



IBM Software Group

# IBM CICS® Transaction Server for z/OS™ V3.1

## Technical Overview

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Refer to IBM Software Announcement 204-285

[ibm.com/cics](http://ibm.com/cics)



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# Agenda

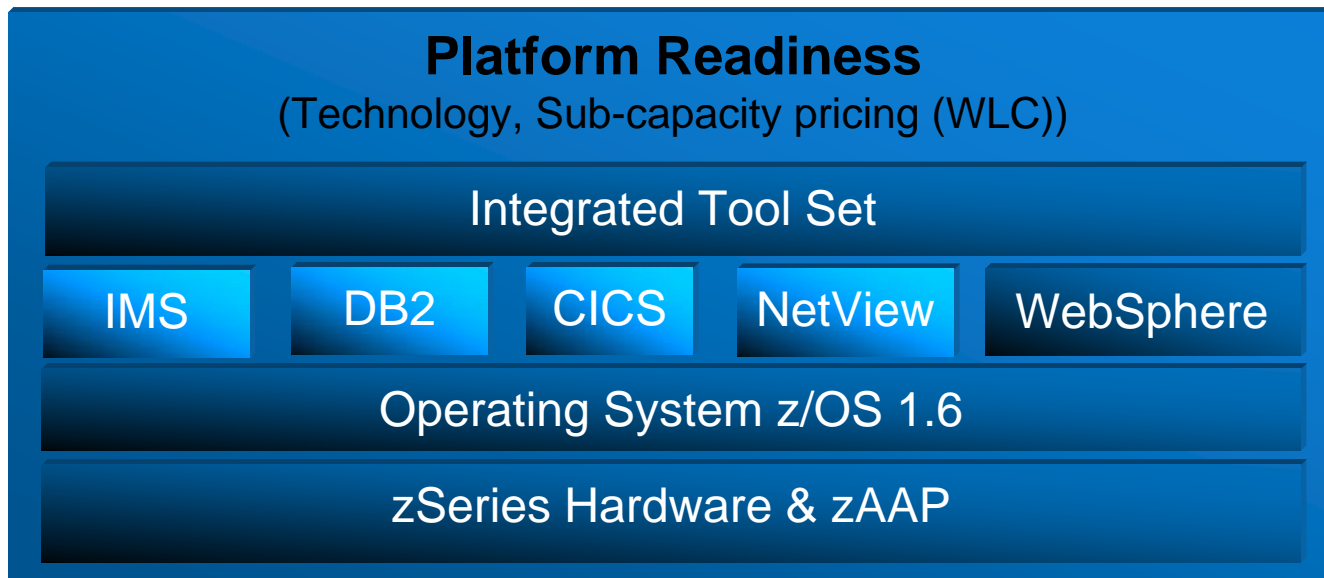
- **CICS Transaction Server V3**
  - Strategy and themes
  
- **CICS TS V3.1**
  - CICS Integration
  - Application Transformation
  - Enterprise Management
  - Packaging and migration considerations
  
- **Summary**

# IBM zSeries Software Solutions

*Platform Readiness is Key*

**Integrated  
New  
Workload**

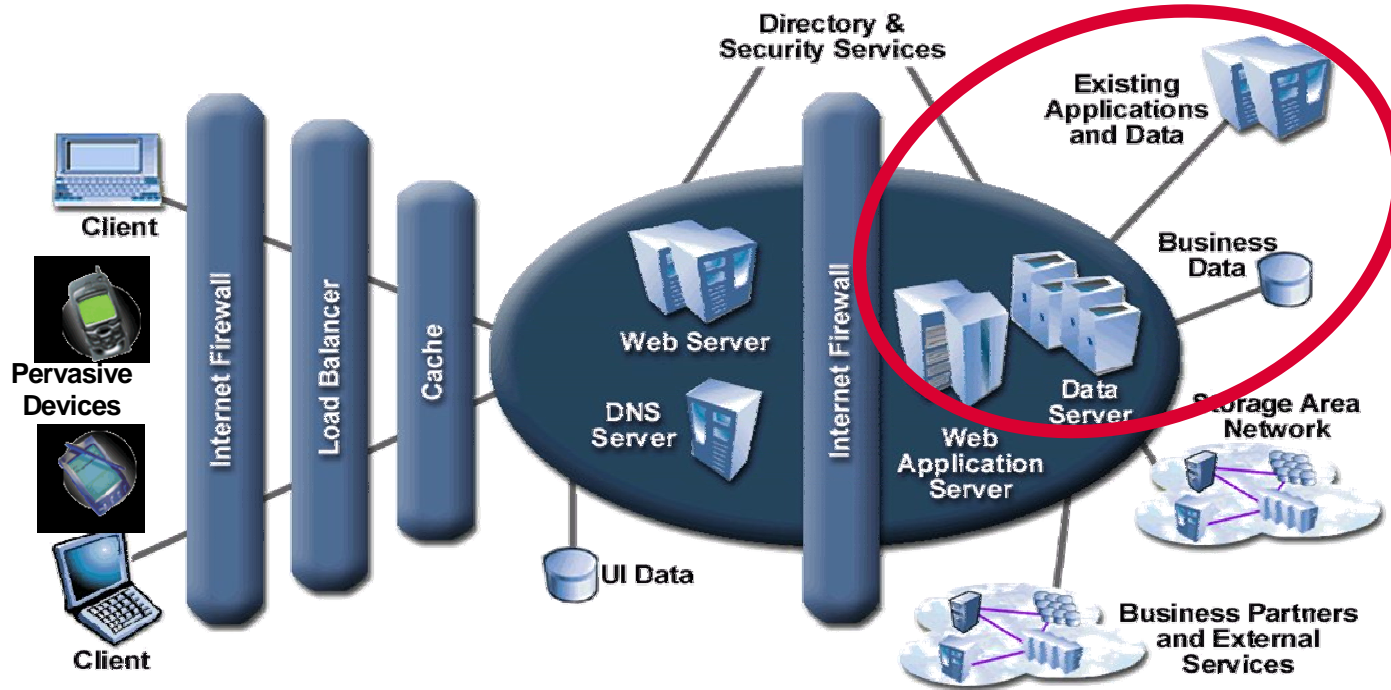
**Workload and  
Infrastructure  
Management**



*To handle new workloads and manage workload and a complex infrastructure complete platform readiness is an important step*

