

# PRENTICE COMPUTER CENTRE

UNIVERSITY OF QUEENSLAND, ST. LUCIA, QUEENSLAND, AUSTRALIA. 4067.



## NEWSLETTER

N-267

28-September-81

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Principal Service Centres

Extensions

|  |       |      |
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| Operations Manager                         |       | 3471 |
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| Contract Programming & Feasibility Studies |       | 3944 |
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| Griffith University:                       |       |      |
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| Computer Services                          |       | 7560 |

## 1.0 CAMPUS COMMUNICATIONS NETWORK

There is much interest in the progress of the Campus Communications Network and the following provides a brief report on status.

There are five stages currently being implemented which includes the following buildings: Commerce, Connell, Duhig, Social Sciences, Central Library, Steele, Bookshop, Richards, Michie, Forgan Smith, Biological Sciences, Goddard, Parnell, Physics Annex, Hines, Microbiology, Chemistry, MacGregor, J.D. Story, Priestley, Seddon, Hartley Teakle, Otto Hirschfeld, Therapies. External duct work to allow access to these buildings is now complete and currently cable tray is being installed in the tunnel and individual access to each building is being arranged. Following this, 9 x 100 pair Telecom type cables will be installed from an MDF (Main Distribution Frame) in Hawken to new MDFs in the above buildings. Finally, internal cabling will be installed to each terminal and a "Line Driver" (Telecom modem replacement) is required at each end of the line. These Line Drivers are currently being produced in the Computer Centre.

I expect the first services will be cut over around December-January and will be in Priestley and buildings on the Great Court. The total installation in the first five stages will probably take 6 to 9 months.

The cost to the user has not been finally fixed as yet, however it is expected that there will be two basic services offered.

1. Async 300-2400 bps at about the same cost as a Telecom 300 bps is at present (\$150). That is, you can increase the line speed on VDUs at no increase in cost.
2. Async/Sync 4800-9600 bps is expected to be significantly less than the current Telecom charges.

I should emphasise that this is my guess (from a technical viewpoint) of the possible charges. The final position will be determined by the University Authorities on the recommendation of the Bursar. The development was funded on the basis that current charges to Telecom would enable the investment to be recovered in a three year period.

You will no doubt find Mr Lloyd Fischle crawling around in your ceiling at some stage. Don't panic! Lloyd has been employed specifically to install the new system. Your cooperation with Lloyd would be appreciated as this is a somewhat arduous and awkward job on occasions (and remember, Lloyd will also be maintaining this network later).

The engineering precinct requires considerable external duct work which I expect Buildings and Grounds would have to arrange over the Christmas break.

Graham Rees  
extension 3288

## 2.0 DATEL PRIVATE LINES AND MODEMS

Telecom has increased its charges for modems and lines as from 1 September, 1981. This means that we will be invoiced in January 1982 for the "make up" charges for existing installations. For a 300 bps "On Campus" modem installation the "make up" charge will be in the region of \$12.00.

Charges for modems from 1 September, 1981 will be:

| Speed<br>bps | ST LUCIA CAMPUS |              | OTHER SITES |              |
|--------------|-----------------|--------------|-------------|--------------|
|              | Rental          | Installation | Rental      | Installation |
| 300          | 180             | 216          | 300         | 360          |
| 1200         | 432             | 240          | 720         | 400          |
| 9600         | 1800            | 432          | 3000        | 720          |

Line rental charges for each kilometre or part thereof up to 35 kilometres will be: 300 bps \$48; 1200 bps \$62; 9600 bps \$160.

Dal Anderson  
extension 3166

## 3.0 SPSS CORNER - VAX/KL10 COSTS

For users who may be contemplating processing SPSS jobs on the VAX, the following figures should prove interesting - perhaps even tempting!

Case 1 (A small job)

The data file contained 100 cases of 61 variables (11 blocks), the values taken by the variables being as follows:

58 variables had single digit values; 2 had double digit values; 1 had triple digit values.

The particular variables used were:

V2, taking values 1 through 6  
V3, " " 1 or 2  
V4, " " 1 through 9  
V26, " " 1 through 8  
V39, " " 1 through 9  
V54, " " 1 through 9

Each of the six variables above was given a value label; each value for each of these variables was given a value label.

