ECRIT	B. Rosen	
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Intended status: Standards Track	H. Schulzrinne	
Expires: January 14, 2010	Columbia U.	
	H. Tschofenig	
	Nokia Siemens Networks	
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A Uniform Resource Name (URN) for Early Warning Emergency Services and Location-to-Service Translation (LoST) Protocol Usage
draft-rosen-ecrit-lost-early-warning-01.txt

Status of this Memo

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Abstract

The Common Alerting Protocol (CAP) is an XML document format for exchanging emergency alerts and public warnings. Different

organizations issue alerts for specific geographic regions. The Location-to-Service Translation (LoST) protocol provides a way to discover servers that distribute these alerts for a geographical region. This document defines the Service Uniform Resource Names (URN)s for warnings in the same way as they have been defined with RFC 5031 for citizen-to-authority emergency services. Additionally, this document suggests to use LoST for the discovery of servers distributing alerts.

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1. Introduction

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The Common Alerting Protocol (CAP) is an XML document format for exchanging emergency alerts and public warnings. Different organizations issue alerts for specific geographical regions. The Location-to-Service Translation (LoST) protocol provides a way to discover servers that distribute these alerts for a geographical region. This document defines the Service Uniform Resource Names (URN)s for warnings in the same way as they have been defined with RFC 5031 for citizen-to-authority emergency services. Additionally, this document suggests to use LoST for the discovery of servers distributing alerts.

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2. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119] (Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels," March 1997.).

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3. Protocol Semantics

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This document makes use of LoST, RFC 5222 [RFC5222] (Hardie, T., Newton, A., Schulzrinne, H., and H. Tschofenig, "LoST: A Location-to-Service Translation Protocol," August 2008.). However, instead of performing a translation from location information and a Service URN to a PSAP URI (plus supplementary information), as used with [I-D.ietf-ecrit-phonebcp] (Rosen, B. and J. Polk, "Best Current Practice for Communications Services in support of Emergency Calling," January 2010.) for the citizen-to-authority emergency services use case, the LoST client asks the LoST server for a URI to receive further information on how to obtain warning alerts. In a response the URIs in the <uri> element MUST be from the following format: sip, xmpp or http. The SIP URI MUST subsequently be used with [I-D.rosen-sipping-cap] (Rosen, B., Schulzrinne, H., and H. Tschofenig, "Session Initiation Protocol (SIP) Event Package for the Common Alerting Protocol (CAP)," July 2009.). An XMPP URI MUST be used as described in [XEP-0127] (Saint-Andre, P. and B. Fletcher, "Common Alerting Protocol (CAP) Over XMPP," December 2004.). An HTTP URI MUST be used with GeoRSS ([Reference to be added.]).
In a LoST response the optional <serviceNumber> element is not used by this specification. In mapping citizen-to-authority services, receiving multiple mappings is an exception. However, since many organizations may provide warnings for the same area, this is likely to be more common for alerts. As such, the extensions defined in [I-D.forte-ecrit-lost-extensions] (Forte, A. and H. Schulzrinne, "Location-to-Service Translation Protocol (LoST) Extensions," March 2009.) (e.g., the ability to limit the number of returned mappings) are useful in this context.

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4. Examples

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Figure 1 (A <findService> geodetic query) shows a regular LoST query including geodetic location information with the Service URN pointing to 'urn:service:warning'. The semantic of the query is: "I am at location (point,"37.775 -122.422"). Please give me a URI where I can

obtain information for warnings under the category
'urn:service:warning'.

```
<?xml version="1.0" encoding="UTF-8"?>
<findService
  xmlns="urn:ietf:params:xml:ns:lost1"
  xmlns:p2="http://www.opengis.net/gml"
  serviceBoundary="value"
  recursive="true">

  <location id="6020688f1ce1896d" profile="geodetic-2d">
    <p2:Point id="point1" srsName="urn:ogc:def:crs:EPSG::4326">
       <p2:pos>37.775 -122.422</p2:pos>
    </p2:Point>
  </location>
  <service>urn:service:warning</service>

</findService>
```