# CICS today...

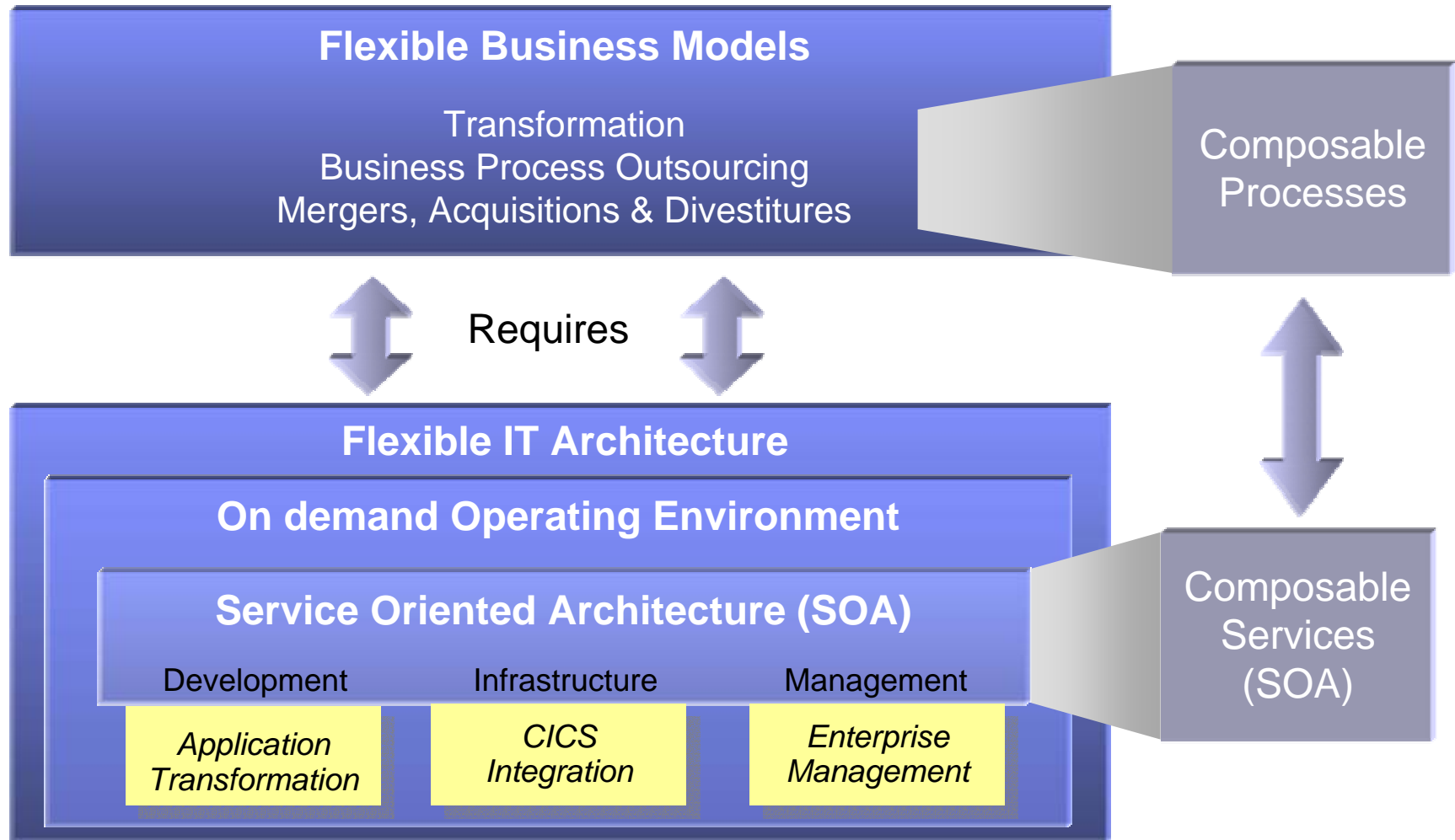
## CICS Transaction Server



Over 35 years and \$1 Trillion invested in Applications ... IDC  
 Over \$1 trillion processed/day  
 Over 30 billion transactions/day  
 Most people use CICS

*Combining the reliability and security of CICS software with the flexibility of e-business technology*

# Service Oriented Architecture at the Core of A Flexible IT Environment Supporting Today's On Demand Businesses



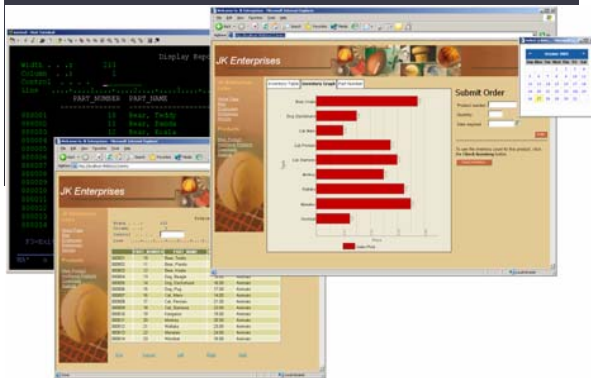
Integration

# Transforming and Reusing Existing IT Assets

## Three Approaches to Modernizing Legacy Applications

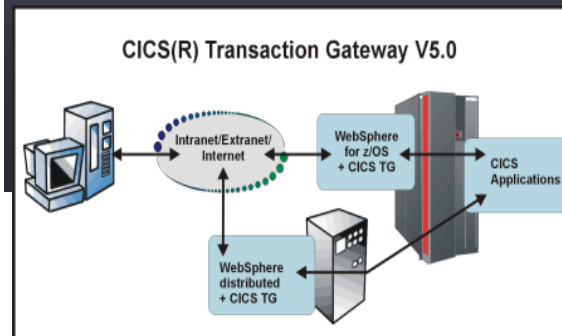
### Transform the User Experience

Improve the user interface and workflow for quick return on investment



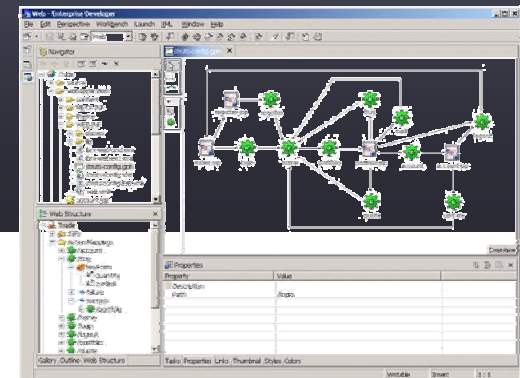
### Transform the Application Connectivity

Integrate legacy applications throughout the enterprise using Web services and Java™ connectors



### Transform the Application Architecture

Update and extend mission-critical applications as services, leveraging their core value in new ways



## CICS Transaction Server V3 themes

### CICS Integration

**Enable the reuse of CICS applications within a flexible On Demand operating environment via standard interfaces and communication protocols.**

### Application Transformation

**Enable the enhancement of existing applications, and construction of new applications, using contemporary programming languages, constructs and tools**

### Enterprise Management

**Enable the effective management of large runtime configurations via modern user interfaces**



# CICS TS V3.1

## ■ CICS Integration

- Web services and the CICS Web services assistant
- HTTP/1.1 including outbound API and URIMAPs
- Transport Layer Security, 256-bit encryption, and improved SSL V3

## ■ Application Transformation

- Containers and channels
- Language support enhancements
- Architectural patterns
- Information Center

## ■ Enterprise Management

- Open Transaction Environment for all thread safe applications
- XPLink for C & C++ programs
- Thread safe WEB commands
- CPSM Web User Interface including user favourites, group profiles, and 2 column views
- Batchrep callable via the Web User Interface



