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結合 **WebSphere DataPower**，創造完美資料處理系統

WebSphere DataPower and System z Integration

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DataPower XI50z for zEnterprise

- **XI50 features optimized in a dense, high compute** IBM zEnterprise BladeCenter Extension (**zBX**) **form-factor**

- **Supports all ESB, Security, and Integration capabilities of** DataPower XI52 **v4.02 and v5.0 firmware level**

- **Purpose-built** Integration Appliance
  - Sysplex, IMS, CICS, DB2, SAF, RACF integration
- **Highest capacity** DataPower appliance for SOA workloads optimized for zEnterprise environments

- Tightly **integrated** with zEnterprise
  - Unified hardware and firmware management through the Hardware Management Console (HMC)
  - Inherits serviceability, monitoring and reporting capabilities of zEnterprise

DataPower Appliance in the zBX
Purpose-built hardware for simplified deployment and hardened security

What is it?

The IBM WebSphere DataPower appliance integrated in the zEnterprise System (XI50z), can help simplify, govern, and enhance the security of XML and IT services by providing connectivity, gateway functions, data transformation, protocol bridging, and intelligent load distribution.

- **How is it different?**

- Security: VLAN support provides enforced isolation of network traffic with secure private networks. And integration with RACF® security. IEDN - "integrated ensemble data network" - is a 10gige network with VLANs provisioned to ensure fine-grained access to services between the zBX and z itself. This is great for both performance (lower latency for sure) as well as for security. DataPower management is integrated with the Hardware Management Console on a secure network isolated from data traffic.

- Improved support: Monitoring of hardware with "call home" for current/expected problems and support by System z Service Support Representative.

- System z packaging: Increased quality with pre-testing of blade and zBX. Upgrade history available to ease growth. Guided placement of blades to optimize.

- Operational controls: Monitoring rolled into System z environment from single console. Time coordination with System z. Consistent change management with Unified Resource Manager.

- Standard options: Application Optimization and Tivoli Access Manager

- Additional options available: TIBCO and Database Connectivity

IMS and DataPower Integration

- **MQBridge to drive IMS transactions**
  - MQ client is embedded in DataPower
- **IMS Connect to drive IMS transactions (inbound requests)**
  - IMS Connect client in DataPower natively connects to IMS Connect
    - Inbound support only
    - Commit mode 1, Sync Level NONE or Confirm
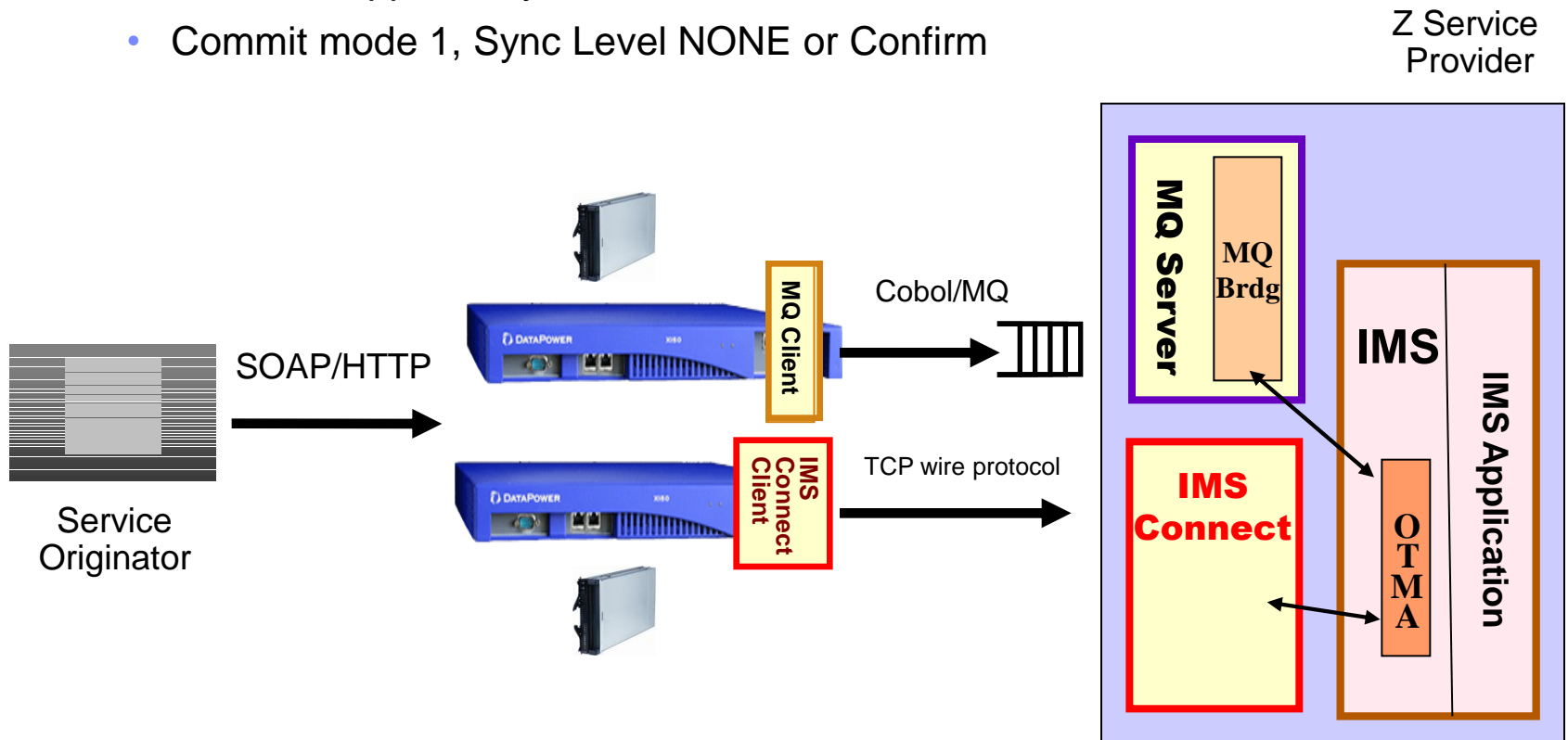
CICS and DataPower Integration

