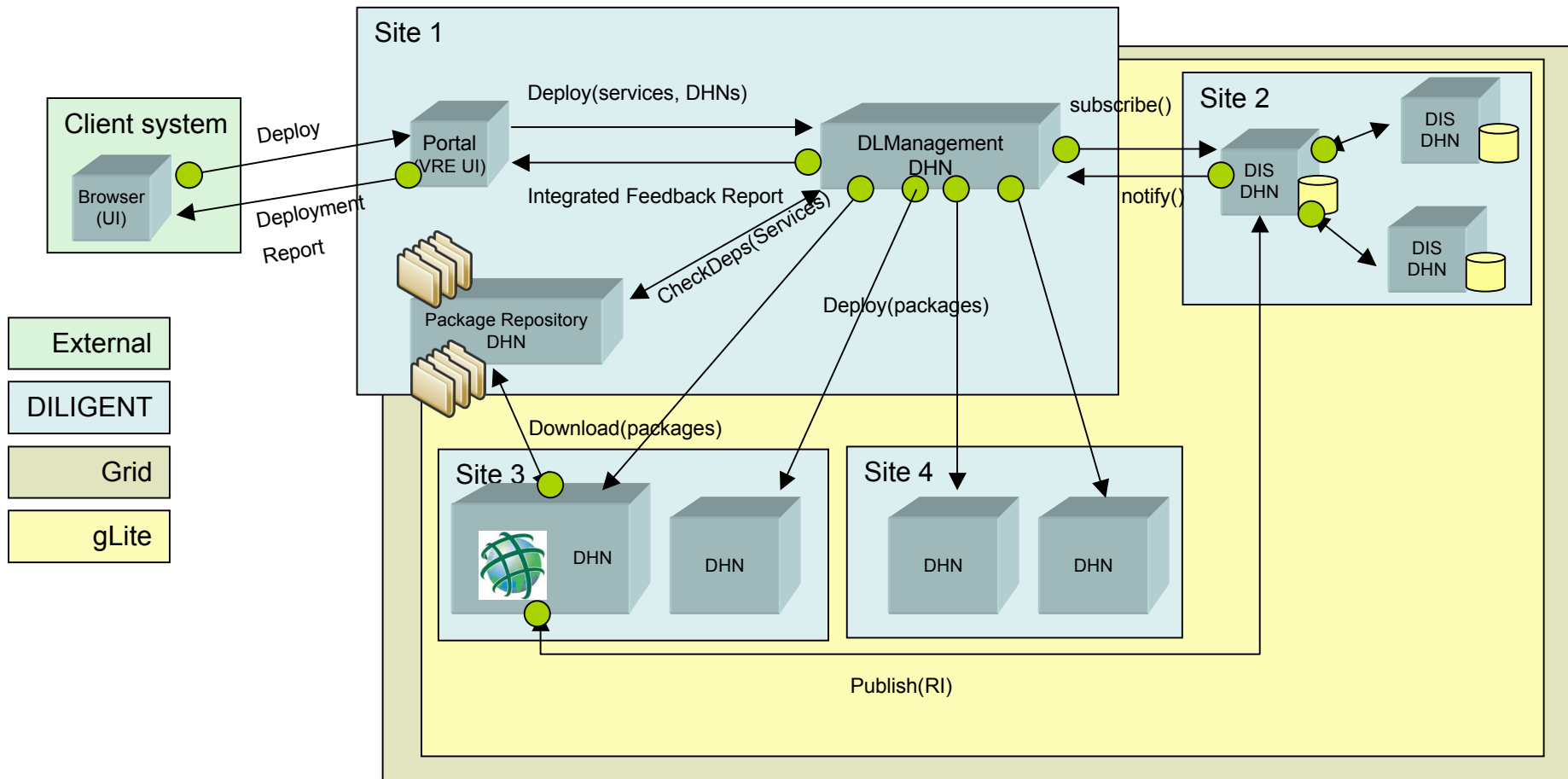


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Monitoring



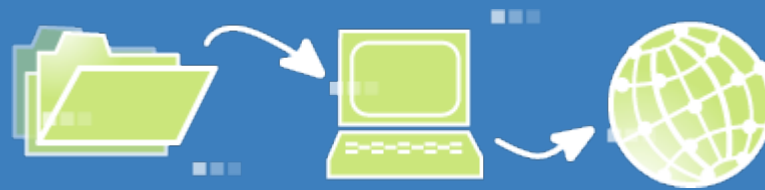






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# ImpECt VRE



- ES Communities usually operate over widespread geographic scales
  - Scientific collaborations do not take advantage of shared spaces, resources and knowledge
  - Usually very strict time constraints
- Existing infrastructures consist of operational tools and systems which often do not interface with the ones of other institutions
  - Large international initiatives adopt a number of different systems, applications and services that must interface to exchange and process information
  - Evident fragmentation of services
  - Enormous problems of interoperability either at services and data level increased by lack of standards, common agreements and computing/storage resources availability

**GeoNetwork**  
[Find and analyze geo-spatial data]

Recent Additions 555

- Global bovine density (2005)
- Cattle density for sub-Saharan Africa (2005)
- Global cattle density (2005)
- Coastline of the World (Vmap0)
- Non Perennial Water Courses (2005)
- Perennial Water Courses (2005)
- Non Perennial Inland Water Bodies (2005)
- Perennial Inland Water Bodies (2005)

~4700 global data set available

[www.fao.org/geonetwork](http://www.fao.org/geonetwork)

**GMES**  
Global Monitoring for Environment and Security

Overview  
Towards Services  
Management  
Achievements  
National Activities  
Library  
Newsletter

GMES and oil pollution  
November 2006: Accurate forecast of oil slicks resulting from the wreck of the tanker Estonia, established by the European GMES ocean monitoring service, has helped pollution cleanup teams position floating barges Gulf of Biscaynes.

January 2009: Intensive ocean damage caused by the explosion of the tanker Costa Concordia was detected by the GMES satellite-based oil slick detection service.

[www.gmes.int](http://www.gmes.int)

**Medspiration.org**  
The European Sea Surface Temperature Project

The Medspiration Project - An Introduction

Sea Surface Temperature

