HostBridge
CICS Web Services for Oracle
Russ Teubner
Founder, CEO
Presented by Dan Speer, Business Development
Agenda

• Explore the integration capabilities of HostBridge using a sample application

• Starting point will be a CICS BMS application

• Ending point will be the deployment of the application as a web service
What is HostBridge?

• Software that allows CICS applications and data to be integrated with client, server, mainframe, or web-based applications.
  – Runs under CICS Transaction Server
  – Supports industry standards
  – No distributed client or server software at run-time
  – US and EU Patent Pending

• HostBridge Base Product
  – Allows CICS transactions and programs to be invoked and deliver their output as a standard XML document.

• HostBridge Extended (optional features)
  – Complete CICS-based transaction and process automation
  – Direct access to data sources (VSAM, DB2, DL/I, other)
  – Enhanced MRO and MQ Support
  – Integrated Development Environment for Workstation
What is HostBridge?
HostBridge
Who Uses HostBridge?

- Largest privately held investment securities firm in the world
- Largest tractor trailer manufacturer in the world
- Largest credit union in the world
- Largest dental insurance carrier in the US
- Largest composite roofing manufacturer in the US
- One of the largest public education institutions in the US
- One of the largest defense contractors in the world
Sample Application Overview

- The “Trader” application
- Sample financial services application (stock quotes and trading)
- Originally developed by IBM
  - COBOL
  - Pseudo-conversational
  - Uses BMS to handle presentation logic
- The following screens illustrate use of the Trader application from a terminal (not using HostBridge).
SOURCE DATA SET = ADCD.ZOSV1R4.VTAM.SOURCE(USSN)

WELCOME TO

ZZZZZZZZZZZ // 00000000 SSSSSS
ZZ // 00 00 SS
ZZ // 00 00 SS
ZZ // 00 00 SSSSS
ZZ // 00 00 SS
ZZ // 00 00 SS
ZZZZZZZZZZZ // 00000000 SSSSSS

TERMINAL NAME = SCOTCP17
NETWORK-QUALIFIED NAME =
SSCPNAME =
NETWORK-ID = 68.97.167.182

ZOS APPLICATION DEVELOPMENT SYSTEM - RELEASE 1.4.0

==> ENTER "LOGON" FOLLOWED BY THE TSO USERID. EXAMPLE "LOGON IBMUSER" OR
==> ENTER L FOLLOWED BY THE APPLID
==> EXAMPLES: "L TSO", "L CICS", "L IMS3270

l cics
Share Trading Demonstration

Share Trading Manager: Company Selection

1. Casey Import Export
2. Glass and Luget Plc
3. Headworth Electrical
4. IBM

Please select a company [1,2,3 or 4] : 1
Share Trading Demonstration

Share Trading Manager: Options

1. New Real-Time Quote

2. Buy Shares

3. Sell Shares

Please select an option [1,2 or 3]: 1

PF3=Return

PF12=Exit
Share Trading Manager: Real-Time Quote

User Name: CICSUSER
Company Name: Casey Import Export

<table>
<thead>
<tr>
<th>Share Values:</th>
<th>Commission Cost:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOW:</td>
<td>00079.00</td>
</tr>
<tr>
<td>1 week ago:</td>
<td>00059.00</td>
</tr>
<tr>
<td>6 days ago:</td>
<td>00063.00</td>
</tr>
<tr>
<td>5 days ago:</td>
<td>00065.00</td>
</tr>
<tr>
<td>4 days ago:</td>
<td>00070.00</td>
</tr>
<tr>
<td>3 days ago:</td>
<td>00072.00</td>
</tr>
<tr>
<td>2 days ago:</td>
<td>00078.00</td>
</tr>
<tr>
<td>1 day ago:</td>
<td>00077.00</td>
</tr>
</tbody>
</table>

Number of Shares Held: 0077
Value of Shares Held: 000006083.00

Quote obtained. Press PF12 to exit.
Trader: Session Over

Trader transaction terminated
HostBridge Example

• Create a SOAP web service, based on the Trader application
  – Inputs
    • Company number
  – Outputs
    • Company name
    • Share price
    • Number of shares held
    • Share value

• Create sample SOAP request for testing and WSDL for deployment
What process does the web service need to perform?

