

Stephen Mitchell

Matter of Fact Software

Creating Modern CICS Web Applications by Exploiting
Open Source Javascript Libraries



September 2013

stephen.mitchell@matteroffactsoftware.com

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Agenda

What do we mean by CICS Web Applications?

What do Modern CICS Web Applications need?

The Challenges.

Open Source JavaScript Libraries.

Our Solution - CICS JS/Server.

Demonstration / Examples,

Summary.

Contact Details.

CICS Web Applications?

For the purposes of this presentation....

Any CICS application that involves direct interaction with a web browser over TCPIP.

Modern CICS Web Applications?

Need sophisticated user interfaces.

Should be reliable and scalable as well as secure.

Must be easy to construct and manage.

Should be able to *securely* exploit Open Source offerings such as Dojo Toolkit, JQuery, YUI Library, MooTools etc.

The Challenges?

How to get CICS to do all of this - CICS is very capable but significant expertise may be needed to achieve the desired result.

Inertia in mainframe operations - a reluctance to try anything new. Is it the opposite of Agile?

Diminishing pool of CICS experts available and they are perceived as expensive.

As ever there is a desire to make everything cheaper to create, run and manage.

Open Source JavaScript Libraries

Dojo Toolkit

D3JS

jQuery

Scriptaculous

jQuery UI

Rickshaw

MooTools

Prototype

YUI Library

others? - ask us!

Our Solution: CICS JS/Server

V1 served the Dojo Toolkit.

V2 serves Dojo Toolkit, JQuery, MooTools, YUI Library and several other Open Source Javascript Libraries.

V2 also allows bespoke content to be defined and served either in a stand alone fashion or as part of a constructed and managed new CICS Web Application.

Makes it simple to achieve business objectives and overcome many of the challenges.

The CICS Elements

CICS Resource Definitions

CICS RDO Group: DFHWEB
TCPIP Services / URIMaps
Document Templates
Web Analyser Programs

The CICS API

EXEC CICS WEB READ / SEND etc
EXEC CICS DOCUMENT CREATE / INSERT etc

Fixed Data

Document Templates
DB2 / Database records
VSAM Data
Temporary Storage Queues
other?

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Web Browsers

HTML

JavaScript Files (.js)

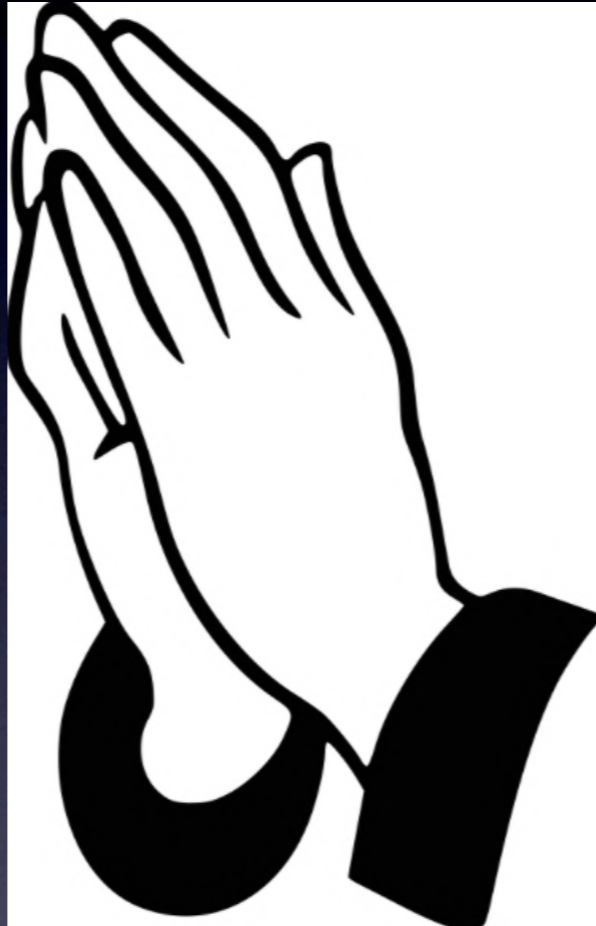
Stylesheet Files (.css)

Image files (.jpg/.gif/.png)

other file types

Browser Plugins

Live Demo



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CICS JS/Server: Open Source Resources Served

