CICS Tools: Your path to understanding, optimization and control.

The realities of the 21st century exert conflicting pressures on organizations that deliver IT services. Though the lines of business say “more, more, more,” financial management says “less, less, less.” The IT service-management team needs to satisfy both, while delivering high-quality services in an ever more-complex environment where failure is unacceptable and regulatory compliance is a necessary fact of IT life.

Understand. Control. Optimize.

Organizations like yours are under constant pressure to deliver more applications, more quickly—driven by business changes such as mergers and acquisitions, innovative products or new markets. At the same time, you need to improve IT efficiency, maximize system availability and comply with the growing demands of regulatory authorities.

IBM CICS® Transaction Server supports the latest Web-service standards and provides the responsive, manageable and highly available platform that you need to deliver flexible business solutions and to balance these conflicting requirements. IBM also offers a complementary suite of CICS Tools that can help you to modernize and transform existing CICS applications and make the most of your CICS skills, whether your goal is to:

- *Increase responsiveness to business requirements by modernizing your mainframe platform.*
- *Develop and deploy new workloads to take advantage of the unique performance, availability, security and cost benefits of IBM System z™ technology.*
- *Enable easier version-to-version upgrades – especially to CICS Transaction Server for z/OS, Version 3.*
- *Reduce the complexity and cost of CICS service management.*
- *Improve the availability of CICS applications and data.*
- *Support IT governance and regulatory-compliance initiatives.*

Understand, modernize and extend your critical CICS applications
Making changes to applications without understanding their relationships with and effects on related applications is a recipe for failure. Understanding such relationships in a complex and mature application can be very difficult. This challenge is compounded when all of the original developers have left the company, the source code has been lost, or key components were created by third parties or not documented to company standards.

CICS Interdependency Analyzer
CICS Interdependency Analyzer for z/OS automatically builds a comprehensive database of CICS resource relationships. It enables your development team to understand quickly and easily which transactions, programs, maps and other resources will be affected by planned changes. CICS Interdependency Analyzer can even detect remote relationships, for example when a transaction in one CICS region links to a program in a second region, which in turn accesses a TS Queue in a third. Its powerful Explorer interface, which is built on Eclipse and can be plugged into IBM Rational® Developer for System z, provides intuitive visualization that helps your developers modify or extend your CICS applications with confidence.

Understanding these relationships not only enables the development team to make the necessary changes but also helps ensure that the quality-assurance team will test all related applications. This capability has been enhanced by CICS Transaction Server version-to-version migration assistance. It will identify Task Related User Exits (TRUEs) and Global User Exits (GLUEs) used within a CICS region, and provide queries to identify CICS application programming interfaces (APIs) and system programming interfaces (SPIs) that have been changed or removed in the new version. As a result, it enables you to target your testing and reduce the time and effort required to migrate. When you are using CICS Transaction Server, Version 3, CICS Interdependency Analyzer can also help you to get the most out of your System z environment by helping to identify CICS applications that can run in threadsafe mode.

Resources identified include transactions, programs (including new support for programs written in Natural), basic mapping support (BMS) maps, files, temporary storage and transient data queues, 3270 Bridge facility, Web services, CorbaServer, and Enterprise JavaBeans™ (EJB) components. It also reports on IBM DB2®, IBM IMS™ and IBM WebSphere® MQ resources that are used by CICS Transaction Server.

The CICS Interdependency Analyzer Explorer will run supplied queries, for example to identify existing programs that could be candidates to convert to a Web service, and you can easily create or modify your own. Queries enable you to perform detailed resource-relationship analyses, such as what transactions run in which regions or what affinities were found for a program, as well as resource comparison, such as comparing applications across regions.

With CICS Interdependency Analyzer, you can:

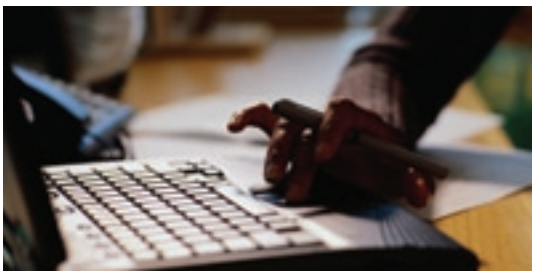
- *Understand your active CICS application inventory, especially if documentation is unavailable or incomplete.*
- *Improve your ability to maintain, enhance and migrate your business applications.*
- *Make informed decisions about the best way to split workloads for improved availability.*
- *Help minimize the impact of routine application maintenance for the user.*
- *Unlock the potential to improve application design.*
- *Help implement workload balancing across IBM CICSPlex® and IBM Parallel Sysplex® environments to provide continuous availability.*
- *Identify application components for reuse in, for example, service oriented architecture (SOA) projects.*
- *Assist with CICS version-to-version migration assistance, for example, by helping to identify applications that do not conform to threadsafe standards.*

