



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 introduction to Web services for the system programmer", and was presented by Ezriel Gross, CEO of Circle Software Inc.

Ezriel is the 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.

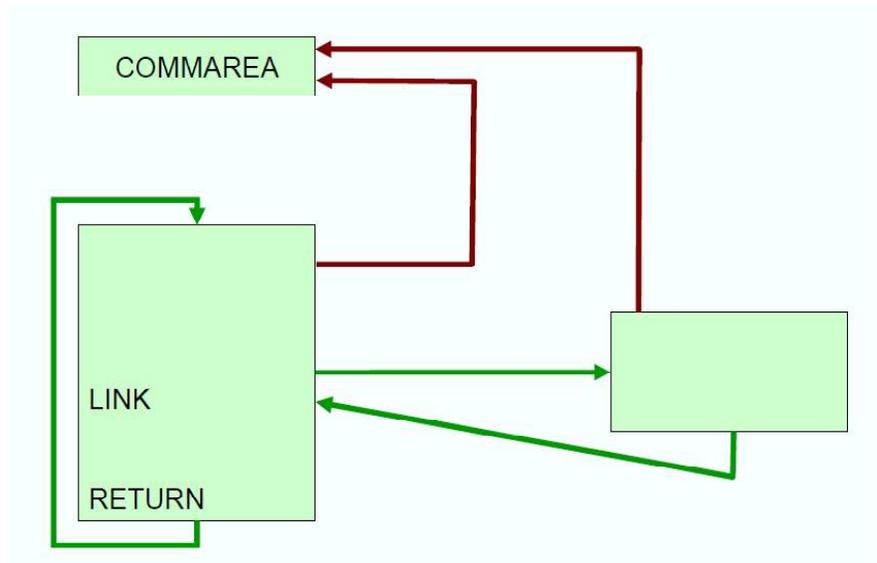
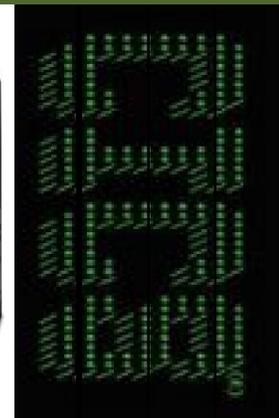
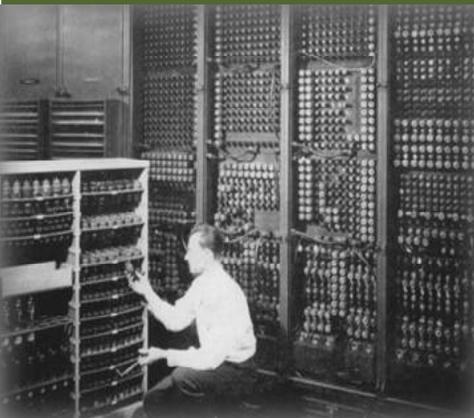


Figure 1: Continually using a COMMAREA

Ezriel looked at why CICS programmers had originally used conversational transactions, but warned that they shouldn't anymore. He then looked at pseudo-conversational transactions, saying that they use the TRANSID= option of the Return command to nominate the next transaction to be invoked. and place data to be passed from one transaction

Contents:

Virtual CICS user group presentation	1
Meeting dates	6
Recent CICS articles	6
CICS news	6
About the Virtual CICS user group	6



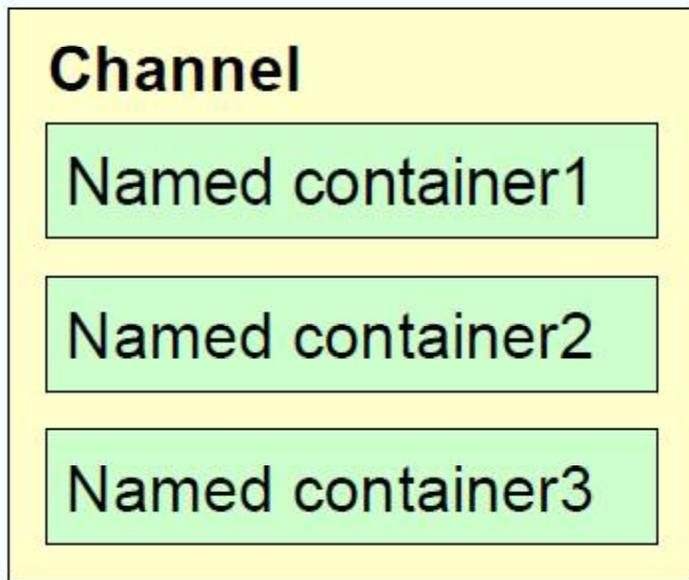


Figure 2: Channel and containers

to another in the COMMAREA.