- **MQ bridge provides access to CICS**
  - MQ client is embedded in DataPower
  - Customer codes schema-dependent XSL/FFD/TypeTree (Contivo or WTX) to perform request/response mapping

- **DataPower provides WS Security, XDOS to CICS WS back-end (inbound requests)**
  - Payload transformation is pushed to DataPower
  - SOAP Header information required at CICS WS back-end for correct operations, e.g. WS-Atomic Transactions
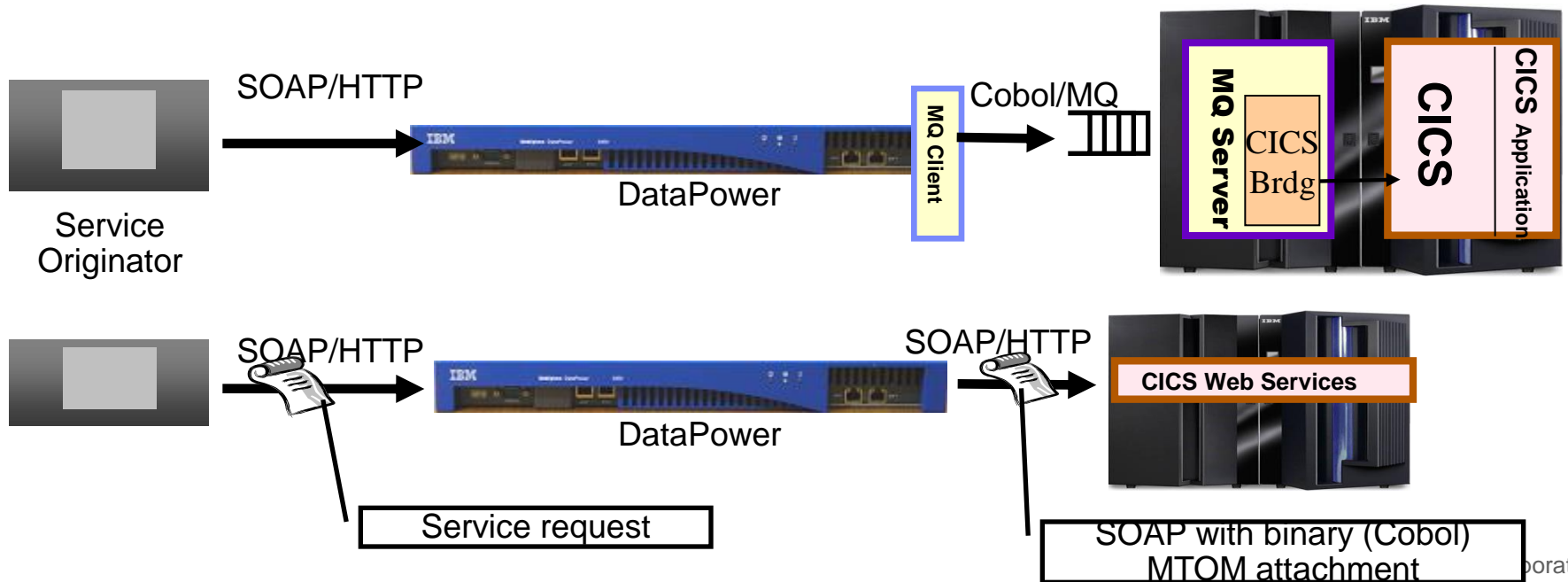
DB2 and DataPower Integration

- **Supports DB2, Oracle, Sybase, MSFT**

- **Web service requests are augmented with information from the database (message enrichment)**

- **Supports writing to DB also**
  - Logging and auditing

- **Provides a standard WS façade to DB/2**
  - Common tool (IBM Data Studio 1.2) to generate WSDL and data mapping in both Data Web Services runtime and DataPower
  - SOAP call is mapped to an ODBC (DRDA) invocation

