

8-15-1980

# User Services External Report

Lehigh University

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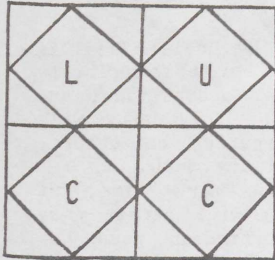
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# USER SERVICES EXTERNAL REPORT

LEHIGH UNIVERSITY COMPUTING CENTER  
 CDC 6400 (CM 96KW, ECS 1/8 MW, SCOPE 3.4.4)  
 DECSYSTEM-2060 (512KW MEMORY, TOPS-20 V3A)  
 PDP 11/34 (96KW MEMORY, RSTS/E V7.0)

Vol. VIII, No. 1  
 August 15, 1980

## COMPUTING CENTER DIRECTORY

### Information About Policies and Plans

Office of the Director  
 Director 861-3830  
 Dr. Ben L. Wechsler  
 Associate Director 861-3990  
 William R. Harris

### Information About Bills Received

Administrative Assistant 861-3825  
 Joseph P. Holzer  
 Annette L. Ruhe

### User Consultants

Timothy J. Foley 861-3994  
 Emilie S. Melvin 861-3992  
 Robert A. Pfenning 861-3991

### Information About Programs in the Computer Libraries

Data Processing Librarian 861-3993  
 Margaret W. East

### Systems Status, Technical Information

On-duty Consultant 861-4141

### General User Information

User Services Secretary 861-3990  
 Judy K. Allio

### Information about Operational Policies

Operations Manager 861-3989  
 Carol D. Rauch

### Information About Tapes and Supplies

Operations Admin. Assist. 861-3986  
 Kathy M. Horwath

### On-Campus Computer Access (110/300 Baud)

CDC 6400 Ext. 4000  
 DEC 20 Ext. 4020  
 PDP 11/34 Ext. 4011

### Off-Campus Computer Access

CDC 6400 (110/300 Baud) 691-5800  
 (1200 Baud) 691-5806  
 DEC 20 (110/300 Baud) 868-2250  
 PDP 11/34 (110/300 Baud) 868-9350

## SUBSCRIBERS WANTED!

This issue of USER is being widely distributed on campus in an effort to attract more readers. All on-campus users who want to receive future copies are asked to please complete and return the subscription form on the last page. Receiving the bi-monthly copies of USER is one of the easiest ways to keep aware of the changes and growth in computing services on-campus. Off-campus users will continue to receive USER until they specifically request to be deleted from the mailing list.

## DIRECTOR'S DISCOURSE

### 1979-80 Academic Year Review and Future Plans

For the Computing Center, 1979-80 was a year of many changes and activity, not all perceptible by the user community. The improvements made in interactive services were obvious, but the planning activity for the eventual replacement of the CDC 6400 was not completely discernible to most users.

The following is a quick review of some of the activities that took place over the past year.

- COMPUTING RESOURCES AND FACILITIES - Due to the continuing growth of users' needs for computing services, a committee of users and LUCC representatives produced during the year two sets of requirements covering a five year span for computing resources - one for the batch environment and another for the interactive environment. The interactive requirements study provided a basis for the following upgrades to the DECSYSTEM-20 in academic year 1979-80:

- \* On October 23, the DECSYSTEM-20 was upgraded from a 2040 to a 2050 with the addition of cache memory.
- \* On January 22, two RP06 disk drives were installed, doubling the amount of disk space on the system.



\* On February 4, the 2050 was upgraded to a 2060.

\* On February 25 and 26, the 2060 memory was upgraded from 256K to 512K.

\* An additional 8 ports, bringing the total to 56, were installed in July, 1980.

- In addition, a 24-hour public site containing 10 interactive terminals was installed in Williams Hall for the fall semester. Replacement of the Varian front-end computer to the CDC 6400 was planned for this fall, with the delivery of a CDC 2550 in July, 1980. As our users are aware this plan was accelerated due to the demise of the Varian on May 8, 1980. After exhaustive attempts to repair the Varian, CDC was requested, and did, accelerate the delivery of the 2550 front-end. Full interactive service with the 2550 was restored the week of June 23.

