



CICS for OS/390 and Enterprise scalability

New in CICS Transaction Server for OS/390 V1.3

Sysplex-wide enqueue and dequeue

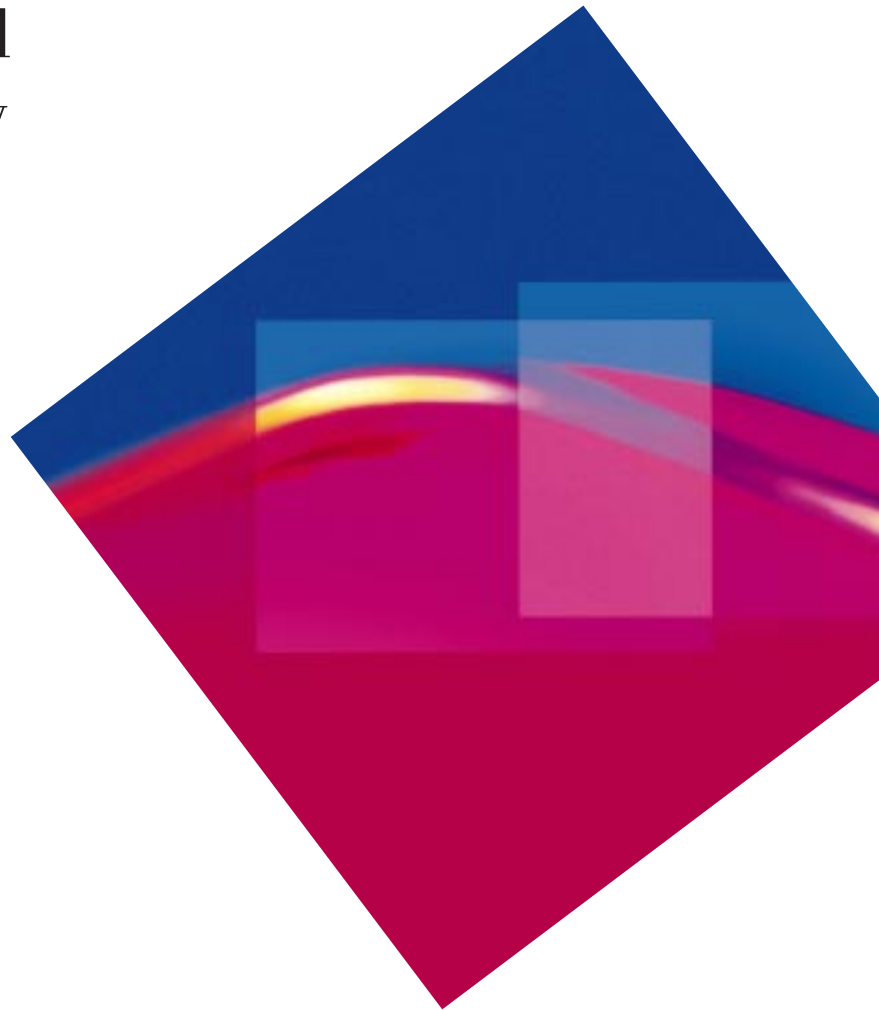
Sysplex-wide enqueue and dequeue extends the CICS* API to serialize access to a named resource across a specified set of CICS regions within a Parallel Sysplex*, for higher levels of performance, capacity, availability, and scalability.

Coupling facility data tables support

This is a new function designed for programmers to share working data across a sysplex quickly and safely, via user-friendly APIs. The facility provides update integrity, ensuring that data cannot be accidentally overwritten by other tasks running concurrently, and gives better performance for read, write, rewrite and delete operations.

Extended dynamic routing

CICS TS 1.3 now dynamically routes transactions started by distributed program link (DPL) requests and EXEC CICS START commands. Dynamic routing allows workload balancing by CICSplex* System Manager, so you can integrate workload balancing for EXCI clients, CICS clients and started tasks. Dynamic routing improves the performance and reliability of all dynamic program link requests for client/server applications.



Parallel Sysplex

One of the oldest strategies for controlling large territories is divide and rule. Parallel Sysplex brings a dynamic new slant to this approach. By dividing up large-scale processing requirements between many processors, a flexible, manageable and cost-effective system is derived which gives almost unlimited availability and potential for growth.

A Parallel Sysplex offers:

- Maximum scalability, giving easy growth of applications and users
- High performance, from state-of-the-art technology
- Cost-effectiveness, due to industry-standard components
- Continuous availability, with built-in redundancy.

The IBM S/390* Parallel Sysplex uses multiple low-cost processors linked together to provide a uniquely scalable shared-data clustered server architecture. Individual S/390 nodes, which have a symmetric multiprocessor (SMP) architecture with up to 10 processors, may be connected via coupling links to a coupling facility, to support clusters with very high MIPS. Enterprise data stored in DB2*, IMS-DB and VSAM may be shared by all nodes in a cluster.