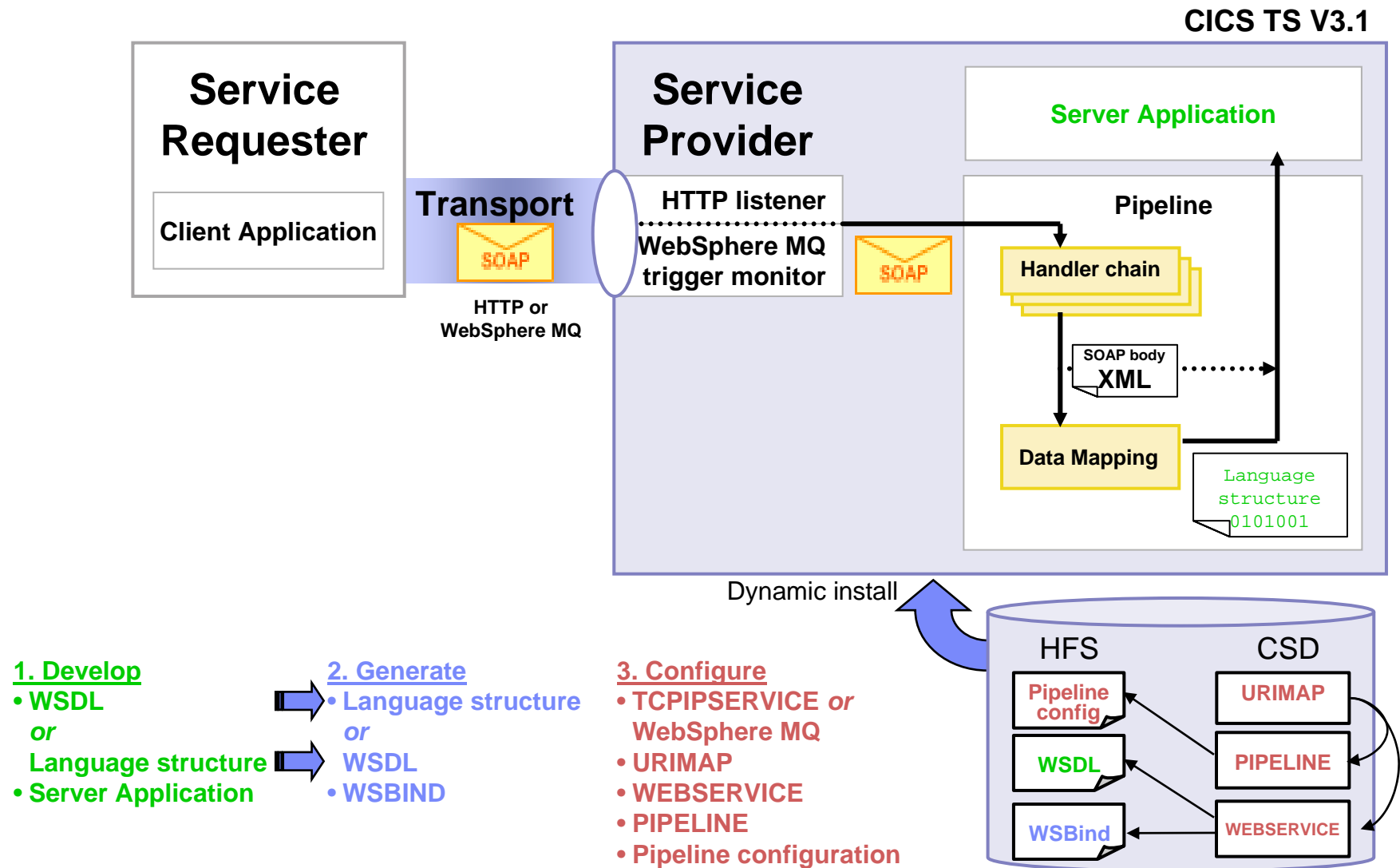
## Web services capabilities extend CICS applications directly to a Service Oriented Architecture

- **A CICS application can now be a Web service provider and requester**
- **Rich set of Web services standards supported**
  1. SOAP 1.1 and 1.2 to send and receive Web services messages
  2. WS-I Basic Profile 1.0a for interoperability with between providers and requesters using SOAP 1.1
  3. WS-Coordination extensible coordination framework, and specific coordination of AtomicTransactions
  4. WS-AtomicTransaction for transaction coordination
  5. WS-Security for authentication and encryption of all or part of a message
    - SOAP Message Security
    - Username Token Profile 1.0
    - X.509 Certificate Token Profile
- **Both the HTTP/1.1 and WebSphere MQ network layers supported**
  - For flexible deployment options dependant on application and IT requirements
  - CICS applications acting as providers or requesters are agnostic to the transport mechanism used
- **Easy configuration and systems management for Web services**
  - New CICS resources and configuration files
    - URIMAP, PIPELINE, WEBSERVICE, WSBIND
  - Uses enhanced CICS services for traditional - monitoring, statistics and problem determination
- **Guidance provided to assist migration from the SOAP for CICS Feature to use these new capabilities**

## Web services development capabilities

- **Mix rapid deployment and flexibility**
  - Underpinned by one or more pipelines and message handler programs
  
- **Rapid deployment using the CICS Web services assistant**
  - z/OS batch tool to produce WSDL, language structure copybooks, and WSBIND files
  - WSBIND used by CICS at runtime to convert between XML and language structures
  - Supports COBOL, PL/I, C and C++
  - Scenario 1 - generate a language structure and a WSBIND from a provided WSDL
    - A “top down” approach to implement an existing Web service or invoke a Web service
  - Scenario 2 - generate a WSDL and a WSBIND from a provided language structure
    - A “bottom-up” approach to expose an existing CICS application as a Web service
  - WSBind used for data mapping support automatically by CICS at runtime
    - Converts between SOAP messages (typically XML document literal) and language structures
  
- **Flexibility using WSED**
  - Scenario 3 – visual mapping between a given WSDL and more complex language structures
  
