The Retail Market

Technology

Introduction

- The following presentation is a brief description of the technology behind the Market Design and how it works on a day to day basis.
- A background of the market design technology and its progression to its present state will also be outlined in this presentation.
- The purpose of this presentation is to make New Entrants aware of the technologies deployed in the Retail Market and the requirements that must be met in order to gain entry to the Market.

Agenda

- Background
- Technologies Deployed
  - On ESB Networks side
  - On Market Participants (MP) side
- Technological Interaction
- Summary of Requirements
  - What are the requirements for New Entrants?
- Documentation

Background

Background

- Due to Market Opening, it was determined that a new more robust system was needed to cope with such large scale changes to the day to day operation of the Retail Electricity Market
- SAP IS-U was the chosen IT Support System by MOIP to implement new processes required to support market opening within ESB Networks
- SAP IS-U was implemented to cater for the messaging end of the market design, that is to generate and dispatch messages on behalf of ESB Networks
- SAP IS-U also communicates with other internal systems to cover areas such as work management , outages etc.

Background

- Each Market Participant is responsible for their own back end systems
- Market messages will be sent between the Market Participants and ESB Networks
- Messages are coded using XML schema, and encrypted via digital signature before being transmitted to or from Market Participants
- The Messaging HUB was designed to route messages to and from Market Participants using the Rosettanet communication technology outlined above to form a link between itself and the MPs

Background

- An Access 2002 database based application called the MPCC (Market Participant Communication Component) was created for Market Participants (MPs) to send and receive market messages in a secure and reliable manner with ESB Networks.
- Due to the use of https and communication via the internet, it was determined that it was a requirement that Market Participants had a persistent internet connection to aid effective messaging communication

Technologies Deployed

Technologies Deployed

- As outlined previously a number of new technologies were deployed by both ESB Networks and Market Participants to allow for Market Opening to begin implementation
- The following slides describe each technological component in more detail and how they are involved in the messaging process

Technologies Deployed On ESB Side

- SAP IS-U
  - As outlined previously SAP IS-U was implemented to provide the connection between the external messaging and the internal systems used by ESB Networks
  - The SAP system is also responsible for validating messages received from Market Participants and relaying information received via market messages to other internal systems within ESB Networks

Technologies Deployed On ESB Side

- The Messaging HUB
  - The messaging HUB is managed by the MOIEX team within Networks and is responsible for routing XML market messages into or out of SAP
  - The HUB recognises MPs by an ID assigned to them when entering the market
  - It then determines where a message should be routed to based on the information contained for this ID
  - The HUB also routes incoming messages directly to SAP

Technologies Deployed On ESB Side

- The HUB checks that messages have been routed correctly by ensuring a Receipt Acknowledgement has been received for each message sent
- If a Receipt Acknowledgement has not been received the HUB will automatically re trigger the message

Technologies Deployed On MP Side

- The MPCC (Market Participant Communication Component) may be used by MPs with low volumes of market messages or alternatively an MP can implement and use their own back end systems
- How the MPCC operates:
  - MPCC resides on a server that has a resolvable name and is permanently connected to the internet
  - MPCC uses a WebForm interface to allow MPs to populate and send messages to Networks
  - When a Market Participant wishes to send a message to Network they move the message to a directory that the MPCC is polling

Technologies Deployed On MP Side

- Any documents that the MPCC finds that fit the specified naming convention will be read from the directory, then packaged up into a Rosettanet Business Message (RNBM) and sent
- Messages that originate from ESB Networks will be received by a Webserver, provided as part of the MPCC, and unpackaged. If the contents of the market messages are valid they will be stored in another directory ready for subsequent processing by the MP

Technologies Deployed On ESB/MP Side

- Rosettanet Communication Protocol
  - Market messages are sent between the Market Participants and ESB Networks within a Rosettanet Asynchronous Single-Action Activity over the Rosettanet Implementation Framework
  - Each Rosettanet Action will contain market messages as attachments, each attachment representing a single market message compliant with the XML market schema
  - There are two types of Rosettanet messages: actions and signals. Business content is communicated as an action; signals are sent in response to actions

