



Esempi di servizi accessibili via IDEM

Portale DECIDE, progetto DB
pediatrico, FileSender, GARRbox

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A user friendly web-based service for early diagnosis
and research on Alzheimer's disease

DECIDE

DECIDE in a Nutshell

- Creation of a e-Infrastructure and service dedicated to research and early diagnosis
 - Currently focusing on AD and other neurodegenerative diseases
 - AD is one of EU's greatest challenges for the next few years
- Intended not only for research purposes, but for the exploitation into clinical practice
- Started on: 1st September 2010
- Duration: 30 Months (through end 02/2013)
- Co-ordinated by GARR, COMETA has the technical coordination
- Scientific Coordination by the neuGRID Principal Investigator
- Involves 13 European Partners + European NoE of research and healthcare centres specialised on AD + the European network of patient advocate societies

Project Consortium

A **vertical approach** to e-Health, targeting the needs of neuroscientists community through the provisioning of an e-Infrastructure aimed at supporting them in the daily execution of the diagnosis

CONSORTIUM GARR - Italy
CONSORZIO COMETA - Italy

Network & GRID Layer
Infrastructure Partners



CNR - Italy
UNIVERSITY OF GENOA - UNIGE Italy
UNIVERSITY OF FOGGIA - UNIFG Italy
MAAT FRANCE - maat G - France
IMPERIAL COLLEGE - United Kingdom
UNIERSYTET WARSZAWSKI - Poland

