A/UX: MacX and Native X Performance (9/94)

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TOPIC --

I need to optimize an A/UX system for running X Window System applications in
the following environments:

1) Running Native X Window System under A/UX on a Macintosh IIfx,
   running with 16MB or 32MB of physical RAM.

2) Running MacX in the Finder under A/UX on Macintosh IIfx,
   running with 16MB or 32MB of physical RAM.

The applications are X based, using pull-down menus extensively. Of the two,
running under MacX is going to be weighed most heavily. I will be using the
MacX 1.2 that comes with A/UX.

Does running the same application in a rooted color window versus rootless
color window affect performance one way or the other?

I've used the following method to optimize A/UX for Native X Window System
under 8MB of memory:

For systems with 8MB, bring A/UX up as single-user, then run these
commands:

```
        # kconfig -n /unix
        NBUF=2500
        NINODE=600
        NFILE=400
        <Control-D>
        # sync
        # sync
        # sync
        # reboot
```

When doing this though, MacX performance under A/UX on the same machine
crawls slower than before.

DISCUSSION ---

Performance should not be affected when selecting a rootless color window or a rooted color window when running the same X client application.

The above kernel parameters, especially NBUF=2500, seems to be too high for an A/UX 8MB system. The "NBUF=2500" itself takes up 5MB (2500 x 2K) of existing memory. When you add the other kernel parameters, there is not much available physical memory left for applications. This will cause more paging activity and, in turn, degrade the performance.

If you have 16MB or 32MB of physical memory on a Macintosh IIfx running A/UX 3.0, the same kernel parameters configuration should be feasible to run either X11 Window System or MacX under A/UX.

The system performance will really depend on how many X client applications and other applications, including Macintosh applications and UNIX processes, are running at the same time in A/UX and the underlying network environment in which A/UX resides. The following kernel parameters should be adjusted accordingly to fit your running environment:

  NBUF   If NBUF=0, it allocates about 10% of free memory for disk
          block I/O buffers.

  NFILE is the size for system file-table pool (600 seems fair enough).
  NINODE is the size for system inode-table pool (400 seems fair enough).
  NPROC is the maximum number of processes allowed in the system.
  MAXUP is the maximum number of processes per user allowed in the system.
  NMBUFS is the maximum number of buffers allocated for networking.

    Each NMBUFS buffer requires 256 bytes. The more network daemons
    running, the more mbufs are needed for memory allocation.
    Since both MacX and X11 must be run at least in an A/UX B-Net
    kernel, the NMBUFS must be set fair enough for the network
    buffering. By default, 500 mbufs are allocated. For an A/UX with
    NFS and/or YP A/UX kernel, the NMBUFS needs to be increased
    significantly, say 1000 or 1500.

    The "netstat -m" can be used to display the number of mbufs
    currently in use.

Also, the "pstat -m" command can be used to display information about the current memory allocations, which include the number of I/O buffers (NBUF) allocated, the number of inodes (NINDOE), and the file (NFILE) currently active.

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