Ep3 – SO
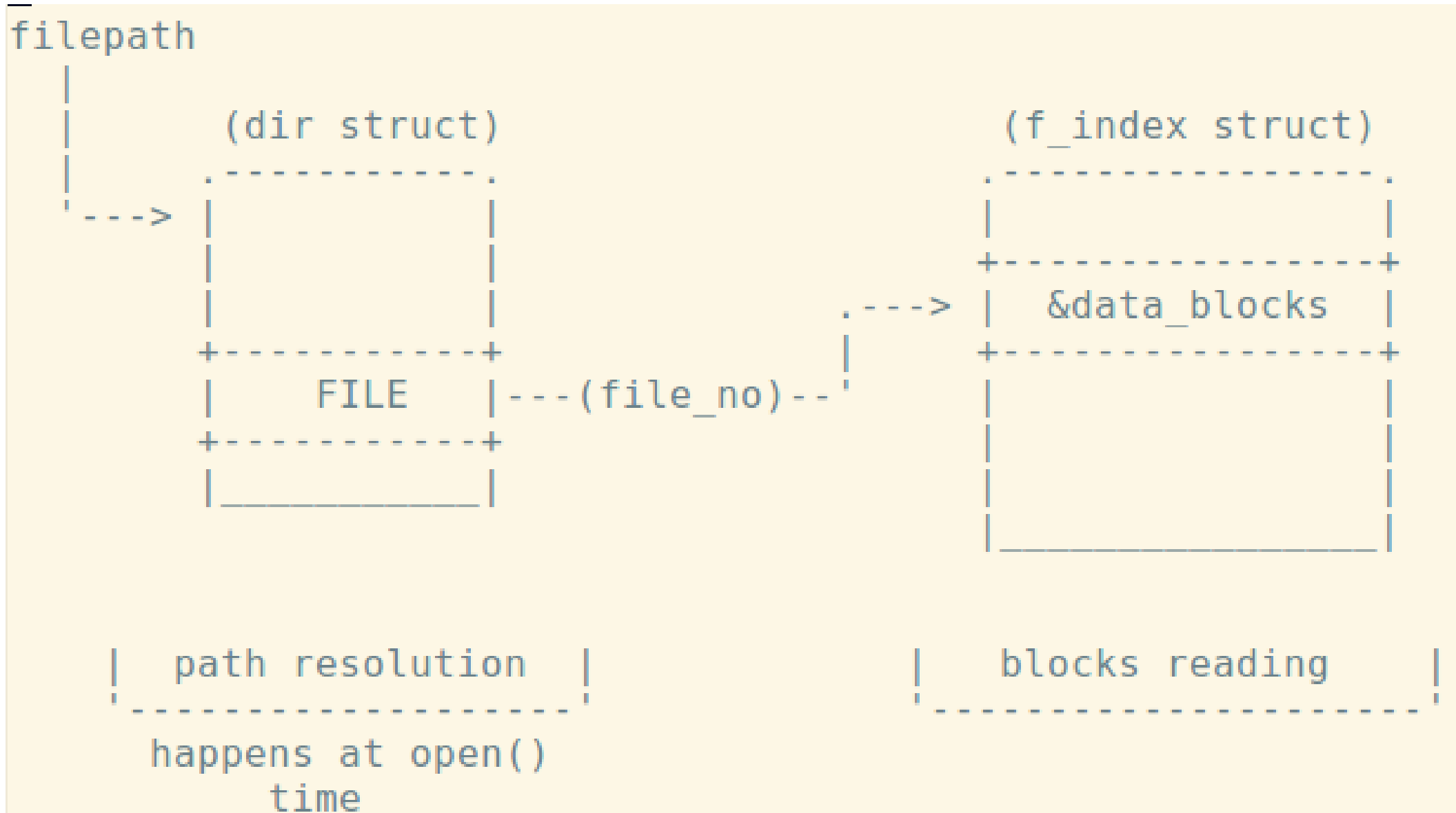## Ciro S. Costa – 8071488
`fssim` – Simulador de Sistema de Arquivos

Agenda

- Estrutura
- Ambiente de Testes
- Resultados

Estrutura

```
filepath
    |
    |        (dir struct)                          (f_index struct)
    |      .-------------.                        .------------------.
    '--> | |             |                        | |                |
         |  |             |                       |  |                |
         |  |             |                       +------------------+
         |  |             |                 .---> |   &data_blocks   |
         +-------------+  |                 |     +------------------+
         |    FILE     |---(file_no)-----'      |                  |
         +-------------+                          |                  |
         |_____|                          |                  |
                                                  |_____|


     |   path resolution   |                    |   blocks reading   |
     '---------------------'                    '--------------------'
         happens at open()
              time
```

Estrutura

```
  (size in B)
------------------------                   --
4                      | block size        |
------------------------                   | Super Block
4                      | n = number of blocks |
------------------------                   --
                       |                   |
n*4                    | FAT               | File Alloc
                       |                   | Table and
------------------------                   | Free Space
                       |                   | Management
((n-1)/8|0)+1)         | BMP               |
                       |                   |
------------------------                   --
                       |                   |
4KB                    | Block 0           |
                       |                   |
------------------------                   |
(...)                                      | Files and
(...)                                      | its
------------------------                   | payload
                       |                   |
4KB                    | Block N           |
                       |                   |
------------------------                   --
```

