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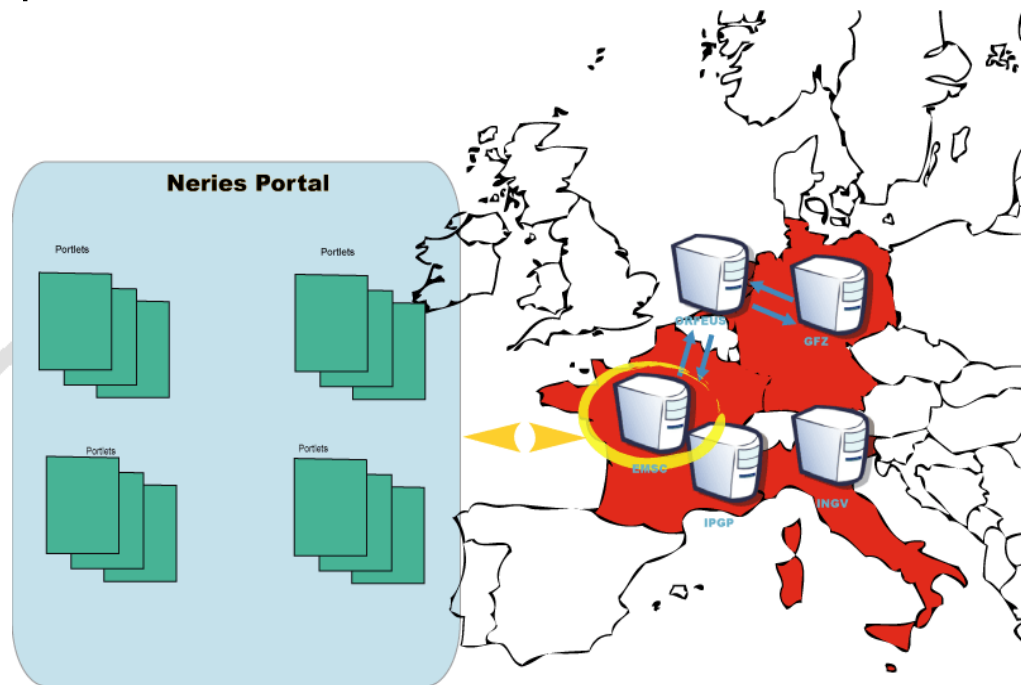
ArcLink middleware



QuakeML specs

NERIES objective...

Networking together seismological observatories and research institutes into one integrated European infrastructure that provides access to data and data products for research.