- The requirements for batch processing, along with unmet needs from the interactive requirements study, posed a larger and more difficult problem. Since most batch processing is done on our 12-year-old CDC 6400, the requirements were transformed into a request-for-proposal to replace the 6400 and sent to CDC, IBM, and DEC in May, 1980. (For more details regarding the process see past issues of USER). The proposals were submitted to Lehigh June 2, and were then reviewed by a Technical Committee, composed of representatives from the faculty, Administrative Systems, and the Computing Center. The Technical Committee made their recommendation to the Recommendation Committee (the Vice President and Provost, Vice President and Treasurer, Vice President for Research, and Vice President for Administration and Planning) on July 1. The Recommendation Committee endorsed the Technical Committee's Report and President Lewis concurred in the findings and recommendations. On July 31 actions were started for the acquisition of a CDC CYBER 720 and an IBM 4331 to replace the CDC 6400. The IBM 4331 is to provide highest priority for Administrative Systems use but both systems are to serve the University's educational, research and administrative needs. Final approval of this action is pending approval of the Board of Trustees.

These actions are in large part based upon the findings of the Technical Committee which stated in its report:

"It should be noted that the option consisting of the 720/4331 opens to the Lehigh community a wider variety of computing capabilities than were

previously possible. If the IBM 4331 is made available, under suitable priority policies, then both the educational and research arms of the University will have an additional computer architecture, as well as its ancillary software, for utilization. At the same time, of course, the IBM 4331 will permit easy application of a particular group of software packages useful in performing administrative services. We believe, therefore, that this option cannot help but enhance the overall academic program and administrative services at Lehigh.

The singular and significant advantage of enhancing the educational and research programs is realized by treating the 4331 as a nondedicated administrative system."

This action, in conjunction with the DEC 2060 system, will make the three leading computing systems in the country available to the campus community and will certainly enhance the computing services available to all users.

Now that the study is completed the important work of implementation has been started. The following is our schedule of major events:

1. Renovation of the machine room - November 30, 1980
2. Installation of the IBM 4331 - December, 1980/January, 1981
3. Installation of the NOS/BE operating system on the CDC 6400 - December, 1980/June, 1981
4. Installation of the CYBER 720 - July/August, 1981

A fairly comprehensive training plan is being completed at the present time and details concerning it will be made available to the campus at an early date.

- Other enhancements to computing resources were the conversion to a new magnetic tape system consisting of one seven-track and three nine-track drives (the last old drive was removed June 1), the replacement in July of a CDC 844-21 disk drive with a 844-41 drive, and the addition of a second disk/tape controller and another 844-41 disk drive. The disk system upgrade increased disk storage by approximately 300 million characters.
- User facilities were improved by the previously mentioned opening of the Williams Hall 24-hour interactive site. Last summer the Packard Lab Users' Area lighting, consulting area, and noise control were improved.
- SOFTWARE CHANGES - Few major user-visible changes were made to the SCOPE operating system over the past year. The DEC 20



system was updated to TOPS 20 Version 3A in December. APL was acquired for both the DEC 20 and the PDP 11/34. Use of this language will begin in the fall. IQL, an interactive query language, was installed on the DEC 20.

MTBF (HOURS)  
1979-80      1978-80

CDC 6400 Batch	441.0	90.5
CDC 6400 INTERCOM	60.0	14.7
DEC 20	64.0	38.9
PDP 11/34	328.0	98.0

- OPERATING AND CONSULTING HOURS - LUCC again increased operating hours last year by one hour each weekday evening. Currently the operator at Packard accepts input until midnight during long hours. In academic year 1980-81, LUCC will again increase operating hours by one hour each weekday and eliminate lunch hour shutdowns on weekends.

- Consulting for users in Packard was increased by 31 hours per week in the spring of 1980. Under the revised schedule, a User Services Consultant was at the desk in Packard Lab from 8 AM to 6 PM (5 PM on Friday), and consulting by undergraduate students was instituted in the evenings on weekdays, 2 PM to 5 PM on Saturdays, and 2 PM to 5 PM/7 PM to 10 PM on Sundays.

- RELIABILITY - Reliability of LUCC computing service for the 6400 batch, INTERCOM, DEC 20, and PDP 11/34 services is measured in terms of mean-time-between-failure (MTBF). This is calculated by dividing the total amount of available supported time for the service by the number of interruptions within the period. In terms of this measurement, reliability for all four services decreased last year.

