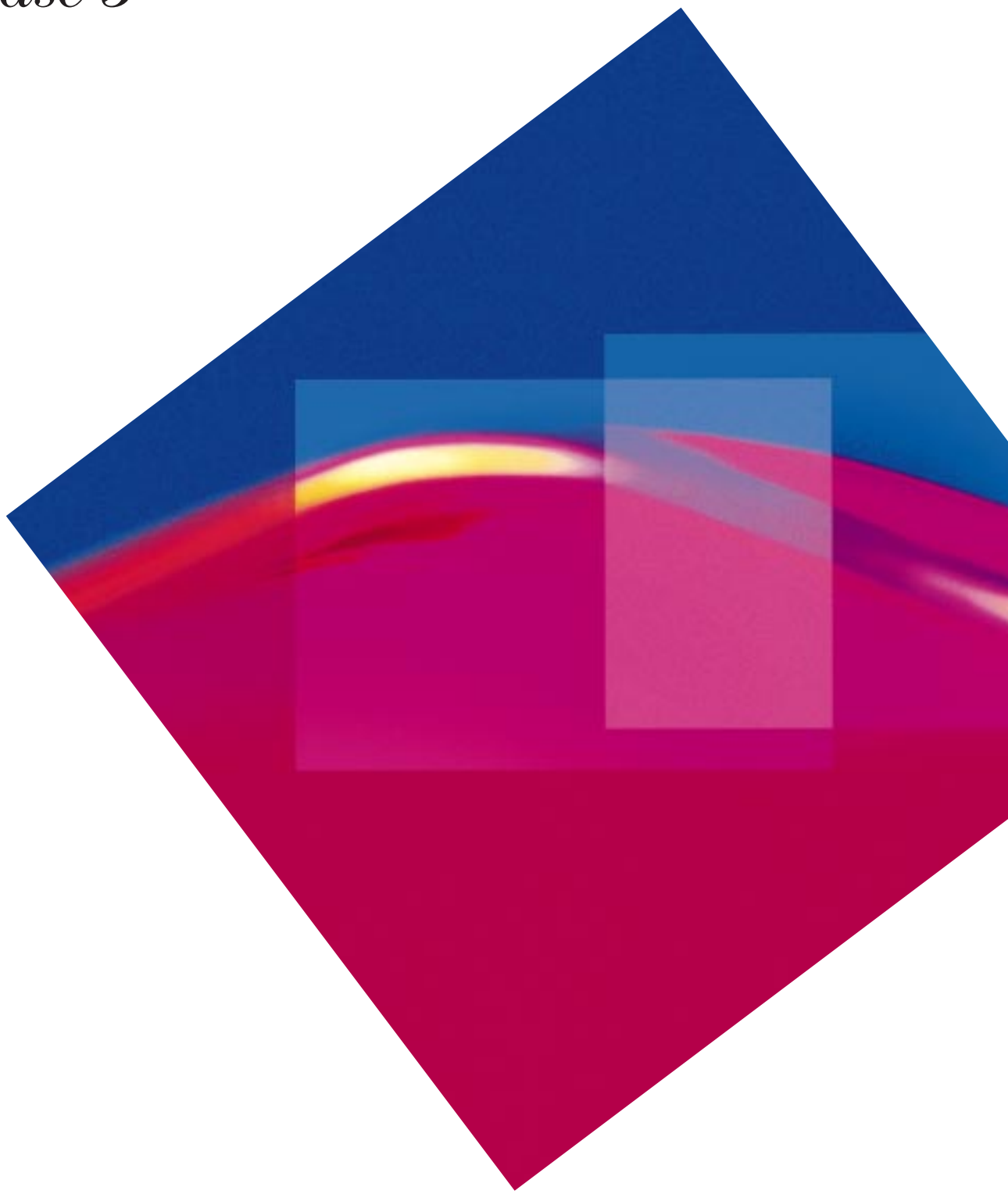
CICS Transaction Server for OS/390 Release 3



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The most pressing business issues that you have told us you face today (apart from Year 2000) relate to driving down costs and becoming more competitive in your chosen markets.

