ADVANCED MESSAGE QUEUING PROTOCOL

Standardised Enterprise Middleware For Business and Apache Qpid (in incubation)

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Agenda

What is AMQP

Business rationale for creating the Advanced Message Queuing Protocol

AMQP positioned in the industry and in your firm

Who is behind AMQP

Where can you get AMQP; is this real?

AMQP Governance and Participation

How might you use AMQP?

Qpid Overview

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What is AMQP

An *Open Standard* for *Middleware*:

- Middleware: software that connects other software together. Middleware connects islands of automation, both within an enterprise and out to external systems.

Why it is different:

- A straight-forward and complete solution for business messaging
- Cost effective for pervasive deployment
- Totally open
- Created by users and technologists working together
- Made to satisfy real needs

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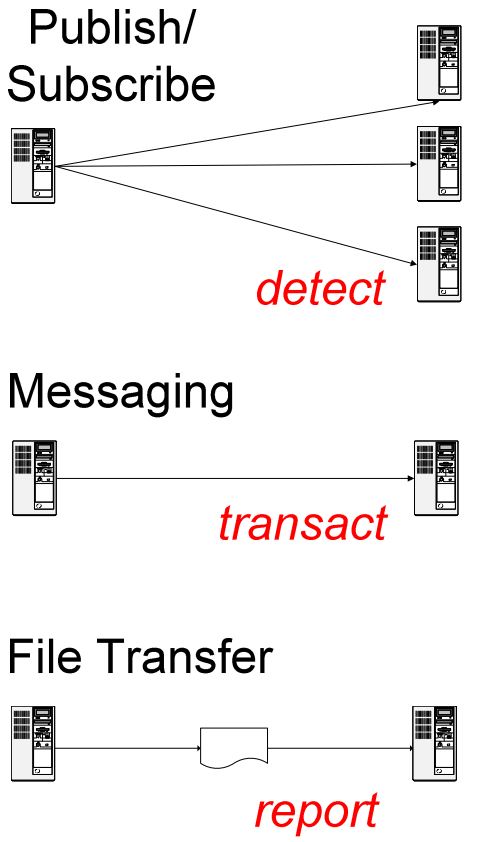
AMQP is Comprehensive

Messaging Middleware *should*…

- Provide **event notification, messaging**, **file transfer**
  - Deals with business transaction processing
  - Technology agnostic (there is more than Java)
- Meet **real-world requirements** of **mission-critical** systems
- Be **Trustworthy**
  - Robust, available, scalable, secure, resilient
  - Aims to be stable over the long run
- Provide a **common infrastructure** for the enterprise

AMQP meets these needs in one protocol

- Usually provided by 3 different proprietary products
- One solution reduces costs, increases efficiency and simplifies management



Rationale for Developing AMQP

Messaging and integration is a necessary part of all enterprise systems

- All significant IT efforts include a messaging and integration component (10%-30% of project cost)

Vendors have focused on proprietary "lock-in" to secure their markets

- Charges are high for little business value add
- Interoperability is more difficult than it need be; a friction cost on business

Open standards should avoid being founded on proprietary technologies

- Open information and business process models and messages…
  - But NO suitable open technology to send the messages!
- Some standards get round this by incorporating a simple transport (e.g. FIX)
  - Not satisfactory because it is neither complete nor re-useable

