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Virtual CICS User Group Presentation

NAVIGATING THE COMPLEXITIES OF CICS RECOVERY, TWO-PHASE COMMIT, AND LOG MANAGEMENT

Andy Wright, an IBM Senior Software Engineer and Master Inventor with over 35 years of experience, recently shared his profound knowledge in a session at the Virtual CICS User Group meeting on November 14th. His expertise in the CICS (Customer Information Control System) recovery mechanisms and log management is not only backed by his MSc in Software Engineering from the University of Oxford but also by his significant contributions to ITSO Red Books, education classes, and CICS customer health checks.

In the complex world of mainframe computing, understanding the nuances of CICS recovery processes and two-phase commit mechanisms is crucial for maintaining data integrity and system reliability. These processes, which are built on the ACID (Atomicity, Consistency, Isolation, Durability) principles, are the backbone of transaction integrity within CICS. The recovery manager in CICS coordinates the preparation and commitment of recoverable operations, allowing the system to rollback or commit changes as needed.

But just what *is* a transaction??

- A complete set of recoverable operations performed by a transaction processor such as CICS
- Adherence to ACID properties, so work is committed or all backed out, etc
- Such indivisible sets of operations are known as *transactions* in the industry
- In CICS they are referred to as *Units of Work (UOWs)*
 - Other terms include *Units of Recovery (UDRs)*
- A CICS “transaction” is the environment for an application performing work
 - It can contain one or multiple UOWs
- A CICS transaction is **not** the same as a Unit of Work!
 - CICS Transaction Manager handles transactions
 - CICS Recovery Manager handles Units of Work
- You often hear CICS transactions called tasks – the terms get interchanged

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The two-phase commit mechanism in CICS is a critical process for ensuring all participating systems are prepared before actual commitment. It consists of a preparation phase, where each system confirms its readiness, and a commit phase for the final execution. This process is optimized with strategies like “last agent” and “single updater” to improve efficiency. Additionally, CICS introduces the concept of shunting to manage uncertainties, like communication failures, thereby preserving transaction integrity.

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NEXT VIRTUAL MEETING - January 23, 2024, 10:30 AM CDT

Enhanced Analysis Through Integrating CICS and Other Types of SMF Data

Continuing the theme from last January’s session on enhancing CICS analysis from SMF data, this session will expand beyond CICS Transaction and Statistics data and examine ways CICS analysis can be enhanced through integration with SMF data from other components across the z platform.



Todd Havekost

Senior z/OS Performance Consultant
IntelliMagic

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NAVIGATING THE COMPLEXITIES OF CICS RECOVERY, TWO-PHASE COMMIT, AND LOG MANAGEMENT

Continued

Log management and recovery procedures in CICS regions are equally important. Key pointing, performed at specific intervals, triggers log data housekeeping and influences the system’s ability to manage resources effectively. The z/OS logger subsystem is central to this process, handling log data offloading and physical storage. Understanding the balance in key pointing frequency is key to optimizing system performance. Tuning the z/OS logger, including defining high and low offload percentages, is crucial for efficient log management.

CICS also allows tasks to implicitly or explicitly commit changes using the SYNCPOINT command. This command triggers the two-phase commit process, wherein the system introduces shunting as a safety measure against communication failures or unexpected issues. Furthermore, concepts like implicit forget are employed to enhance coordination in the transaction process.

The management of log data, including the monitoring of DFHRM 205 messages and SMF 88 data, plays a pivotal role. This data informs the frequency of housekeeping activities and helps in fine-tuning the system for optimal performance. The choice between coupling facility (CF) logging and DASD-only logging has significant implications for both primary and secondary storage of log data, impacting recovery processes and system performance.

In conclusion, a deep understanding of CICS recovery, two-phase commit, and log management is vital for professionals in the mainframe industry. By mastering these aspects, organizations can optimize their CICS systems, safeguard critical transaction data, and minimize downtime in the event of a failure, thus driving operational excellence in their CICS environments.





NEWS AND ANNOUNCEMENTS

- Sponsorship opportunity—We are looking for additional co-sponsors for the Virtual CICS user group. The user group has been in existence since 2022 and is gaining respect among users of CICS. The user group gives its sponsors an opportunity to show that they are working with, and helping to build, the CICS user community. Contact virtualusergroups@gmail.com for more information.
- After you register for our next event on January 23, save the date for our March 12 session with IBM Hursley Lab's Jenny He.

ABOUT THE VIRTUAL CICS USER GROUP

The Virtual CICS user group was established as a way for individuals using IBM's CICS TS systems to exchange information, learn new techniques, and advance their skills with the product. The Web site at <https://iteched.com/virtualcics/> provides a central point for coordinating periodic meetings (which contain technically-oriented topics presented in a webinar format), and provides articles, discussions, links, and other resources of interest to IBM CICS practitioners. Anyone with an interest in CICS is welcome to join the Virtual CICS user group and share in the knowledge exchange. To share ideas, and for further information, contact virtualusergroups@gmail.com. The Virtual CICS user group is free to its members.

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