...and approach

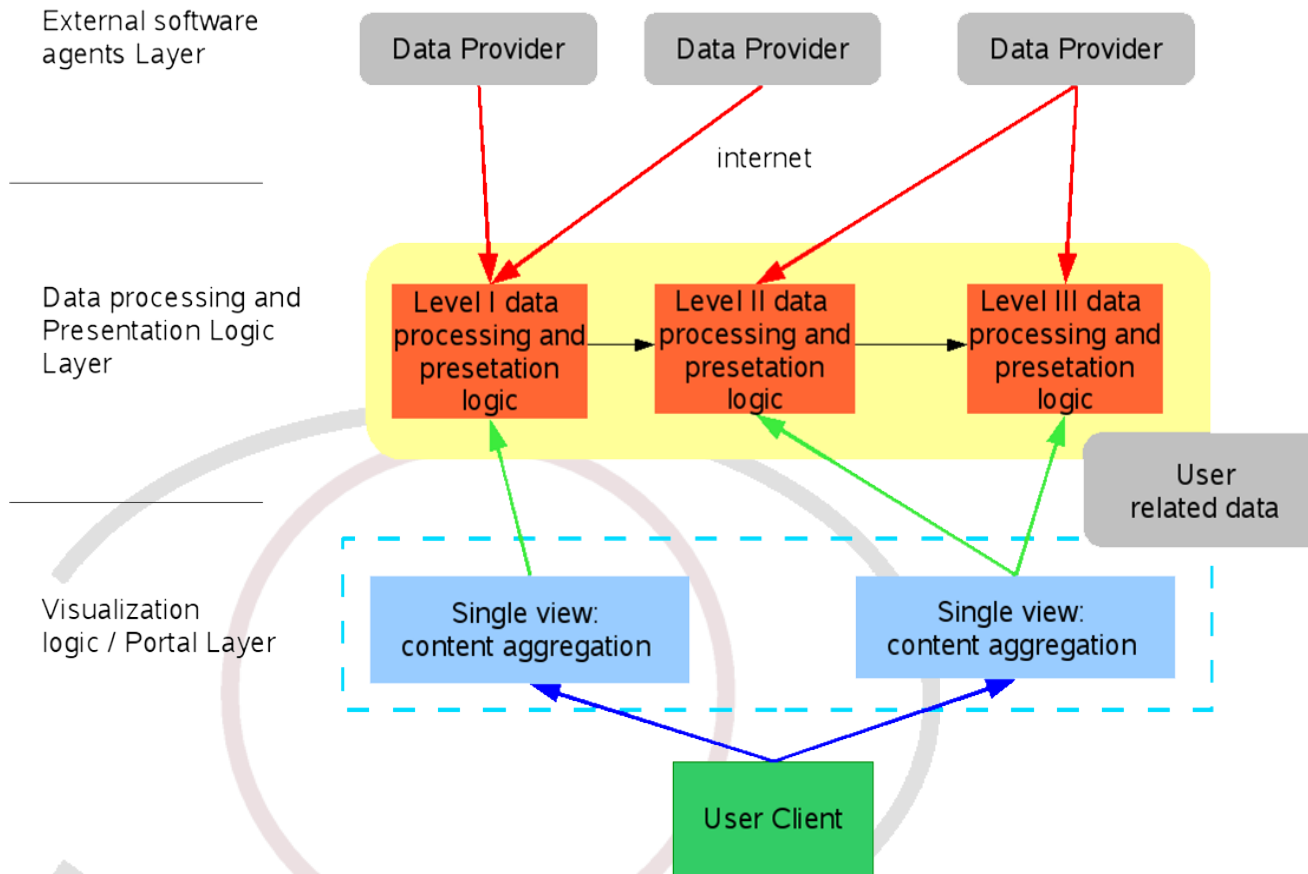
Design and develop a cyberinfrastructure for distributed and heterogeneous data streams and services.

Design and develop a Web portal that acts as the uppermost layer of the infrastructure and provides rendering capabilities for the underlying sets of data.



NERIES Portal Early design - Conceptual Layers

Data Levels



Raw Data (Level I)

*Waveform data, accelerometric data,
Station location characteristics,
Theoretical data*

Derived Data (Level II)

*Seismic picks, amplitudes,
automatic Magnitudes
Moment Tensors*

Interpreted Data (Level III)

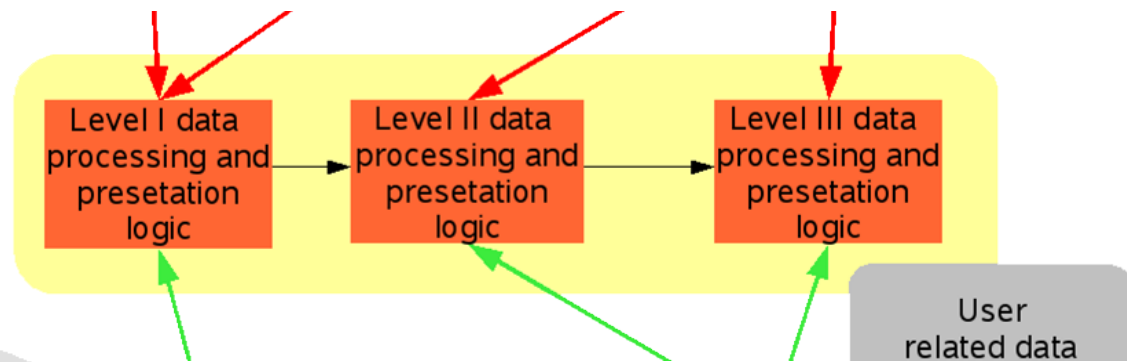
*Events (location, magnitude, etc)
Event maps, Shakemaps,
Loss estimation maps,
Newsletters, etc.*



The idea of “Distributed data” includes the concept of Distributed maintenance and responsibility which persist in time

Sounds quite obvious for the “External Software Agents” Layer (*machine to machine communication*).