- **New CICS commands to invoke a Web service and manage SOAP faults**

# CICS as a Web service provider



**1. Develop**

- WSDL
- or
- Language structure
- Server Application

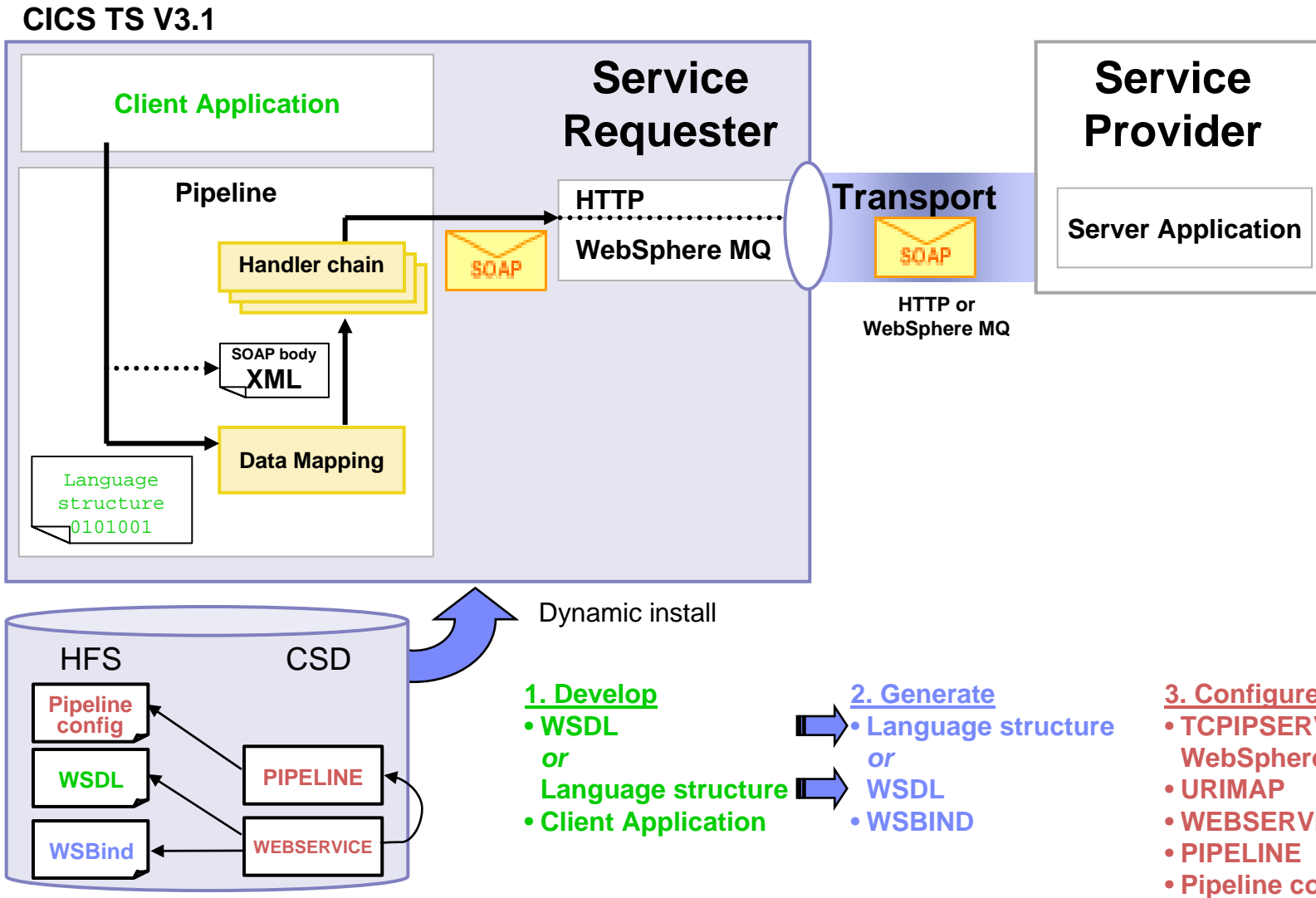
**2. Generate**

- Language structure
- or
- WSDL
- WSBIND

**3. Configure**

- TCP/IP SERVICE or WebSphere MQ
- URIMAP
- WEBSERVICE
- PIPELINE
- Pipeline configuration

# CICS as a Web service requester



## HTTP listener enhancements

- **Now conditionally compliant with the HTTP/1.1 specification**
  - Conditional because is not designed to act as; a proxy, gateway, tunnel, caching server, or browser.
  - Persistent connections
  - Pipelining
  - Chunked transfer-coding
  - Automatically creates virtual hosts using URIMAP resource definitions
  - Date and time formats
  
- **Support for HTTP client requests from CICS applications**
  - Send an HTTP request EXEC CICS WEB CONVERSE
  - Open a session to a remote server EXEC CICS WEB OPEN
  - Break down a URL string into component parts including scheme, host, port, path, and query string EXEC CICS WEB PARSE URL
  - Close an HTTP session with a remote server EXEC CICS WEB CLOSE
  - Convert HTTP RFC time formats to ABSTIME EXEC CICS CONVERTTIME
  - Convert ABSTIME to HTTP RFC formats EXEC CICS FORMATTIME
  - Obtain information about an HTTP connection EXEC CICS WEB EXTRACT

# HTTP listener enhancements

- **New URIMAP resource definition**
  - Specify the URI pattern to enable CICS to match requests to appropriate processing
  - For CICS as a Web service provider
    - Associate a URI for an Web service with a PIPELINE or WEBSERVICE resource
  - For CICS as an HTTP server
    - Replaces and simplifies the function previous provided by the CICS Web support analyzer exit
    - Static response, such as a DOCTEMPLATE or HFS file
    - Dynamic response using an application program using EXEC CICS Web APIs
    - Redirection to another server
  - For a CICS application as an HTTP client
    - Applications should use a URIMAP resource name to avoid hard coding URLs of HTTP server applications
- **Enhanced DOCTEMPLATE resource can now be retrieved from HFS**
- **Improved support for code page conversions**
  - CICS uses the z/OS Support for Unicode™ conversion services
    - Converts character data between UTF-8, UTF-16, ASCII page pages, and EBCDIC codepages
    - Requires a conversion environment to be setup – see the z/OS manual SA22-7649-02
  - Codepage conversions can be specified using:
    - EXEC CICS WEB commands
    - An analyzer program
    - A URIMAP definition

## New security capabilities for TCP/IP

- **New support for Transport Layer Security (TLS 1.0)**
- **New cipher suite selection**
  - Support for AES cipher suites (128-bit and 256-bit)
  - Can now specify minimum and maximum encryption levels
- **Performance enhancements**
  - SSL caching support across the Parallel Sysplex
  - Scalability improvements by increasing the number of simultaneous SSL sessions supported
- **Revocation list processing**
  - Certificate Revocation Lists (CRLs) are checked when negotiating with clients
    - New supplied transaction, CCRL, is provided for updating the CRL in an LDAP server
  - EXEC CICS START USERID() now returns USERIDERR for a revoked user or group connection
- **Support for mixed case passwords**



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- **Application Transformation**

- Containers and channels
- Language support enhancements
- Architectural patterns
- Information Center