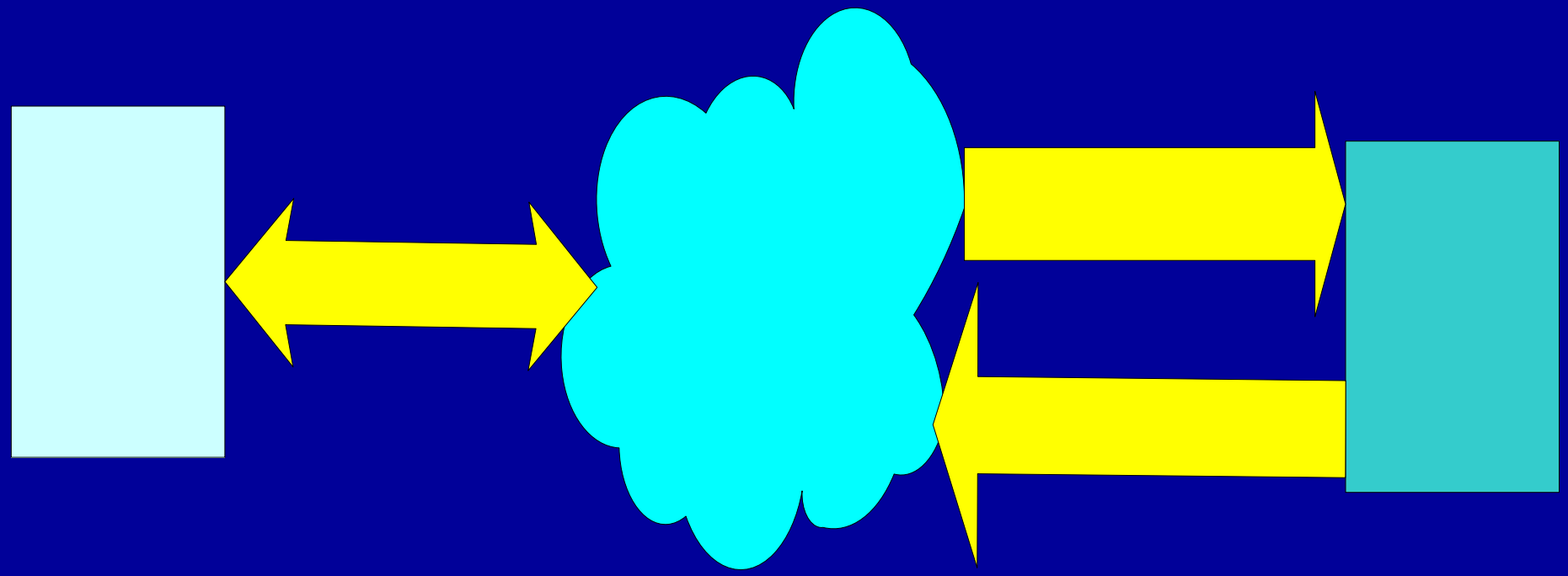
Technologies Deployed On ESB/MP Side

- The Rosettanet Technology provides accurate communication between the MPCC and the Messaging HUB
- Rosettanet Framework uses HTTP to send S/MIME type messages to the MPCC. At the MPCC end, it then unwraps, decrypts and validates the messages for the Market Participants
- It also wraps and encrypts outbound messages that Market Participants wish to send
- SSL and SMIME certificates are used to encrypt messages before being sent in either direction

Technological Interaction

Technological Interaction

- How does it all fit together?



Technological Interaction

- Networks sends a message to a Market Participant:
  - The message is created in SAP using information retrieved from within SAP and numerous other internal systems
  - SAP passes the message to the Messaging HUB for routing to the required Market Participant
  - A Rosettanet action will be created containing the market message as an XML attachment

Technological Interaction

- ESB Networks connects to the Apache WebServer via HTTP(s) and uses a HTTP Post method to send an S/MIME message to the MPCC
- The message is then wrapped and encrypted before being sent

Technological Interaction

- Market Participant sends a message to Networks
  - MPs will create market messages and save them to a local directory
  - When they wish to send these documents to ESB Networks they will move them to a directory that the MPCC is polling
  - Any documents that the MPCC finds that fit the specified naming convention will be read from the directory, then packaged up into a Rosettanet Business Message (RNBM) and then sent

Technological Interaction

- The message is received by the HUB and decrypted and passed to SAP
- SAP validate the message content and either pass the message information on for processing or reject the message if it fails validation
- If the message is rejected a rejection message with a reason code is sent back to the Market Participant

Summary of Requirements

What are the Requirements for New Entrants?

- To Summarise the following are the general technological requirements of New Entrants wishing to enter the Market:
  - Windows NT Box
  - Constant Internet connection
  - Static or Fixed IP Address
  - SMIME (Secure Multipurpose Internet Mail Extensions) & SSL (Secure Socket Layer) Certificates - Refer to MPCC Deployment Guide for details
  - MPCC or alternative back end system

What are the Requirements for New Entrants?

- The following are the requirements if a New Entrant is to implement the MPCC:
  - A dedicated machine must be available
  - Provision of a contract with an ISP for Internet connectivity. This link can be permanent or dial-up. Provision of any necessary hardware, cabling and software to support the link.
  - Provision of a HTTP URL with a static IP address and resolvable domain name e.g. <http://127.0.0.1/mpcc.cgi> and <http://www.mp.ie/mpcc.cgi>
  - Provision and configuration of a firewall
  - Completion and return of the Market Participant Registration Details form

Documentation

- Relevant technical documentation can be found on the rmig website in the TIG Segment: www.rmig.cer.ie
  - Username: RMIG
  - Password: fuinnimh