Can we apply this idea to the presentation logic layer? (*human - machine communication*)

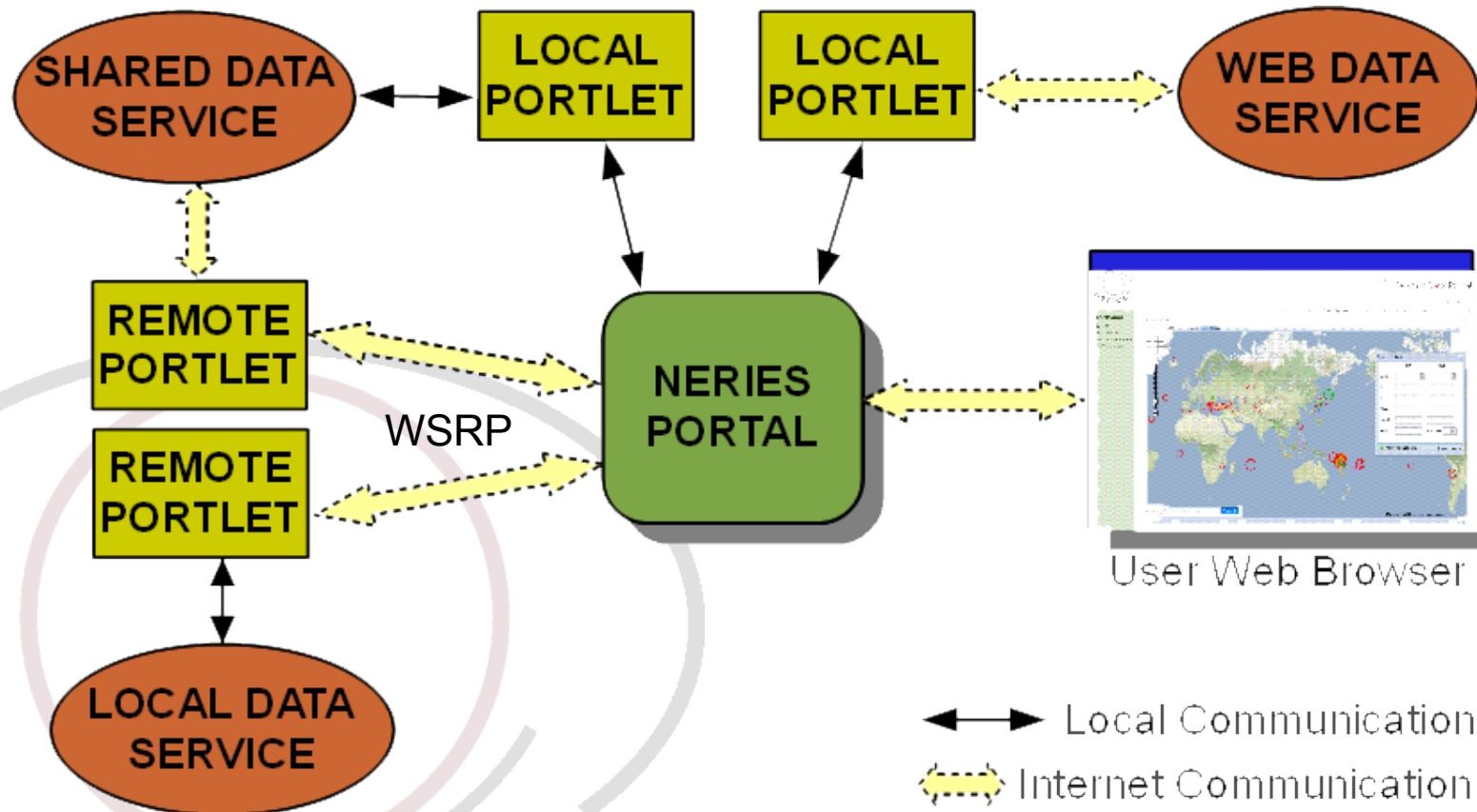


Advantages

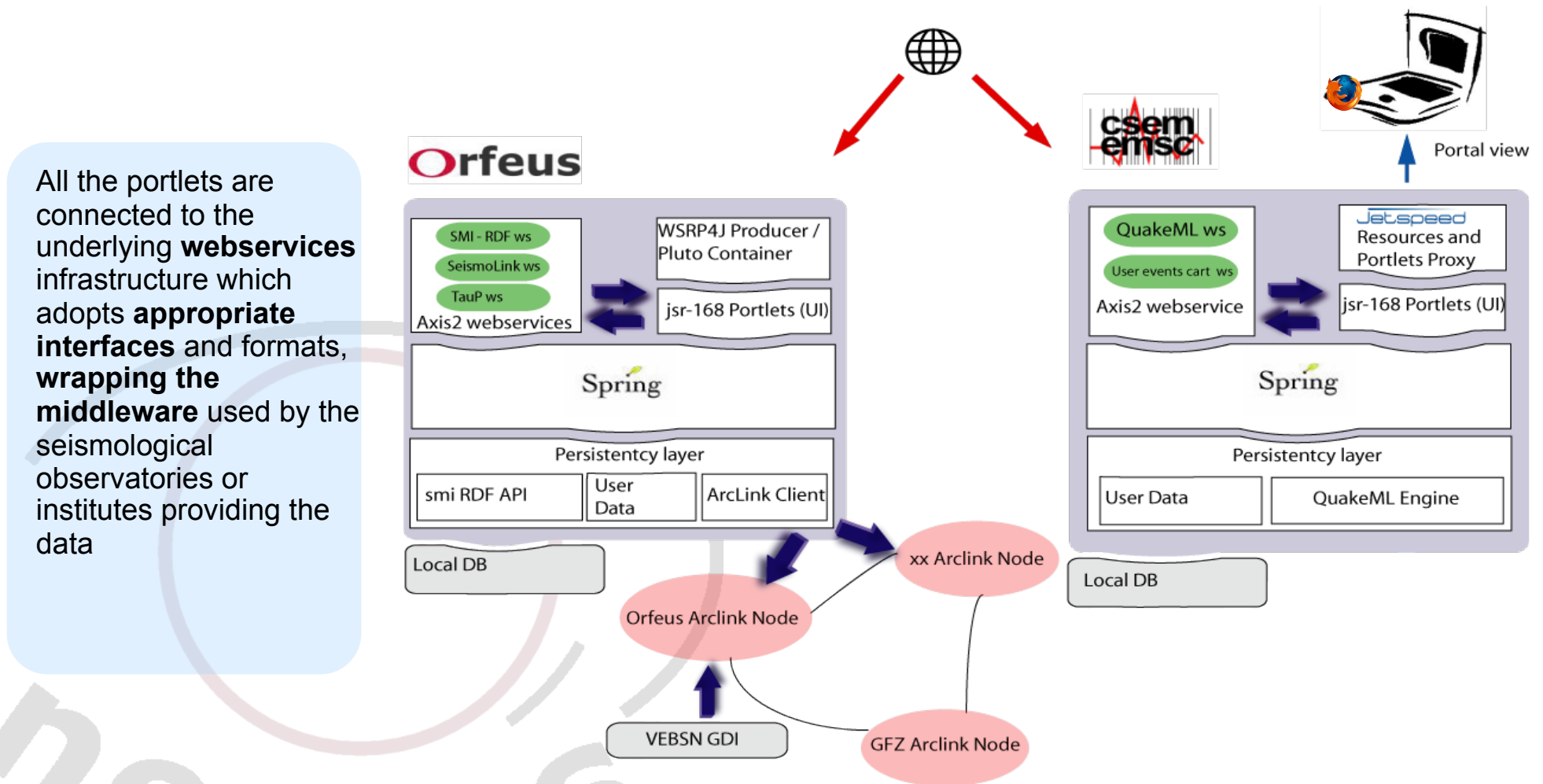
↓ Rapid **re-deployment** of improved web applications. **Statistics** on the usage of the tools can be made at the data provider’s place. Helps the coordination of a **distributed development team with different responsibilities either on the data or on the tools.** (NERIES Portal Development structure)

Our Strategy

Data access through **Webservices**, Portal Frameworks for the presentation logic, and **WSRP** for distributed deployment of web applications (portlets)