Application Layer
Partners

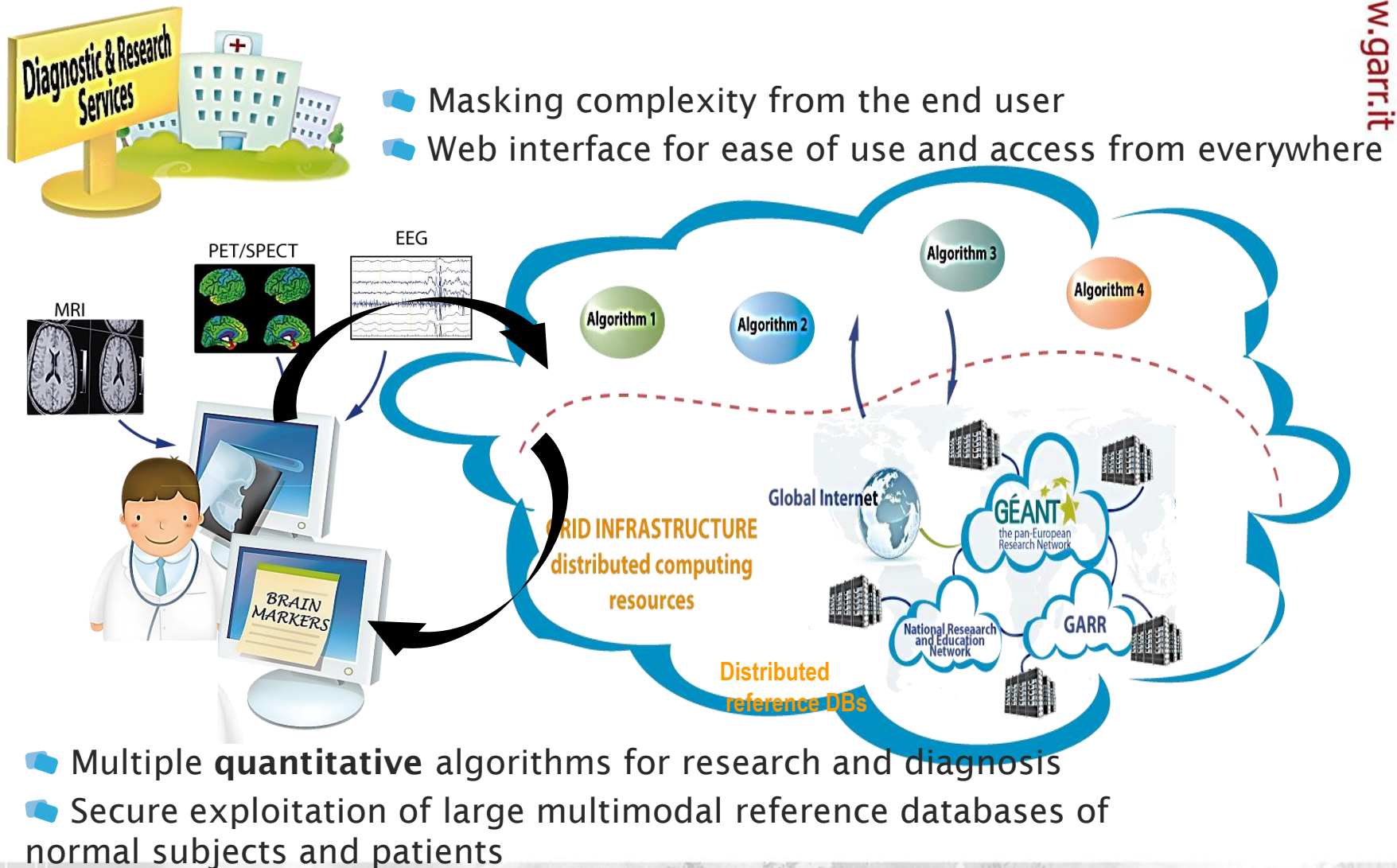


IRCCS FATEBENEFRAELLI - Italy
UNIVERSITY SAN RAFFAELE - Italy
FONDAZIONE SDN - Italy
CENTRE HOSPITALIER UNIVERSITAIRE
DE TOULOUSE - France
ALZHEIMER EUROPE - Luxembourg

Research & Healthcare
Layer
Partners



The DECIDE Service Concept



Grid technology and Science Gateway

- Grid technology is used behind the scenes:
 - Fine-grained authorization control
 - Sharing of reference datasets while preserving ownership
 - “Normal” data does not leave hospital
- The DECIDE Science Gateway makes the Grid usable by non-ICT users
 - Identity federations, for authentication: authorization handled separately
 - Based on robot certificates, no personal certificates involved
 - Simplifies job handling (no .jdl, minimized interactions)

DECIDE Applications

- **GridSPM:** specifically designed for SPECT and PET neurological clinical images provides an SPM analysis for the early diagnosis of Alzheimer Disease
- **GridEEG:** implements EEG processing algorithms with the aim of detecting early symptoms of Alzheimer Disease and distinguishing different forms of degenerative impairment
- **GridANN4AD:** concerns the analysis of PET biomarkers in Neurological and Psychiatric Disorders and provides a classification of suspected patients through an Artificial Neural Network
- **GridMRIseg** and **GridGDI:** for the volumetric analysis of MRI images.

diagnostic
application

research
application

research
application

diagnostic
application

Science Gateway: applications

www.garr.it

*Interfaccia "Physician":
ottimizzata per prassi clinica*

DECIDE Science Gateway

DECIDE Home | Project | Documents | Technical Wiki

DECIDE
Diagnostic Enhancement of Confidence by
an International Distributed Environment

DECIDE Science Gateway

- Home
- Applications
 - GridANN4ND
 - GridEEG
 - GridMRISeg
 - GridSPM
- Run
 - Manage Repository
- Grid Services
- User Support

My Workspace

- Jobs
- JobsMap
- Data
- Help

GridSPM - Set Parameters

Grid SPM

Welcome to the Grid SPM DECIDE service. You are running the service in physician mode.

Purpose

This service allows the statistical analysis of SPECT and PET cerebral images through the Statistical Parameter Mapping (SPM) system.
The use of the service is allowed to certified and authorized users.

The workflow of the service consists into:

1. Data upload step: your PET/SPECT images have to be submitted to the system via the upload form.
2. The system automatically performs a pre-processing/QC step: submitted PET/SPECT images underwent a process of spatial normalization to a template, in order to be co-registered in the same stereotaxic space, as the normal subject images. Normalized PET/SPECT images have to be convolved with a Gaussian kernel in order to reduce artefacts due to noise dependency and to improve spatial normalization.
3. Statistical procedures (statistical test using Generalized Linear Model) are applied on normalized and smoothed PET/SPECT images in order to obtain a statistical parametric map for the effect of interest. A report in PDF format is generated, consisting of maps showing the effect of interest overlapped and co-registered on a standard anatomical template. You will be allowed to download this report.

How to run the analysis

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How to run the analysis

Please upload your patient's data, choosing the appropriate file. Images have to be submitted both in DICOM and Interfile format. DICOM and Interfile format have to be archived together in .tgz format.

Follow the information on screen in order to follow up your analysis and retrieve results.

Normal subjects filter selection

Please select:

Please, note that currently filters are not applied due to the reduced number of normal subjects.
Controls are shown for training purpose.

Upload here your SPM data archive

Select your SPM data archive in .zip or .tgz format:

SPM-PHY Matlab Release 1.0 (2015-03-28 19:48)

This is an   service

[Contact us](#) [account](#) [contact](#) [support](#)

Science Gateway: job list

The screenshot displays the DECIDE Science Gateway interface. At the top, a navigation bar includes links for DECIDE Science Gateway, DECIDE Home, Project, Documents, and Technical Wiki. The main header features the DECIDE logo with the tagline "Diagnostic Enhancement of Confidence by an International Distributed Environment" and a stylized graphic of overlapping blue squares.

On the left, a "Menu" section lists: Home, Applications, Grid Services, and User Support. Below this is a "My Workspace" section with icons for Jobs, JobsMap, Data, and Help.