- Reliability on the CDC 6400 batch system, and INTERCOM services declined due to the Varian front-end problems and a very elusive software problem affecting the batch system. As mentioned previously, the Varian has been replaced. The software problem was fixed after extensive efforts by LUCC's systems programmers.

- Lower reliability on the DEC 20 was caused, to a great extent, by the many hardware changes made to the machine during the academic year while upgrading from a DEC 2040 to a DEC 2060. We expect a return to normal reliability in 1980-81.

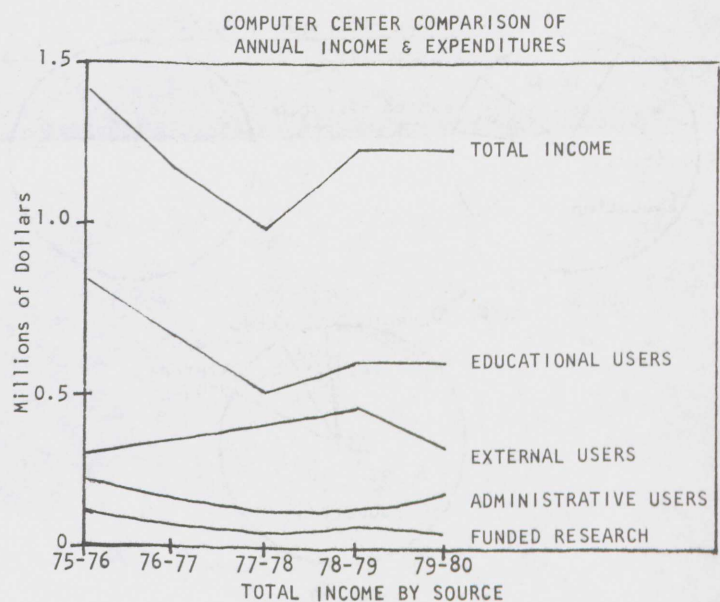
- Lower reliability on the PDP 11/34 was due primarily to CPU and disk hardware problems occurring between semesters and at the beginning of the spring semester. These problems have been resolved by the CDC Customer Engineers who also maintain the PDP computers on campus.

- In terms of availability, all four services were available between 97% and 98% of scheduled time. The following are the MTBF figures compared with the previous year:

- FINANCIAL - The most significant financial problem facing the Computing Center during the year was the decrease in external income. Although significant effort was made to reverse this trend, including canvassing external organizations in an attempt to broaden our base of external users, the decreasing external use could not be reversed. This problem was handled in FY 79-80 by reducing expenditures but reductions in expenditures of a similar magnitude will not be possible in the future because of the computer upgrade actions currently contemplated.

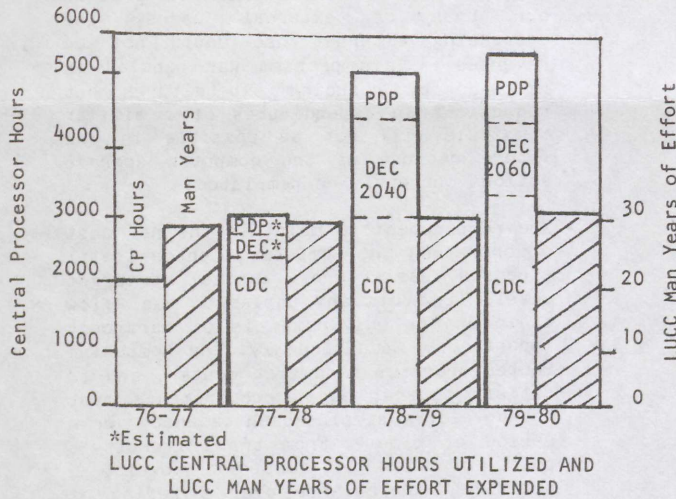
- The requirement to maintain the net cost of operating the Computing Center (total expenses less external income) at target levels to avoid any unplanned cash flow drain on the University is of paramount importance. Additionally, the Computing Center operates as a cost center, and to satisfy federal audit requirements must not develop a surplus cash balance over a period of time. From the University's point of view it must not develop a negative cash balance over a period of time.

- The following figure shows total computer income by source, in millions of dollars, for the period 1975-76 to 1979-80.

