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ECE 565

HW 1

1. A 25 × 80 character monochrome text screen requires a 2000-byte buffer. The 1200 × 900 pixel 24-bit color bitmap requires 3,240,000 bytes or 3.24 Megabytes. In 1980 these two options would have cost $10 and $15,820, respectively. $0.0059 /MB in 2017 means the first option would have cost $0.0000118 for the first option and $0.019116 for the second option. Source: <http://www.jcmit.net/memoryprice.htm>
2. Average access time =

0.95 × 1 nsec (word in the cache)

+ 0.05 × 0.99 × 10 nsec (word in RAM, but not in the cache)

+ 0.05 × 0.01 × 10,000,000 nsec (word on disk only)

= 5001.445 nsec = 5.001445 μsec

1. Separation of policy and mechanism allows OS designers to implement a small number of basic primitives in the kernel. These primitives are simplified, because they are not dependent of any specific policy. They can then be used to implement more complex mechanisms and policies at the user level.
2. No. The difference relates more to the fact that DNS servers cache and are organized hierarchically. The paths could easily have been given in the top-down order, but the convention of doing it backward is now well established.
3. The pattern is 8 msec of user code, then 2 msec of system code. With the optimization, each cycle is now 8 msec of user code and 1 msec of system code. Thus the cycle is reduced from 10 msec to 9 msec. Multiplying by 1000 such cycles, a 10-sec program now takes 9 sec.
4. Code:

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# ECE 565 2017 HW#1 Problem 6

$filename = Read-Host "Please enter the filename"

if(Test-Path $filename){

$fileContents = Get-Content $filename

Write-Host $fileContents

}else {

Write-Host "File not found"

}

[System.GC]::Collect()

Output:

