



# SOA access to CICS with CICS Transaction Gateway: High Availability, New application environments and more

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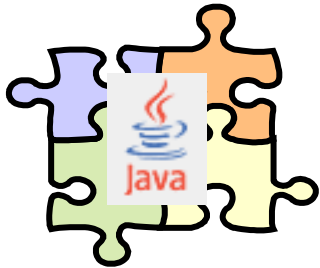
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# What is the CICS TG?



## 1. Interconnectivity - Inbound into CICS

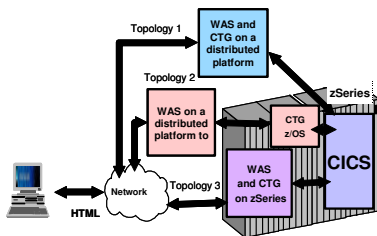
- Primary inbound connector to CICS
- COMMAREA, container (ECI), 3270 (EPI), Security (ESI) based connectors
- Gateway support into CICS (3-tier AND 2-tier configuration)
- TCP/IP, SSL and SNA connectivity options



## 2. Interfaces - Java and non-Java APIs

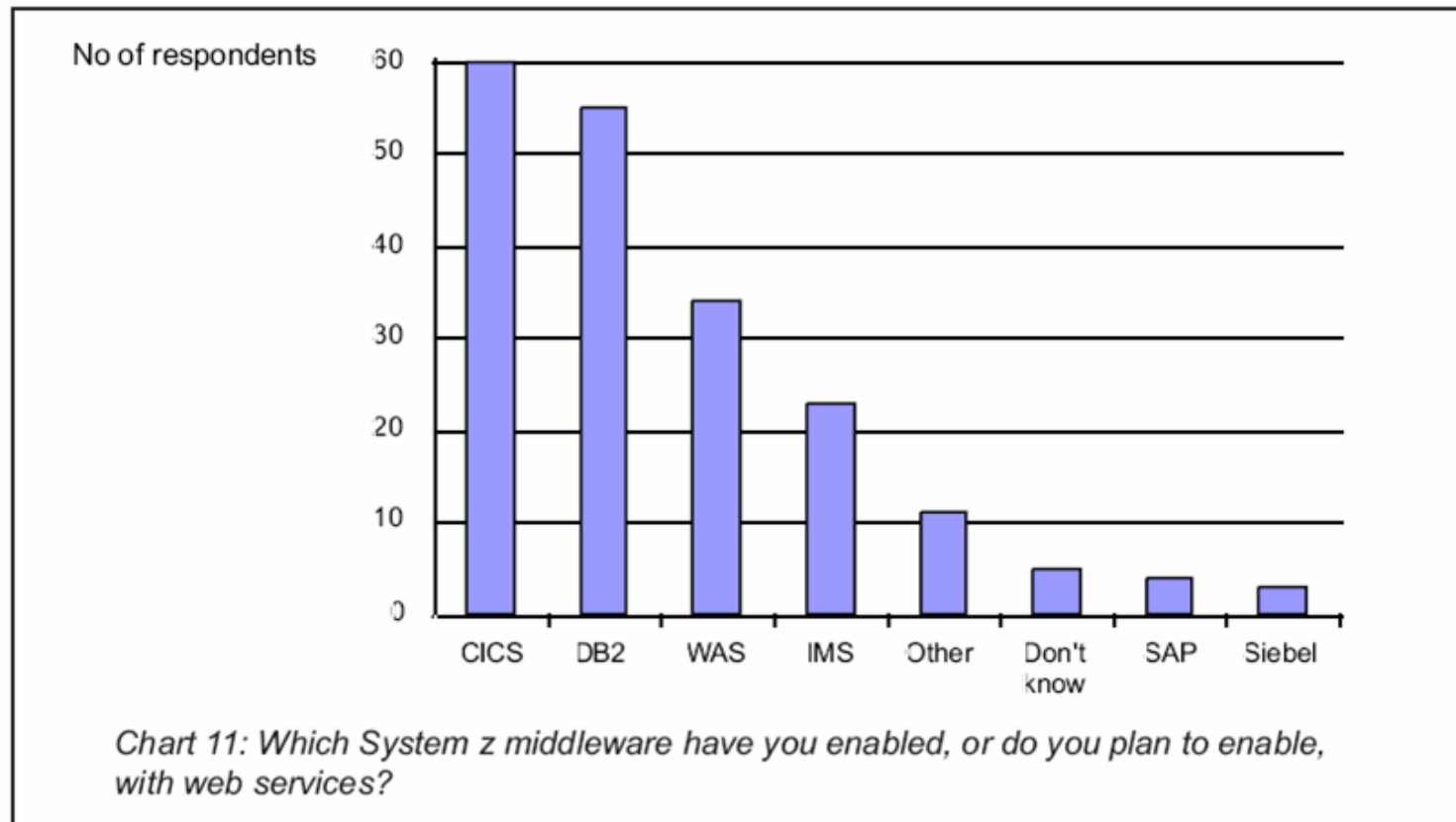
- J2EE Connector Architecture (JCA) is strategic Java API and provides enhance QoS
- ECI v1, COBOL and COM
- New ECI v2 C interfaces for remote connectivity
- CICS JCA resource adapters iintegrated with RAD v7 J2C tooling

## 3. Integration - WebSphere and CICS



- Interoperability between any version of CICS and any version of WebSphere in support by IBM
- - CICS on: z/OS, VSE, iSeries, AIX, Solaris, Windows, HP-UX
- - WebSphere 6.0, 6.1, V7.0 on 8 platforms
- Support for all CICS Interconnectivity protocols:  
TCP/IP, SNA, Enterprise Extender, EXCI, IP Interconnectivity

# CICS and SOA is big !



Source: Arcati Limited

# Integration with CICS - Strategic options

## Standard architectures

- ① Web services over SOAP
- ② **J2EE Connector Architecture**
- ③ Enterprise JavaBeans

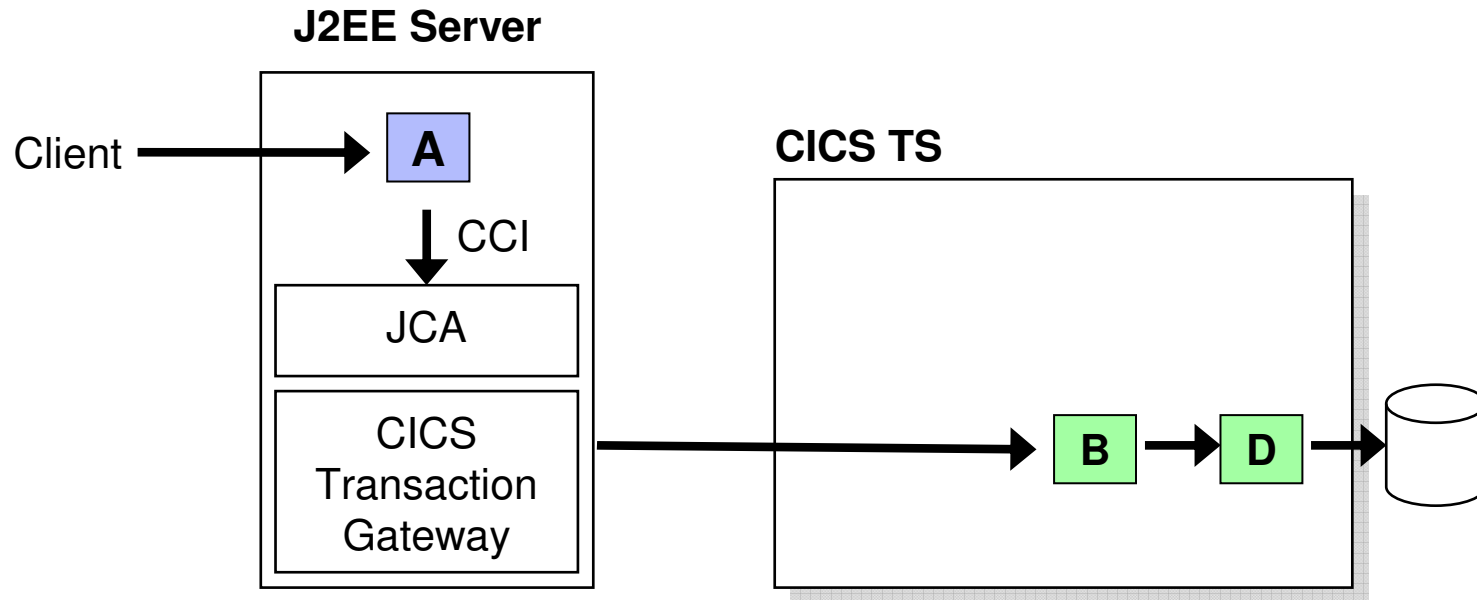
## Standard transports

- ④ HyperText Transfer Protocol
- ⑤ WebSphere MQ (MQ APIs or JMS)
- ⑥ TCP/IP sockets

