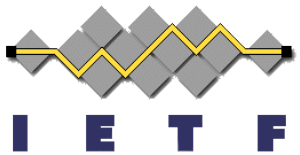
Diameter Group Signaling

Thursday, November 07th, 2013



draft-ietf-dime-group-signaling-02

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Motivations

- Reduce signaling in those use cases that require many Diameter sessions to be modified or terminated at the same time
- Add group signaling to existing Diameter applications with minimal impact and ambiguity
- Describe the problem space in an application neutral fashion (guidelines) to aid other SDOs in tackling this problem

Two Problem Aspects

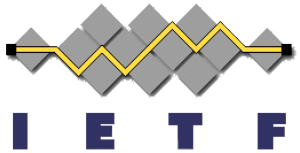
1. Managing group assignments
   - How to add or remove sessions from groups
   - Guidelines for modifying group assignments

2. Manipulating groups of sessions
   - Defines new formatting of commands for group operations

Document history & work item status

- draft-ietf-dime-group-signaling-00 published in June 2012
- First revision published in July 2013
  - Adopts the WG's current view on how group signaling and operations can be accomplished
  - Move from dedicated bulk commands to re-use of existing commands
- Second revision published in October 2013
  - Clarification of Use Cases (dedicated section added)
  - Command and AVP formatting details
  - Protocol operation & Client/Server behavior
  - Still some normative text required..

2nd Revision
What's new..?



- Added section about use cases
  - Building and Modifying Session Groups
  - Issuing Group Commands
- Clarification of client- and server-assigned group
  - Either node (Client/Server) can build a node-specific group of sessions
  - Both nodes must maintain a list of all groups (client- and server-assigned) associated with a client-server-pair
- Capability Discovery
  - Implicit for existing applications (append optional Session-Group-Info AVP)
  - Explicit for new applications (Application Id)
- Text about treatment of M-flag in Group-specific AVPs
  - Optional for existing application; Enable single-session fallback
  - Mandatory for new applications, which consider group operations as per specification

2nd Revision
What's new..?

Detailed format of group-specific AVPs

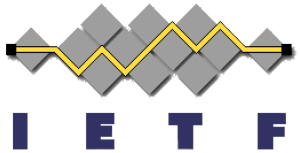
Session Identification

- Session-Group-Info AVP (grouped)
  - Session-Group-Feature-Vector (Unsigned32, interpreted as 32-bit flag field)
  - Session-Group-Id (OctetString)

Treatment of Group Commands

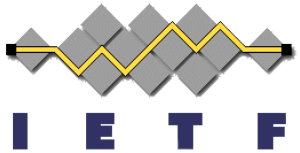
- Session-Group-Action AVP (Unsiged32)

2nd Revision
What's new..?



- Session-Group-Feature-Vector AVP
  - Work-around to not touch reserved flag space in AVP header
  - So far defined: Flag to differentiate server-/client assigned group
    - SESSION_GROUP_ALLOCATION_MODE (0x00000001)
  - About 'group-ownership':
    - Should Session-Group-Id follow the format of the Session-Id AVP and identify the node that created the group?
    - Or is a flag sufficient?
  - Additional flags required (see: What's next..?)

2nd Revision
What's new..?



- Session-Group-Action AVP
  - ALL_GROUPS (1) – Follow up exchanges should be performed with a single message exchange for all impacted groups.
  - PER_GROUP (2) – Follow up exchanges should be performed with a message exchange for each impacted group.
  - PER_SESSION (3) – Follow up exchanges should be performed with a message exchange for each impacted session.

- Example:
  - Single ASR / ASA command applies to multiple groups
  - STR / STA to be performed per session (3) / per identified group (2) / once for all identified groups (1)

What's next..?

Editorial / Clarify specification

- Re-organize text of Section 4 and Section 5 to reflect clear separation between *Protocol Operations* and *Client/Server behavior*
- Add description of organizing Group Maps on Client and Server
  - Each node must maintain maps of client- and server-assigned groups
  - Organize per client-server pair
- Text about treatment of sessions which appear in multiple groups
  - Group command performed to all these groups
    - Perform command only once for this session ID
  - Group command performed only to a subset of these groups
    - In case of STR, session needs to be removed from all groups

What's next..?

Signaling and handling of limited success

- Situation
  - Group command results in success for a subset of all identified sessions
- Option I:
  - Failure indicated for all sessions of the identified group(s)
  - Fallback to single-session operations for all session of the identified group(s)
- Option II:
  - Command results in DIAMATER_LIMITED_SUCCESS
  - Fallback to single-session operation only for explicitly identified sessions
  - Requires means to identify sessions for which the command failed

What's next..?

Allocate more Flags in Session-Group-Info AVP

- SESSION_GROUP_ALLOCATION_MODE (0x00000001)
  - Differentiate Client- from Server-assigned group
- SESSION_GROUP_MOD_ACTION (0x00000010)
  - Differentiate '**adding** session to group' from '**removing** session from group'
- GROUPING_SUPPORTED_IND (0x10000000)
  - Indicate that Session-Group-Info AVP has been added solely for grouping capability announcement
  - **Set** for grouping capability announcement
    - Other flags are ignored
    - Session-Group-Id AVP omitted
  - **Cleared** for session group handling and in group commands

What's next..?

Stateful Proxies

- What if session-stateful Proxy between a client and a server is not group-aware?
  - Mandate all such proxies to be group-aware as per deployment
  - No issue with stateless Proxy and relay agents
- What if multiple session-stateful Proxies are located between client and a server
  - Server must prevent building a group whose sessions split between multiple servers
  - Server may overrule client's group assignment to ensure all sessions of a group have a state on the same stateful Proxy

Next Steps

- Publish 3rd revision after IETF88
- Solicit reviews and comments
- Enter open items in issue tracker
- Converge on open items
  - Mailing list
  - Phone conferences
- Aim at mature revision before IETF89