Network Working Group
Internet-Draft
Expires: September 1, 2007

C. Boulton
Ubiquity Software Corporation
M. Barnes
Nortel

February 28, 2007

A Universal Resource Identifier (URI) for Centralized Conferencing (XCON)
draft-boulton-xcon-uri-01

Abstract

A Uniform Resource Identifier (URI) is defined as a compact string of characters for identifying an abstract or physical resource. This document defines a URI scheme and syntax for the conference object identifier, as defined in "A Framework and Data Model for Centralized Conferencing".

Table of Contents

1. Introduction

A Uniform Resource Identifier (URI) is defined as a compact string of characters for identifying an abstract or physical resource. This document defines a URI scheme and syntax for the conference object identifier, as defined in "A Framework and Data Model for Centralized Conferencing" [3]

A Conference Object, defined in [3], provides the data representation of a conference instance during its varying life-cycle stages. A conference object is unique within a conferencing system and requires a mechanism for identifying and associating varying components/ interfaces that construct and manipulate a conference instance. The XCON-URI scheme defined in this document provides a unique top-level conference object identifier that provides such functionality. The conference object identifier can then be used by the conferencing system and related protocols to gain access and reference a specific conference object (for example, used by a Conference Control Protocol). It is expected that a Conference Object may be accessed by a number of future mechanisms.

2. Conventions and Terminology

In this document, BCP 14/RFC 2119 [1] defines the key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL". In addition, BCP 15 indicates requirement levels for compliant implementations.

This document uses the terminology defined in [3].

3. Overview

The conference object identifier can be viewed as a key to accessing a specific conference object. It is used by the conference control protocol as described in [TBD] to access, manipulate and delete a conference object. A conference object identifier is provided to the conferencing client to enable such functions to be carried out. This can either be returned through the conference control protocol while creating a conference object, be provided by the conference notification service or through out-of-band mechanisms (e.g. E-Mail).

A centralized conferencing system, as defined in "A Framework and Data Model for Centralized Conferencing" [3], has potential to expose a range of interfaces and protocols. It is also possible that future

additions to the centralized conferencing framework might place requirements to provide further additional protocols and interfaces. A conference object can consist and be associated with many identifiers that are in some way related to a conference object. Good examples incude the Binary Floor Control Protocol (BFCP)[4] and call signaling protocols, such as SIP. Each of these protocols use a unique identifier to represent a protocol instance associated with a conference object.

A conferencing system may maintain a relationship between the conference object identifiers and the identifiers associated with each of the complimentary centralized conferencing protocols (e.g., call signaling protocols, BFCP, etc.). To facilitate the maintenance of these relationships, the conference object identifier acts as a top level identifier within the conferencing system for the purpose of identifying the interfaces for these other protocols. This implicit binding provides a structured mapping of the various protocols with the associated conference object Identifier. Figure 1 illustrates the relationship between the identifiers used for the protocols within this framework and the general conference object identifier.

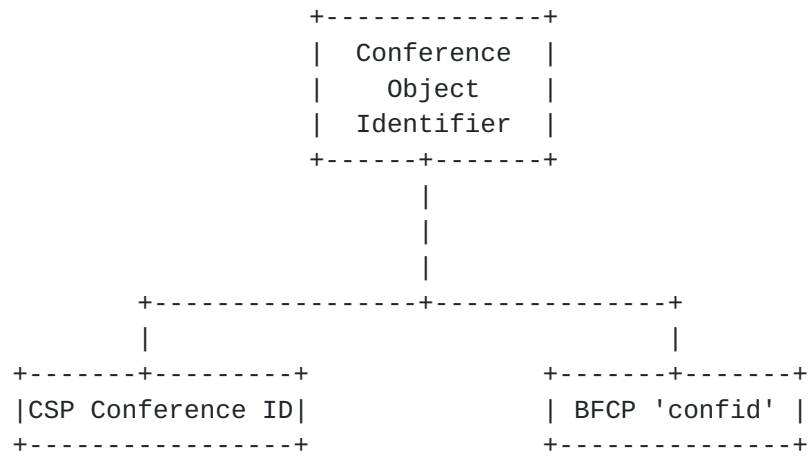

Figure 1: Conference Object Mapping.

