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, "CICS Performance and Tuning 101", and was presented by Ezriel Gross, CEO of Circle Software Inc.

Ezriel is Chief Executive Officer of Circle Software Incorporated, formally Circle Computer Group LLC, 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. Besides consulting, he teaches and develops CICS courses for both IBM and Circle. His specialties include: CICS Web Services, CICS Web Support, CICS Performance/Tuning, CICS Internals, and CICSplex SM.
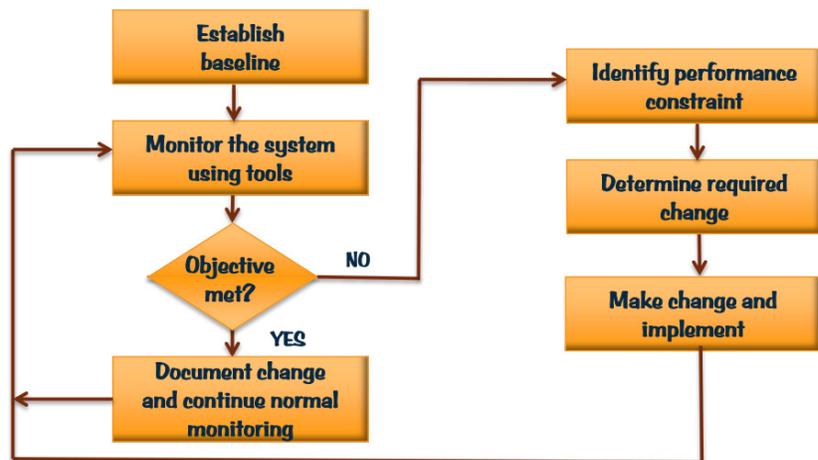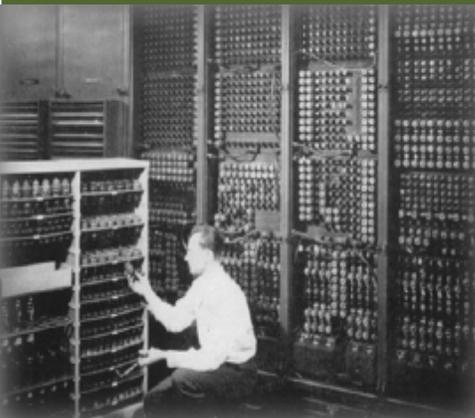

Figure 1: Methodology

Ezriel Gross started his presentation by asking why tune? He suggested that the reasons included: poor response times (application versus system; network; and DASD); increased workload (through consolidations and increased volumes); hardware considerations (to postpone upgrades); application costs; and learning experience.
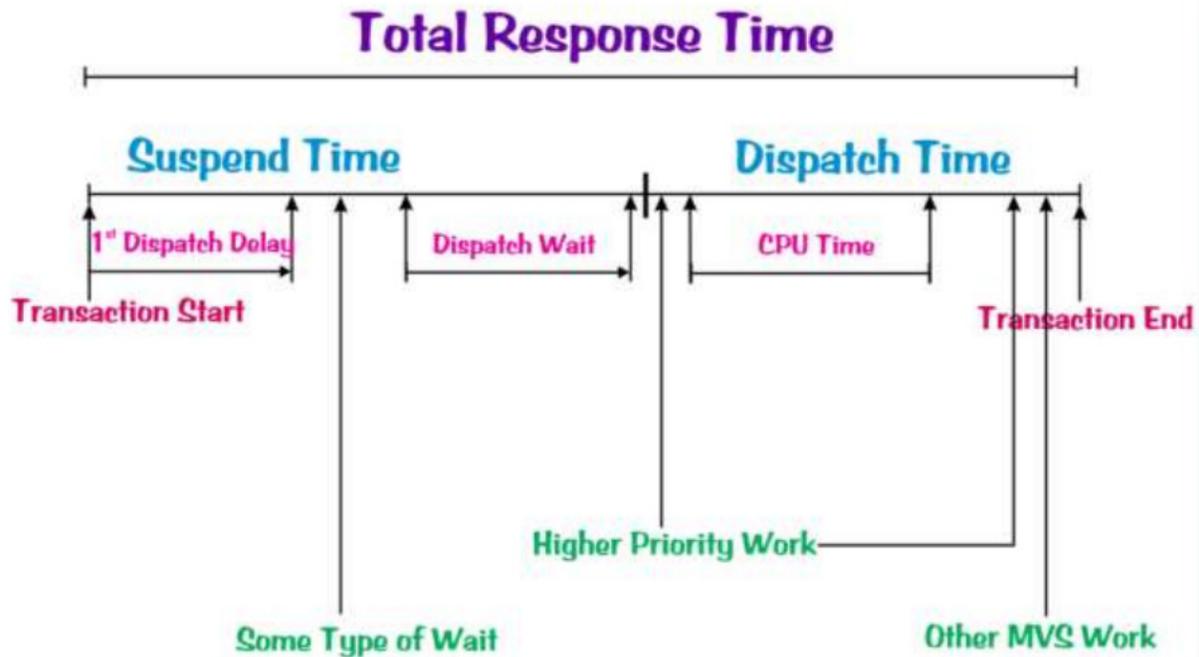
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Figure 2: Response times