- **Exposes database content (information)** *as a service*

DB2

DRDA

DRDA

SOAP/HTTP

SOAP/HTTP

DataPower

DRDA

DB2

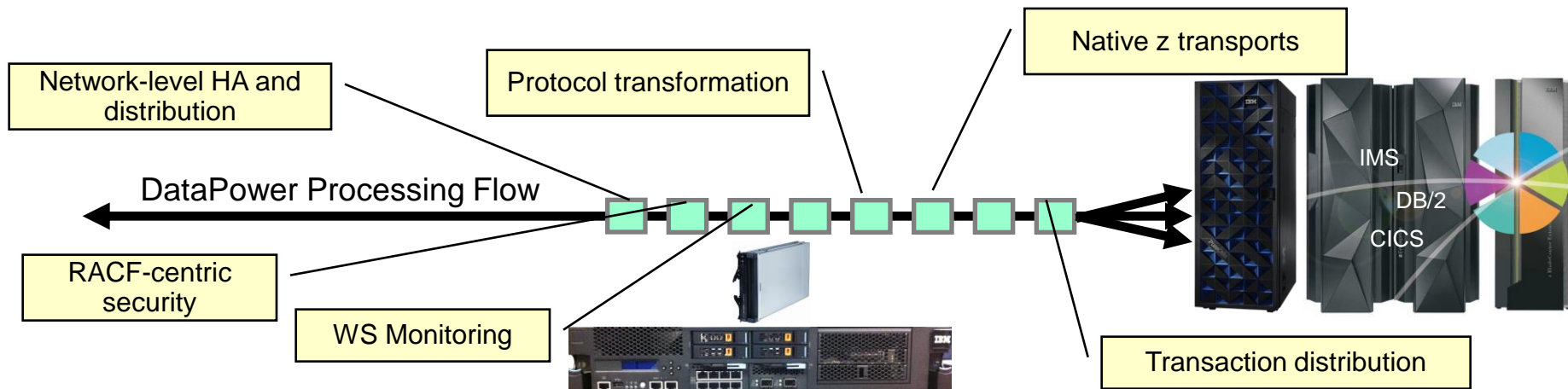Service Originator

DB Service request
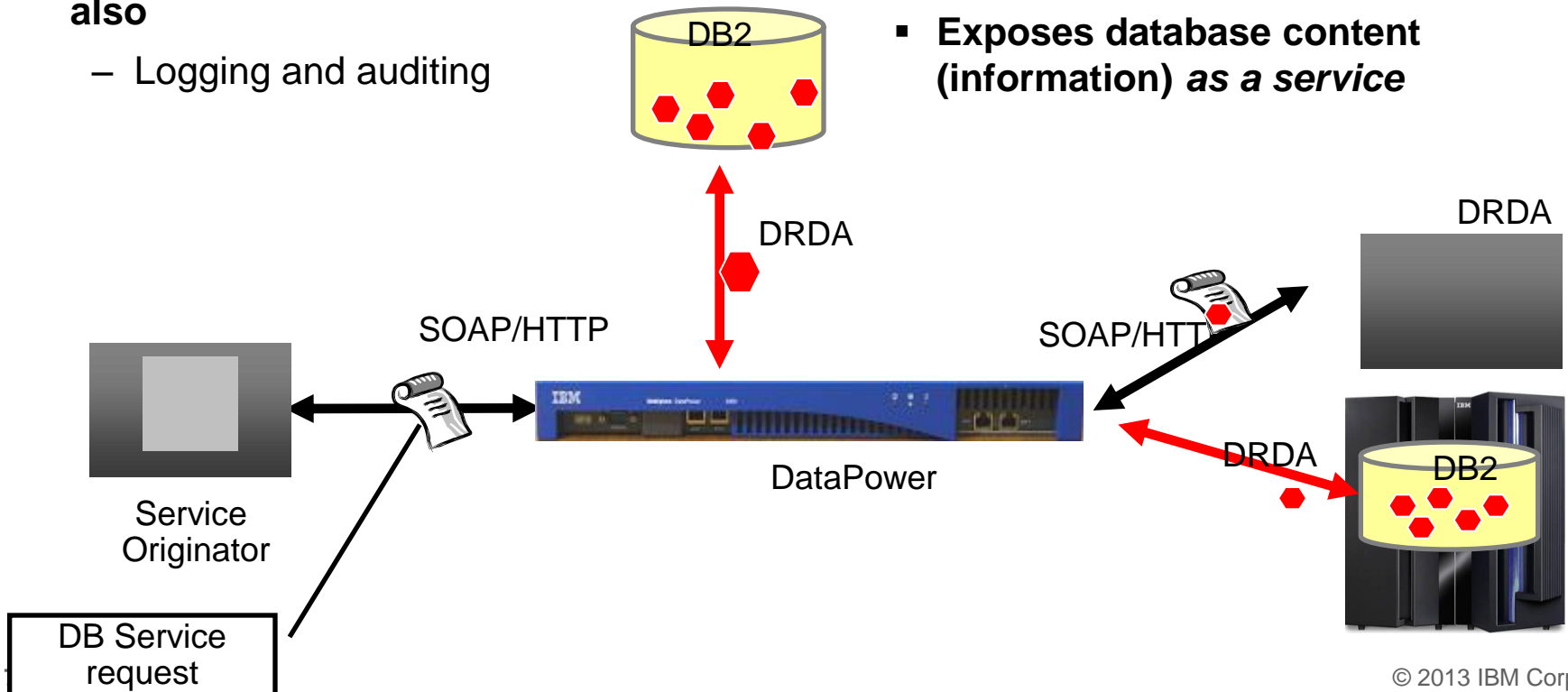
Premier System z Web service enablement through DataPower as Ubiquitous Gateway

IBM cross-brand initiative

- **Corporative synergy between DataPower, System z, including IMS, CICS and DB2, to support DataPower as the premier System z gateway**

  – Position DataPower for mainframe with a complete range of connectivity and integration to all databases, in addition to all transactions

Network-level HA and distribution

Protocol transformation

Native z transports

DataPower Processing Flow

RACF-centric security

WS Monitoring

IMS

DB/2

CICS

Transaction distribution

Secure. Integrate. Optimize.

Secure integration
Securely integrate API, Web & Mobile workloads, in addition to SOA & B2B

Pattern-based configuration
Create & deploy common configuration patterns for reduced time to value, improved productivity & quality

Mobile-ready security gateway
Secure & optimize delivery of Mobile applications & integrate with IBM Worklight

System z integration
Easily consume external web services from IMS & expose IMS data as a service

Faster consistent response time
Reduce load on back-end systems and optimize delivery through local & external caching and intelligent load distribution

Deployment flexibility
Use physical or virtual appliance with seamless configuration migration

*** Available in DataPower firmware version 6.0*

Deployment flexibility & reduced cost for development/test environments
IBM DataPower Appliance Virtual Edition

Enhanced! Business Integration

Business Value:

- Industry-leading workload security, optimization, and integration **functionality similar** to the corresponding physical DataPower appliance models
- A **flexible, cost effective** Security & Integration Gateway for non-production environments
- A **production solution** for environments not suitable for physical appliance deployment

What's new:

- WebSphere DataPower XG45 & XI52 physical appliance functionality in a "virtual appliance" form-factor running on **VMware** hypervisor on **x86 servers**, **IBM PureApplication System W1500, & IBM Workload Deployer** platforms
- Ability to **upgrade & downgrade** firmware similar to physical appliances
- **Seamless configuration migration** between physical and virtual appliances
- Powered by a **purpose-built platform** including an embedded, optimized DataPower Operating System

x86 Server   **Pure**Application

*DataPower Appliances extend its market leading Security & Integration Gateway functionality into **Virtual Appliances** **providing deployment flexibility***

Now available: DataPower Virtual Edition on PureSystems & IWD GA'd on March 29, 2013

Secure, integrate & optimize access to Web, Mobile & API workloads
IBM DataPower Gateway Appliance v6.0

Business Value:

- Secure integration of **Web, Mobile, API, SOA & B2B workloads** in a single, highly secure, highly consumable, DMZ-ready appliance
- **Operational agility** for **WAS Network Deployment** environments
- **Fast & consistent response time** for enterprise applications including mobile & web apps with local & external caching **reducing load on back-end systems**
- Enhanced **System z** integration with IMS systems for **reduced TCO**
- **Faster time to value** & improved **developer productivity** with configuration pattern-authoring & deployment support

What's new:

- Provides the API gateway functionality for **IBM API Management** V2.0
- Quick integration with **IBM Worklight** to secure mobile web traffic
- Improved **REST** services handling with **native JSON** support including schema validation & query, extract, filter & transform through **JSONiq**
- New **XML** data query, extraction & manipulation support with **XQuery 1.0**
- Enhanced security with improved **OAuth 2.0** and new support for **Kerberos** constrained delegation & **TLS 1.1/1.2**
- Improved **WS-MediationPolicy** consumption from WSRR & SLAs for **non-SOAP** traffic
- Embedded **On-Demand Router** functionality for WAS ND environments
- Optimized application delivery with **response caching** on-the-box & seamless integration with elastic caching XC10 appliances
- New **System z** integration capabilities allowing **IMS** transactions to easily consume external web services & easy consumption of IMS data as a service
- **Simple** ability to create & deploy common DataPower **configuration patterns**

DataPower Appliances extend its market leading Security & Integration Gateway for Web, Mobile & API workloads, in addition to SOA & B2B, reducing infrastructure complexity & lowering TCO

*** Available in DataPower firmware version 6.0**

Recent DataPower deliverables for System z
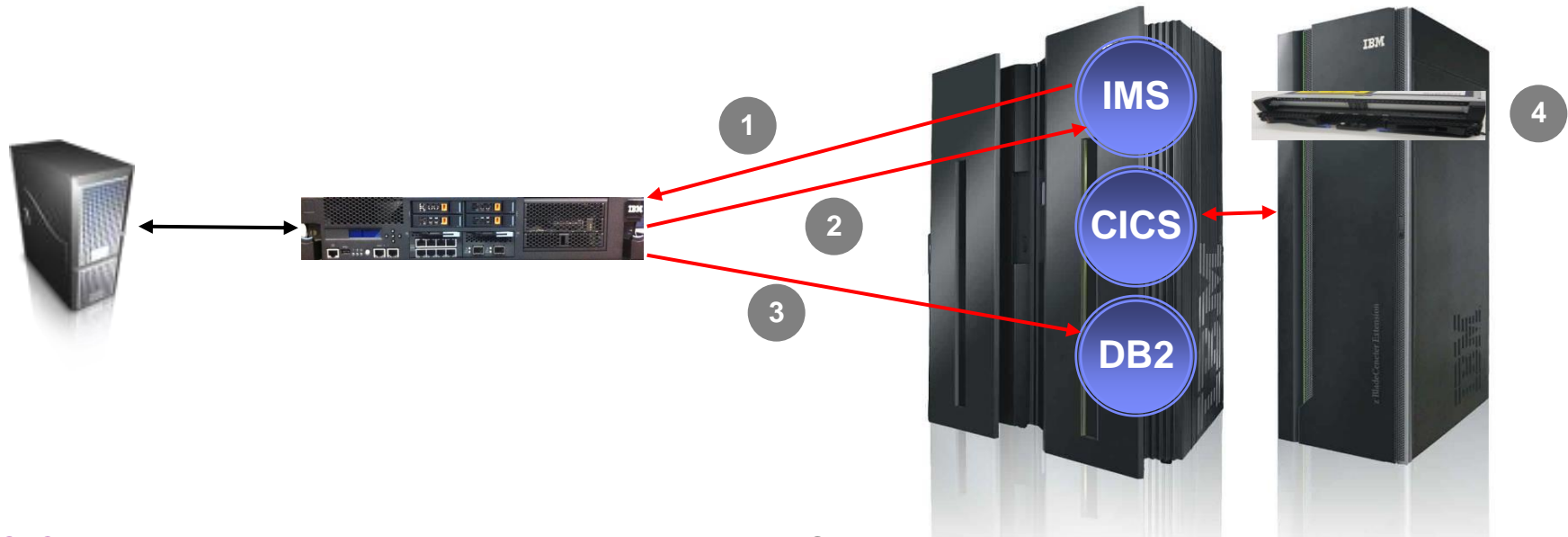
1. **IMS Callout** – **Allows applications running in IMS to make service calls to external web service providers using the existing IMS ICAL interface [DP v6.0]**

2. **IMS DB** – **Provides a new *information-as-a-service* interface for service consumers to access IMS databases using standard SQL (requires DataPower's Database Connectivity feature) [DP v6.0]**

3. **DB2 WLM** – **Provides support for real-time load distribution of SQL calls from DataPower to Sysplex-aware DB2 instances running on z/OS [DP v6.0]**