The central "MyJobs" section contains two tabs: "Active Jobs List" (selected) and "Done Jobs List". A note states: "The table below shows the status of your jobs. Statuses are automatically updated every 5 minutes so there is no need to reload this page more frequently."

Below the note is a table of jobs. The table has columns for Application Name, User Description, Started on (UTC), and Status. The first three rows are for GridSPM jobs, and the last row is for a GridANN4ND job. The status of the first three jobs is "SUBMITTED", and the last job is "RUNNING". A red circle highlights the "RUNNING" status and the corresponding job details.

At the bottom, there is a footer with logos for "This is an idean service" and "eduGAIN", and a European Union flag.

Application Name	User Description	Started on (UTC)	Status
GridSPM	GridSPM Matlab Job 2012-05-21-002909	2012-05-20 22:29:19.0	SUBMITTED
GridSPM	GridSPM Matlab Job 2012-05-21-002816	2012-05-20 22:28:19.0	SUBMITTED
GridSPM	GridSPM Matlab Job 2012-05-21-002732	2012-05-20 22:27:19.0	RUNNING
GridANN4ND	GridANN4ND Job 2012-03-29-162350	2012-03-29 14:23:51.0	

Creazione di un database di studi RM in soggetti in età pediatrica normali e affetti da malattie neurologiche rare

DB-PEDIATRICO

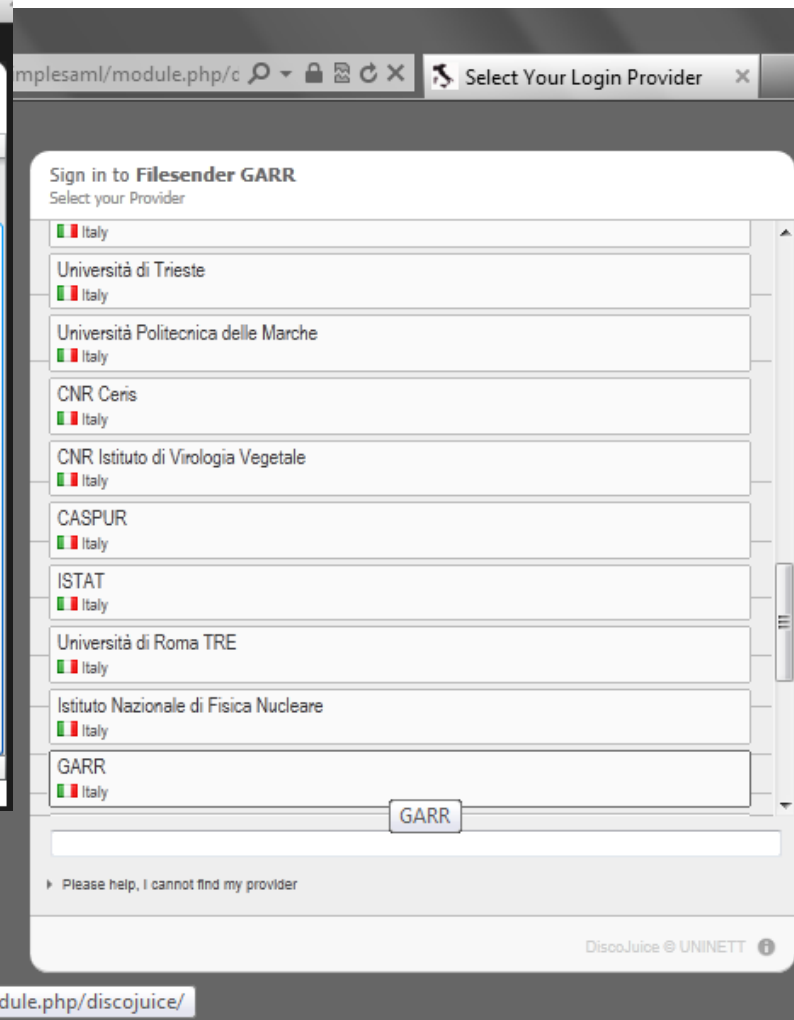
- Progetto di RF per la creazione di database di studi RM a 1.5T e 3T:
 - Malattie rare neurologiche (<5/10000 casi); con o senza diagnosi accertata
 - “normali”, in diverse fasce di età
- I casi registrati potranno inoltre avere ulteriori informazioni: anamnesi, genetica, clinica,...

- Ruolo di GARR:
 - Gestione infrastruttura di rete, collegamento ulteriori sedi
 - Applicazione di tecnologie di calcolo distribuito per la condivisione di archivi digitali
 - Fornitura di storage (ad alte prestazioni per il DB, ad alta capacita' per i dati)

Condivisione files di grosse dimensioni

FILESENDER

Login



https://filesender.garr.it/simplesaml/module.php/discojuice/

Redirezione al proprio Identity Provider

Consortium GARR Identity Provider Login

Username:

Password:

[Reset my attribute release approvals](#)

Aiuto

- [Pagina di supporto IdP Garr](#)
- [Cambia/recupera la tua password](#)
- [Informazioni sul progetto IDEM](#)

Powered by: Shibboleth.

