



IBM Software Group

# WebSphere Message Broker Airline Technology (MATIP) Adapter

Adapter Overview : 13 June, 2007

**WebSphere** software

A decorative horizontal bar with various colored segments (purple, cyan, green, yellow, red, and several purple segments) and icons (a starburst, a person's face, a globe, a vertical bar chart, and a grid of circles) is located below the 'WebSphere software' text.

**ON** DEMAND BUSINESS™

# Agenda

- **Websphere Message Broker Overview**
- **Overview of the MATIP Adapter**



# Application Integration

**Assure reliable and flexible information flow between diverse applications and organizations**

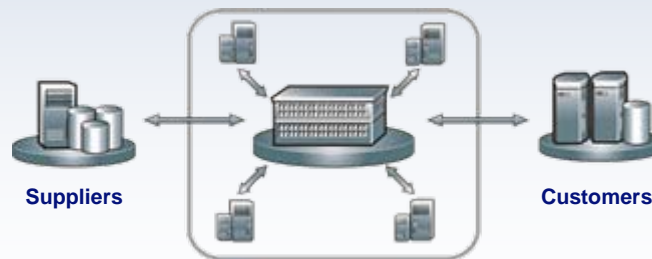
Challenges	Benefits
<ul style="list-style-type: none"> <li>Applications are not integrated in a flexible and reliable method across the enterprise, reducing business responsiveness</li> <li>Differences between many internal and partner applications must be managed</li> <li>Maintaining point to point or custom written integration interfaces is cost and time prohibitive</li> </ul>	<ul style="list-style-type: none"> <li>Reliably and seamlessly exchange data between multiple applications</li> <li>Manage differences between multiple applications and business partners</li> <li>Adopt an enterprise wide, flexible, service oriented approach to integration</li> </ul>

