

scrutinised by British Telecom who have a representative on the Governing Committee. Abuse of the system could seriously prejudice the future for ARPANET.

Head of Resource Management and Communications
M R Jane

3. COMPUTER STATISTICS

IBM SYSTEMS 22/2/82 - 20/3/82

Weekly availability is uptime/168.

SYSTEM AVAILABILITY - % of 672 hrs available

MWT - 84.7%, CMS - 98.6%, ELECTRIC - 90.4%.

MWT THROUGHPUT

Average jobs/week 13481
Average CPU hrs/week 200

TERMINAL SYSTEM USERS

Registered users 701 1243
Active users 334 579

SERVICE LEVELS

Percentage of prime shift short jobs not turned round inside guideline:

MWT Batch	Core size	P12	P10	P8
0 - 210k	5.6	14.4	6.2	
212k - 350k	-	6.0	3.4	
352k - 560k	-	5.0	4.4	

TERMINAL SYSTEMS

Response to trivial command during peak period:

CMS	Week 1	Week 2	Week 3	Week 4
% < 1 sec	97.5	96.7	97.4	96.9
% < 3 secs	99.8	99.9	99.9	99.9

ELECTRIC

% < 2 secs	76.8	64.5	68.6	78.8
% < 5 secs	88.9	79.6	84.3	90.0

USAGE FOR CURRENT FINANCIAL YEAR

MWT and ELECTRIC totals are for 51 weeks, CMS totals are for 24 weeks from 5/10/81.

Board	MWT 195hrs	ELECTRIC AUS	CMS AUS
ASR	556	708	185
Engineering	876	413	163
Nuclear Physics	7410	5867	1240
Science	1359	1905	332
Central Funding	284	1070	4973 *
NERC	191	405	209
External	159	618	113
TOTAL	10835	10986	7215

* These entries include some usage due to "service" functions which are strictly an overhead and should be accounted separately.

ICF SYSTEMS

AU USAGE BY BOARD - periods 8104-8203

Board	Prime	SEC	DEC-10	TOTAL
ASR	218	521	29	768
Engineering	15983	5396	7186	28566
Nuclear Physics	86	97	0	184
Science	470	837	2286	3594
Central Funding	5688	1770	1771	9171
System Overheads	6381	591	3650	10622
External	423	323	241	988
TOTAL	29249	9475	15163	53893

4. DIARY

USER MEETINGS

2 June 1982 - Decsystem-10 Users Committee meeting
James Clerk Maxwell Building
King's Buildings
Edinburgh
at 10.30 am.

AIR-CONDITIONING SHUTDOWN

The next shutdown of all computer systems (except network equipment) scheduled during 1982 for the maintenance of air-conditioning plant is:
0800 hrs Friday 10 Sept till late Monday 13 Sept

SYSTEM DEVELOPMENT - reminder

System Development is scheduled on Wednesday mornings from 08.30 to 10.30 and Thursday evenings from 17.30 to 19.30.

IBM PREVENTATIVE MAINTENANCE DATES

Routine Preventative Maintenance will take place on the following days from 1800 - 2200 hours. Login messages on the ELECTRIC and CMS services will be issued prior to each maintenance session as a reminder.

20 May 17 Jun 22 Jul 19 Aug
16 Sept 21 Oct 18 Nov 16 Dec

5. CORRECTION

The editor regrets the misprint in his article in FORUM 21, section 1, para 5. This should read:

A much finer control on routing of output is possible with JES3. For example the //FORMAT control record can be used to produce multiple copies of output datasets or to route different output datasets to different destinations.

Rutherford Appleton Laboratory

FORUM

COMPUTER NEWSLETTER

Newsletter of the SERC Central Computing Facility

No. 22 April 1982

1. IBM USER REPRESENTATIVE MEETING

The meeting was held on 17 March 1982 at RAL. It now has a user as Chairman, Dr Graham Thompson who is a physicist. He has been appointed for a two year period.

