

# **DYNAMIC INVOCATION OF CORBA THROUGH WEB SERVICES**

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## **Abstract**

The work carried out during this research covers the interoperability between CORBA servers and Web Service Clients. This interoperability was achieved by dynamically converting SOAP messages to HOP messages and vice versa. The solution was implemented in Java programming language as a module for the popular Apache Axis2[1] web service engine. This module is capable of generating the proxy web services dynamically at run time in order to invoke remote CORBA servers. The proxy web service generation is driven by an IDL file which describes the the target CORBA service.

This CORBA module for Apache Axis2 has the capability of generating WSDL description of the proxy web services based on the provided IDL file at run time. The module translates all the IDL data types to corresponding XSD data types during the WSDL generation. The module supports all the IDL data types defined in the OMG IDL 3.0 specification. The performance of the solution was compared against regular web services and a proprietary product. The solution shows a small overhead against the regular web services. However, there is no significant difference between the performance shown by the solution and the proprietary system.

The HOP messages, SOAP messages and the WSDL descriptions generated by the module conforms the OMG CORBA 3.0[2], W3C SOAP Version 1.2[3] and W3C WSDL 1.1 [4] standards respectively. The mapping between CORBA and Web Service data types conforms CORBA to WSDL/SOAP Interworking Specification Version 1.2 [5] published by OMG.

I hereby declare that the work included in this dissertation has not been submitted in part or whole for any other academic qualification at any institution.



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## Symbols, Notations, Abbreviations and Acronyms

COABA	-	Common Object Request Broker
OMG	-	Object Management Group
ORB	-	Object Request Broker
IOP	-	Internet Inter-ORB Protocol
IDL	-	Interface Description Language
DII	-	Dynamic Invocation Interfac
IOR	-	Interoperable Object Reference
W3C	-	World Wide Web Consortium
SOAP	-	Simple Object Access Protocol
WSDL	-	Web Service Description Language
WS-*	-	Web Service Specifications
XML	-	Extensible Markup Language
XSD	-	XML Schema Definition



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