IBM TXSeries for Multiplatforms Version 5.1

Part 2: Technical Introduction to TXSeries® for Multiplatforms V5.1

CICS® for Unix and Windows® environments

April 2004

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What is TXSeries?

- **IBM TXSeries™ for Multiplatforms includes the CICS and Encina® application servers for AIX®, HP-UX, Solaris and Windows systems.**

- **TXSeries CICS is part of IBM's CICS family of products. You can optimize your applications' cost, performance, and qualities of service by choosing the appropriate set of CICS clients, gateways and servers to match your business needs.**
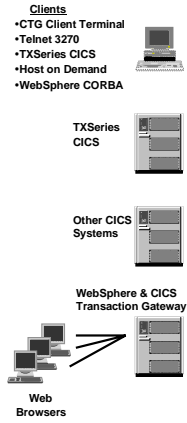
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What is TXSeries?
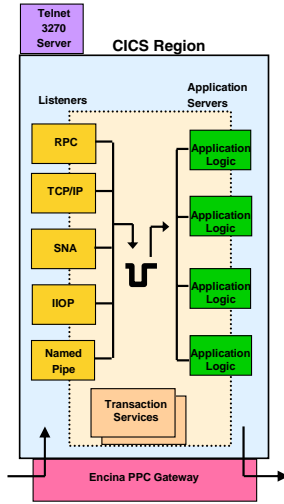
- **Use TXSeries CICS to ...**
  - **Build** new applications using traditional languages including COBOL, PL/I, C, C++, and Java^{TM}
  - **Reuse** existing applications and application programming skill sets in your organization
  - **Extend** CICS applications to the web and web services via the CICS Transaction Gateway and WebSphere® Application Server
  - **Access** data and applications in various distributed and back-end systems including CICS and IMS
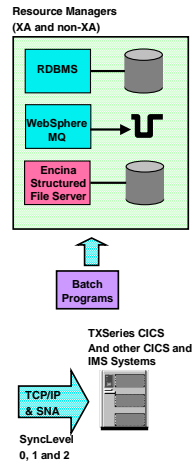
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TXSeries CICS in Pictures

Inbound Work

TXSeries - CICS

Target Resources

Telnet 3270 Server

CICS Region

Clients
- CTG Client Terminal
- Telnet 3270
- TXSeries CICS
- Host on Demand
- WebSphere CORBA

TXSeries CICS

Other CICS Systems

WebSphere & CICS Transaction Gateway

Web Browsers

Listeners
- RPC
- TCP/IP
- SNA
- IIOP
- Named Pipe

Application Servers
- Application Logic
- Application Logic
- Application Logic
- Application Logic

Transaction Services

Encina PPC Gateway

Resource Managers (XA and non-XA)
- RDBMS
- WebSphere MQ
- Encina Structured File Server

Batch Programs

TXSeries CICS And other CICS and IMS Systems

TCP/IP & SNA

SyncLevel 0, 1 and 2

April 2004

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TXSeries CICS

- **Designed for distributed transaction processing**
  - Flexibility in distribution of components
  - Comprehensive interoperability
  - Scalable, Reliable, etc.
- **Choice of programming models**
  - Procedural or Object-oriented
- **Choice of programming languages**
  - COBOL, PL/I, C, C++, Java
- **Supports open standards**
  - Java, CORBA, X/Open XA interfaces

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TXSeries CICS

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- **Applications isolated and independent of work origin**
  - Execute in own Application Server process
- **Pool of Application Server processes actively managed**
  - Minimum no. of servers
  - Maximum no. of servers
- **Transaction scheduling**
  - Automatically balances workload over application servers