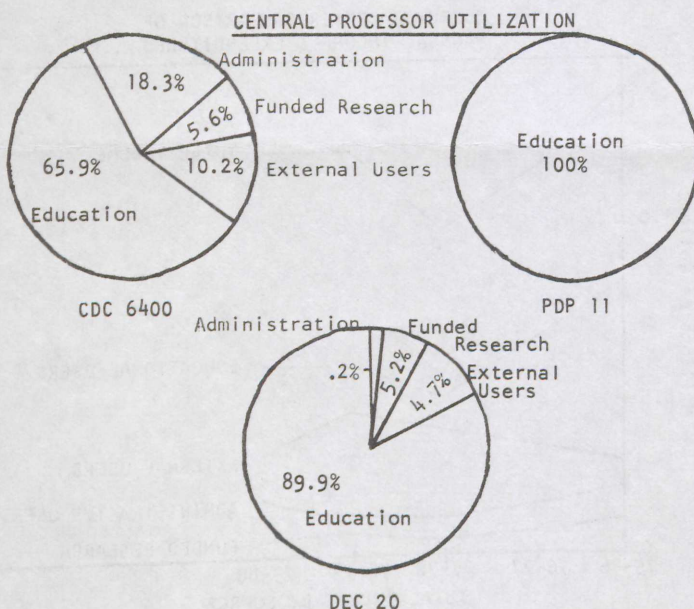




- COMPUTER USAGE - The rapid growth experienced in 78-79 appears to have tapered off to a more reasonable rate in 79-80. It must be kept in mind however, that the CDC 6400 is virtually at capacity and that the DEC 2060 is doing twice as much computational effort per hour as the DEC 2040. The range of services being provided by LUCC, as well as computer usage, is continuing to grow. All indications are that growth will continue into the immediate future. Increases in LUCC manpower over the next few years must be anticipated and are being planned for accordingly. Shown below are central processor hours usage and LUCC man years of effort.



- Shown below are the percentages of central processor resources utilized by user category.



## ADMINISTRATIVE SYSTEMS

By P. W. Sire

In last month's issue of USER we noted that a different administrative package would be highlighted in succeeding issues. This month we highlight the Information Associates, Inc. (IAI) Student Records System (SRS).

The IAI Student Records System is a comprehensive data processing system designed to support the traditional functions of a Registrar's Office and, at the same time, to maintain a complete data base of student information to support the increased responsibilities of the Registrar.

The capabilities of the system may be summarized as follows:

- Maintenance and publication of course directories and schedules.
- Maintenance of student biographic and demographic data.
- Registration activity, including pre-registration and drop/add.
- Operational reporting, such as class lists, student schedules, enrollment reports, and so forth.
- Grade collection and reporting and calculation of academic performance indices.
- Maintenance and production of academic transcripts.
- On-line data entry and query/display.

Beyond this, SRS is intended to be the foundation of a comprehensive student information system. Through the use of interfaces between SRS and other subsystems (either IAI products or other externally or internally-developed systems), the operational aspects of dealing with students can be supported effectively. Management information requirements, which are so vital for the effective administration of a modern university, can be supported to a large extent by the IAI report Generator. The SRS data base provides official and accurate data for planning systems or other more extensive reporting capabilities developed by the institution.

The SRS Project commenced July, 1980 and has been scheduled for completion in the summer of 1981. The Project Team and supporting committees are staffed as follows:

### Team

Contract Admin.	P. Parr	V.P.-Student Affairs
Proj. Manager	C. Biser	Assoc. Registrar
Functional Specialist	E. Eigenbrot	Assist. Registrar
Librarian	K. Hanner	Clerk



Technical Specialist R. Gruver Senior Sysys. Analyst

Implementation Committee

\*C. Biser Associate Registrar  
 G. Lutz Associate Prof.  
 E. Zimmers Associate Prof.  
 S. Missimer Dir. of Admissions  
 J. Petronio Bursar  
 N. Van Gieson Assistant Provost  
 W. Stanford Dir., Undergrad. Fin. Aid.  
 J. Niemeyer Exec. Dir. Alumni Assoc.