In Figure 1, the conference object identifier acts as the top level key in the identification process. The call signaling protocols have an associated conference user identifier, often represented in the form of URIs. The binary floor control protocol, as defined in [5], defines the 'conf-id' identifier which represents a conference instance within floor control. When created within the conferencing system, the 'conf-id' has a 1:1 mapping to the unique conference object Identifier. Operations associated with the conference control

protocols are directly associated with the conference object, thus the primary identifier associated with these protocols is the conference object identifier. The mappings between additional protocols/interface is not strictly 1:1 and does allow for multiple occurrences. For example, multiple call signaling protocols will each have a representation that is implicitly linked to the top level conference object identifier e.g. H323 and SIP URIs that represent a conference instance. It should be noted that a conferencing system is free to structure such relationships as required and this information is just included as a guideline that can be used.

The following example illustrates the representation and relationships that might occur in a typical conference instance. The table in Figure 2 lists a typical conference instance and related properties.

Conf Obj URI	CSP URI	BFCP Conf-ID
xcon:Ji092i	sip:Ji092i@example.com tel:+44(0)2920930033 h323:Ji092i@example.com	Ji092i

Figure 2: Conference Table Representation

The information from Figure 2 can then be applied to the representation introduced in Figure 1. This results in Figure 3.

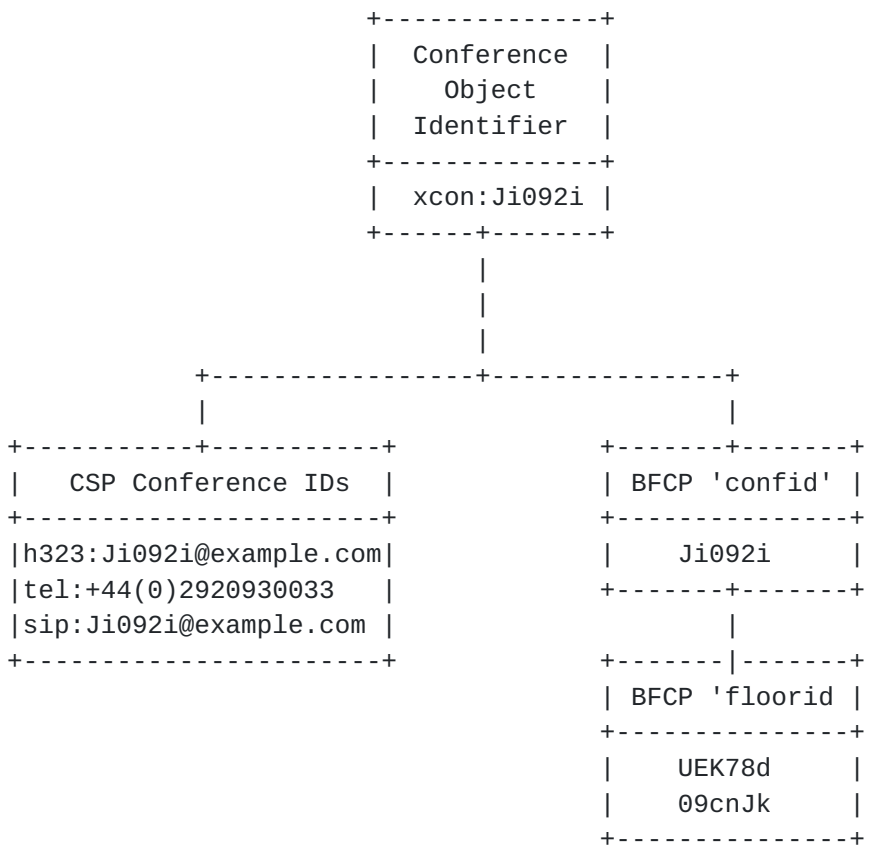

Figure 3: Conference Tree Representation

Further elements can be added to the tree representation in Figure 3 to enable a complete representation of a conference instance within a conferencing system.

This style of association can be applied to any supplementary mechanisms that are applied to the centralized conferencing model defined in this document as long as a unique reference per conference instance is available that can be mapped to a conference object.

4. Conference URI Mapping Examples

As mentioned in the previous section, it is possible, although not required, to map an 'xcon' URI from this specification for multiple usages. Identification of a conference instance within related protocols can be derived from the appropriate 'xcon' URI. It is expected that any future additions to centralized conferencing will make use of the mappings provided in this section.

A basic XCON URI looks as follows:

xcon:83Hd79qhjsd@example.com

The left hand side of the URI (to the left of the '@') represents the unique token. This token can be used by any protocol wishing to gain access to functionality associated with a specific conference object. For example, when used to construct a SIP INVITE request, the token would be used to populate the 'user' part of the SIP URI - as defined in RFC 3261[2]. The right hand side of the URI, as with any URI, provides domain level information ('example.com' in previous example). So continuing the previous example, the SIP URI domain part would be equal to this domain information. This would result in the following SIP URI that would enable a request to be sent to the conference instance (to join) at a conferencing system:

sip:83Hd79qhjsd@example.com

Another example would be the mapping of the previous 'xcon' URI for the purpose of BFCP. Again, the previously described 'left side' of the URI would be extracted and used as the 'confid' defined in [5] the 'right side' of the URI provides the required connection information to construct a BFCP connection. The hostname can be used to provide either a an IP address or use DNS resolution to provide a connection location (and optionally port). A port can be explicitly defined if required.

