Life begins at 40... Happy birthday, CICS

BY DAVID REYNOLDS AND NICK GARROD

On July 8th, 1969, just after the first flights of Concord and the Jumbo jet and just before the first moon landing, a song in the UK topped the pop charts, "Something in the Air" by Thunderclap Newman, and how true this was as IBM® announced the System/360™ Customer Information Control System, program product 5736-U11, or what came to be known as CICS® for short. The basic control system modules needed up to 15,000 bytes of core storage. A system supporting 50 hardcopy terminals, three file data sets, 100 programs, 50 transaction types, and 50 queues needed about another 20,000 bytes for tables and work areas. All that was yours for $600 a month.

CICS had been developed primarily in Des Plaines, Illinois, by a small team led by Ben Riggins, an IBM systems engineer, in conjunction with the Virginia Light and Power Company of Richmond, Virginia. It was originally called Public Utility CICS or PUCICs. Fortunately, companies other than public utilities were queueing up to buy a general-purpose transaction processor and before the announcement**,** the name was changed to just CICS. Before that, companies tended to create their own transaction processing systems, at great cost; using CICS, they could concentrate their resources on their applications.

The rest is history... 40 years of it.

CICS development finds a new home

In 1974, in its childhood, CICS development was moved from Palo Alto, California to Hursley. At the same time, IBM completed construction of its new Santa Teresa Labs in California. Some commentators thought that CICS would wither after it was away from the IBM decision makers in California, but the move encouraged a focus on the challenge at hand without the distractions of other large software projects. Decisions made at the Hursley location when it took ownership of CICS---and the quality of the programming---have been critical to the technology's remarkable longevity.

CICS Transaction Server (TS) offers robust, high-volume transaction processing for existing and new business applications using any programming model. Customer information control is no misnomer; CICS really does serve customers.

Because transactions, of course, are what business computing is all about. Here are some statistics.

- Used with IBM mainframes, CICS easily supports thousands of transactions per second.
- The thousands of CICS installations all over the world support over 30 billion transactions carrying a value exceeding $1 trillion every day.
- It is used by 90% of the Fortune 500 companies and runs on 90% of the world's mainframes, and it is the epitome of scalability: 900,000 concurrent users can be supported.
- CICS is the backbone of for much of the world's enterprise computing. CICS users average about 2.5 million transactions a day.
- One of the largest CICS installations, at a Brazilian bank, runs 230 million transactions daily.

The best technologies

In general, IBM Hursley's approach was to use not the latest, but rather the best technologies in support of CICS, and that was a big factor in its long-term success. The initial application programming interface for CICS was of a type commonly called a *macro-level interface*. It gave CICS some commonality across the assembler, COBOL, and PL/I languages. The interface, however, had its critics among users and product developers alike. Hursley programmers came up with the command-level interface, which is still with us today. It isolated the application from its physical environment and enabled distributed systems. It also ensured that users would not lose customizations when the system was upgraded to new releases.

Another change, part of the CICS re-architecture first done at Hursley, was the introduction of Resource Definition Online, which allowed the addition of applications, files, and databases with implementation in real time and without disruption to normal operation. It also allowed a single CICS implementation to be effectively partitioned across multiple sites or applications.

Later, CICS was rewritten once more at Hursley to achieve what is called a domain architecture. This meant that inside CICS there was only one place where each function resided. Previously, individual programmers would sometimes duplicate programming functions within different elements of the same system. When the inevitable error was introduced, it could be very difficult to pinpoint its origin because of the lack of programming discipline. The result is that users today can run CICS routinely for long periods without error.

Most recently, CICS has added support for service-oriented architecture (SOA), SOAP, and XML. Other significant support added to CICS includes of Java™ and seamless connectivity with IBM WebSphere® environments. CICS Transaction Server Version 3.2, released a couple of years ago, fulfilled more than 80 customer requirements. CICS Transaction Server Version 4.1, released in June this year, fulfilled another 60, including the highly requested MQ Group

attach, and the creation of the CICS Explorer, which moves away from the old mainframe, green screen interface to the dragging and dropping and mouse clicking that suits the younger generation of systems operators, developers, and administrators. (Be sure to check out the article "Simply CICS: CICS Explorer" in *z/OS Hot Topics Newsletter Issue 21,* August 2009, GA22-7501-17.)

A remarkable success story

CICS is at the heart of our daily lives. Its ability to securely manage so many transactions at the same time has led directly to deployments that support mass-consumer societies and make globalization possible. CICS is there when you draw money from cash machines (ATMs), when you insure your car (or, worse, have to make a claim), when you buy the last garment in a shop and it's time to order more of them, and when you book a flight. And on and on. You can't get away from it! This remarkable record has led some to say that CICS is probably the most successful piece of software of all time, with millions of users unknowingly activating it every day, and that if it were to disappear the world economy would grind to a halt.

Hursley's contribution in making CICS a market leader---and in its remarkable continuing success amidst a rapidly evolving computing infrastructure---means that CICS will long be a force in the world of computing and in the software portfolio at Hursley.

40 second birthday salute

Click on one of the following URLs to check out YouTube's salute to 40 years of CICS. Here's to many more!

http://www.youtube.com/watch?v=0L_GIDBfw9k&feature=channel_page

ftp://ftp.software.ibm.com/software/htp/cics/demos/Noel4CICS_final_edit.wmv

Author biographies:

Nick Garrod is Worldwide Marketing manager for CICS. In his 30 years with IBM he has worked in both CICS and WebSphere MQ marketing groups as well as various business positions in CICS.

David Reynolds began work at IBM as a technical writer in 1984 on CICS/OS/VS 1.7. He has worked on CICS on and off ever since, other projects including WebSphere MQ, business integration, and Java. He is now the technical editor for the CICS information center.