Current Updates to NFSv4 Specs

Trunking and Other Material Related to Multi-Server Namespace Features

David Noveck (davenoveck@gmail.com)
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Summary

• NFSv4.0 Changes
  • Adds trunking discovery to NFSv4.0.
  • Published as RFC 8537 (Proposed Standard)

• NFSv4.1 changes
  • Adds trunking discovery, Transparent State migration to NFSv4.1
  • Not published as RFC yet (Long story, starting at Slide 6)

• Implementation discussion
NFSv4.0
Protocol Description Updates and Status

• Trunking for NFSv4.0
  • Adds trunking discovery to the trunking detection defined by RFC 7931.

• Defines interaction of trunking and migration
  • Support for changes in trunking patterns with and without migration.

• Document status
  • Published as a Proposed Standard
  • Happened by the Milestone date \^\^, although one can argue about “final” submission
NFSv4.1 Protocol Description Updates

Major Elements

• Adds description of trunking discovery, building on the trunking detection mechanism in RFC 5661.

• Discusses interaction of trunking and migration.
  • Includes support for changes in trunking patterns with and without migration

• Adds description of transparent state migration, paralleling the transparent state migration in NFSv4.0, but adding
  • Session migration
  • Migration of pNFS metadata server
NFSv4.1 Protocol Description Updates
Necessary Cleanup

• Revised use of the term “replica”
  • Needed to distinguish clustered server treatment from trunking.
• Clarified handling of per-fs grace periods.
  • Provides continuity of lock state w/o transparent state migration.
• Revised descriptions needed for two ops:
  • Existing EXCHANGE_ID inconsistent with state migration.
  • RECLAIM_COMPLETE wasn’t clear about handling of per-fs case
• Cleanup of error descriptions to accommodate per-fs grace periods and interaction of trunking and migration.
NFSv4.1 -- Document Progress and Status
Finding out what IESG Really Didn’t Like

• Original Document followed, “here are the updates to apply to the spec” paradigm.
  • OK during WGLC, IETF last call, AD review, but ....
  • The IESG would not accept it, feeling that the update model is too hard on readers.

• Clearly, we needed a more bis-like document
  • But a full bis is a big undertaking (at least a year away).
  • Settled on draft-ietf-nfsv4-rfc5661-msns-update.
    • Had a complete revised multi-server namespace section.
    • Also new EXCHANGE_ID, RECLAIM_COMPLETE, and error changes.
  • IESG still didn’t like it.
NFSv4.1 -- Document Progress and Status

Trying to Find out what IESG Would Like.

- IESG wanted an even more bis-like document.
- But a full bis would take a lot of time
  - Issues with RFC8178, RFC8434, Internationalization, Security
  - Details are in later talk.
- Finally settled on a partial bis
  - Document obsoleting RFC5661
  - Has replacement section for multi-server namespace plus associated changes to enable those.
  - But no other changes to RFC5661.
NFSv4.1 -- Document Progress and Status
The Moment of Truth

• Produced draft-ietf-nfsv4-rfc5661sequi-msns.
  • -00 submitted on 6/25/19
  • Needs to go through WGLC etc. before it is considered by IESG

• Need people to read and comment
• Will submit -01 next week

• At that point, we should decide whether WGLC is appropriate.
• After that, would like to move document forward
Implementation Issues
Items for Continuing Discussion

• Trunking Implementation
  • NFSv4.0 is published so work could begin, unless one is v4.0-averse.
  • Work on NFSv4.1 would, formally speaking, be a prototype until RFC publication, even though substantive change now is not likely.
  • Given similarity in trunking for the two versions, it makes sense to work on them together.
  • Discussion, probably informal, is necessary to co-ordinate client and server work.

• Transparent state migration implementation
  • Implementations of NFSv4.0 state migration could be upgraded.
  • Apparently, some prototype work has already been done.