Use Case for RPH in Responses

draft-gunn-sip-req-for-rph-in-responses-00

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Background

- RFC4412 defines the Resource-Priority Header “RPH”, but is ambiguous about the use of RPH in responses.
- As currently interpreted, any RPH header in a SIP response is ignored, but is not prohibited.
- draft-polk-sip-rph-in-responses-00 “Allowing SIP Resource Priority Header in SIP Responses” describes a modification to RFC4412 to permit RPH in responses.
- Discussion on the SIP list indicated a need for more detailed discussion of the Use Case motivating RPH-in-responses.
- This Use Case focuses on elevated priority for access to media resources.
Simplified GETS/WPS Paradigm

Each authorized user is assigned a priority level- which is stored in a database
- User may not know his/her priority level
- UAC does not know the user’s priority level
- User can not request a particular priority level
  - User requests priority call and gets the assigned priority level
  - This is NOT like MLPP
- Priority level is only available AFTER authentication /authorization, which includes checking the data base. (wps.y)

- Priority is invoked on a “call by call” basis, by special “dialstrings”
  - Other invocation methods possible in the future

- Two tiered priority scheme
  - GETS “treatment” without known priority level (uses ets.0)
  - Priority within GETS treatment (uses wps.y)
Access is probable bottleneck under congestion/crisis – focus of this Use Case

Core network is also potential bottleneck – but not the focus of this Use Case

Access is probable bottleneck under congestion/crisis - focus of this Use Case
Conceptual Signaling Call Flow

**A**
Detects “dialstring”, marks message, sends to GETS server

**B**
Authenticates/authorizes call, retrieves user priority level from data base, identifies final destination

**GETS Auth. Serv**

Sends GETS “dialstring”

Sends marked message, with GETS “dialstring”
Conceptual Signaling Call Flow

A sends marked message, with priority level, and final destination to

B. B sends message to final destination.

Either
- Unauthorized
Or
- User’s priority level

GETS Auth. Serv

Sends marked message, with priority level, and final destination.
User’s priority level used in reserving capacity for media

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User’s priority level used in reserving capacity for media

Conceptual Media Call Flow
SIP Call Flow

Detects GETS indication in URI, sends to GETS server

Authenticates/authorizes call, retrieves user priority level (3) from database. (If not authorized, send 403)
Identifies final destination and revises URI

INVITE URI indicates GETS

INVITE URI indicates GETS RPH ets.0 SDP 1

GETS Auth. Serv
SIP Call Flow

GETS AUTH. Serv

A → GETS AUTH. Serv

INVITE with Destination URI
RPH ets.0, wps.3
SDP 1

B
SIP Call Flow

A

GETS
Auth.
Serv

183 with
SDP2 and
RPH ets.0, wps.3

B

183 with
SDP2 and
RPH ets.0, wps.3
SIP Call Flow

GETS Auth. Serv

Reservation – using Priority 3

Reservation – using Priority 3
Partial (Desired) Call Flow with RPH in Responses

A

|-----------(1) INVITE SDP1-----> |
| Look up in data base for priority level (=3) |
|-----(2) INVITE SDP1 RPH wps.3---> |
|--(4) 183 SDP2 wps.3------------| <-(3) 183 SDP2 wps.3------------|
|*** |
|--*R*----(5) PRACK wps.3----------| ---(6) PRACK RPH wps.3-----*R*--|
| *E* |
| *S* |
| *E* |
|--*R*--(8) 200 OK (PRACK) wps.3--|
| *V* |
| *A* |
| *T* |
| *I* |
| *O* |
| *N* |
| *** |
| *** |
| *** |
Security Concerns

• How does “A” know if the RPH in a response is legitimate?
  – After sending INVITE to GETS AS, “A” is expecting either a 403 or a 183 with RPH
    • Will ignore RPH in responses associated with other dialogs
  – “A” is expecting RPH in responses from specific sources, based on local policy,
    • Will ignore RPH in responses from other sources,
    • Will ignore RPH in responses if cannot trust identity of source, based on local policy (e.g., IPSec Tunnel)
Conclusion

- Objective- apply user’s priority to reservation process
  - With RPH in responses, it is straightforward to apply the user’s priority in reservations at both ends
  - Without RPH in responses, it is complicated to apply the user’s priority on the originating leg