## Application Connectivity



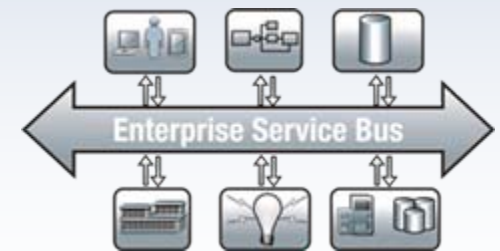
**WebSphere MQ**

## Application and Partner Mediation



**WebSphere Message Broker  
WebSphere Partner Gateway**

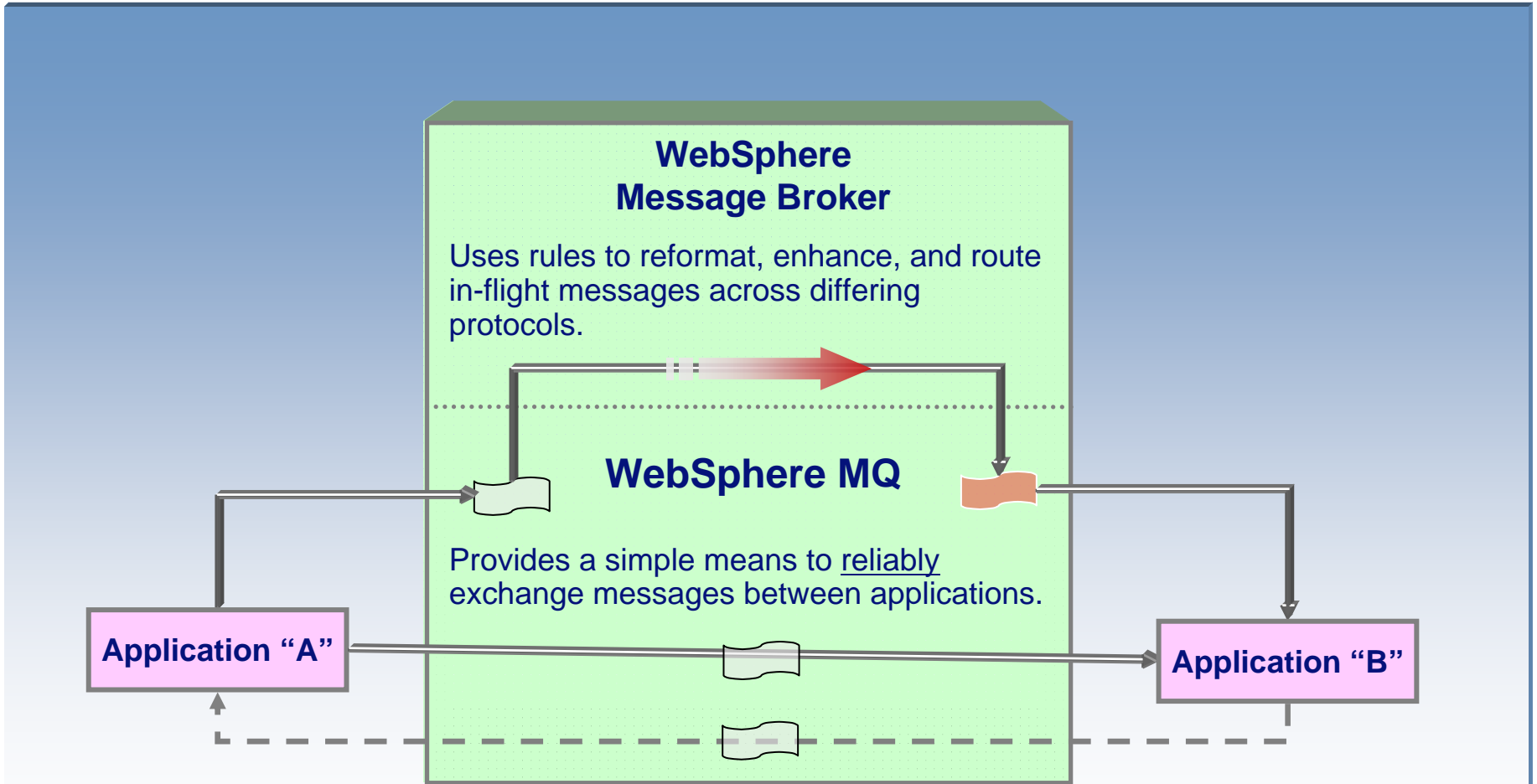
## Enterprise Integration Backbone



**WebSphere Message Broker  
WebSphere ESB**



# Messaging Overview

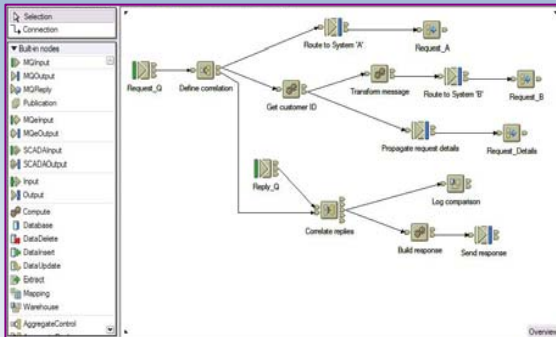


Event Notification (1 way communication), Request / Response (2 way communication)



# What is WebSphere Message Broker?

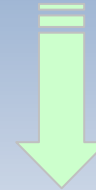
## 1. A framework for processing MQ messages and more



## 2. A robust hosting environment for:

- ✓ Transforming data
- ✓ Enriching data
- ✓ Interacting with databases
- ✓ Routing messages based on content
- ✓ Detecting complex combinations of messages
- ✓ Interacting existing applications with Web Services

## 3. Broad support for transport protocols beyond MQ



## 4. Built on a platform for:

- ✓ End-to-end transactionality
- ✓ Scalability
- ✓ Load balancing
- ✓ High availability
- ✓ Manageability



# WebSphere Message Broker design features

- Messaging styles
  - ▶ One way, Request response, Aggregation, Publish/Subscribe
- Protocol Support
  - ▶ WMQ, HTTP, JMS, Real-time and multicast, File, User Defined
- Message Format
  - ▶ Record based (COBOL, C), Industry (MATIP, SWIFT, TLOG, EDI...), XML
- Transformation Languages
  - ▶ ESQL, Java, Mapping, XSLT, and more

Goal: Near universal connectivity and transformation



# WebSphere Message Broker 6.0

## *Delivering an advanced ESB to power your SOA*

### **Provides universal connectivity**

- Provides Web Services connectivity and non standard interface connectivity
- Unmatched ability in integrating many systems, platforms, devices, and APIs
- Facilitates service oriented integration

### **Provides universal data transformation**

- Advanced message transformation, enrichment, and routing
- Support for industry standard data formats (MATIP, AL3, HL7, SWIFT, HIPAA, EDI, etc.)