Ezriel informed us that pseudo-conversational coding is less resource-intensive, user think time costs are eliminated, and you can run more simultaneous transactions. On the other hand, programming is more difficult, application design requires re-starting programs, it's more difficult to debug programs, and programs require an area to store data between tasks.

That's where the Communication Area (COMMAREA) comes into play. It's a terminal-based scratchpad that's dynamic in size (0 to 32,500 bytes), and is private and chained to the terminal.

The COMAREA is used to

hold data between pseudo-conversations, has a maximum in size of 32K, can be passed from program to program, can be empty, partially full, or full, is automatically cleaned up when not used, and is attached to the terminal. An example of continually using a COMMAREA is shown in Figure 1.

Program-to-program communication uses:

- CALL – non-CICS, can be used with CICS
- LINK – CICS to CICS
- XCTL – CICS to CICS
- ECI Call – CICS client to CICS
- EXCI Call – z/OS to CICS.

COMMAREA is supported in all call types.

COMMAREAs have obvious limitations. Channels and containers (see Figure 2) offer certain advantages. There are no size limitations of data in containers. The number of containers in a channel is unlimited. There can be separate containers for input and output.

Another alternative is an XML front-end application (see Figure 3). This has the advantage that:

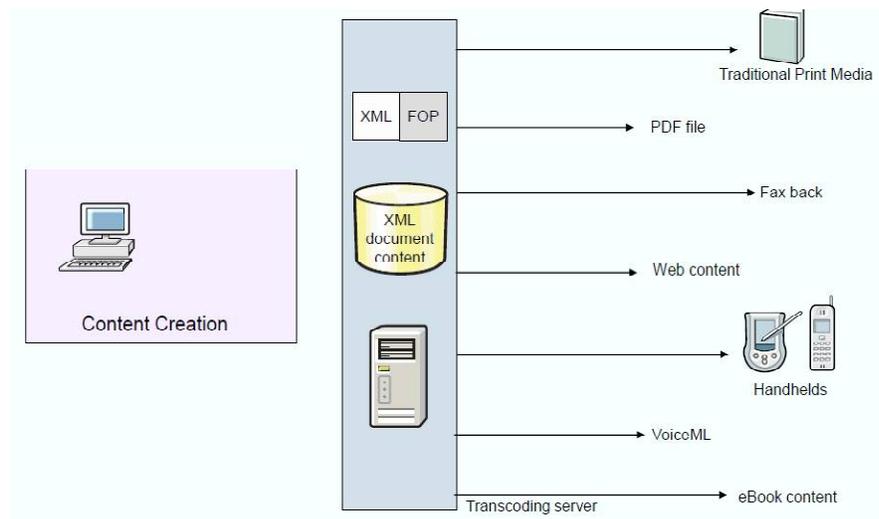


Figure 3: XML front-end application

- Extensible Markup Language (XML), is owned by the World Wide Web Consortium (W3C).
- XML is an open standard protocol that provides a mechanism to create and define a meta-language that can be used to structure information.
- XML is extensible in that there are no pre-defined tags, as in HTML. Each set of users defines tags that have meaning to them and their peers, such as within a business, across an industry, or across multiple industries.
- XML is used to create new Internet languages. XML tagging means that the context of the data is retained along with the information. Therefore, a name is not just a string of characters but can be described as a customer name, last name, first name, and so forth.
- XML is portable and self-defining, down to the code page used, so you can ship XML to any platform and to any application worldwide. If that application is able to process XML, you know that the information can be retrieved and processed.
- As the creator of XML, you do not need to understand where the data will

eventually be used.

- As the receiver of XML, you do not need to know where it originated.

Ezriel offered the following XML glossary:

- Extensible Stylesheet Language Transformation (XSLT) is the recommended style sheet language of XML.
- XML namespaces: In XML, element names are defined by a developer.
- XML schema is an XML document that describes the structure and constrains the contents of other XML documents.
- XML parser is a program that is invoked by an application to process an XML document, ensure that it meets all the rules of XML as well as the syntax of the DTD or schema, making the data available to the calling application.

XML Parsers:

- Document Object Model (DOM) builds a tree structure in memory as a result of parsing an input document.
- Simple API for XML (SAX) triggers an event when a tag is encountered, causing execution of an event handler.
- Most parsers validate an

input document against a document type definition (DTD).

XML generators:

- DOM-based generators walk the tree structure and produce a valid XML document as a result.
- Template-based generators insert data values into a pre-built XML document template.

