Virtual Network Transport Protocol (VNTP)

http://datatracker.ietf.org/doc/draft-gu-nvo3-vntp/

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IETF 94 Mtg. (1-6 Nov. 2015)
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VNTP commands


- Commands in VNTP
  - From NVE to NVA:
    - NVE register/de-register
    - Local NVE update (add, delete, migrate, normal)
  - From NVA to NVE:
    - Request for mapping info (Pull mode)
    - Remote NVE Update (Push mode)
    - Nullify NVE
NVA keep a table for every VN and save the mapping info as an entry. 
NVA can push mapping info to remote NVE and pull mapping info from local NVE optionally.
VNTP message format(1)

- IP as VNTP transport protocol, TCP or UDP optional

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ver</td>
<td>Type</td>
<td>Number</td>
</tr>
<tr>
<td>Checksum</td>
<td>Length</td>
<td></td>
</tr>
<tr>
<td>Authentication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authentication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
VNTP message format(2)

0 1 2 3 4 5 6 7
-------------------------------
| E/A | C/R | CMD/RSP | AdrType |
-------------------------------

• Type field
  • E/A: 0(NVE->NVA)  
    1(NVA->NVE)
  • C/R: 0(Command)  
    1(Response)

AdrType: Address Type

• E/A=0 and C/R=1:
  • CMD/RSP: 000(NVE registration)  
    001(NVE registration)  
    010(NVE Update)

• E/A=1 and C/R=1:
  • CMD/RSP: 000(Request for mapping info)  
    001(Nullify NVE)  
    010(Update NVE)

• C/R=0:
  • CMD/RSP: 000(Successful)  
    100(Failed)
VNTP message format(3)

- VNTP Data field varies according to different commands.

```
+----------------------------------------+  
<table>
<thead>
<tr>
<th>AT</th>
<th>VN-Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>VN-ID set</td>
<td></td>
</tr>
</tbody>
</table>
+----------------------------------------+  
```

NVE Register/Deregister

```
+----------------------------------------+  
| VN-ID | Reserve |  
| Mapping/Address set |  
+----------------------------------------+  
```

NVA Request

```
+----------------------------------------+  
| AT | VN-Address |  
+----------------------------------------+  
```

Nullify
VNTP message format(4)

- **Update command**
  - **Op**: Operation code
    - 000: Add
    - 001: Delete
    - 010: Migration
    - 011: Normal
<table>
<thead>
<tr>
<th>No</th>
<th>Characteristics/Requirements</th>
<th>VNTP compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Minimize the amount of state</td>
<td>OK</td>
</tr>
<tr>
<td>2</td>
<td>Fast acquisition of needed state</td>
<td>OK/N.A.</td>
</tr>
<tr>
<td>3</td>
<td>Fast detection/update of stale cached state information</td>
<td>OK/N.A.</td>
</tr>
<tr>
<td>4</td>
<td>Minimize processing overhead</td>
<td>OK</td>
</tr>
<tr>
<td>5</td>
<td>Highly scalable</td>
<td>OK</td>
</tr>
<tr>
<td>6</td>
<td>Minimize the complexity of the implementation</td>
<td>OK</td>
</tr>
<tr>
<td>7</td>
<td>Extensible</td>
<td>OK</td>
</tr>
<tr>
<td>8</td>
<td>Simple protocol configuration</td>
<td>OK</td>
</tr>
<tr>
<td>9</td>
<td>Do not rely on IP Multicast in the Underlying Network</td>
<td>OK. VNTP is flexible to support multicast using</td>
</tr>
<tr>
<td></td>
<td></td>
<td>reserved resources, to be added</td>
</tr>
<tr>
<td>10</td>
<td>Flexible mapping sources</td>
<td>OK</td>
</tr>
<tr>
<td>11</td>
<td>Secure</td>
<td>OK</td>
</tr>
<tr>
<td></td>
<td>* Reliable</td>
<td>OK</td>
</tr>
<tr>
<td></td>
<td>* Resilience</td>
<td>OK</td>
</tr>
</tbody>
</table>

IETF94 NVO3 WG Mtg.
Next Steps and Proposal

• Soliciting further discussion and comments
• Requesting for WG adoption
  • Our milestone is to submit Control plane to IESG on Oct, 2015.
  • This draft meets the requirements of the Control protocol in overlay network

Any other Suggestions?

THANK YOU!