Registrar's Advisory Committee

J. King Professor  
 R. Mills Professor  
 C. Clump Dean Coll. Engr./Phy. Sci.  
 P. Zirkel Dean, School of Education  
 A. Richards Div. Dir. CMES  
 J. Wood Professor  
 D. Chapin Student  
 R. Barnes Professor

Technical Committee

\*R. Gruver Senior Sysys. Analyst  
 G. Fullman Mgr., Control Grp.  
 P. Sire Dir., Admin. Sysys.  
 W. Hoffman Senior Sysys. Analyst

\* Indicates Chairman

FROM THE LIBRARIAN

Modified Program - CDC 6400

\*SIR - Scientific Information Retrieval (S00005)

Two new releases of SIR have been installed updating the program to version 1.1G. A list of errors fixed by these new releases is available from the Librarian, Room 117 Packard Laboratory. There is a supplement to and a correction to the SIR User's Manual (page 4-41) which are available in the Packard Laboratory Reference Area.

FTN3/FTN4 Users

Effective August 11, the default FTN (FORTRAN Extended) compiler became FTN4 (it was FTN3). Thus, an FTN control card will access FTN4 on and after August 11 with or without the use of a NEW(FTN) control card. To access FTN3, an OLD(FTN) control card will have to precede the FTN card. Likewise, an interactive user of system FTN in SENATOR need do nothing after August 11 to utilize FTN4, but to use FTN3 will need to issue an OLD(FTN) command either before entering SENATOR or in SCOPE (SCP) mode of SENATOR.

\*\*\*WARNING\*\*\* programs and subprograms compiled with FTN3 cannot be used with those compiled with FTN4. Also, data files written with an unformatted write statement in FTN3 cannot be read with an unformatted read statement in FTN4, and vice versa.

In an effort to eliminate the maintenance of overlapping capabilities, the computing center is considering the dropping of support for FTN3. Users are encouraged to contact User Services if loss of support for FTN3 would cause them problems.

Further Restoration of Varian Features

On July 14, a number of the software features previously supported by the Varian were reimplemented on the CDC 6400. They include: %D, %T, %C, %W and FEWSPA. In addition, trailing blanks are suppressed in most cases. Further information is available from User Services.

EDUNET Applications

Faculty members interested in using EDUNET for instructional purposes or university funded research should contact Margaret East in User Services, extension 3993.

The deadline for submission of requests for funds to use EDUNET is September 10, 1980. The next review of requests will be in February, 1981.

OPERATIONS OBSERVATIONS

New Liquid Ink and 30 Inch Plot Procedures

Effective July 2, a yellow Special Submission Card is no longer required for CDC 6400 jobs which produce either liquid ink or 30 inch plots. Note, however, that the proper DISPOSE card is still required in the SCOPE control card record.

If no Special Submission Card accompanies the job, the following conditions will prevail by default:

- 30 inch plots will be plotted using liquid ink.
- All liquid ink plots will be done with a .5 mm pen.
- Only black liquid ink will be used (no other color is available).

Any changes in the above conditions will require the use of a yellow Special Submission Card; e.g., a 30 inch plot is desired utilizing a ball point pen, or a liquid ink plot is desired using a .3 mm pen.

MAGNETIC TAPE TO BE RELEASED

LUCC still does not have a Tape Save Request Form for VSN A305. We think the owner is J. W. Pearce. Since that name is not listed in the campus directory, anyone who knows what department



Pearce came from, please notify us.

If we do not hear from anyone by September 30, 1980, the tape will be released to scratch.

Also, once again we ask your help in removing inactive tapes from the computer room. See Kathy Horwath in Room 154 Packard Laboratory between 9 AM and 3 PM if you would like to remove any tapes from the tape library.

FALL SEMINARS

The following is a list of the seminars scheduled for the fall semester. All seminars will be held from 4:10 PM to 5:00 PM on the dates and in the rooms indicated below. Please contact Tim Foley at Ext. 3994 to sign up for the seminars or if you have any questions.

