

ALTO H12 Protocol

[draft-kiesel-alto-h12-02](#)

Sebastian Kiesel and Martin Stiemerling
ietf-alto@skiesel.de
martin.stiemerling@neclab.eu

IETF-77, Anaheim, CA, USA
March 22, 2010

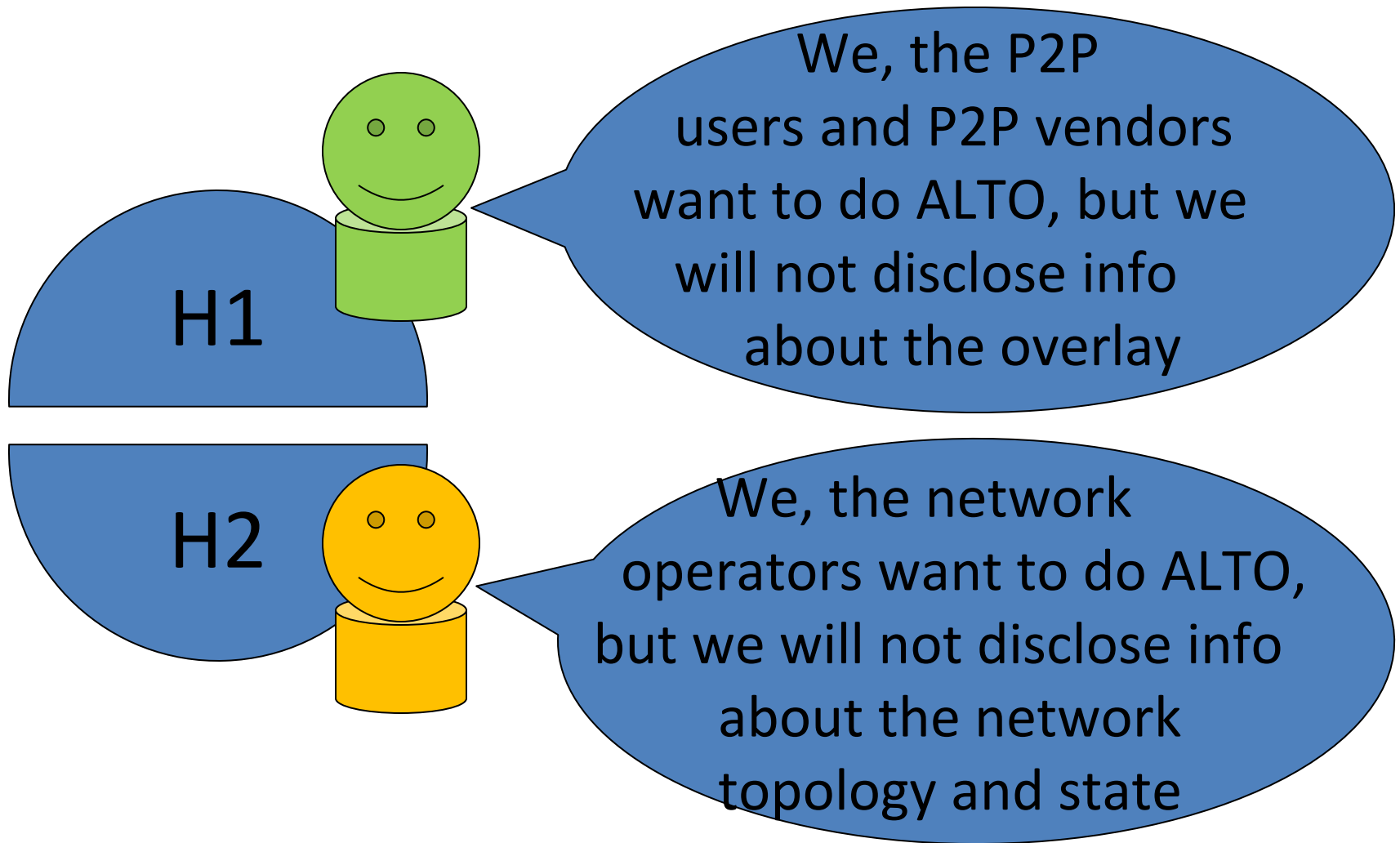
Where we are?