All blanks were assigned the value 99

(using the card ASSIGN BLANKS 99 on the KL  
and the card RECODE ALL (BLANK=99) on the VAX),

which was subsequently declared missing via a MISSING VALUES card.

The SPSS run requested the following:

(a) FREQUENCIES GENERAL = V2,V3,V4,V26,V39,V54  
(b) CROSSTABS TABLES = V2 by V26,V39,V54/V4 by V26,V39  
(c) DISCRIMINANT GROUPS = V3(1,2)/VARIABLES=V2,V4,V26,V39,V54/  
METHOD = WILKS/  
OPTIONS 8  
STATISTICS 1,2,6

The results:

- (i) KL10 Cost = \$2.52 (using default space 3K)
- (ii) VAX Cost = \$0.85 (using default space 80# bytes and  
default labelspace 30# bytes)

i.e. VAX cost = 34% of KL10 cost (approx.)

Note: Both runs (and those discussed below) were performed during prime time.

Case 2 (A larger job)

The data consisted of 215 cases of 428 variables (164 blocks). The distribution of value-types were:

392 variables of type F1.0, 10 of type F2.0, 3 of type F3.0, 2 of type F6.0, 11 of type A1, 3 of type A2, 6 of type A3, 1 of type A4.

The run consisted of a very large number of COMPUTE operations, followed by the determination of a small set of frequency tables.

For the KL10, a /SPACE:14 switch was required with an ALLOCATE TRANSPACE=12000 card.

For the VAX (using default space) an ALLOCATE TRANSPACE=50000 card was used.

The results:

- (i) KL10 Cost = \$21.79
- (ii) VAX Cost = \$6.59

i.e. VAX cost = 30% of KL10 cost (approx.).

General Comment:

For SPSS jobs demanding very large space requirements, the proportional savings should be even more dramatic.

Barry Maher  
extension 3021

4.0 YET ANOTHER PLOTTING PROGRAM

ZPLOT is an interactive program for producing graphs on the CalComp-565 (275 mm), CalComp-936 (836 mm) or the CalComp-1012 (275 mm at Griffith) plotters. The program was designed to produce graphs for a thesis or to be submitted to a journal as part of a publication. The position and character size of the numeration and the title are fully adjustable and, unlike of the other plotting packages available, axis numeration is oriented horizontally on both X and Y axes.

ZPLOT can be run on the KL as follows:

.RUN PLO:ZPLOT

ZPLOT is an interactive program for producing graphs on the CalComp-565 (PLT0), CalComp-936 (PLT1) and the CalComp-1012 (PLT2)

plotters.

Version: 31-Aug-81.

Jobname?: Up to 6 characters to identify the output file.

Which plotter, PLT0, PLT1 or PLT2?: PLT1 or 1  
page height for PLT1 is 836.5 mm.

Page width?: Give an upper limit in mm.

Is 'OUT OF BOUNDS' to be a fatal error?: Yes if you want the job to abort if the pen crosses the page boundary.

Type 'HELP' for a list of commands.

Which command?:

The following commands are recognised by ZPLOT:

|          |   |
|----------|---|
| HELP     | Types this message.   |
| INFO     | Types helpful information.  |
| SET      | Outputs a message to the Operator indicating the desired arrangement of a possible 3 pens on PLT1 or 4 on PLT2. |
| PEN      | Chooses one of the pens specified by SET for plotting.  |
| BOX      | Plots an A4 sized box according to a standard partition of the plotting page.                                   |
| ORIGIN   | Defines a new origin. The origin is originally set to the bottom left hand corner of the plotting page.         |
| AXIS     | Draws an axis with annotation and a title, if desired.  |
| CALENDAR | Draws an axis with calendar annotation and a title, if desired.   |
| FETCH    | Inputs data from DSK:   |
| DATA     | Inputs data from TTY:   |
| DEVS     | Plots a symbol plus a vertical bar.   |
| POINTS   | Plots symbols at points specified by a previous call to DATA or FETCH.  |
| NUMBER   | Numbers the points sequentially.  |
| LINE     | Plots a line through a series of points specified by a previous call to DATA or FETCH.                          |
| FUNCTION | Plots a linear, power, log, in or exp function.   |
| SHADE    | Shades the intervening space between the two previously drawn lines or series of points.                        |
| TEXT     | Plots a string of text.   |
| XSCALE   | Over-rides the implicit scaling transforms specified by previous calls to AXIS.                                 |
| YSCALE   | Over-rides the implicit scaling transforms specified by previous calls to AXIS.                                 |
| WHERE    | Gives pen and origin locations and the scaling transforms currently in force.                                   |
| PAGE     | Sets up a new plotting page and closes the plot file for the previous page.                                     |
| EXIT     | Causes a clean exit from ZPLOT.   |