CICS JS/Server Status

ToolKit	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	Status	
	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	Vv	
DTK	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
(A)	150	161	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	Operational
JQR	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
(B)	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	Operational
YUI	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
(C)	341	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	Operational
QJY	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
(Z)	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	Operational
MOO	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
(Z)	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	145	Operational
PTY	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
(Z)	161	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	Operational
SAU	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
(Z)	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	Operational
RSW	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
(Z)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	Operational
DDD	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
(Z)	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	296	Operational

CICS JS/Server Licence - remaining days 0028

Status Display

Sample Dojo Toolkit Usage

← → ↻ 192.168.1.17:4598/CICS/CWBA/DTK0001H

Apple Google Maps YouTube Wikipedia News Popular Welcome, Steve | U

DTK0001H -::- CICS LSRPool Statistics - CICUMF36 (Dojo URL prefix: /CICS/MF3Z/dojo)

CONTEXT:

REGION:

LSRPOOL ID:

A CICS COBOL PROGRAM USED THE DOJO TOOLKIT AND CPSM DATA TO CREATE THIS PIE CHART.

CICS Region:	CICUMF36
LSRPool ID:	08
Total Strings:	50
Max. Key Length:	50
String Waits (Total):	0
String Usage (Peak):	1
String waits (Peak):	0
# Successful Lookasides:	11
# Read I/O to Data Buffers:	1

A pie chart with two segments. The larger segment is dark green and labeled 91.67%. The smaller segment is light green and labeled 8.33%.

Sample D3JS Usage

7:9639/CICS/MP3Z/DDD/IVPZ.html

Apple Google Maps Wikipedia News Popular

BBC News - Home - mi - Welcome, Ste - (2) Twitter - Master Of Fa - Get Started - Telegraph to - script.aculo.g - 192.86.32.11

D3 Examples

Content: **Bubble Chart** (<http://d3js.org/examples/tech/circlepacking.html>)