AMQP aims to become the de-facto open standard for messaging middleware

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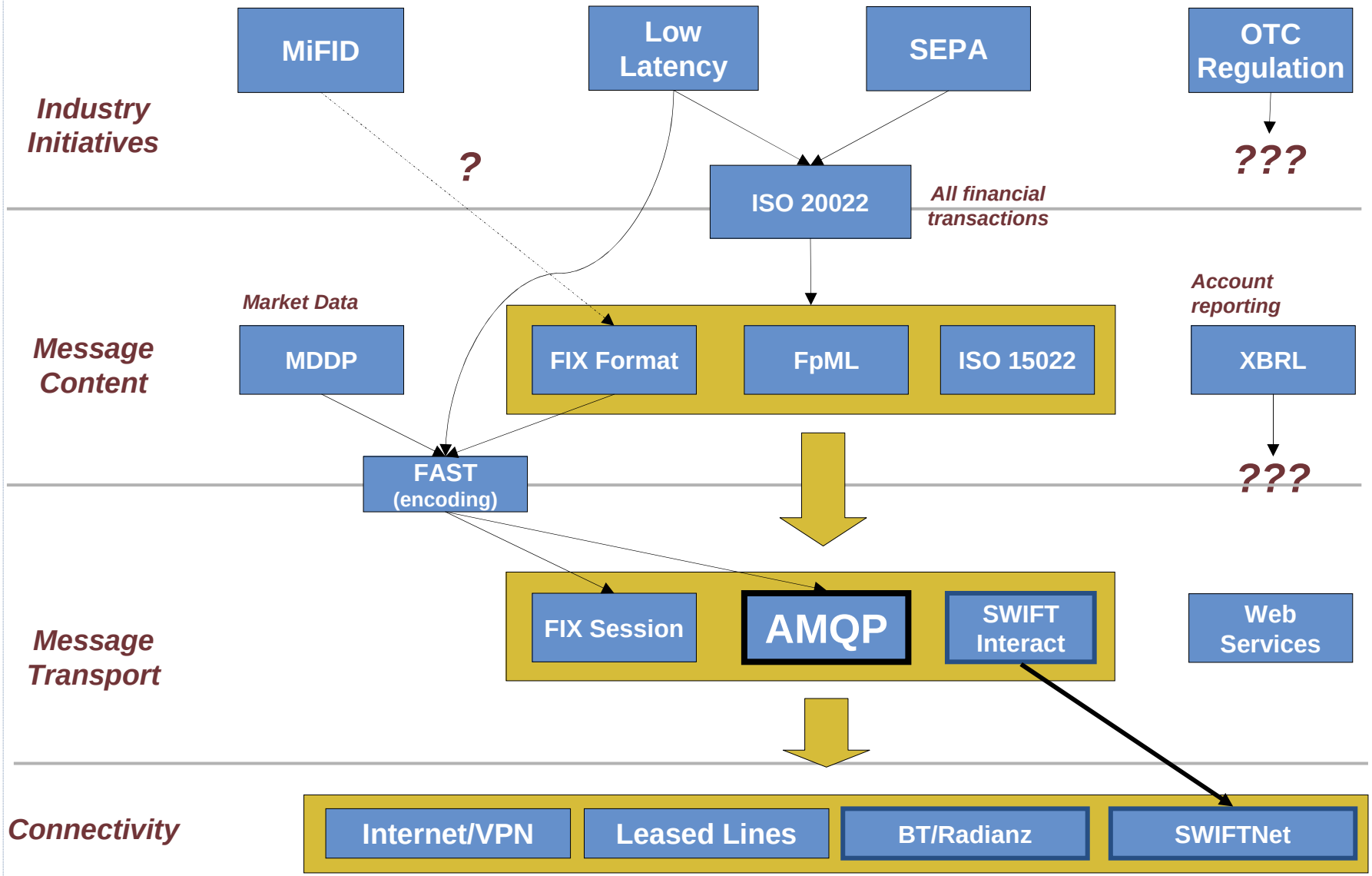