Any of these commands may be abbreviated to two or more characters.

Further information can be obtained by printing DOC:ZPLOT.DOC.

Arthur Georges  
(Zoology Department)  
extension 2475

## 5.0 INFORMATION CONCERNING COURSES

### (a) 1981 Courses

The following schedule outlines the courses to be offered during the remainder of 1981:

#### October Courses

1. VAX (G.U.) : September 7  
(inc. languages) 1 full day 9.15-12.00am + 2-5pm
2. VAX (G.U.) : September 8  
(inc. SPSS) 1 full day 9.15-12.00am + 2-5pm

Note: Details for the above two courses have been circulated internally at Griffith University.

3. Elementary BASIC : October 19 - October 21  
Programming 3 full days 9-12.00am + 2-5pm each day

#### November Courses

1. Introduction to PDP-10 : November 2 - November 3  
2 full days 9-12.00am + 2-5pm each day
2. Introduction to PDP-10 : November 5 - November 6  
2 full days 9-12.00am + 2-5pm each day
3. RUNOFF : November 9 - November 11  
3 full days 9-12.00am + 2-5pm each day
4. SPSS : November 16 - November 20  
5 half days 9 - 12.00 am each day
5. VAX Conversion Course : November 17 - November 18  
(for current KL10 users only) 2 half days 2-5pm each day

6. Elementary FORTRAN : November 30 - December 4  
Programming 5 full days 9-12.00am + 2-5pm each day

(b) 1982 Courses

A schedule of courses for the beginning of 1982 will be announced in the October Newsletter.

(c) General Notes

1. Users not already with the PDP-10 system must attend the course "Introduction to PDP-10" before enrolling in other courses.
2. All courses (except those designated as G.U.) are held in the Client Room, Hawken Building, St. Lucia.
3. No charge is made for staff and post-graduate students attending these courses. All other users are required to pay a fee of \$10.00 per half-day session.
4. The Centre reserves the right to cancel courses where insufficient enrolments are received.
5. The current schedule of courses may be obtained by issuing the command .TYPE HLP:COURSE.HLP.
6. Enrolments for all courses may be made by contacting

Barry Maher  
extension 3021

6.0 LIBRARY NEWS

The SOLAR package is a series of programs and subprograms capable of calculating a variety of sun-related quantities.

The package was developed by the CSIRO Division of Land Use Research for the CYBER 76 system and has been adapted to run on the PDP10-KL system.

There are two programs available with SOLAR:

1. Program CLOUDY

The program estimates mean monthly values of both clear day and average solar radiation for both horizontal and inclined surfaces. It takes into account water vapour content and dust effects in the atmosphere on a monthly basis and can account for horizon elevation effects. It further calculates appropriate radiation indices monthly and annually.

To run CLOUDY, the following is required:  
. RUN NEW:CLOUDY

2. Program DAYTAB

DAYTAB prepares a table of sunrise, sunset and daylength for every day of the year.

To run DAYTAB, the following is required:  
. RUN NEW:DAYTAB

The following subroutines are also available:

To load any subprograms into a program, the following is required:

. LOAD program name,NEW:SOLAR/SEA

| <u>SUBROUTINE</u> | <u>DESCRIPTION</u>  |
|-------------------|---|
| PLAORM            | Calculate the normal vectors to the sloping plane.  |
| SETUP             | Read off Horizon characteristics.   |
| SUND              | Calculates Solar Altitude, Azimuth, together with various measures of intensity.                      |
| SUNTOT            | Calculates various components of total radiation above and below the atmosphere.                      |
| SUNERP            | Returns value of total radiation for particular type for particular time.                             |
| TIMER             | Converts time in mins since midnight to HHMM.   |
| SOLAR             | Calculates solar position beam attenuation and scattering.  |
| COORD             | Converts Latitude and Longitude in degrees and minutes, Hour Zone into radians and calculates the SIN |

and COS of the radian values.