4. **XI50z firmware upgrade** – **Provide support for DataPower firmware level v5.0 [1Q13]**

Enhanced value for System z & IMS
New integration capabilities between DataPower and IMS

- **IMS Callout** feature allows IMS transactions to easily consume external web services via DataPower V6, with minimal application updates required

  - IMS Callout functionality requires one of the following models:
    - XI52, XI52 Virtual Edition, XI50B, XB62

- **IMS DB** feature easily exposes IMS data as a service to remote applications

  - IMS DB functions require one of the following DataPower models running V6:
    - XG45, XG45 Virtual Edition (with Database Integration Module feature)
    - XI52, XI52 Virtual Edition or XI50B (with Database Connectivity feature)
    - XB62

Rapidly enable IMS to consume external web services & also expose IMS data as a service
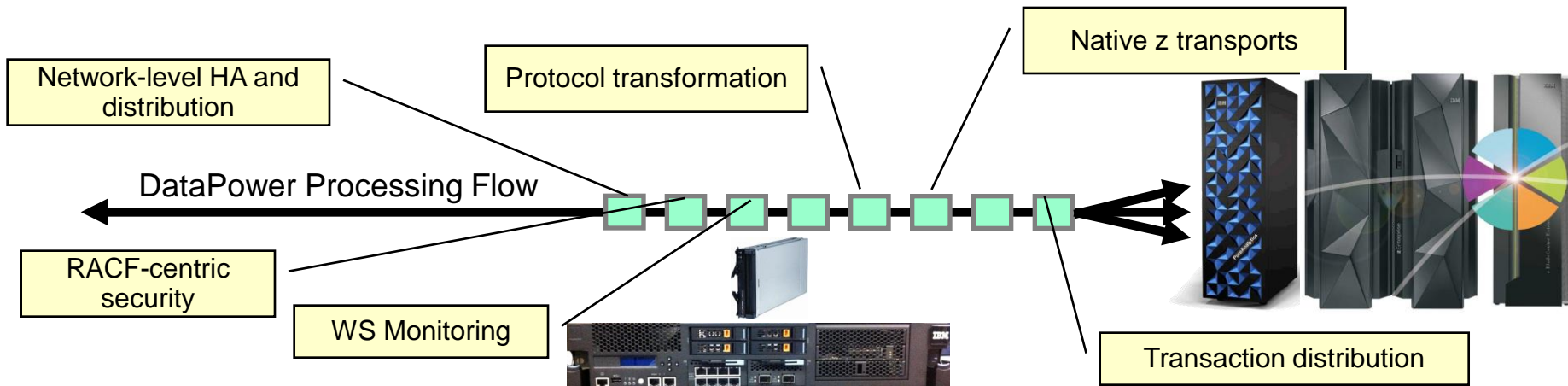
*** Available in DataPower firmware version 6.0**

IMS Integration with WebSphere DataPower

New **IMS Database integration**

IMS Transaction integration

New **IMS Callout and DataPower is a leadership project**

Many WW customers expressed interest in IMS Callout

Native z transports

Network-level HA and distribution

Protocol transformation

DataPower Processing Flow

RACF-centric security

WS Monitoring

Transaction distribution

DataPower Models for IMS solutions

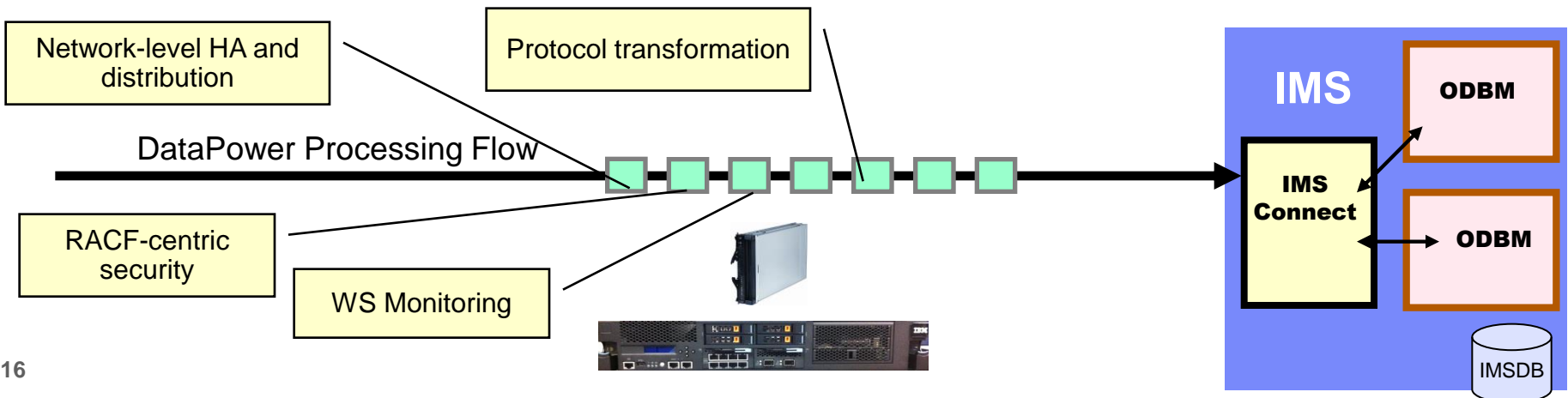|	DataPower Models supporting 6.0 release
IMS TM synchronous callout support *New*	XI52, XI50B, XB62
IMS TM provider support	XI52, XI50B, XI50Z, XB62
IMS DB support *New*	XI52, XI50B, XB62, XG45

New **WebSphere DataPower V6.0:**

- **Announced on 4/23/2013!**
- **GA on 6/28/2013!**

New *Direct Access IMS database via DataPower 6.0*

- **IMS Open Database offers direct access to IMS database resources anywhere in the IMSplex from z/OS and distributed environments**