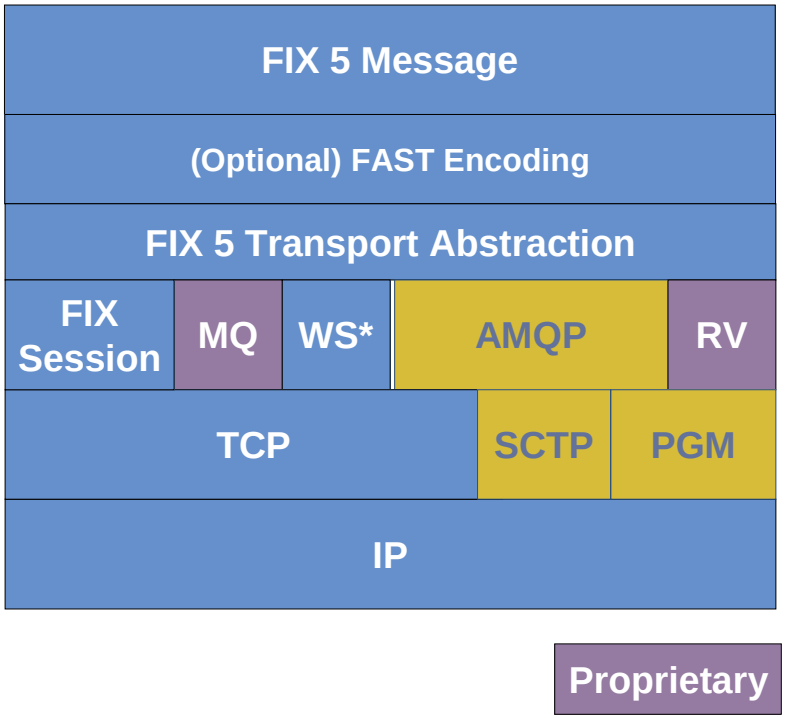
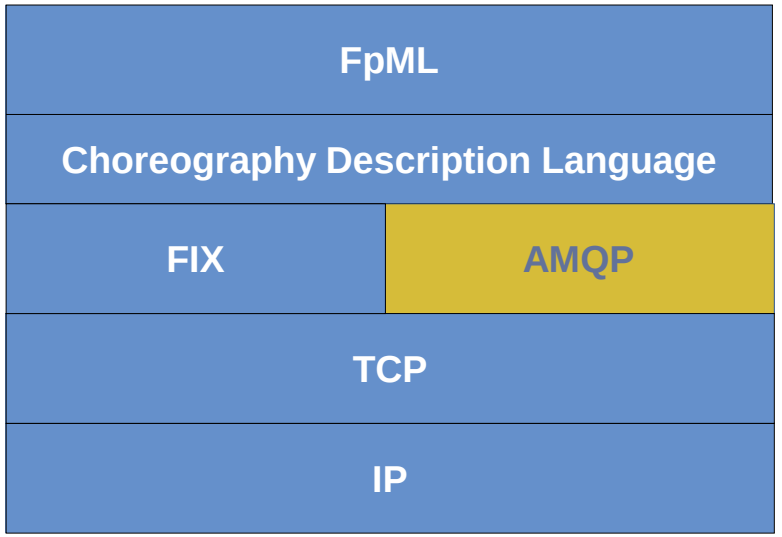
AMQP in the Financial Standards Landscape



