ALTO Protocol Update

June 19, 2013

Outline

- Summary of changes made in -16

- Key issues/remaining issues

- Timeline

Changes Made in -16 (Posted May 21, 2013)

- Changes based on WG consensus:

  - http://www.ietf.org/mail-archive/web/alto/current/msg01918.html

- Some "major" items

  1. Network Map Version Tags
     Changed Sec. 6.3 to mention the consistency discussions

  2. Mention cross Cost Map
     Added a short section Sec. 6.4

  3. Add a short guideline section Sec. 8.3.6 on Refresh

  4. Changed to single media-type
     See Sec. 8.5

Item 1: IRD Declaration

- **Issue** (http://www.ietf.org/mail-archive/web/alto/current/msg01878.html)

  - An IRD entry can return multiple resource types

- Solution

  - Single media-type per entry, with application/alto-directory+json as container type (see Sec. 8.5.3 for an example IRD)

```
object {
   IRDMeta          meta;
   IRDResourceEntry resources<1..*>;
} InfoResourceDirectory;

object-map {
   JSONString -> JSONValue;
} IRDMeta;

object {
   JSONString      uri;
   JSONString      media-type;
   [JSONString     accepts;]
   [Capabilities   capabilities;]
} IRDResourceEntry;
```

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Item 2: Update Frequency

- **Issue** (http://www.ietf.org/mail-archive/web/alto/current/msg01893.html)

  - How does an ALTO client determine the frequency to refresh cached data (e.g., IRD, network map, cost map, endpoint properties)?

  - Is this part of ALTO or HTTP?

- Solution

  - Use HTTP mechanism

  - Added new Section 8.3.6 to address the issue explicitly

- Remaining issue:

  - Does ALTO specify (recommend) a mechanism on how an ALTO Server specifies the freshness (Date/Expires/Cache-Control: max-age)

  - Exact wording will need to be determined for Section 8.3.6

Item 2: Update Frequency

- Current planned wording for Section 8.3.6

> An ALTO Client determines the frequency at which ALTO Information is refreshed, and MAY determine freshness of ALTO information made based on information made available via HTTP.

Item 3: Equivalence of Server Data

- **Issue** (http://www.ietf.org/mail-archive/web/alto/current/msg01919.html)

  - Hostname+port based information domain

  - Consider Network Map as an example:

    - Network maps from `alto.example.com/netmap1` and `alto.example.com/netmap2` are considered the same if they have the same v-tag, because matching is only on hostname/port

    - Cost map defined by `custom.alto.example.com/ord/ hopcount` cannot refer to the Network Map defined by `alto.example.com/networkmap`

- One proposal generalization

  - Default ALTO name space is URI, and hence maps from `alto.example.com/netmap1` and `alto.example.com/ netmap2` are different network maps even if they have the same v tag

  - Introduce explicit reference of server data dependency

Item 3: Equivalence of Server Data

```
{      "uri" : "http://custom.alto.example.com/costmap",
       "media-type" : "application/alto-costmap+json",
       "accepts" : "application/alto-costmapfilter+json",
       "refers-to": {
           "networkmap":  "http://alto.example.com/networkmap1"},
       "capabilities" : {
        "cost-constraints" : true,
        "cost-type-names" : [ "num-routing", "num-hop",
                              "ord-routing", "ord-hop" ]
       }
}
```

```
HTTP/1.1 200 OK
Content-Length: TBA
Content-Type: application/alto-costmap+json

{
  "meta" : {},
  "data" : {
    "cost-type" : {"cost-mode"  : "numerical",
                   "cost-metric": "routingcost"},
    "networkmap"  : {"uri": "http://alto.example.com/networkmap1",
                     "vtag": "1266506139"},
    "map" : {
     "PID1": { "PID1": 1,  "PID2": 5,  "PID3": 10 },
     "PID2": { "PID1": 5,  "PID2": 1,  "PID3": 15 },
   ...}}
```

Proposed Tentative Timeline

- Revised ID (July 15, 2013)

- Berlin IETF presentation (July 27-August 2, 2013)

- Revised ID (August 14, 2013)

- 2nd short WGLC (August 28, 2013)

- IESG (September 2013)