- 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" (PIDs) on the wire (ALTO client protocol)
 - IP prefixes vs. "macros" (PIDs) 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



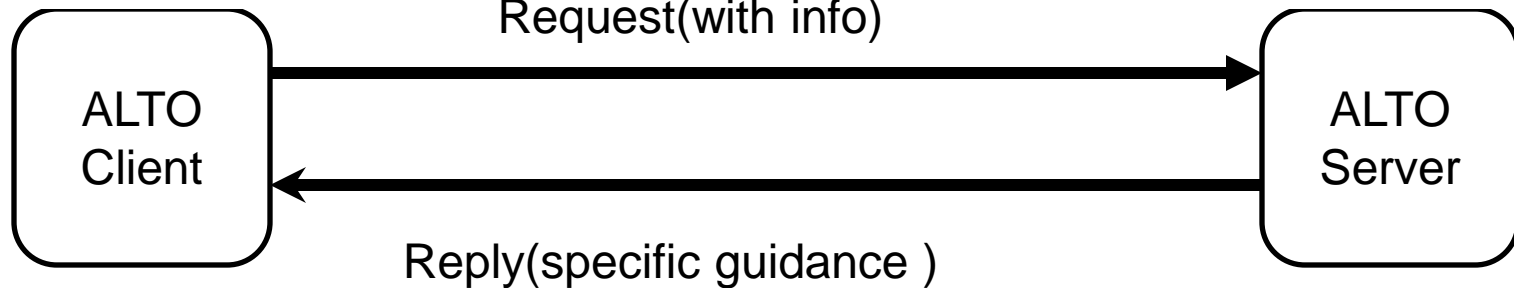
How to bring them together?

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



H12 Model



- 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)

resource
consumer host
location attribute

Protocol Example (1/2)

Request

```
<?xml version="1.0" encoding="UTF-8"?>
  <alto
    xmlns='urn:ietf:params:xml:ns:p2p: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'/>
    ...
```

candidate host
location
attribute

Response

```
<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" />
```

Protocol Example (2/2)

- Response also indicates the redistribution “area”:

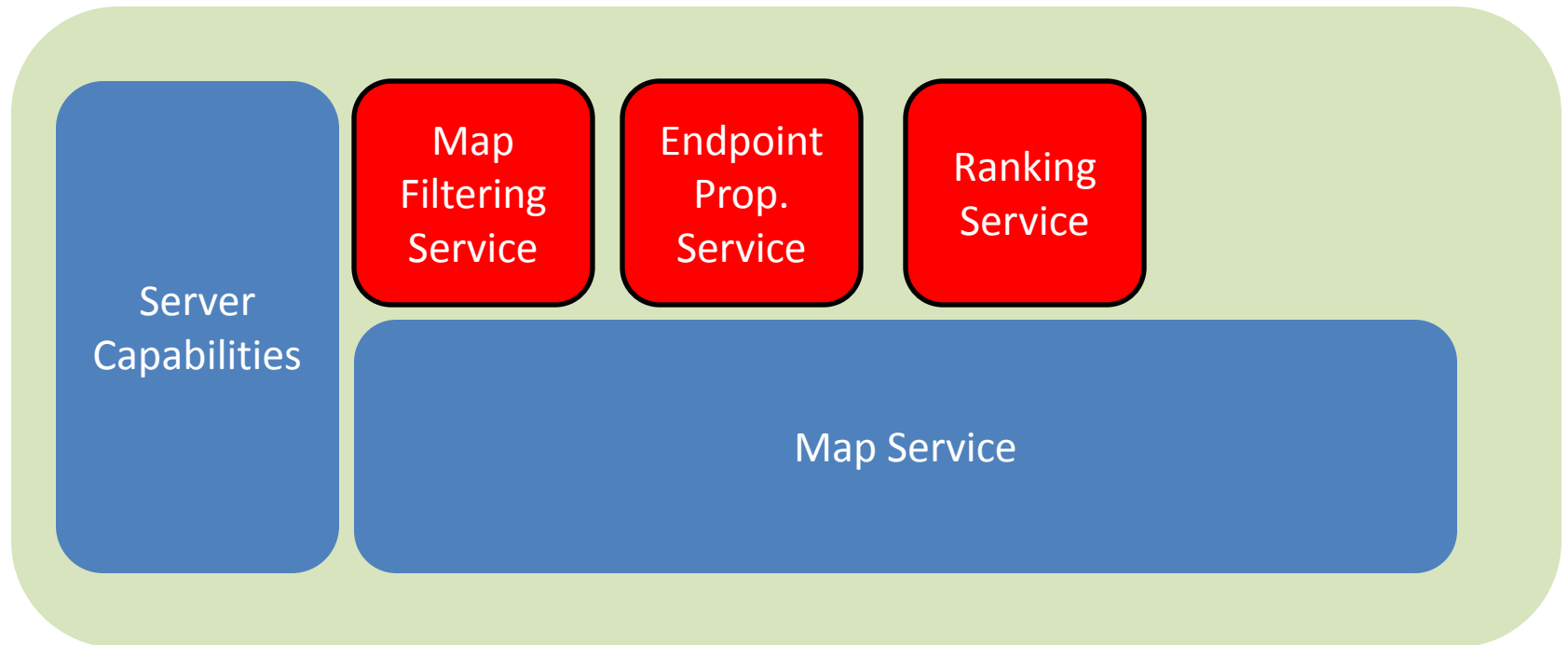
```
<rc_hla>
```

```
<info type="country" unit="ISO-3166-1" value="DE" /> <info  
  type="X-NEC-map_of_internet" unit="areacode" value="2" />
```

