

# EMBRACE Web services and Chipster

easy access to up-to-date microarray data analysis tools

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Web services allow bioinformaticians to tap into a wealth of data and tools using a commonly defined SOAP interface. Accessing remote services reduces the maintenance burden such as having to update biological databases continuously. The EU FP6 funded EMBRACE network has produced a substantial amount of web services, which are collected to the EMBRACE Service Registry.

## Biologist-friendly Web services

We have integrated several Web services into our open source microarray data analysis software Chipster in order to enable also users with no programming background to access them.

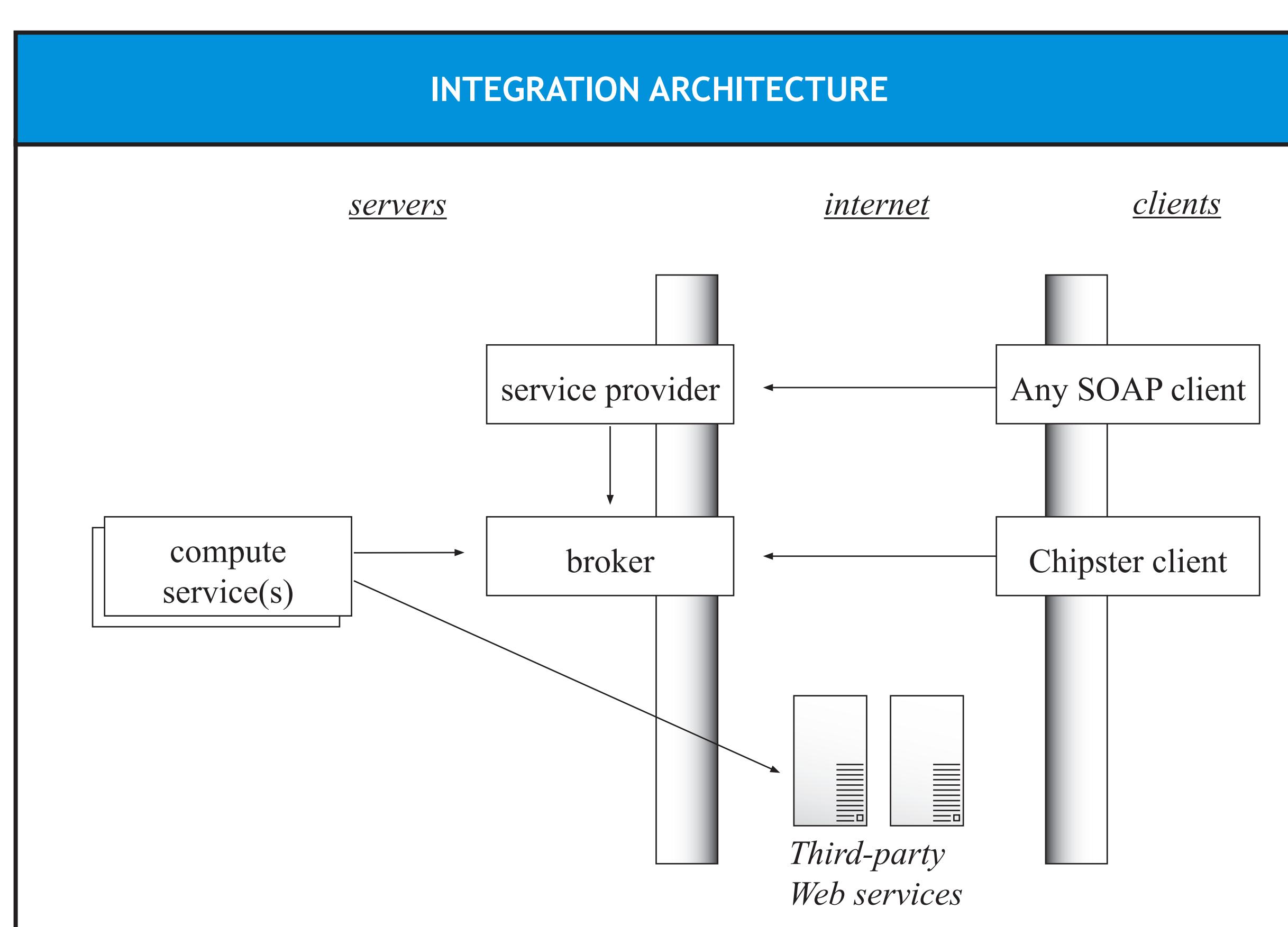
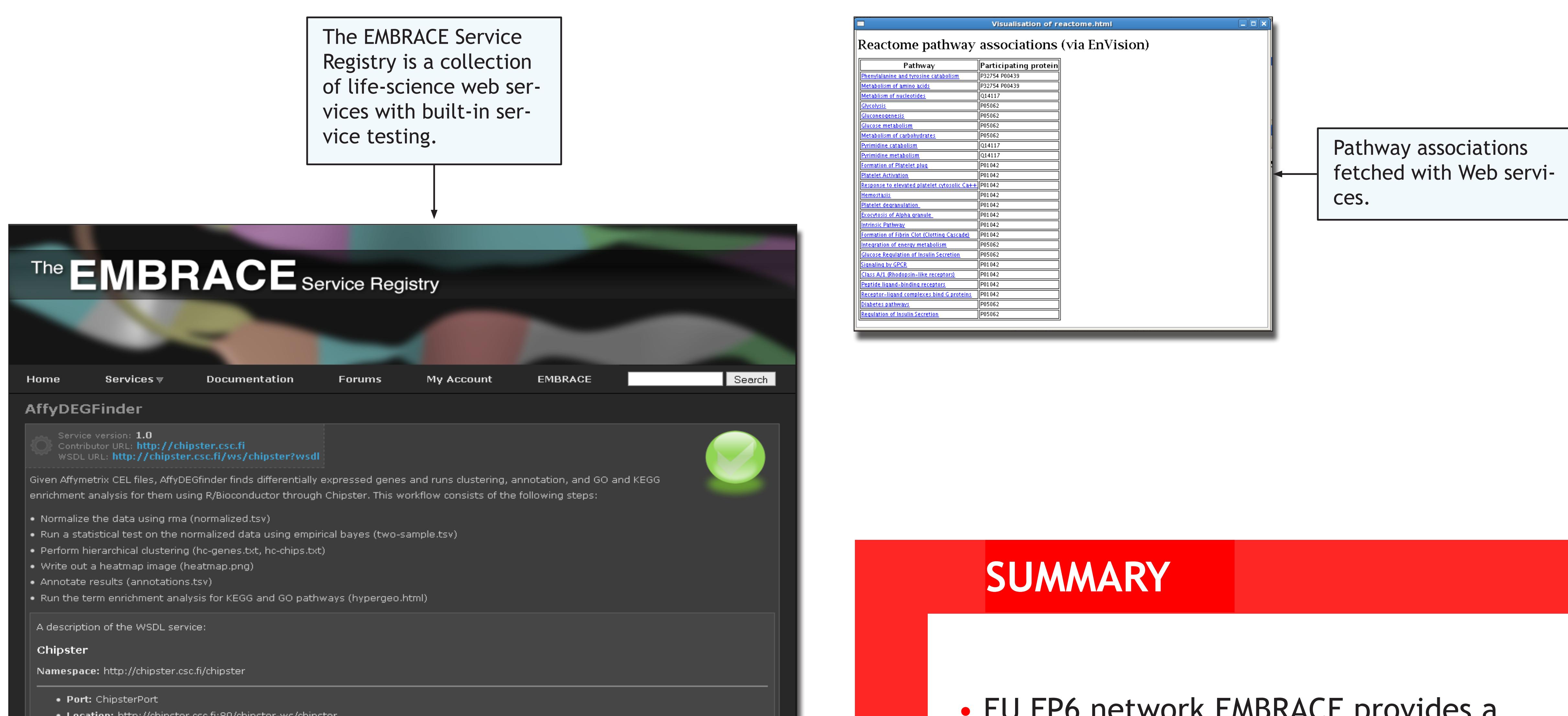
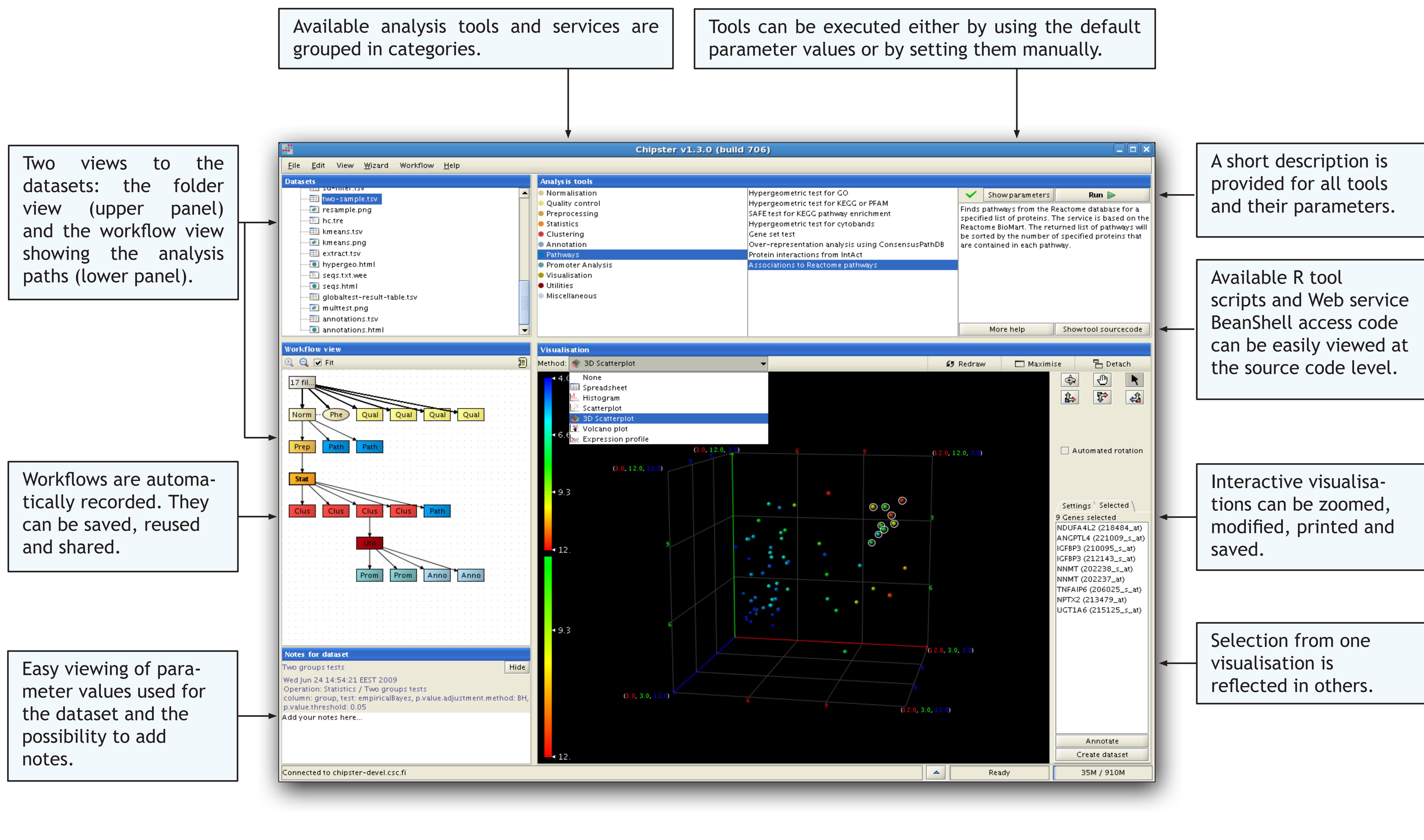
