

RFC4601-bis Survey Preliminary Report

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Motivations

- Advancing PIM specification from Proposed Standard to Draft Standard
- Implementation & Deployment Report requested by IESG
 - As supporting document

Work & Plan

- Survey: vendors and operators
 - Implementations & Deployments
 - Operational experiences
 - Survey Questionnaire
 - Split questions to operators and implementers
- Survey concluded on 22nd Oct 2012
- Tim Chown & Bill Atwood had helped to collect and anonymize the responses as the neutral third-party

Survey Responses

- Operator Responses: 9, Confidential: 5
- Operators: SWITCH, National Research Council Canada, South Dakota School of Mines and Technology, Motorola Solutions
- Vendor Responses: 8, Confidential: 4
- Vendors: XORP, Huawei Technologies, Cisco Systems, Motorola Solutions

Operator Responses

- PIM-SM Deployed for Campus, Enterprise, Research and WAN networks, Broadband ISP and Digital TV
- Number of Years since PIM-SM deployed ranged from 3 to 14 years.
- 5 RFC 4601 based deployments, 2 RFC 2362 deployments and 2 are not specified.
- 3 IPv6 PIM deployments
- 6 Multi-vendor deployments

Operator Responses (cont)

- Minor inter-operability issues addressed by vendors.
- Only one PIM-SM and Dense-Mode (MOSPF) combined deployment reported. All others are PIM-SM only.
- No deployments of RFC 4601 (*,*,RP) or PMBR functionality.
- Both SSM and BSR deployed for IPv4 and IPv6. No explicit tracking deployment.

Operator Responses (cont)

- Static and BSR deployed for RP discovery for both IPv4 and IPv6. Static with Anycast-RP seems to be a common best practice.
- Number of RPs deployed ranged from a few (2-16) to one deployment of 400 RPs!!
- 2 MSDP Anycast-RP deployments, and another 3 using both MSDP and PIM Anycast-RP for IPv4 and IPv6

Vendor Responses

- 4 RFC 4601 implementations, 2 RFC 2362 implementations, 2 mixed implementations.
- RFC 2362 implementations reported to be mostly compliant with RFC 4601
- Only one (*,*,RP) implementation(XORP). The rationale is that it is specified as part of RFC 4601.
- Other vendors do not implement (*,*,RP) either due to lack of deployments or due to security concerns.

Vendor Responses

- XORP implements partial PMBR as specified in RFC 4601.
- Other vendors do not implement PMBR because it is considered to be either too complex, non-scalable or lack of deployment.
- Some vendors have proprietary implementations to connect domains having different PIM flavors.

Vendor Responses

- Other features of RFC 4601 (SSM, Assert, SPT switchover etc.) are implemented by most vendors.
- Some vendors have not implemented Explicit Tracking and SSM.
- 7 vendors out of 8 have IPv6 PIM-SM implementation.
- Minor interoperability issues have been addressed by vendors over years.

Vendor Responses

- Some comments and concerns on 4601:
 - Explicit tracking not explicitly specified (pun intended).
 - PIM-SM Registration affects performance at first-hop DR and at the RP
 - It is a long and complex specification – difficult to implement and test.
- RFC 4601-bis effort is aimed towards reducing complexity of PIM-SM. Simpler is better!!!

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