AMQP in finance: FIX 5 and with FpML





- Investment banking innovation and volume is enabled by Open Standards devised by banks
- FIX's success was partly due to its open status, AND it's "soup-to-nuts" features
  - FIX Session is not adequate for fully reliable processing
  - Recognition of this in FIX 5
- Let's replace it with a more capable, but still open alternative - AMQP

Who is behind AMQP

AMQP Working Group Members

- Users
  - JPMorgan
  - TWIST
  - *More to come*
- Technology Companies
  - Cisco Systems
  - Red Hat
  - Iona Technology
  - 29 West
  - Envoy Technologies
  - iMatix
  - *More to come*

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Real AMQP implementations

iMatix OpenAMQ is the first software implementation of the AMQP specification

- OpenAMQ solution runs on Linux, Solaris, Windows
- See http://www.imatix.com for details

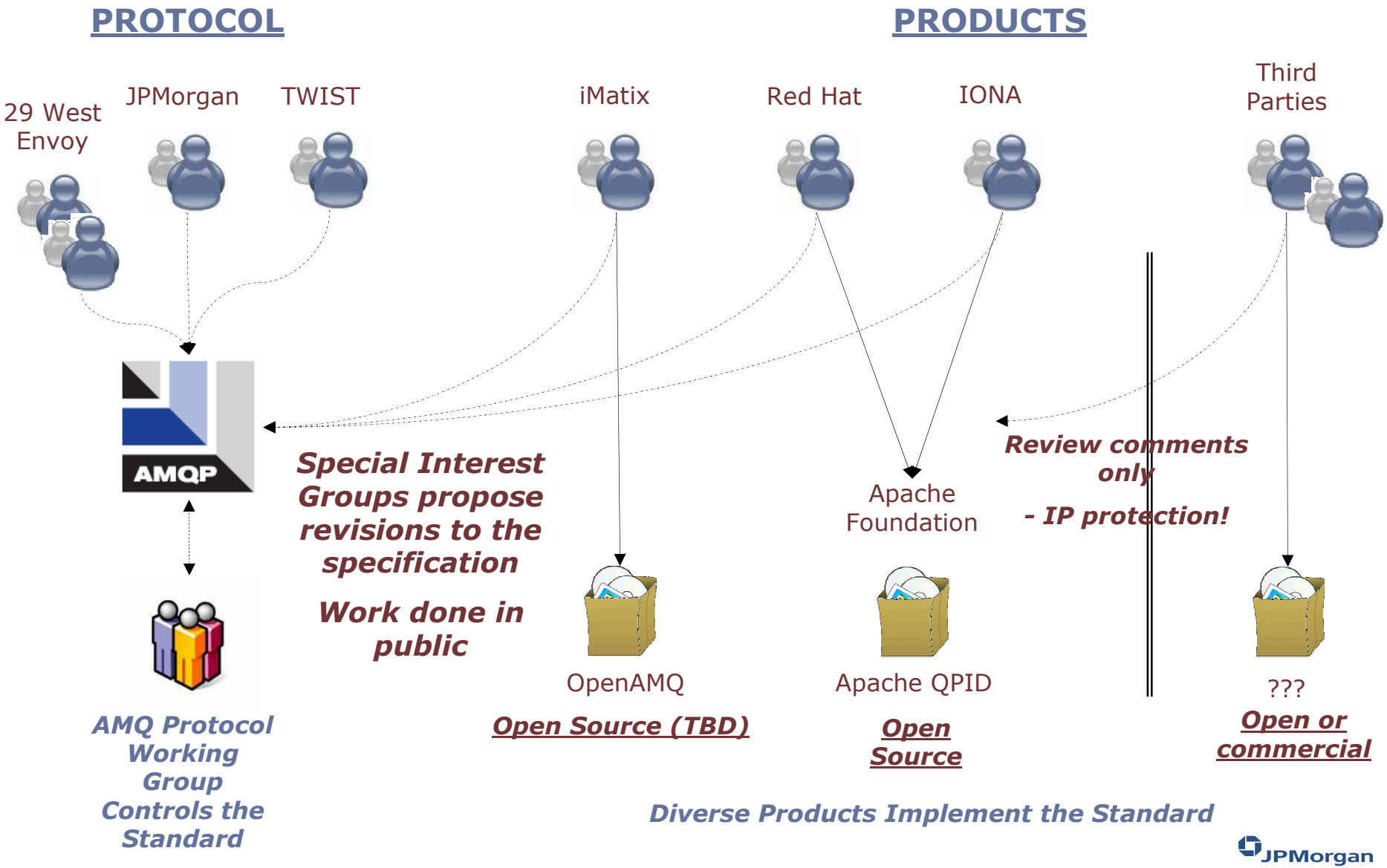
Apache Qpid is joint effort by Red Hat, Iona and others to build AMQP software

- See http://incubator.apache.org/qpid
- This software is open source and advancing quickly

