Heartbeat Mechanism for Proxy Mobile IPv6

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Heartbeat Mechanism

- MAG and LMA manage routes for a mobile node in a PMIPv6 domain.
- If MAG or the LMA become unavailable, or if there is a path failure, it takes quite some time for this to be discovered:
  - MAG realizes that the LMA is not available only when it sends the next Proxy BU and gets no response.
  - LMA realizes that the MAG is not reachable only when it receives ICMP Destination Unreachable messages in response to tunneled MN traffic.
- Some of the interfaces where PMIPv6 is being planned for use in SDOs require path failure detection quickly:
  - Reaction could include finding alternate nodes or releasing resources.
- draft-devarapalli-netlmm-pmipv6-heartbeat:
  - Describes a heartbeat mechanism between the MAG and the LMA if there is an active binding cache entry at the LMA for a MN attached to the MAG.
  - Heartbeat messages exchanged periodically.
  - Failure/unreachability detection based on the exchange of heartbeat messages.
  - Similar to the GTP path management mechanism developed by 3GPP.