Figure 1: A <findService> geodetic query

In response to the query in Figure 1 (A <findService> geodetic query) the LoST server returns a regular LoST response, as shown in Figure 2 (A <findServiceResponse> geodetic answer). The returned mapping information indicates that the URIs (sip:alerts@example.com and xmpp:alerts@example.com) can be contacted to subscribe to warning events. The service boundary indicates that subsequent requests to the same service will lead to the same response for the geodetic region indicated by the polygon in the <serviceBoundary> element.

```
<?xml version="1.0" encoding="UTF-8"?>
<findServiceResponse xmlns="urn:ietf:params:xml:ns:lost1"
  xmlns:p2="http://www.opengis.net/gml">
  <mapping
    expires="2007-01-01T01:44:33Z"
    lastUpdated="2006-11-01T01:00:00Z"
    source="authoritative.example"
    sourceId="7e3f40b098c711dbb6060800200c9a66">
    <displayName xml:lang="en">
      Austrian Early Warning Center
    </displayName>
    <service>urn:service:warning</service>
    <serviceBoundary profile="geodetic-2d">
      <p2:Polygon srsName="urn:ogc:def::crs:EPSG::4326">
        <p2:exterior>
          <p2:LinearRing>
            <p2:pos>37.775 -122.4194</p2:pos>
            <p2:pos>37.555 -122.4194</p2:pos>
            <p2:pos>37.555 -122.4264</p2:pos>
            <p2:pos>37.775 -122.4264</p2:pos>
            <p2:pos>37.775 -122.4194</p2:pos>
          </p2:LinearRing>
        </p2:exterior>
      </p2:Polygon>
    </serviceBoundary>
    <uri>sip:alerts@example.com</uri>
    <uri>xmpp:alerts@example.com</uri>
  </mapping>
  <path>
    <via source="resolver.example"/>
    <via source="authoritative.example"/>
  </path>
  <locationUsed id="6020688f1ce1896d"/>
</findServiceResponse>
```

Figure 2: A <findServiceResponse> geodetic answer

Figure 3 (Example of <ListServicesByLocation> query) shows a <ListServicesByLocation> query asking for the services that are available at a given location; in this example at a point (-34.407 150.883).

```
<?xml version="1.0" encoding="UTF-8"?>
<listServicesByLocation
  xmlns="urn:ietf:params:xml:ns:lost1"
  xmlns:p2="http://www.opengis.net/gml"
  recursive="true">
  <location id="3e19dfb3b9828c3" profile="geodetic-2d">
    <p2:Point srsName="urn:ogc:def:crs:EPSG::4326">
      <p2:pos>-34.407 150.883</p2:pos>
    </p2:Point>
  </location>
  <service>urn:service:warning</service>
</listServicesByLocation>
```

Figure 3: Example of <ListServicesByLocation> query

Figure 4 (Example of <listServicesByLocationResponse>) lists a possible response to the <ListServicesByLocation> query with 6 subservices being offered for the indicated geographical region.

```
<?xml version="1.0" encoding="UTF-8"?>
<listServicesByLocationResponse
 xmlns="urn:ietf:params:xml:ns:lost1">
 <serviceList>
  urn:service:warning.geo
  urn:service:warning.met
  urn:service:warning.safety
  urn:service:warning.security
  urn:service:warning.rescue
  urn:service:warning.fire
 </serviceList>
 <path>
  <via source="resolver.example"/>
  <via source="authoritative.example"/>
 </path>
 <locationUsed id="3e19dfb3b9828c3"/>
</listServicesByLocationResponse>
```

Figure 4: Example of <listServicesByLocationResponse>

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5. Security Considerations

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The security considerations of RFC 5031 [RFC5031] (Schulzrinne, H., "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services," January 2008.), RFC 5222 [RFC5222] (Hardie, T., Newton, A., Schulzrinne, H., and H. Tschofenig, "LoST: A Location-to-Service Translation Protocol," August 2008.) and [I-D.rosen-sipping-cap] (Rosen, B., Schulzrinne, H., and H. Tschofenig, "Session Initiation Protocol (SIP) Event Package for the Common Alerting Protocol (CAP)," July 2009.) are relevant to this document. This document does not introduce new security vulnerabilities.