Ezriel went on to provide some rules before starting. He suggested that:

- Tuning is a "top-down" activity

- Make changes to address major constraints

- One major change at a time

- Some changes require iteration to find the right values

- Change should be done gradually and monitored

- Tuning will not always be effective

- Do not tune for the sake of tuning

- Have a fallback position.

Figure 1 shows the methodology to use. Firstly observe. Understand your startup procedure and workload; set realistic objectives; and develop a baseline to which you can compare (eg CPU utilization: overall and CICS; number of tasks per day or hour: peak and average; and response times).

Secondly measure. Identify areas to tune; determine measurement timeline; and select tools to be used (IBM supplied: DFH0STAT, EOD Statistics, CICS tables/RDO information, LISTCAT etc. Or use third-party monitors and tools).

Thirdly, analyze. Review outputs, and identify tuning opportunities

Next, react. Make appropriate changes (use test or quality environments first; make major changes one at a time; follow installation standards: change management; and ensure a backup or fallback plan is ready).

The next step is to verify. Review results from changes, and make appropriate changes, as required (some tuning may require several iterations: for example LSR pool tuning); go back to the Measure step until changes are meeting your objectives.
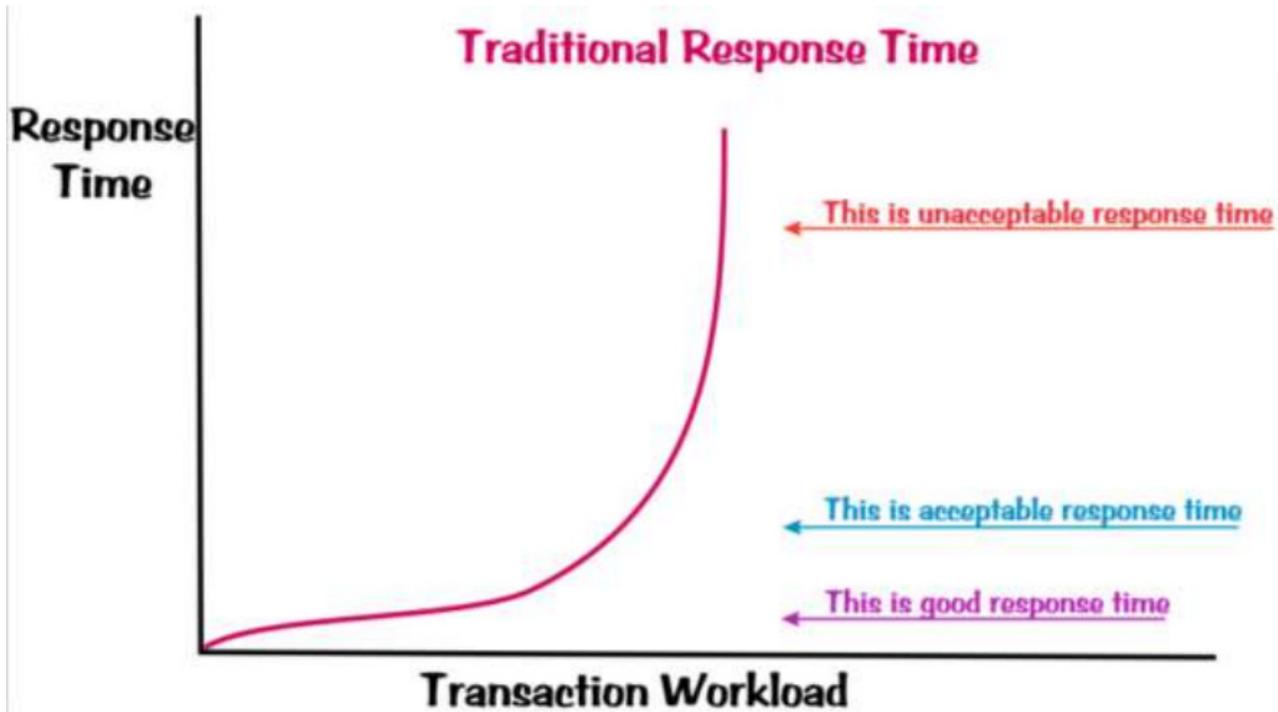
Figure 3: Resource load

Lastly, implement. Move to production and go back to the Observe step.

Performance opportunities include: response time problems; processor overloaded; CPU problems and costs; provision for increased workloads; availability and reliability problems; lack of certain types of CICS resources; capacity planning base line; and realization of new technologies.

