

kdevops: NFS & Vector DB

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kdevops: NFS maintainers

- Who the NFSD Maintainers?

KERNEL NFSD, SUNRPC, AND LOCKD SERVERS

M: Chuck Lever <chuck.lever@oracle.com>

M: Jeff Layton <jlayton@kernel.org>

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- Active kdevops developers
- How do we test NFS on kdevops?
 - fstests
 - nfstests
 - pynfs
 - ltp
 - gitr

kdevops: developers encouraged to test

- RFC went out yesterday to encourage testing with kdevops

`Documentation/filesystems/nfs/nfsd-maintainer-entry-profile.rst`

Testing

~~~~~

The kdevops project

`https://github.com/linux-kdevops/kdevops`

contains several NFS-specific workflows, as well as the community standard fstests suite. These workflows are based on open source testing tools such as ltp and fio. Contributors are encouraged to use these tools without kdevops, or contributors should install and use kdevops themselves to verify their patches before submission.

# kdevops: NFS example results: distro

- How to use kdevops to run fstests

```
make defconfig-nfs-fstests KDEVOPS_HOSTS_PREFIX=msst
make -j128
make bringup
```

```
make fstests
make fstests-tests
```

- Distro results - ~ 4.3 hours

```
cat workflows/fstests/results/6.12.43+deb13-amd64/xunit_results.txt
KERNEL:    6.12.43+deb13-amd64
CPUS:      8
```

```
nfs_v41: 745 tests, 4 failures, 589 skipped, 4772 seconds
  Failures: generic/169 generic/193 generic/363 generic/551
nfs_pnfs: 745 tests, 4 failures, 589 skipped, 4772 seconds
  Failures: generic/169 generic/193 generic/363 generic/551
nfs_v42: 745 tests, 5 failures, 491 skipped, 7266 seconds
  Failures: generic/169 generic/193 generic/363 generic/420
           generic/551
Totals: 2235 tests, 1669 skipped, 13 failures, 0 errors, 15715s
```

# kdevops: NFS example results: latest

- How to use kdevops to run fstests

```
make defconfig-nfs-fstests KDEVOPS_HOSTS_PREFIX=msst
make -j128
make bringup
make linux
make fstests
make fstests-tests
```

- Latest Linux results - ~ 7 hours

```
cat workflows/fstests/results/6.17.0-rc6-g3b08f56fbbb9/xunit_results.txt
KERNEL:    6.17.0-rc6-g3b08f56fbbb9
CPUS:      8
```

```
nfs_v41: 745 tests, 3 failures, 588 skipped, 7557 seconds
  Failures: generic/169 generic/193 generic/528
nfs_pnfs: 745 tests, 3 failures, 588 skipped, 7986 seconds
  Failures: generic/169 generic/193 generic/528
nfs_v42: 745 tests, 6 failures, 468 skipped, 11692 seconds
  Failures: generic/033 generic/169 generic/193 generic/420
           generic/528 generic/551
Totals: 2235 tests, 1644 skipped, 12 failures, 0 errors, 25461s
```

# kdevops: NFS example results: latest: 30 minute soak

- How to use kdevops to run fstests

```
make defconfig-nfs-fstests KDEVOPS_HOSTS_PREFIX=msst SOAK_DURATION=1800
make -j128
make bringup
make linux
make fstests
make fstests-tests
```

- Latest Linux results - ~ 7 hours

```
cat workflows/fstests/results/6.17.0-rc6-g3b08f56fbbb9/xunit_results.txt
KERNEL:      6.17.0-rc6-g3b08f56fbbb9
CPUS:        8

nfs_v41: 745 tests, 4 failures, 588 skipped, 7652 seconds
  Failures: generic/169 generic/193 generic/528 generic/551
nfs_pnfs: 745 tests, 3 failures, 588 skipped, 7825 seconds
  Failures: generic/169 generic/193 generic/528
nfs_v42: 745 tests, 5 failures, 468 skipped, 11802 seconds
  Failures: generic/033 generic/169 generic/193 generic/420
           generic/528
Totals: 2235 tests, 1644 skipped, 12 failures, 0 errors, 25548s
```

- No NFS tests leverage soak duration

# kdevops: pynfs and nfstests

- Demo of pynfs test results: 6.17.0-rc6-g3b08f56fbbb9
  - Support written last night in about 3 minutes, patch posted
- Demo of nfstests results: 6.17.0-rc6-g3b08f56fbbb9
  - Support written last night in about 3 minutes, patch posted

# kdevops: Scope

- Chuck Lever:
  - Has been working to scale pNFS and Kerberos testing on kdevops
  - “The kdevops tests I created are for the [Linux NFS server and client](#), and [the only layout type support they have in common right now is the block/SCSI/NVMe layout type.](#)”

# kdevops: Vector Databases test automation

- How to use kdevops to bring up Milvus

```
make defconfig-ai-milvus-docker # 1. Configure for Milvus testing
make bringup # 2. Provision the test environment
make ai # 3. Run the Milvus benchmarks
make ai-baseline # 4. Establish baseline performance
make ai-results # 5. View results
```

## Milvus vector db results

# kdevops: Vector Databases test next steps

- Public cloud baseline: [i4i.4xlarge](#) ?
  - Intel Xeon 8375C Ice Lake: 3.5 GHz
  - 16 vCPUs
  - 128 GiB RAM
  - NVMe

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- GPU impact

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- NFS / pNFS

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- GPU impact
- NFS / pNFS
- Scale

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- pgvectorscale

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- Recall - use datasets

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- pgvectorscale
- Recall - use datasets
- What do you want to see?