  – Support different APIs to leverage Distributed Relational Database Architecture (DRDA)

    • IMS universal DB resource adapter to support J2EE, e.g. WebSphere
    • IMS universal JDBC driver to make SQL calls
    • IMS universal DL/I driver

  – Open Database Manger (ODBM) works together with IMS Connect as a DRDA server for IMS data

- **DataPower to access IMS database directly via the Open Database capability, i.e. via IMS Connect and ODBM**

Network-level HA and distribution

Protocol transformation

DataPower Processing Flow

RACF-centric security

WS Monitoring

IMS

ODBM

IMS Connect

ODBM

IMSDB

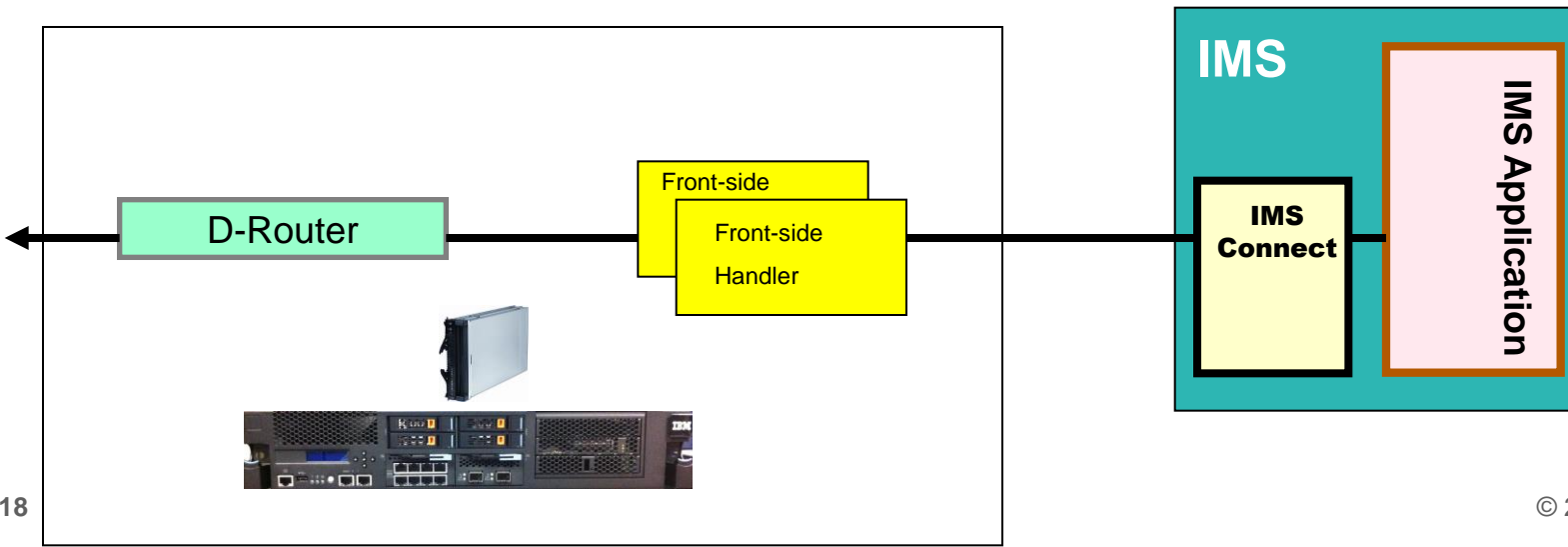# *DataPower Common Architecture in Supporting z/OS*

- **Position DataPower as the premier System z Gateway**

- **Evolve DataPower's architecture to be a common framework, "container model" architecture, to allow IMS and CICS to embed external components in handlers**