**Whitepaper:** Delivering quick access to CICS systems using strategic integration options

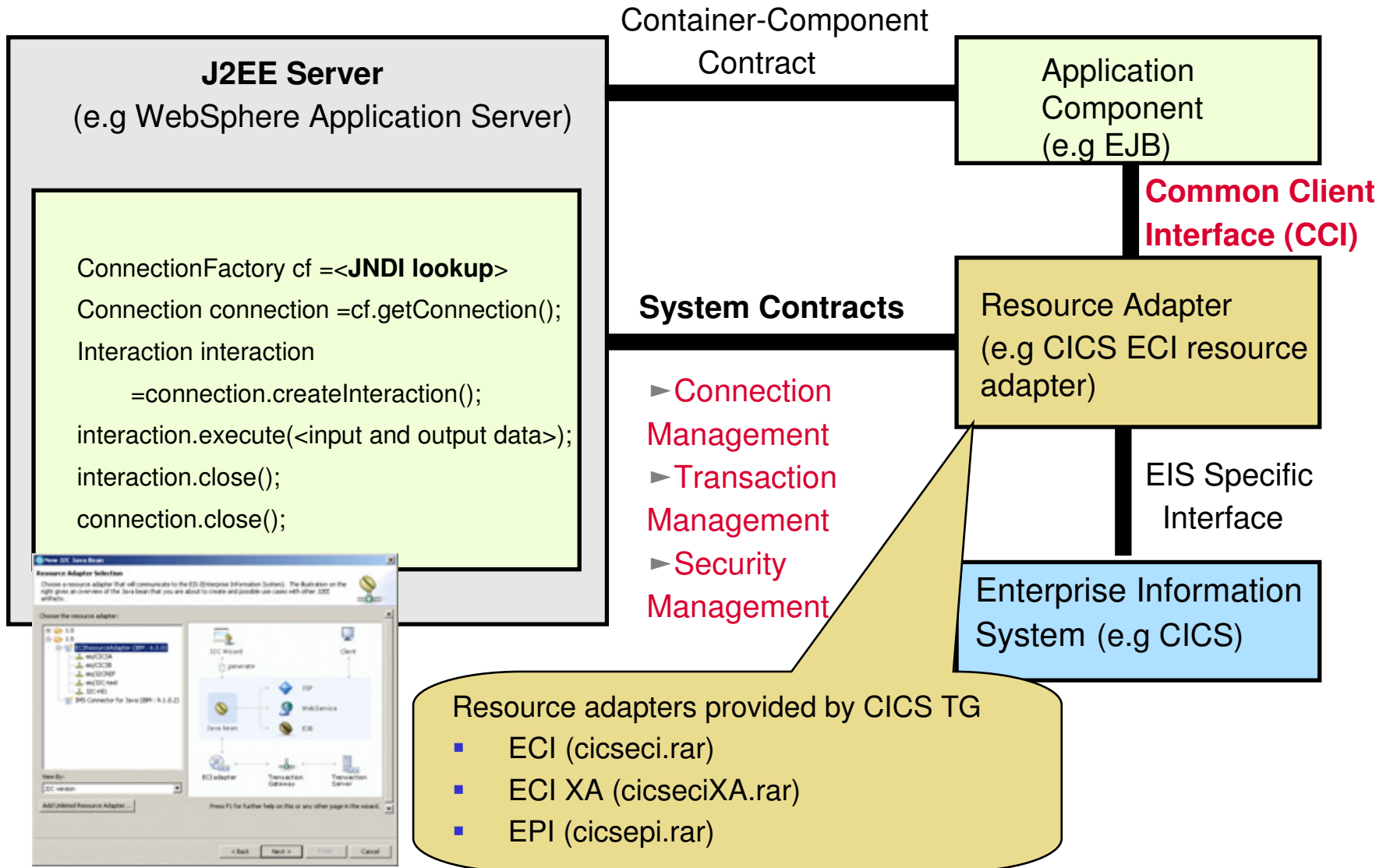
<http://www.ibm.com/cics/tserver/v32/library/#wpapers>

