Unified Properties for ALTO Updates

draft-ietf-alto-unified-props-new-10

Wendy Roome
Sabine Randriamasy
Y. Richard Yang
J. Jensen Zhang
Overview of Unified Properties – revision 10

• After IETF 105, several WG members reviewed the document and mentioned the early part of the document was hard to read
• Major changes are on sections 1, 2, 3, that present the new features
  • Typos in the rest of document
• No changes in the design
• Need to simplify the text
• Opted for a didactic approach
  • Progressive and clearly motivated complexity of features
• Need to clarify text before submitting the document
• Same exercise needed for the rest of document
Revision 10 - digest

• 1. Introduction – non technical
  • Lists 3 limitations of RFC 7285 and the 3 related extensions proposed

• 2. Basic features of UP extension,
  • Generic definition as in early versions

• 3. Advanced features for UP extension
  • Explains limitations, in some cases of using generic features
  • Explains the risk of ambiguous client requests and how to solve it
  • Ambiguity issue was raised in 2018 and motivated most of advanced features
New structure of concept sections 2 and 3

New ToC
Section 2. Basic features of UP extension

- Defines “generic” features as in early versions
- Added introduction with purpose of UP extension
  - convey properties on objects that extend ALTO Endpoints and are called ALTO Entities

2.1 Entity
- Generalizes Endpoints
- Examples: endpoints, PID, ANE, ...

2.2 Entity domain
- Set of entities of same type = type of entity domain
- Defines entity ID format
- Example “ipv4”, “pid”

2.4 Entity property
- Can be network-aware (AS Number) or network-agnostic (geographical region)

2.5 New information resource and media type: ALTO Property Map
- GET-mode or POST mode
Section 3. Advanced features for UP extension

• Explains need, in some cases, for resources-specific domain and property

• 3.1 Entity Identifier and Entity Domain
  • next version will say “entity domain "prefixes" entity ID”
  • Entity ID owned by exactly 1 entity domain
  • Entity ID owned by exactly 1 entity
  • Endpoint having an IPv4 and IPv6 address will be represented as 2 ≠ entities

• 3.2 Resource-specific Entity Domain Name
  • Entity ID "pid:mypid10" may be defined in netmap1 and netmap2 and thus point to different sets of endpoints
  • Solution: “compose” entity domain with resource ID ➔ netmap1.pid:mypid10 and netmap2.pid:mypid10
Section 3. Advanced features for UP extension

• 3.3 Resource-specific Entity property
  • entity "192.0.2.34" defined in the "ipv4" domain may have two "pid" properties defined in two different network maps "netmap1" and "netmap2"
  • Solution: “compose” the property type with resource ID ➔ property ID = "netmap1.pid" and "netmap2.pid"

• 3.4 Entity hierarchy and property inheritance

• 3.5 In next slide

• 3.6 Connection between Resource-Specific Entity Domain/Entity Property Mapping and Information Resources
  • About IANA registration of (entity, property) mapping
  • Text needs clarifications
  • Discussion: mapping definitions may be resources agnostic and text should be adapted
Section 3. Advanced features for UP extension

3.5 Applicable Entity Domains and Properties in the Property Map Capabilities – to be completed + examples

- To expose to clients what properties can be queries on what entities
- Ambiguity issue in previous design (example will be added in v11):
  
  ```json
  "uses": ["netmap1", "netmap2", "cdnifci-map-4"]
  "capabilities": {
    "entity-domain-types": ["ipv4", "countrycode", "asn"],
    "prop-types": ["cdni-fci-capabilities", "pid"]
  }
  
  Problem: querying "pid" property on "countrycode" or "asn" entity is not allowed
  ```

- Solution: (example will be added in v11)
  
  ```json
  "mappings": {
    "ipv4": ["netmap1.pid", "netmap2.pid", "cdnifci-map-4. cdni-fci-capabilities"],
    "countrycode": ["cdnifci-map-4. cdni-fci-capabilities"],
    "asn": ["cdnifci-map-4. cdni-fci-capabilities"]
  }
  ```
Illustrative sections

- Some sections do not provide any protocol specifications
  - but are meant to explain the design,
  - Text adds complexity and is not useful to implementors
  - Examples in sections: 6.1, 6.2, section 3.6 and relation to 12.4
- Options: clarify and move to annex or drop
Next steps

• Fix typos and errors detected right after sending new version
• Continue clarification and clean-up
• Last check on IANA section
• Propose for WGLC
Thank you

Back-up slides follow