

# 实验五 blobFS原理和源码分析

## 实验目的

1. 学习和理解基于spdk的文件系统原理和实现。

## 实验内容

1. 学习BlobFS基本原理
2. 在Nvme上创建BlobFS
3. 通过Fuse挂载BlobFS

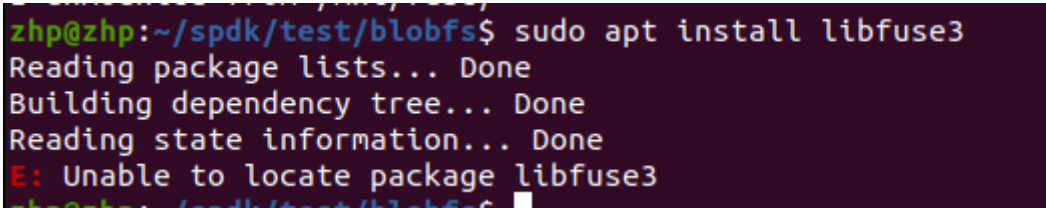
## 实验代码及结果

启动服务器，初始化环境

```
./scripts/setup.sh
```

直接安装 libfuse3 会报错

```
sudo apt install libfuse3
```



```
zhp@zhp:~/spdk/test/blobfs$ sudo apt install libfuse3
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
E: Unable to locate package libfuse3
```

需要安装 dev 版的

```
sudo apt install libfuse3-dev
```

执行编译

```
./configure --with-fuse && make
```

生成配置文件

```
./scripts/gen_nvme.sh --json-with-subsystems > ./test/blobfs/nvme.json
```

创建blobfs

```
sudo ./mkfs/mkfs ./nvme.json Nvme0n1
```

```

zhp@zhp:~/spdk/test/blobfs$ sudo ./mkfs/mkfs ./nvme.json Nvme0n1
[sudo] password for zhp:
[2022-12-27 09:37:08.542781] Starting SPDK v23.01-pre git sha1 a64acd100 / DPDK 22.07.0 initializatio
n...
[2022-12-27 09:37:08.550787] [ DPDK EAL parameters: [2022-12-27 09:37:08.551196] spdk_mkfs [2022-12-2
7 09:37:08.551656] --no-shconf [2022-12-27 09:37:08.551897] -c 0x3 [2022-12-27 09:37:08.552543] --hug
e-unlink [2022-12-27 09:37:08.553707] --log-level=lib.eal:6 [2022-12-27 09:37:08.554016] --log-level=
lib.cryptodev:5 [2022-12-27 09:37:08.554209] --log-level=user1:6 [2022-12-27 09:37:08.554415] --iova-
mode=pa [2022-12-27 09:37:08.555944] --base-virtaddr=0x200000000000 [2022-12-27 09:37:08.556394] --ma
tch-allocations [2022-12-27 09:37:08.556836] --file-prefix=spdk_pid26552 [2022-12-27 09:37:08.557190]
]
TELEMETRY: No legacy callbacks, legacy socket not created
[2022-12-27 09:37:08.836419] app.c: 705:spdk_app_start: *NOTICE*: Total cores available: 2
[2022-12-27 09:37:08.996889] reactor.c: 926:reactor_run: *NOTICE*: Reactor started on core 0
[2022-12-27 09:37:08.996843] reactor.c: 926:reactor_run: *NOTICE*: Reactor started on core 1
[2022-12-27 09:37:09.007774] accel_sw.c: 466:sw_accel_module_init: *NOTICE*: Accel framework software
module initialized.
Initializing filesystem on bdev Nvme0n1...done.

```

创建挂载 fuse 的目录

```
sudo mkdir /mnt/fuse
```

运行 fuse

```

zhp@zhp:~/spdk/test/blobfs$ sudo ./fuse/fuse ./nvme.json Nvme0n1 /mnt/fuse/
[2022-12-27 09:37:22.577147] Starting SPDK v23.01-pre git sha1 a64acd100 / DPDK 22.07.0 initializatio
n...
[2022-12-27 09:37:22.580430] [ DPDK EAL parameters: [2022-12-27 09:37:22.580854] spdk_fuse [2022-12-2
7 09:37:22.581062] --no-shconf [2022-12-27 09:37:22.581219] -c 0x3 [2022-12-27 09:37:22.581510] --hug
e-unlink [2022-12-27 09:37:22.581673] --log-level=lib.eal:6 [2022-12-27 09:37:22.581823] --log-level=
lib.cryptodev:5 [2022-12-27 09:37:22.581970] --log-level=user1:6 [2022-12-27 09:37:22.582119] --iova-
mode=pa [2022-12-27 09:37:22.582271] --base-virtaddr=0x200000000000 [2022-12-27 09:37:22.582447] --ma
tch-allocations [2022-12-27 09:37:22.585688] --file-prefix=spdk_pid26558 [2022-12-27 09:37:22.585861]
]
TELEMETRY: No legacy callbacks, legacy socket not created
[2022-12-27 09:37:22.820486] app.c: 705:spdk_app_start: *NOTICE*: Total cores available: 2
[2022-12-27 09:37:22.993347] reactor.c: 926:reactor_run: *NOTICE*: Reactor started on core 0
[2022-12-27 09:37:22.993371] reactor.c: 926:reactor_run: *NOTICE*: Reactor started on core 1
[2022-12-27 09:37:23.002840] accel_sw.c: 466:sw_accel_module_init: *NOTICE*: Accel framework software
module initialized.
Mounting filesystem on bdev Nvme0n1 to path /mnt/fuse/...
done.
[2022-12-27 09:37:23.397444] blobfs_fuse.c: 239:fuse_loop_new_thread: *NOTICE*: Start to loop blobfs
on bdev Nvme0n1 mounted at /mnt/fuse/

```