## Standard architecture - JCA

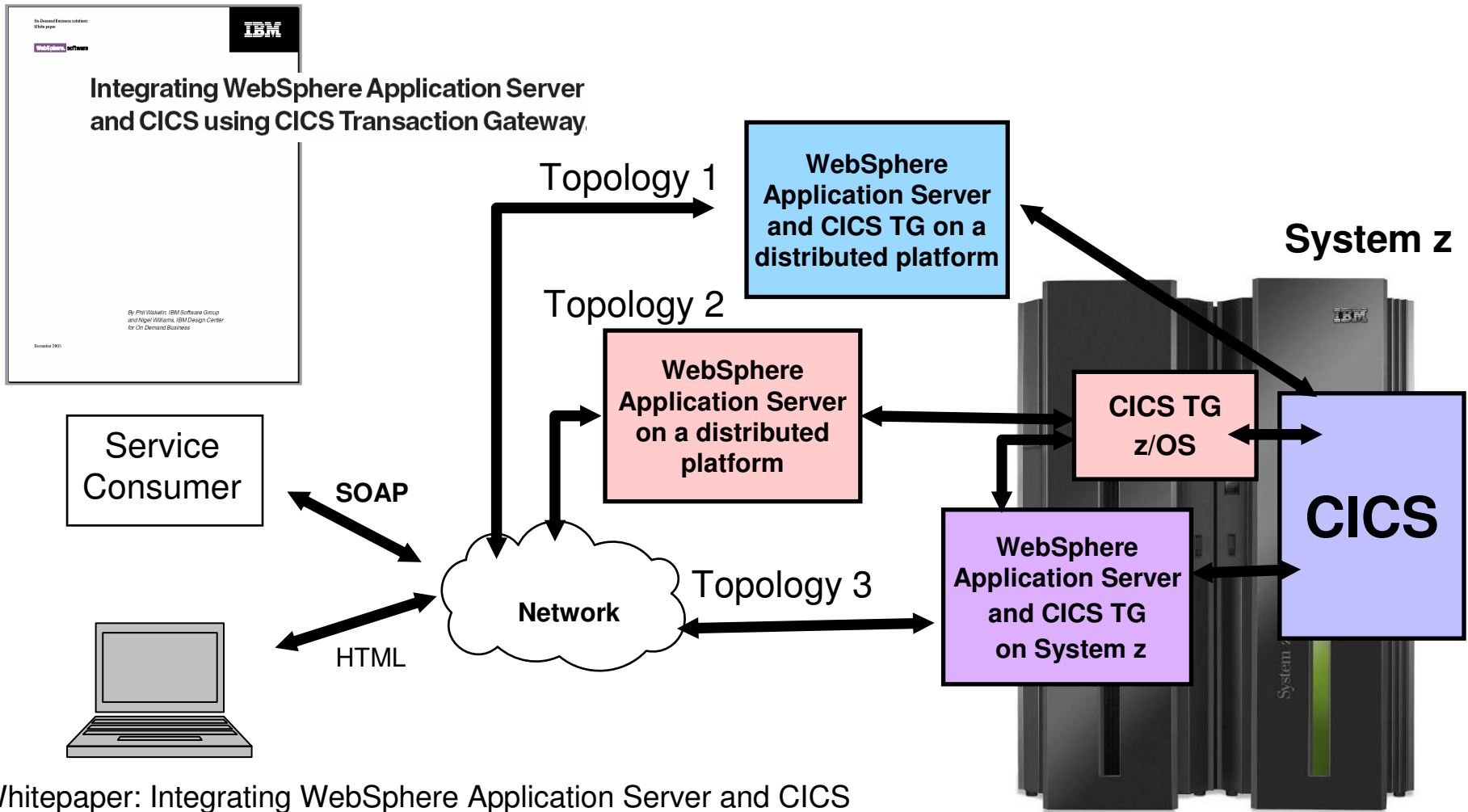


- The J2EE Connector Architecture (JCA) defines the common client interface (CCI) for a Java client to drive interactions with enterprise information systems such as CICS
- *The CICS Transaction Gateway provides the JCA access to CICS*

# J2EE Connector Architecture (JCA)

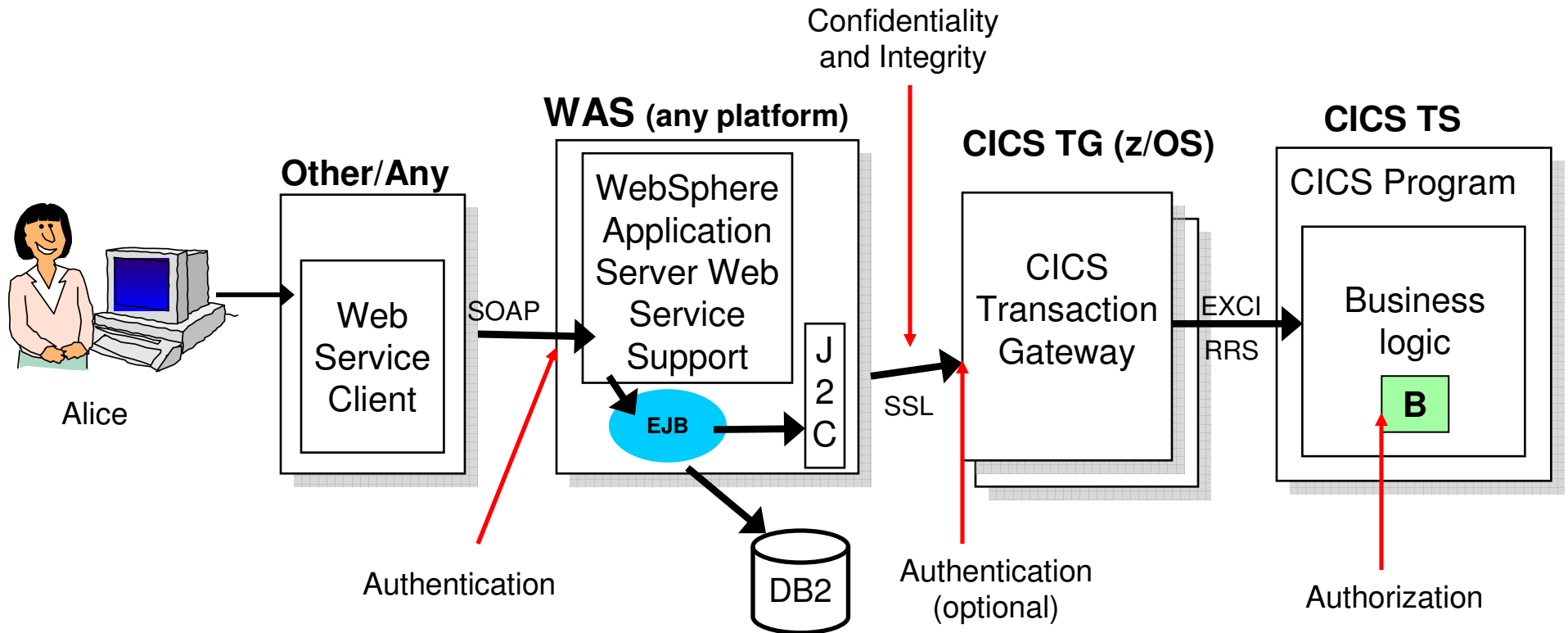


# CICS Transaction Gateway Topologies



Whitepaper: Integrating WebSphere Application Server and CICS using the CICS Transaction Gateway  
<http://www.ibm.com/software/http/cics/ctg/zos/>

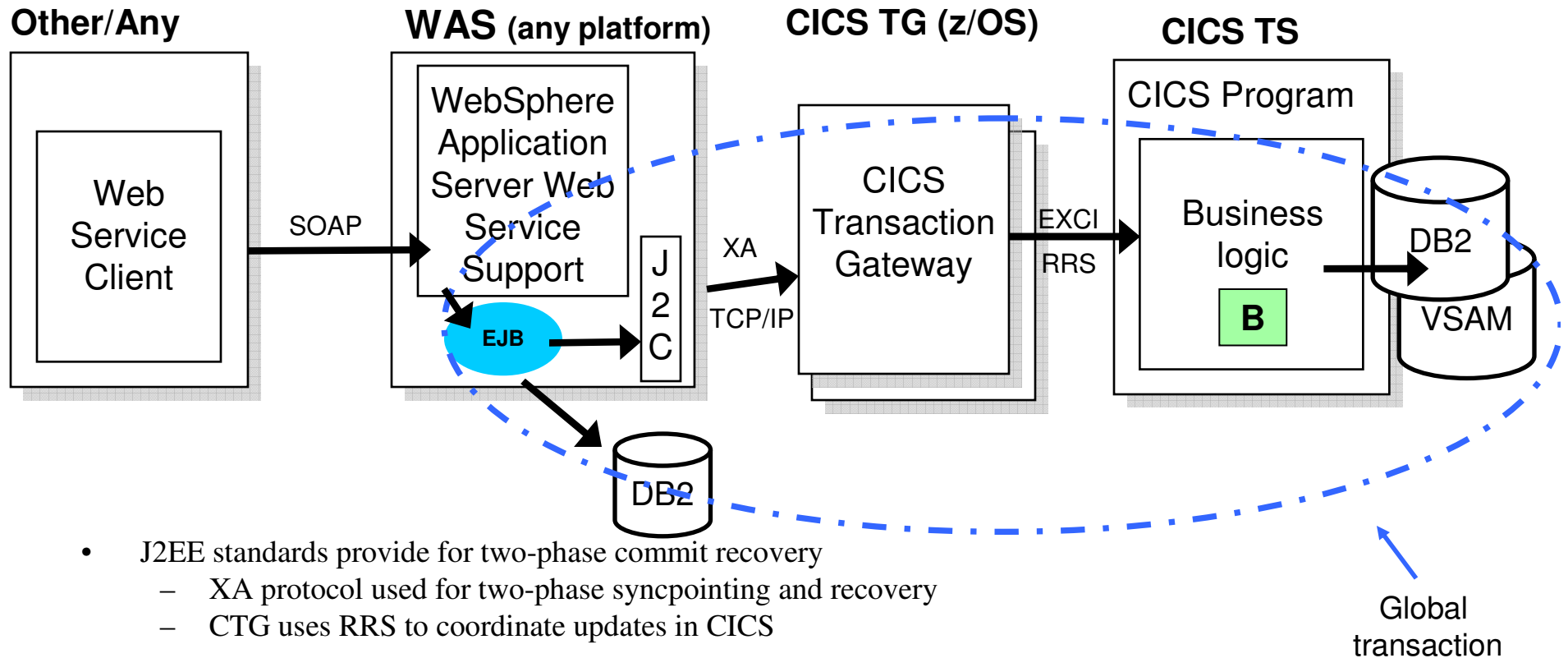
# CICS Transaction Gateway – Secure interoperation



