



IBM Software Group

CICS Transaction Server 3.1 Technical Overview

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 business on demand.

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Session Agenda

- CICS TS 3.1 strategic themes
 - ▶ CICS Integration
 - ▶ Application Transformation
 - ▶ Enterprise management
- Release content
 - ▶ Web Services
 - ▶ OTE exploitation
 - ▶ CPSM web user interface
 - ▶ Removal of obsolete function
- Planning Information



CICS TS Version 3 Strategic Themes

- CICS Integration
 - ▶ Enable the re-use of CICS applications within on demand scenarios, via standard APIs and 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 Transaction Server Version 3 Highlights

CICS TS V3.1

CICS Integration	Application Transformation	Enterprise Management
Web Services CICS WSDL Utility HTTP 1.1 support Outbound HTTP API Transport Layer Security support 256-bit encryption Increased number of SSL connections "Example" Web Service application Include CICS Integrator Adapter runtime	OTE Exploitation - OPENAPI application programs - Threadsafe WEB commands - XPLink for C and C++ programs - SSL connection management LE Main for assembler programs New inter program data transfer 64-bit toleration Codepage conversion enhancements SDK 1.4.2 support	CPSM WUI enhancements - User favorites - Group profiles - Result set warnings - 2 column views Batchrep enhancements Eclipse based Info Center

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Security Enhancements

- Support for Transport Layer Security (TLS)
- Support for mixed case passwords
- Cipher suites
 - Support for AES cipher suites (128-bit and 256-bit)
 - Specification of minimum and maximum encryption level
- Changes to revocation processing
 - EXEC CICS VERIFY processing
 - Certificate revocation lists
- Performance enhancements
 - SSL caching support
 - Support for increased number of secure connections

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HTTP Enhancements

- Support for HTTP in CICS has been extended
 - Compliant with the HTTP/1.1 specification
 - Date and time formats
 - Persistent connections
 - Pipelining and chunking of messages
- Codepage conversions
 - CICS will use conversion services provided by z/OS support for Unicode
 - Convert character data between UTF-8 or UTF-16 and any of the currently supported EBCDIC codepages
 - Codepage conversions can be specified using:
 - EXEC CICS WEB commands
 - An analyzer program
 - A URIMAP definition

HTTP Enhancements...

- New URIMAP resource definition
 - Specifies how CICS is to treat the requests
 - Server: inbound request
 - Client: outbound request
 - Pipeline: web service request
 - Determine the type of processing for inbound requests (Usage=SERVER)
 - Redirection
 - Static response
 - Application response
- Web API commands
 - EXEC CICS CONVERTTIME
 - Converts HTTP formats to ABSTIME
 - EXEC CICS FORMATTIME
 - Converts ABSTIME to HTTP format
 - EXEC CICS WEB OPEN
 - Opens a session to a remote server
 - EXEC CICS WEB CONVERSE
 - EXEC CICS WEB CLOSE
 - Close a session with a remote server
 - EXEC CICS WEB PARSE URL
 - Breaks down a URL string into scheme, host, port, path, and query string

Enhanced Inter-program Data Transfer

- Allows > 32k of data to be passed between CICS applications
 - Program to program
 - LINK and XCTL
 - Transaction to transaction
 - START and RETURN
- Minimal application changes required for exploitation
- Allows better structuring of application data
 - Different containers to prevent overloaded copybooks
- Allows for data conversion between different code pages



Enhanced Inter-program Data Transfer...

- New CICS programming constructs:
- Container
 - Named block of data designed for passing information between programs
 - "Named" COMMAREAs
 - No CICS enforced size limitation
 - Channels are stored above the line but below the bar
 - Multiple containers can be passed between programs
- Channel
 - A group of Containers
 - No limit on the number of Containers in a Channel
 - Non-persistent
 - Non-recoverable resource
 - Specified on LINK, XCTL, START and RETURN commands
 - Only one channel can be passed
 - Mutually exclusive with COMMAREA



Enhanced Inter-program Data Transfer...

