MPM135
2/17/72
users = 47
MFTN3
16.1a

********** MULTICS PERFORMANCE ANALYSIS **********

USER NO	COMMAND	TIME	CPU TIME	NO OF P.F.
0	login	1550	3.555	1 + 99
	edm	1559	5.775	96 + 260
	fortran	1600	6.040	19 + 295
	edm	1605	3.587	17 + 188
	fortran	1607	7.542	5 + 414
	rename	1608	1.336	6 + 46
	print	1608	1.478	6 + 48
	a_prime$prime	1610	3.168	7 + 91
	list	1611	1.292	4 + 52
	df	1611	2.044	4 + 102
	edm	1620	6.067	33 + 326
	fortran	1621	4.269	19 + 234
	edm	1626	3.708	17 + 206
	fortran	1627	6.675	20 + 354
	rename	1628	.840	2 + 34
	print	1628	.828	2 + 25
	b_prime$prime	1630	2.386	7 + 87
	list	16_1	. 64	5 + 36
	df	1631	1.354	5 + 71
	logout			

384 K core
2 CPUs

2 DS270 channels
page multilevel

********** SUMMARY **********

USER NO	TOTAL CPU TIME	TOTAL REAL TIME	TOTAL NO OF P.F.	NO OF INTER-ACTIONS	AVERAGE CPU TIME	AVERAGE RESPONSE TIME	AVERAGE NO OF P.F.	
USER 0	59.253	2416	274 + 2869	66	.897	8.0 (4.3)	4+ 43	
**********								# users
(	32.262	1212	164 + 1496	33	.978	9.2 (4.4)	4 + 45	48 first half)
	26.991	1171	110 + 1373	33	.818	6.8 (4.3)	3 + 41	46 second half)

The total CPU time required to run the script has significantly increased.

← 1 absentee users

	DRUM	DSU270	DSU170
	29	11	16
Ave Latency	25.610	57.789	85.045

← Disk traffic has dramatically decreased.

hmu;ttm -all

Multics 1?.1a, load 47.5/54.0; 47 users
Absentee users 1/1

Total metering time 0:27:38

→ mtbpf (in process time) = $\frac{4.209}{0.1492} \times 0.8903 =$ <u>25.1 msec</u>

	%	AVE	
Page Faults	14.92	4209.859	→ paging traffic is heavier
Drum interrupts	9.18	2428.520	→ increased because of increased drum traffic
Getwork	9.30	1302.890	
Seg Faults	8.06	30260.260	← Somehow many segment faults occurred (?)
Bound Faults	.47	65740.932	
Interrupts	3.99	5521.338	→ decreased because of decreased disk traffic
Gate faults	2.69	3670.000	
MP Idle	9.18		} 10.97 % → Somewhat decreased.
Loading idle	1.74		
NMP Idle	.05		
Zero idle	0.00		
Other	40.43		← low!

r 1618 2.175 6+70

pmt -all;intm2 -all

Total metering time 0:28:10

Working-set factor	.50
Working-set addend	0
Min-eligible	2
Max-eligible	6
% bad pre-paging	19.28
Drum faults/pre-paging	2.25
% drum priority moves	18.53
% misses	9.46
Ave post size	24.51
Ave purge size	9.5_
% purged	39.09
Ave pre size	14.18
Ave pre-pagings	7.44
% pre-paged	52.45
Thrashing percentage	4.73
Ave post in core	18.06
Ave working-set size	9.58
Ave used in quantum	21.81
Pre-page time	24.94
Post-purge time	21.67
Calls	3718

Total metering time 0:28:31

	ATB lock	loop %	loop time
rtl	5.6 ms.	7.11	.803 ms.
tcl	2.9 ms.	.54	.031 ms.
all locks		7.64	← increased because of heavier traffic

r 1312 1.836 10:46

```
>udd>m>shw>o>pmlm -all

Total metering time     0:31:01

PD records                4079
PD records needed         2650
Core blocks needed      170745
New pages                 3969
Page faults from PD     160074    (also pre-paging reads)
% faults from PD          93.9
Ratio PD to other       15.0:1

Ratio of PD reads to
   disk reads           30.5:1   <---- 30 : 1
Disk writes               1978
Disk writes (TWS)         1447
Disk writes (GTPD)         266
Disk writes (first)          0
Disk writes (forced)        29
% PD disk writes forced    .03

Overhead to perform read-write sequences:
CPU time (start)    Ave =  5.4 msec.,   .42 % of system.
CPU time (done)     Ave =  2.1 msec.,   .17 % of system.
Overhead                                .58 % of system.

        RANGE              COUNT        AVE

 0 sec to 32 sec             0        0.0 sec.
32 sec to  4 min             0        0.0 min.
 4 min to 32 min          1096       20.2 min.
32 min and more            350        1.1 hr.

Average residency                31.9 min.  <----

r 1622  1.921  10+39


Automatic logout
Sekino Multics logged out 02/16/72  1622.6 est Wed
CPU usage 1 min 14 sec
hangup
```

total metering time 1.68 hr, 74.12 terminal hr
min output buffer 575 chars, 38 sec.
ave output buffer 1013 chars, 67 sec.
ATB output blocks 39 1744 sec.
ATB status .134 5.914 sec.
% status queued 2.8%
ATB quit 17.2 760.2 sec.
ATB dialups 91.5 4043.0 sec.
ATB cycle 1.1 49.6 sec.
output buffer eff. 76%
ave interrupt time 5.668 ms. 4.4%
max interrupt time 139.518 ms.

ATB reads .83 sec.
ATB writes .47 sec.
ATB read-ahead 4.60 sec.
ave input message 12.8 chars
ave output message 41.1 chars
ave r-a message 3.9 chars

conversion factors
output 1.19 (converted/ascii)
input .92 (ascii/raw)

complete input messages in buffer:current 2, ave 1.66
19.4% characters input in read-ahead

38 consoles reading, 25 blocked on read
7 consoles writing, 1 blocked on write
17 consoles in read-ahead,

527877 chars output, 93200 chars input

	total	1050	2741	M37	T300	ARDS	2741	M35
cur # dialed	46	3	31	10	0	0	1	1
ave # dialed	44.2	2.3	30.3	9.9	0.0	.1	.7	1.0
input rate	15.4	.9	.4	.2	0.0	0.0	.6	0.0
output rate	37.4	1.6	2.0	2.0	0.0	.2	4.6	.1

r 1626 3.975 11+130

dn -d270

Connects = 12452, 767. ← 2 DS270 channels

Queue empty.

r 1627 1.652 2+92

hmu

Multics 16.1a, load 46.5/54.0; 46 users
Absentee users 1/1

r 1627 .713 1+20