FALL SEMINAR SCHEDULE

<u>TITLE</u>	<u>DATE/PLACE</u>
Introduction to Lehigh University's Computing Center	Sept. 4 208 Packard Lab
Elementary SCOPE Control Language	Sept. 10 208 Packard Lab
Introduction to the DEC 2060	Sept. 9, 11 208 Packard Lab
Interactive Computing on the CDC 6400	Sept. 16 208 Packard Lab
Introduction to the DEC 2060 EDITOR	Sept. 15, 17 208 Drown Hall
Using SENATOR, the interactive text editor on the CDC 6400	Sept. 22, 24 208 Packard Lab
Introduction to SPSS	Sept. 29 Oct. 6, 15 208 Packard Lab
Text Formatting Using SCRIBE	Sept. 29 Oct. 1, 6 208 Drown Hall
Introduction to UPDATE	Sept. 23, 25 208 Packard Lab
Introduction to APL	Oct. 14, 16 21, 23 208 Packard Lab

RESULTS OF USER OPINION SURVEY

Below are the questions and results from the spring user opinion survey in which approximately 350 people participated. As a point of comparison, the results from a similar survey conducted in the spring of 1977 are included also. Responses were coded as follows:

4 = very good      2 = fair  
3 = good            1 = poor

	<u>1980 Median</u>	<u>1977 Median</u>
1. Knowledge displayed by full-time staff	3.1	
2. DEC 20 response time	3.0	
3. Attitude displayed by full-time staff	2.9	2.7
4. Quality of documentation, handouts, and user's guides	2.8	2.6
5. Quality of user's library	2.8	
6. Interactive access hours	2.8	
7. Attitude of student consultants at Packard	2.8	2.7
8. PDP 11/34 response time	2.8	
9. Maintenance of terminals	2.7	
10. Packard access hours	2.7	
11. Knowledge displayed by student consultants at remote sites	2.7	2.9
12. Full time staff availability	2.7	
13. Availability of student consultants at Packard Lab	2.7	2.3
14. Attitude of student consultants at remote sites	2.6	2.8
15. Knowledge displayed by student consultants at Packard Lab	2.6	2.8
16. Availability of student consultants at remote sites	2.6	2.7
17. Attitude displayed by operators	2.6	
18. work space at remote sites	2.6	2.6
19. Availability of keypunches at remote sites	2.5	2.5
20. CDC response time	2.5	2.8
21. Consulting on 4141 (hotline)	2.4	2.6
22. Availability of PDP 11/34 terminals	2.3	
23. Turnaround time for jobs at remote sites	2.3	2.9

24. Adequacy of work space at interactive sites	2.2	2.5	<u>USAGE STATISTICS</u>		
25. Availability of keypunches at Packard Lab	2.2	2.0	<u>CDC 6400</u>		
26. Maintenance of keypunches at remote sites	2.2		BATCH -	<u>6/80</u>	<u>7/80</u>
27. Turnaround time for jobs at Packard Lab	2.2	2.0	Jobs Processed	21,690	20,772
28. Availability of CDC 6400 terminals	2.1	1.9	Central Site	16,600	14,628
29. Availability of DEC 2060 terminals	2.0		INTERCOM -		
30. Maintenance of keypunches at Packard Lab	2.0		Terminal Sessions	4,370	5,239
31. Reliability of CDC 734 remote batch terminal	1.9		Connect Hours	2,919	2,203
32. Adequacy of user work space at Packard	1.9		CPU Hours - Batch	296.0	319.7
33. Number of printing terminals available	1.8		- INTERCOM	18.5	19.9
			<u>DECSYSTEM-20</u>		
			Terminal Sessions	<u>6/80</u>	<u>7/80</u>
			Connect Hours	6,760	6,040
			CPU Hours - All Jobs	2,628	2,430
				51.3	53.3
			<u>PDP 11/34</u>		
			Connect Hours	<u>6/80</u>	<u>7/80</u>
			CPU Hours	1,503	2,389
				137.4	212.2

OPERATIONAL STATISTICS

CDC 6400

	<u>6/80</u>	<u>7/80</u>
Time System Available During Scheduled Hours (Percentage)		
Batch	99.6	99.8
INTERCOM	98.2	33.9
Mean Time Between Interruptions (Hours)		
Batch	111.2	113.2
INTERCOM	32.9	33.9

DECSYSTEM-20

	<u>6/80</u>	<u>7/80</u>
Time System Available During Scheduled Hours (Percentage)	94.2	97.8
Mean Time Between Interruptions (Hours)	29.7	19.9

PDP 11/34

	<u>6/80</u>	<u>7/80</u>
Time System Available During Scheduled Hours (Percentage)	99.8	99.9
Mean Time Between Interruptions (Hours)	161.2	112.3