- New CICS commands and options:
 - EXEC CICS PUT CONTAINER CHANNEL
 - EXEC CICS GET CONTAINER CHANNEL
 - EXEC CICS MOVE CONTAINER TOCHANNEL
 - EXEC CICS DELETE CONTAINER CHANNEL

 - EXEC CICS STARTBROWSE CONTAINER CHANNEL
 - EXEC CICS GETNEXT CONTAINER (data-area)
 - EXEC CICS ENDBROWSE CONTAINER

 - EXEC CICS ASSIGN CHANNEL

 - EXEC CICS LINK PROGRAM CHANNEL
 - EXEC CICS XCTL PROGRAM CHANNEL
 - EXEC CICS RETURN TRANSID CHANNEL
 - EXEC CICS START TRANSID CHANNEL

Web Services

- Evolution of SOAP for CICS feature
 - ▶ New infrastructure to act as a first class Web service end-point
 - ▶ Simplification of pipeline and system management
 - ▶ Fully integrated into CICS
 - RDO, problem determination, monitoring & statistics
 - New tooling support for easier application development
- New features
 - ▶ Resource definitions
 - URIMAP, PIPELINE, WEBSERVICE
 - ▶ Flexible configuration of the pipeline
 - ▶ Utility programs to:
 - Generate language structure from WSDL
 - Generate WSDL from language structures
 - ▶ Data mapping support in runtime
 - Between SOAP messages and language structures
 - ▶ New EXEC CICS API to support outbound requests

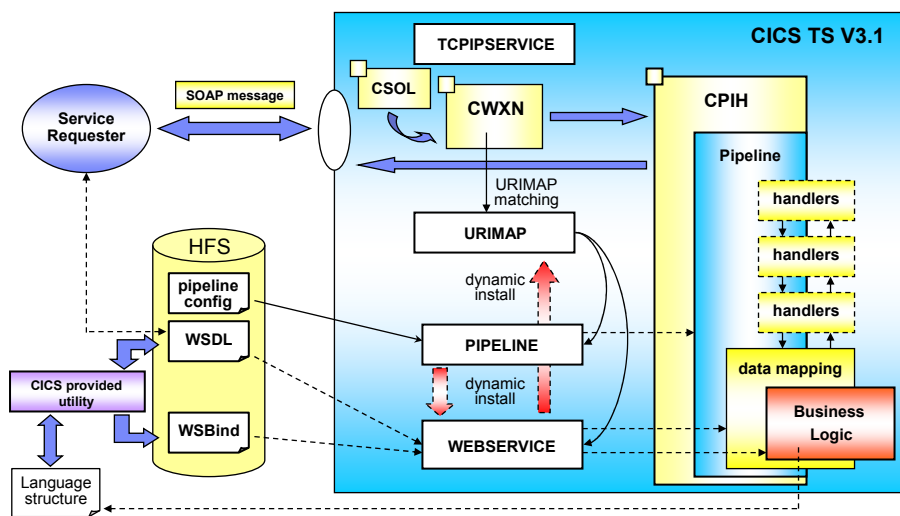
Web Services...

- Rich set of Web services standards supported

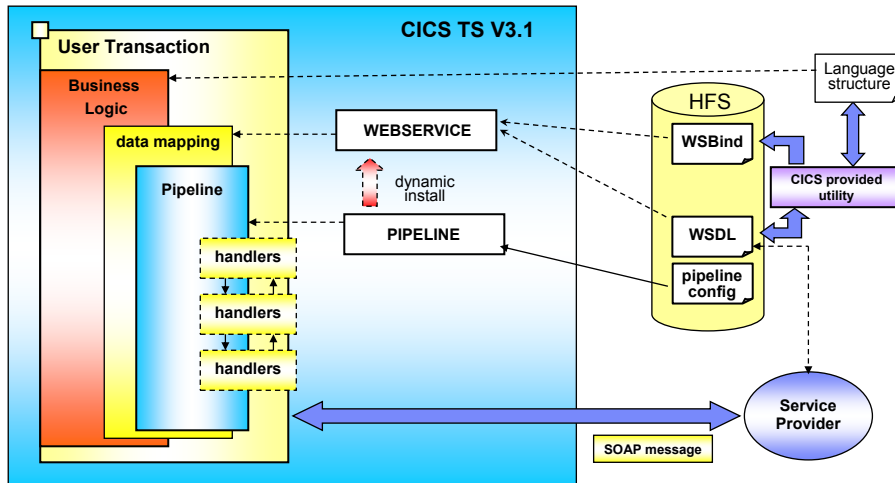
- ▶ SOAP 1.1 and 1.2: to send and receive Web services messages
- ▶ WS-I Basic Profile 1.0a: interoperability with between providers and requesters
- ▶ WS-Coordination: extensible coordination framework
- ▶ WS-AtomicTransaction: transaction coordination
- ▶ WS-Security: authentication and encryption of all or part of a message
 - SOAP Message Security
 - Username Token Profile 1.0
 - X.509 Certificate Token Profile