The syntax defined in Section 5 also allows additional URI parameters to be defined. This specification does not define any parameters or usages but future documentation MAY require additional functionality. All unknown parameters SHOULD be ignored when used for mapping purposes but MAY be included if specifically documented.

It should be highlighted that the examples provided in this section are not normative and some implementations might find that such strict mapping is not necessary. The information is maintained as defined in the XCON data model and it is up to the conferencing system to implement a mechanism to logically associate the Conference URI with the signaling protocol specific URIs associated with a conference.

5. Conference URI Definition

```
XCON-URI = "xcon" "://" [conf-object-id "@"] hostport
       *( ";" url-parameter)
                        ; hostport as defined in RFC3261

conf-object-id = 1*( unreserved / "+" / "=" / "/" )
                        ; unreserved as defined in RFC3986
url-parameter = token ["=" token]
```

6. Conference Object Identifier Creation and Distribution

The Conference Object Identifier is created both by the conferencing system based on internal actions as well as based on specific conference protocol requests. As discussed in the centralized conference framework, there is a unique conference object identifier associated with each conference object. Thus, a conferencing system will allocate a conferencing object identifier for every conference blueprint, for every conference reservation and for every active conference. The distribution of the conference object identifier depends upon the specific use case and includes a variety of mechanisms, such as the through the conference control protocol mechanism, the data model and conference package or out of band mechanisms such as E-Mail.

The conference object identifier MUST be included in any conference control protocol request associated with a conference reservation or active conference. When a user wishes to create or join a conference and the user does not have the conference object identifier for the specific conference, more general signaling mechanisms apply, such that a user may have a pre-configured conference object identifier to access the conferencing system or other signaling protocols may be used and the conferencing system maps those to a specific conference object identifier. Once a conference is established, a conference object identifier is required for the user to manipulate any of the conferencing data or take advantage of any of the advanced conferencing features. The same notion applies to users joining a conference using other signaling protocols. They are able to initially join a conference using any of the other signaling protocols supported by the specific conferencing system, but the conference object identifer MUST be used to manipulate any of the conferencing data or take advantage of any of the advanced conferencing features. As mentioned previously, the mechanism by which the user learns of the conference object identifier varies and could be via the conference control protocol, using the data model

and conference packager or entirely out of band such as E-Mail or a web interface.

7. Security Considerations

The security considerations for the conference object URI are related to those identifed in the centralized conferencing framework. Through conference control protocol signaling, the conference object URI is used to access the data associated with a specific conference within a conferencing system. Using the conference object URI and the signaling protocol, a user can perform perform actions on the conferencing system to invoke specific capabilities. The implementation must ensure that only authorized entities are able to manipulate the data to access the capabilities.

8. IANA Considerations

To be completed.

9. Acknowledgments

This document was initially created from content based upon details in the XCON FW document that were deemed out of scope for a framework document. The authors would like to thank Oscar Novo, Roni Even, Srivatsa Srinivasan and Lorenzo Miniero for their feeback on this document.

10. References

10.1. Normative References

[1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

10.2. Informative References

[2] Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol", RFC 3261, June 2002.

[3] Barnes, M., "A Framework and Data Model for Centralized Conferencing", draft-ietf-xcon-framework-07 (work in progress), January 2007.

[4] Camarillo, G., Ott, J., and K. Drage, "The Binary Floor Control Protocol (BFCP)", RFC 4582, November 2006.

[5] Camarillo, G., "Session Description Protocol (SDP) Format for Binary Floor Control Protocol (BFCP) Streams", RFC 4583, November 2006.

Authors' Addresses

Chris Boulton
Ubiquity Software Corporation
Building 3
Wern Fawr Lane
St Mellons
Cardiff, South Wales CF3 5EA

Email: cboulton@ubiquitysoftware.com

Mary Barnes
Nortel
2201 Lakeside Blvd
Richardson, TX

Email: mary.barnes@nortel.com

Full Copyright Statement

Intellectual Property

Acknowledgment

Funding for the RFC Editor function is provided by the IETF Administrative Support Activity (IASA).