CICS Performance Analyzer

CICS Performance Analyzer for z/OS supports all of the service-management processes that require a good understanding of CICS performance, from capacity planning and problem management to service-level management and system tuning. Whether you plan, build, manage or deploy complex mainframe CICS applications, the usability, level of detail and flexibility of CICS Performance Analyzer make it easy for you to find new ways to improve CICS system performance, reduce maintenance costs and strategically plan IT investments.

IBM CICS Performance Analyzer is a robust offline reporting tool that analyzes a wide range of System Management Facilities (SMF) records to produce comprehensive reports on all aspects of CICS system performance. SMF records generated from the following sources are supported:

- *CICS Monitoring Facility (CMF), CICS statistics and CICS server statistics*
- *Related DB2 and IBM WebSphere MQ subsystems*
- *Related IBM IMS Database Control (DBCTL)*
- *IBM z/OS® system logger*
- *IBM Tivoli® OMEGAMON® XE for CICS SMF type 112 records containing third-party database and OMEGAMON XE resource-limiting metrics*



CICS Performance Analyzer supports the compressed SMF record formats, the higher-precision clock fields, plus new and updated statistics fields and records introduced in CICS Transaction Server, Version 3.2, as well as the formats and uncompressed records produced by previous releases.

CICS Performance Analyzer comes with more than 150 reports designed to meet your reporting and analysis objectives. You can easily tailor these reports to your specific analysis requirements or create your own reports using an easy-to-follow Interactive System Productivity Facility (ISPF) dialog. You can use the CICS Performance Analyzer reports to easily perform cross-system analysis. The ISPF dialog also enables you to view statistics online, and create and manage a historical database for trend analysis and capacity-planning purposes.

CICS Performance Analyzer provides a powerful historical database (HDB). It enables you to accumulate the performance data you want at the level of detail you need for reporting over long periods without large amounts of storage or processing time. You can then produce reports from the HDB instead of the SMF data sets. A SupportPac, CP12, is available to show you how you can easily export CICS statistics or performance data to an IBM DB2 table or a comma-separated value (CSV) file. The SupportPac also provides sample macros for using that data to create reports and charts using PC-based tools, such as Microsoft® Excel.

New transaction profiling reports enable you to identify changes in application-performance behavior over time to help you understand the impact on transaction performance and manage your CICS system capacity. New distribution reports will help your service-level-management team to identify the transactions which met (or failed to meet) user-defined thresholds.

The tuning and capacity-planning capabilities of CICS Performance Analyzer complement the online monitoring facilities of Tivoli OMEGAMON XE for CICS. You can use CICS Performance Analyzer to help ensure quick response to online performance issues identified by Tivoli OMEGAMON XE for CICS. The product drills down into CICS Transaction Server and the performance data for its related subsystems to identify and eliminate the cause of a problem.

Manage and govern your critical CICS applications

Today's successful businesses must be responsive to changing requirements, including increasing regulations, while optimizing management of the IT environment. Organizations that run CICS systems constantly experience business pressure to improve CICS platform efficiency, maximize system availability and make the most of their CICS skills—as well as plan for Web-services implementations.

Governance and compliance have always been required in business, but recent regulatory requirements, such as the US Sarbanes-Oxley legislation, have made these imperatives even more relevant to the business of IT. IBM CICS Tools can help you to implement compliance-related initiatives. For example, you can use CICS Configuration Manager for z/OS to automate and manage CICS configuration changes in a controlled and authorized manner. Or you can use CICS Virtual Storage Access Method (VSAM) Recovery for z/OS to ensure the integrity of your VSAM data.

With the IBM CICS Tools at hand, your enterprise can be fully equipped to get the most out of your CICS systems, and you'll keep your customers happy at the same time.