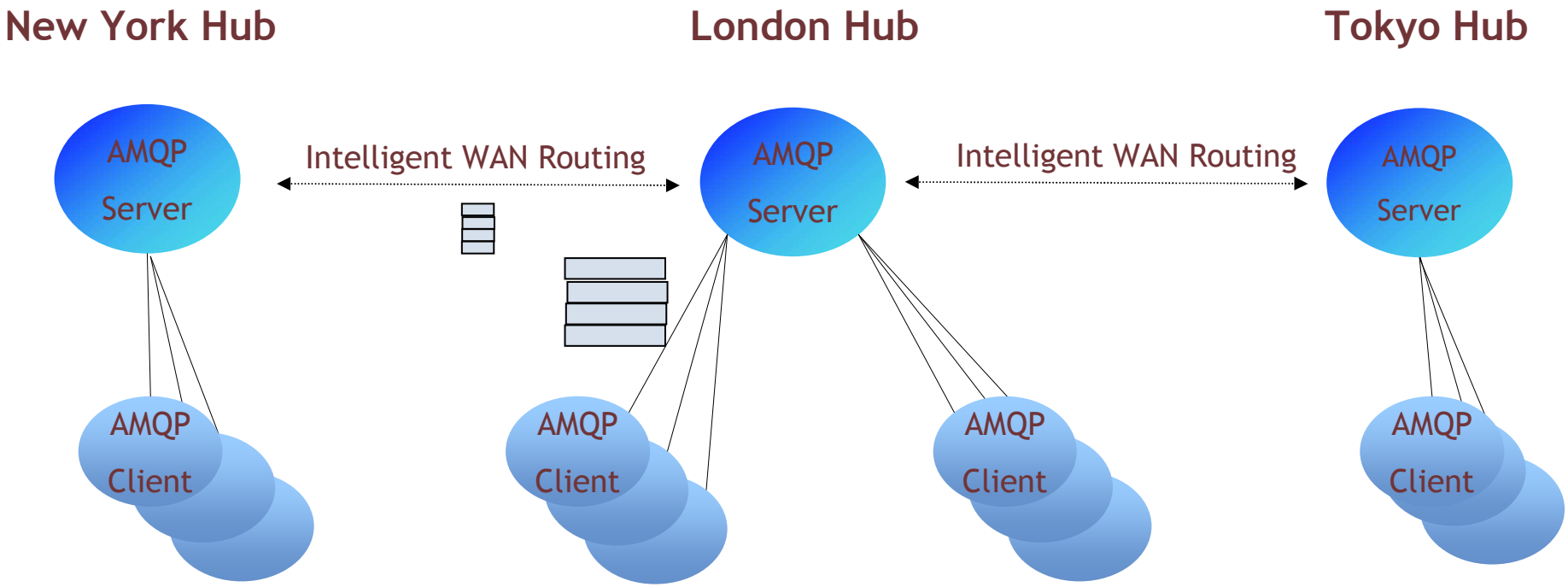
RabbitMQ by LShift, CohesiveFT and Erlang Consulting

Red Hat will include Qpid in Fedora Core 7 Linux; also used to administer the Xen Hypervisor

AMQP Working Group and Governance



Real World Deployment: Hi-Speed Global Messaging



Request/Reply

Point-to-point messaging over dynamic queues

Publish/Subscribe

Topic Hierarchies

Header Based Routing

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Illustration: B2B Configuration

Payment Service User

•Application built to TWIST standards (or an old application fitted with an adaptor)

•Additional Security token for message integrity and security (etc)