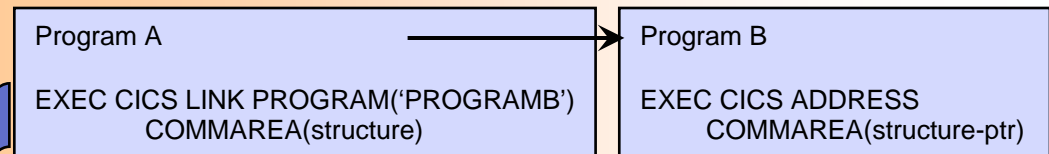
- **Enterprise Management**

- Open Transaction Environment for all thread safe applications
- XPLink for C & C++ programs
- Thread safe WEB commands
- CPSM Web User Interface including user favourites, group profiles, and 2 column views
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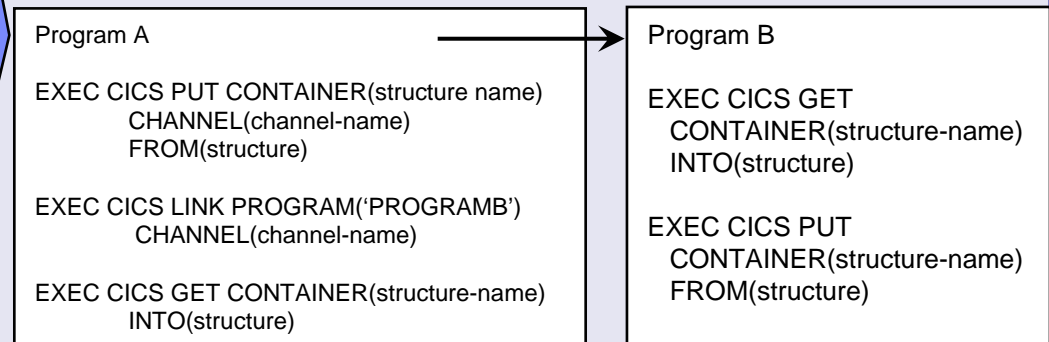
## Optimized data exchange between CICS programs with Containers and Channels

- **Offers a more flexible and intuitive alternative to the COMMAREA**
  - By using separate containers for logically different data it will simplify language structures and minimize the impact of changes to the interface
    - For example; customer,account,orders
    - Avoids “overloading”
  - Dynamic creation and discovery by applications
- **Enables large amounts of data to be passed between CICS applications**
  - Not subject to 32KB restriction
- **Optimized and managed by CICS**
- **Requires minimal application changes required to use**

### Existing application using a COMMAREA



### Application using a container and channel



## Optimized data exchange between CICS programs with Containers and Channels

- **A container is a named holder of information**
  - No CICS enforced size limitation - subject to “above the line” storage in the 2GB address space
  - Storage and lifetime managed by CICS
  - Non-persistent by default
    - Can be persistent if used within a controlling BTS process
  
- **A Channel is a named group of containers**
  - Containers are added to a channel
    - No limit on the number of containers in a channel
  - Channels are passed between CICS applications
    - Program to program using LINK and XCTL commands
    - Transaction to transaction using START and RETURN commands
    - Only one channel can be passed at a time
    - A channel is mutually exclusive with a COMMAREA
  
- **Supported between CICS regions and within the Web services support**
  - Only modified data is transferred between regions
  
- **Dynamic data conversion via GET and PUT APIs and transport resource definitions**
  - Uses CICS or z/OS Support for Unicode

## Container and channel commands

- **Container commands**
  - PUT CONTAINER
  - GET CONTAINER
  - MOVE CONTAINER
  - DELETE CONTAINER
- **Program transfer commands**
  - LINK PROGRAM  
[CHANNEL|COMMAREA]
  - XCTL PROGRAM  
[CHANNEL|COMMAREA]
- **Inquiry commands**
  - ASSIGN CHANNEL(data-area)
  - STARTBROWSE CONTAINER  
[CHANNEL(data-area)]
  - GETNEXT CONTAINER (data-area)
  - ENDBROWSE CONTAINER
- **Transaction transfer**
  - RETURN TRANSID  
[CHANNEL|COMMAREA]
  - START TRANSID [CHANNEL|FROM]
- **New JCICS classes Channel, Container, ContainerIterator provide access to containers and channels for Java programs**

## Language support enhancements

- **Support for IBM Software Developer Kit for z/OS, Java 2 Technology Edition, Version 1.4.2**
  - Native Java improvements include:
    - Enhancements to security, XML, networking, and debugging support
    - Numerous fixes and minor improvements
  
- **Support for LE Assembler programs**
  - Application programs with LE MAIN
    - Not for Global or Task Related User Exits
  - New translator option LEASM
    - DFHEIENT and DFHEIRET will generate appropriate LE calls
      - CEEENTY and CEETERM
  - High Level Assembler for MVS & VM & VSE Release 4+
    - Allows for use of LE debugger