UT Convert Time in local civil form to minutes since 01.40 on 4th January, 1950.

NEWSUN Update the sun-earth vector.

ZVETOR Calculate current value of zenith vector at nominated location.

NOLOC NOLOC is called either by function UT or subroutine ZVETOR. It is called if either of these are entered without having passed through COORD first.

DOT Calculate the dot product of two vectors.

UNIVEC Find the unit vector of the input vector of 3 elements.

CROSS Calculate the cross-product of two vectors.

SOLPOS Computes the Zenith vector and returns the solar altitude and azimuth.

ALTTUD Calculates altitude of horizon at a given azimuth.

SOLTIM Calculates Daylength and related variables.

TU Perform the inverse of UT - split up a UT time into month, day, year etc.

Documentation is available on DOC:SOLAR.DOC.

Any enquiries contact

Leonie Roberts or Ann Mowles  
extension 3943 Griffith University  
extension 7489

## 6.1 IMSL

The IMSL Library is a set of computational subroutines designed to be used in the development of scientific and engineering application programs. A maintenance release (8.1) has been received consisting of minor changes to some routines. The new version is on NEW: and can be accessed by:-

.LOAD myprogram, NEW:IMSL/SEA

This version will replace the version on STA: on 30 October.

The subroutines affected are:

| <u>SUBROUTINE</u> | <u>DESCRIPTION OF CHANGE</u>  |
|-------------------|---|
| BESRB             | Corrected computation for 'STAT(9)'   |
| DCSEVU            | Eliminated dummy dimensioning with a variable tht could be zero   |
| EQRH3F            | Corrected condition which caused underflow  |
| GGAMR             | Modified code so as to ensure correct branch is taken for all values of 'A' and reinitialized local variables for use in subsequent calls to routine                                  |
| GGBTR             | Modified code so as to ensure correct branch is taken for all values of 'P' and 'Q'   |
| GGCAY             | Modified source code to improve efficiency and protect against division by zero.  |
| GGNSM             | Modified code to increase precision in accumulation of 'RVEC'   |
| GGUW              | Zeroed out 'WK' vector in a data statement in order to assure its integrity from call to call   |
| LGING             | Corrected to handle rows of all zeros   |
| LLSQF             | Made element switching mandatory for KBASIS=1   |
| MDFD              | Argument checking procedure changed to guard against user input errors  |
| MDNRIS            | Revised routine to accommodate arguments less than machine EPS  |
| MDTD              | Corrected code for nonintegral DF   |
| MDTPS             | Code modified to avoid underflow and to improve efficiency  |
| MERFCI            | Revised routine to accommodate arguments less than machine EPS  |
| NHEXT             | Modified code for computation of 'P(1)' and 'P(2)'  |
| OFCOMM            | Revised convergence technique to ensure convergence in a finite number of iterations  |
| RLEAP             | Modified code to prevent division by zero when the problem is too ill-conditioned   |
| RLEAP             | Extended the difinition of 'IJOB(2)' to allow for early termination and modified code accordingly   |
| RLFOTH            | Modified code to avoid division by zero when perfect fit is obtained and added warning error when perfect fit is obtained with a model of lower degree than expected when 'RSQ' = 100 |
| RLFOTW            | Modified code to avoid division by zero when perfect fit is obtained and added warning error when perfect fit is obtained with a model of lower degree than expected when 'RSQ' = 100 |

RLFOTW Corrected code so that constant response variable will not result in a terminal error

RLMUL Code modified so that coefficient of variation ('ANOVA(13)') is not computed if the mean response is zero

RLONE Code changed to avoid division by zero when dependent variable is constant. Changed documentation of 'ier' = 129

RSMITZ Modified code and added terminal error condition to avoid possible overflow