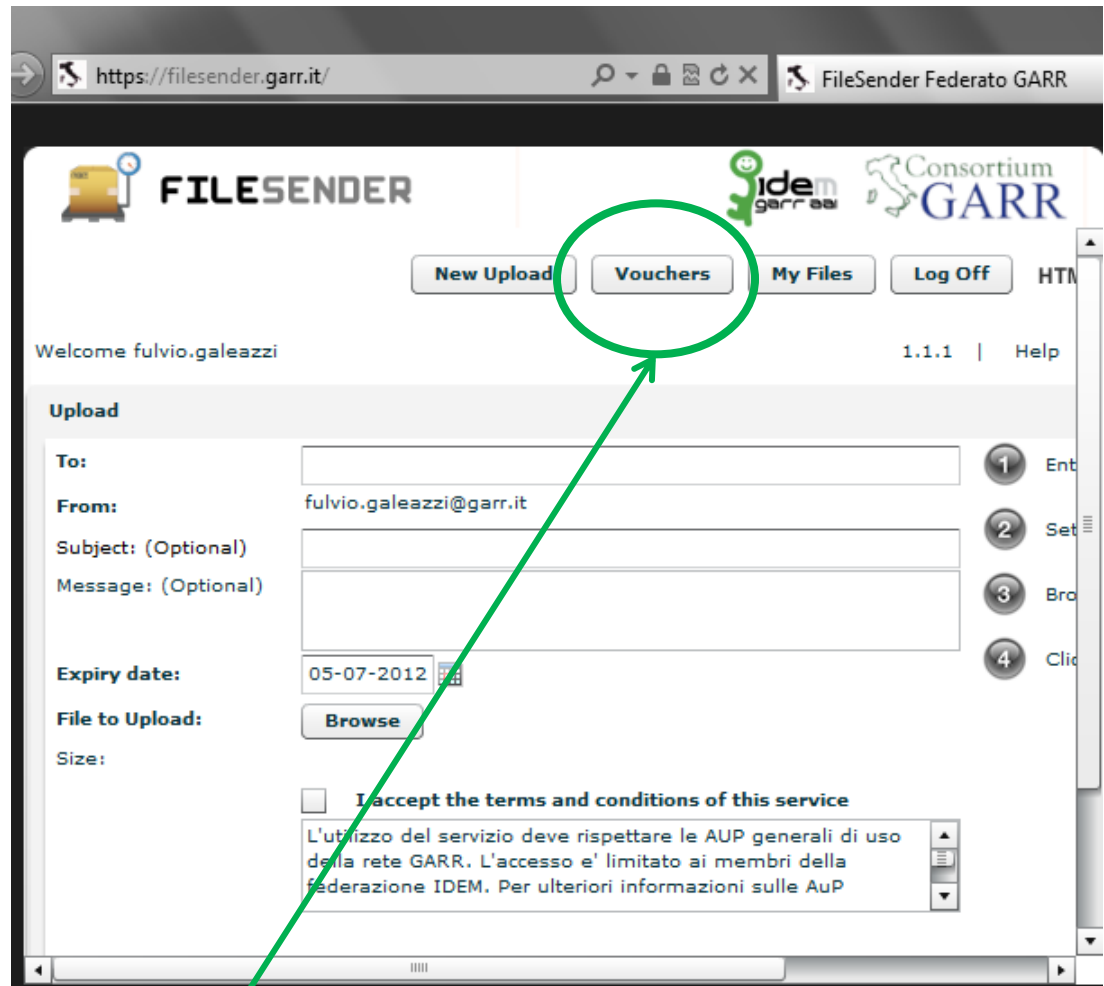
Condivisione files

Mittente puo' scegliere la "scadenza".

Mittente puo', in un secondo momento: interrompere la condivisione, inviare nuova notifica, aggiungere altri destinatari.

Destinatari ricevono mail con URL personalizzato.

Mittente riceve notifica per ciascun accesso al file da parte di ciascun destinatario.



Possibile inviare Voucher per permettere a utenti non-IDEM di condividere file.

