

Parlay APIs 4.0

Parlay X Web Services

White Paper

Status : **Public**
Version : **1.0**
Last revision : **December 16, 2002**

Copyright © 2002, The Parlay Group, Inc. All Rights Reserved.

This document and translations of it, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself may not be modified in any way, such as by removing the copyright notice or references to The Parlay Group, except as jointly determined by The Parlay Group and third party.

The limited permissions granted above are perpetual and will not be revoked by The Parlay Group or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and The Parlay Group DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE."

The Parlay Group takes no position regarding the validity or scope of any intellectual property or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; neither does it represent that it has made any effort to identify any such rights.

It is the responsibility of the reader to ensure that the current revision of the document is being read by checking the www.parlay.org website for a later revision.

Contents

1	INTRODUCTION.....	3
1.1	PURPOSE OF THIS DOCUMENT.....	3
1.2	DOCUMENT STRUCTURE	3
2	SCOPE OF PARLAY X WEB SERVICES.....	4
3	RELATIONSHIP OF PARLAY X WEB SERVICES TOPARLAY ACTIVITIES.....	5
4	EXAMPLE SCENARIOS.....	7
4.1	OBTAIN THE LOCATION OF A MOBILE STATION.....	7
4.2	SEND AN SMS.....	7
5	VALUE PROPOSITION	9
5.1	OVERALL.....	9
5.2	END USER	9
5.3	APPLICATION DEVELOPER.....	9
5.4	SERVICE PROVIDER	9
5.5	NETWORK OPERATOR.....	9
6	REFERENCES.....	11
7	ABBREVIATIONS.....	12

1 Introduction

1.1 Purpose of this document

This document is intended to promote a common understanding of a set of web-services, named Parlay X Web Services. It describes how a set of web-services can be described using WSDL by application and service creation designers that are not necessarily experts in telephony or telecommunications.

1.2 Document Structure

Section 2 describes the scope of Parlay X Web Services.

Section 3 discusses the relationship between Parlay X Web Services and other Web Services related deliverables from the Parlay Group

Section 4 presents example Parlay X Web Services

Section 5 examines the value proposition from a number of perspectives

Section 6 is a list of references to other documents

Section 7 provides a glossary (acronym list).

2 *Scope of Parlay X Web Services*

The Parlay APIs [1] are designed to enable creation of telephony applications as well as to "telecom-enable" IT applications. IT developers, who develop and deploy applications outside the traditional telecommunications network space and business model, are viewed as crucial for creating a dramatic market growth in next generation applications, services and networks. The Parlay X *Web Services* are intended to stimulate the development of next generation network applications by IT developers who are not necessarily experts in telephony or telecommunications.

Parlay X Web Services are powerful yet simple, highly abstracted, imaginative, building blocks of telecommunications capabilities that developers and the IT community can both quickly comprehend and use to generate new, innovative applications. In particular,

- Each is abstracted from the set of telecommunications capabilities, focusing on simplicity over functionality.
- The interaction between an application incorporating a Parlay X Web Service and the server implementing the Parlay X Web Service will be done with an XML-based message exchange.
- Parlay X Web Services follow simple application semantics, allowing the developer to focus on access to the telecom capability using common Web Services programming techniques.
- Parlay X Web Services are not network equipment specific, and not network specific where a capability is relevant to more than one type of network.
- Parlay X Web Services are application interfaces and do not provide an implementation of AAA (Authorization, Authentication, and Accounting), service level agreements or other environment specific capabilities. Rather, they shall rely on proven and reliable solutions provided by the Web Services infrastructure.

Terminology. Unless otherwise specified, the document will be using the term "application" to refer to software that invokes a Parlay X Web Service. The term Parlay X Gateway is used to describe a server that implements one or more Parlay X Web Services. In telecommunications parlance an implementation of a Parlay X Web Service on a Parlay X Gateway would also be referred to as a "service".

3 Relationship of Parlay X Web Services to Parlay activities

There are two other activities within The Parlay Group in addition to Parlay X Web Services that address other areas of Web Services use.