RSMSSE Changed code to avoid overflow

USBOX Changed to handle constant input correctly

USBOX1 Replaced 'DASH' with 'PLUS' for two adjacent hinges

USPLT Corrected plot width when 'IOPT'=0

USSLF Eliminated possible resetting of variable 'IUNIT'

ZXMIN Corrected handling of case where 'N' is one and 'IOPT' is zero, and improved accuracy of initial hessian when 'IOPT' = 2 or 3

ZX4LR Corrected inadequate handling of artificial vector

Leonie Roberts  
extension 3943

## 7.0 TELEPHONE NUMBER CHANGES

The User Services group is moving yet again. During the alterations to its present accommodation its members will return to the basement of the Hawken Building.

Temporary extensions will be:

|                 |                |
|-----------------|----------------|
| Tony Bird       | extension 3023 |
| Allan Woodland  | 3941           |
| Noela Meier     | 3941           |
| Barry Maher     | 3018 or 3022   |
| Bryan Claire    | 2926           |
| Mark Robbie     | 2926           |
| Brett Peterson  | 2926           |
| Amelia Shanahan | 3020           |

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8.0 SYSTEM PERFORMANCE - AUGUST

The KL10 proved troublesome during August due to a low occurrence intermittent fault in one of the MH10 (256Kw) memories. We have taken measures to reduce system crashes due to this fault, but the search continues.

Graham Rees  
extension 3288

\* \* \* \* \*

SYSTEM PERFORMANCE REPORT

For node KA10 there were 30 working days in the period 1/Aug/81 to 31/Aug/81

|     |  | < KA10 > |       |
|-----|--|----------|-------|
|     |  | HHH:MM   | %     |
| 1.  | Attended system running time           | 420:41   |       |
| 2.  | Plus unattended system running time    | 253:54   |       |
| 3.  | Equals total system running time       | 674:35   | 100.0 |
|     | less time used for:                    |          |       |
| 4.  | Scheduled maintenance                  | 19:27    | 2.9   |
| 5.  | Dedicated operations tasks             | 2:15     | 0.3   |
| 6.  | Dedicated systems development          | 0:00     | 0.0   |
| 7.  | Equals time scheduled for use          | 652:53   | 96.8  |
|     | less lost time due to:                 |          |       |
| 8.  | Unscheduled maintenance                | 0:30     | 0.1   |
| 9.  | Hardware faults                        | 0:17     | 0.0   |
| 10. | Software faults                        | 0:49     | 0.1   |
| 11. | Unresolved                             | 0:34     | 0.1   |
| 12. | Environmental conditions               | 0:41     | 0.1   |
| 13. | Equals time available to users         | 650:02   | 96.4  |
| 14. | Effective user uptime (13./7.)         |          | 99.6  |
| 15. | Number of crashes                      |          | 6     |
| 16. | Mean availability between crashes      | 108:20   |       |
| 17. | Mean time to recover crashes (minutes) |          | 17    |
| 18. | Total number of Jobs                   |          | 6052  |