- CICS TG supports
  - SSL and SSL client authentication
  - Userid and password (and passticket) authentication
  - Identity assertion (when CICS TG resides on z/OS)

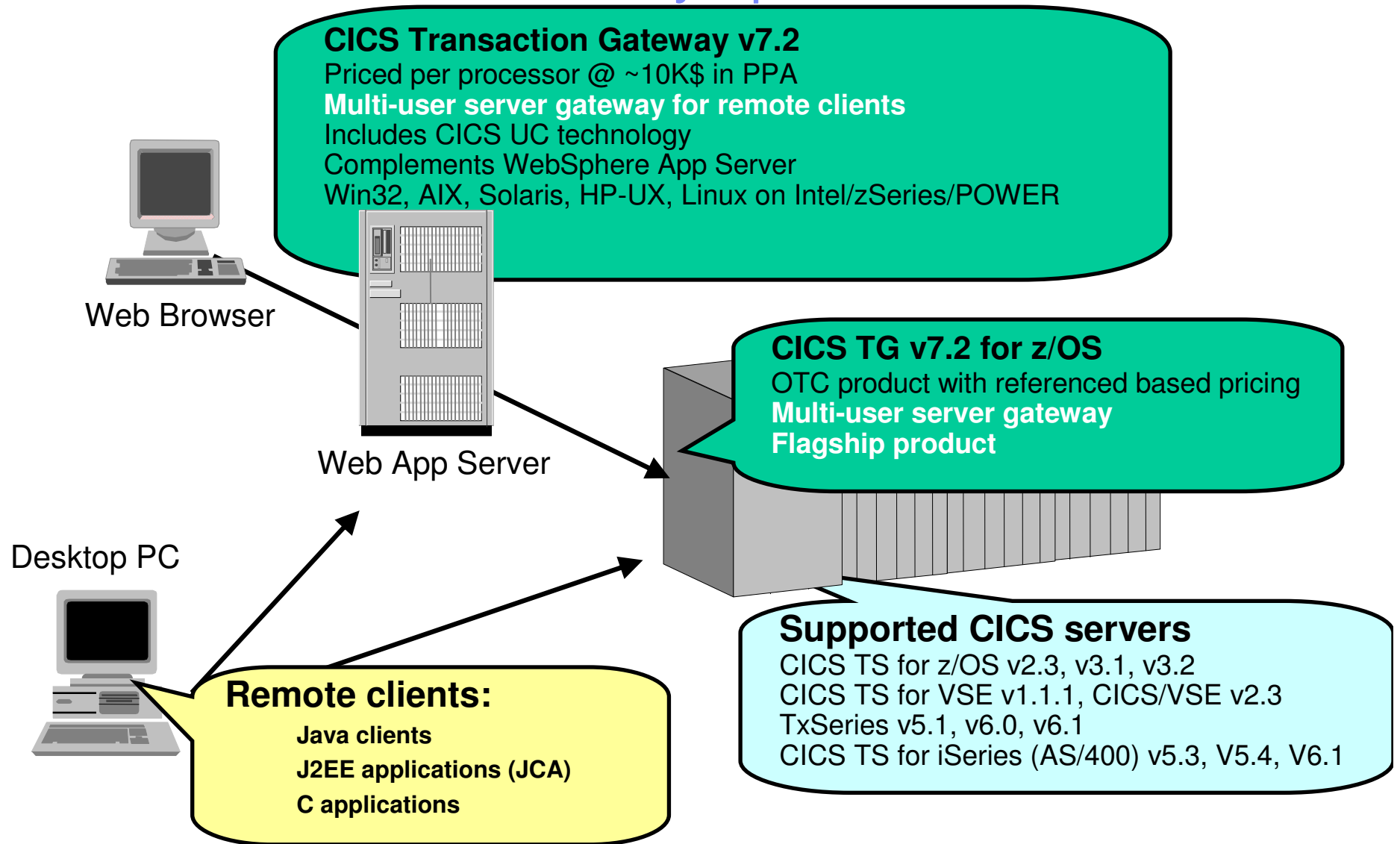


# CICS Transaction Gateway – Transactional interoperation



- J2EE standards provide for two-phase commit recovery
  - XA protocol used for two-phase syncpointing and recovery
  - CTG uses RRS to coordinate updates in CICS
- CICS Transaction Gateway resides on z/OS
  - 2pc via EXCI available in CTG v6.1
  - 2pc via IPIC protocol in CTG V7.1 and CICS TS 3.2
- WebSphere Application Server controls the transaction
  - WAS Transaction Manager coordinates updates with CICS and other RMs

