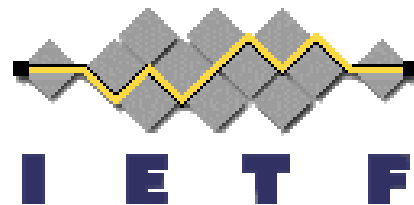

NFS Version 4 Requirements

Spencer Shepler

shepler@Eng.Sun.Com

43rd IETF, Orlando December 7-11, 1998



Requirements Draft

Current draft of requirements

- Last call of draft published on November 16th
- <http://search.ietf.org/internet-drafts/draft-ietf-nfsv4-requirements-03.txt>

Next steps for req. draft

- IESG will review
- Draft or revision thereof will eventually become informational RFC
- WG charter may be modified based on IESG's review

Requirements for NFS V4

- Ease of Implementation
- Reliable and Available
- Scalable Performance
- Interoperability
- RPC and Security
- Internet Accessibility
- File Locking
- Internationalization

Ease of Implementation / Reliability and Availability

Implementation is easy

- Basic implementation should be relatively small
- Layered approach to building functionality
- Managed extensions or minor versioning

Reliable and Available

- NFS service with similar recovery to current protocols
- Consideration given to building availability solutions
 - Highly available server or clustered servers
 - Client availability

Performance and Interoperability

These areas will need focus for the protocol

- Network throughput and latency
- Server scalability
- Client caching

Interoperability for NFS should be broadened by focus on

- Platform specific behavior
- Additional and extended attributes
- Access Control Lists

RPC Security and Internet Accessibility

RPC mechanism will be ONCRPC

- Provides IETF management
- Transport independent
- Simple data representation and protocol encoding
- RPCSEC_GSS can be used for various security mechanisms

User identification should move beyond Unix UID

- String based identifier for user

Strong authentication is a must for NFS

- RPCSEC_GSS should be used to provide access to mechanisms
- Authentication, Integrity and Privacy can be provided
- Public and private mechanisms should be available
- Client and server must be able to negotiate mechanism

Internet environment must be considered

- Transport selection is crucial
- Firewalls and proxy servers must be considered
- Multiple RPCs and latency

File locking and Internationalization

File locking

- Integrated within the NFS protocol
- Interoperability between operating environments
- Scalable solution - thousands of clients
- Internet capable (firewall traversal and latency sensitive)
- Timely recovery

Internationalization

- 7-bit ASCII is current use
- UTF-8 wire encoding will be used for all strings defined as part of the protocol