

Network Working Group
Internet-Draft
Intended status: Informational
Expires: July 26, 2013

M. Richardson
SSW
January 22, 2013

ROLL Applicability Statement Template
draft-richardson-roll-applicability-template-01

Abstract

This document is a template applicability statement for the Routing over Low-power and Lossy Networks (ROLL) WG.

Status of this Memo

This Internet-Draft is submitted in full conformance with the provisions of [BCP 78](#) and [BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at <http://datatracker.ietf.org/drafts/current/>.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on July 26, 2013.

Copyright Notice

Copyright (c) 2013 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents (<http://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

Table of Contents

1.	Introduction	4
1.1.	Requirements Language	4
1.2.	Required Reading	4
1.3.	Out of scope requirements	4
2.	Deployment Scenario	5
2.1.	Network Topologies	5
2.2.	Network Topologies	5
2.2.1.	Traffic Characteristics	5
2.2.2.	General	5
2.2.3.	Source-sink (SS) communication paradigm	5
2.2.4.	Publish-subscribe (PS, or pub/sub) communication paradigm	5
2.2.5.	Peer-to-peer (P2P) communication paradigm	5
2.2.6.	Peer-to-multiple (P2MP) communication paradigm	5
2.2.7.	Additional considerations: Duocast and N-cast	5
2.2.8.	RPL applicability per communication paradigm	5
2.3.	Layer 2 applicability.	5
3.	Using RPL to Meet Functional Requirements	6
4.	RPL Profile	7
4.1.	RPL Features	7
4.1.1.	RPL Instances	7
4.1.2.	Storing vs. Non-Storing Mode	7
4.1.3.	DAO Policy	7
4.1.4.	Path Metrics	7
4.1.5.	Objective Function	7
4.1.6.	DODAG Repair	7
4.1.7.	Multicast	7
4.1.8.	Security	7
4.1.9.	P2P communications	7
4.2.	Layer-two features	7
4.2.1.	Need layer-2 expert here.	7
4.2.2.	Security functions provided by layer-2.	7
4.2.3.	6LowPAN options assumed.	7
4.2.4.	MLE and other things	7
4.3.	Recommended Configuration Defaults and Ranges	7
4.3.1.	Trickle Parameters	7
4.3.2.	Other Parameters	7
5.	Manageability Considerations	8
6.	Security Considerations	9
6.1.	Security Considerations during initial deployment	9
6.2.	Security Considerations during incremental deployment	9
7.	Other Related Protocols	10
8.	IANA Considerations	11
9.	Acknowledgements	12
10.	References	13
10.1.	Informative References	13

Richardson

Expires July 26, 2013

[Page 2]

[10.2](#). Normative References [13](#)
[11](#). Normative references [14](#)
Author's Address [15](#)

1. Introduction

Hello.

1.1. Requirements Language

([RFC2119](#) reference)

1.2. Required Reading

References/Overview of requirements documents, both IETF and industry group. (two pages maximum. This text should be (very) technical, should be aimed at IETF *participants*, not industry group participants, and should explain this industries' specific issues)

1.3. Out of scope requirements

This should list other documents (if any) which deal with situations where things are not in scope for this document.

(For instance, the AMI document tries to cover both line-powered urban metering networks, and energy-constrained metering networks, and also tries to deal with rural requirements. This should be three or four documents, so this section should list the limits of what this document covers)

2. Deployment Scenario

2.1. Network Topologies

describe a single scenario, with possibly multiple topologies that a single utility would employ.

2.2. Network Topologies

2.2.1. Traffic Characteristics

Explain what kind of traffic is being transmitted, where it is initiated, and what kinds of protocols (CoAP, multicast, HTTPS, etc.) are being used. Explain what assumptions are being made about authentication and authorization in those protocols.

2.2.2. General

2.2.3. Source-sink (SS) communication paradigm

2.2.4. Publish-subscribe (PS, or pub/sub) communication paradigm

2.2.5. Peer-to-peer (P2P) communication paradigm

2.2.6. Peer-to-multipeer (P2MP) communication paradigm

2.2.7. Additional considerations: Duocast and N-cast

2.2.8. RPL applicability per communication paradigm

2.3. Layer 2 applicability.

Explain what layer-2 technologies this statement applies to, and if there are options, they should be listed generally here, and specifically in [section 4.2](#).

3. Using RPL to Meet Functional Requirements

This should explain in general terms how RPL is going to be used in this network topology. If trees that are multiple layers deep are expected, then this should be described so that the fan out is understood. Some sample topologies (from simulations) should be explained, perhaps with images references from other publications.

This section should tell an *implementer* in a lab, having a simulation tool or a building/city/etc. to use as a testbed, how to construct an LLN of sufficient complexity (but not too much) to validate an implementation.

4. RPL Profile

This section should list the various features of RPL plus other layers of the LLN, and how they will be used.

4.1. RPL Features

4.1.1. RPL Instances

4.1.2. Storing vs. Non-Storing Mode

4.1.3. DAO Policy

4.1.4. Path Metrics

4.1.5. Objective Function

4.1.6. DODAG Repair

4.1.7. Multicast

4.1.8. Security

4.1.9. P2P communications

4.2. Layer-two features

4.2.1. Need layer-2 expert here.

4.2.2. Security functions provided by layer-2.

4.2.3. 6LowPAN options assumed.

4.2.4. MLE and other things

4.3. Recommended Configuration Defaults and Ranges

4.3.1. Trickle Parameters

4.3.2. Other Parameters

5. Manageability Considerations

6. Security Considerations

6.1. Security Considerations during initial deployment

(This section explains how nodes get their initial trust anchors, initial network keys. It explains if this happens at the factory, in a deployment truck, if it is done in the field, perhaps like <http://www.lix.polytechnique.fr/hipercom/SmartObjectSecurity/papers/CullenJennings.pdf>)

6.2. Security Considerations during incremental deployment

(This section explains how that replaces a failed node takes on the dead nodes' identity, or not. How are nodes retired. How are nodes removed if they are compromised)

[7.](#) Other Related Protocols

8. IANA Considerations

9. Acknowledgements

[10.](#) References

[10.1.](#) Informative References

[10.2.](#) Normative References

11. Normative references

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.

Author's Address

Michael C. Richardson
Sandelman Software Works
470 Dawson Avenue
Ottawa, ON K1Z 5V7
CA

Email: mcr+ietf@sandelman.ca

URI: <http://www.sandelman.ca/>