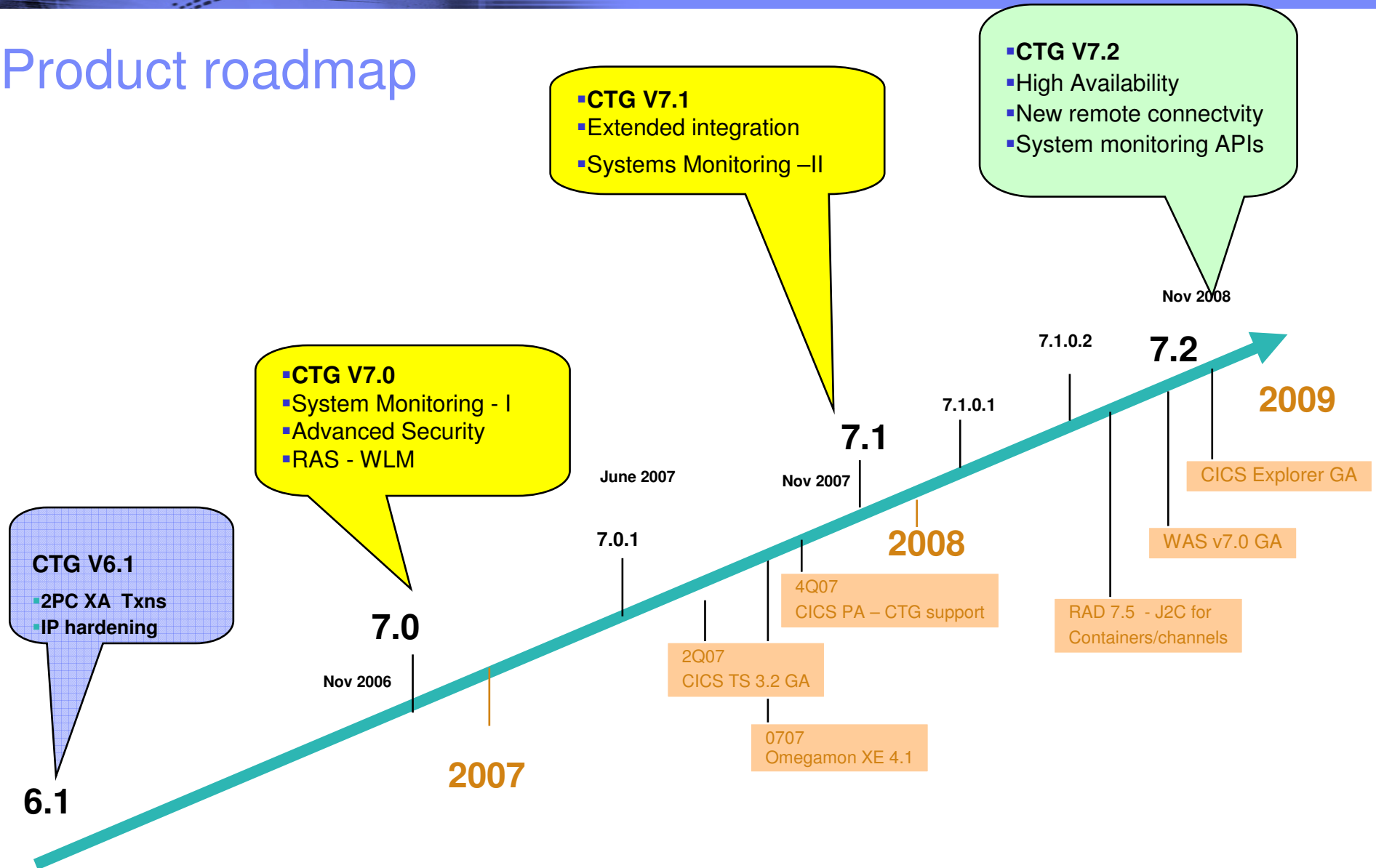
# CICS Transaction Gateway - products



# CICS TG z/OS – Qualities of Services

- **High Availability**
  - Unique capabilities to exploit Parallel Sysplex
  - Support for TCP/IP Port sharing, Sysplex distributor, WLM, and RRS (for XA support)
- **High scalability/Performance**
  - Benchmarked performance figures of 6,000 tps per Gateway with min. payload and >1,000 tps with a full 32KB payload,
  - Cloning capability provides very good scaling across the sysplex
- **Advanced Systems Management**
  - SMF recording of statistics
  - CICS PA analysis of SMF records
  - OMEGAMON monitoring solution
- **Transaction support**
  - XA (2pc) support for EXCI and IPIC based requests
  - Integration with our HA support when cloning Gateways in a Sysplex
- **Advanced security options**
  - Asserted identity support is provided for EXCI and IPIC protocols
  - Passtickets and TFIM integration options
  - Threadidentity support for WAS on z/OS

# Product roadmap



# CICS Transaction Gateway V7.2

*Delivers major enhancements in three key value areas*

## High Availability

- **Default server selection** – Simple mechanism to default server
- **Server name remapping** Static definitions and user exit for CICS server name remapping – CTG z/OS only
- **Sysplex XA recovery** – Gateway group infrastructure expanded to support peer recovery across the sysplex – CTG z/OS only

## New Remote connectivity

- **Remote C clients**
  - Simple but powerful function to extend CICS integration
  - ECIv2 API with commarea access
  - Migration path for CICS Universal Client
  - Redistributable zip file

## CICS Explorer Integration

- **Remote statistics API support**
- **Java statistics API**

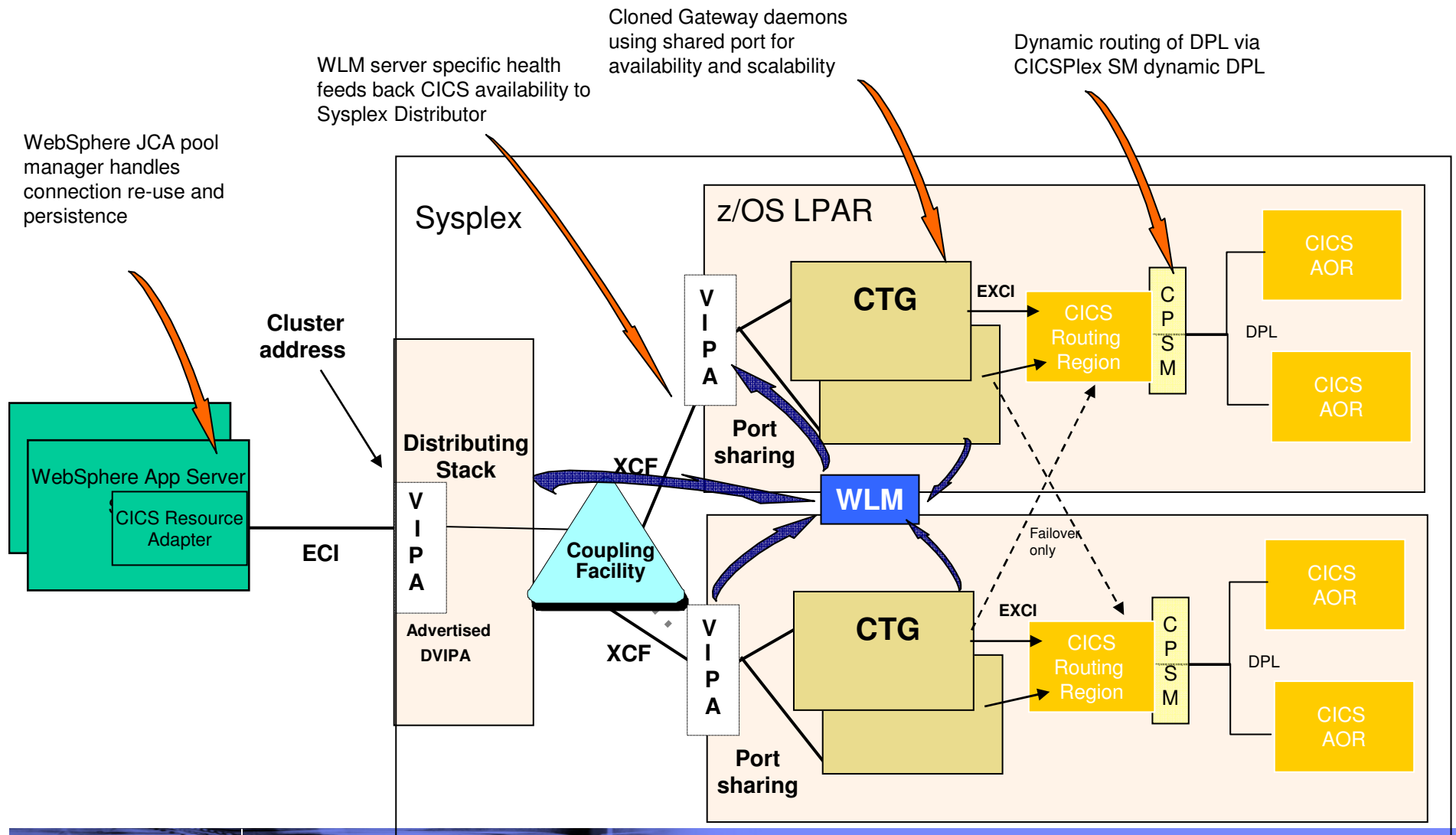
IBM CICS Transaction Gateway for Multiplatforms V7.2  
 IBM CICS Transaction Gateway for z/OS V7.2

⋮  
 ⋮

Software Announcement 208-348  
 Software Announcement 208-343  
 General Availability