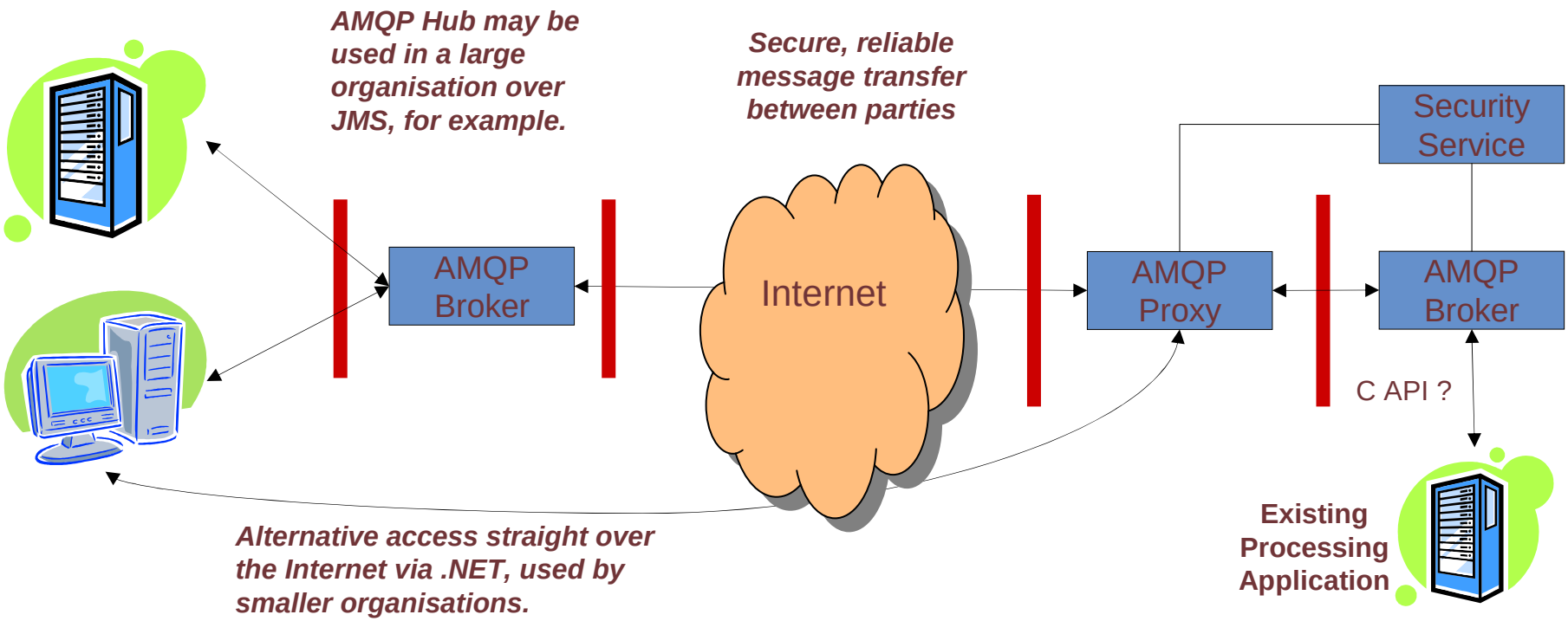
•AMQP local hub to concentrate and manage traffic from internal applications

Payment Service Provider

•Applications built to TWIST standards, perhaps front-ending existing processing systems

•Scaled AMQP hub concentrating requests from many clients

•Configured with high levels of network security



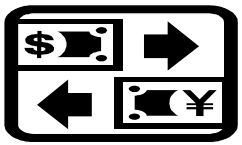
NB: ▬ is a Firewall; an Internet security device

The AMQP Architecture

The AMQP Architecture specifies a modular components and rules which are the building blocks of middleware.

Connected into "processing chains" these create the desired middleware functionality.

Exchanges



- The "Exchange" receives messages from publisher applications and routes these to queues, based on arbitrary criteria, typically topic & message headers

Queues

- The "Queue" stores messages until they can be safely processed by a consumer application (or multiple applications)

Bindings

- The "Binding" defines the relationship between a queue and an exchange and provides the message routing criteria

