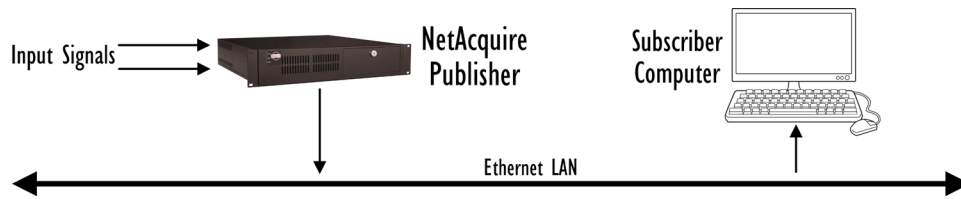


Publish/Subscribe

NetAcquire®

Telemetry
Network
Middleware



Introduction

NetAcquire® Publish/Subscribe communications middleware delivers high-performance and ease of use. “Middleware” is a network software layer between the network and an application that dramatically reduces the effort required to create a distributed network application.

NetAcquire Publish/Subscribe allows NetAcquire nodes to publish input data such as telemetry measurements while enabling other nodes to subscribe to specified NetAcquire data. Publishers assign names to NetAcquire measurement parameters and these signals are published to any number of subscribing computers.

Ease of Use

NetAcquire Publish/Subscribe middleware takes care of all configurations dynamically to simplify the development of advanced networks of different publishers, subscribers, and event types. Publishers and subscribers don’t need to know about other publishers and subscribers in advance.

NetAcquire Publish/Subscribe is so advanced that a complete NetAcquire Publish/Subscribe software program requires only three lines of source code (or no programming at all, with products like NetAcquire MissionView™).

The Power of Events and “Push” Technology

NetAcquire Publish/Subscribe uses sophisticated event-driven communication to handle specific aspects of network programming. Event-driven network communications are critical for real-time applications because real-time systems cannot afford time delays and the wasted network bandwidth associated with data polling. NetAcquire servers are “publishers” of events; “subscribers” are computers that register their interest in specific events. NetAcquire Publish/Subscribe automatically distributes (“pushes”) updated events to interested subscribers.

Reliability

Proven reliability is an important aspect of NetAcquire Publish/Subscribe. Mission-critical applications must maintain transparent communications in the face of network delays, total network failure, or computer failures. NetAcquire Publish/Subscribe supports several solutions: routing around network failures, real-time data integrity checking, data retransmission as required, and optional fail-over.

Programming Uses

NetAcquire Publish/Subscribe requires almost no configuration or coding. Once subscribed, publication data is transferred or “pushed” into a program’s data object for convenient and instant access to the current publication value. Alternatively, an advanced event-based approach instantly notifies the application every time a new value has been received.

Application Uses

NetAcquire Publish/Subscribe is very easy to use from an application like NetAcquire MissionView since publication data parameters are selected by name. Available publication names from all NetAcquire servers can be interactively browsed.

Real-Time Performance

Optimized high performance data handling allows NetAcquire publishers to achieve transmission rates of millions of data updates per second.

NetAcquire Publish/Subscribe is real-time aware. All data change events are time-tagged at the source so subscribers can precisely determine when events occurred without concern about the effects of network latency.

In high-speed applications, NetAcquire Publish/Subscribe also handles data rate mismatch between publishers and subscribers. If a NetAcquire publisher is generating data too quickly for a subscriber, the publisher can select options to either buffer data or apply intelligent data filtering to discard excessive data. Different subscribers can individually select their own data buffering behavior.

Feature Summary

- The communication of individual parameter values allows telemetry applications to perform data decommutation and processing before publishing parameter data to a network
- Push-based data distribution avoids inefficient polling for new data detection
- Embedded time-stamping supplies accurate time information with every parameter update
- This product supports quality-of-service control
- Cross-platform protocol supports heterogeneous environments
- This product is scalable to hundreds of nodes
- Asynchronous background communications minimize delays to client applications
- Easily callable from C++, Java, Python, C, and other programming languages
- NetAcquire uses industry-standard CORBA protocols for system management while relying on optimized NetAcquire protocols for performance-critical data transfers
- This product includes transparent data conversion between different machines (endian conversion)

Benefits

- Reduces complexity when connecting graphical user interfaces to network data sources (no programming needed)
- Easier setup and diagnostics because all network publications are identified by user-supplied parameter names
- Enhanced runtime flexibility because publishers don’t need to explicitly specify their recipients (subscribers); publishers and subscribers can join the system at any time
- Speeds software development by eliminating the need for explicit network programming