Welcome to the Virtual CICS user group newsletter. The Virtual CICS user group at www.fundi.com/virtualcics is an independently-operated vendor-neutral site run by and for the CICS user community.

Virtual CICS user group presentation

The latest webinar from the Virtual CICS user group was entitled, "When Bad Things Happen to Good Transactions: Analyzing Transaction Problems on System z", and was presented by Fundi Software's James Martin and Circle Software's Ezriel Gross.

James has over four years of experience working with IBM Transaction Analysis Workbench for system z and its various instrumentation data sources including: CICS, IMS, DB2, MQ, and z/OS Operlog. James now transfers the knowledge he has acquired using technical training sessions that focus on all facets of Workbench functionality including product: customization, reporting, and interactive
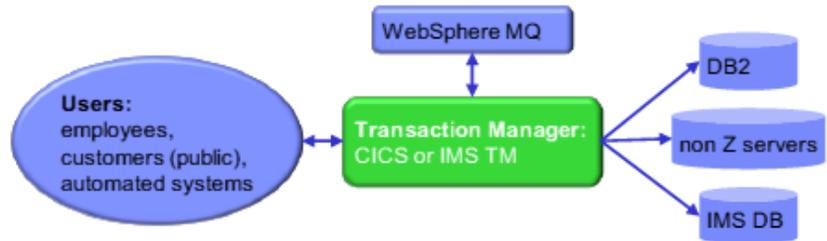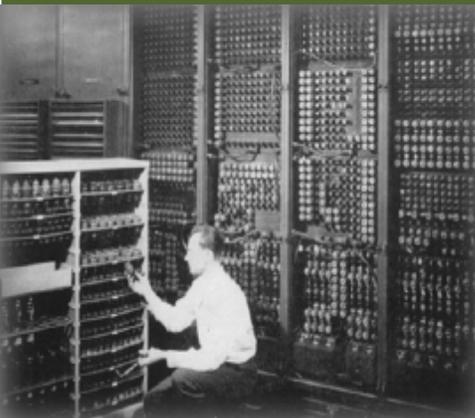

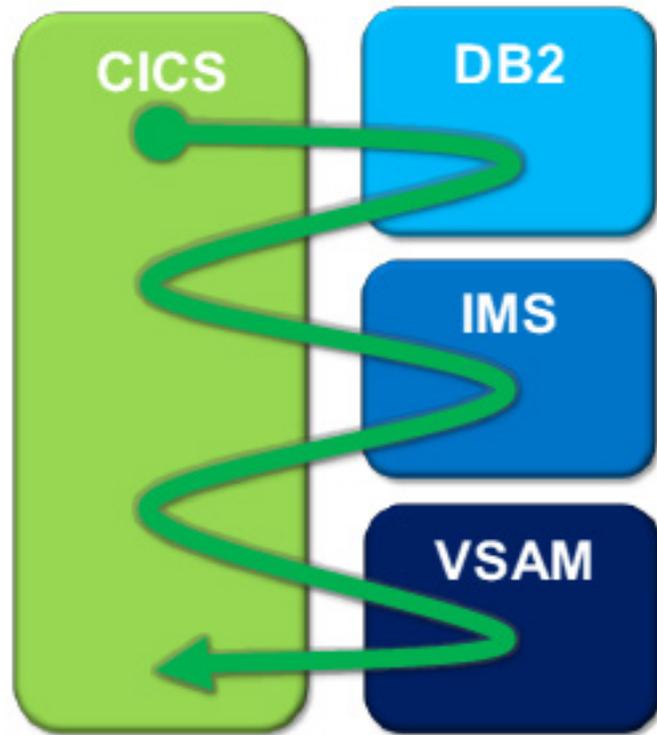**Figure 1: Comparing application structure**

analysis sessions.

Ezriel Gross is CEO of Circle Software Inc, an IBM Business Partner that specializes in hands-on classes in CICS, DB2, and MQSeries. Ezriel has been a "Gold Consultant" for many years and attends the annual Gold briefing to keep current.

Contents:

James started his presentation by saying that 1980s application had in-house users only, used simple data, and there was a single data store. Whereas today, users might be customers, and the data is complex, heterogeneous, and often distributed (see Figure 1). In the 1980s, users were company employees, and the database was DB2 or IMS DB. Today, the users are employees, customers (public), and automated systems. And the transaction manager might be CICS or IMS TM talking to WebSphere MQ, with a database that could be IMS DB, DB2, or even non-Z servers.

