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ROLL Applicability Statement Template
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Abstract

This document is a template applicability statement for the Routing over Low-power and Lossy Networks (ROLL) WG. This document is not for publication, but rather is to be used as a template.

Status of this Memo

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1. Introduction

This document describes a series of questions which should be answered. This document is intended to remain as a Internet Draft.

The idea is that current and future Applicability statements will use the table of contents provided. The goal is that all applicability statements will have to cover the listed items as a minimum.

1.1. Requirements Language

(RFC2119 reference)

1.2. Terminology

A reference to draft-ietf-roll-terminology is appropriate. A reference to layer-2 specific terminology and/or inclusion of any terms that are normatively referenced is appropriate here.

1.3. 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)

1.4. 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

4.1.10. IPv6 address configuration

4.2. Layer-two features

4.2.1. Specifics about layer-2

this section should detail the specific layer-2 network technology that this document applies to. A class of technologies is generally not acceptable.

4.2.2. Services provides at 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)

6.3. Security Considerations for P2P uses

(When layer-3 RPL security is used, P2P DODAGs are ephemeral, and may have different security needs.)

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.

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