CICS Configuration Manager

Accurate and up-to-date CICS resource definitions are essential to maintain the high availability expected of your CICS environment. With tens or even hundreds of regions across your enterprise, maintaining these definitions can be challenging. Usually, the responsibility for managing these definitions is handled through a single administrative team. Along with the extreme complexity of CICS regions, your CICS personnel must also handle the complexities of each topology in each environment, and any required changes to the definitions. To simplify this task, IBM CICS Configuration Manager for z/OS provides easy-to-use facilities for CICS resource-definition administration and maintenance, while offering comprehensive reporting and optional change-management control facilities.

With CICS Configuration Manager, you can:

- *Manage CICS resource definitions in CICS system definition (CSD) files within your enterprise from a single point of control.*
- *Manipulate definitions seamlessly across CSD files and IBM CICSPlex System Manager data repositories.*
- *Create, edit, compare, copy, move and remove definitions, individually or in groups.*
- *Edit definitions, whether the CICS regions that use them are active or inactive.*
- *Migrate multiple definitions in a single step with the option to transform definitions automatically to match the target environment.*
- *Use the audit trail to generate reports and back out changes to any previous version of the definitions.*
- *Create reports to identify redundant definitions and analyze resource-definition status, relationships and history across any combination of CSD files and data repositories.*
- *Take advantage of the optional change-control capability where approval is required from authorized users before migrating definitions.*
- *Use an XML SOAP API and batch facility for scripting and integration with your existing applications.*

CICS Configuration Manager helps improve the productivity of your IT staff, including managers, system programmers and application developers. It achieves this goal in a number of ways. It helps to optimize the productivity of day-to-day CICS system management and administration. It simplifies resource-definition processes for new application development and deployment. It is designed to improve change control and auditability. And it eases migration

between releases of IBM CICS Transaction Server, especially to Version 3. The opportunities to simplify CICS Transaction Server administration offered by CICS Configuration Manager can help reduce maintenance costs and downtime that can be caused by administrative errors.

CICS Configuration Manager lets you control and manage your enterprise-wide CICS resource definitions across CSD files and CICSPlex System Manager data repositories seamlessly. It provides a single interface to enable you to gain tighter and more-transparent control over CICS administration.

CICS Batch Application Control

Many businesses must schedule batch processing around their online CICS services. In this environment, CICS system administrators must handle increasingly complex tasks, especially when dealing with many CICS regions on multiple System z platforms in a complex network.

CICS Batch Application Control for z/OS automates the sharing of CICS resources and enables batch jobs to change the state of CICS system-owned VSAM files, transient data queues, programs and transactions dynamically. The application-development team defines all the resources relevant to each application in groups and application lists. As a result, your operations team can more easily manage applications without having to worry about which resources are part of each application.

With a robust batch-application control solution, you can conduct more-frequent batch runs during normal business-day processing and provide more-current data to your users. You can also reduce the number of interventions that your operators and system programmers must make during off-shift hours to fix batch-related abends.

IBM CICS Batch Application Control makes it easier to manage solutions that include both online CICS and batch components. It helps you minimize the time that CICS resources need to be offline, and reduces errors and the need to rerun batch jobs. By helping reduce the time required for the nightly batch window, you can move your CICS applications closer to continuous operation.

CICS VSAM Recovery

Even with an extensive and resilient infrastructure, chance failures can occur, however infrequently. When a failure does occur, the impact to your organization is determined by the amount of time the data is unavailable to your employees and customers. In today's world of regulatory compliance, the risk of data loss is no longer something that can be ignored. To minimize the actual or potential impact, you must take precautions to mitigate the risk of failure and maintain your organization's ability to handle large transaction volumes. At the same time, you must consider the total cost of ownership (TCO) of your valuable IBM CICS application and data assets.

It's about managing IT resources efficiently and effectively.

Use critical CICS resources as part of your SOA.

IBM CICS VSAM Recovery for z/OS can help, because it recovers CICS and batch VSAM data from physical or logical corruption due to catastrophic hardware failure, software failure or human error. By recovering from errors quickly, you can prevent offline processing from exceeding its batch window and so minimize the amount of time systems are unavailable to your customers. Governance and compliance have always been important in business. The U.S. Sarbanes-Oxley legislation has made governance and compliance even more relevant to the business of IT. CICS VSAM Recovery can help you to implement compliance-related initiatives, such as ensuring the integrity and availability of your valuable VSAM data.

