IBM WebSphere Front Office for Financial Markets V2.0 and IBM WebSphere MQ Low Latency Messaging V2.0 deliver high speed and high throughput market data and messages

At a glance

WebSphere Front Office for Financial Markets V2.0 offers:

- Improved throughput and latency
- Unicast and remote office support
- Upgraded platform support
- Enhanced entitlement services
- High availability, logging, and monitoring features
- Product simplification

WebSphere MQ Low Latency Messaging V2.0 offers:

- Low-latency, high-throughput messaging
- Multicast and unicast transports
- Flexible, fine-grained message filtering
- Traffic rate and congestion control
- High availability stream failover

Overview

WebSphere® Front Office for Financial Markets is designed to enhance and simplify the flexible, high-speed market data delivery platform from IBM. In addition, the high-performance messaging component of WebSphere Front Office is now available as a separate product.

WebSphere MQ Low Latency Messaging is designed to deliver high-volume, low-latency reliable messaging to help address rapidly increasing data volumes within the financial markets industry.

Performance, capability, and simplification

WebSphere Front Office V2.0 offers:

- Improved performance with throughput of over one million messages per second*
- Point-to-point (unicast) transport capability to deliver market data to local or remote office clients
- Upgraded platform support for both 32- and 64-bit Linux™, with client support expanded to include 64-bit Linux and 32- and 64-bit Solaris
- .Net API support, in addition to existing C++ and Java™ APIs
- New entitlements GUI and easier integration with external entitlements systems
• High availability enhancements including improved failover rules creation and high availability
detection and synchronization
• New logging and monitoring features that make it easier to select and access monitoring
  events
• Reduced hardware requirements to help decrease the time and skills necessary to deploy and
  configure the platform

High-throughput message delivery

The high-speed messaging component of WebSphere Front Office can now be purchased and
installed separately. WebSphere MQ Low Latency Messaging extends the WebSphere MQ
messaging family as an additional transport designed for low latency, high-throughput message
delivery. WebSphere MQ Low Latency Messaging adds to an expanding suite of transport
protocols to address your wide range of messaging needs.

WebSphere MQ Low Latency Messaging V2.0 includes:

• Very high throughput, one-to-many multicast messaging, which can deliver approximately one
  million 120-byte messages per second on Ethernet, close to three million 120-byte messages
  per second on InfiniBand, and more than eight million smaller messages per second, all on
  common x86 servers*
• Very low latency of 30 microseconds for 120 byte messages delivered at 10,000 messages
  per second on InfiniBand or 61 microseconds on Ethernet*
• High speed, point-to-point communications using user datagram protocol (UDP) with positive
  or negative feedback reliability
• Reliable unicast, which provides high speed point-to-point messaging over TCP
• Flexible, fine-grained message filtering, traffic rate and congestion control, and high availability
  stream failover
• Methods to monitor health and statistics, including latency, for both multicast and unicast
• Support for a wide variety of platforms including Linux, Windows®, and Solaris

* The stated performance numbers are based on measurements using standard IBM benchmarks in a
controlled environment. The actual throughput that any application will experience may vary depending
upon considerations such as message size, transmission rate, hardware platform, and network
configuration. Therefore, no assurance can be given that an individual application will achieve the
throughput or latency stated here. Customers should conduct their own testing. For more detailed
performance information, consult your IBM sales representative.

WebSphere MQ Low Latency Messaging can extend the advantages previously available for the
transport of market data within WebSphere Front Office to a broad range of messages within
financial markets' middle- and back-offices, and to other industries with similar needs.

Key prerequisites

Refer to the Hardware requirements and Software requirements sections.

Planned availability dates

• November 6, 2007 (electronic software delivery)
• November 9, 2007 (media and documentation)

Availability of Programs with encryption algorithm in France is subject to French government
approval.

Cryptography in this product is limited to password encryption, authentication or digital signature.
WebSphere Front Office for Financial Markets offers a vendor-neutral alternative for delivery of market data. It addresses these challenges:

- Ever-increasing market data and trade volumes in financial markets
- Rise in algorithmic trading
- Market fragmentation
- Growth in options
- Regulatory changes such as Regulation National Market System (RegNMS) and MiFid

WebSphere Front Office V2.0 adds a new level of performance and capability. In addition, WebSphere MQ Low Latency Messaging V2.0 expands the WebSphere MQ messaging brand while extending scalable high-speed messages to a broad range of applications from front- to back-offices in financial markets and other industries.

**Higher performance and updated platform support**

WebSphere Front Office V2.0 offers the following:

- Improved performance, with throughput of more than one million messages per second
- Expanded client support to include 64-bit Linux and 32- and 64-bit Solaris
- Servers updated to run on current versions of both 32- and 64-bit Linux including Red Hat Enterprise Linux 4 and 5, and SUSE 10
- Embedded IBM middleware components updated to current versions

**New unicast messaging and remote office capability**

WebSphere Front Office V2.0 offers greater flexibility with point-to-point delivery of market data to either local or remote clients across a WAN or through a firewall. New transport options include both point-to-point TCP-based unicast and reliable UDP-based unicast. To help reduce network bandwidth requirements for remote office data environments, WebSphere Front Office delivers only the data required at a particular location.

**Enhanced entitlement and security management features**

Enhanced entitlement support includes:

- New GUI to create and modify entitlement subscriptions and ease integration with external entitlement systems
- Authorization and authentication using standards-based functionality and tools
- Assignment and review of entitlements to users or groups
- New command-line tools
- Standard entitlement service provider that can be easily extended or replaced to connect to external entitlement systems

Changes to entitlements and usage data are stored, and entitlements and data usage can be reported over a specified period to meet internal needs and requirements of third-party data providers.

