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Realm-Based Redirection In Diameter
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Abstract

RFC 3588 allows a Diameter redirect agent to specify one or more individual hosts to which a Diameter message may be redirected by an upstream Diameter node. However, in some circumstances an operator may wish to redirect messages to an alternate domain without specifying individual hosts. This document specifies a mechanism by which this can be achieved. New applications may incorporate this capability by reference to the present document.

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1. Introduction

The usual redirect indication, as described in Section 6.1.7 and Sections 6.12-6.14 of [RFC3588], returns one or more individual host names to the upstream Diameter node. However, consider the case where an operator has offered a specific service but no longer wishes to do so. The operator has arranged for an alternative domain to provide the service. To aid in the transition to the new arrangement, the original operator maintains a redirect server to indicate the alternative destination to upstream nodes. However, the original operator has no interest in configuring a list of hosts in the alternative operator's domain, and would prefer simply to provide redirect indications to the domain as a whole.

Within this specification, the term "realm-based redirection" is used to refer to a mode of operation where the redirect indication specifies a realm and the upstream Diameter node reroutes the message to the realm rather than an individual host.

1.1. Requirements Language

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].

2. Support of Realm-Based redirection Within Applications

Because realm-based redirection is not part of base Diameter behaviour, support for realm-based redirection by the agent cannot be guaranteed without advertisement at the application level. Designers of new applications wishing to include support for realm-based redirection can incorporate the mechanism specified here by reference to this document.

3. Realm-Based Redirection

This section specifies an extension to [RFC3588] to achieve realm-based redirection. The elements of this solution are:

- o a new result code, DIAMETER_REALM_REDIRECT_INDICATION (3xxx TBD);
- o one new attribute-value pair (AVP), Redirect-Realm; and
- o associated behaviour at Diameter nodes implementing this specification.

3.1. Behaviour of Diameter Nodes

3.1.1. Behaviour at the Redirect Agent

This specification modifies Section 2.7 of [RFC3588] to permit REDIRECT routing table entries to contain an alternative realm instead of individual home server identities.

This specification modifies Section 6.1.7 of [RFC3588]. If the realm-based routing table for a request contains a realm rather than one or more home server identities, the redirect agent MUST proceed as follows:

- o If the peer from which the request was received did not advertise an application incorporating the realm-based routing capability in the CER/CEA exchange, the redirect agent SHOULD set the 'E' bit in the answer and set the Result Code to DIAMETER_UNABLE_TO_DELIVER. As an alternative, the redirect agent MAY if so configured provide a host-based redirect as described in Section 6.1.7 of [RFC3588].
- o Otherwise, if an application supporting the use of realm-based redirection was negotiated with the peer, the redirect agent MUST set the Result-Code AVP to DIAMETER_REALM_REDIRECT_INDICATION rather than DIAMETER_REDIRECT_INDICATION. Furthermore, the redirect agent MUST a Redirect-Realm AVP containing the realm from the routing table entry in its answer message instead of one or more Redirect-Host AVPs. To prevent confusion at Diameter nodes receiving the answer message, the message MUST include the Error-Reporting-Host AVP if the host setting the Result-Code AVP is different from the identity encoded in the Origin-Host AVP, in conformity with Section 7.1 of [RFC3588]. All other aspects of Section 6.1.7 remain the same as for host-based redirection.

3.1.2. Behaviour of Other Diameter Nodes

A Diameter node conforming to this specification which receives an answer with the result code value DIAMETER_REALM_REDIRECT_INDICATION SHOULD attempt to reroute the request to the indicated realm using normal discovery procedures to find an appropriate destination host. The receiving Diameter node SHOULD update its cache of routing entries according to the direction provided by the Redirect-Max-Cache-Time AVP, if present. The cache entry SHOULD be associated with a redirect usage of REALM_AND_APPLICATION.

3.2. The Redirect-Realm AVP

The Redirect-Realm AVP (code TBD) is of type DiameterIdentity. It specifies a realm to which a node receiving a redirect indication

containing the result code value `DIAMETER_REALM_REDIRECT_INDICATION` and the Redirect-Realm AVP SHOULD route the original request. The V flag for the Redirect-Realm AVP MUST NOT be set.

Section 6.14 of [RFC3588] is modified to permit the Redirect- Max-Cache-Time AVP to be used also to specify the persistence of cache entries created by the Redirect-Realm AVP.

4. Security Considerations

Because realm-based redirection implies a change in business relationships, the node acting on the redirect indication SHOULD verify that the new realm is authorized to perform the requested service. Similarly the originator of the request SHOULD perform an authorization check of the path as described in Section 2.10 of [RFC3588].

5. IANA Considerations

This specification adds a new AVP code [TBD] Redirect-Realm in the AVP Code registry under Authentication, Authorization, and Accounting (AAA) Parameters.

This specification allocates a new Result-Code value `DIAMETER_REALM_REDIRECT_INDICATION` (3xxx TBD) in the Result-Code AVP Values (code 268) - Protocol Errors registry under Authentication, Authorization, and Accounting (AAA) Parameters.

6. Acknowledgements

Glen Zorn, Sebastien Decugis, Wolfgang Steigerwald, Mark Jones, Victor Fajardo, and Jouni Korhonen contributed comments that helped to shape this document.

7. Normative References

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