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Objectives

The future development of agricultural and environmental research relies strongly on plant gene data. The compilation of information resources requires dynamic information acquisition, expert curation and the integration of bioinformatic methods.

PlaNet aims to overcome the limitation of individual efforts as well as the limitation of heterogeneous, independent data collections. PlaNet is a distributed effort among bioinformatics groups and plant molecular biologists to establish a comprehensive integrated database in a collaborative network. PlaNet creates a nucleus for other European and International groups and consortia to join and use the network.

Technology

• Multi-layer architecture, XML

The partners implement local data collections within their special fields of interest or expertise and provide access to their databases via web services.

• XML, SOAP, WSDL

The connection between the individual resources is realized with BioMOBY (www.biomoby.org). BioMOBY is an open-source project part of the Open Bioinformatics Foundation (<http://open-bio.org>). BioMOBY provides an architecture for the discovery and distribution of biological data through web services.

• Ontologies and data models

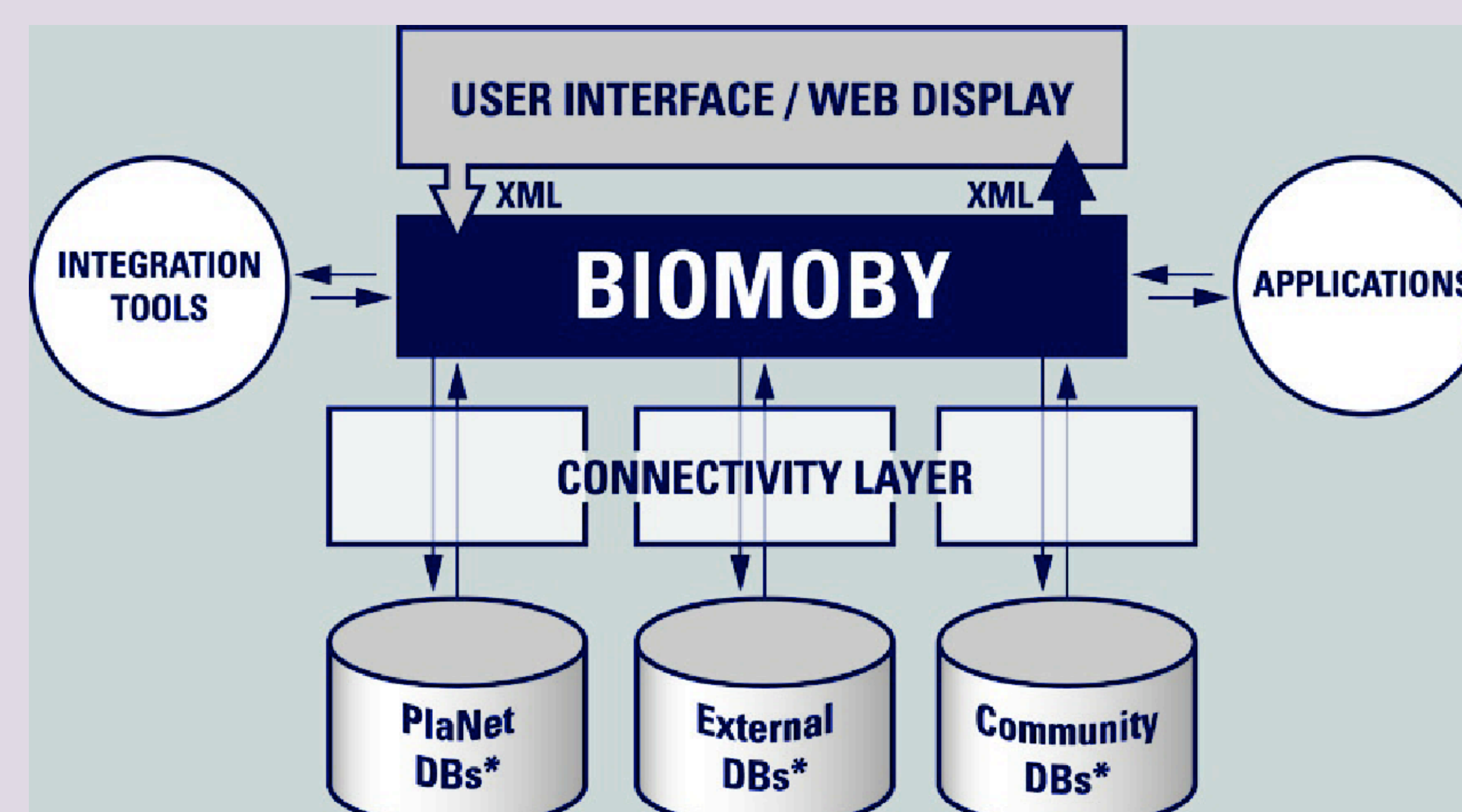
Nomenclature and data representation are standardized using ontologies and generic data models. Standards are defined in interaction with the relevant communities.