  - Data exchange between Core ESB Engine and subsystems' handler(s)
  - Two types of "handlers"
    - Front-side handler for outbound requests from subsystems
    - Back-side handler for inbound requests to subsystems
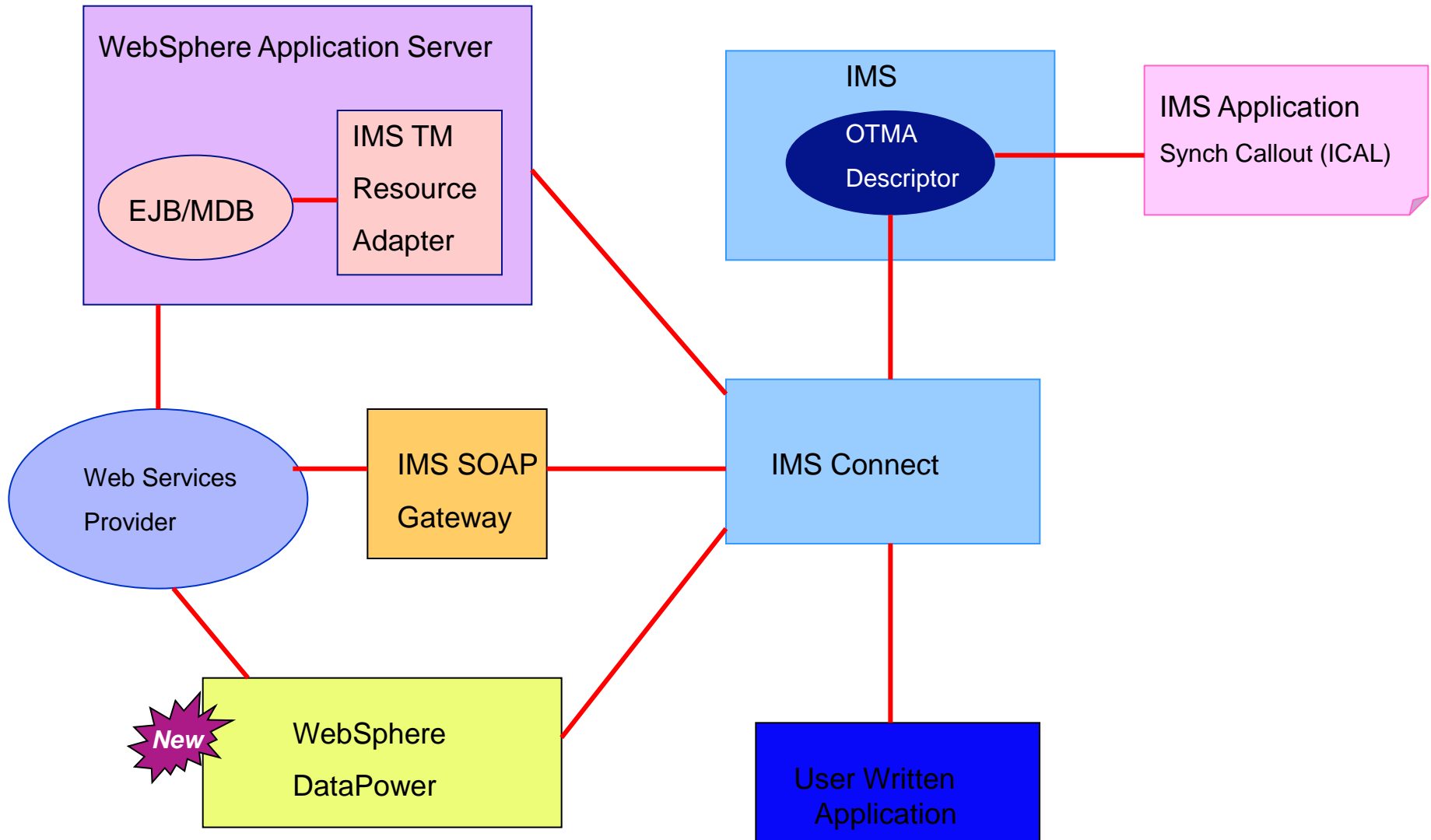 - Each subsystem to support its own handlers

Core ESB Engine

CICS Handler

IMS Handler
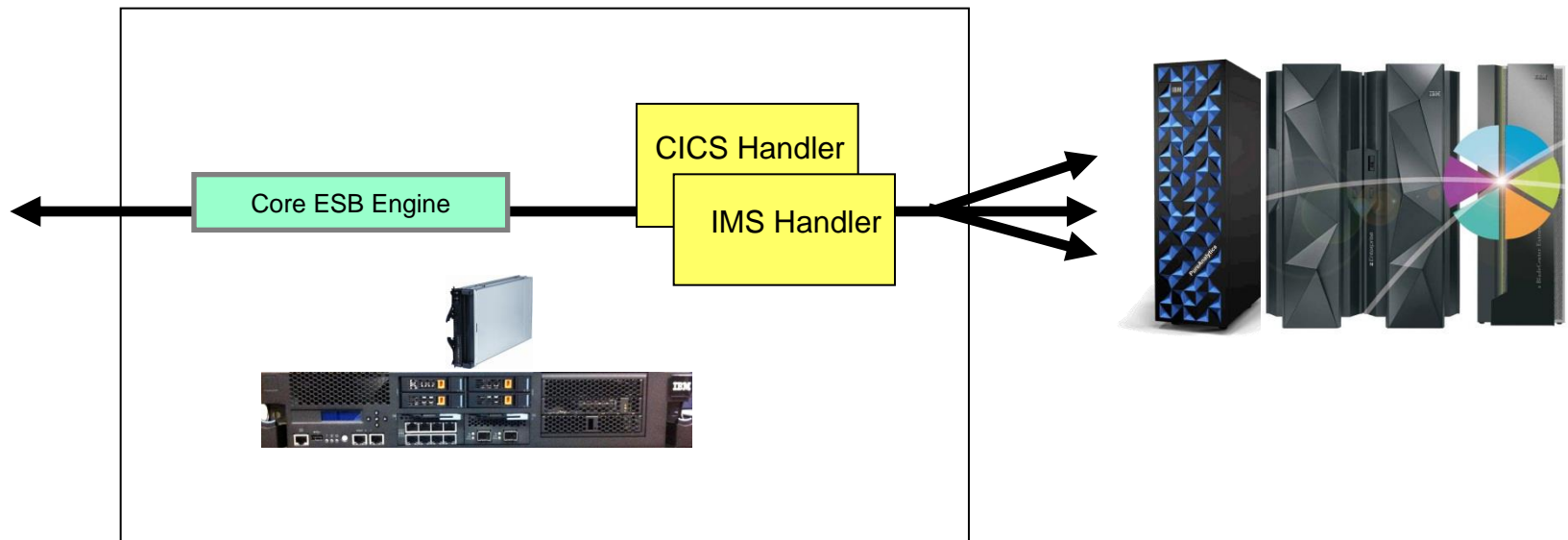
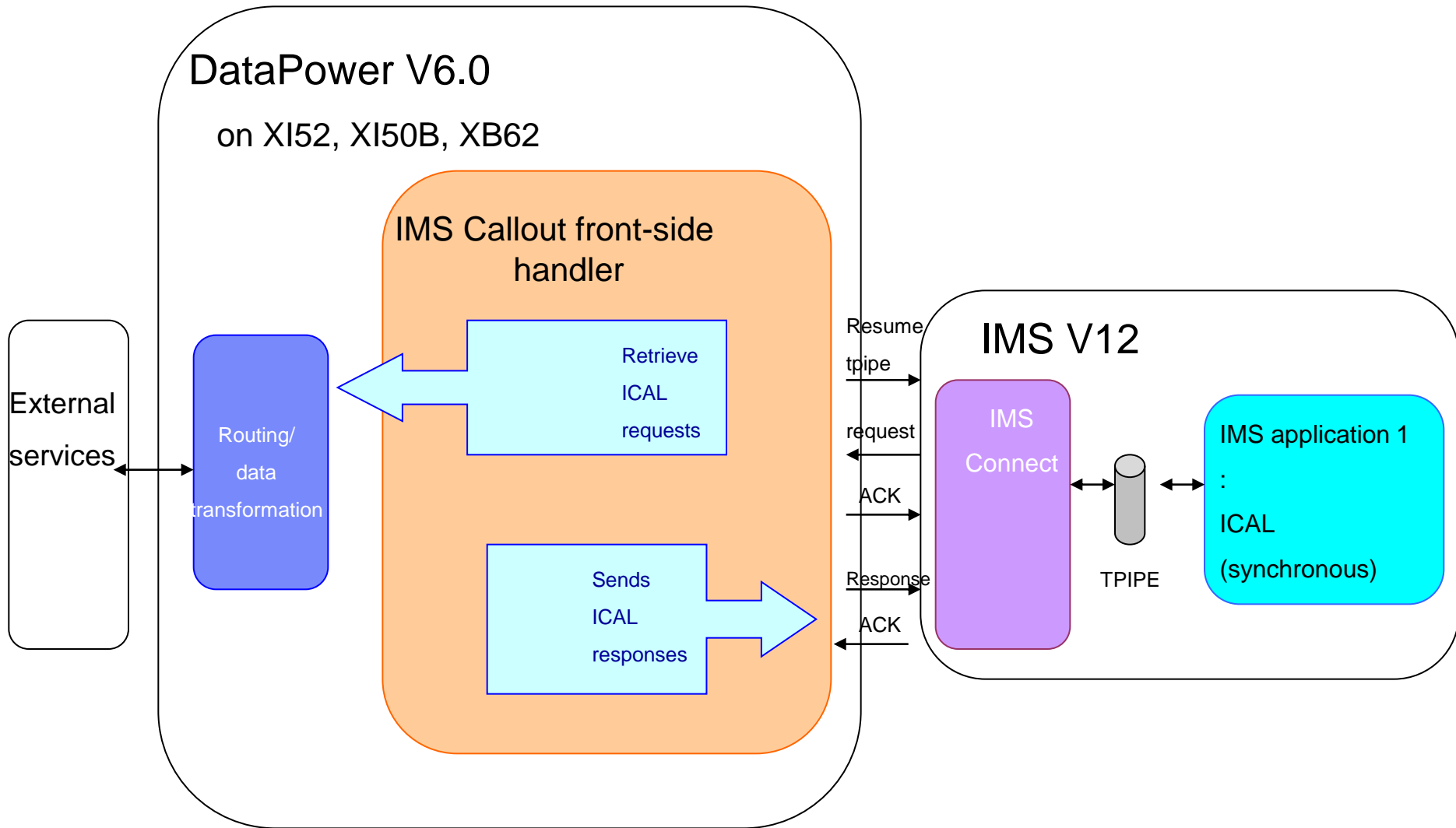# *IMS Synchronous Callout with DataPower 6.0*