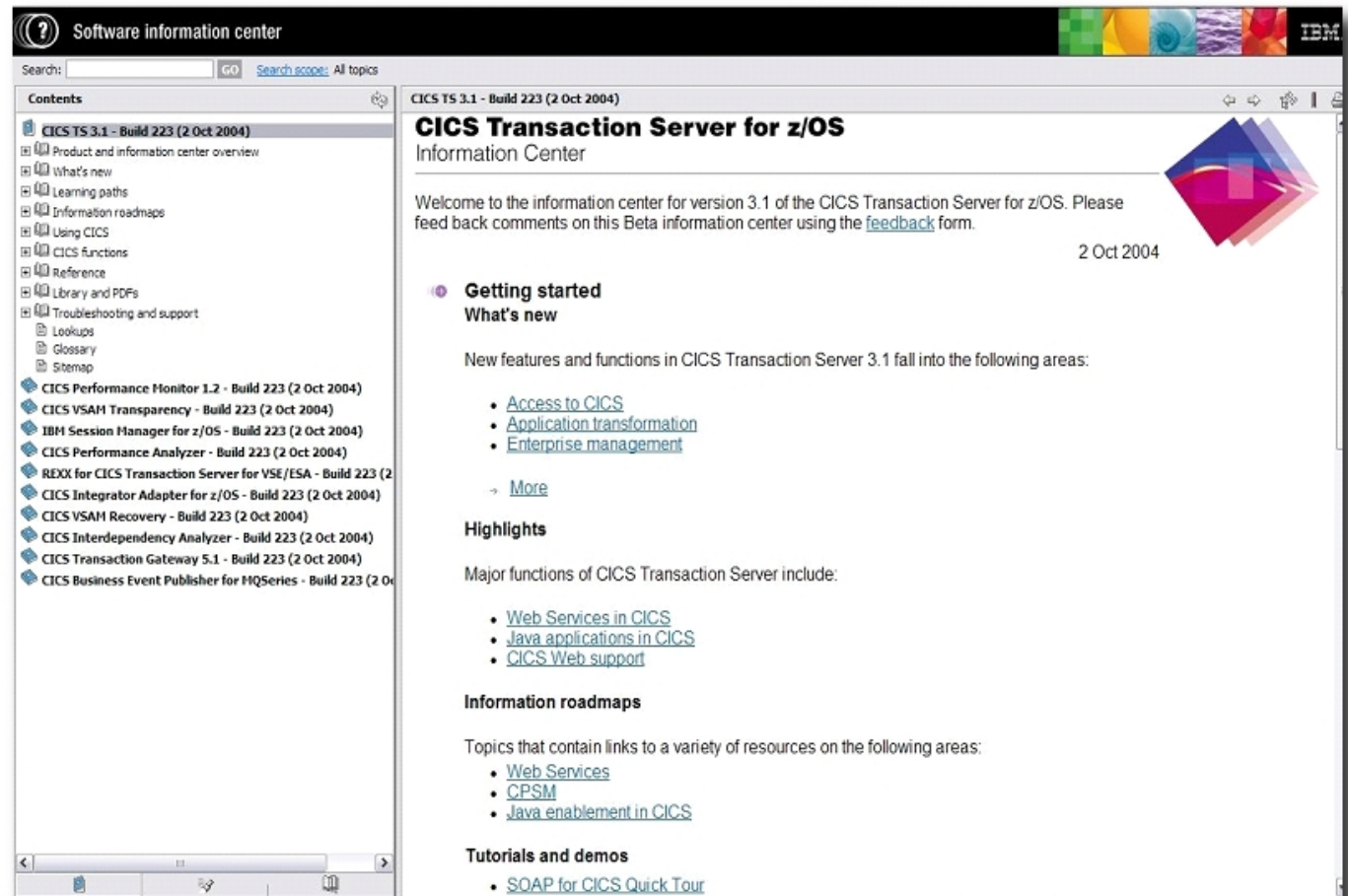
## Architectural patterns

- **New CICS example application**
  - Encompass “Best Practices”
    - Separation of presentation, business and data access logic
    - Use of Channels and COMMAREAs
  - Catalog and purchase order application
    - Supplied compiled and ready to be installed
    - Written in COBOL and using VSAM data files
  - Used to illustrate end-to-end scenarios
    - Demonstrate CICS Web services using SOAP over HTTP

# CICS Information Center

Move to the Eclipse framework reflects strategic direction for delivering IBM documentation

- **New search engine**
- **Consistent look and feel**
- **Integration with other product information**
- **Customizable – add your own information**
- **Navigation improvements**
- **Available on the IBM Web site, installable on your workstation, or servers;**
  - Windows 2000 Server, Advanced Server, Professional (32-bit)
  - Windows XP Professional (32-bit)
  - Linux RedHat Enterprise 3.0 (AS), 32-bit
  - Linux SuSE Enterprise 8 and 9, 32-bit
  - AIX V5.2 and V5.3, 32-bit





# CICS Information Center navigation improvements

## ▪ What's New

- Organised by major functional area
- Available from the navigation and welcome page
- Integrated linking – no longer standalone

“contains everything you need to know about new functions”

## ▪ Learning paths

- Available from the navigation
- Covers new functions
- CPSM WUI & Channels

“a sequence of topics that help a user learn about a new area of the product”

## ▪ Information roadmaps

- Function based - CPSM, Java and Web services
- Available from the navigation and welcome page
- Overview section with links to information center topics and web resources

“a topic that provides a set of comprehensive links to information from a variety of sources”

## ▪ Troubleshooting and support

- Web search to find online support information
- Getting fixes and contacting IBM support
- Technotes

“a section that includes search page for querying online support documents and selection of technotes”

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## Open Transaction Environment (OTE) delivering improved performance for core business logic applications

- **OPENAPI program support**
  - For COBOL, PL/I, Assembler, C, and C++ programs not compiled with XPLink
  - Programs must be reentrant and thread safe
    - Programs will run on new L8 and L9 TCBs
  
- **C and C++ programs can be compiled with XPLINK option**
  - Higher performance subroutine linkage and guard pages for stack extension
  - Programs must be reentrant and thread safe
    - XPLink programs will start and run on new X8 and X9 TCBs
  
- **OTE exploitation by CICS SSL connection management**
  - New SP mode TCB
    - Reduces system storage requirements
  - Existing S8 TCBs
    - Now only allocated for the duration of the SSL requests
    - Provides for increased number of simultaneous SSL sessions
  
- **EXEC CICS WEB commands are now thread safe**

# CPSM Web User Interface is easier to use and feature rich

- **Improved screens**
  - Less white space
  - Multi-column details
  - Collapsible filters
- **User favourites + Group profiles**
- **Result set warning count**
- **Filter confirmation**
- **Dynamic selection lists**
- **Improved BAS admin views**
- **Full support for new CICS resource types**
- **Batchrep access enhancements**

