



NFSv4 Open Source Project Update

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- Andy Adamson
- CITI, University of Michigan
- Ann Arbor



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A little bit of history

- NFSv4 Open Source Reference Implementation Project
- Sponsored by Sun Microsystems
- IETF reference implementation
- Linux and OpenBSD



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NFSv4 in Linux 2.5.x!

- Series of patches for the 2.5.x kernel
- Client and server
- Accepted, reviewed and submitted by Trond Myklebust and Neil Brown
- October 20th new feature deadline



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Stateless NFSv4 Patches

- Shares code with NFSv2/3
- No state bookkeeping
- Interoperates with all other implementations
- Good performance
- No dependencies on other kernel patches



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Up call Mechanism Patches

- Named pipes and virtual file replaces RPC up call interface
- Authored by Neil Brown
- In line with current auto mount and exportfs design
- Multiple user-level daemons
 - Name to id translation
 - Security context caching



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RPCSEC Framework Patches

- Does not require crypto
- “NULL” security mechanism
- Mechanism switching code
- Uses Up call/Caching patch
- Available for NFSv2/3/4



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Linux Kernel: What's Next

- **Submit state bookkeeping patches**
 - Based on Linux 2.4 work
 - ACL, Locking, Delegation, Security Negotiation
- **New features**
 - Client 'under the cover' mount
 - Fs_locations
 - Use of BSD style user credentials



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RPCSEC_GSS Mechanisms

- Kerberos v5 Mechanism Module
- Requires Cryptoapi Patch
- Full featured
 - Integrity and privacy
- Uses RPCSEC_GSS framework, and so works for NFSv2/3/4



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Bakeoff Testing

- Linux 2.4.18: NFSv4 only
- Linux 2.5.41: Based on submitted kernel patches for NFSv2/3/4
- Redhat 7.3 RPM: Back port of submitted kernel patches for NFSv2/3/4



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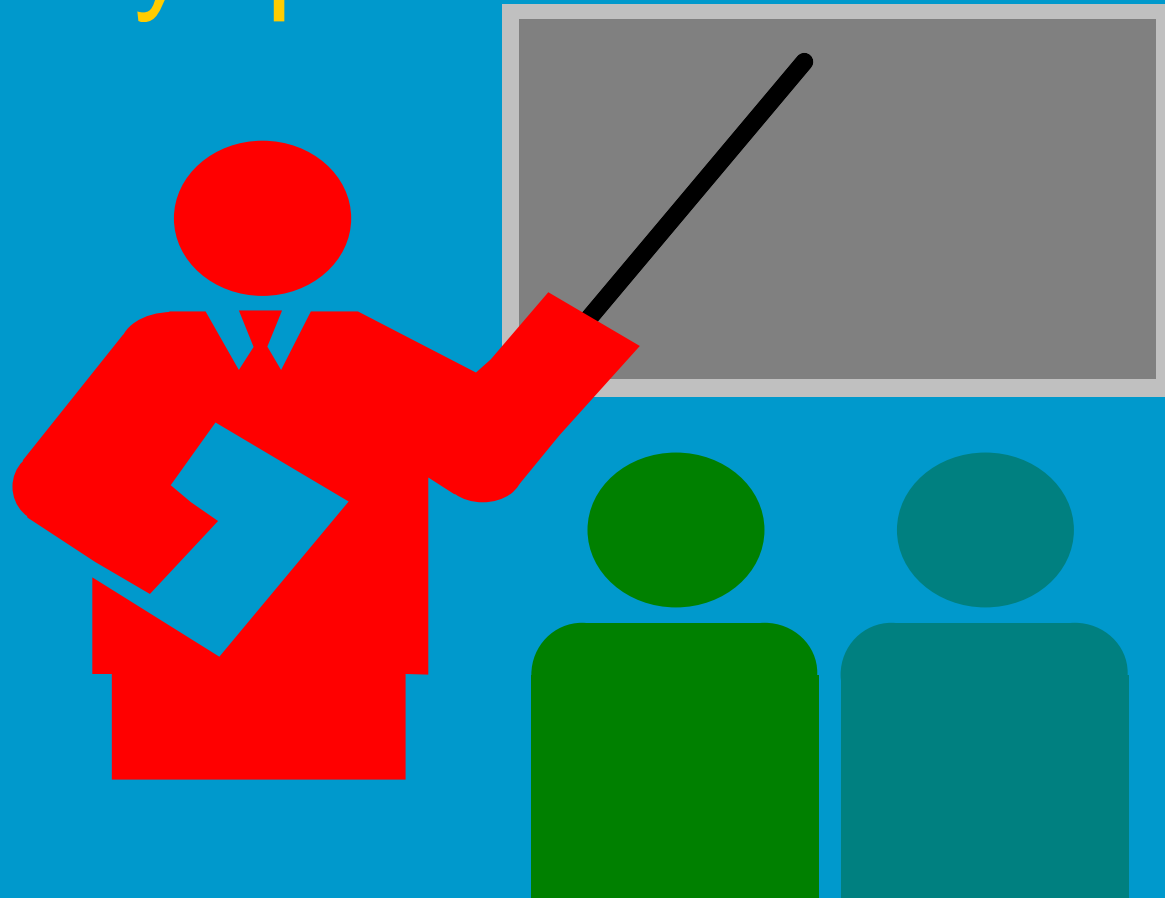
OpenBSD

- Concentrating on Client
- Completed NFSv4 Vnode operations
- State bookkeeping operational
- Byte-range locking being tested
- Separated RPC from NFS code
- Coordinating with Rick Macklem's server work



<http://www.citi.umich.edu/>

Any questions?



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