1. Access CICS
2. Run TRAD
3. Select the menu item associated with the company number
4. Select the option to get a quote
5. Return the current price and number of shares held
6. Terminate session
The HBX Integrated Development Environment is used to develop, test and deploy MScript programs and MXML requests.
HostBridge Process Automation Overview

• Process automation language is based on the industry-standard ECMAScript (aka JavaScript)

• A script is developed and tested interactively using a client-based development tool

• Compiled scripts are saved in a VSAM file under CICS (no different than any other VSAM file)

• A compiled script can be invoked via any supported transport (HTTP, SOAP, MQ, EXCI, EXEC CICS LINK)
Alternatives for deployment of a services oriented architecture and process automation to compose CICS services

- **Option 1**
  - High latency (response time)
  - High CPU utilization on mainframe
  - No access to CICS managed resources

- **Option 2**
  - Lower Latency and CPU consumption
  - Does not exploit CICS TS services (e.g., security)
  - Limited to CICS managed resources

- **Option 3**
  - Lowest Latency and CPU consumption
  - Fully exploits CICS TS features
  - Full access to CICS managed resources
What process does the web service need to perform?

1. Access CICS
2. Run TRAD
3. Select the menu item associated with the company number
4. Select the option to get a quote
5. Return the current price and number of shares held
6. Terminate session
HostLib('hb','MSCRHBR','soap','MSCRSOAP');

function getDoc(fieldName, tagName) {
    hb.getEmcField(fieldName, fieldValue);  //Retrieve the field
    write(soap.tag(soap.rpcns+tagName));   //Start a tag
    write(fieldValue);                     //Add our data to tag
    write(soap.tag());                     //End the tag
}

function getQuote(CompanyNumber) {
    hb.create();                         //Start the trad transaction
    hb.setEmcSupport(true);

    xmlResponse = hb.send('hb_tranid=trad');
    xmlResponse = hb.send('&option='+CompanyNumber); //Select a company
    xmlResponse = hb.send('&opt2=1');              //Select real-time quote

    write(soap.envelope());                 //Open the SOAP envelope
    write(soap.rpc('getQuote'));            //Extract and return data

    getData('COMF41','CompanyName');
    getData('SHRNOW','ShareNow');
    getData('HELD','SharesHeld');
    getData('VALUE','SharesValue');

    writeln(soap.rpc());                   //Close the SOAP envelope
    write(soap.envelope());                //Exit trad

    xmlResponse = hb.send('&hb_aid=pf12');
    hb.free();
}

ok.
HostLib(hb,"MSCCHBR",soap,"MSCRSOAP");

function getDets(fieldName,tagName) {
    hb.getBmsField(fieldName,fieldValue); //Retrieve the BMS field
    write(soap.tag(soap.rpcs+tagName)); //start a tag
    write(fieldValue); //add our data to tag
    write(soap.tag()); //end the tag
}

function getQuote(CompanyNumber) {
    hb.create();
    hb.setBmsSupport(true);

    xmlResponse = hb.send("hb_tranid=trad"); //Start the trad transaction
    xmlResponse = hb.send("&option=+CompanyNumber"); //Select a company
    xmlResponse = hb.send("&opt2=1"); //Select real-time quote

    write(soap.envelope[]); //Open the SOAP envelope
    write(soap.rpc("getQuote"));
    getData("COMP41","CompanyName"); //Extract and return data
    getData("SRRNOW","ShareNow");
    getData("HELD","SharesHeld");
    getData("VALUE","SharesValue");