**Collapsible Filters**

**Ability to add a view to favourites**

**Reduction in white space**

**Improved visual presentation**

**Favourite views**

**User Profiles**

**Selection lists**

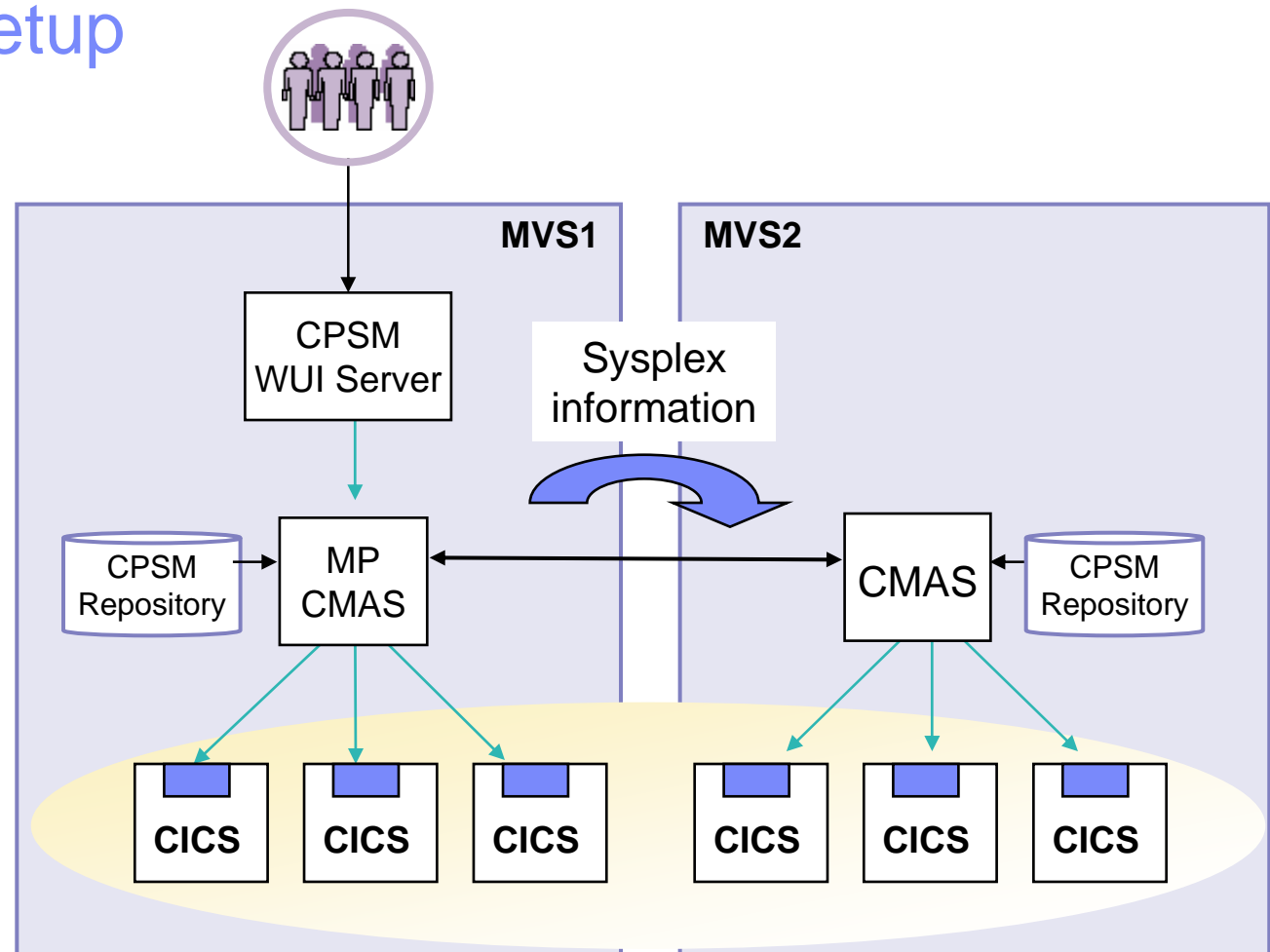
Record	CICS system name	Task ID	Transaction ID	Dispatch status	User ID	Principal facility	VTAM LU name	Task priority	Transaction class	Time task has been suspended
1	IYCQSQ22	0000024	CONL	RUNNING	CTSQ01R			255	DFHTCL00	0:00:00
2	IYCQSQ22	0000026	COIO	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
3	IYCQSQ22	0000027	COIE	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:13
4	IYCQSQ22	0000032	CKAM	SUSPENDED	CTSQ01R			255	DFHTCL00	4:08:02
5	IYCQSQ22	0000033	CKTI	SUSPENDED	CTSQ01R			1	DFHTCL00	4:08:02
6	IYCQSQ22	0000026	COIO	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
7	IYCQSQ22	0000027	COIE	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
8	IYCQSQ22	0000028	COIE	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
9	IYCQSQ23	0000032	CKAM	SUSPENDED	CTSQ01R			255	DFHTCL00	4:08:02
10	IYCQSQ23	0000033	CKTI	SUSPENDED	CTSQ01R			1	DFHTCL00	4:08:02
11	IYCQSQ25	0000022	CONL	RUNNING	CTSQ01R			255	DFHTCL00	0:00:00
12	IYCQSQ25	0000026	COIO	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
13	IYCQSQ25	0000027	COIE	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
14	IYCQSQ25	0000289	CEDA	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
15	IYCQSQ25	0000022	CONL	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
16	IYCQST07	0000025	COIE	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
17	IYCQST07	0032860	COIO	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
18	IYCQST17	0000025	CONL	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
19	IYCQST17	0000028	COIE	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
20	IYCQST17	0000096	COIO	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
21	IYCQSWW1	0000022	CONL	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
22	IYCQSWW1	0000030	COVG	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
23	IYCQSWW1	0080405	COIO	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
24	IYCQSWW1	0000022	CONL	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00
25	IYCQSWW1	0000022	CONL	SUSPENDED	CTSQ01R			255	DFHTCL00	0:00:00

Select	Resource name	Resource description
<input type="radio"/>	ADCALL	'All Andy Clifton's CICSes'
<input type="radio"/>	ADCAOR	'Andy Clifton's AORs'
<input type="radio"/>	ADCTOR	'Andy Clifton's TORs'
<input type="radio"/>	BATCHBAK	Back level Batchrep tests IPN

# CICSplex SM Setup

- ▶ Install and activate CMAS
- ▶ Configure MP CMAS
  - ▶ Define CICSplex
  - ▶ Regions in CICSplex
  - ▶ WUI Server region
  - ▶ Link to other CMAS
  - ▶ Other CMAS involved
- ▶ Configure other CMAS
  - ▶ Link to other CMAS
- ▶ Install agent code
- ▶ Install and activate WUI Server
  - ▶ Auto-mport of WUI views



## Packaging and migration considerations

### Discontinued functions removed from CICS TS V3.1

- **OS/VS COBOL**
  - Programs using this level of COBOL will abend APCE
- **1 byte console ids**
- **High Performance Java (HPJ)**
- **ECI base classes (ECIREQUEST)**
  - Recommended replacement is the CCI Connector for CICS TS
- **Common Connector Framework (CCF)**
  - Recommended replacement is the CCI Connector for CICS TS
- **TCAM TOR**
  - Network support
- **CPSM remote MAS agent for Windows**
- **The detector and reporter components of the CICS Transaction Affinities utility have been removed from CICS TS and added to IBM CICS Interdependency Analyzer for z/OS V1.3**



## CICS TS V3.1 packaging



- **CICS TS V3.1 product elements**
  - CICS Transaction Server
  - CICSplex System Manager
  - Information Center
  - REXX Development and runtime for CICS
  - CICS Application Migration Aid
  
- **WebSphere Studio Enterprise Developer V5.1 (WSED) promotion**
  - Integrated development environment for CICS and WebSphere
    - COBOL, PL/I, Java and J2EE development
    - z/OS file system integration
  - One unrestricted license. No service entitlement



## Planning and migration

- **Operating System required**
  - z/OS Version 1 Release 4 (5694-A01), or later
  
- **Latest Java environment supported**
  - IBM SDK for z/OS Java 2 Technology Edition, V1.4.2
    - Required for the CICS Web services assistant
    - Can be used for CICS programs written in Java, and Enterprise JavaBeans in CICS
  
- **Latest language compilers supported**
  - IBM Enterprise COBOL for z/OS and OS/390 V3 (5655-G53)
  - IBM Enterprise PL/I for z/OS and OS/390 V3 (5655-H31)
  - z/OS C/C++ (component of 5694-A01)
  
- **See the Announcement Letter for the full list of older compilers supported and other software and hardware pre-requisites**

## Planning and migration

- **CICS TS V3.1 is applicable to all CICS customers**
  - CICS TS V1.3 service will be discontinued in April 2006
  
- **SOAP for CICS Feature coexistence supported for migration to base CICS TS V3.1 function**
  - Modify your message adapters to use the new interfaces.
  - Review your use of containers. The SOAP for CICS feature uses BTS containers; the Web services support in CICS TS V3;1 does not use BTS. In addition, the containers used in the new Web services support, and those used in the feature have different names.
  - Replace function in user-written handlers with function provided in this release:
  
- **Statement of direction to remove the following**
  - CICSplex SM TSO End User Interface in the next release
  - In a future release
    - ONC RPC feature
    - CICS Web Interface COMMAREA interfaces
    - CICS Web Server plug-in

# WebSphere Studio Enterprise Developer (WSED)

## What is WSED?

Brings the power of modern application architectures and rapid application development and robust team support, to diverse enterprise IT organizations

- Intuitive, visual construction based on open standards (JSF and Struts)
- Broad SOA support through Web services and JCA linking visual environments and user sessions to CICS QOS
- Easy to learn, COBOL like language for rapid UI and Business dev.
- Facilities to develop, debug and deploy Java, COBOL, & PL/I applications and services