Working data held in CICS temporary storage and coupling facility data tables may also be shared by all nodes; CICS applications may execute on any node in the cluster with full access to all data. CICS applications may also execute on single node S/390 systems, without any dependency on clustering hardware.

Large-scale capabilities

CICS has always offered total transaction processing solutions that reflect the best available technology of the time. Now, it is able to exploit and complement the capabilities of Parallel Sysplex for large-scale processing with data sharing, systems management and availability features.

The redundancy in the multiple processors of Parallel Sysplex, combined with workload management, means that it is possible to maintain high capacity and availability economically, without needing to resort to dedicated standby machines.

These Parallel Sysplex themes are expanded in CICS Transaction Server. Not only does CICS include enhanced capabilities for availability and growth (see later sections), but it is also exceptionally cost-effective.

Cost-effectiveness

CICS has always been cost-effective because of innovations such as simplified packaging and installation, and its use of your existing applications and workstations when migrating to a networked environment.

Now, in this release, dynamic routing for DPL and EXEC CICS START improves performance and reliability of all dynamic program link requests, giving even better price performance for distributed or client server application deployments whether running in a CICS domain or within mixed heterogeneous environments.

Continuous availability

A key benefit of Parallel Sysplex is enhanced availability, achieved through the removal of single points of failure. MVS* workload management allocates resources to meet your own defined performance goals.

CICS Transaction Server has features that complement and build on the Parallel Sysplex approach. It is possible to bypass points of failure at any of the three processing tiers: at the terminal, application, or data.

For example:

- Terminal users can restart more easily through CICS support for the VTAM* generic resource function. Users are no longer associated with one CICS system, but can use others if one fails
- Applications can be routed away from a failing application owning region (AOR) by the workload management functions, exploiting temporary storage (TS) data sharing, VSAM record-level sharing (RLS) and data sharing capabilities for IMS* and DB2
- Data accessed through CICS VSAM RLS and CICS TS data sharing avoids dependence on file or queue owning regions (FOR and QOR), eliminating such regions as single points of failure.

A new CICS log manager exploits the MVS logger and the coupling facility to simplify systems management by enhancing handling of the log media. The log manager supports the new VSAM RLS plus CICS user journals.

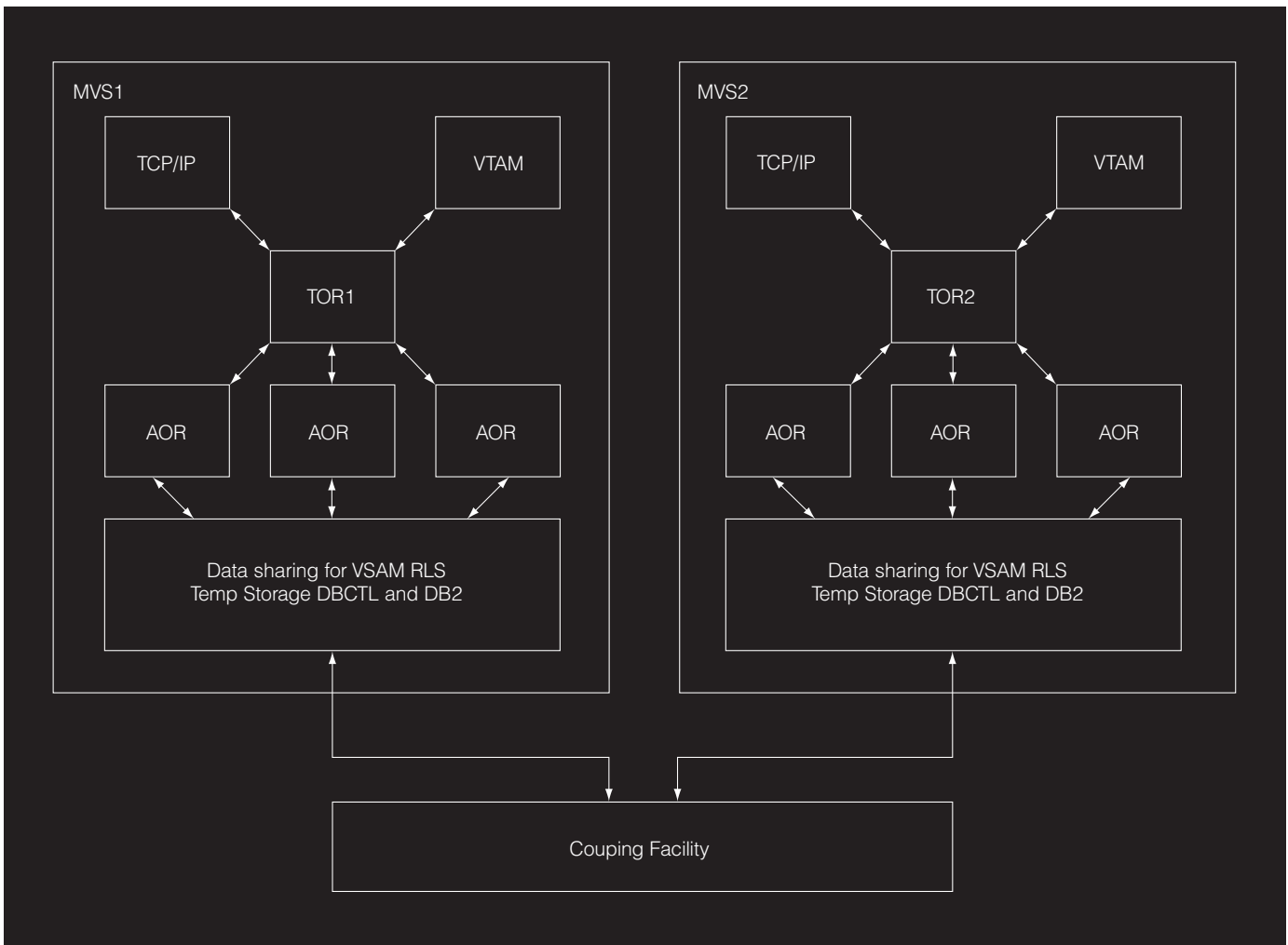
The new CICS recovery manager works with the log manager, DB2 and IMS to resolve the status of in-flight tasks in a failed CICS region with less time and effort.

