ALTO H12 Protocol

draft-kiesel-alto-h12-02

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Where we are?

• Departing from
  – original P4P protocol proposal
  – original Oracle proposal
  – evolved draft-ietf-alto-protocol
  – and the H12 protocol (draft-kiesel-alto-h12)

• draft-kiesel-alto-H12 wasn’t ready for IETF#76 deadline

• Main difference between H12 and draft-ietf-alto-protocol
  – operational model between client and server
Problem Space

• orthogonal issues
  – map download vs. oracle query
  – IP prefixes vs. "macros" (PID) on the wire (ALTO client protocol)
  – IP prefixes vs. "macros" (PID) inside the ALTO server

• alto-protocol:
  – separation between network map and cost map fine for the server and for load reduction
  – problematic if network maps aren’t as stable as assumed
  – ranking service might be too fine in granularity

• Network maps assume “static” network
  – isn’t this mandating too much to the operator?
  – are network maps really this static?
  – check out Cisco’s ODAP; dynamically assign IP blocks
    (http://www.cisco.com/en/US/docs/ios/12_2t/12_2t15/feature/guide/ftodapss.html)
H is for Hemispheres

H1

We, the network operators want to do ALTO, but we will not disclose info about the network topology and state

H2

We, the P2P users and P2P vendors want to do ALTO, but we will not disclose info about the overlay

How to bring them together?
H12 Protocol

• implements H12
• Supports caching in network and in H12 client
• Based on HTTP/1.1
• considering XML based message body for H12 information
• client can send info
  – IP address, IP address prefixed (e.g., /24)
  – up to the client to decide how specific
• server works out his preferences by using client’s info
• server replies with specific guidance
  – can be a 1:1 answer of request (replying with /24)
  – can be much broader answer (replying with /16)
  – can be more narrow answer (replying with multiple /24)
Protocol Example (1/2)

Request

```xml
<?xml version="1.0" encoding="UTF-8"?>
<alto
<group_rating_request
db_version='1234'>
<pri_ratcrit crit='pref'/>
<rc_hla><ipprefix version='4'
prefix='195.37.70.39/32'/></rc_hla>
<cnd_hla>
<ipprefix version='4'
prefix='202.103.147.132/32'/>
</cnd_hla>
...```

Response

```xml
<alto
xmlns="urn:ietf:params:xml:ns:p2p:alto">
<group_rating_reply statuscode="200">
<cnd_hla overall_rating="3">
<info type="country" unit="ISO-3166-1"
value="CN" />
<info type="X-NEC-map_of_internet"
unit="areacode" value="3" />
<ipprefix prefix="202.95.252.0/22"
version="4" />
<ipprefix prefix="202.120.24.0/25"
version="4" />
<ipprefix prefix="202.120.24.128/26"
version="4" />
```
Response also indicates the redistribution “area”:

```xml
<rc_hla>
  <info type="country" unit="ISO-3166-1" value="DE" />
  <info type="X-NEC-map_of_internet" unit="areacode" value="2" />
  <ipprefix prefix="195.37.0.0/16" version="4" />
</rc_hla>
```
ALTO Protocol Structure

- Server Capabilities
- Map Filtering Service
- Endpoint Prop. Service
- Ranking Service
- Map Service
Adding H12 to ALTO Protocol

Server Capabilities

Map Filtering Service
Endpoint Prop. Service
Ranking Service

H12 Service

Map Service
Merging H12 & Ranking Service

Server Capabilities

Map Filtering Service

Endpoint Prop. Service

H12 Ranking Service

Map Service
Outlook

• H12 is another way of ALTO
• First implementation ready
• H12 intended to be another service of ALTO protocol

• Should this become part of ALTO protocol?