smemtest

P
smemtest

C
write exit())

Q

P
smemtest

C
write exit())

P
smemtest

C
write exit())

shared region

exit

exit
File Systems

Disks

- Processor
- RAM
- Disk
- SSD (Solid State Disk)

Sectors: 512 bytes
File System

How to organize data on a disk?

Navigation / Tree structure

```
/  
/  
/home  /usr  
/  
/bin  
/benson
```
Files are sequences of bytes.

- boot block
- super block
- log
- inodes
- bit map
- data
- free

- boot sector
- ConPs info
- "index" of data blocks for a file
- keeps track of used and free data blocks

inode

- index
- data block
- data block
- data block
### inode addr

<table>
<thead>
<tr>
<th>12</th>
<th>11</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

#### DATA

- indirect addr

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA</td>
<td>DATA</td>
<td>DATA</td>
<td>DATA</td>
<td>DATA</td>
<td>DATA</td>
<td>DATA</td>
</tr>
</tbody>
</table>

Largest File: \(12 \text{ KB} + 256 \text{ KB} = 268 \text{ KB}\)

\[
2^8 \times 2^2 = 2^{10} = 1024 \text{ KB}
\]
12KB + 256 x 256 KB

12KB + 65536 KB

65536 KB = 64 MB

REAL WORLD
### Directories

A directory is just a file.

<table>
<thead>
<tr>
<th>inum</th>
<th>name</th>
<th>inum of this dir</th>
<th>inum of parent dir</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>..</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>foo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>goo</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>