

Future Software Environments for Astronomical Data Analysis

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OPTICON Network 3.6

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Supported by OPTICON and NVO:

OPTICON has received research funding from the European Community's Sixth Framework Programme under Contract no. RII3-CT-2004-001566
The US National Virtual Observatory (NVO) is funded by the National Science Foundation under cooperative agreement AST0122449

Rational and Objectives

- ◆ Current issues for data processing
 - Many systems available but:
 - Designed several **decades ago**,
 - **Largely incompatible** due to scripting language,
 - **Complicated to share data/code**
 - Only limited interfaces to Web, archives, databases and VO
 - Difficult to exploit available computer resources
- ◆ Too complex to upgrade current system
- ◆ Future astronomical software environment objectives:
 - Simple and flexible scripting language
 - Open, free base system for desktop
 - Easy interface to resources like archives, VO, GRID, etc.
 - Access to important legacy applications
 - Scalable from desktop to clusters
 - Simple to develop new applications

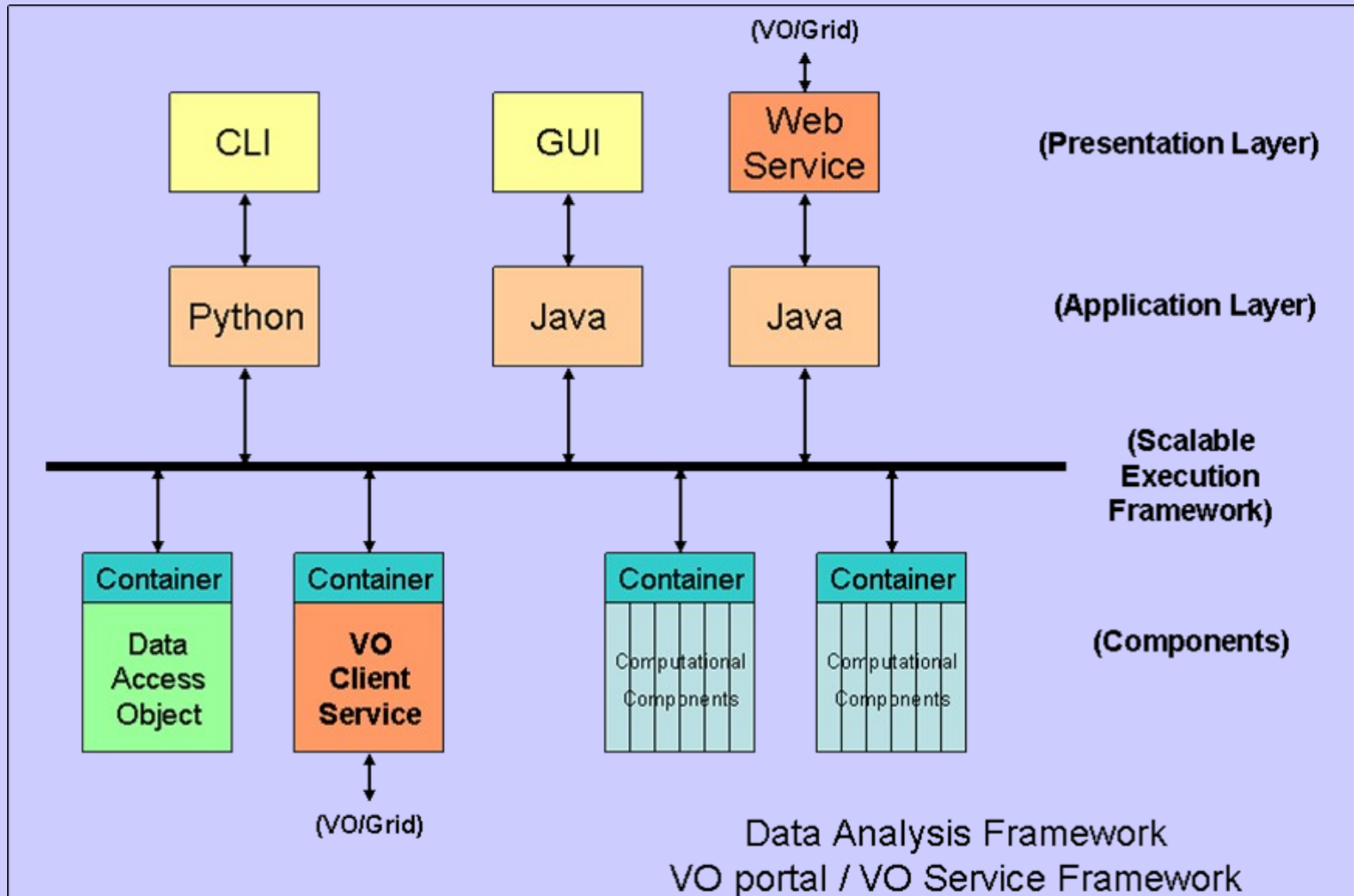
OPTICON Network 3.6

- ◆ Future Astronomical Software Environments for Data processing and Analysis
 - High-level requirements
 - Architectural concept
 - Interface specifications
- ◆ Created spring 2004 as OPTICON Network 3.6
 - Funded by OPTICON through EU FP6 grant RII3-CT-2004-001566
 - 3 year duration 2004-2007
 - Twiki: <<http://archive.eso.org/opticon/twiki/bin/ViewMain/WebHome>>
 - Monthly phone meetings
 - Bi-annual face-to-face meetings
 - Members both from EU and US:
 - P. Grosbøl (ESO), D. Tody (NVO,NRAO), D. Ponz (ESA), B. Garilli (INAF), W. Cotton (NRAO), P. Linde (Lund), K. Reinsch (Göttingen), N. Caon (IAC), H. Terlouw (Kapteyn), T. van der Hulst (Kapteyn), C. Surace (Marseille), W. Pence (NASA), M. Ullgren (Helsinki) , K.Banse (ESO), and others

High-level Requirements

- ◆ Key requirements for astronomical software environment:
 - Core system available in a license free version
 - Promote sharing and collaboration with respect to data and code
 - Support of astronomical standards and conventions
 - Prepared to support units and error propagation
 - Powerful scripting language e.g. Python
 - Simple but extendible to provide scalability
 - Good integration with Web services and VO
 - Easy development of new task (e.g. In C, C++ and Fortran)
 - Access to important legacy applications (e.g. From AIPS, IRAF, GIPSY, MIDAS)
- ◆ Draft document with detailed requirements (190+) available
- ◆ Internal written review completed
- ◆ External written review foreseen for fall 2006

Architectural Concept



Roadmap

- ◆ Near term roadmap:
 - High-level requirements – 2007 Q1
 - Architectural concept – 2007 Q2
 - Interface specifications – 2008 Q1 based on
 - Prototypes – 2006 Q4 .. 2007 Q3
- ◆ Main objectives
 - Share views on requirements and architectural concept
 - Provide common basis for implementations
 - Promote interoperability to ease sharing of code and data
- ◆ Find resource to start actual implementation
- ◆ See poster for SPS6 on 2006-08-22