    writeln(soap.rpc());
    write(soap.envelope[]); //Close the SOAP envelope

    xmlResponse = hb.send("&hb Aid=pfl2"); //Exit trad
    hb.free();
}

ok.
Compile the script and save as a service
```javascript
HostLib(hb,"MSCRHB",soap."MSCRSOAP");

function getDutc(fieldNam,tagNam) {
    hb.getEmField(fieldNam,fieldValu);  //Retrieve the BMS field
    write(soap.tag(soap.rpns+tagNam));   //start a tag
    write(fieldValu);                    //add our data
    write(soap.tag());                   //end the tag
}

function getQuote(CompanyNumber) {
    hb.create();
    hb.setEmSqFid();
    xmlResponse = xmlResponse + "<quote transaction="",
    xmlResponse = xmlResponse + ":" + CompanyNumber + ">
    xmlResponse = xmlResponse + "<quote quote="",
    write(soap.xmlEnvelope());
    write(soap.rpc("getQuote"));
    write(soap.rpc());
    write(soap.xmlEnvelope());          //Close the SOAP envelope
    xmlResponse = hb.send("&hb Aid=pf12"); //Exit trad
    hb.free();
}
```
function getQuote(CompanyNumber) {
    hb.create();
    hb.setEmSSupport(true);

    xmlResponse = hb.send("hb_tranid=trad"); //Start the trad transaction
    xmlResponse = hb.send("&option=\"company\"=\"CompanyNumber\""); //Select a company
    xmlResponse = hb.send("&opt2=\"1\""); //Select real-time quote

    write(soap enclave()); //Open the SOAP envelope
    write(soap.rpc("getQuote"));

    getData("COMP41","CompanyNumber"); //Extract and return data
    getData("SHARENOW","ShareNow");
    getData("HELD","SharesHeld");
    getData("VALUE","SharesValue");

    writeln(soap.rpc()); //Close the SOAP envelope
    write(soap enclave());

    xmlResponse = hb.send("&hb_\_aid=pf12"); //Exit trad
    hb.free();
}
Specify parameters
<?xml version="1.0" encoding="UTF-8" ?>
- <soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soap:Header />
  - <soap:Body>
  - <m:getQuote
    soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
    xmlns:m="http://default">
    <companyNumber>1</companyNumber>
  </m:getQuote>
  </soap:Body>
</soap:Envelope>

SOAP request generated by IDE to test the service.
<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <soap:Header />
  <soap:Body>
    <m:getQuote
      xsi:type="m:GetQuoteResponse">
      <m:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        xmlns:m="http://default">
        <m:companyName>Casey Import Export</m:companyName>
        <m:shareNow>79.00</m:shareNow>
        <m:sharesHeld>1322</m:sharesHeld>
        <m:sharesValue>104438.00</m:sharesValue>
    </m:getQuote>
  </soap:Body>
</soap:Envelope>
function getEstimate(fieldName, tagName) {
    hb.getEstField(fieldName, fieldValue);
    write(scp.tag("soap.rpcns+tagName"));
    write(fieldValue);
    write(scp.tag());
}

function getQuote(CompanyNumber) {
    hb.create();
    hb.setEmsSupport(true);

    xmlResponse = hb.send("hb_tranid=trad");  // Start the trad transaction
    xmlResponse = hb.send("&option=" + CompanyNumber);  // Select a company
    xmlResponse = hb.send("&opt2=1");  // Select real-time quote
    write(scp.envelope[]);
    write(scp.rpc("getQuote"));

    getData("COMP41", "CompanyName");  // Extract and return data
    getData("SRN00", "ShareNow");
    getData("HELD", "SharesHeld");
    getData("VALUE", "SharesValue");

    writeln(scp.rpc());
    write(scp.envelope[]);  // Close the SOAP envelope

    xmlResponse = hb.send("&hb_aid=pf12");  // Exit trad
}

ok.
Specify parameters
WSDL generated by IDE. Disseminated or published per company standards.
Why HostBridge?

• The Company
  – Pioneers in the mainframe and CICS integration market.
  – Focused exclusively on CICS integration and web enablement.
  – Actively work with IBM and our customers to enhance and extend our products.
  – Very happy customers!
Why HostBridge?

• The Product
  – Clean sheet design to create the most functional and efficient CICS TS integration product possible.
  – Complements your investment in CICS TS (as opposed to duplicating functionality provided by IBM).
  – Leverages existing skills within your organization to accelerate web enablement of CICS resources.
  – Simple, Elegant and Fast.
Summary

• Highlights for this example
  – No Changes to CICS applications
  – No screen scraping (Dynamic XML)
  – Standards based: JavaScript, XML, HTML, SOAP
  – Mainframe performance & reliability
  – Easy to use
Q & A