Firstly, the Parlay specifications include a WSDL realization for the Parlay APIs as defined by the Parlay specifications.

Secondly, the Parlay Group has published a set of white papers on use of Parlay and Web Services [2,3,4,5,6]. These cover a variety of topics, including covering the infrastructure that will be present in a Parlay X Web Services environment.

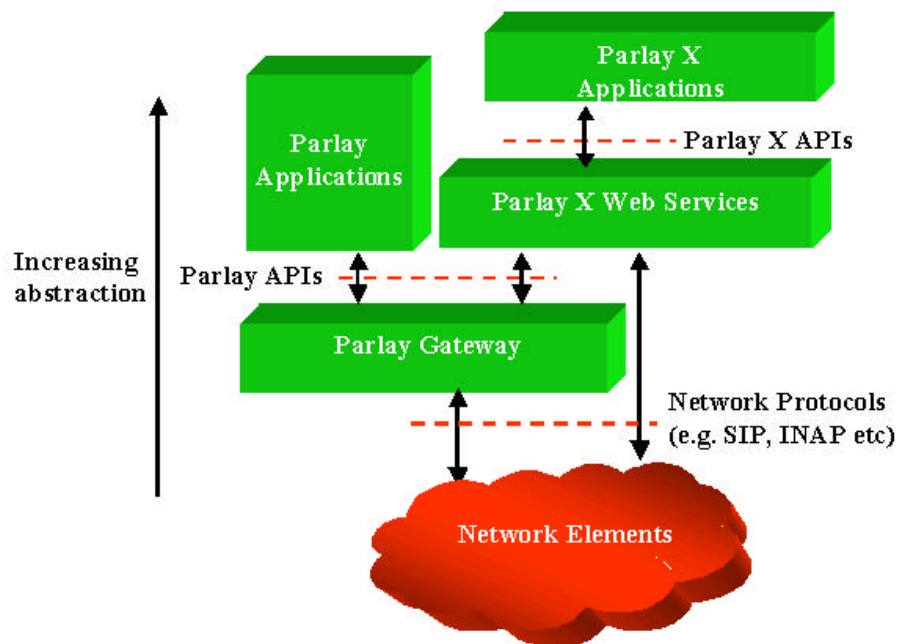


Figure 1: Relationship between Parlay X and Parlay APIs

Figure 1 shows the relationship between Parlay X Web Services and Parlay APIs. A Parlay Gateway as depicted in the Figure typically implements the Parlay APIs. Applications can interact with the Parlay Gateway over a network; using CORBA or Web Services transports. The application itself can, in principle, be written in any language as long as it can make the proper method invocations and correctly handle the corresponding responses for the API version that the Parlay Gateway offers. Thus the application could be, for example, a Java program, a Visual Basic program, or an XML script. In general, the interaction between the application and the Parlay Gateway can be complex and can exploit the full richness of the Parlay API. For example, the application can create a call (i.e., a multiparty communications session over an underlying next generation network) and route each leg of the call independently.

Parlay X *Web Services* represent an abstraction and simplification of the Parlay APIs and thus is shown above them in the figure. It is anticipated that most Parlay X Web Services

will be implemented by invoking functionality on a Parlay Gateway, however there are cases where the Parlay X Server will implement the Web Service in another way for example, via direct connection to the network elements.

A Parlay X application can be written in any language as long as it can make the proper Web Service invocations. There are several development tools, for different programming languages, to create, deploy, and interact with Web Services.

4 Example Scenarios

The following section is intended to describe speculative examples of capabilities that could be accessed through Parlay X Web Services. This section is purely intended to give a tangible example to help the reader understand the types of functionality that is within the scope of Parlay X Web Services. The XML notations represent simplified SOAP bodies these are presented for illustrative purposes only.

This section will not describe the authentication/authorization phases, although they will be needed for most deployment scenarios.

Service Type	Functionality
Location	Return location data of a mobile station.
Messaging	Send message(s) to one or more addresses. Various deliver options and delivery confirmations are possible.

From the above table some examples using illustrative XML fragments are listed in sections 4.1 and 4.2.