Estrutura

```
Directory:

(size in B)
+-----------+
| 32        |    directory metadata
+-----------+
| 4064      |    directory entries
+-----------+


Directory Metadata:

      1B                     31B   // reserved for future use
+----------------------------------------+
| children_count |    padding     |
+----------------------------------------+
```

Estrutura

```
/------------------------------ 32Bytes --------------------------------/

    1B            11B          4B           4B           4B          4B          4B
+------------------------------------------------------------------+------+  --
| is_dir | fname | fblock | ctime | mtime | atime | size |  |    1
+------------------------------------------------------------------+------+  --
                                                                      |
                     (...)                                            |    (..)
                                                                      |
+------------------------------------------------------------------+------+  --
| is_dir | fname | fblock | ctime | mtime | atime | size |  |   (127)
+------------------------------------------------------------------+------+  --
```

Ambiente de Teste

- Vostro 5470 (0615)

- Intel(R) Core(TM) i5-4210U CPU @ 1.70GHz

- memory   8GiB SODIMM DDR3 1600 MHz (0,6 ns)

- 128GB SMART SSD SZ9STE

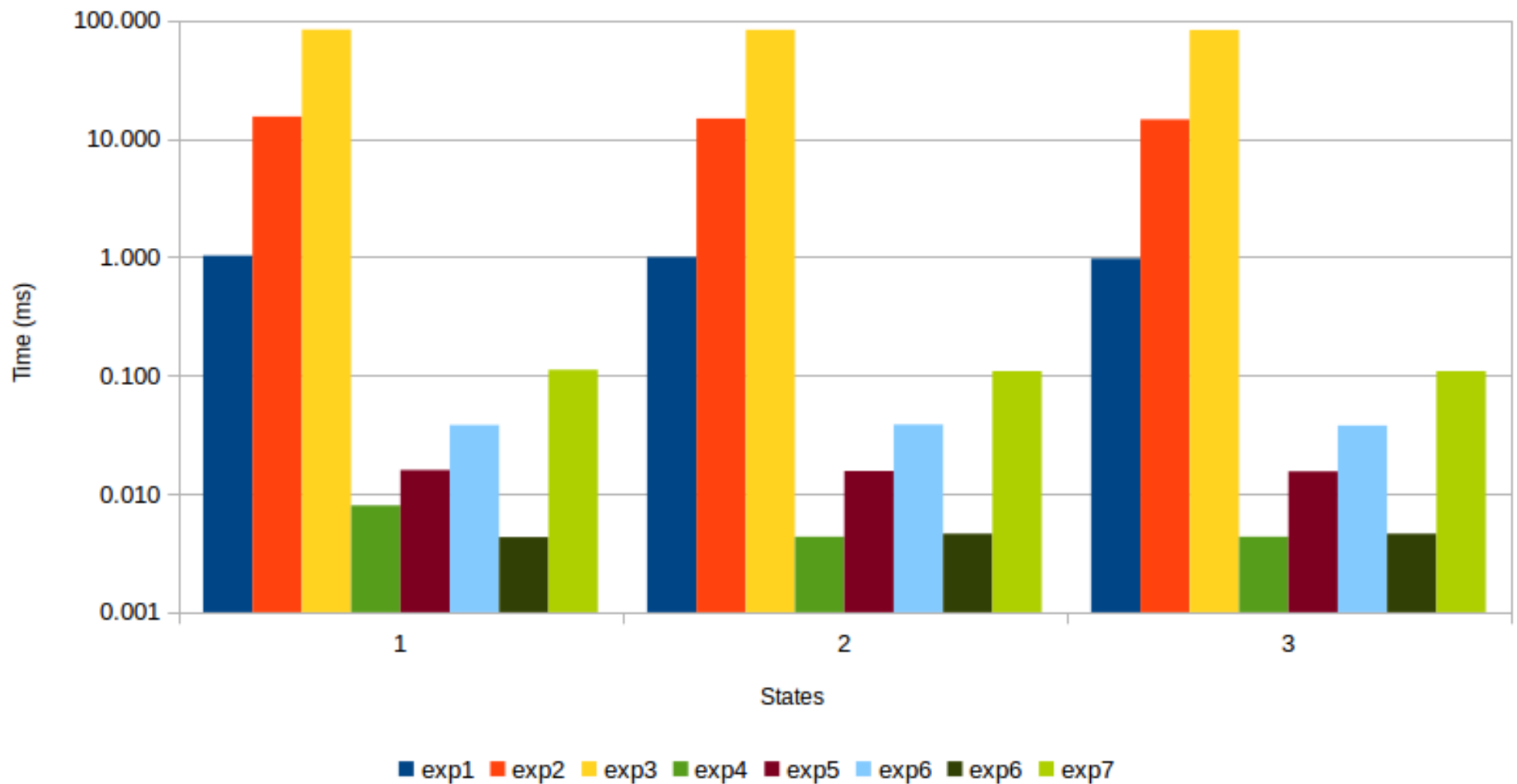- volume   92GiB EXT4 volume

Resultados

(measured in milliseconds)

Exp\State	1	2	3
1	1.027	0.998	0.970
2	15.371	14.788	14.521
3	83.213	82.848	82.684
4	0.008	0.004	0.004
5	0.016	0.016	0.015
6	0.038	0.038	0.038
7	0.004	0.005	0.005
8	0.111	0.108	0.108

Resultados

Time per Experiment

grouped by state

Resultados

Segregation of Differences

Between states

Legend:
- 1,2
- 1,3
- 2,3