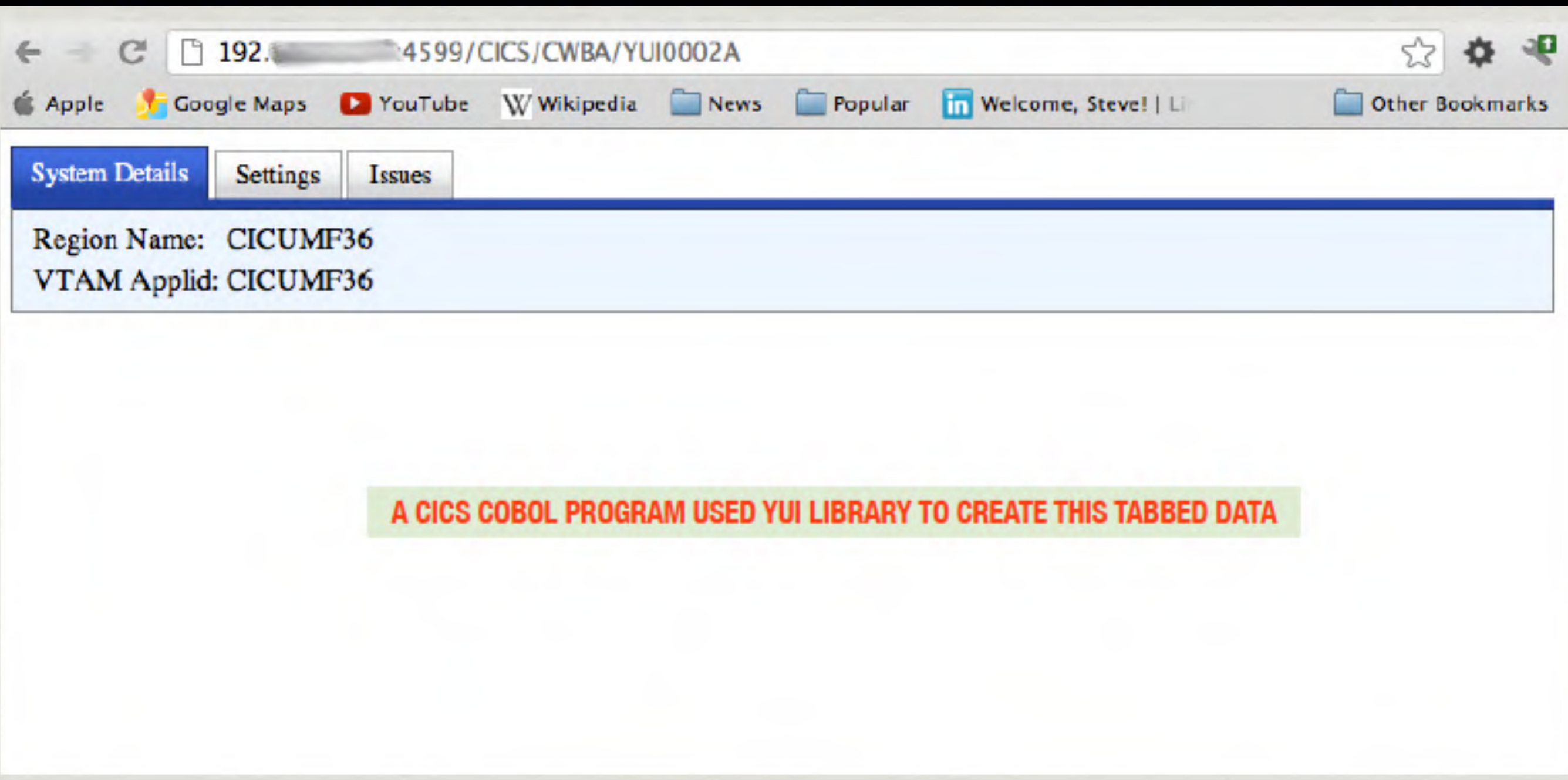
Index 2

Favourites
[Showreel](#)
[Partition - Icicle Zoom](#)
[Node-Link Tree](#)
[Chord Diagram - Interactive](#)
[Chord Diagram](#)
[Circle Packing](#)
[Custom Elements - Interactive](#)
[Flare Dendrogram](#)
[Flare Dendrogram](#)
[Force-Directed Layout](#)
[Force-Directed Layout \(Dynamic\)](#)
[Force-Directed Layout \(Multiple Forces\)](#)
[Hierarchical Edge Bundling \(Radial\)](#)
[Hierarchical Edge Bundling \(Treemap\)](#)
[Merge Sort](#)
[Mobile Patent Suits](#)
[Node-Link Tree](#)
[Node-Link Tree](#)
[Parallel Coordinates](#)
[Partition - Sunburst](#)
[Spline Editor](#)
[Treemap](#)
[Zoom](#)

THE CICS JS/SERVER IVP SHOWING THE CAPABILITIES OF D3JS.

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Sample YUI Library Usage



The screenshot shows a web browser window with the address bar containing the URL `192.168.1.4599/CICS/CWBA/YUI0002A`. The browser's bookmark bar includes links for Apple, Google Maps, YouTube, Wikipedia, News, Popular, a LinkedIn profile for 'Welcome, Steve!', and Other Bookmarks. The page content features three tabs: 'System Details' (selected), 'Settings', and 'Issues'. Below the tabs, a light blue box displays the following information:

Region Name: CICUMF36
VTAM Applid: CICUMF36

In the center of the page, a green box with red text reads: **A CICS COBOL PROGRAM USED YUI LIBRARY TO CREATE THIS TABBED DATA**

Sample JQuery Usage

jQuery UI Demos

Example: Simple Calendar with ... x jQuery UI Demos x +

9639/CICS/MF3Z/JQR/demos/index.html#datepicker|default

Most Visited Loading... Getting Started Latest Headlines BBC - Homepage

Disable Cookies CSS Forms Images Information Miscellaneous Outline Resize Tools View Source

Interactions

- Draggable
- Droppable
- Resizable
- Selectable
- Sortable

Widgets

- Accordion
- Autocomplete
- Button
- Datepicker**
- Dialog
- Progressbar
- Slider
- Tabs

Effects

- Color Animation
- Toggle Class
- Add Class
- Remove Class

FUNCTIONAL DEMO:

Datepicker

THE CICS JS/SERVER IVP DEMO SHOWS OFF THE JQUERY UI CALENDAR

Date:

July 2012						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

[Open demo in a new window](#)

Examples

- Default functionality**
- Format date
- Restrict date range
- Localize calendar
- Populate alternate field
- Display inline
- Display button bar
- Display month & year menus
- Dates in other months
- Show week of the year
- Display multiple months
- Icon trigger
- Animations
- Date Range