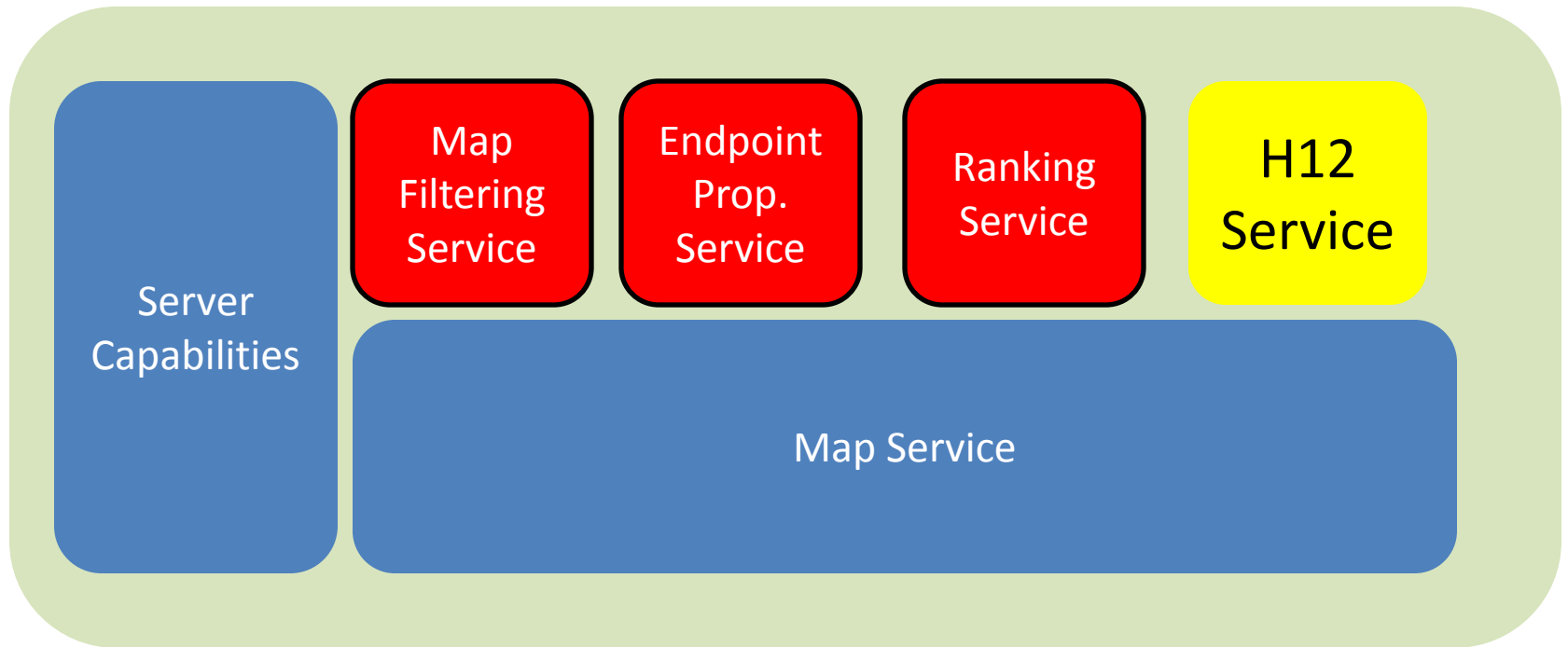
```
<ipprefix prefix="195.37.0.0/16" version="4" />
```

```
</rc_hla>
```

