

AODVv2

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IETF92 Dallas

25nd March 2015

Overview

- Recent changes
- Issues raised
- Next steps

Recent changes

- Added Victoria Mercieca as co-author.
- Reorganized protocol message descriptions into major subsections for each protocol message. For protocol messages, organized processing into Generation, Reception, and Regeneration subsections.
- Separated RREQ and RREP message processing description into separate major subsection which had previously been combined into RteMsg description.
- Enlarged RREQ Table function to include similar processing for optional flooded RREP messages. The table name has been correspondingly been changed to be the Table for Multicast RteMsgs.
- Moved sections for Multiple Interfaces and AODVv2 Control Message Generation Limits to be major subsections of the AODVv2 Protocol Operations section

Recent changes

- Reorganized the protocol message processing steps into the subsections as previously described, adopting a more step-by-step presentation.
- Coalesced the router states Broken and Expired into a new combined state named the Invalid state. No changes in processing are required for this.
- Merged the sections describing Next-hop Router Adjacency Monitoring and Blacklists.
- Specified that routes created during Route Discovery are marked as Idle routes. If they are used for carrying data they become Active routes.
- Added Route.LastSeqnum information to route table, so that route activity and sequence number validity can be tracked separately. An active route can still forward traffic even if the sequence number has not been refreshed within MAX_SEQNUM_LIFETIME

Recent changes

- Mandated implementation of RREP_Ack as response to AckReq Message TLV in RREP messages. Added field to RREP_Ack to ensure correspondence to the correct AckReq message.
- Added explanations for what happens if protocol constants are given different values on different AODVv2 routers.
- Specified that AODVv2 implementations are free to choose their own heuristics for reducing multicast overhead, including RFC 6621.
- Added appendix to identify AODVv2 requirements from OS implementation of IP and ICMP.
- Deleted appendix showing example RFC 5444 packet formats.
- Clarification on the use of RFC 5497 VALIDITY_TIME.
- In Terminology, deleted superfluous definitions, added missing definitions.
- Numerous editorial improvements and clarifications.

Previous issues

Issue	Description	Status
19	Use of square brackets	clarified
20	Idle routes must be marked as active after re-use	done
21	Document hard to read	Major improvement
22	Multiple terms for same concept	fixed
23	Format of processing algorithms	reformulated
24	Ordering of processing instructions	reorganized
25	Meaning of "suppose"	closed
26	Specification of optional features	Improved
27	Processing AckReq	clarified
28	Routers with multiple interfaces	clarified
29	Choice of IP address	clarified
30	Use of word "node"	clarified

Previous issues

30	Use of word "node"	clarified
31	Suitability for implementation on commodity OS	Text added
32	Multicast transmission	Implementations may choose their own methods e.g., [RFC6621].
33	RFC 5444 processing constraint	closed
34	Section 13 must be removed	RREP_Ack made mandatory to implement, other text improved.
35	A constant is constant	text about results of variability in constants
36	Security Considerations: Reactive protocol concept	Updated Applicability statement
37	Security Considerations: what needs to be implemented?	Adapted DLEP solution
38	difficulty to do security, in case messages are mutable	Adapted DLEP solution
39	Route.Broken flag redundant	closed
40	AckReq vs RREP_ACK	Reject
41	AckReq vs RREP_ACK	Reject
42	What happens if Active routes exceed RERR packet size?	Send multiple RERR packets.

Previous issues

43	Reliance on bidirectional paths (submitted for Chris Dearlove)	RREP_ACK mandatory to implement
44	Hop count (submitted for Chris Dearlove)	Suggest closing issue.
45	RFC 5498 non-compliance (submitted for Chris Dearlove)	Areas of noncompliance have been revised..
46	What is needed from IP and ICMP (submitted for Chris Dearlove)	Text added.
47	Security approach unacceptable (submitted for Chris Dearlove)	DLEP solution adapted
48	Single address per interface per router (submitted for Chris Dearlove)	closed
49	Locating pseudocode in appendix (submitted for Chris Dearlove)	Non-normative example text
50	Weak gateway support	Full gateway support is out of scope for the document.
56	Issue concerning RREQ redundancy check methodology and order	Extensive revision
57	Need to further restrict "LoopFree" condition	Fixed.
58	Definitions of OrigNode and TargNode (Submitted for Justin Dean)	closed
59	Use of the term "invalid" (Submitted for Justin Dean)	closed
60	Should OrigNode be included in the message header? (Submitted for Justin Dean)	closed
61	Difference between "broken" and "expired" (Submitted for Justin Dean)	The two states have been coalesced.
62	Inconsistency surrounding the "timed" state (Submitted for Justin Dean)	closed
63	{Orig,Targ}.Tail should be {Orig,Targ}.Mid	closed

Recent issues raised

- Extension byte for Metric Address Block TLV to indicate Metric Type (not the Message TLV)
- Specification for binary exponential backoff
- Do illustrations show message contents, format, or structure?
- Passing security directorate review ?
- Blacklist removal MAY or SHOULD?
 - Also, if positive indication received...
- Few other details easily fixed...

Next Steps

- Make sure issue resolutions are satisfactory
- Last Call?

Future work

- MPR integration (or other CDS)
- Re-introduce Intermediate RREP