Objectivity Case History

Customer Information

Customer:	Johns Hopkins University
Industry:	Science/Astronomy
Application Domain:	
Status:	Developing
Platform:	SGI, NT and Digital AXP
Compiler:	Visual C++
Other Tools:	RogueWave tools.h++

Buying Criteria

The Sloan Digital Sky Survey will create a comprehensive visible light digital photometric map of half of the northern sky to very faint magnitudes, together with an associated, voluminous and homogeneous spectroscopic survey. All data obtained by the project will become an open, public resource. Capital construction of the equipment, and preparation of software, is largely complete, and data-taking will begin in less than a year. In recognition of substantial funding from the Alfred P. Sloan Foundation, the project is called the Sloan Digital Sky Survey, and is referred to by the acronym SDSS.

Obviously the scientific impact of the SDSS data on NASA projects will be very large. However Johns Hopkins also stresses the substantial issues of innovative software technology of huge databases. The SDSS data base will total more than 12 Terabytes, fully comparable to the Earth Observing System and the human genome project. By the time the survey is complete, SDSS will have invested more than 100 person-years of effort in development of sophisticated software for acquisition, reduction, manipulation, and archiving of the database, and much of this software can be used in other contexts. For example, SDSS intelligent software tools for rapid and efficient cross-identification of astronomical objects between disjoint, very large data bases should have broad applicability both inside and outside of astrophysics, Johns Hopkins hopes and anticipates that software tools, as well as scientific data, enabled by SDSS will be broadly adapted throughout the community.

Why Objectivity

The SDSS will collect, process and distribute vast amounts of data. Indeed, the size of the data handling task is such that Hopkins could not reasonably have contemplated doing this survey even a few years ago with the compute power available then, even had all the other necessary technical developments (detectors, optics etc.) been in place. The task is far from trivial today, but, with the use of Objectivity, it is doable.

The organization and processing of the SDSS data require techniques similar to those used in large high-energy particle physics experiments, and the entire data processing activity is managed by scientists in the Experimental Astrophysics and On-line Systems groups at Fermilab. Objectivity's ability to distribute huge amounts of data and handle complex data types was the key reason for its selection.

Contact Information

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