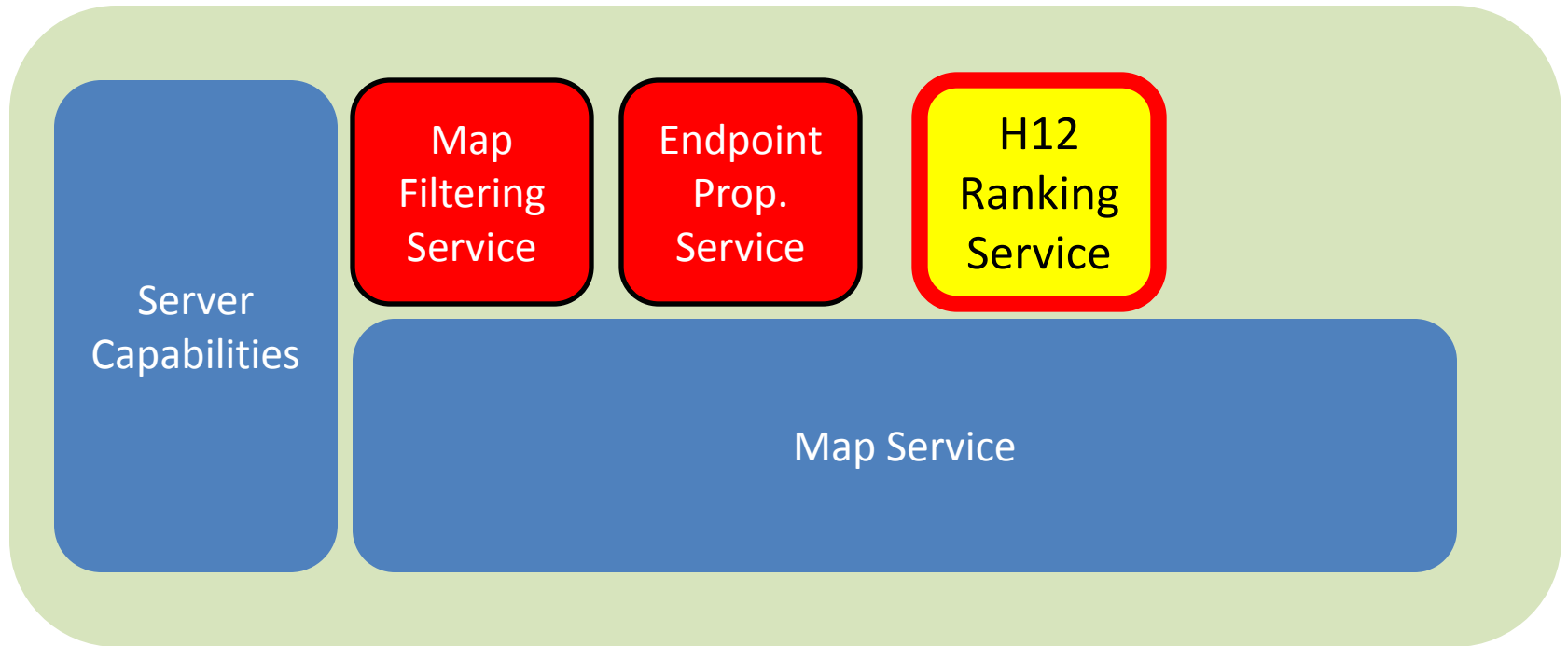

ALTO Protocol Structure



Adding H12 to ALTO Protocol



Merging H12 & Ranking 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?