Nov. 04, 2008  
 Nov. 04, 2008  
 Dec 05, 2008

# CICS TG V7.2 - High availability



# CICS TG V7.2 – High Availability

## Default server

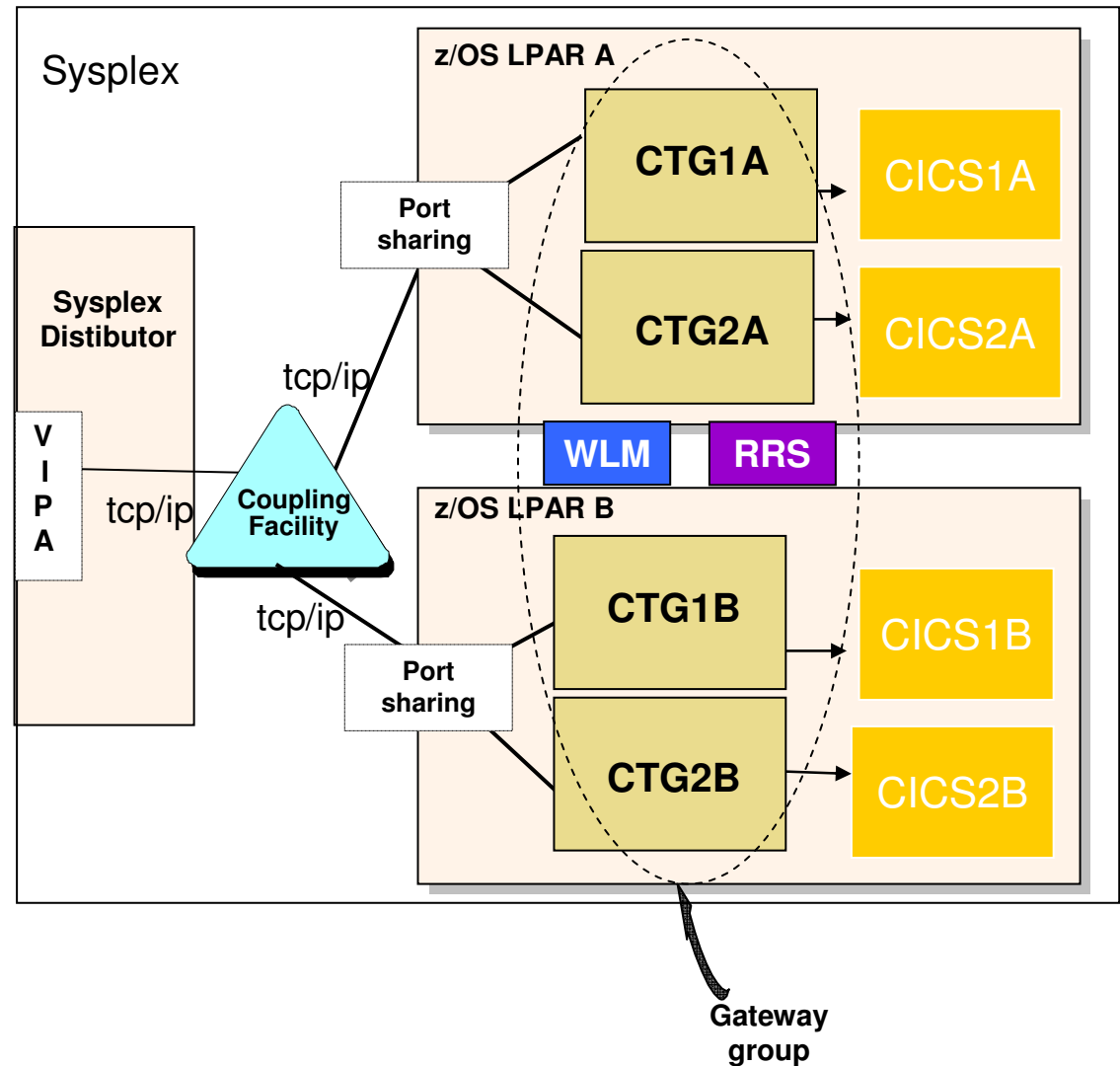
- Supported on all platforms
- Replacement for DFHJVSYSTEM\_00 supporting IPIC and EXCI servers
- Supported for synconreturn and extended ECI requests (not XA)

## Server name remapping (z/OS only)

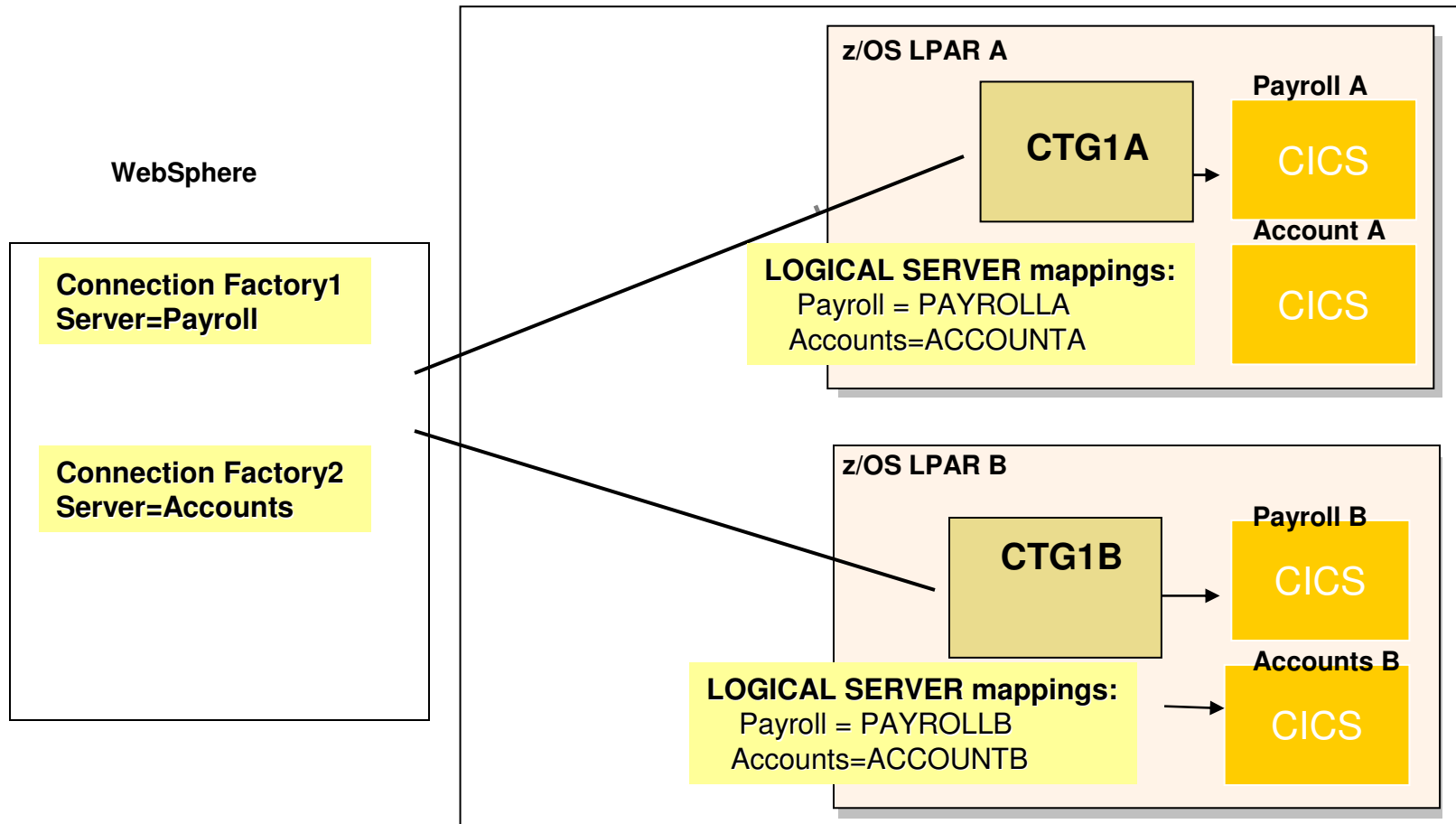
- Mechanism to redirect ECI requests to a defined CICS server when using IP load balancing
- CICS server can be local to the LPAR or Gateway
- Supported for synconreturn and extended ECI requests (not XA)
- Two supported options:
  1. Logical server definitions
  2. CICS request exit

## Sysplex XA recovery (z/OS only)

- Gateway cloning supported across multiple LPARs with XA transactions
- Gateway group defined using applid naming convention