## Statement of Direction - What's Coming

CICS V3 exploitation - Subsystem support latest – CICS, WAS, DB2

- **Connectivity enhancements**
  - WSDL automation from existing processing
  - Support for new CICS WS run timemarshallers
  - XML based COBOL adapter enhancements
  - JCA connectors supporting latest CTG
- **Modern Architectural enhancements**
  - Service Flow Modeler support (Preview)
  - Leverages support for channels
- **Traditional support for:**
  - EGL support for VG based Web Transactions
  - BMS Editor
- **Integration with other IBM application lifecycle products**
- **Eclipse V3 exploitation**



## WSED Benefits

Single tool for all application transformation

- Increase developer productivity
- Leverage existing processing by enabling legacy assets to be used in SOA's
- Integrate with lifecycle
- Extend skill sets across the organization
  - Enterprise Generation Language limits need for Java or traditional expertise

## Comprehensive set of CICS focused tools and connectors

- **Application Transformation**
  - CICS VSAM Transparency for z/OS V1.1
  - CICS Business Event Publisher for MQSeries V1.2
  - CICS Interdependency Analyzer for z/OS V1.3
- **Subsystem Management**
  - CICS Batch Application Control for z/OS V1.1
  - CICS Performance Analyzer for z/OS V1.3
  - Tivoli OMEGAMON XE for CICS V1.0 (3Q'2005)
  - CICS Performance Monitor for z/OS V1.2
  - CICS VSAM Recovery for z/OS V3.3
  - CICS VSAM Copy for z/OS V1.1
  - IBM Session Manager for z/OS V1.2
  - CICS Online Transmission Time Optimizer for z/OS V1.1
- **CICS Connectors**
  - CICS Transaction Gateway V6.0
  - CICS Universal Client V6.0
  - MQSeries Integrator Agent for CICS V1.1
- **Application Development tools**
  - IBM Application Monitor for z/OS V2
  - IBM Fault Analyzer for z/OS V5.1
  - IBM Debug Tool for z/OS V5.1
  - IBM WebSphere Studio Enterprise Developer V5.1.2
- **Statement of direction to release a CICS resource definition management product in 1H05**

## Summary - CICS Transaction Server V3.1

- **CICS TS and WebSphere Application Server are IBMs strategic middleware products that together support practically any mission critical solution**
  - Interoperate well using Web services and connectors to support end-to-end on demand systems
  - Complement z/OS qualities of service such as high availability, scalability, low cost per transaction, and excellent security
- **CICS TS provides the base for the majority of mainframe applications today**
  - An efficient and optimized runtime for the reuse and transformation of existing CICS applications
  - Provides easy to use services that exploit new technologies by building on CICS skills
  - First class support and management of mixed application types and workloads
- **CICS TS V3.1 will be generally available 25 March 2005**

### *Increased ease of CICS Integration*

- **Web services capabilities to extend CICS applications to a Services Oriented Architecture**
- **Support for industry-leading SSL and TLS protocols**

### *Enhanced Application Transformation*

- **Ability to leverage single development tool for application transformation and integration**
- **Optimized CICS data exchange capabilities**

### *Improved performance & Enterprise Management*

- **Improved workload throughput**
- **Enhanced C and C++ programs performance**
- **Extension of the CICSplex SM Web User Interface**

## For more information

- **IBM CICS Transaction Server for z/OS V3.1**
  - IBM Software Announcement 204-285, Transaction Servers & Tools e-newsletter, education, and services  
[ibm.com/cics](http://ibm.com/cics)
  - Release Guide, Migration Guide, Books and Manuals, Brochures, Demos, and Technical documents  
[ibm.com/cics/library/](http://ibm.com/cics/library/)
  
- **IBM CICS Tools**  
[ibm.com/cics/tools](http://ibm.com/cics/tools)
  
- **IBM Websphere Studio Enterprise Developer**  
[ibm.com/software/awdtools/studioenterprisedev/](http://ibm.com/software/awdtools/studioenterprisedev/)
  
- **IBM SDK for z/OS, Java 2 Technology Edition V1.4**  
[ibm.com/servers/eserver/zseries/software/java](http://ibm.com/servers/eserver/zseries/software/java)
  
- **IBM z/OS**  
[ibm.com/servers/eserver/zseries/zos](http://ibm.com/servers/eserver/zseries/zos)



# Web services terminology

- **Extensible Markup Language (XML)**
  - A standard for document markup, which uses a generic syntax to mark up data with simple, human-readable tags. The standard is endorsed by the [World Wide Web Consortium \(W3C\)](#).
- **Service provider**
  - The collection of software that provides a Web service.
- **Service provider application**
  - An application that is used in a service provider. Typically, a service provider application provides the business logic component of a service provider.
- **Service requester**
  - The collection of software that is responsible for requesting a Web service from a service provider.
- **Service requester application**
  - An application that is used in a service requester. Typically, a service requester application provides the business logic component of a service requester.
- **SOAP**
  - Formerly an acronym for Simple Object Access Protocol. A lightweight protocol for exchange of information in a decentralized, distributed environment. It is an XML based protocol that consists of three parts:
    - An envelope that defines a framework for describing what is in a message and how to process it.
    - A set of encoding rules for expressing instances of application-defined data types.
    - A convention for representing remote procedure calls and responses.
  - SOAP can be used with other protocols, such as HTTP.
- **SOAP intermediary**
  - A SOAP node that is both a SOAP receiver and a SOAP sender and is targetable from within a SOAP message. It processes the SOAP header blocks targeted at it and acts to forward a SOAP message towards an ultimate SOAP receiver.
- **SOAP node**
  - Processing logic which operates on a SOAP message.
- **UDDI - Universal Description, Discovery and Integration**
  - Universal Description, Discovery and Integration (UDDI) is a specification for distributed Web-based information registries of Web services. UDDI is also a publicly accessible set of implementations of the specification that allow businesses to register information about the Web services they offer so that other businesses can find them.
- **Web service**
  - A software system designed to support interoperable machine-to-machine interaction over a network. It has an interface described in a machine-processable format (specifically, Web Service Description Language, or WSDL).
- **Web service binding file**
  - A file, associated with a WEBSERVICE resource, which contains information that CICS uses to map data between input and output messages, and application data structures.
- **Web service description**
  - An XML document by which a service provider communicates the specifications for invoking a Web service to a service requester. Web service descriptions are written in Web Service Description Language (WSDL).
- **WSDL - Web Service Description Language**
  - An XML application for describing Web services. It is designed to separate the descriptions of the abstract functions offered by a service, and the concrete details of a service, such as how and where that functionality is offered.
- **XML**
  - Extensible Markup Language.
- **XML namespace**
  - A collection of names, identified by a URI reference, which are used in XML documents as element types and attribute names.
- **XML schema**
  - An XML document that describes the structure, and constrains the contents of other XML documents.
- **XML schema definition language**
  - An XML syntax for writing XML schemas, recommended by the [World Wide Web Consortium \(W3C\)](#).



## Acknowledgements

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