Prototipo di Storage Cloud con accesso IDEM

GARRBOX

Requisiti funzionali richiesti

- **Autenticazione e autorizzazione sicure:** a granularità fine dal gruppo al singolo utente, modifica dinamica delle modalità di accesso
- Canali di accesso multipli: browser, mobile, CLI, accesso a blocchi
- Integrità e cifratura di metadati-dati
- Logging degli accessi ai file

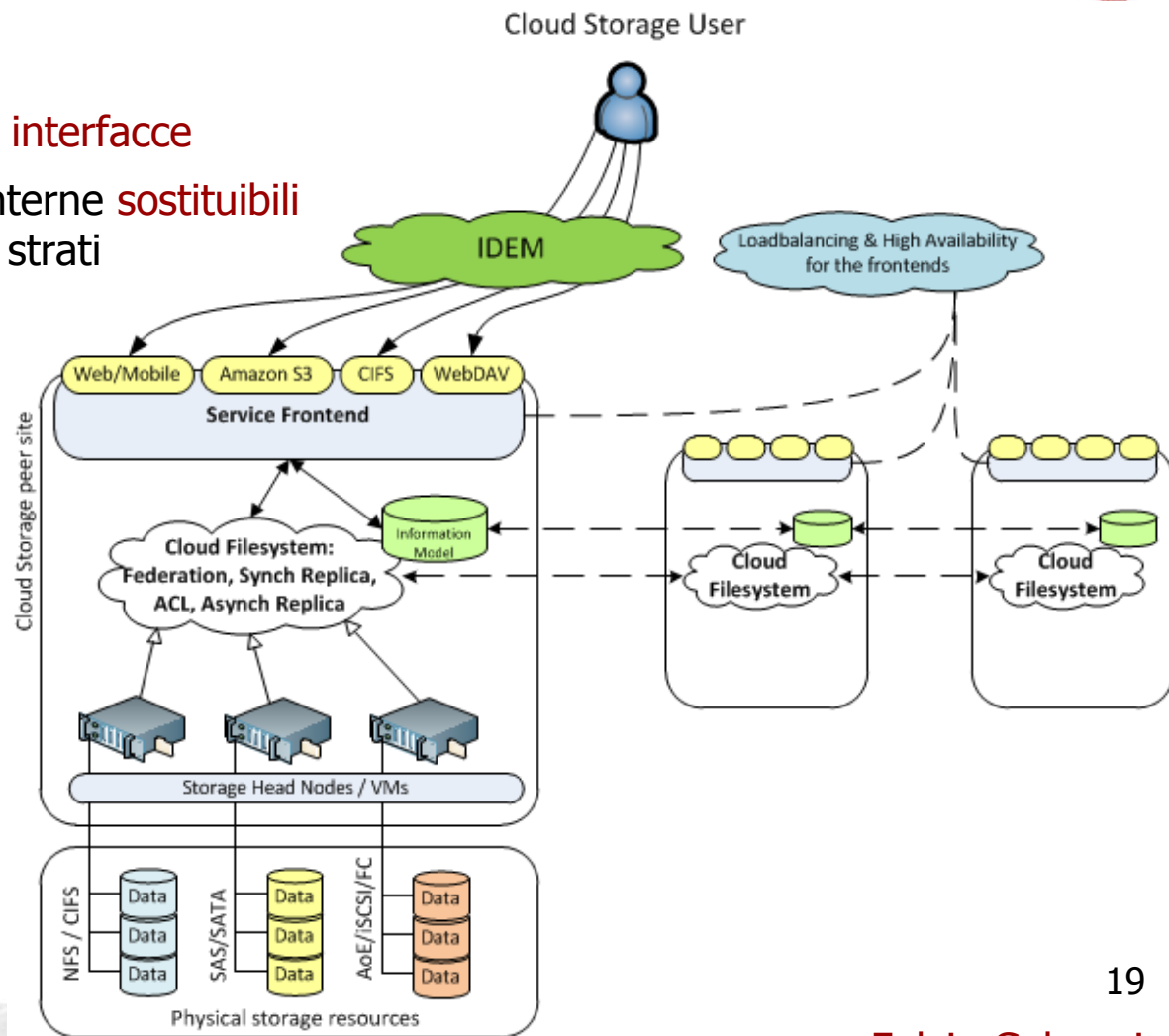
<https://garrbox.dir.garr.it>

The screenshot shows a Firefox browser window with two tabs: 'GARRbox - Roma PoP - recycle_bin' and 'GARRbox - Milano PoP - Cisco'. The address bar shows 'https://garrbox.mib.infn.it/#1'. The interface includes a toolbar with icons for file operations (Upload, Download, Open in..., Share..., New Dir, Rename, Copy, Move, Delete) and user actions (User Info, About, Logout). The left pane shows a directory tree with 'repo_farina' selected, and a subdirectory 'Cisco' is expanded. The main pane displays a table of files and directories.