TXSeries CICS

- **Provides CICS facilities**
  - EXEC CICS API
  - CICS intersystem communication
- **Supports XA-compliant Resource Managers**
  - Relational Database Management Systems
    - IBM DB2®, Oracle®, Informix, Sybase, Microsoft® SQL Server
  - Messaging systems
    - WebSphere MQ®
  - Includes a record-oriented file system
    - Provides VSAM-like support - used by CICS
- **Batch access as well as online**
- **Runs on multiple platforms**
  - AIX®, HP-UX, Solaris, Microsoft Windows
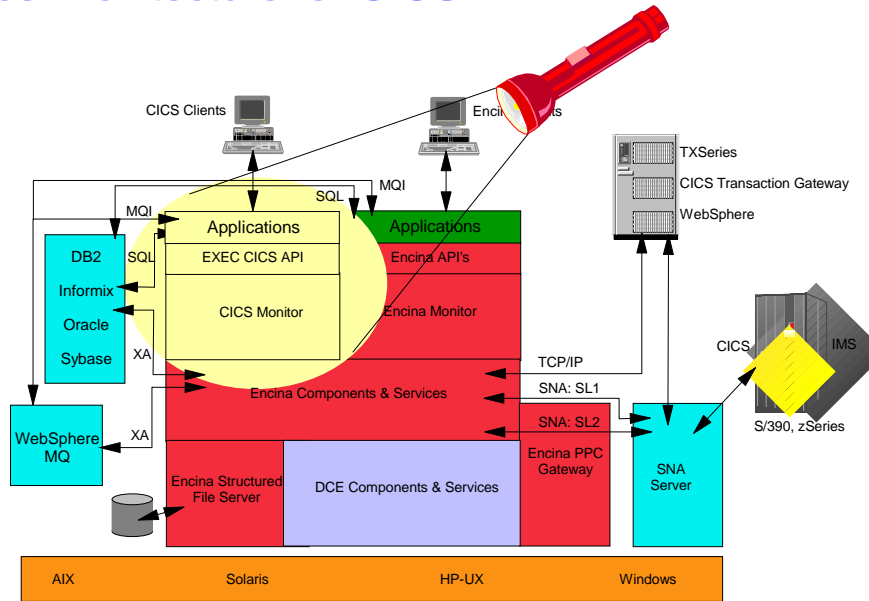- **etc.**

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TXSeries CICS

- **CICS API**
  - Approximately same level as CICS/ESA® 4.1 & CICS TS for VSE/ESA
  - Java API support (JCICS) as for CICS TS for z/OS® V2.2
  - Includes the CICS System Programming Interface (SPI)
- **Programming Languages**
  - COBOL, PL/I, C
  - C++, Java

TXSeries Architecture for CICS

CICS Clients	Encina Clients

TXSeries
CICS Transaction Gateway
WebSphere

Applications
EXEC CICS API
CICS Monitor

Applications
Encina API's
Encina Monitor

DB2
Informix
Oracle
Sybase

WebSphere MQ

MQI
SQL
MQI
SQL
XA
XA

Encina Components & Services

Encina Structured File Server

DCE Components & Services

Encina PPC Gateway

TCP/IP
SNA: SL1
SNA: SL2

SNA Server

CICS
IMS
S/390, zSeries

AIX	Solaris	HP-UX	Windows

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CICS Intersystem Communication

- **Full CICS Intersystem Communication support**
  - Function Shipping
  - Distributed Program Link
  - Transaction Routing
  - Distributed Transaction Processing
  - Asynchronous Transaction Start
  - Synch Level 1 or 2 support over SNA
  - Synch Level 1 support over TCP/IP
    - *TXSeries CICS to TXSeries CICS only*

Data Management

- **CICS files and queues**
  - Encina Structured File Server (SFS) used by default
  - DB2 or Oracle may be used instead of SFS
- **Batch COBOL access available for SFS, DB2, and Oracle**
- **SQL database access via leading RDBM products**
  - Two-phase commit supported
- **Messaging via WebSphere MQ**
  - Two-phase commit supported

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Security

- **CICS provided**
  - Password sign-on
  - Transaction access
  - Resource access
- **DCE based security (optional)**
  - Centralised security for entire DCE environment
  - Authenticated and encrypted RPC's
- **External Security Manager support**
  - User Replaceable Module
- **External Authentication Manager support**
  - User Replaceable Module - allows integration with RACF, LDAP, etc.

