

Network Working Group
Request for Comments: 2778
Category: Informational

M. Day
Lotus
J. Rosenberg
dynamicsoft
H. Sugano
Fujitsu
February 2000

A Model for Presence and Instant Messaging

Status of this Memo

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Abstract

This document defines an abstract model for a presence and instant messaging system. It defines the various entities involved, defines terminology, and outlines the services provided by the system. The goal is to provide a common vocabulary for further work on requirements for protocols and markup for presence and instant messaging.

1. Introduction

A presence and instant messaging system allows users to subscribe to each other and be notified of changes in state, and for users to send each other short instant messages. To facilitate development of a suite of protocols to provide this service, we believe that it is valuable to first develop a model for the system. The model consists of the various entities involved, descriptions of the basic functions they provide, and most importantly, definition of a vocabulary which can be used to facilitate discussion.

We note that the purpose of this model is to be descriptive and universal: we want the model to map reasonably onto all of the systems that are informally described as presence or instant messaging systems. The model is not intended to be prescriptive or achieve interoperability: an element that appears in the model will not necessarily be an element of an interoperable protocol, and may not even be a good idea.

In this document, each element of the model appears in upper case (e.g., PRESENCE SERVICE). No term in lower case or mixed case is intended to be a term of the model.

The first part of this document is intended as an overview of the model. The overview includes diagrams, and terms are presented in an order that is intended to help the reader understand the relationship between elements. The second part of the document is the actual definition of the model, with terms presented in alphabetical order for ease of reference.

The overview is intended to be helpful but is not definitive; it may contain inadvertent differences from the definitions in the model. For any such difference, the definition(s) in the model are taken to be correct, rather than the explanation(s) in the overview.

2. Overview

The model is intended to provide a means for understanding, comparing, and describing systems that support the services typically referred to as presence and instant messaging. It consists of a number of named entities that appear, in some form, in existing systems. No actual implementation is likely to have every entity of the model as a distinct part. Instead, there will almost always be parts of the implementation that embody two or more entities of the model. However, different implementations may combine entities in different ways.

The model defines two services: a PRESENCE SERVICE and an INSTANT MESSAGE SERVICE. The PRESENCE SERVICE serves to accept information, store it, and distribute it. The information stored is (unsurprisingly) PRESENCE INFORMATION. The INSTANT MESSAGE SERVICE serves to accept and deliver INSTANT MESSAGES to INSTANT INBOXES.

2.1 PRESENCE SERVICE

The PRESENCE SERVICE has two distinct sets of "clients" (remember, these may be combined in an implementation, but treated separately in the model). One set of clients, called PRESENTITIES, provides PRESENCE INFORMATION to be stored and distributed. The other set of clients, called WATCHERS, receives PRESENCE INFORMATION from the service.

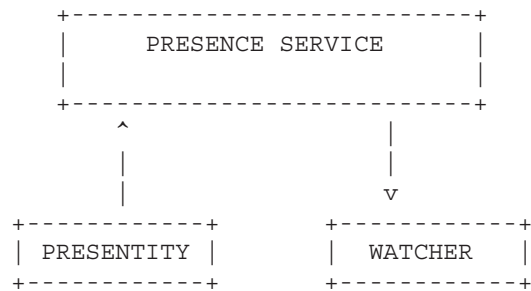


Fig. 1: Overview of Presence Service

There are two kinds of WATCHERS, called FETCHERS and SUBSCRIBERS. A FETCHER simply requests the current value of some PRESENTITY's PRESENCE INFORMATION from the PRESENCE SERVICE. In contrast, a SUBSCRIBER requests notification from the PRESENCE SERVICE of (future) changes in some PRESENTITY's PRESENCE INFORMATION. A special kind of FETCHER is one that fetches information on a regular basis. This is called a POLLER.

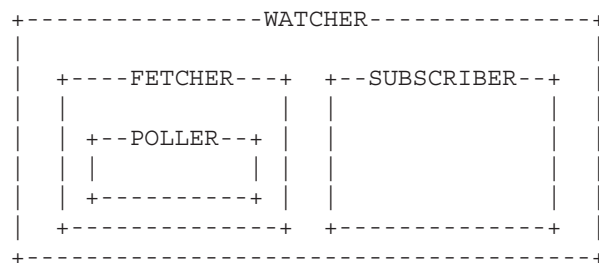


Fig. 2: Varieties of WATCHER

The PRESENCE SERVICE also has WATCHER INFORMATION about WATCHERS and their activities in terms of fetching or subscribing to PRESENCE INFORMATION. The PRESENCE SERVICE may also distribute WATCHER INFORMATION to some WATCHERS, using the same mechanisms that are available for distributing PRESENCE INFORMATION.