Figure 2 illustrates response times. They depend on: system response, including allocation of resources, processor speed, and design of application code; network response including transmission through the network; DASD response including cacheing and buffering to reduce or eliminate response time; and increased workload, which can cause failures in otherwise stable environments.

Response time consists of two elements:

- Suspend time: the time a task is not executing (waiting).

- Dispatch time: the time that CICS thinks the task is executing. This time is further divided into: CPU time – the time the task is executing on CPU; and Wait time – the time the CPU has been taken away from the task without the knowledge of CICS.

The CPU to dispatch ratio = (CPU time/dispatch time) * 100. And the objective is 80% or higher.

Figure 3 illustrates the Resource load.

What tools are available for you to measure what's happening in CICS. Ezriel suggested CMF (CICS Monitoring Facility), DFH$MOLS, CICS Monitoring Control Facility (CEMN), DFH0STAT, and other products. Ezriel went into some details showing how each could be used.
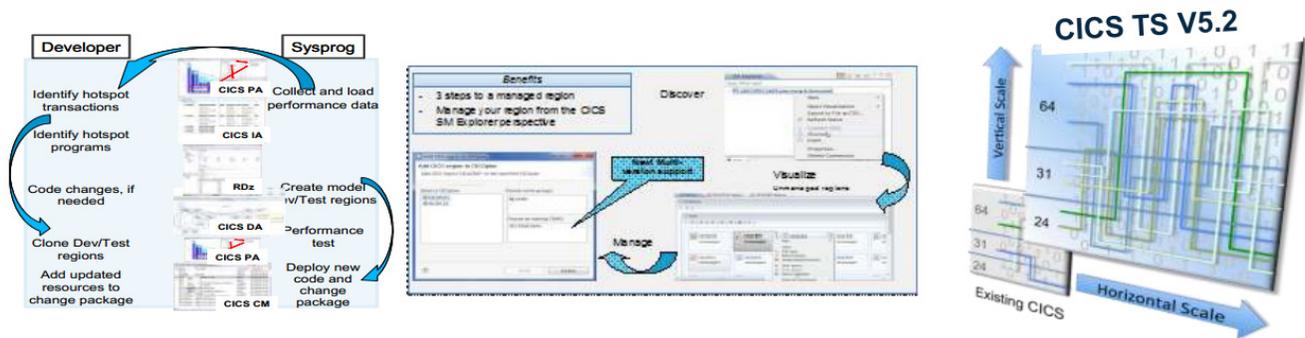
Figure 4: Three steps to CICS operational efficiency

Ezriel then spent some time looking at what could be tuned and made numerous suggestions about how to tune: Maximum Tasks (MXT); Transaction Class (TCLASS); Task Priority and PRTYAGE (SIT); Region Exit Interval (ICV); Interval Runaway (ICVR); Multi-Tasking (DTIMEOUT); and Deadlock Timeout (DTIMEOUT).

Ezriel concluded by saying that users need to optimize applications, systems, and processes to achieve more with less. Figure 4 illustrates the three steps to operational efficiency.

Step 1 is threadsafe analysis and implementation to reduce CPU utilization by up to 20 percent.

Step 2 is Workload Management to cope with mobile scalability and availability needs.

Step 3 is Region Consolidation to reduce management overhead and

CPU utilization (up to 10 percent).

A copy of Ezriel Gross's presentation is available for download from the Virtual CICS user group Web site at www.fundi.com/ virtualcics/presentations/ CICSPerfTuning101Mar16. pdf.

You can see and hear the whole user group meeting by downloading the WMV file from www.fundi. com/virtualcics/ presentations/2016-03-08meeting.wmv.

Meeting dates

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

- On 3 May 2016, we have Enterprise Systems Associates, Inc's Dan Eilam talking about "Sampling products for CICS".

Sampling and APM products such as Strobe can be used to get insight for improving application performance and for lowering costs by remedying inefficiencies. This session will cover the challenges that CICS environments present over batch - especially when using such tools in a production environment.

- The following meeting is on 12 July 2016.

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

Recent CICS articles

*CICS Serviceability Enhancements to Dump and Trace b*y Andy Wright and Darren Beard in *Enterprise Tech Journal* issue 1 2016. You can find the article at http://ourdigitalmags. com/publication/?i=294373

&article_id=2426330&view=articleBrowser&ver=html5#{%22issue_id%22:294373,%22numpages%22:1,%22view%22:%22articleBrowser%22,%22article_id%22:%222426330%22}

Java for CICS – Developing RESTful web services in Liberty with JAX-RS by Philip Wakelin on developerWorks (11 March 2016). You can find the article at https://developer.ibm.com/cics/2016/03/11/java-for-cics-developing-restful-web-services-in-liberty-with-jax-rs/.

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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.