So our primary objectives for CICS* Transaction Server for OS/390* V1.3 (CICS TS 1.3) are to ensure that you get a greater return on your technology investment by increasing developer productivity and reducing time to market; and that you have the right tools and technologies (especially Web technologies) to give better service and reach more customers.

As well as features for manageability and scalability, you'll find that CICS TS 1.3 provides two sets of tools for your business to develop the new applications it needs and use them for doing e-business. Tools like the new CICS business transaction services (BTS), combined with new age technologies like CORBA and Java**, deliver improved productivity for application developers and reduced production costs – and the capabilities for attracting new customers via the Web.

There are four main topics in CICS TS 1.3, aimed at providing a balance of solutions to meet your needs:

Application enablement
If you're an application developer or manager, you'll find a particularly powerful set of productivity tools. You can:

- Reduce costs by increasing productivity with visual AD tools and JavaBeans.
- Shorten time to market and lower production costs through new object-oriented interfaces for C++ and Java that facilitate reuse of existing data and processes.
- Take maximum advantage of the Internet with extensive support for Java.
- Improve business efficiency by constructing IT processes that match business processes. CICS BTA is an entirely new set of services for the creation of long-lived business transactions.
- Help user productivity by exploiting the intuitive look and feel of a GUI.

e-business enablement
We're providing tools for you to help your company reach more customers by making business processes available on the Web. New or improved features include:

- More improvements to Web browser connection for your CICS applications, with increased HTTP support and new facilities for creating and manipulating HTML data.
- A new CICS transaction gateway provides related facilities for attaching Web browsers via outboard gateways so that CICS can work with Web servers on other platforms.
- Support for industry-standard CORBA objects means any CORBA-compliant client can access CICS applications, allowing true separation of client and server environments and integration of different types of systems.

Enterprise scalability
New features exploit Parallel Sysplex* by providing better price/performance, scalability and availability, and make it easier to move CICS applications to a sysplex. You can:

- Increase price/performance for distributed or client server applications with dynamic routing for transactions started by DPL, ECI, Web browser and CORBA client.
- Share scratchpad data rapidly between CICS regions across a sysplex with the new high-performance CICS coupling facility data tables.
- Perform concurrent updates in multiple CICS transaction instances for better price/performance and scalability.

Enterprise management
All the new functions and resources we have provided can be managed from the CICSPlex* SM console. A number of other systems management facilities have been enhanced too, so that you can:

- Reduce the costs involved in defining and maintaining individual console resource definitions with the new CICS autoinstall for MVS* consoles.
- Use RDO to reduce the costs involved in managing temporary storage tables.

CICS works hard for you, largely unseen, but touching the life of almost every employee

CICS TS V1.3 introduces two new application models that not only increase developer productivity, code reuse and manageability of systems, but can also make your business applications more closely represent the overall business processes of your enterprise.

There is an evolutionary path from the existing models to the new. Although they provide similar benefits, they're targeted at different developers:

- If you're a new technology developer, you want to exploit Web and Internet technologies to extend your business's reach to market. CICS support for the Java language keeps CICS developers at the leading edge of technology, and makes it easy to exploit business opportunities on the Internet. For developers like you, CICS is providing industry-accepted programming models:

  – Object oriented (OO) programming techniques using either C++ or Java

  – Object management group (OMG) – CORBA inter-operability protocol IIOP

  – JavaBeans component model.

- If you work with traditional CICS COBOL and PL1 programs, you want to build applications using procedural components, based on efficient and productive reuse of your existing code. For developers like you, CICS is providing CICS BTS, an entirely new set of services for the creation of long-lived business transactions. BTS enables transactions initiated by the new types of client to behave like the pseudo-conversational model. BTS will bring the same productivity, plus a design capability for construction of components that more closely reflects the business process.

