

Community Grids Top Projects

NaradaBrokering

<http://www.naradabrokering.org>

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Project Overview

NaradaBrokering is an event brokering system designed to run on a large network of cooperating broker nodes. NaradaBrokering supports heterogeneous client configurations that can scale to arbitrary size and incorporates efficient routing algorithms to optimize disseminations to clients. Communication within NaradaBrokering is asynchronous and can be used to support different interactions by encapsulation within specialized events. The system is designed to support a hybrid peer-to-peer (P2P) grid, comprising resources such as relatively static clients, high-end resources, and a dynamic collection of multiple P2P subsystems.

NaradaBrokering interpolates between centralized systems like JMS (Java Message Service) and P2P environments such as JXTA from Sun Microsystems, and can seamlessly replace single server JMS systems with a distributed broker network. It also provides dynamic real time load balancing by incorporating algorithms that determine the best available broker to which a client could connect.

NaradaBrokering incorporates an adaptive transport framework that deploys the best available transport protocol for communication between two end points. It offers support for TCP, UDP, Multicast, RTP, SSL and, HTTP (in progress), as well as a solution to tunnel through firewalls (such as Microsoft's ISA) that allow HTTPS or SSL access to the outside world via proxy or direct connection. This solution also works with authenticating proxies and firewalls with schemes such as Basic, Digest and NTLM for authentications. Every broker also incorporates a performance monitor, which enables the broker administrator to monitor the performance of individual links hosted by the broker. Factors measured depend on the transport protocol used for communication between the end points. The monitoring service also adapts to changing network conditions.

Related Publications

- *A Scaleable Event Infrastructure for Peer to Peer Grids*

Geoffrey Fox, Shrideep Pallickara, and Xi Rao
Proceedings of ACM Java Grande ISCOPE Conference 2002.

- *Support for Peer-to-Peer Interactions in Web Brokering Systems*

Geoffrey Fox and Shrideep Pallickara
ACM Ubiquity: Volume3 Issue 15. May 2002.

- *Integration of NaradaBrokering and Audio/Video Conferencing as a Web Service.*

Hasan Bulut, Geoffrey Fox, Shrideep Pallickara, Ahmet Uyar and Wenjun Wu
To appear in the IASTED International Conference on Communications, Internet, and Information Technology, 2002.

- *The Narada Event Brokering System: Overview and Extensions*

Geoffrey Fox and Shrideep Pallickara
Proceedings of the 2002 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'02). CSREA Press (2002) edited by H.R. Arabnia Volume I pp 353-359.

- *JMS Compliance in the Narada Event Brokering System*

Geoffrey Fox and Shrideep Pallickara
Proceedings of the 2002 International Conference on Internet Computing (IC-02).
Volume 2 pp 391-397.

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