Sample MooTools Usage

The screenshot shows a web browser displaying the MooTools website. The address bar shows the URL: `192.168.1.17:9636/CICS/MF3Z/MOO/demos/Moo05DragCart.html`. The browser's toolbar includes icons for Apple, Google Maps, YouTube, Wikipedia, News, Popular, and a user profile for 'Welcome, Steve!'. The MooTools logo is prominently displayed at the top left, with the tagline 'a compact javascript framework'. A navigation menu at the top right includes links for Home, Download, Docs, Forge, Blog, and Demos. A red banner across the middle of the page reads 'CICS JS/SERVER SHOWS MOOTOOLS DRAG & DROP FEATURE'. On the left side, there is a 'Demos' menu with links for Chaining, Native, and Periodical. Below that is a 'Slick' menu with a link for Slick.Finder. The 'Drag and Drop' menu is expanded, showing links for Drag.Cart, Drag.Drop, Drag.Move, and Drag.Scroll. Underneath is an 'Effects' menu with links for Effects and Ex.Morph. The main content area features a 'Drag.Cart' section with the description 'Ghost dragging for Shopping Carts.' Below this is a 'Demo' button and a row of tabs for JavaScript, HTML, CSS, and Docs. To the right of these tabs is a blue button that says 'EDIT WITH JSFIDDLE'. The demo area contains a grid of six t-shirt images labeled 'Shirt 1' through 'Shirt 6'. To the right of the grid is a white box with the text 'Drag Items Here'.

Bespoke Content

Recognising a need to handle bespoke content, the ability to do so has been added to **CICS JS/Server**.

Define your own CICS Document Templates to be used by **CICS JS/Server** - can contain Javascript, Stylesheets, HTML, images and Plugins for the Toolkits/Libraries = Anything that can be served from a CICS Document Template.

Define symbolics, freeform text, Document Templates, CICS application programs and construct new CICS Web applications based on them.

Bespoke Content / Content Server - 1

A batch job that uses a specially edited Rexx Exec creates records in a *content server file*. The records added to the file are interpreted by CICS JS/Server which will create web applications based on the record contents.

Symbols can be used and substituted either by **CICS JS/Server** directly or by application programs called by the content server process.

Document templates defined to CICS can be used by the content server as part of new novel CICS web applications.

Bespoke Content / Content Server - 3

File	Type	Line	Code
/USR/test8.html	USRFILE	11 S	44 &img=favicon.ico&site=www.plexspy.co.uk&eof=
		F	274 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html> <head> <title>Test of SYMB/FREE/PRGM/DOCT</title> <link rel="stylesheet" type="text/css" href="&MF3prf;/USR/test9.css" /> <style type="text/css">
		F	41 &import "&prfx;/USR/test6.css";
		D	8 USR00096
		F	22 </style> </head>
		F	92 <body> <h1>Test of Content Server </h1> <!-- Symbol insert follows -->
		F	93 <p></p> <hr> <!-- Program 1 insert follows -->
		P	8 USR00094
		F	47 <hr> <!-- Program 2 insert follows -->
		P	8 USR00004
		F	58 Test3
/USR/test9.css	USRFILE	1 F	48 p { color:blue; font-size:2em; }

Bespoke Content / Content Server - 4

USR/test8.html application execution results

← → ↻ 192.168.1.117:9639/CICS/MF3Z/USR/test8.html

Apple Google Maps YouTube Wikipedia News Popular Welcome, Stevel | L...

Test of Content Server

■

Insert from MF3 Sample Contents Server program -- USR00094

Insert from MF3 Sample Contents Server program -- USR00004

[Test3](#)

Summary / Benefits

What better platform for web applications than CICS?

Brings the strengths of the mainframe to the use of several **Javascript Libraries and Toolkits** providing a simple way to install, manage and operate these powerful **Open Source** offerings.

Enables the tried and trusted processes for managing CICS applications to be extended to the use of these **Open Source** resources.

Allows **bespoke content** to be served.

Facilitates the building, serving, operating and management of **novel new CICS Web applications** or the improvement of existing corporate web applications.

Can exploit a **Parallel Sysplex** allowing for: very high volumes of transactions; reliable, resilient and secure applications.

Acknowledgements

Acknowledgements

- CICS, z/OS, Sysplex are trademarks of IBM Corporation.
- DojoToolkit is the work of the Dojo Foundation.
- JQuery is the work of the JQuery Foundation.
- YUI Library is owned by Yahoo! Inc.

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