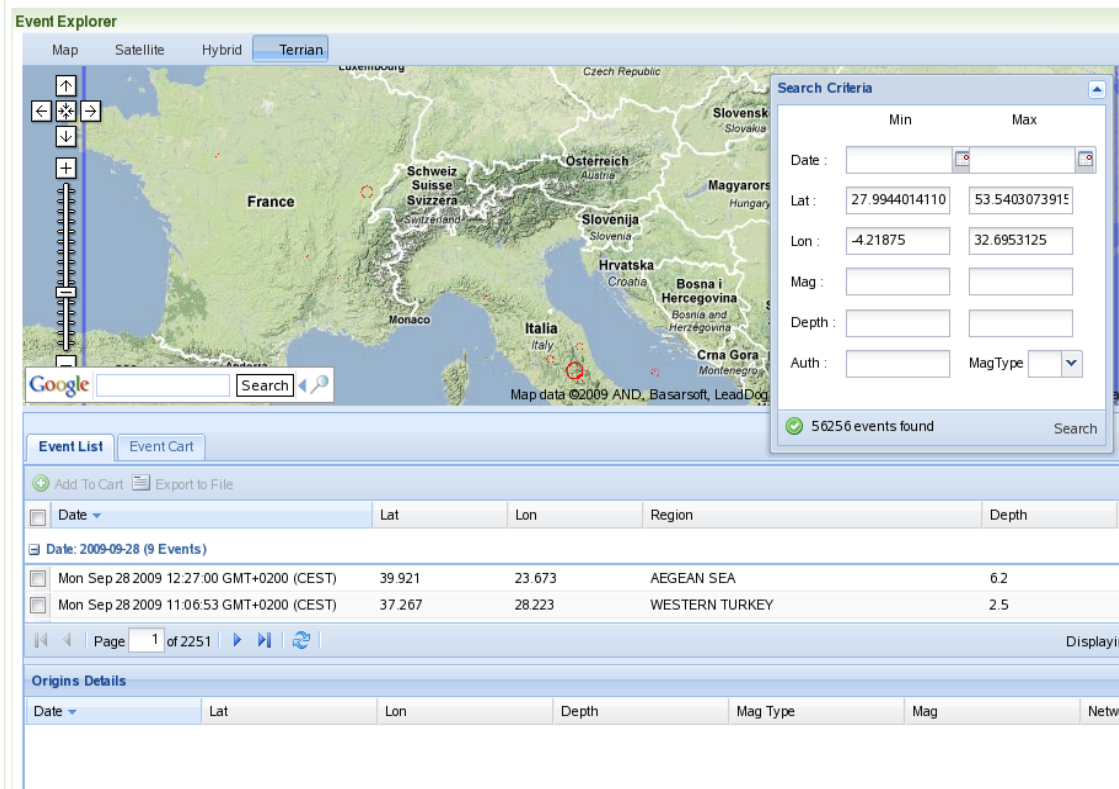


Each single user application of the portal consists of a Java-based **JSR-168 standard portlet** (often provided with interactive maps for data discovery)





