V4.1 Respecification Effort
Status Overview

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NFSv4 WG meeting at IETF 120

July 26, 2024

Current Status Summary

- Considerable writing done:
  - Addressed previously known problems
  - Addressed lots of those discovered later
- WG discussion has lagged.
  - Could be because my drafts are perfect , but probably not.
- I have concluded respecification effort really is a necessary rescue effort.
  - Need working group help to either finish this or decide to do something different.

Why This Was Needed
Slide One of Two

- Two Major issues inherited from v4.0
  - Internationalization description (fixed for 4.0 by RFC7530)
  - Security handling (had never been addressed properly)
- V4.1 issues I knew about
  - Directory delegation (not implemented although needed)
  - Ton of errata reports to address.
  - Need to adapt to a multi-document model with certain areas dealt with in NFSv4-wide documents.

Why This Was Needed
Slide Two of Two

- Things I found out later, after reading existing document:
  - Corrosive effect of misuse of RFC2119 terms.
  - Effect of neglect of authorization semantics for security.
  - The problems with ACL specification were waaay beyond what I expected.
    - No specification of authorization semantics.
    - A lot of work on extensions that were not usable.
    - Hand-wavy approach to draft POSIX ACLs
  - The description of the persistent reply cache described something that could not possibly exist.

Establishing this Was Doable
Slide One of Two

- Parts we already knew about were straightforward:
  - For internationalization, we used RFC7530 model.
  - For security, RPC-with–TLS allowed us to retain use of AUTH_SYS while still being reasonably secure.
    - Needed to recognize existing problems while not forcing implementation to change. (via use of residual **SHOULD**).
  - A lot of cleanup of RFC2119 term was straightforward.
    - The whole wait-forever thing was an exception.
- Found problems in **OPTIONAL** features added in v4.1
  - WG only had bandwidth for one big feature, so lots was missed
  - Ability to do protocol extensions enabled problems to be fixed,
  - List of specific areas in **Next Slide****.**

Establishing This Was Doable
Slide Two of Two

- Problems with v4.1 features were addressed:
  - Dir. delegations (Needed but had never been implemented)
  - Persistent reply cache could not be implemented as specified.
- ACLs were a nightmare from the start (in v4.0):
  - Profound underspecification, features that could not be used, nothing was required of servers, leaving client high and dry.
- Was able to restructure:
  - Required core and **OPTIONAL** extensions (acls-02)
  - Aclchoice attribute inform clients of server choices (acls-03)
  - Support needs of clients for draft POISX ACL support (acls-04)

What’s been done so far
Slide One of Three

- Rfc5661bis
  - Initial split into multiple documents.
  - Addressed impossible **REQUIREMENT** to wait forever for response.
  - Addressed many other misuses of RFC2119 terms
  - Fixed lack of authorization support for directory delegation
  - Made persistent reply cache possible to implement.
- Rfc5662bis
  - Cleanup of UTF8 typedefs
  - Added needed protocol extensions.

What’s been done so far
Slide Two of Three

- Internationalization
  - Adopted basic RFC7530 approach
  - Adopted new approach to internationalized domain names
  - Dealt with conflicting external reviews.
- Security
  - Addressed confusion of authentication and identification.
  - Described security issues with AUTH_SYS in the clear
  - Stressed importance of security for data in flight
  - Wrote a threat analysis (didn’t have one before)

What’s been done so far
Slide Three of Three

- Acls
  - Initial restructuring of models
    - Core elements plus two sets of extensions
  - Creation of Aclchoice
  - Support for draft POSIX ACL model
    - Address partial-specification issue, previously ignored.
    - Support for default ACLs
    - Mode computation made an explicit server choice
    - Should be a client choice but that has to wait for v4.2

Document Status

WG Documents

Doc	Draft	S date	A date
Rfc5661bis	07	12/2020	3/2023
Internationalization	10	12/2019	3/2021

Document Status

Personal Drafts Awaiting Adoption

Doc	Draft	S date	AR Date
Security	10	7/2021	12/2023 (of -07)
Rfc5662bis	03	12/2022	5/2024 (of -02)
Acls	04	2/2024	6/2024 (of -04)

Things That Need to be Done
For 61bis

- Drafting needed:
  - Two sections regarding pNFS security to be written.
- Discussion/review needed:
  - Changes discussed in the subsections of Appendix C.2
  - Review of pNFS description to make sure the issues dealt with in RFC8434 are properly addressed

Things That Need to be Done
For 62bis

- Drafting all done
  - Waiting on beginning WGLC, just in case ACL discussion results in protocol extension
- Need to go through IETF steps
  - Adoption , once that starts being dealt with.
  - Need opportunity for more WG discussion

Things That Need to be Done
For Internationalization

- Drafting pretty much done.
  - Might be a -11 in the next few months to address small issues in external review and any comments from working group.
- Looking for WGLC and Submission by IETF121.

Things That Need to be Done
For Security

- Read and discuss the draft
- Address and Resolve the Adoption Issue.
- Discuss the Consensus Items in Appendix B.

Things That Need to be Done
For Acls

- Adoption needs to get resolved
- Need working group discussion of approach taken:
  - Restructuring into a core plus two sets of OPTIONAL extensions
  - Aclchoice concept. Details later.
  - Priority choice: draft POSIX ACL support as a requirement.
- Further discussion needed of Consensus Items . Should focus on lists in Appendix A.3:
  - Items that need discussion now to set direction. (Will address today).
  - Items whose resolution is long overdue (in Interims or WG list).