Filename	Size	Type	Modified	Dimensions
Algorithms_and_Pseudocode_files	-	Directory	2012/04/19 10:47	
cloud_enablement_services_aag.pdf	306,8 Kb	PDF File	2012/04/19 10:47	
Data Center and Virtualization Partner Ecosystem - Cisco Systems.pdf	26,94 Kb	PDF File	2012/04/19 10:47	
ds3105_1110_FlexPod.pdf	245,42 Kb	PDF File	2012/04/19 10:47	
external_casestudy_molina_dc_nov2010.pdf	541,51 Kb	PDF File	2012/04/19 10:47	
Migration_of_Enterprise_Apps_to_Cloud_White_Paper.pdf	1,64 Mb	PDF File	2012/04/19 10:47	
services_cloud_enablement_overview_enterprise.pdf	295,89 Kb	PDF File	2012/04/19 10:50	
services_cloud_enablement_overview_service_provider.pdf	296,78 Kb	PDF File	2012/04/19 10:50	
services_cloud_enablement_white_paper_enterprise.pdf	2,09 Mb	PDF File	2012/04/19 10:50	
services_cloud_enablement_white_paper_public_sector.pdf	2,13 Mb	PDF File	2012/04/19 10:50	
Storage_Reference_Architecture_Solution_Profile.pdf	1,08 Mb	PDF File	2012/05/03 10:16	
TSF_case_study.pdf	283,98 Kb	PDF File	2012/04/19 10:50	
vce_vblock_infrastructure_brochure.pdf	163,29 Kb	PDF File	2012/04/19 10:50	
white_paper_c11-617239.pdf	878,02 Kb	PDF File	2012/04/19 10:50	

L'approccio architetturale proposto

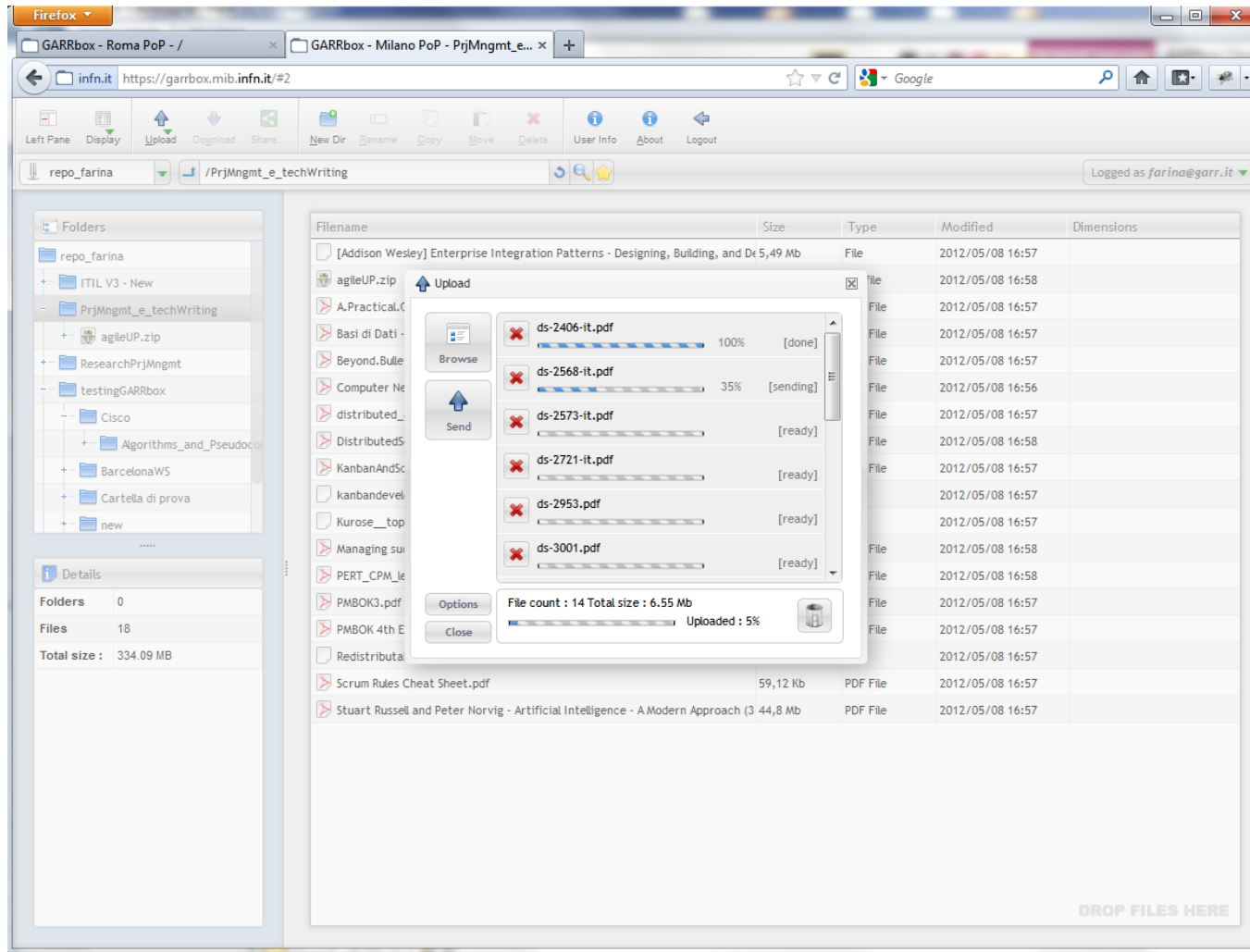
- Architettura a strati
- Ogni strato
 - Chiaramente definito da **interfacce**
 - Protocolli e tecnologie interne **sostituibili** senza impatto sugli altri strati
 - **Resilienza** interna



