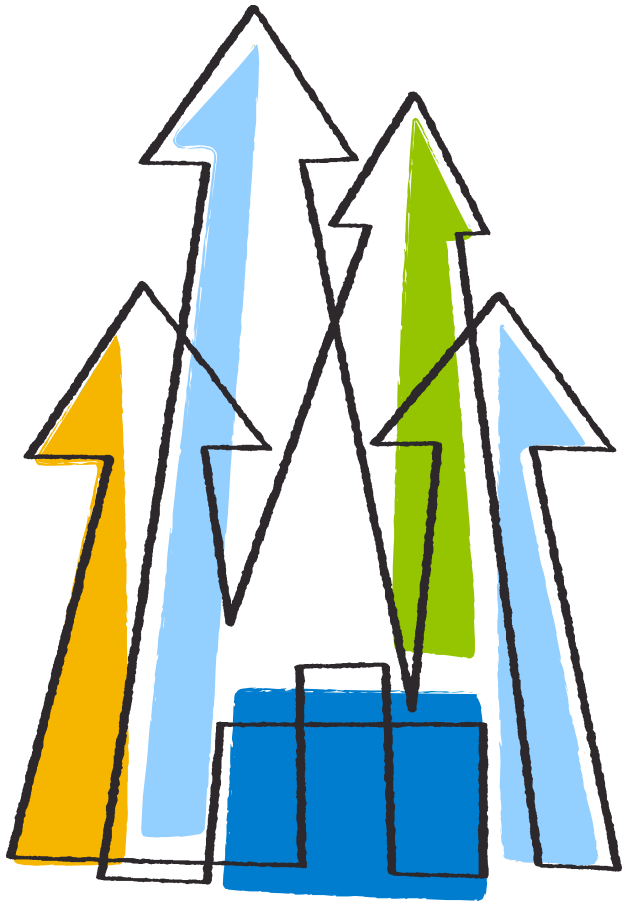
Go further, faster®

NFSometer:
A framework to run performance tests and visualize the results



Dros Adamson
Linux NFS Client Developer
dros@netapp.com
2/22/2012

NFSometer

Runs on Linux clients

Written in python

Uses numpy and matplotlib for graphing, mako for HTML templates

Currently is separated into two tools:
- run.py
- report.py

Both tools are shims around the python module “nfsometerlib”

NFSometer

run.py:

- Fetches and builds defined tests

- Runs requested tests with requested options, N times each

- Saves the results of the tests to be passed to report.py:
  - Test parameters

  - sys, user, real time of test run

  - mountstats, nfsstats, nfsiostats

  - test.log - output from the test

  - Debug info - NFS related sysctls, dmesg before test and after

NFSometer

report.py:

- Parses results from run.py

- Generates several different types of reports:

  - Kernel comparison report
    % difference, stddev across all "nfsopts”

  - Kernel average report
    average over N runs, stddev

  - Kernel per-run report
    values for each test run broken out by stat key for drill-down

NFSometer

What are "nfsopts”?

version - v3, v4, v4.1

X

server options - delegations on/off (v4.0, v4.1), pNFS on/off (v4.1)

X

local vs. remote volume

=

vers=3
vers=3,remote
vers=4
vers=4,remote
vers=4,delegations_enabled
vers=4,delegations_enabled,remote
vers=4,minorversion=1
vers=4,minorversion=1,remote
vers=4,minorversion=1,delegations_enabled
vers=4,minorversion=1,delegations_enabled,remote
vers=4,minorversion=1,pnfs_enabled
vers=4,minorversion=1,pnfs_enabled,remote
vers=4,minorversion=1,pnfs_enabled,delegations_enabled
vers=4,minorversion=1,pnfs_enabled,delegations_enabled,remote

NFSometer

Currently supported tests:

- cthon

- iozone

- filebench
  - maildir
  - networkfs
  - webserver

- compile tests
  - linux kernel (large)
  - python (relatively small)

NFSometer

Server Option API:

Create scripts to toggle settings on your server.

run.py arguments:

--admin-script=<script> - script to toggle serverside settings
--admin-server=<[user@]server> - server to use for script, defaults to server component of <server:path> argument

admin-script arguments:

<adminserver> <setting> <check|enabled|disabled>

<setting> can be:

- deleg_v4.0
- deleg_v4.1
- pnfs_v4.1
- health (only check is used)

NFSometer

Future work:

- Integration into Bryan's Jenkins framework

- More tests

- Time series data

- More admin-server options

- A client-side API similar to server-admin script

- Compare servers like kernels are currently compared

- Collect stats from network traces (?)

- Multiple clients (load generation)

NFSometer

Version 1 should be released under GPLv2 very soon!