Resources for CICS as a service provider



Resources for CICS as a service requester



Open Transaction Environment Exploitation

- OPENAPI program support
 - COBOL, PL/I Assembler, C (not compiled with XPLink)
 - Programs will run on L8 and new L9 TCBs
 - Programs must be threadsafe
- C/C++ programs can be compiled with XPLink option
 - Higher performance for C/C++ function calls
 - Programs must be thread safe to use XPLink
 - 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 made thread safe

Architectural Patterns

- New CICS example application
 - ▶ Generic catalog manager and purchase order application
 - COBOL application
 - VSAM data files
 - ▶ Can be used to illustrate end to end scenarios
 - Demonstrate CICS Web Services
 - WMQ and http transports
 - “Bottom up”, “Top down” and “Meet in the middle” approaches
 - ▶ “Best Practices”
 - Separation of presentation, business and data access logic
 - Use of Channels and COMMAREAs



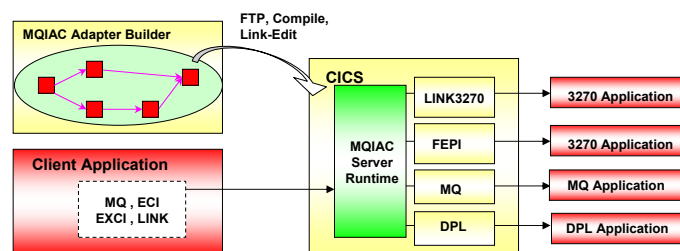
MQSeries Integrator Agent for CICS (MQIAC)

- MQIAC enables EIS applications modernization
 - Integrate EIS applications as “components” with well-defined interfaces
 - Effective reuse and easier integration of existing assets
 - MQ or ECI interface for new clients
 - Generates adapters that drive EIS applications using
 - **DPL** for COMMAREA applications
 - **WMQ** for message-based applications
 - **FEPI** for CICS and IMS 3270 applications
 - **LINK3270 bridge** for CICS 3270 applications
 - allows functional migration from MDp
 - a “Bottom up approach” development
- Product history
 - MQIAC V1.1 general availability 2001/05/30
 - current level is V1.1.3
 - available since 2004/04/30
 - addition of Link3270 bridge adapter



MQSeries Integrator Agent for CICS (MQIAC)...

- Consists of two components
 - Adapter Builder
 - Workstation based tool to model and create adapter programs
 - visual interface based on MQSeries Integrator V2
 - Server Runtime
 - Controls the invocation of programs and transactions in CICS
 - uses CICS Business Transaction Services



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CICS Integrator Adapter

- Equivalent to MQIAC V1.1.3+
 - ▶ Renamed from MQIAC
- Runtime included in CICS TS V3.1 packaging
 - ▶ Tooling:
 - IBM intends to release application development tools in 2005 that will extend WebSphere Studio Enterprise Developer (WSED) to:
 - Enable the composition of CICS application assets to form business service functions that can be exposed as Web services
 - Provide a strategic migration path for customers using Message Driven processor
- Enhancements
 - Additional vector handling and usability enhancements
 - Support for SEND / SEND TEXT type commands, ACCUM option
 - Remove prereq of WMQ
 - Support for XML messages
 - Will use XML parser of Enterprise COBOL of z/OS

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CICS Integrator Adapter...

