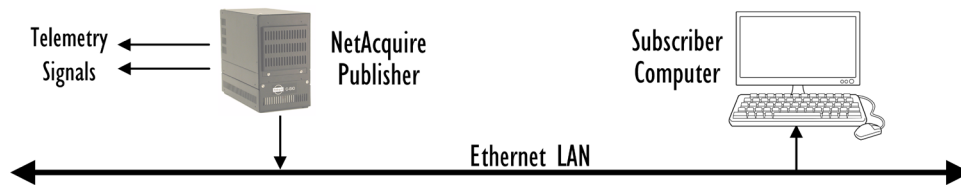


Publish/Subscribe

NetAcquire®

Telemetry
Network
Middleware



Introduction

NetAcquire® publish/subscribe offers a high performance and easy-to-use communications middleware product. “Middleware” is a software layer between the network and an application that dramatically reduces the effort required to create a distributed system.

NetAcquire publish/subscribe allows NetAcquire nodes to “publish” telemetry data and allows other nodes to “subscribe” to the NetAcquire data they need. Simply assign names to NetAcquire telemetry measurands and these data values are published to any number of subscribing computers.

Ease of Use

The development of advanced networks of many publishers, subscribers, and event types is made simple, because each publisher and each subscriber does not need to know about other publishers and subscribers.

NetAcquire publish/subscribe is so advanced, that a complete NetAcquire publish/subscribe program requires only three lines of code (or no programming at all, with included applications software).

Power of Events

NetAcquire publish/subscribe uses sophisticated event-driven communication that handles the details of network programming. Event-driven network communication is important for real-time applications, because real-time systems cannot afford the data delays and wasted network bandwidth associated with polling for data. NetAcquire servers are “publishers” of events, and “subscribers” are computers that register their interest in specific events. NetAcquire publish/subscribe automatically distributes event data to interested subscribers.

Reliability

An important aspect of NetAcquire publish/subscribe is reliability. Mission-critical applications must be able to maintain transparent communications in the face of network delays, total network failure, or computer failures. NetAcquire publish/subscribe supports routing around network failures, real-time data integrity checking, data retransmission as required, and optional network reconnection and fail-over.

Real-Time Performance

NetAcquire publish/subscribe is very high performance. Optimized data handling allows NetAcquire publishers to achieve transmission rates of hundreds of thousands of updates per second.

NetAcquire publish/subscribe is also real-time aware. All events are time-tagged, and subscribers can determine whether event data arrives in time. NetAcquire distributed time synchronization keeps publishers’ and subscribers’ clocks accurate.

NetAcquire publish/subscribe also handles data rate mismatch between publishers and subscribers. If a NetAcquire is generating data too quickly for a subscriber, there are selectable options for buffering data or else applying intelligent data quenching to discard excessive data. Different subscribers can individually select their own data buffering behavior.

Feature Summary

- High-performance combined with ease-of-use
- Telemetry applications can perform data decommutation and processing before publishing
- Create graphical user interfaces for subscribers with little or no programming
- Support for DDS quality-of-service control
- Allows connection across LANs, WANs, and the Internet
- Supports dynamic, heterogeneous environments
- Scalable to hundreds of nodes
- Publishers don’t need to explicitly specify their recipients (subscribers)
- Publishers and subscribers can join the system at any time
- Avoids inefficient polling for detecting critical events
- Asynchronous communications never adds delays to client applications
- Time-stamping and inter-node time synchronization controls real-time transfer behavior
- Speeds software development by eliminating network programming
- Interoperable across C, C++, Java, and other programming languages
- Uses industry-standard CORBA protocols for system management while relying on optimized NetAcquire protocols for time-critical data transfers
- Interoperates simultaneously with other NetAcquire communications protocols
- Supports transparent data conversion between different machines (endian conversion)