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System Admin & Management Tools

- **Configuration**
- **Resource Definition**
- **VSAM File Migration**
- **SFS, DB2, and Oracle**
- **Statistics and CICS Monitoring Facility**

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Application Development Tools

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- **Translator**
- **Debug**
  - CICS Execution Diagnostic Facility (CEDF)
  - Browse Temporary Storage Queues (CEBR)
  - Interactive command level execution (CECI/CECS)
  - Java debug tool (CJDB)
  - IBM Application Debug Tool (CDCN - AIX only)
  - Micro Focus COBOL Animator (CADB)

TXSeries CICS Resource Definitions

- **Traditional CICS resource types**
  - Programs, Transactions, Files, Transient Data Queues, etc
  - Region Definition (RD) resource type equivalent to the SIT
  - Resource Definition Online (RDO) is supported
- **Resource Definition**
  - Command line interface on all platforms
  - Graphical User Interface on AIX and Windows
    - Windows - TXSeries Administration Tool
    - AIX - exploits the AIX System Management Interface Tool (SMIT)
  - Resource definition database composed of stanza files
    - One per resource type

Supplied CICS Transactions

CEBR	Browse Temporary Storage/Transient Data
CECI	Command Level Interpreter
CECS	Command Level syntax checker
CEDF	Execution Diagnostic Facility
CADB	Invoke Micro Focus COBOL Animator
CJDB	Enable Java application debug
CDCN	Enable IBM Application Debugging Program
CALF	VSAM file conversion
CEMT	Master Terminal
CMLV	Console message log viewer
CSTD	Display statistics
CESF	User Sign-off
CESN	User Sign-on
CRTE	Transaction Router

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TXSeries CICS Connectivity

TXSeries CICS connected to.....	TCP/IP	SNA
SERVERS		
CICS TS for z/OS or S/390	✖	✔
CICS for MVS/ESA V4.1	✖	✔
CICS TS for VSE/ESA	✖	✔
CICS/VSE V2.3	✖	✔
TXSeries CICS	✔	✔
TXSeries Encina	✔	✔
WebSphere Application Server and other Web servers via the CICS Transaction Gateway	✔	✔
WebSphere Application Server and other Web Applications Servers via IIOP	✔	✖
CPI-C based applications	✖	✔
CLIENTS		
Web Browsers (via the CICS Transaction Gateway)	✔	✔
CICS Universal Clients	✔	✔
TXSeries Clients	✔	✖
Telnet 3270 Clients	✔	✖
IIOP Clients	✔	✖

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Selected Enhancements in V5.1

- **Fuller support of the CICS Family API** *(adding to the very significant set already supported)*
  - RETURN ... IMMEDIATE
  - INPUTMSG and INPUTMSGLEN options on RETURN, LINK, and XCTL
  - IP socket support similar to that used by CICS applications on IBM eServer zSeries operating systems. This is provided as samples, which customers may modify as desired
  - WRITE OPERATOR
  - The DISABLED condition is now supported with the WRITEQ TD, READQ TD, and DELETEQ TD commands
  - Password Expiry Management including the VERIFY PASSWORD and CHANGE PASSWORD commands

Selected Enhancements in V5.1

- **Enhancements in CICS administration, management, and monitoring**
  - PERFORM SNAP and PERFORM SHUTDOWN are now supported.
  - INQUIRE TASK CURRENTPROG is now supported.
  - Manage an unlimited number of CICS Universal Client connections
  - Start and stop CICS regions without root authorization.
  - The CICS Monitoring Facility (CMF) provides more information

- **Improvements in performance**
  - Region start-up with large number of application servers
  - Anticipate general improvements in highly-loaded systems, especially SMP machines

Selected Enhancements in V5.1

- **Numerous improvements in Reliability, Availability, Serviceability (RAS)**
  - Improved time stamps in log files simplifies "whole system" view
  - Improved monitoring of system memory resources
  - Changes to CICS resources logged
  - Improved up-time due to ability to recover from more application programming errors