Representation

He described the relationship between the Representatives meeting and the newly formed RAL User Liaison Committee (ULC) chaired by Prof D C Colley (Birmingham). Graham will represent RAL IBM users on the ULC and will use the Representatives meeting to obtain a consensus on issues to be discussed. He hopes to increase the frequency of the Reps meetings to correspond with those of the ULC (3 per year). He is also prepared to accept individual user views by electronic mail (ELECTRIC ID=ZS, CMS ID=GT) or by letter to the following address:

Department of Physics
Queen Mary College
Mile End Road
LONDON E1 4NS

IBM Replacements

Cliff Pavelin, Head of Systems Group, reviewed the replacement programme. The CCC had recommended to Council to use an expected underspend in 1981/82 to bring forward the purchase of the IBM 3081D. The underspend is now insufficient to fund the purchase and Council was asked on 17 March 1982 to decide if the proposed purchase should go ahead as planned.

Council deferred the decision until the next meeting on 24 April 1982 and asked for further technical and financial information. Should the purchase go ahead it is believed that the delivery date of June/July can still be met by IBM.

OPERATIONS

Doug House, Head of Operations Group, reported that overall machine performance had been good with no major breakdown. Several periods of bad weather had caused minor disturbances to the service. The workload had been fairly constant and even low priority (1) had been executed without delay. Changes in rationing and control systems have been announced (FORUM 20,21). He reported that the 7.2 Gbytes of disk space was now available and could be used to expand public space, provide more permanently mounted private space and reduce drastically the number of disk mounts. There is

now only one 7-track tape drive. This is in line with the CCP policy to discontinue use of this type altogether.

SYSTEM SOFTWARE

ELECTRIC - The control part of the allocation and control system was introduced in September. Other changes which have been implemented are:

- a) Access to RHEL01 and FREED3 for OS copies.
- b) Support for the new style ROUTE parameter in the form ROUTE=priroute.secroute

The MUGMUP routed lineprinter output is now controlled such that only jobs with less than 5000 lines of output are sent to ELECTRIC during Prime-Shift. Longer jobs are processed overnight. This used to be the case but had fallen out of practice.

Tim Pett reviewed the major factors determining a final date for closure of the ELECTRIC service and the proposals for its rundown which users will have an opportunity to comment on.

- a) ELECTRIC requires an MWT service. When MWS is able to provide a production service it should be possible to determine a date for closure of the MWT service which will probably be during 1984 to allow a reasonable overlap between MWS and MWT. It is not desirable to provide MWT purely to support ELECTRIC and the closure of the latter should be at some time before that of the former.

- b) A rundown period for ELECTRIC will be defined during which Computing Division will apply minimal effort on ELECTRIC support. The main user activities in ELECTRIC should be to move files required for the future to CMS or other Front End services (ICF). It is proposed that Archived ELECTRIC files be deleted when the service is closed. Online ELECTRIC files will still be accessible from CMS in read only mode after the closure of ELECTRIC for a reasonable period. It may be possible to provide a utility to convert ELECTRIC EDIT files to CMS XPLANT files.

Enhancements to Graphics Software

The principal changes have been to the software available under CMS. During the second half of the year, the following have been installed or modified:

a) Output from a CMS graphics program can be sent to the common graphics filestore (MUGMUMP3) and/or a file on a READ/WRITE minidisk. Commands GVIEW, GCOPY, GERASE and LISTGNAP have been added or extended.

b) Output from a CMS graphics program can be routed to the FR80.

c) About 200 HELP files have been produced, covering all the basic SMOG routines (part B of the graphics manual). All previously existing graphics HELP files have been corrected, extended and generally overhauled, curing minor and major faults in them.

d) The illustrations for the graphics manual have been produced and the manual sent for reproduction.

There are currently three main areas of activity under CMS:

1) Development of handlers for all Sigma terminal models, including 5600, 5671/4 (abbreviated order code), 5664, 5470 and 5680.

2) Improvements in the DRAFT system.

3) Installation of an extensive software and (FR80) hardware font system, supported by SMOG routines, together with a modified FLIST program using the new facilities.

In addition, output from MVT graphics jobs to the FR80 and CMS graphics filestore are being worked on in conjunction with Systems Group.