System management features provided with CICS Transaction Server build on the workload management available with MVS to manage CICS systems to your service class goals. Workload is balanced across AORs and, in the event of a failing region, CICS redistributes to ensure that availability and throughput are maximized.

Unlimited growth

Growth has never been easier than with the Parallel Sysplex technologies and OS/390*. In fact, S/390 computers can provide the largest commercial computing capacity in the industry today.

CICS Transaction Server makes it straightforward to exploit the growth potential. For example, the CICS support for VTAM generic resource means that communications between distributed applications or multiple CICS systems become more flexible. That makes extending CICS systems even easier.



Parallel Sysplex data sharing

A major advantage of Parallel Sysplex is the ability to grow in small incremental steps, due to the use of micro-processors. Growth can be achieved without interruption to processing, and you gain the benefit as soon as the routing mechanism is aware of the additional resource.

Growth in the enterprise brings growth in the Parallel Sysplex and CICS images. CICS systems management facilities help to maintain an efficient CICSplex by signaling alerts as interaction between regions reaches preset levels. System responses can be automated, while built-in CICS workload balancing helps to achieve service goals and, by smoothing load peaks, keeps response times stable.

In this release, CICS is adding support for sysplex-wide sharing of data tables (high performance in-memory files), Sysplex-wide enqueue and dequeue enabling sysplex-wide synchronization of applications, and a named counter server allowing applications to create sysplex-wide unique identifiers. Also provided is dynamic routing for transactions originating from CICS DPL and START commands, enabling dynamic workload management of these transactions in common with the function already supported for transactions originating from 3270 terminals.

Sysplex enqueue and dequeue enhances Parallel Sysplex implementations by providing better price/performance, capacity, availability and scalability.

To take full advantage of workload balancing, it is helpful to identify programming dependencies, or affinities, between transactions, which could constrain the workload manager.

Identifying affinities is part of migrating to Parallel Sysplex, and is made easy with the CICS transaction affinities utility, shipped with CICS Transaction Server. Sysplex enqueue and dequeue provides the ability to eliminate the most significant remaining cause of inter-transaction affinity across CICS regions, by enabling greater exploitation of a Parallel Sysplex, and reducing the need to provide inter-transaction affinity rules to any dynamic routing mechanism.



Information for decision makers

Hardware requirements

CICS Transaction Server for OS/390 1.3 can exploit the parallel sysplex features of any IBM processor that supports MVS/ESA* SP V5.2 and has one or more coupling facilities.

Other helpful information

- Try www.software.ibm.com/cics/ for the latest news of CICS on the Web
 - For more information on CICS Transaction Server, look at CICS Transaction Server for OS/390 planning for Installation GC34-5401
 - For help on migrating to CICS on Parallel Sysplex, look at CICS Migration Guide, GC33-1571
 - For further help, contact your IBM Representative or dealer.
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The IBM home page can be found on the Internet at www.ibm.com and some more information on CICS can be found at www.software.ibm.com/cics

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