### **New & improved pre-built capabilities to improve ROI**

- Leverage existing skills with rich Java and XML support
- Implement complex event processing with no programming
- Offers simple and easy to use tools with advanced capabilities

### **Leverage the performance**

- Offers performance of traditional transactional processing environments

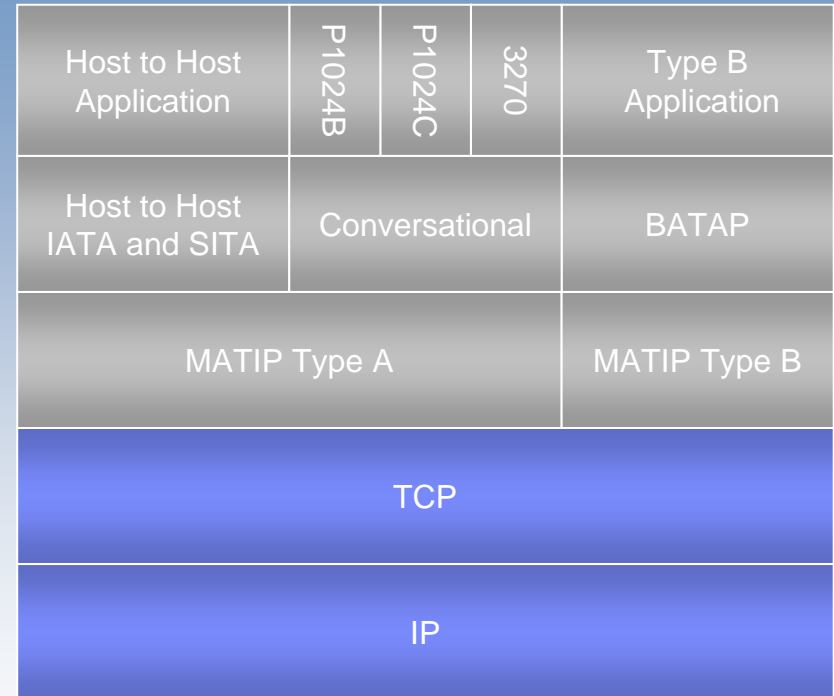


*Integrate your existing environment with the world of web services*



# What is MATIP

- MATIP - Mapping of Airlines Traffic over Internet Protocol
  - ▶ SITA developed, broad industry support, defined in RFC2351
  - ▶ Allows legacy airlines protocols to move to TCP infrastructure with associated cost savings
  - ▶ Inherits characteristics from AX.25 and EMTOX (both industry standards)
  - ▶ Defines
    - Type A - Host to Host (IATA and SITA)
    - Type A - Conversational traffic (ALC, UTS and 3270 terminal and print traffic)
    - Type B - Message based