So when there is a problem, the question asked is: "Where is the problem in my z/OS transaction?" This is immediately followed by: "Who's fault is it anyway? Is a subsystem responsible, eg IMS, DB2, CICS, WebSphere MQ, etc? Or is z/OS the culprit?"

People then ask: "What instrumentation data is required for problem determination? What is available? Where/how is it collected? Is it accessible?"

And then they ask: "Who is the best person to work on this problem? How is this determined today?"

As Figure 2 illustrates,

Figure 2: Why performance issues are difficult to identify

performance issues are difficult to identify because today's complex transaction workloads may span multiple subsystems; each subsystem has its own instrumentation data, and data collection can be difficult; and complex environments increase the number of possible points of failure.

IBM Transaction Analysis Workbench for z/OS V1.2 is a tool for cross-subsystem problem analysis. It locates and extracts instrumentation data; has user-specified exceptions that identify poor transaction performance; provides a view of end-to-end transaction life-cycle

activity; and assists in better assignment of problems to the correct group.

Transaction Analysis Workbench can be used to resolve these issues. Its components are:

- ISPF dialog – used for systems definitions, interactive problem analysis, and configuring batch workloads

- Batch Interface – performs automated file selection, report analysis, and data preparation for other platforms.

- Eclipse GUI Interface – allows first responders,

IMS	CICS	DB2	WebSphere MQ, App Server	z/OS
IMS log and trace	CMF performance class (SMF 110)	DB2 log	MQ log extract	SMF
IMS monitor	CICS trace (DFHAUXT or GTF)	DB2 accounting	MQ statistics (SMF 115-1, -2)	OPERLOG
CQS log stream		DB2 performance trace (IFCIDs)	MQ accounting (SMF 116)	
IMS Connect event data (collected by IMS Connect Extensions)		Near Term History (collected by OMEGAMON XE for DB2)	WAS request activity performance statistics (SMF 120-9)	
OMEGAMON ATF				
IRLM long lock detection (SMF 79-15)				

**Figure 3: Workbench: Instrumentation data sources**

application development teams, and other non-expert users to gather and perform basic diagnostics on the instrumentation data. Figure 3 illustrates the instrumentation data sources.

Workbench's Session Manager (ISPF and GUI) has problem analysis information maintained using the Workbench repository. This includes: problem registration details; workflows and session templates; extracted subsystem and z/OS instrumentation data; reports run; interactive analysis sessions (ISPF only); notes; and analysis history (ISPF only).

Workbench Transaction Index processing is shown in Figure 4. Transaction indexes are created by the workbench (a session workflow will create them). They are used to identify all the transaction and UOR workloads in IMS, DB2, and CICS. The transaction index is a special extract – one record per transaction in time sequence. They contain summarized performance and resource usage information that can be filtered to include exception transactions only, and can be used for reporting and to identify problem transactions.

