Multicast Receiver Deployability

IETF 105 Hackathon report, mboned

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Akamai

Chicken and Egg

Receivers that:

- Automatically use multicast if available, unicast (AMT) else.
- Can be safely deployed

Multicast Receive Library

- https://github.com/GrumpyOldTroll/libmcrx
- Running:
  - Basic SSM receive
    - cross-platform: mac, linux
- In progress:
  - AMT gateway with DRIAD discovery (plus DNS-SD and racing)
    - draft-ietf-mboned-driad-amt-discovery
    - RFC 7450
  - AMBI/ALTA authentication, loss detection, bandwidth control
    - draft-jholland-mboned-ambi
    - draft-krose-mboned-alta

TAPS Integration

TAPS reference implementation

- https://github.com/fg-inet/python-asyncio-taps

examples/yang_example/test-mcast-receive.json:

```
{
  "ietf-taps-api:preconnection":{
    "local-endpoints":[ {
        "local-address":"232.1.1.1",
        "local-port":"5001"
      } ],
    "remote-endpoints":[ { "remote-host":"23.212.185.5" } ],
    "transport-properties": {
      "direction":"unidirection-receive",
…
```

Chromium Integration

- Prototype implementation
  - https://github.com/GrumpyOldTroll/chromium/tree/multicast

```
<script language="javascript" type="text/javascript">
var source="23.212.185.4";
var group="232.10.10.2";
var port="12000";

m1 = new MulticastReceiver(source, group, port);
m1.onjoin = function(evt) { onJoin(m1,  evt) };
m1.onleave = function(evt) { onLeave(m1,  evt) };
m1.onmessage = function(evt) { onMessage(m1,  evt) };
…
```

To-Do List

- More tests
  - IPv6
    - FRR pimd upgrade or new testbed
  - Negative tests
    - for bad inputs (many)
  - Fuzzing
  - Continuous Integration
- Doxygen
- More OSs
  - Windows (in progress)
  - Android
  - IOS
  - BSDs
- Integrations with more event loops
  - libevent
  - Libuv
- AMT Gateway
  - DRIAD
  - DNS-SD
- AMBI/ALTA support
  - Implementing/updating drafts
    - draft-jholland-mboned-ambi
    - draft-krose-mboned-alta
  - Authentication and integrity
  - Bandwidth controls
  - Loss detection/signaling
- Upstreaming to Chromium
- Build existing apps in webassembly
  - ffmpeg, VLC

Plz send minions…

- Great experience!
- Help the internet!
- Sometimes-friendly mentoring!