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SYSTEM PERFORMANCE REPORT

For node KL10 there were 25 working days in the period 1/Aug/81 to 31/Aug/81

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|  | < KL10 >     | < DN87A >    | < DN87B >    |
|--|--------------|--------------|--------------|
|  | HHH:MM %     | HHH:MM %     | HHH:MM %     |
| 1. Attended system running time            | 432:38       | 432:38       | 432:38       |
| 2. Plus unattended system running time     | 137:24       | 137:24       | 137:24       |
| 3. Equals total system running time        | 570:02 100.0 | 570:02 100.0 | 570:02 100.0 |
| less time used for:                        |              |              |              |
| 4. Scheduled maintenance                   | 20:12 3.5    | 20:12 3.5    | 20:12 3.5    |
| 5. Dedicated operations tasks              | 8:52 1.6     | 8:52 1.6     | 8:52 1.6     |
| 6. Dedicated systems development           | 0:00 0.0     | 0:00 0.0     | 0:00 0.0     |
| 7. Equals time scheduled for use           | 540:58 94.9  | 540:58 94.9  | 540:58 94.9  |
| less lost time due to:                     |              |              |              |
| 8. Unscheduled maintenance                 | 20:10 3.5    | 0:00 0.0     | 0:00 0.0     |
| 9. Hardware faults                         | 2:15 0.4     | 0:37 0.1     | 2:47 0.5     |
| 10. Software faults                        | 0:14 0.0     | 0:00 0.0     | 0:00 0.0     |
| 11. Unresolved                             | 0:06 0.0     | 0:47 0.1     | 0:00 0.0     |
| 12. Environmental conditions               | 0:32 0.1     | 0:32 0.1     | 0:32 0.1     |
| 13. Equals time available to users         | 517:41 90.8  | 539:02 94.6  | 537:39 94.3  |
| 14. Effective user uptime (13./7.)         | 95.7         | 99.6         | 99.4         |
| 15. Number of crashes                      | 8            | 23           | 6            |
| 16. Mean availability between crashes      | 64:43        | 23:26        | 89:37        |
| 17. Mean time to recover crashes (minutes) | 19           | 4            | 28           |
| 18. Total number of Jobs                   | 13355        |              |              |

SYSTEM PERFORMANCE REPORT

For node GRIFFITH there were 25 working days in the period 1/Aug/81 to 31/Aug/81

< GRIFFITH >

HHH:MM %

|     |  |        |       |
|-----|--|--------|-------|
| 1.  | Attended system running time           | 149:41 |       |
| 2.  | Plus unattended system running time    | 371:35 |       |
| 3.  | Equals total system running time       | 521:16 | 100.0 |
|     | less time used for:                    |        |       |
| 4.  | Scheduled maintenance                  | 0:00   | 0.0   |
| 5.  | Dedicated operations tasks             | 0:00   | 0.0   |
| 6.  | Dedicated systems development          | 0:00   | 0.0   |
| 7.  | Equals time scheduled for use          | 521:16 | 100.0 |
|     | less lost time due to:                 |        |       |
| 8.  | Unscheduled maintenance                | 0:00   | 0.0   |
| 9.  | Hardware faults                        | 0:08   | 0.0   |
| 10. | Software faults                        | 0:07   | 0.0   |
| 11. | Unresolved                             | 2:08   | 0.4   |
| 12. | Environmental conditions               | 0:00   | 0.0   |
| 13. | Equals time available to users         | 518:53 | 99.5  |
| 14. | Effective user uptime (13./7.)         |        | 99.5  |
| 15. | Number of crashes                      |        | 18    |
| 16. | Mean availability between crashes      | 28:50  |       |
| 17. | Mean time to recover crashes (minutes) |        | 8     |

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SYSTEM PERFORMANCE REPORT

For node COMMERCE there were 20 working days in the period 1/Aug/81 to 31/Aug/81

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|                        |  | < COMMERCE > |       |
|------------------------|--|--------------|-------|
|                        |  | HHH:MM       | %     |
| 1.                     | Attended system running time           | 151:20       |       |
| 2.                     | Plus unattended system running time    | 0:00         |       |
| 3.                     | Equals total system running time       | 151:20       | 100.0 |
| less time used for:    |  |              |       |
| 4.                     | Scheduled maintenance                  | 0:00         | 0.0   |
| 5.                     | Dedicated operations tasks             | 0:00         | 0.0   |
| 6.                     | Dedicated systems development          | 0:00         | 0.0   |
| 7.                     | Equals time scheduled for use          | 151:20       | 100.0 |
| less lost time due to: |  |              |       |
| 8.                     | Unscheduled maintenance                | 0:00         | 0.0   |
| 9.                     | Hardware faults                        | 0:10         | 0.1   |
| 10.                    | Software faults                        | 0:00         | 0.0   |
| 11.                    | Unresolved                             | 0:00         | 0.0   |
| 12.                    | Environmental conditions               | 0:00         | 0.0   |
| 13.                    | Equals time available to users         | 151:10       | 99.9  |
| 14.                    | Effective user uptime (13./7.)         |              | 99.9  |
| 15.                    | Number of crashes                      |              | 2     |
| 16.                    | Mean availability between crashes      | 75:35        |       |
| 17.                    | Mean time to recover crashes (minutes) |              | 5     |

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