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- Differences from last update

- NFSv4.x or standalone?

- Key points solved

- Issues of contention

- Data that supports proposal

- Overlaps

- Should proposal be combined/not combined?

- Who should review?

- Next steps

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- **Differences from last update**
  - Added language for optmizing case of a file system that distributes entire directories as opposed to striping directories
  - Clarifications and bug fixes
    - No XDR changes
- **NFSv4.x or standalone?**
  - Standalone: 1 layout type
  - Requires NFSv4.1 or higher
- **Key points solved**
  - For NFS servers that distribute directory content and file metadata allows NFS clients to send request to optimal place in storage cluster

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- Issues of contention
  - When directories are striped, optimizing LOOKUP, OPEN by name, etc. requires agreement on an algorithm for mapping {directory filehandle, "component name"} to a stripe index
    - First movers get the advantage but would need to license any IPR around their algorithms
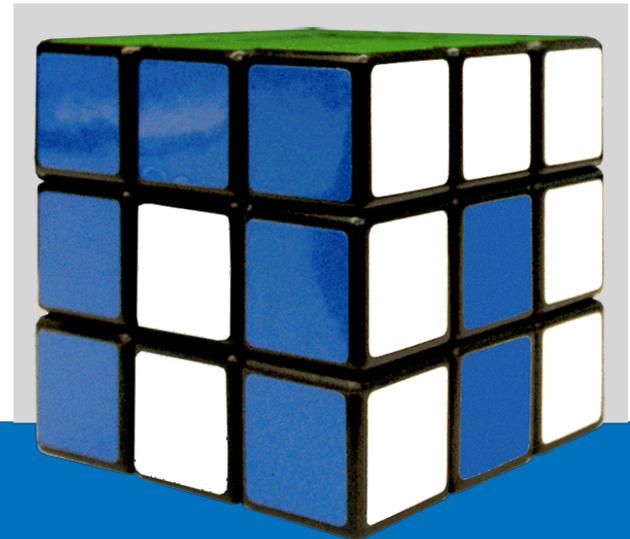
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- Data that supports proposal
  - SPEC SFS 2008 benchmark is mostly operations other than READ or WRITE
    - Benchmark is derived from real customer data
  - Object storage and content repositories emerging
    - They often take the approach of eliminating the path name because of directory scaling concerns
- Overlaps
  - None
- Should proposal be combined/not combined?
  - N/A
- Who should review?
  - WG
- Next steps
  - Complete recovery pieces; doable by IETF 80
  - Prototyping from NetApp unlikely to occur there is client interest

Thanks

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Questions and Answers