CICS and Java

Java is already the language of choice for client applications, but server applications written in Java are catching up fast. CICS will support Java applications (including support for the High Performance Java/390 Compiler) and JavaBeans, so you will be able to wrap existing CICS programs in Java, or develop new CICS applications and components (JavaBeans) using JCICS foundation classes provided by CICS.

The simple CICS Java interface will enable the use of visual AD tools and technology for building applications that make use of JavaBeans, accessing existing CICS applications and data from Java programs. IBM VisualAge* for Java has been extended to enable applications using the JCICS classes to be developed on a workstation running Windows NT** 4.0 within the Integrated Development Environment (IDE), exported to the host environment via MVS USS , and debugged interactively from the workstation.

Object methods

By using OO techniques in the design and development of your CICS applications, you can reflect the business model more accurately and make rapid changes to any mission critical application, so you stay flexible and fast on your feet.

CICS TS 1.3 has new OO interfaces for C++ and Java which gives programmers the choice of writing CICS applications using either the traditional CICS command-level API or the CICS OO API, based on the CICS C++ or Java foundation classes. You can create business objects as wrappers around existing CICS applications, since CICS applications written in either C++ or Java can reuse other CICS applications written in any language, using normal CICS services such as Program Link.

CICS business transaction services

CICS BTS provides a significant new programming model for building business transactions that closely reflect a business process, while greatly simplifying the task of building complex e-business solutions. The new BTS model extends and enhances the pseudo-conversational model for new types of client. There is no compromise on traditional CICS reliability, integrity, performance, scalability and availability.

A CICS business transaction is generally a long-lived transaction consisting of many activities, each implemented as one or more CICS transactions. CICS BTS controls the overall progress of the business transaction, managing interrelationships, ordering, parallel execution, commit scope, and recovery/restart.

A business transaction is implemented as a control program that expresses a set of rules and actions within a business process. Activities can be implemented sequentially or in parallel, or in any combination, and persistent data can be passed between activities. Existing CICS transactions can be reused as an activity within a CICS business transaction.

CICS BTS is implemented as a set of API's, exclusive to CICS TS 1.3, that extend the current CICS APIs to make it easier to model, control and execute complex business transactions. The programming model enables the building of business transaction objects that best reflect business processes, while enabling business transaction reuse and reintegration techniques to address the most demanding business issues. You can focus on the development of business logic, without needing to worry about complex support infrastructures.

Business transactions are treated essentially the same as any CICS transaction. They can be invoked from the same sources, including CICS Clients, remote CICS systems and Web browsers; they can be distributed across a S/390 sysplex; and they can be defined, monitored, managed and controlled using CICS services, including CICSPlex* System Manager (SM), and are enabled for workload separation and workload balancing across a sysplex.

More application support

CICS TS is undertaking a long-term enhancement to its underlying infrastructure in order to make available to CICS applications the MVS and UNIX** System Services provided by OS/390 but currently barred to CICS programmers. This undertaking will take several releases and in this release no new function is made directly available to the application programmer. However the initial changes to the infrastructure provide the underlying support for running the MVS Java Virtual Machine as a CICS transaction.

New support for 16-character temporary storage queue names makes it easier to generate unique queue names. The flexibility that this brings to user application programs will overcome earlier limitations with conventional 8-character TS queue names and generating sysplex-wide unique TS queue names.

Even before the concept of e-business became popular, CICS provided the tools for:

- Consumer-to-business transactions, so that users with Web browsers, network computers, and other Internet devices can access enterprise applications through TCP/IP networks.

- Business-to-business transactions by enabling other systems to initiate enterprise transactions though synchronous peer-to-peer communication or via asynchronous messaging using MQSeries*.

This release of CICS TS 1.3 provides even more support for e-business and its technologies. There is comprehensive support for attaching Web browsers to existing CICS native interfaces, or through outboard gateways, plus support for CORBA objects.