CICS VSAM Recovery can help mitigate the effects of data loss by enabling you to repair any damage quickly by:

- *Automatically recovering critical data from physical and logical corruption.*
- *Recovering updates made by CICS transactions or batch applications.*
- *Helping to reduce the downtime caused by unavailable VSAM data.*
- *Combining high-performance capabilities with low overhead.*
- *Storing information during normal operation about changes to data in a forward-recovery log.*
- *Updating earlier copies (backups) of data with committed changes from forward-recovery logs.*

Even though most of the focus of forward recovery is on hardware failure and software errors, you can use the same CICS VSAM Recovery facilities to protect against damaging updates made to your VSAM data—whether the intent was malicious or accidental. Selective forward-recovery capabilities enable you to recover VSAM data without applying the damaging updates based on the terminal, transaction or file ID that caused the damage. Also, change-accumulation capabilities help to reduce the time necessary to perform forward recovery. And batch-backout support enables updates to VSAM data sets to be automatically backed out when a batch job step fails. As a result, you can recover quickly from batch-processing errors and help decrease the chances that batch processing will exceed its allotted time frame (or batch window).

CICS VSAM Recovery integrates with a wide range of IBM and independent software vendor (ISV) backup products, including IBM Aggregate Backup and Recovery System (ABARS) and IDCAMS REPRO as well as hardware backup solutions such as IBM FlashCopy®. CICS VSAM Recovery uses standard System z logs and does not require special log files to be created and managed.

CICS VSAM Recovery supports extended addressability entry sequenced data sets (ESDSs) used by CICS Transaction Server, Version 3.2 and batch applications.

Tivoli OMEGAMON XE for CICS

IBM Tivoli OMEGAMON XE for CICS helps you proactively manage complex CICS systems—including CICS applications in an IBM Parallel Sysplex environment—to help maximize performance and to help avoid costly downtime. With a flexible, easy-to-use browser interface, Tivoli OMEGAMON XE for CICS helps you clearly see and understand application and system events. You can monitor and manage CICS transactions at higher levels and granular levels, as well as interact with other applications, within a single interface. Tivoli OMEGAMON XE for CICS is designed to enable you to detect problems quickly and take action in real time to speed problem resolution. It integrates with other Tivoli products through the Tivoli Enterprise Portal.

From the Tivoli Enterprise Portal interface, you can manage:

- *Single and multiple instances of CICS Transaction Server.*
- *Large, enterprise-wide CICS configurations in Parallel Sysplex environments.*
- *Related interactions with IBM DB2 databases and other system components.*
- *Transactions that span across multiple systems.*

To optimize the performance of your systems, you can assess how well transactions are running and instantly remove any that slow performance, while allowing other crucial operations to continue running. For example, the VSAM record-level sharing (RLS) report enables you to identify and take action to address the source of bottlenecks that stem from locked records. Integration capabilities provided by Tivoli Enterprise Portal enable you to deploy end-to-end availability management and helps prevent threats to system performance before they affect service levels.

OMEGAMON XE for CICS supports the latest versions of CICS Transaction Server and integrates with CICS Performance Analyzer for a complete, CICS performance-management solution.

Optimize and improve your CICS environment

CICS Tools can help you to extend and modernize CICS applications and critical data efficiently. Improve programmer productivity. Increase customer satisfaction. And enable your IT assets to operate effectively as part of an SOA implementation.

IBM Session Manager for z/OS

Many business tasks require users to switch between a variety of applications on different systems. For example, when taking orders, users need to validate client information, check client credit history and determine whether items are in stock and when delivery is possible. Users might also need to arrange client financing and payment schedules. And because users must keep track of all the applications and systems they work on, becoming proficient at completing complex transactions like these can be difficult and time-consuming.

IBM Session Manager for z/OS provides a secure, highly available and user-friendly method of accessing multiple IBM z/OS or IBM OS/390® systems from a single 3270 terminal. Features include:

- *Single password-protected menu to access all applications running on any accessible z/OS or OS/390 system.*
- *Log-off procedures, security checking, audit logging, and centralized administration, operations and monitoring.*
- *Recoverable sessions and workload balancing.*
- *Easier viewing of user problems by help-desk and operations personnel.*
- *Centralized user ID administration and the ability to broadcast messages to users.*
- *Reduced cost and effort associated with network administration.*

With prior releases, if a failure occurred on the system hosting IBM Session Manager, or if the system needed to be quiesced for maintenance, your users would need to reestablish their application sessions. Now, the recoverable-session support in Session Manager, Version 2.1, together with the Coupling Facility in an IBM Parallel Sysplex environment, means your users simply reconnect to Session Manager and all critical application sessions will be recovered automatically, minimizing lost time and reducing the risk of data loss. As users connect (or reconnect) to Session Manager, the Workload Manager (WLM) will balance the distribution of users and sessions across available Session Manager instances.