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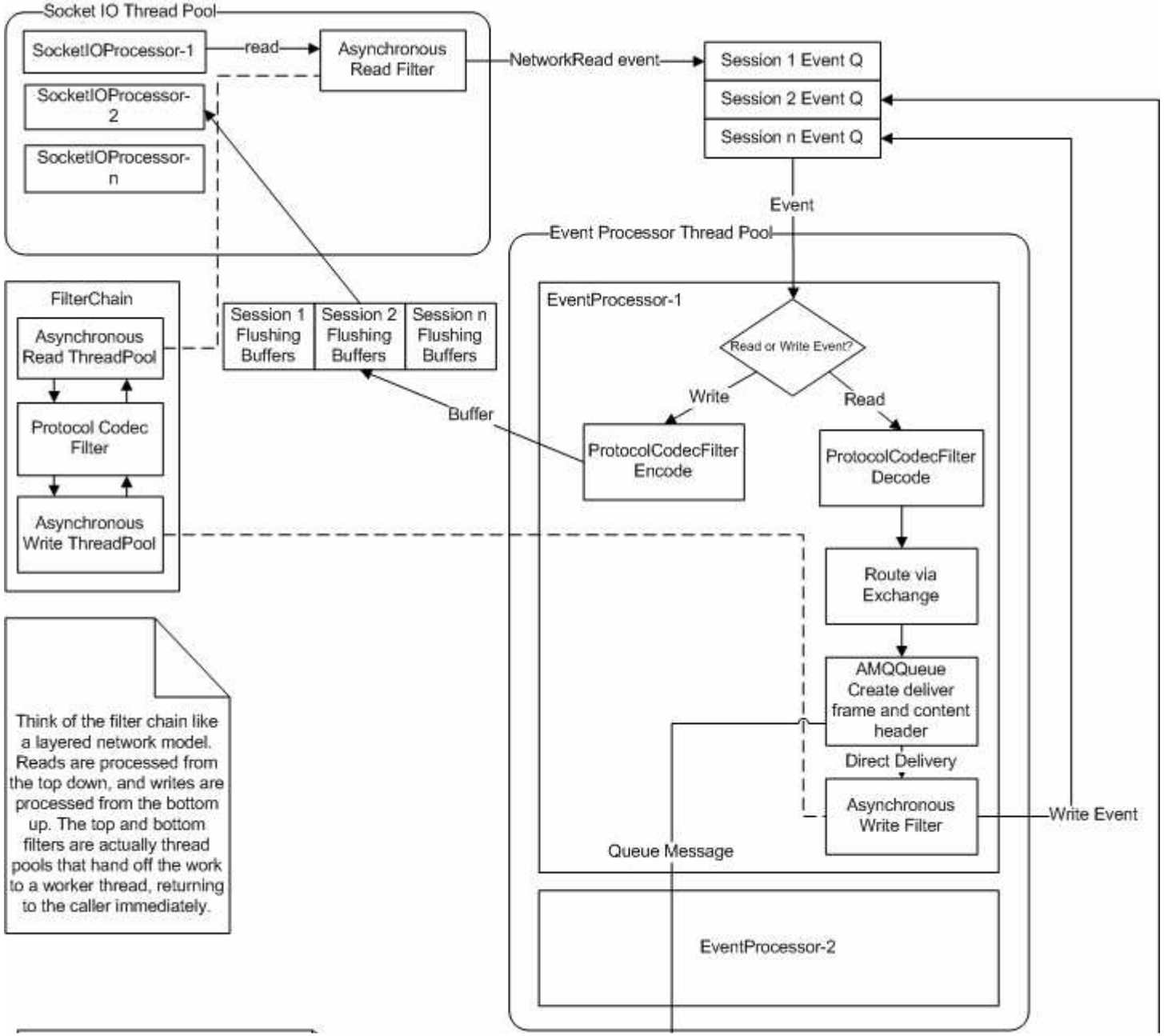
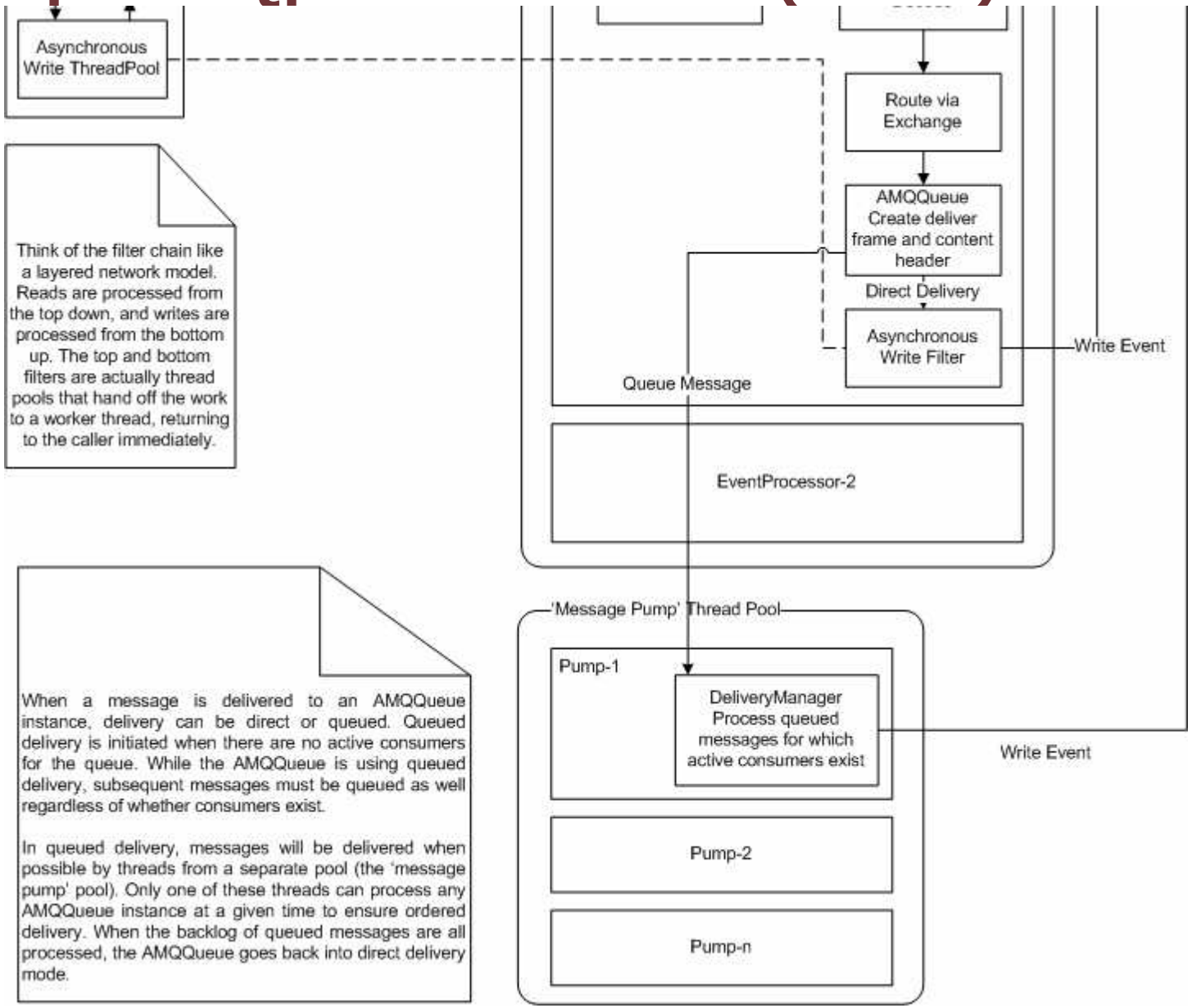
Apache Qpid Architecture (1 of 2)



Apache Qpid Architecture (2 of 2)



Summary

- AMQP is a well governed standard driven by the interests of major technology users and vendors
  - Development has been ongoing for several years
  - Unveiled to the broader public earlier this year
  - Unusual in the high amount of end-user involvement
- AMQP aims to be a useful open transport for electronic business processes
  - In addition to being high quality middleware standard for use by applications
- AMQP implementations exist today, and the number is growing
  - iMatix OpenAMQ, Apache Qpid and others
  - OpenAMQ is being used in a production application supporting hundreds of users, delivering millions of messages around the globe
- We anticipate AMQP implementations will be ready for value-bearing commerce *between* firms during 2007
  - Integration with other standards around security and XML processing will solidify this

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Questions?

The AMQP Working Group

JPMorgan Chase Bank & Co. / Cisco Systems, Inc. / Envoy Technologies Inc. / iMatix Corporation / IONA Technologies / Red Hat, Inc. / TWIST Process Innovations / 29West, Inc.

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