

Web Services The Kiss of Life for IDMS Applications

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IUA/CA IDMS™ Technical Conference May 7-11, 2018



Abstract

- Web Services have become the dominant standard that allow applications written by different organizations or entities to interact with one another. Web Services are heavily used for both intra and inter organizational communications. This session explores several approaches that can be used to extend IDMS applications, allowing them to consume and offer web services.
- For the systems or middleware architect who must determine how to extend legacy applications, this session will clarify the challenges they face and provide an obvious way forward. The mainframe analyst or IDMS expert will acquire basic knowledge about web services and gain a better understanding of what the middleware and web services teams need. More importantly, both groups will leave better equipped to move forward and confidently bring their IDMS applications into the 21st century.



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2

Agenda

- 1 OPTIONS FOR IDMS INTEGRATION
- 2 WEB SERVICES SIMPLY EXPLAINED
- 3 OPTIONS FOR IDMS WEB SERVICES
- 4 PROS AND CONS
- 5 BUILD ONE OUT
- 6 WHY DO THIS?

Options for IDMS Integration

Options for IDMS Integration

The problem with IDMS to Relational Replication

- Made sense years ago
 - IDMS did not have many relational tools (better now)
 - The entire industry standardized on relational
 - Oracle, DB/2 and SQL Server
 - Replication made IDMS database content available to a broad set of development tools



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Options for IDMS Integration

The problem with IDMS to Relational Replication

- Not so much now
 - Requires two copies
 - Continuous monitoring to maintain sync
 - Coordinated schema changes
 - Careful management of diverging schemas
 - e.g. moving data from IDMS schema into and out of the schema for a COTS CRM system
 - Relational databases are fast becoming a “legacy” technology
 - “I know...let’s take our 40 year-old database and put it into our 30 year-old database!”



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Options for IDMS Integration

Direct access

- Direct access to the data makes sense
 - Direct access to **existing business rules** makes even more sense
- Real-time integration is very attractive and organization have tried many, many techniques
 - Custom techniques do nothing to enable access to today's leading development tools and technologies
 - Industry standard Web Services make more sense than ever
 - e.g. Salesforce, CRM, mapping systems, vendor integration

Web Services Explained

Web Services Explained

- Applications need to service to each other:
 - Built on different hardware, operating systems, languages, architectures
 - Built by different people, at different times
 - A contract is needed that describes what a client sends and what the server might send back



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Web Services Explained

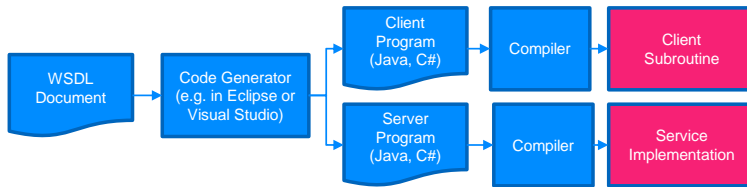
- Enter Web Service Description Language (WSDL)
 - Describes the methods that can be called
 - Includes XML Schema(s) used to describe the request and response content
 - Defines endpoints (where services can be accessed)
- Standards defined by the World Wide Web Consortium (W3C)
 - <http://www.w3.org/standards/webofservices/>



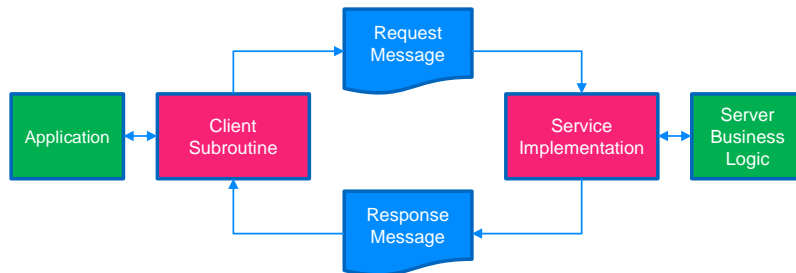
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Web Services Design Time



Web Services Run Time



Options for IDMS Web Services

Options for IDMS Web Services

Roll Your Own

- Read the WSDL, or write one up by hand
- Build your request document in your application program
 - Create XML from your data
 - Wrap with SOAP Headers, Body and schema namespace declaration
 - Create and manage a low-level socket
- Write the request
- Read the reply
- Parse the reply
- Handle errors
- Handle SOAP Exceptions
- Marshal XML to and from record elements
 - Handle conversions from string to numeric
 - Handle ASCII to EBCDIC conversions

Options for IDMS Web Services

Use a helper (CA's current enhancements)

- No WSDL generation or consumption
- CA helper routine to call the web service
- CA helper routine to check for SOAP fault
- CA helper routine to extract the SOAP message
 - manually move to work record
- XML to COBOL element marshalling is still up to you
- Manual cleanup and data checks
 - freeing storage allocated on your behalf



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Options for IDMS Web Services