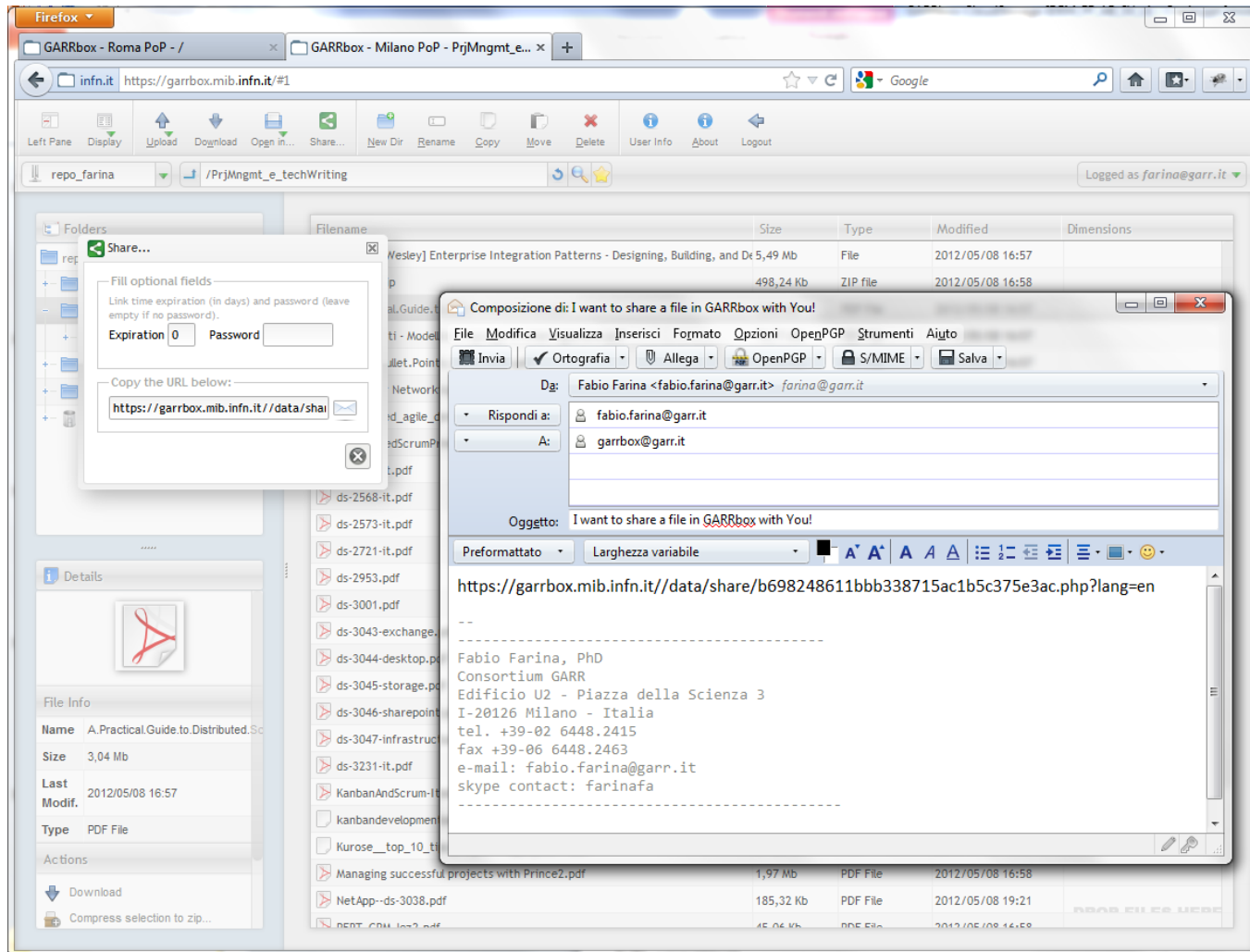
Il prototipo GARRbox oggi

- Attivo per lo staff GARR: 15-20 utenti, 10 GB
- Upload/download, ricerca e manipolazione dati da browser e client S3
- Condivisione di file e di cartelle
- Uso di IDEM
 - Sharing di file con chiunque, **cartelle condivise** in base al PrincipalName IDEM
 - **Autenticazione** e diritto di accesso web, creazione delle chiavi S3
 - **Quote differenziate** per utente, gruppo ed ente
- Replica locale e geografica
- Primi test su efficienza e resilienza hanno dato risultati promettenti
 - Resilienza dei singoli brick dei volumi cloud,
 - Saturazione della banda in data transfer
- Linee di sviluppo:
 - Resilienza, bilanciamento del carico, assessment sicurezza, cifratura lato client e lato server, multi-tenancy...