NERIES, Datasets discovery tools and services

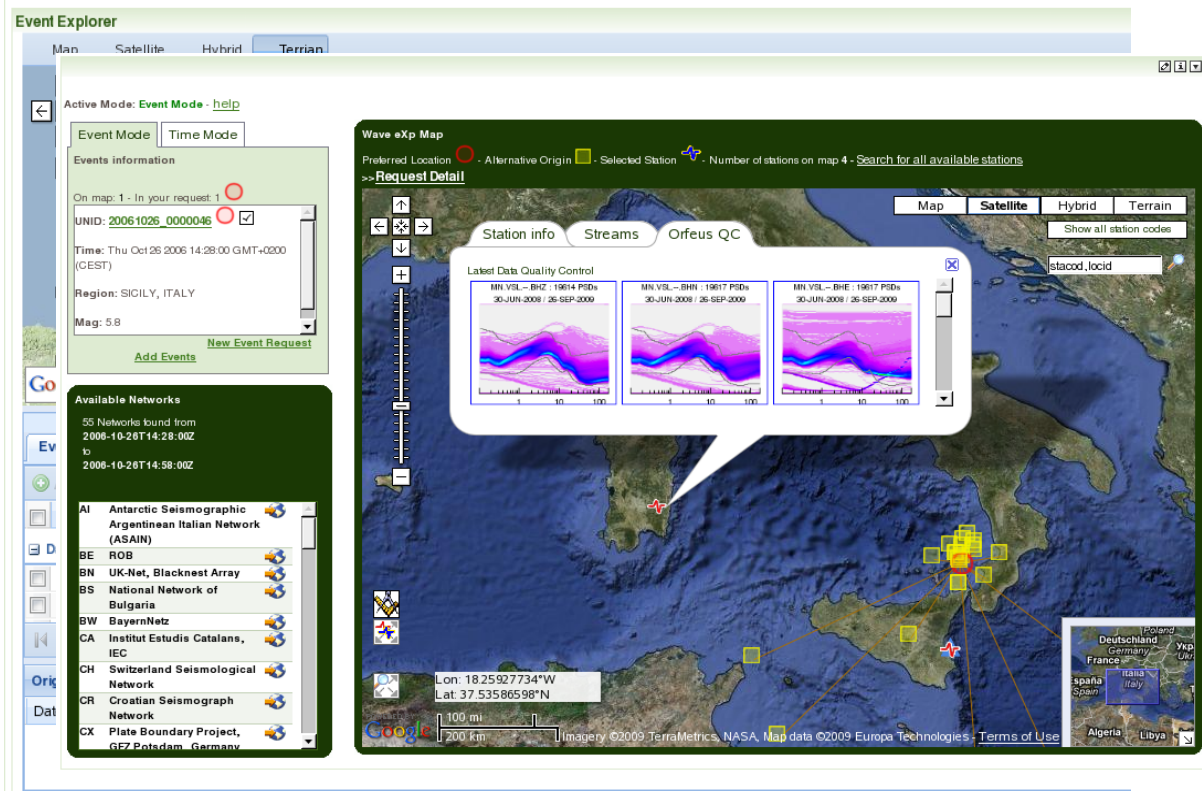


The screenshot shows the 'Event Explorer' web application. At the top, there are map style options: 'Map', 'Satellite', 'Hybrid', and 'Terrain' (selected). Below this is a map of Europe with a search bar and navigation controls. A 'Search Criteria' dialog box is open, showing search parameters for Date, Lat, Lon, Mag, Depth, and Auth. Below the map, there are tabs for 'Event List' and 'Event Cart'. The 'Event List' tab is active, showing a table of events for the date 2009-09-28. The table has columns for Date, Lat, Lon, Region, Depth, and Mag. Two events are listed: one in the AEGEAN SEA and one in WESTERN TURKEY. Below the table, there are navigation controls and a 'Displaying' status. At the bottom, there is an 'Origins Details' section with a table for Date, Lat, Lon, Depth, Mag Type, Mag, and Network.

Date	Lat	Lon	Region	Depth	Mag
Mon Sep 28 2009 12:27:00 GMT+0200 (CEST)	39.921	23.673	AEGEAN SEA	6.2	2
Mon Sep 28 2009 11:06:53 GMT+0200 (CEST)	37.267	28.223	WESTERN TURKEY	2.5	2

*Event
Explorer
portlet
QuakeML
WS
(earthquake
catalogues and
parameters)*

NERIES, Datasets discovery tools and services



Waveform Explorer

SeismoLink WS

(stations inventories and waveforms)

TauP WS

(Phases arrival times)