ObjEx Program Call version 4

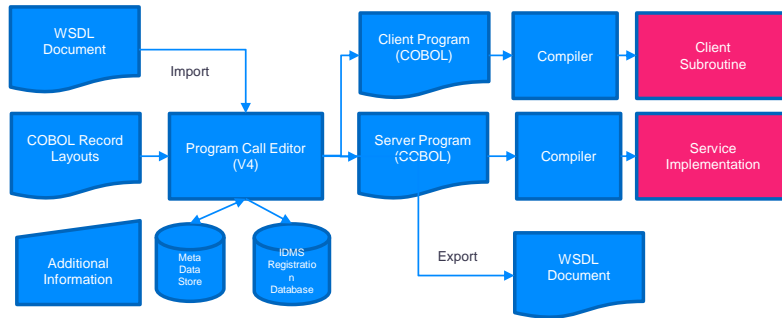
- Web Service Description Support
 - You can start with WSDL or with copybooks and generate WSDL
 - IDMS programmers call subroutines built from WSDL
 - Java and C# programmers call classes built from WSDL
- Behaves more like the Java or C# process for creating Web Services
 - Mainframe programmers need not understand Java or C#
 - Java and C# programmers do not need to know COBOL or ADSO



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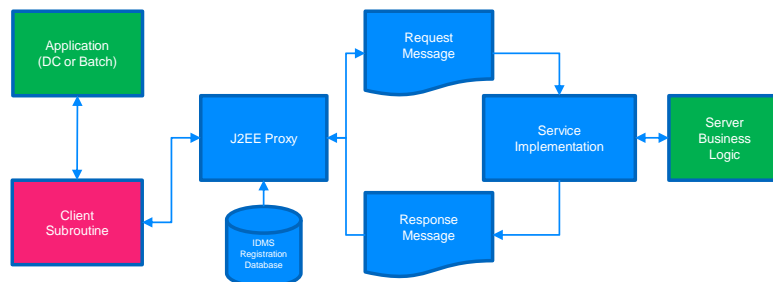


ObjEx Program Call Design Time



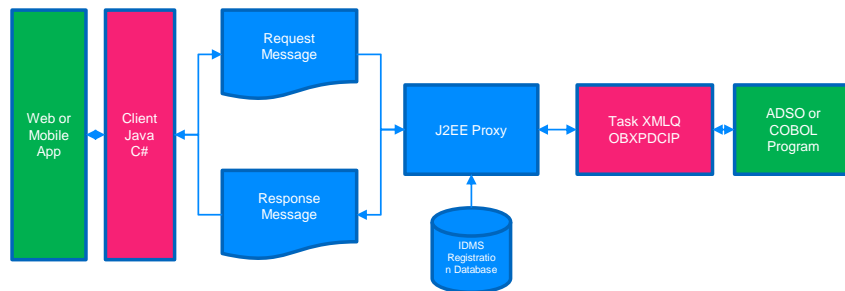
ObjEx Program Call Run Time

Outbound from from mainframe:



ObjEx Program Call Run Time

Inbound to the mainframe:



Build a Web Service

1. Create a Program Call Definition
2. Import some copybooks
3. Register the program call with IDMS
4. Review the service
5. Generate the Client and/or Server programs
6. Make the call

Why do this?

Why do this?

- Time
 - Time-to-market
 - Faster time to market with vendor and customer offerings
 - Easier integration with cloud solutions and virtually all up-to-date applications
 - It just seems like a bad idea to wait until we replace IDMS to get the features and functions we need in today's technology environment
 - Less time coordinating layouts
 - Consistent reliable XML/COBOL content mapping

Why do this?

- Risk
 - Roll your own and risk being left behind
 - You will never keep up or you will incur great expense
- Money
 - Using WebSphere MQ from IDMS
 - Mainframe can be as high as \$1 MM US
 - Run it on a Windows Server it's more like \$7-\$30k
 - Call a web service and store the queues off mainframe
 - Better yet: use Azure Service Bus, or Java



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What's next?

- Web Services are the way forward for IDMS users
 - Next for us
 - JSON Proxy
 - More code generation options
- For IDMS applications
 - IDMS has the data, and it has the rules
 - It's now accessible, with less effort and very high performance
 - 30 years ago IDMS took a hit with the advent of relational databases. Now we can finally hit back with web services



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Final Thought

A connected application is a happy application!

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IUA / CA IDMS Technical Conference Session Evaluation Form

Session Number: _____ Name (Optional): _____
 Session Title: _____

Rate the overall session:

	Not	Somewhat	Neutral	Somewhat	Very
	Useful	Useful	Useful	Useful	Useful
The speaker has good knowledge of the subject matter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The speaker met my expectations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The material is relevant to my current job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall, I would like to attend the conference	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The session length was appropriate for the content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This session would be useful as a reference	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

General Comments:

Questions & Answers

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