- **Optional use of Oracle 9i as the CICS File Manager**
  - Can use Oracle for both application data and CICS files
  - DB2 and the Encina SFS remain options as well

Specified Operating Environment

		AIX 5.1 + 5.2	Solaris 8 + 9	HP-UX 11i	Windows 2000 Windows XP
Databases	IBM DB2	Y	Y	Y	Y
	Oracle 9i	Y	Y	Y	Y
	Informix Dynamic Server	Y	Y	Y	
	Sybase Adaptive Server Enterprise		Y	Y	
	Microsoft SQL Server				Y
Communications	IBM DCE	Y	Y		
	IBM DCE for Windows				Y
	DCE HP/9000			Y	
	CICS Transaction Gateway	Y	Y	Y	Y
	CICS Universal Clients				Y
	IBM WebSphere MQ	Y	Y	Y	Y
	IBM Communications Server	Y			Y
	Microsoft SNA Server				Y
	Dataconnection SNAP-IX for Solaris		Y		
	HP-UX SNAPlus2			Y	
Languages	IBM VisualAge COBOL	Y			Y
	IBM VisualAge PL/I	Y			Y
	IBM VisualAge C & C++	Y			
	Microsoft Visual C and C++				Y
	Micro Focus ServerExpress COBOL	Y	Y	Y	
	Micro Focus NetExpress COBOL				Y
	Java 2	Y	Y		Y
	Forte C and C++		Y		
	HP C/ANSI C			Y	
	HP aCC C++			Y	

For current supported levels, see the support flashes at the TXSeries support web page

Future Thoughts

- **IBM continues to invest in TXSeries CICS**
  - TXSeries is a strategic member of the CICS product family
- **Future ideas**
  - Customer requirements will drive future release content
  - Support of latest versions of software stack
    - Operating Systems, databases, etc
  - Intend to …
    - Remove DCE dependencies
    - Release a Linux version
  - Considering ...
    - Improved CICS API support
    - Improved administration
    - Web and SOAP support
    - 64-bit, IPv6, etc.

TXSeries Packaging History

- **TXSeries 4.2 for AIX, HP-UX, Solaris, Windows**
  - No longer available. Was ordered by OS
- **TXSeries 4.3 for AIX, Solaris, Windows**
  - No longer available. Was shipped in WebSphere Enterprise Edition
- **TXSeries for Multiplatforms V5.0**
  - Single package for multiple platforms
    - V5.0 for AIX + Windows (released March 2002)
    - V5.0 for AIX, HP-UX, Solaris, Windows (released November 2002)
- **TXSeries for Multiplatforms V5.1**
  - Single package for AIX, HP-UX, Solaris, Windows
  - Available April 2004

Support Information

- **Recommend subscribing to personalized MySupport information**
  - http://www.ibm.com/support/mysupport/
- **New IBM support policy for IPLA products (announcement 203-204)**
  - In general ...
    - Minimum three-year support period
    - Support period ends in April or September
    - End of support of a given release will be announced at least 12 months in advance
- **For more information**
  - http://www.ibm.com/software/supportlifecycle/

Further Information

- **TXSeries for Multiplatforms V5.1 announcement letter**
  - ZP04-0135 available at http://www.ibm.com/wwoi
- **Main Website**
  - http://ibm.com/software/htp/txseries
- **Support Web page**
  - http://ibm.com/software/htp/txseries/support
  - PTFs, Hints & Tips, Supported Software Stack
- **Publications Web page**
  - http://ibm.com/software/htp/txseries/library
  - Recommended publications
    - Concepts and Planning
    - Planning and Installation Guide
    - Release notes

Summary

- **TXSeries CICS is designed for running mission-critical applications**
  - High availability, high transaction rates, high scalability
  - Proven track record
- **TXSeries CICS provides a high degree of compatibility and interoperability with CICS Transaction Server for OS/390, z/OS and VSE/ESA**
- **TXSeries CICS provides comprehensive integration capabilities**
  - Runs on multiple platforms
  - Mainframe connectivity
  - WebSphere interoperability
  - Wide range of clients

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