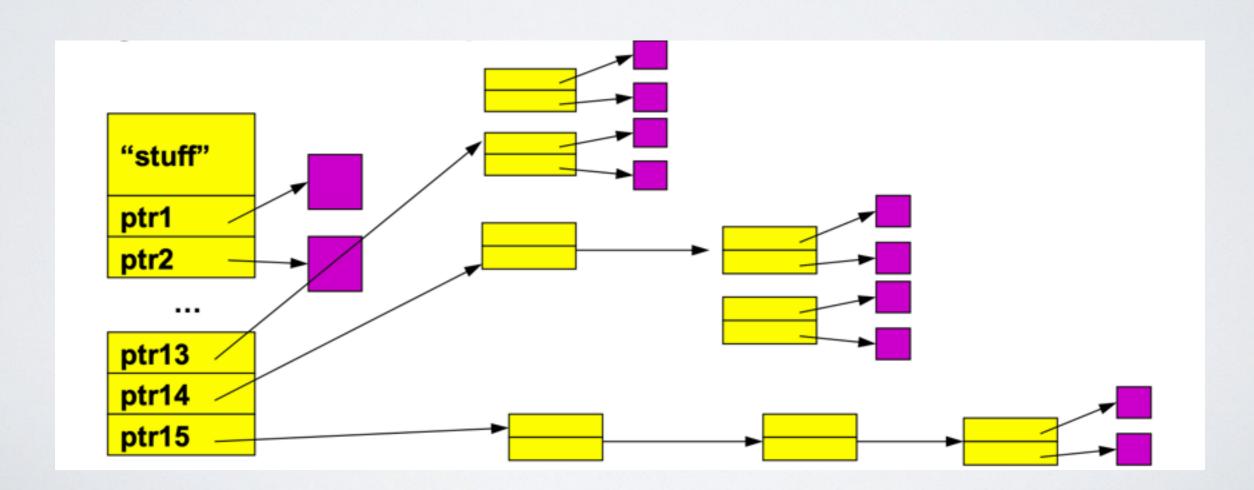
## Multi-level indexed files: Unix File System

- First 12 pointers are direct blocks solve problem of first blocks access slow
- Then single, double, and triple indirect block pointers



## File size with multi-level indexed files

File size using 12 direct blocks:  $12 \times 4 \text{ KB} = 48 \text{ KB}$ 

- → Adding single indirect block: (12 + 1024) x 4 KB ~ 4 MB
- → Adding a double indirect block: (12 + 1024 + 1024^2) × 4 KB) ~ 4 GB
- → Adding a triple indirect block:
  (12 + 1024 + 1024^2 + 1024^3) × 4 KB) ~ 4 TB