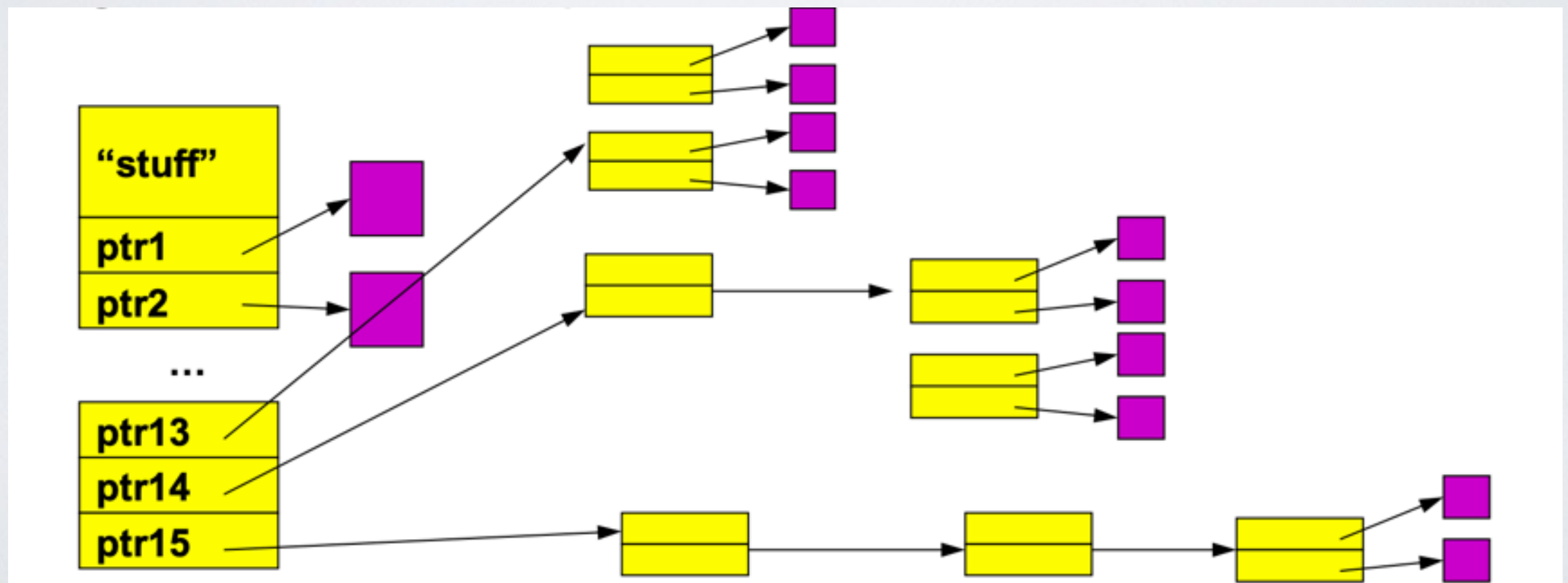


# Multi-level indexed files : Unix File System

- 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 :  $(12 + 1024) \times 4 \text{ KB} \sim 4 \text{ MB}$

➡ Adding a double indirect block :  
 $(12 + 1024 + 1024^2) \times 4 \text{ KB} \sim 4 \text{ GB}$

➡ Adding a triple indirect block :  
 $(12 + 1024 + 1024^2 + 1024^3) \times 4 \text{ KB} \sim 4 \text{ TB}$