

Advanced Network Infrastructure for Distributed Learning and Collaborative Research

University of Wisconsin - La Crosse
Subcontract

Salient Results

Contract Period: Oct. 1, 2003 - Sept. 30, 2007

National Library of Medicine, Contract No. N01-LM-3-3512

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Project Results

The University of Wisconsin – La Crosse’s role in this project was to develop applications and middleware to demonstrate network aware and self-scaling behavior in applications that support anatomical education. The primary results of this work are the following.

1. Development of a transport protocol for the Remote Stereo View application, originally developed under the prior NGI project, that provides several opportunities for self-scaling behavior in the application. This protocol is also instrumented to record and log a variety of information regarding transport success measures.
2. Extensions to the InformationChannels framework that supports the advertisement by applications of their ability to offer or consume channels of data and the ability for applications to discover the capabilities of other applications components.
3. A reimplement of the Registration server that listens for and records channel advertisements.
4. The further development of WeatherStations to routinely measure and record significant network metrics (TCP throughput, UDP overhead, packet loss, roundtrip latency and multicast setup delay) between testbed sites.
5. Development of a Multicast Address Lease server which is used by applications and servers to acquire for a period of time an unused multicast address.
6. Development of a Performance Log server that allows application components to transparently log performance data to a SQL database.
7. Development of a Correlation server that takes WeatherStation performance logs between testbed sites and correlates them actual application performance experience between those sites. This results in new table entries being added to the SQL database.
8. Development of a Correlation Data Query server that allows application components to query for statistics that describe their average operation experience for network conditions similar to the currently prevailing conditions.