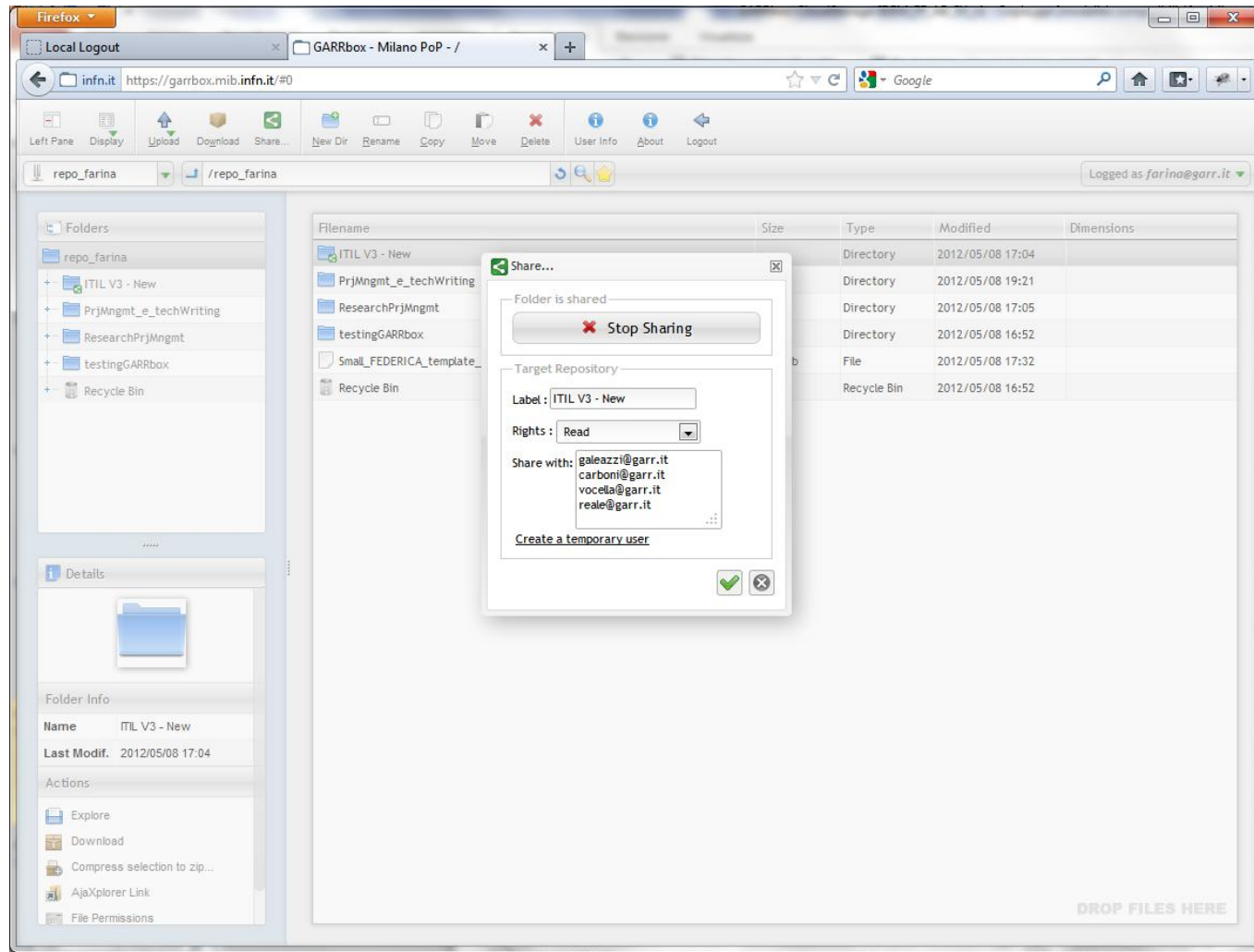
Screenshots



Screenshots



Screenshots





Grazie dell'attenzione

Riferimenti:

	Web	Email
DECIDE	https://www.eu-decide.eu/	info@eu-decide.eu
DB pediatrico	-	info@garr.it
FileSender	https://filesender.garr.it/	filesender-service@garr.it
Garrbox	https://garrbox.dir.garr.it/	garrbox@garr.it