

afsd.fuse

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October 2011



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## Definitions

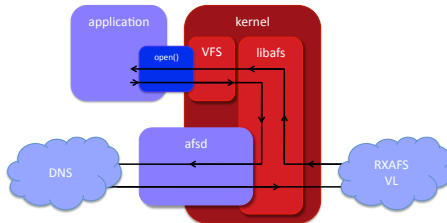
*FUSE*

- FUSE: Filesystem in USErspace, userspace bindings for VFS
- afsd: AFS client daemon



# Conceptual Architecture

## Traditional kernel client:

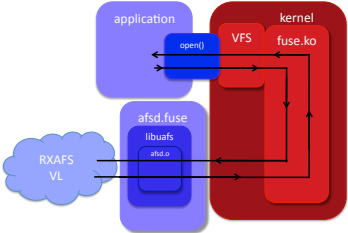


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# Conceptual Architecture

## FUSE client:



## Rationale

Why would you want to use this?

- Cannot hang machine, is killable and gdb-able
- Run as non-root
- Run multiple instances



## Usage

'Everyday' arguments are exactly the same as afsd

```
afsd.fuse -fakestat -dynroot -mountdir /tmp/afs.root \  
-cachedir /tmp/afs.cache
```

### Note

You usually want `-mountdir` and `-cachedir`, which you may not be used to specifying for regular afsd



pioctl

- No way to issue pioctls (or any other AFS syscall)
- No fs, aklog, etc

How do we fix this?





pioctl

- Need to specify "which" client to contact
- Environment var to specify the client root
- Possibly autodetect? CLI override?

This is only the UI aspect, though. To actually issue a pioctl to afsd.fuse...

## pioctl (ioctl)

Issue an ioctl on:

```
/tmp/afs.root/.afs_ioctl
```

- Uses the same scheme as the existing Linux /proc pioctls
- Possibly hard and/or inefficient in FUSE

pioctl (xattr)

Issue getxattr/setxattr on:

```
/tmp/afs.root/sinenomine.net/foo/bar
```

- xattrs are much more structured
- Much more work for argument marshalling/unmarshalling

## pioctl (rmtsys)

Redirect the AFS syscalls to a local daemon over the rmtsys protocol, and read which rmtsys daemon to contact via:

```
/tmp/afs.root/.afs_rmtsysd
```

- Heavy lifting in extant rmtsys library and protocol
- rmtsys code is a really big dependency (requires Rx)



## Availability

- Included in 1.6.0 (when libfuse)
- Debian package (openafs-fuse)

## Future Work

- `afsd.fuse` is still considered experimental
- Some interest has been seen (Troy Benjegerdes on `openafs-devel`)
- Spare-time volunteer effort
- Use it, see what's broken, file bugs



**SINE NOMINE**  
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Thank You

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