Pilot Project - *RapidSeis*

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'Virtual' computing through the NERIES data portal

Idea:

Seismologist does 'virtual' computing using NERIES portal data

User can alter functionality of 'virtual' application using a plugin

All user interaction is through a web browser

*'virtual' application may be parallelized, may be running
on HPC cluster or a Local Grid... user does not know (or care)*

Developmental components (6 months)

NERIES data portal… Orfeus, EMSC…
http://193.52.21.80/jetspeed/portal (Orfeus, De Bilt, Holland)
Extensions to web-service infrastructure.
User-interface development elements.

RAPID framework for portlet development… NESC
http://research.nesc.ac.uk/rapid (National e-Science Centre, Edinburgh)
Originally developed to generate portlets for job submission/control on
Grid and Cloud–based computational resources.
Functionality extended for this project to allow dynamic user-interface
creation and query of NERIES meta-data.

Processing… Seismology Group
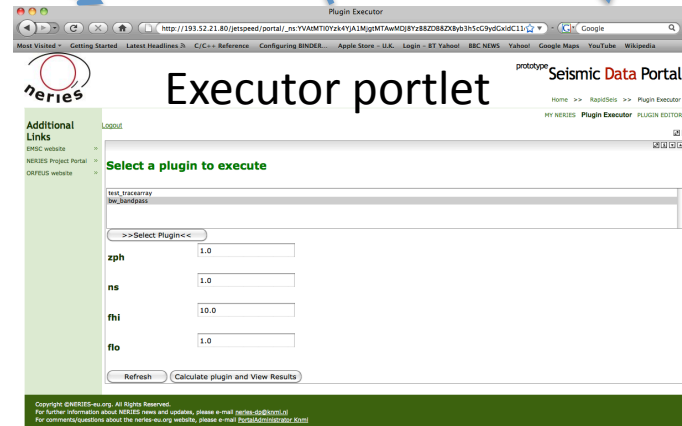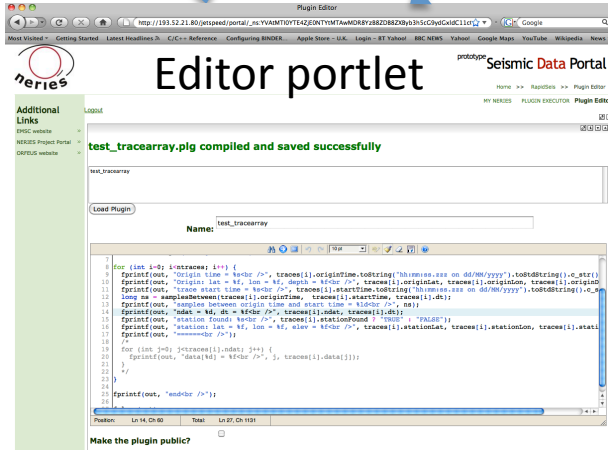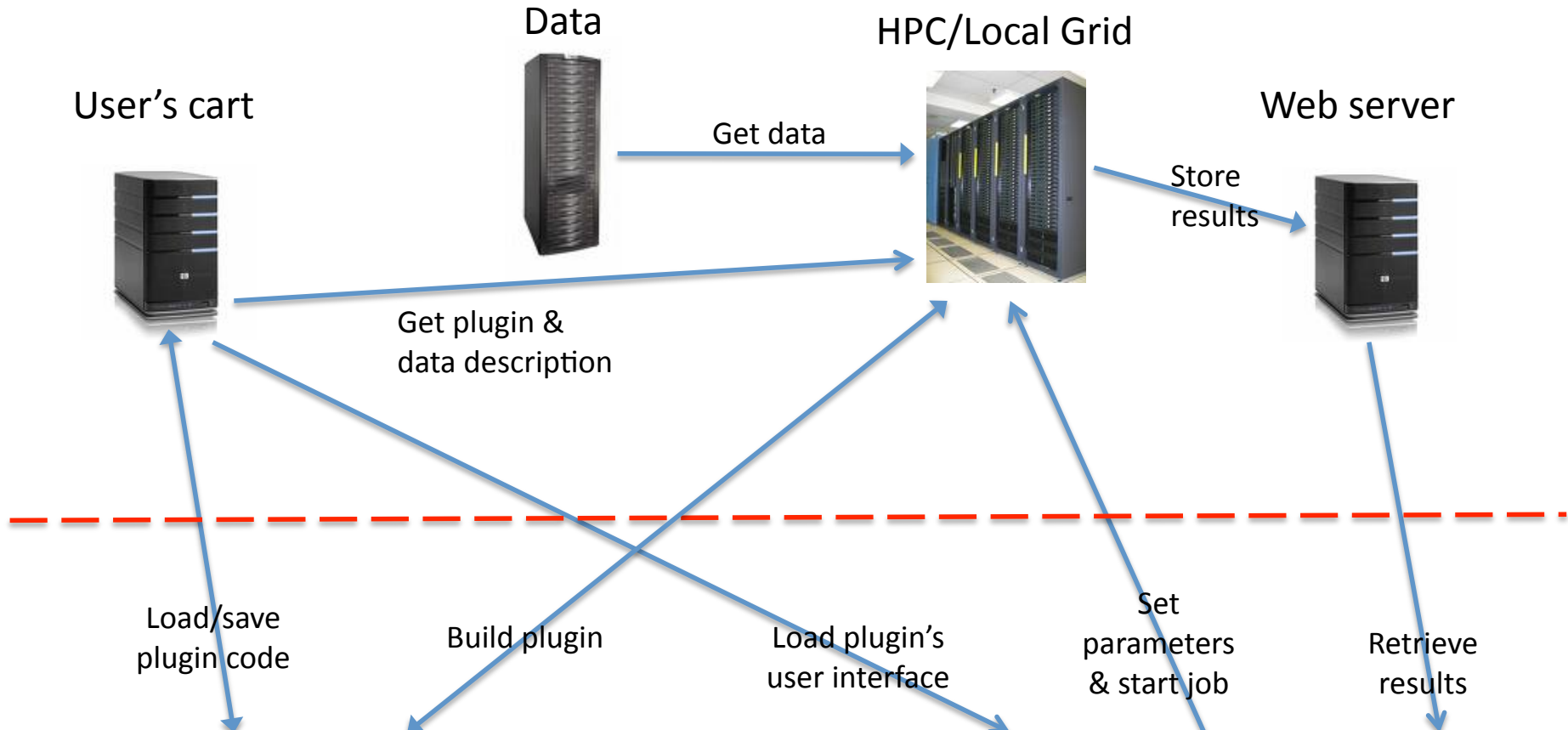http://www.liv.ac.uk/earth (University of Liverpool, UK)
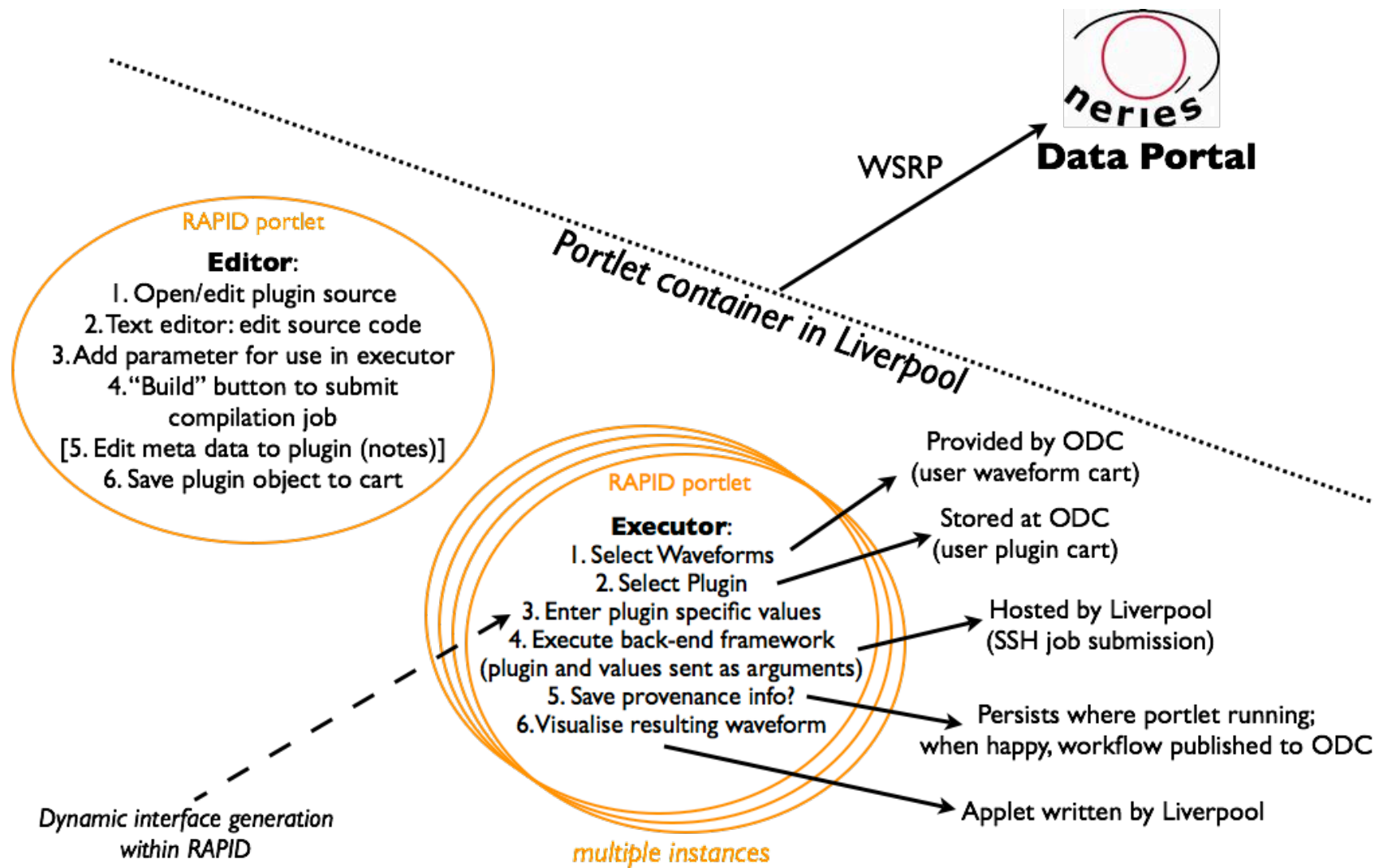Extension of SDX application to build & execute plugins in batch.
Development of utilities to generate and upload RDF.
Utilities to query, download and prepare portal data for processing.