XML transformers transform a document with one DTD into a document with a different DTD, using corresponding tags.

Ezriel moved on to give the user group a CICS Web services overview:

- Web services terms and concepts available in CICS TS
- Web services architecture: service provider/service requestor/service registry
- WSDL
- SOAP messages
- Message handlers and pipelines
- PIPELINE and WEBSERVICE resource definitions.

A Web service is a collection of operations that are network accessible through standardized XML messaging. The Web

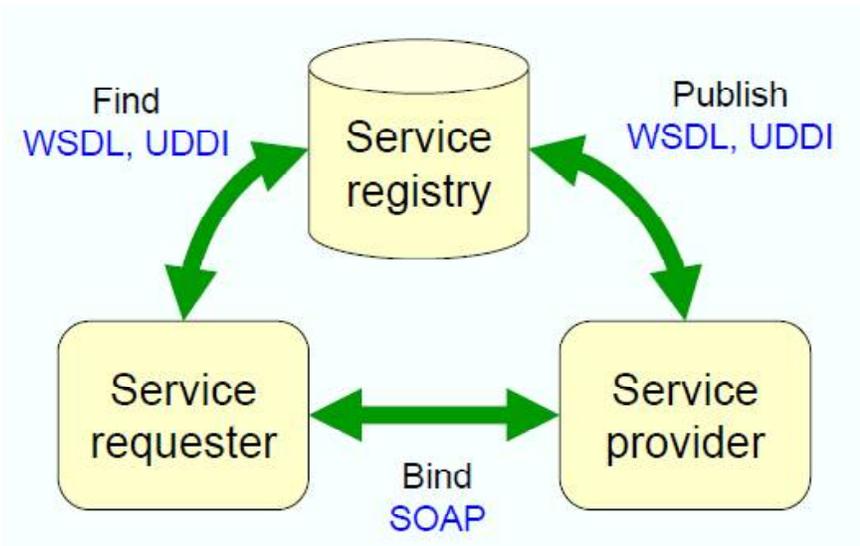


Figure 4: Web services architecture

- Types – the data types in the form of XML schemas
- Message – an abstract definition of the data in the form of a message
- PortType – an abstract set of operations mapped to one or more end points
- Binding – the concrete protocol and data formats for the operations
- Service – a collection of related end points.

services architecture is based on interactions between three components – service provider is the platform that hosts access to the service; service requester is the application that is looking for and invoking or initiating an interaction with a service; service registry is a place where service providers publish their service descriptions, and where service requesters find them.

and invokes the service using the WSDL. The service registry hosts the service description and is optional for statically bound requesters.

Web Service Description Language (WSDL) is an XML application for describing Web services. WSDL comprises:

Simple Object Access Protocol (SOAP) is an XML-based protocol for the exchange of information in a distributed environment. A SOAP message is encoded as an XML document, consisting of an <Envelope> element, containing:

- The SOAP <Header> is an optional element within the

Universal Description, Discovery and Integration (UDDI) is a specification for distributed Web-based information registries of Web services.

Web services architecture is illustrated in Figure 4. The service provider “owns” the service, creates the WSDL, publishes the WSDL, and processes the requests. The service requester “finds” the service, binds to the service,

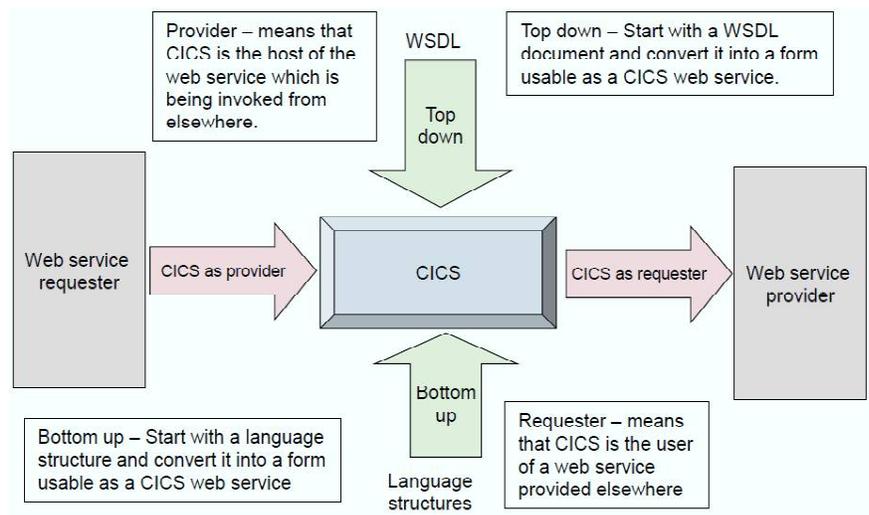


Figure 5: Web services development

SOAP message, and is used to pass information in SOAP messages that is not the application payload. The SOAP header allows features to be added to a SOAP message. SOAP defines a few attributes that can be used to indicate who should deal with a feature and whether it is optional or mandatory.