- It provides native support for CORBA Client objects via the CORBA Internet Inter-ORB Protocol (IIOP). Support for industry-standard CORBA objects means any CORBA-compliant client can access CICS applications, integrating different types of systems.

- Further enhancements have been made to the support for HTTP which enables HTML data to be exchanged with Web browsers, with a number of new features for creating and manipulating HTML data.

- The CICS transaction gateway provides related facilities for attaching Web browsers via outboard gateways so that CICS can work with Web servers on AIX*, Solaris, Windows NT**, and OS/2*.

CICS links to other systems, reaching far beyond the physical boundaries of the enterprise

CORBA

The IIOP is a CORBA defined message exchange that serves as a common backbone protocol for communication between object-oriented application programs executing on different processors. CICS TS 1.3 supports inbound requests to Java applications using IIOP.

In an e-business environment, CORBA interoperability is important because it allows the use of vendor-independent client platforms, giving true separation of server and client environments.

It also provides improved application development productivity. A distributed object model ensures well defined interfaces for applications with object characteristics, so stronger type checking at compile-time and run-time gives a reduction in application errors compared with the use of untyped COMMAREAS used in CICS ECI calls.

CICS Web interface

The CICS Web interface (CWI) allows direct TCP/IP connection into CICS TS from the Internet, or your intranet, for the most efficient way for Web browsers to access your applications. In CICS TS 1.3, the CWI is enhanced by:

- Better integration with the CICS management infrastructure
- A new API for manipulation of Web entities
- Improvements to the definition and management of HTML templates
- A new EXEC CICS interface for the Web, which allows CWI work to be sysplex-enabled so that more than 32K of data can be transferred inbound and outbound
- Access to the 3270 bridge enhancements in a Web/3270 environment.

CICS gateway

The CICS transaction gateway is a major new feature for e-business. It provides a robust, scalable, easy-to-use and secure complement to any CICS-attached Web server, so that Web users can access CICS business applications using standard Internet protocols in a range of configurations.

The gateway is a highly optimized, multi-threaded Java application with sub-second response to connected Web browsers. It uses an embedded CICS Universal Client 3.0 for efficient communication with CICS TS, and incorporates a load balancing facility for distributing the workload from a large number of browsers across multiple CICS regions or servers.

Browsers and Internet devices can connect through the gateway to CICS applications by:

- Using simple HTML. The gateway will convert a 3270 datastream into HTML automatically, or you can write your own Java servlets to present information from CICS applications in HTML.
- Running Java applets in Java-enabled browsers. The gateway enables applets to access any CICS program using supplied Java classes and JavaBeans.
- Running JavaBeans to interoperate with server-side JavaBeans via an ORB-enabled Web browser and IIOP. The server side Beans, running on the gateway, invoke any CICS programs using supplied Java classes.

The 3270 bridge

The 3270 bridge provides an interface for 3270-based CICS transactions without the use of a 3270 terminal, making it easy and economical to give a new GUI to existing 3270 applications. The applications can still be run from 3270 terminals as well as workstations, to allow a phased migration of users from existing to new end-user applications.

Applications can be extended by integrating with technologies, like MQSeries, that enable you to build solutions that best suit your business, whether delivering e-business applications or coupling mixed heterogeneous environments.

In CICS TS 1.3, the bridge mechanism (exploited by the 3270 bridge and other bridge programs) has been enhanced to:

- Extend the set of 3270 applications that can be accessed via the bridge mechanism
- Make it easier for you to write bridge programs for your own choice of clients.

Transactional EXCI

Transactional EXCI has been enhanced to allow a CICS recovery manager to coordinate with the MVS recovery manager by enabling the update of CICS recourses as part of a total unit of work originating outside CICS.

This makes CICS resources even more accessible from outside the CICS domain, for seamless integration with other work managers within the enterprise.