The temperature at the surface of the ocean is an important physical property that can be measured quite easily from Earth Observation satellites. SST has a strong influence on the exchange of heat, momentum, water and gases between the ocean and the atmosphere. Knowledge of the geographical distribution of SST and its variation with time is therefore essential for predicting the dynamical behaviour of the atmosphere and the ocean. SST is also an important indicator of climate and climate change, giving us a finger on the pulse of the planet itself.

Satellite Measurements

The large volume of data acquired from twenty years of satellite observations of SST has given rise to a wealth of frequently detailed view of the changing physical characteristics of the surface of the ocean, as well as to a number of new products derived with only the latest satellite observations. Today the entire planet is observed at regular intervals and the demands are increasing to frequently update measurements of SST for use in a wide range of forecasting models, and for numerical weather prediction. At the same time the need to monitor climate change requires measurements of high accuracy.

Medspiration

The Medspiration Project is a European Sea Surface Temperature (SST) data project. It identifies several different satellite systems into a set of data products. The best measurement of SST is derived from a satellite that can be assimilated into ocean forecasting models.

[www.medspiration.org](http://www.medspiration.org)

products

daily data sets available

Reference doc Metadata, services

**CEOS**  
Committee on Earth Observation Satellites  
International Directory Network (IDN)

Welcome to the CEOS International Directory Network - A Gateway to a World of Earth Science Data maintained by NASA's Global Change Master Directory. The CEOS International Directory Network (IDN) is an international gateway developed to assist researchers in locating information on available datasets. The IDN is sponsored by the Technology and Services Subgroup of the Committee on Earth Observation Satellites (CEOS). It is a service to help you find and access remote sensing data sets. The current datasets, using the IDN, are listed on the left.

[idn.ceos.org](http://idn.ceos.org)

ES Thesaurus ~30000 objects

**ESA**  
European Space Agency

Services page of European Space Agency (ESA) Earth Observation Thesaurus. The services, data and computer elements that are currently available according to level and privileges (available in the General Information tab). For any request or information requests please feel free to email us.