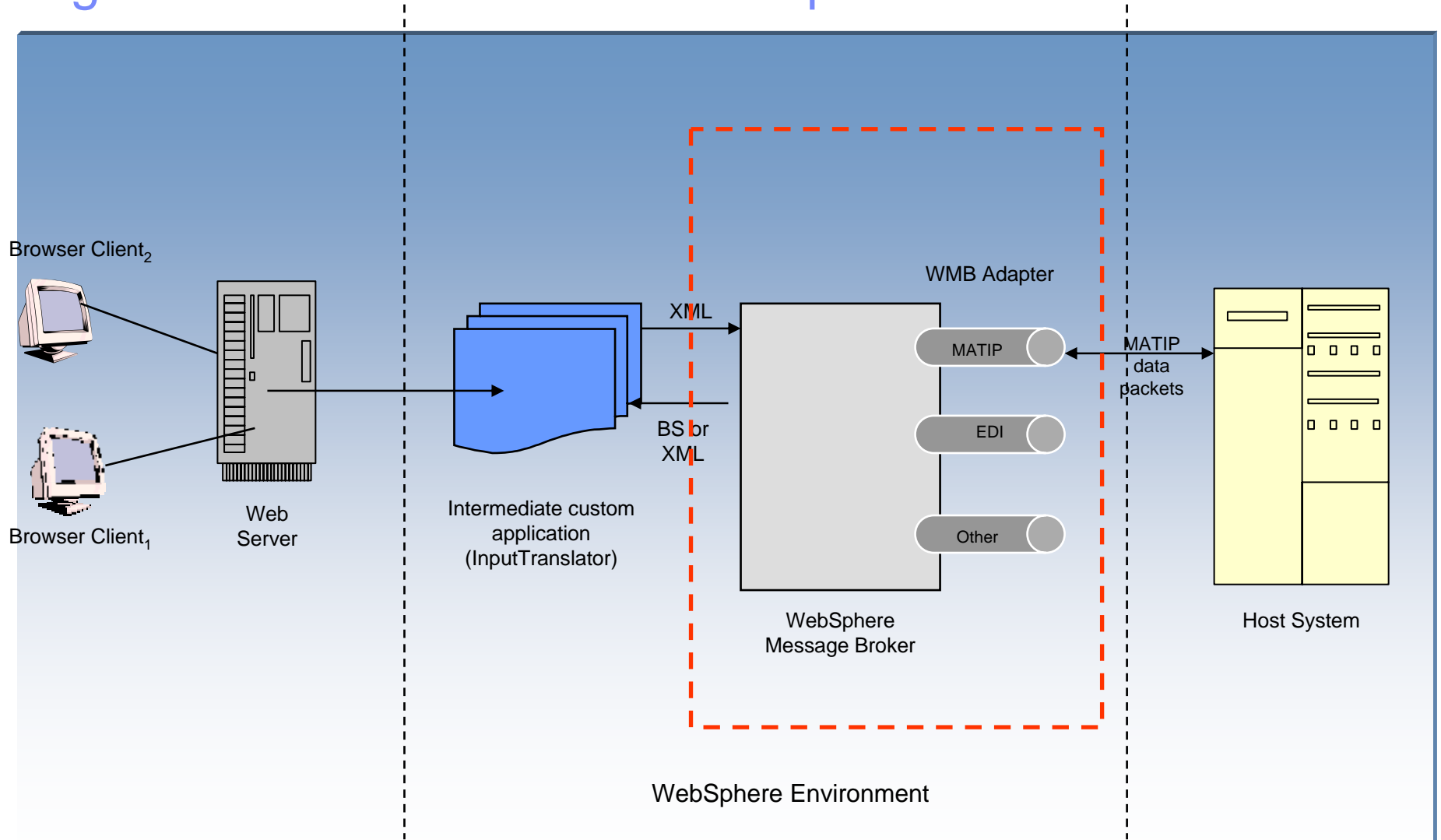


## Why an Airline Adapter ?

- **Most airlines either have ALCS, TPF, Unisys or are hosted on an ALCS, or TPF or Unisys system**
- **Customers want to modernize their legacy applications**
- **Customers want to drive towards an SOA/ESB environment**
- **Customers are looking to include their Res and DCS systems in an advanced Integration operation.**
- **IBM has a wide range of industry adapters already as part of its ESB portfolio and inclusion of a MATIP adapter addresses a long standing requirement to deliver the effectiveness of the IBM Message Broker to all areas of an airline.**
- **Websphere Message Broker and the Airline Adapter extends current MQ integration solutions.**



# High level View of Software Components



# MATIP Adapter Overview

- **Is based on the WBI Adapter framework**
- **Has been implemented based on IBM's adapter development methodology, with the required project artefacts**
- **Implemented based on the RFC-2351 and the MATIP Implementation guide from SITA**
- **The Adapter is responsible for the following :**
  - ▶ Connection Management
  - ▶ Session Management
  - ▶ Addressing and Multiplexing
  - ▶ Encoding and decoding of MATIP messages
  - ▶ Outbound processing
  - ▶ Error management