The IBM S/390* Parallel Sysplex provides a uniquely scalable, shared-data, clustered server architecture. Data in CICS temporary storage as well as DB2*, IMS*-DB and VSAM can be shared by all nodes and CICS applications can run on any node in the cluster with full access to all data, or on single node S/390 systems without any dependency on clustering hardware.

Parallel Sysplex enhancements in CICS TS 1.3 include:

- Support for sysplex-wide sharing of Data Tables (high performance in-memory files)
- A sysplex-wide enqueue/dequeue enabling sysplex-wide synchronization of applications
- A named counter server allowing applications to create sysplex-wide unique identifiers
- Dynamic routing and workload management for transactions originating from CICS DPL, ECI calls, Web browsers, CORBA clients and START commands.

Dynamic routing and load balancing

The dynamic routing facility now dynamically routes transactions started by Web browsers, CORBA clients, DPL requests from EXCI clients and ECI requests from any of the CICS Client workstation products; and also a subset of START commands.

Dynamic routing improves performance and reliability of all routed transactions, increasing price/performance for distributed or client server applications, either in a CICS domain or mixed heterogeneous environments.

CICS coupling facility data tables

Coupling facility data tables support is designed for rapid sharing of working data within a sysplex, and will be particularly beneficial for small data items that are very volatile, are frequently updated or need high availability. The easy-to-use API is based upon the file control API used for user-maintained data tables.

The performance of this new form of table makes it particularly useful as a data scratch pad. Non-persistent files and scratchpad data can be shared between different CICS regions across a sysplex, with complete integrity for updates; and data can be grouped into different tables, enabling data to be identified and retrieved by key.

Sysplex-wide enqueue and dequeue

Sysplex-wide enqueue and dequeue extends the CICS/390 API with serialized access to a named resource across a specified set of CICS regions contained within a sysplex. For shared temporary storage queues, serialization makes concurrent updates possible in multiple CICS transaction instances, or makes it possible to lock against concurrent updates.

The scope of CICS enqueue and dequeue expands from region to sysplex. There is no change to the API but there is a new resource type for resource names that are to be sysplex-wide. An attribute defines the set of regions that share the same enqueue scope.

Sysplex enqueue/dequeue exploits a Parallel Sysplex by providing better price/performance, scalability and availability, while eliminating the most important remaining cause of inter-transaction affinity, a significant migration inhibitor.

Like the businesses and people it serves, CICS is vital, growing and always moving

The CICSPlex SM component of CICS TS provides a comprehensive management facility, for a set of CICS images across multiple S/390 Sysplexes to be defined, monitored and managed from a single point of control as a single system image. Individual CICS images may be replicated easily, be incorporated within the set, and participate in workload management to accommodate increasing workloads. The high level of software fault tolerance enabled by CICSPlex SM means you can meet demanding service level objectives for system availability and throughput.

All the new functions and resources provided in CICS TS 1.3 can be managed from the CICSPlex SM console. A number of other systems management facilities have been enhanced too, including resource definition online (RDO) for CICS temporary storage, autoinstall for MVS consoles, and enhancements to CICS monitoring and statistics.

Resource definition online for CICS temporary storage
RDO now provides all the functions currently provided by the temporary storage table.

This new RDO function gives improved usability and high availability for CICS users, reducing the costs involved in managing temporary storage tables while increasing the systems management capabilities of your CICS systems.

Autoinstall for MVS consoles
CICS autoinstall function for terminals has been extended to support the autoinstall of MVS consoles. Commands issued at an MVS console (or in a job stream) can be directed to a CICS region running as a started task, or job, using the MVS MODIFY command.

With multiple MVS console support, and CICS console support for TSO users, CICS regions often need to support many console devices, with numbers ranging from tens to hundreds. The new CICS autoinstall for consoles reduces the systems management involved in defining and maintaining individual console resource definitions, improving productivity and reducing cost, time and resource in supporting your business.

For more information...
See your IBM Representative.

Additional information can be found at:
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