Changes to PRESENCE INFORMATION are distributed to SUBSCRIBERS via NOTIFICATIONS. Figures 3a through 3c show the flow of information as a piece of PRESENCE INFORMATION is changed from P1 to P2.

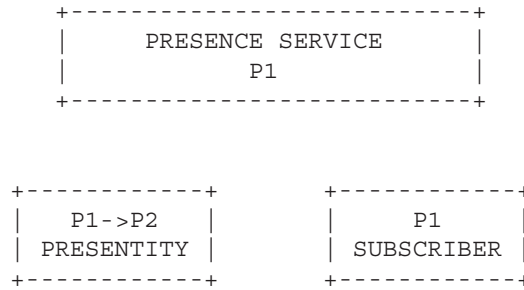


Fig. 3a: NOTIFICATION (Step 1)

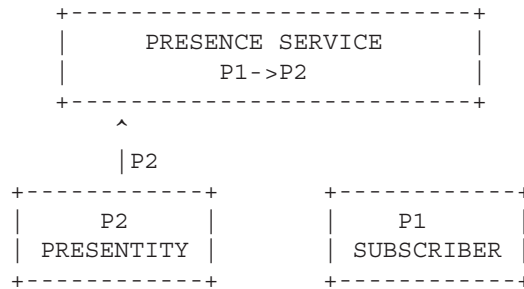


Fig. 3b: NOTIFICATION (Step 2)

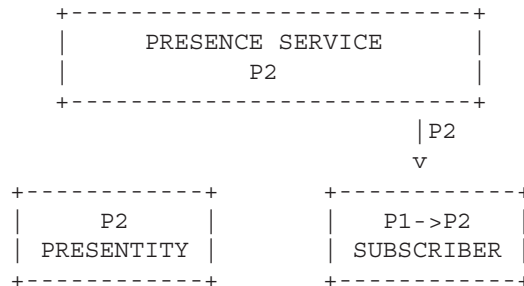


Fig. 3c: NOTIFICATION (Step 3)

2.2 INSTANT MESSAGE SERVICE

The INSTANT MESSAGE SERVICE also has two distinct sets of "clients": SENDERS and INSTANT INBOXES. A SENDER provides INSTANT MESSAGES to the INSTANT MESSAGE SERVICE for delivery. Each INSTANT MESSAGE is

addressed to a particular INSTANT INBOX ADDRESS, and the INSTANT MESSAGE SERVICE attempts to deliver the message to a corresponding INSTANT INBOX.

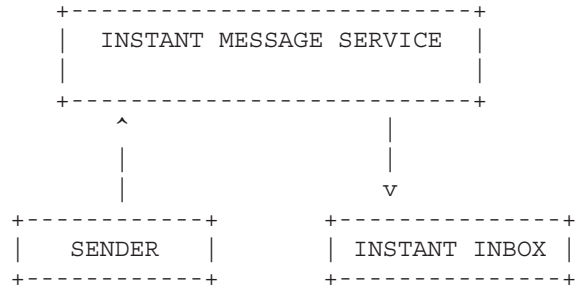


Fig. 4: Overview of Instant Message Service

2.3 Protocols

A PRESENCE PROTOCOL defines the interaction between PRESENCE SERVICE, PRESENTITIES, and WATCHERS. PRESENCE INFORMATION is carried by the PRESENCE PROTOCOL.

An INSTANT MESSAGE PROTOCOL defines the interaction between INSTANT MESSAGE SERVICE, SENDERS, and INSTANT INBOXES. INSTANT MESSAGES are carried by the INSTANT MESSAGE PROTOCOL.

In terms of this model, we believe that the IMPP working group is planning to develop detailed requirements and specifications for the structure and formats of the PRESENCE PROTOCOL, PRESENCE INFORMATION, INSTANT MESSAGE PROTOCOL, and INSTANT MESSAGES.

2.4 Formats

The model defines the PRESENCE INFORMATION to consist of an arbitrary number of elements, called PRESENCE TUPLES. Each such element consists of a STATUS marker (which might convey information such as online/offline/busy/away/do not disturb), an optional COMMUNICATION ADDRESS, and optional OTHER PRESENCE MARKUP. A COMMUNICATION ADDRESS includes a COMMUNICATION MEANS and a CONTACT ADDRESS. One type of COMMUNICATION MEANS, and the only one defined by this model, is INSTANT MESSAGE SERVICE. One type of CONTACT ADDRESS, and the only one defined by this model, is INSTANT INBOX ADDRESS. However, other possibilities exist: a COMMUNICATION MEANS might indicate some form of telephony, for example, with the corresponding CONTACT ADDRESS containing a telephone number.

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