NERIES, Datasets discovery tools and services

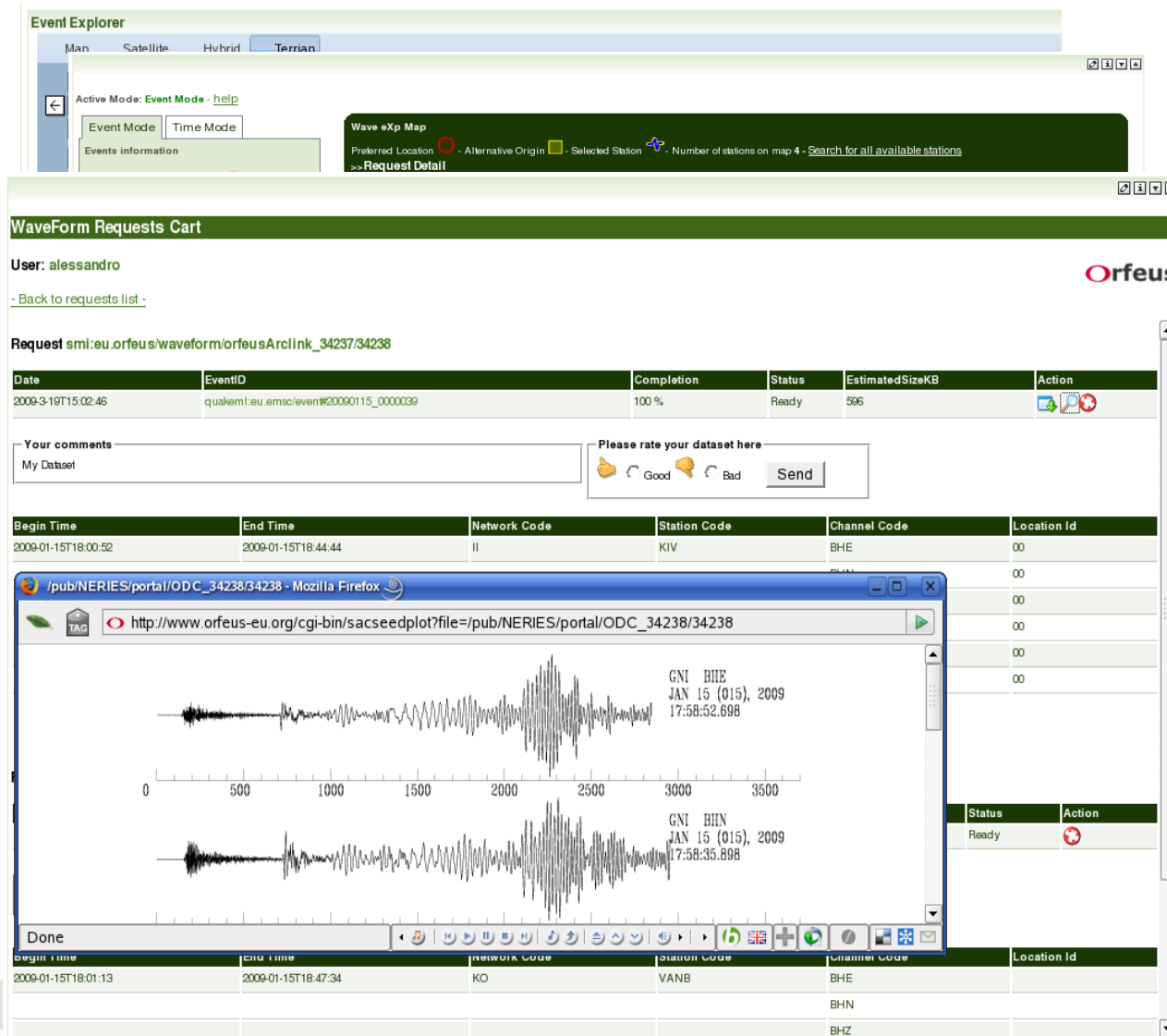
User Data Cart

Earthquake parametric information, waveform, phases and arrival times (theoretical) are...

- Aggregated as a single data product that can be visualized and downloaded

- Described in a machine understandable way (RDF) and accessible through a

SPARQL Endpoint



The screenshot displays the 'Event Explorer' interface with a 'WaveForm Requests Cart' for user 'alessandro'. The cart shows a request for seismic data with the following details:

Date	EventID	Completion	Status	EstimatedSizeKB	Action
2009-3-19T15:02:46	quakeml.eu.emsc/event#20090115_0000039	100 %	Ready	596	[Icons]

Below the request table, there is a 'Your comments' section and a 'Please rate your dataset here' section with 'Good' and 'Bad' buttons.

The waveform plot shows two traces for station GNI BHE and GNI BHN on January 15, 2009, at 17:58:52.698 and 17:58:35.898 respectively. The x-axis represents time in seconds from 0 to 3500.

Begin Time	End Time	Network Code	Station Code	Channel Code	Location Id
2009-01-15T18:00:52	2009-01-15T18:44:44	II	KIV	BHE	00
				BHN	00
				BHZ	00

At the bottom, another table shows additional station data:

Begin Time	End Time	Network Code	Station Code	Channel Code	Location Id
2009-01-15T18:01:13	2009-01-15T18:47:34	KO	VANB	BHE	
				BHN	
				BHZ	