neries
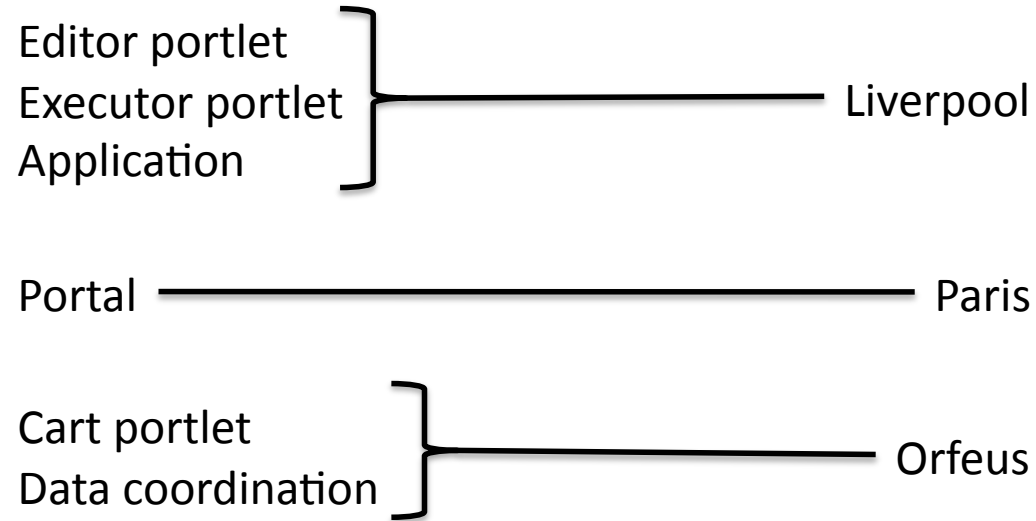**Data Portal**

WSRP

Portlet container in Liverpool

RAPID portlet

Editor:
1. Open/edit plugin source
2. Text editor: edit source code
3. Add parameter for use in executor
4. "Build" button to submit
   compilation job
[5. Edit meta data to plugin (notes)]
6. Save plugin object to cart

RAPID portlet

Executor:
1. Select Waveforms
2. Select Plugin
3. Enter plugin specific values
4. Execute back-end framework
   (plugin and values sent as arguments)
5. Save provenance info?
6. Visualise resulting waveform

Provided by ODC
(user waveform cart)

Stored at ODC
(user plugin cart)

Hosted by Liverpool
(SSH job submission)

Persists where portlet running;
when happy, workflow published to ODC

Applet written by Liverpool

Dynamic interface generation
within RAPID

multiple instances

Andy Heath / Alessandro Spinuso

Implementation/Hosting

Editor portlet
Executor portlet — Liverpool
Application

Portal ————— Paris

Cart portlet — Orfeus
Data coordination

RAPID
portlets

Cart portlets &
web-service
infrastructure

Cart portlets

Back-end application
& infrastructure

+ support from Liverpool University Computer Services Dept (Cliff Addison)