

## CICS/TS Webservices

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### Course Summary

#### Description

Engaging with the internet is now a necessity, and IBM has incorporated various features into its CICS product to streamline the incorporation of traditional CICS applications onto the internet. Presently, CICS applications can seamlessly communicate with both web browsers and web servers. With the integration of web services, SOAP, and JSON, they can extend their communication capabilities to include mobile devices, UNIX, and .NET platforms. In summary, CICS/TS has become a pivotal component in implementing Service Oriented Architecture within your organization.

#### Topics

- Introduction
- HTTP 1.1 support
- CICS Channels and Containers
- WEBSERVICE, SOAP, JSON and XML
- CICS as a WEBSERVICE provider
- CICS as a WEBSERVICE requester
- Message processing
- Security

#### Audience

This course is designed for programmers, designers, system architects and system administrators interested in this subject. Please note that there are 5 exercises which will require a little programming; all exercises will be using COBOL program skeletons.

#### Prerequisites

Before taking this course, students should have some knowledge of the CICS API.

#### Duration

Four days

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### Course Outline

#### I. Introduction

- A. This section will provide a quick review of the web facilities available in CICS; it will discuss CICS/WEB API, CICS DOCUMENT API and TCP/IP API that have been available for a while now. It will also provide an overview of the various ways one can connect to a CICS system.

#### II. HTTP 1.1 support

- A. HTTP opens new doors to CICS applications. We will discuss the HTTP RFC date format and the CICS commands that will help you get to these new formats, chunked and pipelined messages, virtual hosts, CICS URIMAP and TCPIP SERVICE definitions, compliancy rules, behavior of the CICS Web Monitor transaction. The exercise will be about formatting dates so they can display in HTTP RFC format.

#### III. CICS Channels and Containers

- A. Web services can be implemented using either COMMAREA or CONTAINERS but using CONTAINERS to pass information between processes is by far the better approach. This chapter describes the CICS/API commands related to implementing CONTAINERS in your CICS programs. We will discuss the GET, PUT and MOVE commands as well as providing information on how to browse through the list of CONTAINER names available within the CHANNEL. It will review existing CICS/API commands that can be used to pass CHANNEL to other programs, namely XCTL, LINK, START and RETURN. The hands-on exercise will consist of converting 2 programs which are using COMMAREA to CONTAINERS. This technology is required when writing webservice requester applications.

#### IV. WEBSERVICE, SOAP, JSON and XML

- A. This chapter provides a brief overview of these facilities. Since they rely heavily on XML, we will also discuss the tools that are available to programmers for dealing with XML messages. WSDL and JSON schemas are reviewed, and we also explain the differences between SOAP and JSON services.

#### V. CICS as a WEBSERVICE provider

- A. In this section, the attendant will build the necessary objects that will make CICS a provider of webservices. We will discuss the webservice assistant DFHLS2WS in detail, review the parameter to the utility, the rules that the application program must follow to have a successful implementation. In this chapter, we will also introduce the concept of PIPELINE. The exercise will be about building a pipeline and preparing a server program which will be used as webservice provider.

#### VI. CICS as a WEBSERVICE requester

- A. In this section, the attendant will build the necessary objects that will make CICS a requester of webservices. We will discuss the webservice assistant DFHWS2LS in detail, review the parameter to the utility, the rules that the application program must follow to have a successful implementation. A review of the CICS commands available to the programmer to invoke a webservice will also be provided. The exercise will be about building a pipeline and preparing a requester program which will invoke the webservice provider application prepared in the previous exercise.

#### VII. Message processing

- A. In this section, we discuss some of the elements involved in processing web services. More specifically, we will review the methodology to use when dealing with arrays and variable arrays in a web service message, processing MTOM/XOP and current WSDL facilities supported by CICS/TS

#### VIII. Security

- A. A brief overview of the security available in CICS/TS will be provided; we will discuss the changes to SSL support, certificate revocation lists, behavior changes of the EXEC CICS VERIFY PASSWORD command and the introduction of the support for the current TLS facility.