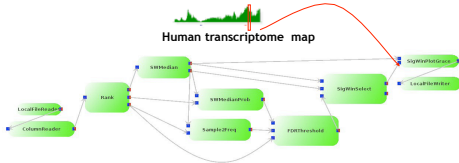


Workflow

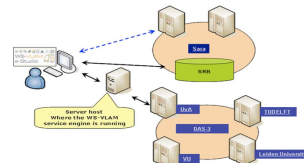
A workflow represents a reliably repeatable sequence of operations/tasks by showing explicitly interdependencies among them.



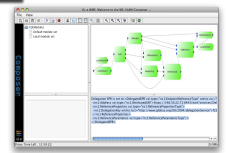
SigWin-Detector workflow has been developed in the VL-e project to detect ridges in for instance a Gene Expression sequence or Human transcriptome map

Workflow management system

Workflow management system manages execution of a workflow on a set of computing resources.



Deployed as service on DAS3, and BigGrid Clusters



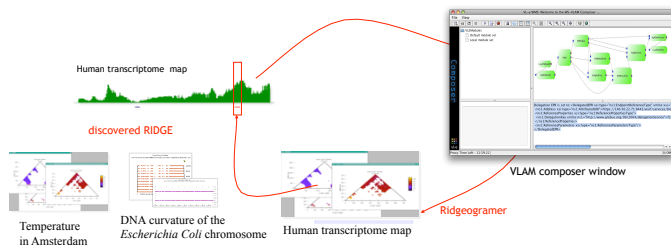
WS-VLAM a workflow management system developed in the VL-e

sigWin detector

application that takes a sequence of numbers and a series of window sizes as input and detects all significant windows for each window size.

[Micro-Array Dept-UvA]

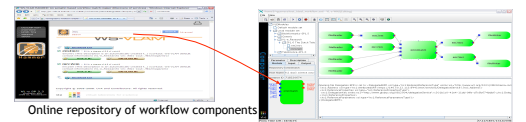
The results of a SigWin-detector analysis are summarized in a graph called SigWin-map. SigWin-detector runs under the WS-VLAM workflow management system.



Matching of 3D electron microscopy reconstructions

[Uv/Leiden]

Goal. Omnimatch allows to locate specific templates in 3D electron microscopic reconstructions (tomograms) of biological samples.



Monitoring: The Omnimatch workflow can be remotely monitored at both workflow level and component level. Workflow components developed for this experiment are stored in a shared repository and can be downloaded



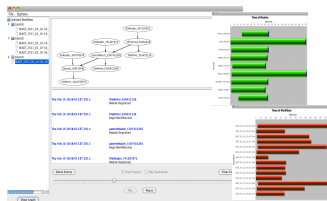
workflow monitoring interface

BLAST: Basic Local Alignment Search Tool

[KEBB, AMC]



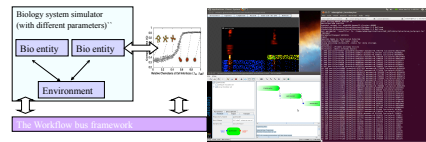
The aim of the application is the **alignment of DNA sequence data** with a given reference database.



Gut model application

[system biology group, CWI]

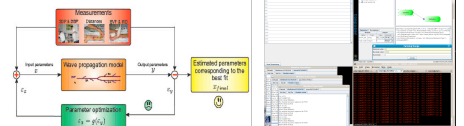
- The simulation implements a spatially explicit, computational model of the gut and its micro-biota.
- Given the local environment of cells and cell-specific metabolic network, the growth rate and uptake rates of metabolites are calculated at each time-step for every cell using linear programming (with a method called Flux Balance Analysis).



Graphical output of application workflows are displayed on the users desktop

Wave propagation model applications

[Biomedical Engineering group TUE]



wave propagation model of blood flow in large vessels using an approximate velocity profile function:

a biomedical study for which **3000 runs** were required to perform a global sensitivity analysis of a blood pressure wave propagation in arteries

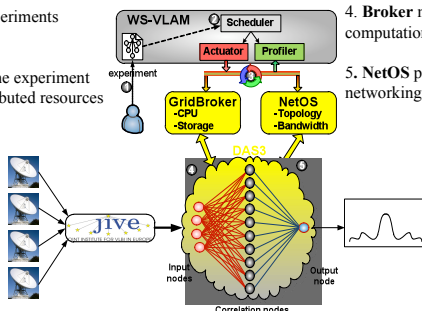
Query interface for the provenance data

Smart Infrastructure for eVLIB

[SNE-UvA]

WS-VLAM – workflow execution environment coordinates the execution of distributed Apps.

- User deploys an experiments application
- WS-VLAM maps the experiment onto available distributed resources
- Control loops
- Broker manages the computational resources.
- NetOS programs the networking infrastructure



Dynamic network control in distributed computing

A test bed showing a distributed system in which nodes are interconnected through 2 networks, as follows:

A default network uses a shared 1 Gbs switch

A second network uses a network processor unit programmed to route IP packets at 1 Gps,

