

Open Grid Service Infrastructure Primer

Abstract

The OGSI Primer is an introduction to the Open Grid Services Infrastructure (OGSI) Specification that is aimed at a wide audience of architects and developers, implementers and users. No prior knowledge of the Grid or Web Services is assumed.

This is not a definitive specification of OGSI, but is intended to provide an easily readable description for quick understanding and summary of the basic fundamentals of creating and using OGSI-based services. It introduces the requirements for constructing large scale, distributed systems known as Grids and the way these requirements can be satisfied using Web Services and the OGSI specification.



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1. About this Primer

This chapter introduces the structure of this document, its intended audience, and other material that might be relevant.

1.1. Who should read this Document?

This is an introductory document to the Open Grid Services Infrastructure (OGSI) Specification [1] that is aimed at a wide audience of architects and developers, implementers and users.

No prior knowledge of the Grid or Web Services is assumed, though an awareness of distributed computing will help. If you plan to develop your own Grid Services, some knowledge or experience of XML, XML Schema and WSDL syntax would help you to understand the WSDL examples that appear in some chapters. If you need extensive background material on Grids, *The Anatomy of the Grid* [2] should help.

The remaining chapters of this document are organized as follows:

Chapter 2 summarizes the background of Grid computing, the requirements and context which inspired OGSI, and its relationship to the architectures and systems on which it builds. This chapter is suitable for a non-technical audience.

Chapter 3 gives an overview of Web Services whose specifications and technology form the basis for OGSI. It describes some major mechanisms underlying Web Services.

Chapter 4 is more technical. It describes the features introduced to Web Services by OGSI and introduces a simple example of a Web Service and a corresponding Grid Service as a comparison. This example is also used in succeeding chapters.

Chapter 5 covers all the main concepts and terminology of OGSI. It describes the scope and the framework in which the example of Chapter 4 can be created, and the techniques which might be used to extend it. Readers who are very familiar with Web Services, know the motivation for OGSI and simply want a summary of OGSI may start at this point.

Chapters 6 and 7 explain how Grid Services can be constructed and discusses scalability related features that are enabled by OGSI. These are the features necessary to create large-scale applications and systems.

From Chapter 8 onwards, the details of Grid Services interfaces are explained in a way that parallels the OGSI Specification. This makes it easy to correlate the information in the two documents.

Examples are used throughout the Primer to illustrate the features that the OGSI Specification requires. The examples are deliberately simple in order to avoid any need for knowledge of more realistic, but usually more complex, Grid applications. Also, although they contain correct interface definitions for the functions described, implementations are not provided. This is because the OGSI Specification aims to define a standard for interoperability while leaving freedom to implement Grid Services in a wide variety of ways. For implementation details, the reader should investigate one of the Grid Service toolkits such as Globus GT3 [3] and identify sample services that correspond to the ones described here.