General Information

This part of the web presentation provides an overview of the Earth Observation Thesaurus (EOT) and its technical characteristics enable the extraction of quantitative information from ocean colour data, as well as for documentation of the state and evolution of the atmosphere and land surface.

This service allows the operation of different MERIS Level 3 datasets in a monthly basis showing its potential for observing the dynamic Earth systems. The necessary input data (around 120 Gb for a month) are automatically updated and registered each day from the ground segment (Nauyas and Frascati ESA sites) and the users can select the monthly, file of algorithm and specific parameters to process.

The output file can be downloaded in TIFF format, a JPEG scale pyramid or using directly it as Web-Map Service and combined with other geographical information.

[eogrid.esrin.esa.int](http://eogrid.esrin.esa.int)

**EEA**  
European Environment Agency

EU must take immediate action on Kyoto target

27 Oct 2006

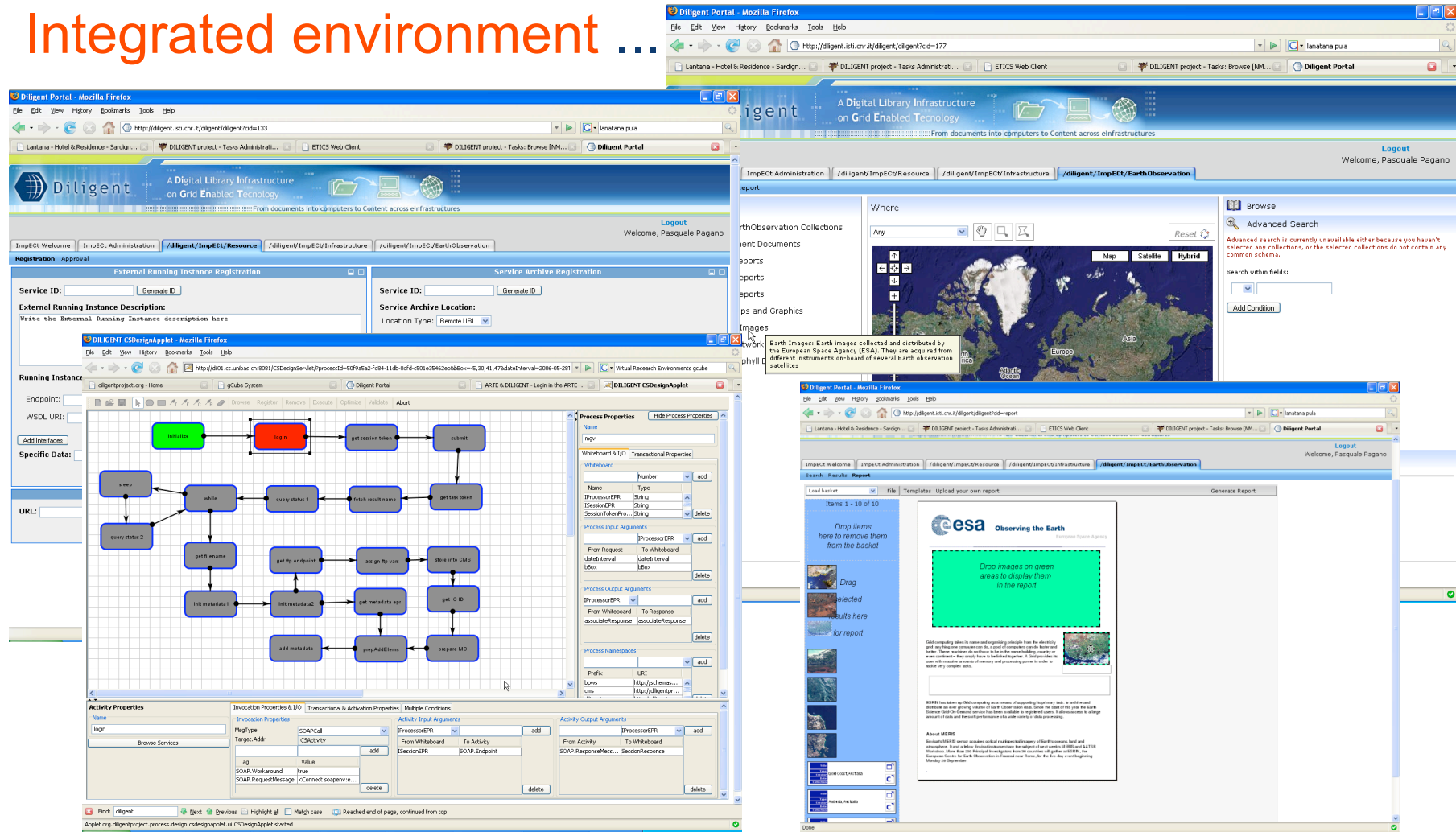
All Member States must commit to ambitious greenhouse gas emissions reductions if the EU-15 is to meet its collective Kyoto target, a new European Environment Agency (EEA) report states.