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6. IANA Considerations

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6.1. Sub-Services for the 'warning' Service

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This section defines the service registration within the IANA registry defined in Section 4.1 of [RFC5031] (Schulzrinne, H., "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services," January 2008.), using the top-level service label 'warning'.
The 'warning' service type describes services providing public safety alerts, i.e., alerts that can warn members of the public about dangers to life, health and property. Additional sub-services can be added after expert review and must be of general public interest and have a similar emergency nature. The expert is designated by the ECRIT working group, its successor, or, in their absence, the IESG. The expert review should only approve early warning based emergency services that are offered widely and in different countries, with approximately the same caller expectation in terms of services rendered. The 'warning' service is not meant to be used by non-emergency services related information. The warning classification (including description) in the list below is taken from the CAP specification [cap] (Jones, E. and A. Botterell, "Common Alerting Protocol v. 1.1," October 2005.):

> **'urn:service:warning'**: The generic 'warning' service denotes a generic early warning message of any type encompassing all of the services listed below.
>
> **'urn:service:warning:geo'**: Geophysical (inc. landslide)
>
> **'urn:service:warning:met'**: Meteorological (inc. flood)

'urn:service:warning:safety':
General emergency and public safety

'urn:service:warning:security': Law enforcement, military, homeland and local/private security

'urn:service:warning:rescue': Rescue and recovery

'urn:service:warning:fire': Fire suppression and rescue

'urn:service:warning:health': Medical and public health

'urn:service:warning:env': Pollution and other environmental

'urn:service:warning:transport': Public and private transportation

'urn:service:warning:infra': Utility, telecommunication, other non-transport infrastructure

'urn:service:warning:cbrne': Chemical, Biological, Radiological, Nuclear or High-Yield Explosive threat or attack

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6.2. Initial IANA Registration

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The following table contains the initial IANA registration for early warning services.

Service	Reference	Description
warning	RFC TBD	Early Warning Services
warning.geo	RFC TBD	Geophysical (inc. landslide)
warning.met	RFC TBD	Meteorological (inc. flood)
warning.safety	RFC TBD	General emergency and public safety
warning.security	RFC TBD	Law enforcement, military, homeland and local/private security
warning.rescue	RFC TBD	Rescue and recovery
warning.fire	RFC TBD	Fire suppression and rescue
warning.health	RFC TBD	Medical and public health
warning.env	RFC TBD	Pollution and other environmental
warning.transport	RFC TBD	Public and private transportation
warning.infra	RFC TBD	Utility, telecommunication, other non-transport infrastructure
warning.cbrne	RFC TBD	Chemical, Biological, Radiological, Nuclear or High-Yield Explosive threat or attack

7. Acknowledgments

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We would also like to thank the participants of the Early Warning Adhoc meeting at IETF#69.

8. References

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8.1. Normative References

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[RFC2119]	Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels," March 1997.
[cap]	Jones, E. and A. Botterell, "Common Alerting Protocol v. 1.1," October 2005.
[RFC5222]	Hardie, T., Newton, A., Schulzrinne, H., and H. Tschofenig, "LoST: A Location-to-Service Translation Protocol," RFC 5222, August 2008 (TXT).
[I-D.rosen-sipping-cap]	Rosen, B., Schulzrinne, H., and H. Tschofenig, "Session Initiation Protocol (SIP) Event Package for the Common Alerting Protocol (CAP)," draft-rosen-sipping-cap-04 (work in progress), July 2009 (TXT).
[RFC5031]	Schulzrinne, H., "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services," RFC 5031, January 2008 (TXT).

8.2. Informative References

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[XEP-0127]	Saint-Andre, P. and B. Fletcher, "Common Alerting Protocol (CAP) Over XMPP," XSF XEP 0127, December 2004.
[I-D.forte-ecrit-lost-extensions]	Forte, A. and H. Schulzrinne, "Location-to-Service Translation Protocol (LoST) Extensions," draft-forte-ecrit-lost-extensions-02 (work in progress), March 2009 (TXT).
[I-D.ietf-ecrit-phonebcp]	Rosen, B. and J. Polk, "Best Current Practice for Communications Services in support of Emergency Calling," draft-ietf-ecrit-phonebcp-14 (work in progress), January 2010 (TXT).

Authors' Addresses

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	Brian Rosen
	NeuStar, Inc.
	470 Conrad Dr
	Mars, PA 16046
	US
Phone:	
Email:	br@brianrosen.net
	Henning Schulzrinne
	Columbia University
	Department of Computer Science

	450 Computer Science Building
	New York, NY 10027
	US
Phone:	+1 212 939 7004
Email:	hgs+ecrit@cs.columbia.edu
URI:	http://www.cs.columbia.edu
	Hannes Tschofenig
	Nokia Siemens Networks
	Linnoitustie 6
	Espoo 02600
	Finland
Phone:	+358 (50) 4871445
Email:	Hannes.Tschofenig@gmx.net
URI:	http://www.tschofenig.priv.at