



Solution Brief

Initiative:

Joint working groups – global innovation

Industry:

Financial services and global commerce

Focus area:

AMQP – interparty e-messaging



“The emergence of AMQP will lead to improvements in quality and reductions in costs for networked businesses, but the reason we did this was to drive the growth in commerce that standards bring. A simple, open way of doing reliable messaging on the internet will help businesses everywhere and open up new opportunities for commerce.”

John O'Hara,
Executive Director,
IB Architecture Office, JPMorgan

AMQP: Secure business messaging for the future

The latest messaging protocol is poised to revolutionise the world of payments – and every business transaction beyond

For many organisations, the cost of maintaining transactional business relationships can be a headache. For too long, methods of dealing with this problem have focused on applications, software and proprietary formats. Advanced Message Queuing Protocol (AMQP) addresses these issues at the network level. Developed to meet the needs of one of the world's leading investment banks, it is now set to provide the messaging standard for financial payments and web 2.0 developments everywhere.

AMQP: A new way to connect

In the financial services industry, making the right connections is crucial. Banks must connect with an expanding network of customers and counterparties on a daily basis. But, as the volume of relationships and transactions increases, this is becoming both complex and costly.

Banks have addressed the need to communicate with partners and customers by developing proprietary messaging formats and technology solutions. This has resulted in spiralling costs. Banks shoulder the cost of developing and installing proprietary solutions, while their clients must support and maintain discrete communication tools across multiple relationships.

Additionally, with the advent of new regulations, such as SEPA in Europe, there is mounting pressure to simplify payments infrastructures. Corporates are particularly keen to find smarter ways of managing their financial supply chain including payments and making it easier – and less costly – to automate with clients and suppliers and send and receive money via their banks. The advent of enabling services such as electronic invoice presentment and payment (EIPP) makes streamlining connectivity with multiple service providers a priority.

To address these issues, companies need an ubiquitous and secure means of transmitting business messages without using proprietary formats and technologies. In short, they want to process financial transactions with their counterparties as simply as they might send an e-mail, but with security and higher predictability of delivery. Banks – and corporates – need a new network standard, one that will allow them to transmit and authenticate financial messages without using multiple, disparate, solutions.

“Given the complexity of global commerce the need for standards-based electronic communication is paramount in order to remove the inefficient use of paper and introduce plug-and-play interfaces. Where the EU has accelerated the delivery of open standardised solutions for payment processing and invoicing, AMQP comes at the right time to be used here, delivering an essential foundation for a securely and easily connected business world.” - Tom Buschman, Chairman & CEO, TWIST Process Innovations Ltd

Benefits of AMQP

- Open standard
- Constant innovation
- Low cost
- Event notification
- Two-directional authentication
- Network-based security
- Technology-neutral

The birth of AMQP

As one of the biggest financial services organisations in the world, JPMorgan Chase felt the weight of these issues more than most. But, rather than implementing yet another short-lived proprietary system, it decided to create a standard that could be replicated throughout the industry. The result was AMQP.

The bank wanted to create something that could be freely integrated and maintained as part of a larger product or solution. Crucially, it had to be simple and language neutral. To achieve this, JP Morgan decided to develop a protocol – something ubiquitous that could be installed everywhere and anywhere.

AMQP is an open Internet Protocol for business messaging which enables complete interoperability for messaging middleware. Designed as a standard, it defines both the networking protocol and the semantics of broker services. For interoperability, AMQP defines an efficient wire-level format with modern features – allowing companies to choose whatever technology they want to support it.

Because AMQP has been developed to meet business messaging needs – based on a mass of requirements from one of the world's largest practitioners – it addresses the complex issues faced by financial institutions. Designed to be so secure that companies can send money over it, AMQP confirms the sending and receipt of messages with network-level event notification and two-way authentication. AMQP can also support the many-to-many conversations and long-running streams required by banks and brokers processing millions of transactions at peak loads.

Beneficial innovation

The development and growth of AMQP is now being driven ahead using the Open Source model by a joint working group of industry-leading financial institutions, hardware manufacturers and software vendors, including Cisco Systems, Cohesive FT, Credit Suisse, Deutsche Börse Systems, Envoy Technologies, Inc., Goldman Sachs, IONA Technologies PLC, iMatix Corporation sprl, JPMorgan Chase Bank Inc. N.A, Novell, Rabbit Technologies Ltd., Red Hat, Inc., TWIST Process Innovations Ltd, WSO2, Inc. and 29West Inc.

Many new technologies have promised to revolutionise the world of financial services. Yet, unlike innovations that are either tied to the motivation of a particular vendor, or based on technologies originally developed for other industries, AMQP is a dedicated de facto standard. For banks, there are clear cost benefits to a system that eliminates the need for proprietary solutions. For corporates the benefits extend even further. With interest growing in peer-to-peer payments and e-invoicing over low cost networks, AMQP opens up a range of new possibilities for businesses operating in all sectors.

Crucially, AMQP is capable of rivalling proven proprietary solutions. Vendors including Cohesive FT, Rabbit Technologies, iMatix and Redhat have worked with Intel® Software Solutions Group engineers to stress test AMQP implementations under high workloads in the Intel fasterLAB environment.

Using RabbitMQ AMQP* from Rabbit Technologies Ltd, and Pantor FAST*, high volumes of OPRA market data feeds and ranges of 45nm Quad-Core Intel® Xeon® processors, AMQP handled message rates peaking at 5 million per second. Extrapolate this across all pre- and post trade messaging functions and it is clear that AMQP is capable of handling most workloads – including intra and interbank, bank to corporate, and corporate to corporate.

Like the internet, which quickly outgrew its academic origins, AMQP's potential reaches far beyond the financial services industry. At the frontiers of the computing world, interest is building in AMQP among those operating web 2.0 and cloud compute business models – proof that AMQP has implications for the world of virtualisation too. By taking advantage of the foundations laid by the internet in terms of ubiquity, acceptance, connectivity and communication, AMQP can provide a solid foundation for business messaging in a truly connected world.

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