- The SOAP <body>, a mandatory element, contains information intended for the ultimate recipient of the message. In CICS terms, this will become the COMMAREA for the application program.
- The SOAP <fault>, contained within the <body>, is used for reporting errors.

Circle Software's Ezriel Gross described the CICS Web services assistant as a set of batch utilities that can help you to transform existing CICS applications into Web services and to enable CICS applications to use Web services provided by external providers. Web services development is illustrated in Figure 5.

The CICS Web services assistant comprises two utility programs:

- DFHLS2WS generates a Web service binding file

from a language structure. This utility also generates a Web service description.

- DFHWS2LS generates a Web service binding file from a Web service description. This utility also generates a language structure that you can use in your application programs.

You can use Rational Developer for System z for Web services and XML development. It offers the ability to create, view, edit, and validate WSDL, documenttype definitions (DTD) and XML schemas, transforms XML documents into text, HTML, or other XML document types. It integrates relational databases and XML. It generates COBOL adapters and CICS TS V3 WSBind and COBOL artefacts for converting between Web Service Definition Language. The CICS service flow feature provides components that extend CICS Transaction Server by providing adapters that exploit CICS interfaces to invoke the CICS terminal-oriented transactions and COMMAREA programs required by the Web service generated from the service flow project.

A CICS pipeline is responsible for dealing with SOAP headers. It's implemented as a series of programs, and can be

configured by end users by using message handlers.

A message handler is a program in which you can perform your own processing of Web service requests and responses.

A pipeline is a set of message handlers that are executed in sequence.

Web services in CICS build on established CICS concepts and technologies such as pseudoconversational transactions and program-to-program communication via COMMAREAs (or channels and containers). Web services introduce new concepts and technologies such as XML, SOAP, and WSDL. Web services involve a combination of CICS resource definitions (PIPELINE, WEBSERVICE, and URIMAP). CICS TS provides utilities for converting existing CICS applications into Web services. IBM provides other tools to help develop Web services

A copy of Ezriel's presentation is available for download from the Virtual CICS user group Web site at www.fundi.com/virtualcics/presentations/WebservicesJul12.pdf.

You can see and hear the whole user group meeting by downloading the WMV file from www.fundi.com/virtualcics/presentations/2012-07-19meeting.wmv.

Meeting dates

The following meeting date has been arranged for the Virtual CICS user group:

- 11 September 2012 – Don Spoerke, Mainframe SOA Evangelist at GT Software will be giving a presentation.

The final meeting date for this year is 6 November

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

All meetings start at 10:30am Central Time (4:30pm GMT in the winter and 3:30pm GMT during daylight saving time).

Recordings of meetings are available for download from our Web site for people who were unable to attend the meeting.

Recent CICS articles

CICS 101: Debugging Problems by Phyllis Donofrio in *Enterprise Tech Journal* (June/July) – *z/Journal's* replacement. You can find the article at www.mainframezone.com/article/cics-101-debugging-problems.

CICS Transaction Gateway V8.1: What's New and Why It Matters by Paul Crockett in *Enterprise Tech Journal* (June/July). You can find the article at

www.mainframezone.com/article/cics-transaction-gateway-v8.1-whats-new-and-why-it-matters.

OMEGAMON XE for CICS on z/OS V5.1: Providing an Integrated Monitoring Infrastructure by Chris Walker in *Enterprise Tech Journal* (June/July). You can find the article at www.mainframezone.com/article/omegamon-xe-for-cics-on-z-os-v5.1-providing-an-integrated-monitoring-infras.

CICS news

Oracle has announced Oracle Tuxedo ART 12c, which lets sites run mainframe applications on Exalogic. Tuxedo ART currently emulates CICS, and, with this release, ART will also emulate IMS. Sites running CICS could move their applications to Tuxedo and have them run on Exalogic.

Full details can be found at <http://www.oracle.com/us/corporate/press/1721980>.

IBM has announced IBM SmartCloud Enterprise+ mainframe edition, which means that mainframes will be available for its SmartCloud customers later this year. It will support recent releases of z/OS, CICS, DB2, IMS, WebSphereMQ, and WebSphere application server.

Full details can be found at <http://public.dhe.ibm.com/common/ssi/ecm/en/zsw03217usen/ZSW03217USEN.PDF>.

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.