Asynchronous Notification in Condor
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Existing Condor Notification System

Condor Pool

Machine –N

startD

schedD

logs

Email Notifier
Goal -1

Condor Pool

Machine –N

startD

schedD

logs

FILTER

www.cs.wisc.edu/Condor
Goal -2
Goals

- Asynchronously transfer condor's event logs(messages) to external listener client(s)
- Event Log Format Transformation
- Event Log Filtering

Without affecting current schedD setup!
Outline

› MOM
› Introduction to AMQP
› Integration of Qpid with Condor
› Applications - Skype Integration
› Conclusion
Message-oriented middleware (MOM)

› Infrastructure focused on sending and receiving messages that allows application modules to be distributed over heterogeneous platforms

› Features:
  • Asynchronous Delivery
  • Routing messages (broadcast, multicast possible)
  • Message transformation / mapping

› Specifications eg: XMPP, AMQP
Advanced Message Queuing Protocol (AMQP)

- Open standard application layer protocol for MOM
- Key Features:
  - Message orientation
  - Queuing
  - Routing
  - Reliability
  - Security
AMQP Entities

› **Exchanges**: entities to which messages are sent.
  - Belongs to component Broker.
  - Config: DURABLE

› **Queues**: entities which receive messages
  - Config: DURABLE, EXCLUSIVE

› **Binding**: ties one queue to an exchange
  - Config: Conditional on routing key
AMQP contd...

Typical messaging patterns

- **Request-Response**: messages are sent to or from specific recipients
- **Publish-Subscribe**: information is distributed to a set of recipients according to various subscription criteria
- **Round-Robin**: tasks are distributed fairly among a set of recipients.
Durable (persistent) Pub/Sub Delivery
Integration of Qpid with Condor

Apache Qpid is an open source implementation of AMQP.

- Using C++ library

Condor_Qpid Daemon: runs the Qpid broker, initializes the queues, publishes classAd

Condor_jobs:
CLIENT PUBLISHER: Condor_EventLog_Forwarder
CLIENT SUBSCRIBER: Any listener that reads messages writes to file, send emails, IMs
Condor-Qpid Integration Architecture

Condor Event Log Forwarder (Client Publisher)

Qpid Broker

Exchange

Queue1

Queue2

Queue-n

Client -1 (Write to File)

Client-n (Email)
Skype for Qpid Client

Configurations for sending messages:
- 1 to 1
- 1 to selected ids in the contact list
- 1 to all in the contact list
Conclusion

› Part of condor add-ons
› Event log message filtering at client listener level - Feedback mode
› Extension to integrate with other clients like Twitter, Facebook
Questions?
Thank You!