- Support of new processing patterns
 - In MQIAC
 - Aggregate connector, persistent
 - In CICS Integrator Adapter
 - Aggregate connector, persistent
 - Aggregate connector, non-persistent (*new*)
 - Single connector, persistent (*new*)
 - Single connector, non-persistent (*new*)

- Support for LINK3270 bridge passthrough processing



CPSM Web User Interface Usability Enhancements

- WUI now is functionally equivalent to the TSO EUI
 - ▶ Dynamic selection lists
 - Generates lists of potential values for various attributes in the WUI
 - ▶ Filter confirmation
 - Specify a filter criteria before displaying the view
 - ▶ Result set warning count
 - Users can be warned before navigating to a view that will generate large amounts of records
 - ▶ User group profiles
 - Allow administrators to configure the WUI in different ways for different groups of users (e.g. operators, sysprogs)
 - ▶ Favorites support
 - Save views that are used frequently
 - ▶ BATCHREP enhancements



CPSM Web User Interface Usability Enhancements...

- 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

The screenshot displays the CPSM Web User Interface with several callouts highlighting usability improvements:

- Collapsible Filters:** A callout points to the left-hand navigation menu.
- Ability to add a view to favourites:** A callout points to a star icon in the top right corner.
- Reduction in white space:** A callout points to the compact layout of the main data table.
- Improved visual presentation:** A callout points to the overall layout and styling of the interface.
- User Profiles:** A callout points to a section in the left-hand menu.
- Favourite views:** A callout points to a section in the left-hand menu.
- Selection lists:** A callout points to a 'Resource selection' dialog box.

The 'Resource selection' dialog box contains the following table:

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

Language Environment Enhancements

- 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

Support for:

- Version 1.4.2 of the IBM Software Developer Kit for z/OS, Java 2 Technology Edition.
 - ▶ Features of Java 1.4.2 are:
 - Enhancements to security, XML, networking, and debugging support
 - Numerous fixes and minor improvements
- WebSphere Application Server
 - ▶ Version 5 and 6



Support for:

- EJB 2.0 deployment descriptor toleration
 - ▶ Allows use of WebSphere V6 tooling, ASTK, for the deployment of EJB 1.1 session beans
- 64-bit toleration
 - ▶ Toleration of 64-bit code in CICS address space
 - CICS TS V3.1 does not support execution of 64-bit applications
 - Extensions are provided to the CICS abend capture mechanisms
 - Report the contents of the full 64-bit general purpose registers



The Information Center

- Migration to Eclipse
 - Linux support
 - RedHat Enterprise 3.0
 - SuSE Enterprise 3.0
 - RedHat Enterprise 3.0 for zSeries
 - SuSE Enterprise 8 and 9 for zSeries Consistent look and feel
- New welcome page
- Improved search engine
- What's New section
- Learning paths
- Information roadmaps
- Navigation revision
- e-support plugin



The Information Center ...

“can support many information centers in the same framework.”

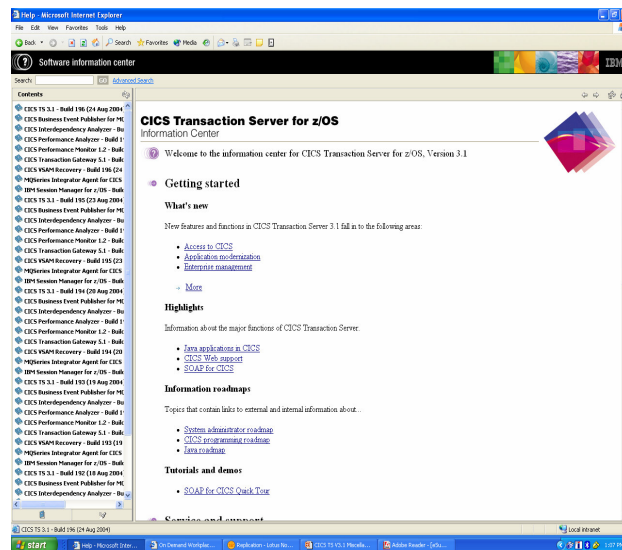
Standard look and feel

New welcome page

New navigation tree

Immediate access to key information:

- What's New
- Highlights
- Information roadmaps
- Learning paths



Obsolete Function Removal

- OS/VS COBOL
 - Programs using this level of COBOL will abend ALIK
- 1 byte console ids
- High Performance Java
- ECI base classes (ECIREQUEST)
- Common Connector Framework (CCF)
- TCAM TOR
 - Network support
- BTAM
- CPSM remote MAS agent for Windows



Planning Information

- Transaction affinity detector and reporter
 - Now incorporated in CICS Interdependency Analyzer 1.3
 - Load module scanner remains in CICS TS 3.1
- CICSplex SM TSO End User Interface
 - Will be removed in the next release of CICS TS for z/OS
- ONC RPC feature
 - Will be removed in a future release of CICS TS for z/OS
- CICS Web Interface COMMAREA interfaces
 - Will be removed in a future release of CICS TS for z/OS
- CICS Web Server plug-in
 - Will be removed in a future release of CICS TS for z/OS



Statements of Direction...

- **IBM intends to deliver, during 2005, an update to WSED to enable developers with skills in COBOL, PL/I, Java, and Web services to easily reuse, build, and deploy components that integrate into an enterprise-wide Service Oriented Architecture (SOA). It will also include BMS Map editing and Enterprise Generation Language (EGL) generation supporting the conversion of VisualAge Generator Web transactions. In addition it will provide a batch program for use by automated software build procedures such as JCL, which will input the XML Schema Definition (XSD) or language structure declaration to generate client Web Services Description Language (WSDL) and converters for the CICS Web services implementation. This batch program will be made available early by download for use with CICS TS V3.1.**
- **IBM intends to deliver TIVOLI OMEGAMON XE for CICS V310 ON Z/OS by third quarter 2005. This will support CICS TS V3.1, with exploitation of some of its new function.**
- **IBM intends to deliver, before the end of first half 2005, a product to provide comprehensive CICS resource definition management for CICS TS V2 and V3.1. This will allow customers to more effectively manage migrations and upgrades to their CICS TS environment and supporting applications. It will enable creation, updating, deletion, and copying of CICS RDO/CSD and CICSplex SM BAS/EYUDREP resource definitions and allow them to be customized for development, test and production environments. It will also provide the ability to change-manage these entities, providing an audit history and generating reports on resource relationships.**
 - ▶ More detail on next page

Statements of Direction...

- CICS Change Management Enabler
- RDO/BAS definition editing
 - ▶ Transactions, programs, ...
- Supports both EYUDREP and CSD
- Provides migration control across multiple environments (e.g. UT, QA, PROD)
 - ▶ Via definition of packages
 - ▶ Approval process
 - ▶ Knowledge of system topologies
 - Transformation of definitions
 - ▶ Promote/backout capability
- Extensive reporting capabilities
 - ▶ Resource relationships
 - ▶ Audit trail with reporting capabilities
 - Who did what, when, where?
- Modern API
 - ▶ Web Services utilizing SOAP over TCP/IP
- Batch utility
- TSO ISPF
- Supports
 - ▶ CICS TS 1.3
 - ▶ CICS TS 2.2 and 2.3
 - ▶ CICS TS 3.1

Summary

- CICS today
 - › CICS is IBM's premier transaction processor for the z/OS and OS/390 environments
- The role of CICS TS in an enterprise solution on z/OS is to enable:
 - › Efficient and optimized extension and reuse of existing CICS applications
 - › Allow enterprises to create applications using new technologies by building on CICS skills
 - › Support and manage mixed application types and workloads
- CICS TS 3.1 new features
 - › CICS TS 3.1 provides a platform from which an enterprise can evolve towards the adoption of e-business exploiting all the advantages of the evolutionary approach while capturing new opportunities derived from the latest industry standard e-business technologies
 - CICS Integration
 - Application Transformation
 - Enterprise Management