# MATIP Session Establishment

## Type A Conversational (Terminal Traffic) example

### TCP Socket connection established

Destination port usually 350, source port variable

### MATIP Session Open

One MATIP Session per TCP Socket

Single or multiple Agent Set Control Units (ASCUs)

All ASCUs on a Session Open have identical characteristics,

MPX, Presentation, Encoding, Address prefix on data, etc

### MATIP Open Confirm

Confirmation or refusal

Session Open can be repeated during session to rebuild ASCU list

### Data transfer prefixes Terminal Address to data

Multiple terminal and device data streams per ASCU

### MATIP Session Status Query and Response

Session Management and Keep Alive

### MATIP Session Close

Terminates MATIP activity and frees resources

Contains Cause Code



# Tooling

- **Development**
  - ▶ WebSphere Studio Application Developer 5.1.2
  - ▶ Rational Software Architect
  - ▶ WBI Adapter toolkit 2.6
- **Runtime**
  - ▶ WebSphere Business Integration Toolset
    - Connector Configurator
    - Visual Test Connector
  - ▶ WebSphere Message Broker 5.0.1

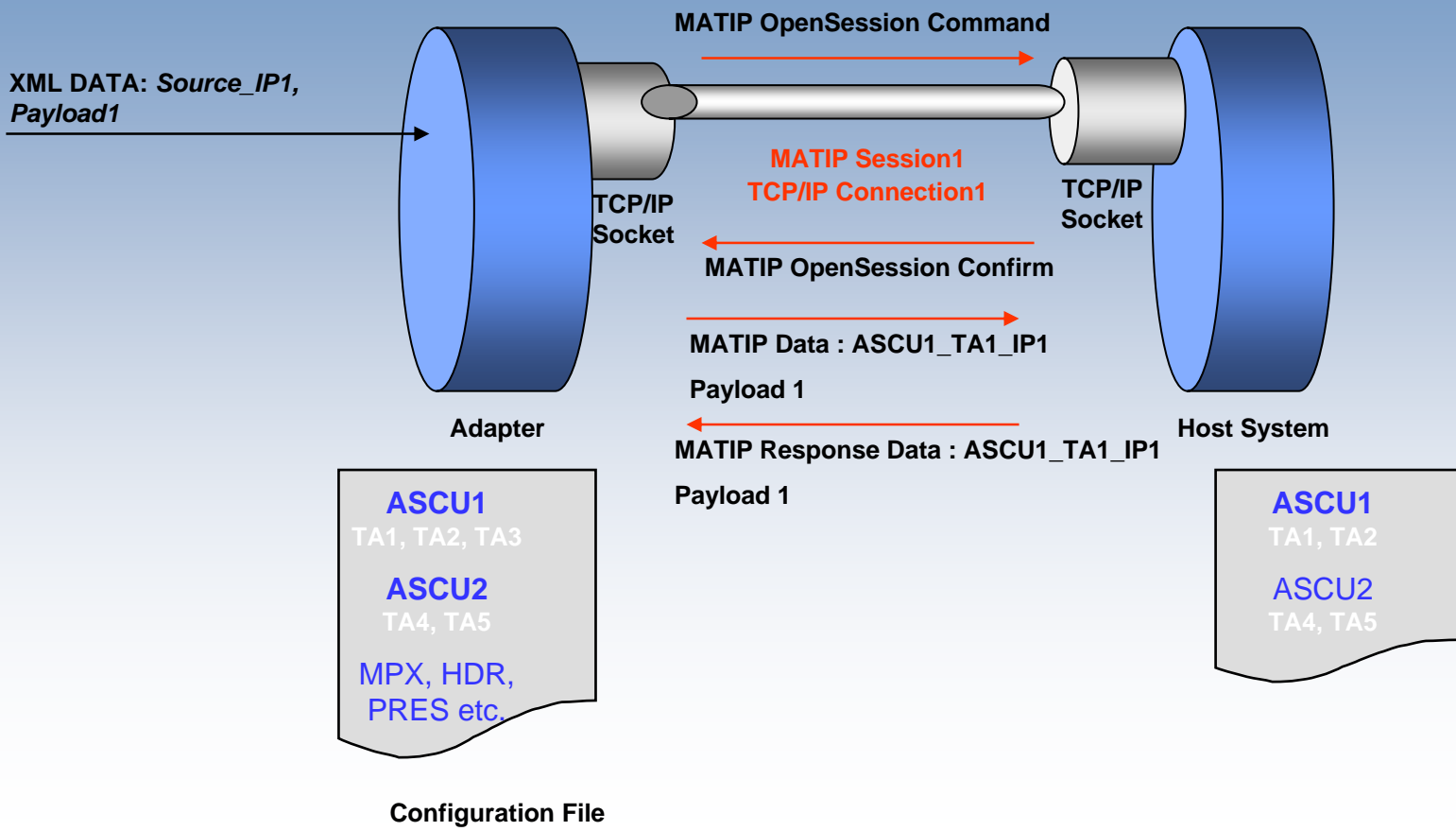


# Current Status

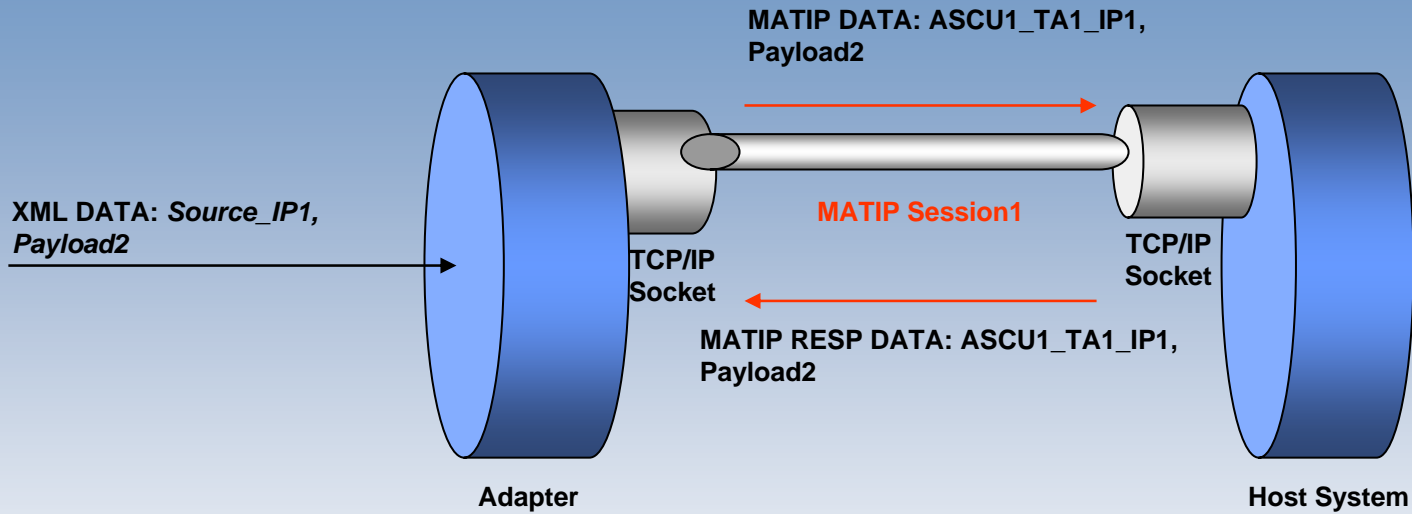
- Available as part of the IBM Message Broker Adapter portfolio
- Have run successful tests against the ALCS host system in Hursley
- Looking to an airline partner to extend the function through development of industry standard Business Objects.
- MATIP Type A supported
- MATIP Type B to be included but requires customer involvement to finalise.



At time instance T1, Request from IP1, contains payload1



At time instance T2, Request from IP1, contains payload2



**ASCU1**  
TA1, TA2, TA3

**ASCU2**  
TA4, TA5

**ASCU1**  
TA1, TA2

**ASCU2**  
TA4, TA5



At time instance T2, Request from IP2, contains payload3