Online administration capabilities enable authorized users to add, delete or update applications, profiles and users. Dynamic menus enable you to manage users and applications using definitions in an external security manager, such as IBM Resource Access Control Facility (IBM RACF®). You can also hide menu entries from users, or manage Session Manager through a batch job to ease the potential administration overhead that can occur with mass updates. These features help IBM Session Manager to improve user productivity, reduce training requirements, and enhance system usage and security.

CICS Online Transmission Time Optimizer

CICS Online Transmission Time Optimizer for z/OS helps improve 3270 network-resource usage and response time, as well as user productivity, by identifying and removing repetitive data and compressing 3270 data streams. It operates efficiently and transparently to applications and users and supports both local and remote users. Repetitive characters—typically as much as 25 percent of all characters sent to terminals and other 3270 network devices—are reduced to only four bytes, reducing transmitted message size considerably.

CICS Online Transmission Time Optimizer helps minimize outbound data transmission to terminals by keeping screen layout in memory and removing data fields already present on the screen. Blank spaces are also eliminated to improve print speed.

CICS Online Transmission Time Optimizer helps minimize the need for new communications equipment by efficiently using your existing current lines, modems and controllers. Self-monitoring capabilities let you know how effectively it is optimizing your environment by continually monitoring operations and reporting its own progress.

CICS VSAM Transparency

IBM CICS VSAM Transparency for z/OS helps lower the cost—and the risk—of migrating data from VSAM files to DB2 by enabling you to move the data without having to rewrite the CICS VSAM application. This capability is particularly important because it enables you to avoid delaying your data-migration initiatives because of the cost that can be associated with application rewriting and testing.

CICS VSAM Transparency includes four components:

- *Mapping component that establishes a relationship between a VSAM record and a DB2 row (which can be performed automatically for single-record-type VSAM data sets)*
- *Data-migration component that provides the utilities to migrate and reengineer data as required*
- *Testing component that enables application programs to be tested following data migration*
- *Runtime component that intercepts application calls to VSAM data sets migrated to DB2*

CICS VSAM Transparency enables you to migrate selected VSAM files as your needs dictate so that you can take advantage of new technology, while at the same time preserving valuable investments in core applications. CICS VSAM Transparency enables the migration of data from VSAM files to IBM DB2 database tables. It also helps to ensure continued access to the data in the DB2 database, without modification to the CICS or batch VSAM-application programs.

You will notice significant performance benefits if you use CICS VSAM Transparency with CICS Transaction Server, Version 3.2, due to the threadsafe file control API available in that release.

A firm foundation for success

IBM System z tools, including CICS Tools, Problem Determination (PD) Tools and Application Development Tools, support the entire enterprise-application life cycle to help you build, integrate, test and manage enterprise solutions. As a result, you can make the most of your System z platform investments and take advantage of the latest functions introduced in CICS Transaction Server, Version 3. With these tools, you can optimize your IT operations and transform CICS applications to achieve greater business flexibility, without losing touch with governance and compliance. The comprehensive portfolio of CICS Tools offers the opportunity to realize the full potential of your CICS systems, whatever your business strategy. You have the potential to maintain and manage your core CICS applications more easily and at a lower cost.

CICS Tools enhance IBM Service Management initiatives to optimize IT processes, maximize CICS system availability and reduce TCO. Moreover, in today's world of increasing governance and compliance demands, CICS Tools can help to meet growing demands for reporting and audit compliance and improve control over CICS runtime environments.

All IBM CICS Tools support the latest releases of CICS Transaction Server, at date of publication, Version 3.2.

For more information

To learn more about IBM CICS Tools, contact your IBM representative or IBM Business Partner, or visit:

ibm.com/cics/tools

IBM United Kingdom Limited

Hursley Park
Winchester
Hampshire
SO21 2JN
United Kingdom

Produced in the United States of America
08-07

WSO11348-USEN-00