

Summary of Multics Use 1/75, 2/75

3/18/75 JWS

	Jan 75	Feb 75
In revenue use	19%	15%
In non-revenue use	7%	4%
Unused	<u>74%</u>	<u>81%</u>
	100%	100%

If 60% of the system hours represent a "full" machine,

Jan 75 $\frac{19}{60} = \frac{1}{3}$ of capacity was in revenue use

Feb 75 $\frac{15}{60} = \frac{1}{4}$ of capacity was in revenue use.

Jan 75 Multiple use

2/18/75

	Issues VCPU used	Paging and Interrupt time	total
Paging Customers	88 hr	57 hr	
Daemons	48 hr	32 hr	
IPC/EDO/Maint	<u>48 hr</u>	<u>32 hr</u>	
	184 hr	121 hr	305 hr

Overhead distribution

Daemons	VCPU	PI	
Backup + Int	38	25	→ add $\frac{2}{3}$ to overhead ($\frac{1}{3}$ supports non-revenue use)
I/O	10	7	→ add to overhead
	48	32	→ add to direct charges

IPC/EDO/Maintenance use

	VCPU	PI	
Admin + Accounting	12	8	→ add to overhead
Development	<u>36</u>	<u>24</u>	→ non revenue use
	48	32	

Revenue use	Direct use	Indirect use	total
	88	Paging Customers	57 hr
	<u>10</u>	I/O Daemon	7 hr
	98 hr	$\frac{2}{3}$ Backup	42 hr
		Admin + Accounting	<u>20</u>
			126 hr
Non revenue use	36 hr		95 hr
			224 hr
			81 hr

Maximum hours available = 40 hr/day \times 30 days = 1200 hrs.

$$\frac{224}{1200} = 19\% \text{ in revenue use}$$

$$\frac{81}{1200} = 7\% \text{ in non-revenue use}$$

$$\frac{895}{1200} = 74\% \text{ unused}$$

Feb 75 Multics use

	Va VCPU	Pages + Disk time	
Passing Customers	73	41	
Joe name	33	17	
IPC / PDC / Maint	<u>33</u>	<u>19</u>	
	139 hrs.	79 hrs	218 hrs.

Overhead distribution

Joe name	VCPU	PI	
Bank + Maint	27	16	→ 2/3 to Overhead, 1/3 to revenue
DI0	<u>6</u>	<u>3</u>	→ to O/H
	33	19	→ to direct charge

IPC / PDC / Maintenance use

	VCPU	PI	
Admin + Accounting	11	6	→ to O/H
Dev.	<u>22</u>	<u>13</u>	→ to non rev
	33	19	

Revenue use	Direct	Indir	Total
	73 Passing	41	
	<u>6</u> DI0	3	
	79	2/3 of Bank + Maint	29
		Admin	17
Non rev	Dir = 22	Indir = 27	49
			90
			169

Utilization 28 days x 40 hr/day = 1120 hr.

$$\frac{169}{1120} = 15\% \quad \text{in revenue use}$$

$$\frac{49}{1120} = 4\% \quad \text{in non-revenue use}$$

$$\frac{902}{1120} = 81\% \quad \text{unused.}$$

Month 75

CPU usage {
 690 hrs = 100%
 140 hrs = 20.29% charged
 80 = 11.7% o/h
 470 hrs = 68.1% ill.
 220 used

Billed 123685
 Non-billed 101000

Non rev prod ~~use~~ direct use ~ 44 k
 rev booking direct use ~ 10 k
 rev use 12310

	dir	hr	23	o/h	hr	12	
D	46	21%	29	5	17	3	non revenue use = 58
SM	21	9%	13	4	7	2	
I/P	33	15%	21	30	12	19	
SP	35	16%	22	77	13	44	
IC	88	39%	55		31		
	<u>223</u>	<u>100%</u>	<u>140</u>		<u>80</u>		

$$\frac{162}{1200} = 13.5\%$$

220
58
 162

Max 75

Multitasking 1/20

in VCPU

Logging + Disk drive

Logging Customer

Daemon

IPC / OS / Main