Chipster offers an intuitive graphical user interface to a comprehensive collection of microarray data analysis methods, such as those developed in the R/Bioconductor project. Web services are offered to users in the same way as other tools, so that user does not need to care about the technical implementation. The integrated services include IntAct, Reactome and ConsensusPathDB. These external databases complement well the analysis functionality provided by Chipster, allowing users to mine for more information on the set of interesting genes identified with microarray experiments.

Chipster's client software allows users to save their analysis pipelines as reusable workflows, which can be also shared with other users. In this regard Chipster can act as a workflow enactment engine, which allows the combining of different services.

## Web services access to Chipster

In addition to using Web services, we also make it possible for others to integrate the functionality of Chipster in their own software by providing Web services interface for some of the Chipster tools and workflows. For example, the Chipster AffyDEGfinder Web service performs normalization, finds differentially expressed genes, and runs clustering, annotation, and pathway analysis for them.

Chipster services are SOAP-based and WS-I compliant. For file transfer they use the MTOM mechanism or alternatively allow user to provide an URL for the input data.



## SUMMARY

- EU FP6 network EMBRACE provides a comprehensive collection of Web services
- Microarray data analysis software Chipster provides biologist-friendly access to Web services
- Users can combine analysis tools and Web services into workflows with Chipster
- Chipster tools can also be accessed programmatically via SOAP interface

<http://www.embraceregistry.net>  
<http://www.embracegrid.info>  
<http://chipster.csc.fi>