PAWS Database Discovery

draft-wei-paws-database-discovery-00

PAWS WG
IETF86

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1. Motivation

• The pre-configuration and provisioning are valid approaches for WS master devices to get DB addresses.
• Device management and other provisional approaches are to retrieve DB address in operator networks.
• This proposal is a light use of LoST (RFC5222) for WSDB discovery, with advanced services of LoST
  – In case, WSD is failure to access pre-configured or cached DB server.
2. Services LoST provides to DB discovery

- LoST (RFC5222) architecture and services
  - Mapping locations to PSAP URLs
  - Architecture considerations: seekers, resolvers, trees, and forest guides
    - Find LoST service by ‘DHCP extension to LoST’ (RFC5223)
    - WS master device behaves as seekers, receives DB address from resolvers.
    - Recursion and Iteration help resolve DB address list to location
  - Features useful to PAWS DB discovery:
    - Inputs: location profiles, output: service list, DB server(s)
    - Address validation
    - Service boundaries
3. Specification

LoST: Location-to-Service Translation Protocol.

An overview of LoST protocol [RFC5222]:

| LoST  + |
|HTTPS  + |
|TCP    + |
|IP     + |

Location info: LoST supports GPS and postal address.
Service Id.: needs IANA registration.
Extensions to LoST protocol to address issues?
For example, if we need region while sending requests

Nokia Internal Use Only
4. Issues to be clarified further

- Paws uses JSON, LoST encodes as xml: preference option is using HTTP boundary mark, otherwise, goes to specify LoST JSON encoding.

- Conveying of regulatory domain
  The regulatory domain information needs to be conveyed to the WSD for later use.
  Pro: shorten the list of WSDB service list. Quickly resolve WSDB DS and DB addresses.

- Location information of longitude and latitude as inputs to LoST server may add region info, in case a master device request a serving LoST server.
4a. Issues to be clarified further

- WSDB DS process is to ensure the ability to find serving DB server for master devices.
- By applying LoST service to WSDB discovery, how LoST and WSDB discovery service deployed? Possible owners of WSDB service records: ISP sor DB service providers.
- Recursion and iteration can resolve two cases.
4b. Issues to be clarified further

- Still need paws protocol to Mutual Authentication
  - For case of a number of DB URLs received.
  - Keep business relationship of DB service provider and DB master devices.

- If WSDB discovery needs regulatory domain information?
  - Pro: prioritize DB address by regulatory domain and service info. Choose proper DB to connect.
Questions to follow up or confirm in mail list

• 1) LoST service discovery
• 2) WSDB discovery service, location/WSDB service mapping provided by ISP, or provided by WSDB service providers
• 3) WSDB DS responses multiple DB addresses, how business relationship works when receiving address list
• 4) WSDB DS could response DB address by receiving GPS information and/or postal address.
• 5) Question: If WSDB SD request would include region information with GPS information?
• 6) LoST relies on U-NAPTR, and we all know how difficult is to get DNS admins add new records to their zones.
• 7) The WG seems to prefer JSON encoding to XML, to be able to support lightweight devices, LoST uses XML.
Thanks!!!
Backup a.

• Discovery Request procedure

An example:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<findService
  xmlns="urn:ietf:params:xml:ns:lost1"
  xmlns:p2="http://www.opengis.net/gml"
  serviceBoundary="value"
  recursive="true">
  <location id="6020688f1ce1896d" profile="geodetic-2d">
    <p2:Point id="point1" srsName="urn:ogc:def:crs:EPSG::4326">
      <p2:pos>37.775 -122.422</p2:pos>
    </p2:Point>
  </location>
  <service>urn:service:paws.discovery</service>
</findService>
```

location info

service identifier
Backup b.

• Discovery Response procedure

An example:

```xml
<displayName xml:lang="en">Federal Communications Commission</displayName>
<service urn:service:paws.discovery/></service>
<ServiceBoundary profile="geodetic-2d">
  <p2:Polygon srsName="urn:ogc:def:crs:EPSG::4326">
    <p2:exterior>
      <p2:LinearRing>
        <p2:pos>37.775 -122.4194</p2:pos>
        <p2:pos>37.555 -122.4194</p2:pos>
        <p2:pos>37.555 -122.4264</p2:pos>
        <p2:pos>37.775 -122.4264</p2:pos>
        <p2:pos>37.775 -122.4194</p2:pos>
      </p2:LinearRing>
    </p2:exterior>
  </p2:Polygon>
</ServiceBoundary>
<uri>database1.example1.com</uri>
<uri>database2.example2.com</uri>
```

regulatory body

service boundary info

service URLs
Backup c.

- **Service Identifier**

  A new service identifier for PAWS database discovery needs to be defined.

  According to RFC5031 [RFC5031], a top-level service and a sub-service are defined here.

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>paws</td>
<td>top-level service of PAWS</td>
</tr>
<tr>
<td>paws.discovery</td>
<td>the PAWS database discovery service</td>
</tr>
</tbody>
</table>