**Extended high availability and monitoring capabilities**

WebSphere Front Office V2.0 features:

- Improved synchronization between active and backup feed adapters for better detection and initiation of failover in the case of partial failures
- Failover rules using new configuration options
- Synchronization between two feed adapters to enable recovery at a common point in the input stream
• New message logging interfaces that make it simple to log and filter system monitoring messages
• Log events that can be sent using JMS standards-based messages, making it easier to integrate with existing IBM Tivoli® or other monitoring facilities

Some high availability features have not been completely enabled for the new V2 unicast transport options. In particular, with the reliable UDP transport, the level of synchronization between active and backup feed adapters is limited, and automatic high availability and failover are not implemented for remote office connections.

Simplicity for lower operational costs
To simplify the product and reduce the hardware footprint, functions that previously required multiple embedded components and separate servers are consolidated.

• Hardware requirements are reduced, and so are the time and resources needed to deploy and configure the platform.
• Authorization and authentication and high availability services are now included in the WebSphere Front Office Framework Server, rather than requiring separate servers.
• Tivoli Monitoring offerings are no longer included in the product, so users are not tied to a specific set of monitoring tools. Instead, standards-based JMS messages can now be used to feed messages to a variety of monitoring applications.
• The history server, based on the DB2® Real-Time Insight feature, is now available as a separate offering from IBM, giving you more flexibility in choosing a time series database.

Easily integrate market data feeds for delivery to Front Office applications
WebSphere Front Office V2 retains key Framework Server and Feed Adapter Framework capabilities from V1. The Feed Adapter Framework lets you access a wide range of market data feeds. Feed adapters have been built for key North American and European direct exchange feeds, as well as Bloomberg's aggregated B-Pipe feed, with more feed adapters to come. The WebSphere Front Office Feed Adapter Framework eases feed adapter construction, maintenance, and reuse. Binary self-describing ticks provide XML-like flexibility in a compact format. A simple, industry-specific, two-call API set can allow rapid integration with new and existing applications. And now, in Version 2, WebSphere Front Office supports .Net in addition to the previous C++ and Java implementations.

Data processing capabilities include:
• In-line computation
• Data quality checking (including missing and out-of-band data)
• Caching

You can choose subscription-controlled data delivery to either broad or narrow (instrument level) sets of applications or users.

New low latency messaging offering joins MQ family
WebSphere MQ Low Latency Messaging, which continues as the embedded messaging transport within WebSphere Front Office, can now be purchased and installed separately. The new product extends the WebSphere MQ messaging family with a transport optimized for low latency, high-throughput message delivery. While the WebSphere MQ product continues as the premier solution for rock-solid, assured time-independent message delivery, the addition of WebSphere MQ Low Latency Messaging to the MQ portfolio offers a comprehensive suite of transport protocols to address a wide range of quality of service requirements.

WebSphere MQ Low Latency Messaging extends the advantages previously available for the transport of market data within WebSphere Front Office for Financial Markets to a broad range of messages within financial markets' middle- and back-offices, and to other industries with similar needs.

Range of high speed transport and quality of service options
WebSphere MQ Low Latency Messaging includes these transport options:

• Very high throughput, one-to-many multicast messaging, which can deliver approximately one million 120-byte messages per second on Ethernet, close to three million 120-byte messages
per second on InfiniBand, and more than eight million smaller messages per second, all on
common x86 servers. In fact, the transport is so fast that it can exceed the capacity of
common Gigabit Ethernet networks.

- Very low latency of 30 microseconds for 120-byte messages delivered at 10,000 messages
  per second on InfiniBand or 61 microseconds on Ethernet.
- Efficient packetizing of data and exploiting IP multicast infrastructure in a daemonless fashion
to eliminate network connections.
- Multicast transport for high speed point-to-point communications using UDP with either
  positive or negative feedback reliability.
- Reliable unicast that delivers high-speed point-to-point messaging over TCPIP.

**Congestion control, message filtering, and high availability**

WebSphere MQ Low Latency Messaging features the following:

- Detection of congestion and slow consumer conditions
- Rules for automatic recovery along with static and dynamic rate control
- Coarse-grained, topic-based, and fine-grained filtering
- High availability stream failover support

The unicast transport enables connection retry and resend as necessary, and heartbeats to
verify that the connection is kept alive. Both multicast and unicast include methods to monitor
health and statistics of both transmitters and receivers, and ways to measure latency.

WebSphere MQ Low Latency Messaging runs on a wide variety of platforms, including:

- Red Hat and SUSE Linux (32- and 64-bit)
- Windows XP, 2003, and Vista (32- and 64-bit)
- Solaris SPARC and x86 (32- and 64-bit)

Support is provided for InfiniBand using IP for even lower latency with reduced variability and low
CPU consumption.

**Leveraged services from IBM to help you optimize your solution**

IBM offers exceptional services to help you from business strategy to IT infrastructure
implementation. Resources include:

- IBM Global Business Services, with thousands of financial services practitioners
- IBM Technology and Software Services
- IBM Global Services Business Transformation and Application Outsourcing

**IPLA and Subscription and Support considerations**

IPLA licenses can be transferred from one machine to another within, but not limited to an
enterprise. You may aggregate the capacity for all the processors the product is operated on to
achieve a more economic price. This will result in a single Proof of Entitlement (PoE). It is your
responsibility to manage the distribution of Value Units within the limits of the entitlement of the
product license.

Subscription and Support must cover the same capacity as the product license entitlement.
Subscription and Support will be available in the country in which the agreement is made.

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