# Server name remapping – logical server definitions





# Gateway groups – Sysplex XA recovery

1. *XAStart*

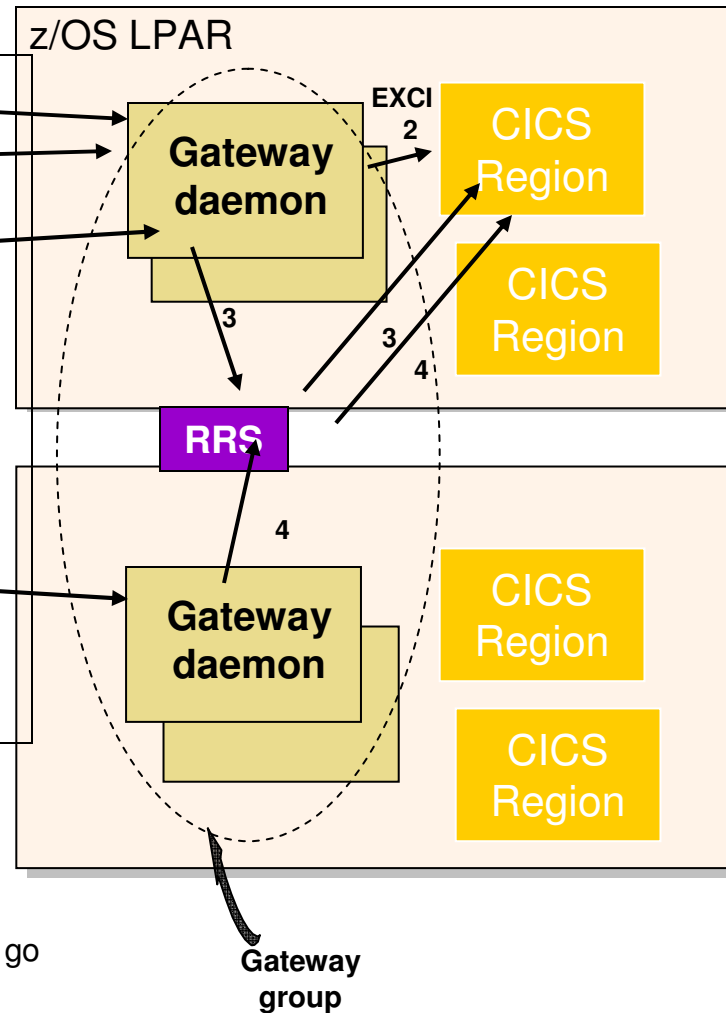
2. *XA Eci*

3. *XAPrepare*



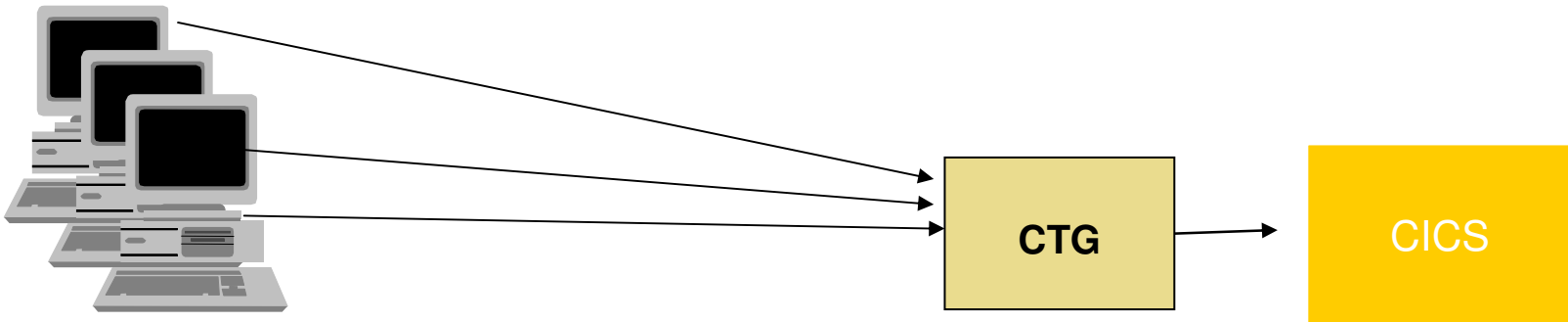
Socket failure

4. *XACommit*



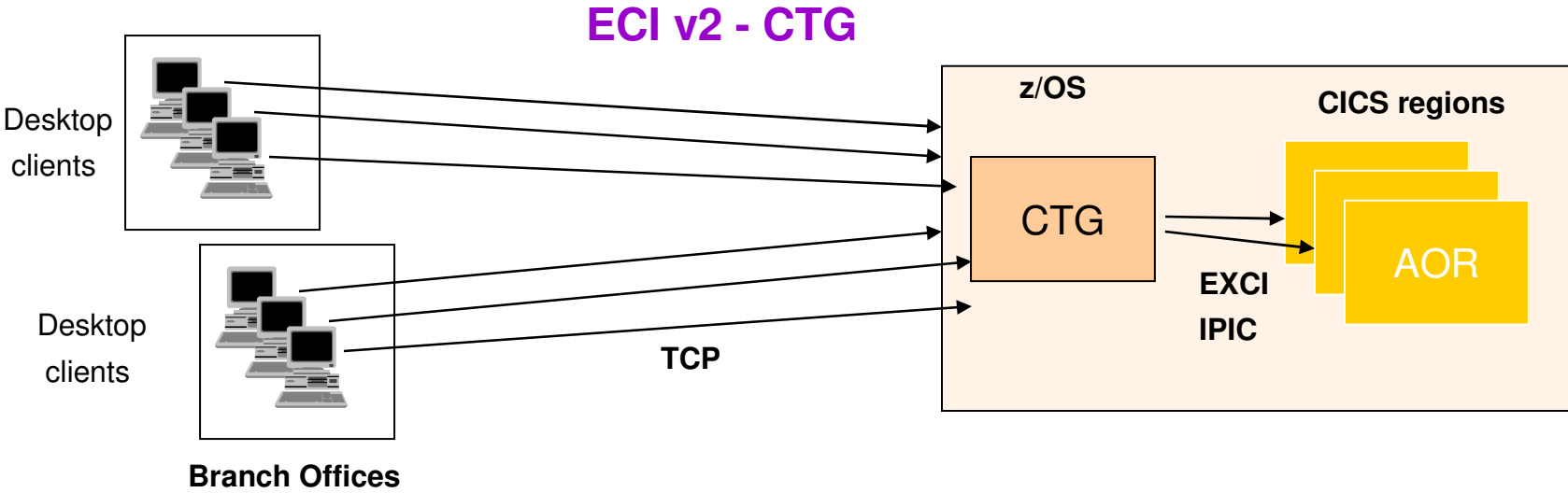
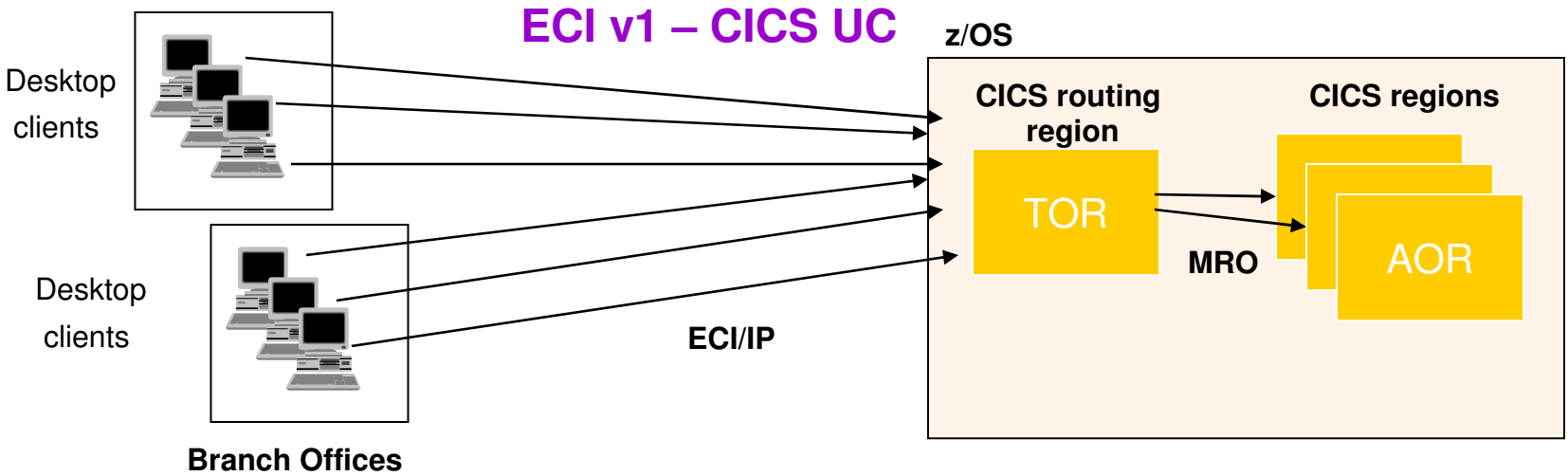
- Any failure pre-XA prepare causes automatic rollback
- XA flows after prepare can be handled by any Gateway in the Gateway group.
- XA Start/Prepare/Commit go directly to RRS
- XA Recover will be sent on restart of failed WAS, and can go to any Gateway
- Requires RRS APAR OA23163 for V1R8/V1R9