environmental data / reports

[www.eea.eu.int](http://www.eea.eu.int)



## Integrated environment



The screenshot displays an integrated environment with several browser windows and a workflow diagram. The main window shows the Diligent portal with a navigation menu and a search interface. A secondary window displays a workflow diagram with various activity nodes and properties. A third window shows a search results page for Earth Observation data from ESA.

**Workflow Diagram:**

```

    graph TD
      init[init] --> login[login]
      login --> getSession[getSession]
      getSession --> submit[submit]
      submit --> getTask[getTask]
      getTask --> getTaskInfo[getTaskInfo]
      getTaskInfo --> queryStatus1[queryStatus1]
      queryStatus1 --> fetchResult[fetchResult]
      fetchResult --> queryStatus2[queryStatus2]
      queryStatus2 --> write[write]
      write --> getFileName[getFileName]
      getFileName --> getEndpoint[getEndpoint]
      getEndpoint --> assignToUser[assignToUser]
      assignToUser --> showInfo[showInfo]
      showInfo --> initMetadata1[initMetadata1]
      initMetadata1 --> initMetadata2[initMetadata2]
      initMetadata2 --> getMetadata[getMetadata]
      getMetadata --> getID[getID]
      getID --> addMetadata[addMetadata]
      addMetadata --> prepareItems[prepareItems]
      prepareItems --> prepareMIO[prepareMIO]
  
```

**Search Results Page:**

Advanced search is currently unavailable either because you haven't selected any collections, or the selected collections do not contain any common schema.

Search within fields:

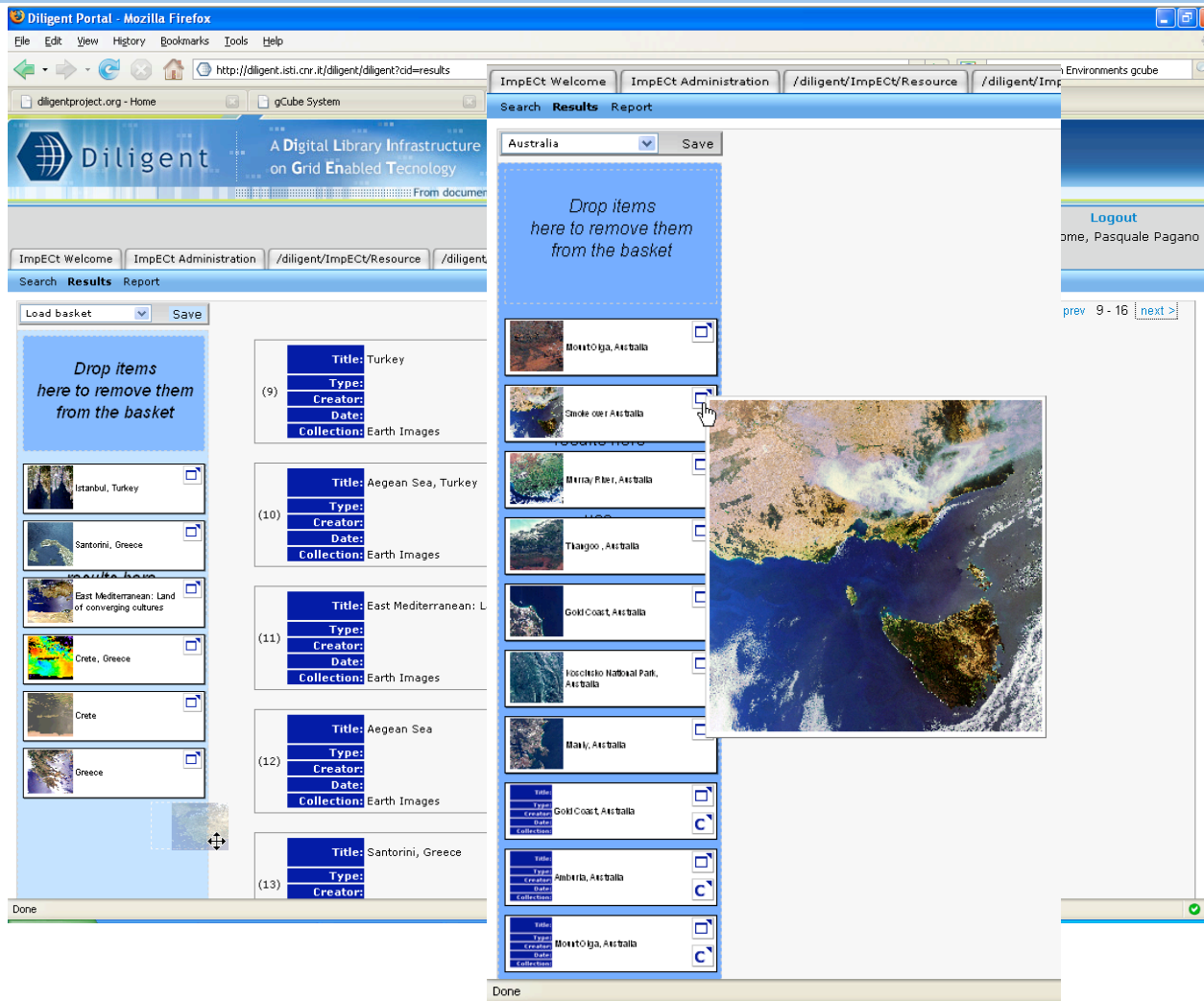
Drop items here to remove them from the basket

Drop images on green areas to display them in the report

Drop selected results here for report

... enriched by a **private basket** where objects of any type can be accumulated and re-used:

- to fill-in report,
- to create personal collections,
- to populate courses,
- ...



The screenshot shows the ImpEct private workspace interface. The browser window is titled "Diligent Portal - Mozilla Firefox" and displays the URL "http://diligent.isti.cnr.it/diligent/diligent?cid=results". The interface includes a search bar, a "Load basket" section with a "Save" button, and a list of search results. The search results list includes items such as "Turkey", "Aegean Sea, Turkey", "East Mediterranean: Land of converging cultures", "Aegean Sea", and "Santorini, Greece". A right-hand sidebar contains a "Drop items here to remove them from the basket" area with a list of items including "Montolga, Australia", "Smoke over Australia", "Murray River, Australia", "Tiajoo, Australia", "Gold Coast, Australia", "Fossiliferous National Park, Australia", "Manki, Australia", "Gold Coast, Australia", "Amberla, Australia", and "Montolga, Australia". A large satellite image of Australia is displayed in the background.

- Exploits large infrastructure including EGEE PPS sites
- Accessible via dedicated web portal
- Content produced by a number of data providers (ESA, FAO, EEA, MTS et al.) is organized in collections
- Editable metadata available in different schemas and standards
- Cross-collections and geospatial search
- Content annotation
- On-demand services composition and Grid task submission
- Persistent user area to store reports, query result sets, processes outputs
- Reports composition (periodically revised, kept up to date, published) and document templates definition
- Integration with e-learning platform

- The ImpEct VRE has been designed and created on demand by
  - Selecting existing collections
  - Importing new datasets
  - Selecting existing services
  - Registering new services
  - Orchestrating services by exploiting the workflow framework embedded in the infrastructure
  - Deploy everything automatically
  - Create automatically the GridSphere portal