

# More Filesystems

## ECE598: Advanced Operating Systems – Homework 5

Spring 2015

**Due: Friday, 3 April 2015, 5pm**

Answer the following questions, putting the answer in some sort of document (.txt, .pdf, .doc).

1. The file `new_file` is shown via the `ls` command to be 41 Megabytes in size

```
rasp-pi:~% ls -lh new_file
-rw-r--r-- 1 vince weaver 41M Mar 30 21:34 new_file
```

But the command `du -h` which shows how many disk blocks a file uses only shows 16k being used.

```
rasp-pi:~% du -h new_file
16K new_file
```

How is this possible? Why might this be a useful feature to have?

2. On a raspberry pi running Linux you can run the command `cat /proc/cpuinfo` and it will return the following:

```
processor       : 0
model name     : ARMv6-compatible processor rev 7 (v6l)
BogoMIPS      : 2.00
Features       : half thumb fastmult vfp edsp java tls
CPU implementer : 0x41
CPU architecture: 7
CPU variant    : 0x0
CPU part       : 0xb76
CPU revision   : 7

Hardware       : BCM2708
Revision      : 000e
Serial        : 0000000067d41798
```

Is this information stored on disk, or somewhere else?

If you submitted a patch to the linux-kernel developers that removed the `Features` line, would they be likely to accept it? Why or why not?

3. What is the purpose of a disk quota?
4. What does it mean when a network filesystem is said to be stateless?
5. Under Linux you can use the `fcntl()` function to lock regions of a file. When is locking files necessary?

### Submit your work

E-mail the file containing your answers to the questions to me by the homework deadline.