Diameter Group Signaling

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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
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 (Unsigned32)
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..?)
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 sessions 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