There will be an article on Future Graphics Developments in the next edition of FORUM.

Multiple Virtual Storage (MVS)

MVS is the latest IBM operating system which we shall be running on the RAL central computers.

MVS is a paging system i.e. it allocates each task its own address space of up to 16mb which will contain the user program and some necessary system code and work areas. Because the available real storage is often much less than 16mb most of the task's area remains on auxiliary storage and only the active parts of the program are brought into real storage. Thus MVS can share the real storage resource among more programs and, by skillful scheduling, can utilize the CPU much more efficiently than under MVT.

MVS requires a HASP-like subsystem to administer the input and output of jobs and look after the queue of jobs awaiting execution. IBM provide two such subsystems, JES2 and JES3. Because it fits best with our current installation situation and with our future plans we have chosen JES3. Under JES3 one processor, the 'global', provides all the functions of job input and output, resource management, job scheduling and the operations interface (rather like our FEW). Any other processors, called 'locals', are just handed work to do by the 'global' (in an analogous way to the front-end-machine handling the back-end-machines).

The general implementation of the MVS service will have three main phases. The first phase will last a few months, during which a few basic facilities will be established. A second phase will allow a

limited service to some users and during which components required for the full service will be implemented. The third phase will involve the full system, when users will be migrated from the MVT service.

Unless you have anything in your programs which is MVT or HASP dependent your programs should run on the MVS system with no changes. Any programs that you write in the future can take advantage of the increased availability of 'virtual' storage, you will not have to worry about fitting your program into real storage. There are other facilities which MVS provides to make more efficient use of auxiliary storage, eg an improved access method for sequential datasets and VIO (Virtual Input Output) which provides better handling of temporary datasets.

The MVS service will be developed independently from MVT. The systems will not have access to the same disks. Tapes in active libraries will be available for MVT or MVS, but not for both at the same time. However, it will be possible to transfer tapes from one to the other. Generally, users will be expected to work on one system or the other.

The present auto-archive library management system involving the ULIB's cannot be implemented for MVS in a satisfactory manner. Alternative arrangements are being sought.

Please contact UIG if you think your program may be MVT or HASP dependent so that they can assess the level of program modification required and help you to be ready for MVS when it comes.

HASP - The new version of HASP now contains two major changes:

1) The new extended routing facilities, as described in 'HELP ROUTING' in CMS, now allows /*ROUTE to be used in free format.

2) All occurrences of UNIT=INTERNAL in a job are now translated to SYSOUT=(K, #JOB) to provide efficient communication with the HASP spool. The library SYS2.PROCLIB has been altered to accommodate this change, as it is read by the interpreter immediately before spooling onto the OS job queue.

VM AND CMS

CMS registration is being handled by Mrs Viv Walker of Resource Management section (ext 273). A limit of 10 new users per week is in force and anyone who is an existing ELECTRIC user can apply to Mrs Walker for registration. Non-ELECTRIC users should contact Dr Mike Jane (ext 408) to see if it is possible for them to be registered. When contacting Mrs Walker please supply the following details:

Surname, initials, title, address (work),
Telephone number, MVT identifier and account no(s),
Method of distribution of output (post, courier) or RAL pigeon hole),
LOGON password (maximum 8 characters, set to be the same as your CMS userid by default).

The userid in CMS is normally chosen to be the user's initials.

CMS Backup - It is not possible to provide a

facility to restore files that have been erased accidentally.

New CP and CMS Versions - CMS version 1.7 was installed last November and included a local modification to access only R2 files on the R-disk (ie, excluding the HELP files). CP version 1.7 was implemented in February, the only major change being to the LINK command, which now has a slightly different format.

User Profiles - user PROFILE EXEC's should now be written in a different form. They should include the command EXEC STANPROF as the first line, to be followed by additional commands. To permit commands specific to screens, the command CONSTYPE should be used.

User PROFILE XEDIT's should not be used to replace the system file. Instead, if the user wants his own modifications, he should create a file 'USERPROF XEDIT', which is executed at the end of the system standard profile.

Machine Size - The default virtual machine size has been increased to 512K with a maximum of 1M.

