PUBLISHING JINI SERVICE IN UDDI

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CERTIFICATE

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

DEDICATED TO MY FAMILY AND FRIENDS

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

OGSA	Open Grid services Architecture
OGSI	Open Grid services Infrastructure
WSDL	Web service Description Language
UDDI	Universal Description and Discovery Integration
SOAP	Simple Object Access Protocol
CORBA	Common Object Resource Broker Architecture
IDL	Interface Definition Language
LDAP	Lightweight Directory Access Protocol
SOA	Service Oriented Architectures
TCP/IP	Transmission Control Protocol/ Internet Protocol
SAX	Simple API for XML
SMTP	Simple Mail Transfer Protocol
SAAJ	SOAP with attachment API for JAVA
MIME	Multi-purpose Internet Mail Extensions
IIOP	Internet Inter-ORB Protocol
UUID	Universally Unique ID
ADS	Advertisement and Discovery of Services
DISCO	Discovery of Services
LUS	Lookup Service
JISGA	Jini-based Service-oriented Grid Architecture
ICENI	Imperial College e-Science Networked Infrastructure

ABSTRACT

In distributed computing, we often need to integrate services across distributed, heterogeneous, dynamic environments formed from the disparate resources within a single enterprise and/or from external resource sharing and service provider relationships. We present a system that provides solution to how Jini services can be integrated with Web services within a common Service-Oriented Architecture (SOA) for Grid computing.

This integration is technically challenging because of the need to achieve various levels of quality of service when running on top of different native platforms and under dynamic workload conditions. But there is an inherent communication gap that exists between Jini service oriented architectures (SOA) and Web services and Grids, due to different communication protocols, service descriptions, schema definitions and message structures they use. Web Services use SOAP (Simple Object Access Protocol) over HTTP (Hyper Text Transport Protocol) as communication protocol but Jini is primarily based on RMI (Remote Method Invocation). These both protocols are inherently different in many aspects. Also both SOAs differ in many aspects like both use different discovery and lookup mechanisms.

Integrated Jini and web services architecture also defines Jini service descriptions in terms of Web services Description Language (WSDL), so that Jini services can describe and advertise themselves in UDDI (Universal Description Discovery & Integration). Building on concepts and technologies from the Jini, Grid and Web services communities, this architecture put together a proposition made to cope with heterogeneous and continuously changing needs of information

processing, service provision and utilization in dynamically evolving environment to meet these requirements.

This common SOA permits the transparent interaction of Jini services and Web services, thereby extending the usefulness and applicability of both approaches. The main benefits of this work are that Jini services can be accessed from outside of a Jini community and Jini services can be invoked in the same way as any other Web service. Regarding the implementation of proposed architecture, we are able to publish Jini Service in UDDI and it can be discovered and described as normal web service. In addition to this task, leasing issues are resolved for the service at UDDI. Implementation is provided for synchronization of Lookup service and UDDI.