• Annotation tools

To keep databases curated and allow expert annotation, local and remote annotation interfaces are created. They provide easy and direct access to all data.

• Data integration tools

External data is gathered into PlaNet using integration tools that allow flexible migration from various representations. Consistency of data is realized by data synchronization between the individual resources.



Partners

JIC (John Innes Center), Norwich, United Kingdom.

Uses Arabidopsis to identify genes controlling development and environmental responses, and apply these findings to crop plant improvement. The ATIDB (Arabidopsis thaliana Insertion DB) at JIC provides access to phenotype descriptions, gene expression patterns and gene disruptions.

NASC (Nottingham Arabidopsis Stock Centre) Nottingham, United Kingdom.

Pan-European Arabidopsis germplasm (seed and DNA) resource. It is a co-founder of ukcrop.net – a federated collection of plant organism databases including Arabidopsis, with a special focus on comparative analysis and genome synteny. As part of the UK National Arabidopsis programme (GARNet), NASC developed a successful Gene-chip and microarray service and integrated database.

CNB/CSIC (Centro Nacional de Biotecnología) Madrid, Spain.

CNB/CSIC has a wide experience in bioinformatic research. It made important contributions on 3D protein structure prediction methods, protein-protein interaction prediction, literature analysis, genome analysis and annotation. It is responsible for the bioinformatic support for the European REGIA project which is aiming to describe Arabidopsis regulation networks.

Genoplante-info Evry, France.

Genoplante is an INRA (Institut National de la Recherche Agronomique) research unit and provides a public bioinformatic platform for the French Plant Genomics programmes. It integrates and works on various types of plant genomic data such as QTLs, ESTs, genomic sequences, transcriptome data SNPs, etc.

VIB (Flanders Interuniversity Institute for Biotechnology) Gent, Belgium.

VIB maintains the European plant promoter Database PlantCARE as well as other Arabidopsis resources. The VIB Plant Systems Biology department has expertise in genome annotation and is partner in the development of the annotation software EuGene. The Plant Systems Biology department is involved in the genome analysis of *Ostreococcus tauri* and *Populus trichocarpa*. The department is also part of the CATMA (Complete Arabidopsis Transcriptome MicroArray) project.

PRI (Plant Research International), Wageningen, The Netherlands.

PRI is connected to the Dutch Expertise Centre for Plant Genomics, the centre for BioSystems Genomics (CBSG), that focuses on potato and tomato using Arabidopsis as a model. PRI has established expertise in genome sequencing and annotation and focuses on databases for functional genomics and advanced metabolomics of tagged Arabidopsis lines.

MIPS (Munich Information Centre for Protein Sequences) Neuherberg, Germany.

MIPS is associated to the National Research Centre for Environment and Health (GSF). Its main focus is on genome analysis. The group made essential contributions to the sequencing and analysis of the Arabidopsis genome and is actively maintaining MatDB (MIPS Arabidopsis Database). MIPS is involved in the genome analysis of Maize and Medicago truncatula and in the German GABI plant genomics network.

PlaNet web portal: <http://www.eu-plant-genome.net>

Database portal: <http://www.eu-plant-genome.net/db>



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