LIBRARIES AND PACKAGES

RHELIB

The FORTRAN callable bit-handling routines (TRIT, BITON, SHFTL etc) which are inherent in the H Ext+ compiler have been simulated in corresponding routines in SYS1.RHELIB (MVT) and RHELIB (XLIB) (CMS) for use by the G1 and VS Fortran compilers. Documentation will be available shortly.

On the MVT system, the function CPULFT(0) gives the time left in minutes for the execution of a job, and CPULFT(1) the time since the job began. Jobs running in CMSBATCH have a time limit, but those in private machines do not. A CMS version of CPULFT has been introduced which will give the time since the job started. The time left function can be calculated in CMSBATCH, but in the private machine a value of zero will be given unless the user defines an interval by making a call to the new routine CPUSPT(TIME).

The RHELIB routine ROUTES has been modified so that it can be called with two arguments or with one, providing support for secondary route parameters:

CALL ROUTES(ROUTE, SECOND)

CALL ROUTES(ROUTE)

CERNLIB - The new version of the CERN library is currently being installed. The library now has a multi-level structure. The lowest level, KERNLIB, contains a nucleus of basic and system-dependent routines, many of which are written in assembler. The second level library, PACKLIB, contains the large utility packages, such as HBOOK, which are all written in Fortran and only make external references to KERNLIB routines. The third level library, GENLIB, contains all the existing CERN library routines, except those appearing in KERNLIB and PACKLIB. We are installing version 0.0 of KERNLIB and the current Fortran IV versions of the remaining programs (these were the current versions at CERN on 1st December 1981).

We intend to use the same naming convention as CERN

for the library datasets, which are as follows:

CR.PUB.PRO.KERNLIB4	KERNLIB
CR.PUB.PRO.PACKLIB4	PACKLIB
CR.PUB.PRO.GENLIB4	GENLIB

where '4' indicates the Fortran IV version. Fortran 77 versions will be installed when they become available. It is hoped to make the library generally available under MVT by the end of April.

SMALL ITEMS

++U - This facility for communication with the PAO will be removed on 1 June 1982. It is not a satisfactory means of dealing with user questions. Users still have use of MESSAGE (ELECTRIC), ASKUS, TELLUS and GRIPE (CMS), and the telephone (Abingdon(0235) - 21900, ext 6111) if they experience problems. It should be noted that an 'Ansafone' is attached so that messages are recorded out of office hours and when the advisors are busy.

++T - Also on 1 June 1982 the ++T terminal will be removed. Messages to the tape librarian should be sent to ELECTRIC ID=JU, or to the CMS userid=TAPELIB.

Short Jobs - The boundary between Short and Long jobs is now 5 minutes.

UNIX - Amdahl's version of UNIX, known as the Universal Time Sharing System, was run for a trial period of 5 months in a virtual machine on the 3032. Its use was discontinued at the end of the year, mainly because of the adverse effect it was having on the performance of other CMS users.

VM User Reference Manual - Version 1.7 of this manual is now available. For CMS users the RAL VM/370 reference card is also available.

Standardisation of User Interfaces - a study of this is being carried out by a joint committee involving the computing divisions at RAL and DL. Some minor changes to the MVT facilities may result but most of the work is directed toward MVS. A comparison of the catalogue procedure library with DL has shown a number of differences, most of which will be modified at DL.

Catalogue Procedures - In addition, a number of minor changes to the catalogue procedure library, 'SYS2.PROCLIB', will be made, and any suggestions from users will be welcomed. Recent changes include the removal of all references to WORK30, DISK30, TEMP14 and UNIT=INTERNAL. Users are reminded that advice on writing their own catalogue procedures can be sought from PAO.

2. ARPANET ACCESS

SERC users wishing to use ARPANET to access machines in the USA are reminded that formal approval is required from SERC and the ARPANET Governing Committee. Approved users are provided with identifiers and password and must observe the strict rule that this is only for their use. Anyone who allows their identifier and password to be used by someone not authorised to access ARPANET will have their approval withdrawn immediately. Use of this International Network is carefully