Progress in Developing a CIFS Benchmark

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Agenda

- Existing benchmarks
- Problems with existing benchmarks
- Snia CIFS Benchmarking Working Group
- cifs_bm (cifs_load_gen)
- Current direction
- Short term work

Existing Benchmarks

- Iozone
- NetBench
- smbtorture
- cifs_bm

Problems with iozone

- Not specific to CIFS
- Unknown how it relates to real user environments
- Client caching affects result

Problems with NetBench

- Problem set perhaps no longer relevant
- Client caching obscures the result
  - Switching on OpLocks give 50% boost
  - Faster clients gives better result
  - Better NIC drivers give better result
- Caching and OpLocks mean many operations reported do not hit the wire

Problems with NetBench, cont

- Requires lots of resources
  - Hard to test large configurations (1,000s of clients)

- Hard to automate
  - Can't be used as a check-in requirement to guard against performance regressions

Problems with smbtorture

- Script-based from a NetBench trace
- Only one or two client scripts
- Must build much of Samba to get smbtorture
- Only one or two of the tests relate to benchmarking

Problems with cifs_bm

- No infrastructure to run across multiple driver systems
- Would take a lot of effort to develop the framework that SPEC SFS has.

SNIA CIFS Benchmarking WG

- Storage Networking Industry Association
- Started a CIFS Benchmarking Working Group in late 2001
- Slow going but making regular progress
- Open to SNIA members and non-members

cifs_bm

- First proposed benchmark
- Extracted from Samba and smbtorture
- Stand-alone
- Has a number of problems
  - Reading script will cause variance in the runs
  - No multi-system infrastructure
- Still useful for in-house benchmarking

Current Direction

- Want an SFS-like Benchmark
- Will try to use the infrastructure in SFS
- Modify lowest layer to emit CIFS ops, not NFS ops
- Some of the modifications will be relevant to NFSv4 as well

Short term work

- NetApp is looking to hire a summer student
- Will start modifying SPEC SFS under direction from others who have worked on SFS and know CIFS

NetApp NetBench vs cifs_bm

- F840, 21 spindles
- NetBench: 65MB/s (503MBits/s)
- cifs_bm: 25MB/s (10 users simulated)
- Approximately a 2.5 multiplier
  - However, faster clients yields better result

Call for volunteers

- Need your help
- Consider participating in the conference calls

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