Ezriel Gross demonstrated a deep-dive investigation using CICS Trace. He said that the CICS trace (either DFHAUXT or GTF) can be used as a diagnostic data source to identify where the CICS transaction delays occur. Individual transactions can be tracked; including alongside CMF and the DB2 trace if required. EXEC CICS and SQL calls can be analyzed in detail. Trace events are displayed in the same familiar format as IPCS. However all the standard workbench formatting and navigation features apply, making the CICS trace more accessible. The entire contents of the
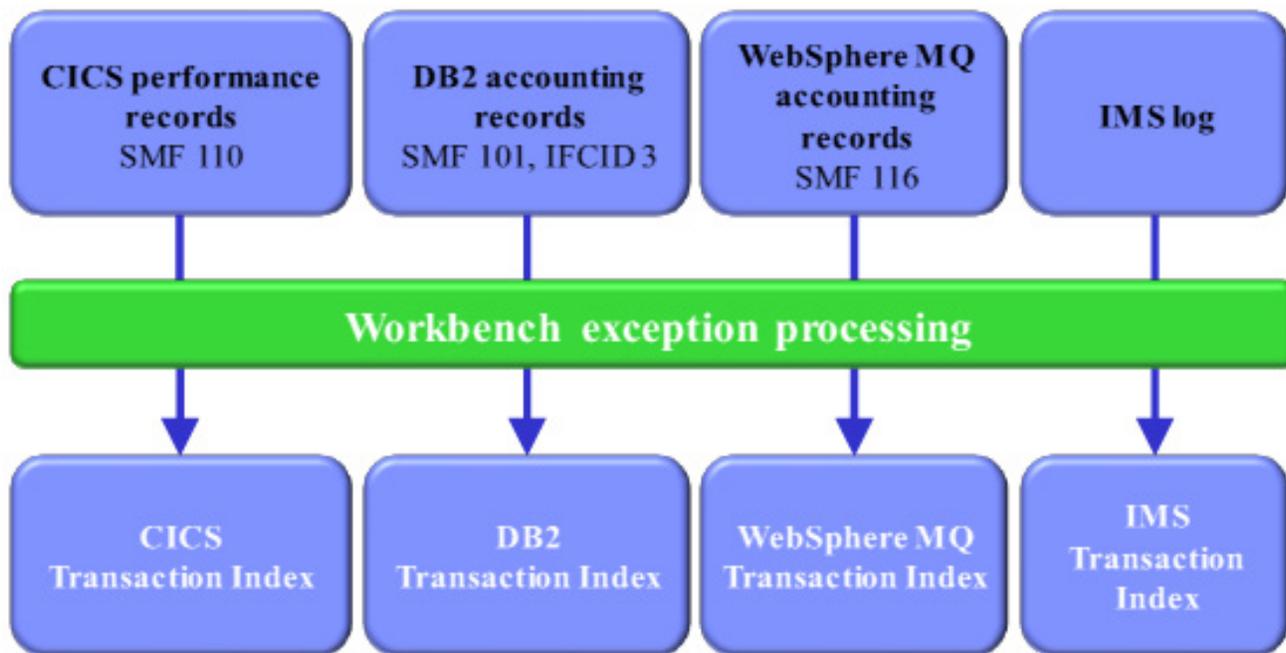
Figure 4: Workbench transaction index processing

trace entry can be displayed, making elapsed time delays easily identified. When GTF is collecting both the CICS and DB2 traces, then you will see both in the display.

For sites concerned about Mobile Workload Pricing, Transaction Analysis Workbench provides a CSV file containing selected (mobile, for example) transaction CPU usage information. The CSV can then assist you in measuring your mobile workload for IBM Mobile Workload Pricing for z/OS.

Sites can measure Big Data and IT analytics using Transaction Analysis Workbench (see Figure 5). Most z/OS-based performance instrumentation can be loaded quickly and easily into HADOOP; including SMF, CICS, DB2, IMS, WebSphere MQ, and WebSphere Application Server. There's support for InfoSphere BigInsights and Cloudera. CSV can be written directly into the zFS file system. (ASCII format is compatible with the requirements of the HADOOP UPLOAD. You can use NFS or FTP to facilitate

Figure 5: Big Data and IT analytics using Transaction Analysis Workbench

scheduled and automated uploads into HDFS).

The ISPF dialog provides the "Big Data" option to assist you in the set-up of jobs to collect the required data and generate the necessary CSVs. The CSV process generates additional output to assist in the take-up of:

- HCatalog – table abstraction and a storage abstraction system that makes it easy for multiple tools to interact with the same underlying data

- Schema – DDL to create a DB2 table

- JSON metadata – describes all the fields in the table by name, with their attributes, as well as a detailed description

A copy of James and Ezriel's presentation is available for download from the Virtual CICS user group Web site at www.fundi.com/virtualcics/presentations/badhappenstransactions Mar15.pdf.

You can see and hear the whole user group meeting by downloading the WMV file from www.fundi.com/virtualcics/presentations/2015-03-03meeting.wmv.

Meeting dates

The following meeting dates have been arranged for the Virtual CICS user group:

- On 5 May 2015, we have Eugene Hudders talking about, "CICS tuning 101".

- On 7 July, we have Mary Abdill, and her presentation is Getting down to basics

We will be using Citrix GoToMeeting for the user group meetings.

Recent CICS articles

Enabling simple and rapid mobile connectivity to CICS applications by Kate Robinson in the Winter issue of *Enterprise Tech Journal*. You can find the article at http://ourdigitalmags.com/publication/?i=243251&p=10.

DMS/CICS still exists by Don Fowler in the Winter issue of *Enterprise Tech Journal*. You can find the article at http://ourdigitalmags.com/publication/?i=243251&p=50

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 www.fundi.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 trevor@itech-ed.com.

The Virtual CICS user group is free to its members.