New

- **IMS synchronously go outbound to external server via DataPower**
  - Implement IMS synchronous callout protocol
    - Support the common container model architecture with IMS Callout Front-side Handlers that retrieve IMS callout messages and send response data
- **Using existing WTX Design Studio tooling for data transformation**
- **The handler internally creates one or more IMS Connect dedicated persistent socket connections to the host system, using Enterprise Suite V2.2 IMS Connect API in Java.**
- **The handler communicates with IMS Connect via a new DataPower dedicated user message exit, HWSDPWR1.**
  - For shared queue environment, user can choose to create multiple IMS Callout connections, one for each IMS datastore.

IMS Synchronous Callout via IMS Connect

WebSphere Application Server

EJB/MDB

IMS TM Resource Adapter

IMS

OTMA Descriptor

IMS Application
Synch Callout (ICAL)

Web Services Provider

IMS SOAP Gateway

IMS Connect

New

WebSphere DataPower

User Written Application

IMS Synchronous Callout to DataPower

DataPower V6.0

on XI52, XI50B, XB62

IMS Callout front-side handler

Retrieve ICAL requests

Sends ICAL responses

External services

Routing/ data transformation

Resume tpipe

request

ACK

Response

ACK

IMS V12

IMS Connect

TPIPE

IMS application 1 : ICAL (synchronous)

IMS Synchronous Callout DataPower Dependencies

- **IMS Connect**

  DataPower User Exit Installation - Object Code Only user exit <u>HWSDPWR1</u> (new)
  Specified in the EXIT= parameter of the TCP/IP statement in the IMS Connect
  configuration file (HWSCFGxx).

    - V12 PTF UK91544

- **IMS**

  DL/I ICAL user can specify a 1-to-8 byte mapname as the first 8 bytes in
  AIBUTKN so that this ID can be included in the OTMA state data in the
  callout message. The ID can be used as a unique service identifier for data
  transformation mapping and service routing

    - V12 PTF UK82636 (PM73135) AIB MAP name field

Diagnostics

- Documentation to collect to diagnose a problem

  - **IMS/ICON Side**
    - IMS Recorder trace
    - /DIS TMEMBER hws1 TPIPE tpipe1 SYNC.
    - F ICON1,QUERY PORT NAME(5555) SHOW(ALL)

  - **DataPower Side**
    - Object Status Page
    - FSH and MPG System Log
      - Create a Log Target "ims" is recommended
    - IMS Callout Trace messages

    Note: If an error occurs, make sure the problem is recreated with the DP trace/logs on and make them available to the tech support.

Thank You