4.1 Obtain the location of a mobile station

A possible example of how such a service might be specified in simple XML follows (note the XML is provided for illustrative purposes):

A simple XML call to the Parlay X Gateway that returns a current or cached location using a method of the form:

```
getLocation(String endUserIdentifier, String requestor, String accuracy, out String location)
```

With the corresponding simplified SOAP (omitting namespace and encoding descriptors)

```
<getLocation>
  < endUserIdentifier >
    987654321
  </ endUserIdentifier >
  < requestor >tel:123456789</ requestor >
  < accuracy >High</ accuracy >
</getLocation>
```

4.2 Send an SMS

An application may wish to send a SMS message to a mobile station according to a reverse charging agreement with the owner of the mobile station. In addition to sending the message it is also possible to consider requirements such as delivery confirmations returning to the application. There are a number of possible solutions to this, here is one:

A simple send message that is specific to a GSM network that ignores delivery confirmations, with a method of form:

```
sendSms (String[] destAddressSet, String senderAddress, String message, out String requestIdentifier)
```

With the corresponding simplified SOAP (omitting namespace and encoding descriptors)

```
<sendSms>
  <destAddressSet>tel:0123456789</destAddressSet>
  <senderAddressSet>tel:987654321</senderAddressSet>
  <message>
    Junction 101 route 66 closed by accident
  </message>
</sendSms>
```

With the return of a requestIdentifier, an application can optionally support a polling model that collects the receipts.

5 Value Proposition

5.1 Overall

The overall value proposition of Parlay X Web Services lies in extending the space of application developers for Parlay APIs to include members of the IT communities and others who are in skills areas other than programming language developers such as web developers.

5.2 End User

The end user is the consumer of the service. The end user is provided with more services in a timelier manner, and services that may be delivered that are more personalized to their unique market segments.

5.3 Application developer

The application developer is the person programming the application that will make use of Parlay X Web Services to deliver the application functionality to the end user. The developer benefits from;

- Access to telecom capabilities using intuitive functions
- Ability to exploit industry wide IDE support for Web Services technologies
- Ability to use common application frameworks (such as J2EE) that support Web Services to build and deploy their application.

5.4 Service Provider

The service provider is the commercial entity that operates the Parlay X Gateway that may in turn obtain functionality from the network operator.

The value proposition of Parlay X Web Services for the service provider is as follows:

- Offer a wide range of services rapidly and inexpensively
- Differentiate itself by means of offering specialized services and serving strategic niche markets
- Reach customers who are only interested in niche applications, and possibly cross-sell to them
- Build customer loyalty by providing means and assistance to customize services

5.5 Network Operator

The network operator is the corporate entity that is supporting the physical network resources (such as IN service nodes, switches, mobile network, mobile location centers, messaging centers) that support the Parlay X Web Services

The Parlay X Web Services value proposition for the network operator is as follows:

- Increased usage of network and hence revenue
- May need to implement only a subset of the full Parlay functionality, hence reducing cost.

6 *References*

- [1] Specifications, the Parlay Group; <http://www.parlay.org/specs/index.asp>
- [2] Parlay Web Services - Overview, version 1.0
- [3] Parlay Web Services - Business Models, version 1.0
- [4] Parlay Web Services - Architecture Comparison, version 1.0
- [5] Parlay Web Services - Application Deployment Infrastructure, version 1.0
- [6] Parlay Web Services – WSDL Style Guide, version 1.0

7 Abbreviations

AIN	Advanced Intelligent Network
API	Application Programming Interface
CORBA	Common Object Request Broker Architecture
GSM	Global System for Mobile Communications
HTTP	Hypertext Transfer Protocol
IDL	Interface Definition Language
IETF	Internet Engineering Task Force
IOP	Internet Inter-ORB Protocol
IN	Intelligent Network
IP	Internet Protocol
IT	Information Technology
ISP	Internet Service Provider
SIP	Session Initiation Protocol
SOAP	Simple Object Access Protocol
WSDL	Web Services Definition Language
UDDI	Universal Description, Discovery and Integration
XML	Extensible Markup Language
W3C	World Wide Web Consortium