# CICS TG V7.2 - Remote C clients



- ECI v2 C language bindings
  - AIX, Linux, HP-UX, Solaris, Windows platform support
  - Potential usage from COBOL and .NET environments
  - CA72 SupportPac provides .NET tutorial
- Migration path from CICS Universal Client
  - Lightweight client footprint
  - Simple code changes from ECI v1
- Exploit CTG QoS
  - Performance
  - High availability
  - Security
  - One phase commit

# ECI v2 - Client migration from CICS UC



# CICS TG V7.2 - Extended Systems Management

## ■ Remote client support for Statistics API

- Stats API handler allows connection from any IP address
- (APAR PK57718 – available in V7.1.0.2)

```
protocol@statsapi.handler=com.ibm.ctg.server.RestrictedTCPHandler  
protocol@statsapi.parameters=connecttimeout=2000;port=2980;maxconn=5;
```

- Allows multi TCP/IP stack support for OMEGAMON CTG monitoring
- New C function for connection to remote Gateway
  - openRemoteGatewayConnection()

## ■ Java API for Statistics collection

- Java API for statistics collection
- Allows development of Java/Web clients for statistics collection
- ctgstats.jar – available in classes directory

## ■ Command function for control of request monitoring exits

- The eventFired() method now be called with a new RequestEvent of *Command*
- Allows dynamic control of logging levels in request monitor exits (see SupportPac CH51)
- Driven using modify command syntax: /F <>,APPL=CMD
- Also available in CTG V7.1.0.2 (PK68937)

### Interoperability:

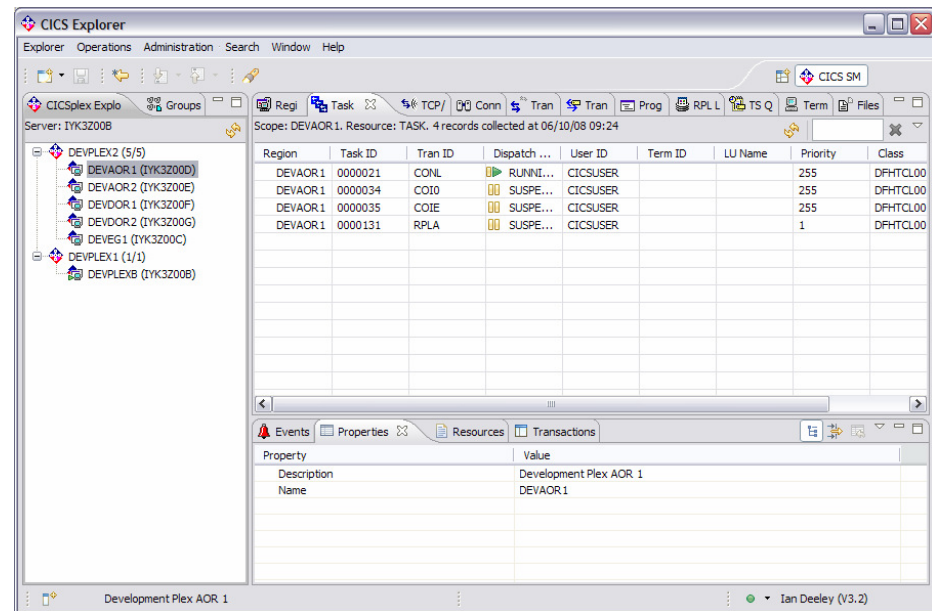
Statistics client programs are backwards **and forwards** compatible with remote CTG versions

V7.2 ctgstats.jar will work with CTG V7.1 or CTG V7.2 or CTGV7.2 +1.

# CICS Explorer – The New Face of CICS

...This Eclipse-based framework acts as a single point of integration to the CICS runtime and in line with the CICS tools, problem determination tools, Rational and business partner offerings, the CICS TG V7.2 will also deliver support for the CICS Explorer. This will add data and controls from the CICS TG to provide an integrated view of the greater CICS environment

■ Explorer Plugin SupportPac  
~ 1Q2009



# Deprecation

- **Withdrawn function**
  - **EWLM**
    - Withdrawn from marketing: <http://www.ibm.com/support/docview.wss?uid=swg21305697>
  - **TCP62**
    - Withdrawn in V7.0
    - Migration to APPC and Enterprise Extender required
  - **Gateway master process**
    - No longer required for XA load balancing
  - **CTG\_RRMNAME Environment variable**
    - Use APPLID definition
  
- **Consider migration for**
  - **Asynchronous ECI Java APIs**
    - Generic replies and non-validated message qualifiers
  - **AutoJavaGateway**
    - Use local, TCP or SSL protocols instead
  - **Statssport**
    - Use Stats API protocol handler
  - **DFHJVSYSTEM\_00**
    - Use DEFAULTSERVER definition

# CICS TG V7.2- get ready

- CICS TS V3.2 (for IPIC/containers)
  - APARs: (PK49017, PK49015, PK49116, PK49490, PK49021, PK51587, PK55495, PK55494)
- WAS V6.1/7.0 (for containers)
  - (Java5 platform required for CTGV7/7.1 components)
- Weblogic 9.x
  - Weblogic JCA 1.5 support
- z/OS V1R8 or later
  - RRS APAR OA23163 for XA with V1R8/V1R9
- Solaris V9/10
- AIX V5.3/6.1
- HP-UX 11iv2/3 (RISC and Itanium)
- Linux: RHEL4/5, SLES9/10
- Windows: Vista, 2003, XP

## Extra information

### • Whitepapers

- Delivering quick access to CICS systems using strategic integration options
- Integrating WebSphere Application Server and CICS using the JCA
- Transactional integration of WebSphere Application Server and CICS with the JCA
- Exploiting CICS Channels and Containers from Java clients

<http://www.ibm.com/cics/tserver/v32/library/#wpapers>

### • CICS TG support page

- <http://www.ibm.com/software/htp/cics/ctg/support>

### • CICS SupportPacs

- <http://www.ibm.com/support/docview.wss?uid=swg27007241>

### • CICS TG software support page

- <http://www.ibm.com/support/docview.wss?uid=swg21239203>

### • CICS TG on-line information centre

- <http://publib.boulder.ibm.com/infocenter/cicstg/v7r2m0/index.jsp>

### – Redbooks

- The Value of IBM System z and z/OS in an SOA, REDP4152
- Architecting Access to CICS within an SOA, SG24-5466
- CICS TG V7.1, SG24-7562 (Systems Monitoring)
- CICS TG v6.1, SG24-6171 (XA and security)

