MULTICS TASK REPORT MTR-050

TO: Distribution

FROM: C. T. Clingen

DATE: July 12, 1974

SUBJECT: Schedule Requirements for Some of the 1974 Multics Extensions

Attached is a letter to Mauro Pacelli, Manager of the Multics Project Software Engineering (MPSE) group in Phoenix. One of MPSE's responsibilities is to prepare Multics standard product software for testing and subsequent release to customers. The letter summarizes a preliminary schedule of software enhancements for "release" from Cambridge to Phoenix (MPSE) for incorporation into the standard product.

The objective is to get most of these extensions installed on the Phoenix Service by November 1 (FW-44), with two items (Cache software and Remote I/O) being requested earlier because of special requirements (see SPECIFIC NOTES in letter). A glance at the estimated schedules shows that some problems exist; perhaps some trade-offs and compromises will be necessary. New MTR's describing any schedule revisions will be issued as appropriate.

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DATE: JULY 11, 1974

M. M. PACELLI

FROM: C. T. CLINGEN

DIVISION: CISL/CEO

SUBJECT: 1974 Multics Enhancements Requiring Special Coordination

The following software enhancements are being developed for incorporation into the Multics product during 1974. They require careful coordination between Cambridge and Phoenix. In addition, all of these features have unusually stringent test requirements. This is necessarily a first pass at the details and schedules involved; we should continue to iterate towards acceptable schedules in cases where there are problems.

	FEATURE	DEVELOPMENT COMPLETED	SHIPPED TO PHOENIX
1.	Cache Software	FW-26 (Completed)	FW-44
2.	Entry Model Console	Completed	FW-26
3.	MTS500	Completed	FW-30
4.	Remote I/O	FW-33	FW-41
5.	Terminet 1200 DIM	FW-36	FW-44
6.	URC Reader/Punch	FW-40	FW-48
7.	On-Line T&D Support for CR, CP, Console	FW-40	FW-48
8.	On-Line T&D Support for Tape	FW-46	FW-02 (1975)
9.	URC Printer (PRT303)	FW-44	FW-52
10.	URC Printer (PRT1200)	Unscheduled	-
11.	More than 2 CPU's	Unscheduled	-
12.	NPL Names	(See Notes)	

GENERAL NOTES

The following notes apply to most of the software items in the above table.

1. Based upon experience, a period of about 8 weeks is required between completion of development at CISL and shipment of an integrated System to Phoenix. This time is required for software auditing, formal submission, installation, correction of bugs revealed by initial exposure, and preparation for shipment to Phoenix.

2. Dates given above assume that new features will be installed in Phoenix in the same sequence in which they are shipped from Cambridge. Installation in Phoenix in a different sequence requires additional work by both CISL and MPSE and will impact other schedules.

3. All efforts should be made to maximize System M exposure of the new software. Note that in most cases new software can be partially tested using the old hardware; partial testing on old hardware should be done whenever new equipment is unavailable on System M. A minimum of one month heavy exposure with new hardware on System M is recommended for most of these new features.

4. Carefully planned tests will be required -- especially in those cases where schedules preclude adequate exposure.

SPECIFIC NOTES

The following notes apply to specific items in the above table.

1. Cache Software: Montee requested that cache software be submitted to Phoenix by FW-31. If the CISL development machine becomes operational by FW-30, we estimate shipment to Phoenix FW-34. To help compensate for "late delivery", we recommend that pre-service exposure begin immediately using Greenberg's special version of Multics on System B/P or during Special Sessions on System M; this may reveal additional hardware/software bugs and should satisfy benchmark requirements for General Motors.

2. Entry Model Console: Begin using on System M as soon as possible.

3. MTS500: This is the formal Cambridge release for the MTS500 software. Note that the default tape density is 800 bpi; however, 1600 bpi is supported upon specific requests.

4. Remote I/O: There is a schedule problem because the estimated ship date to Phoenix exceeds scheduled AFDSC ship date of FW-38. Development is substantially complete; it is estimated that bug fixing will continue until FW-33. With luck, however, the last fixes to the hardcore have all been submitted already and should be shipped to Phoenix FW-35. Non-hardcore fixes should not present a schedule problem. Schedules assume FW-30 availability of an operational CISL development machine.

Testing poses special problems. We recommend that testing with a G115 be explored (Phoenix System Test (J.L. Wright) working on this). Also, final testing requires someone from Phoenix to come to Cambridge and use the CISL MDS2400. This project has a history of hard-to-find bugs; therefore the schedule is high-risk.

5. Terminet 1200 DIM: This enhancement incorporates full knowledge of the Terminet 1200 in the TTY DIM (as opposed to the per-process kludge now implemented). Special requirements include Vadic modems and HSLA channel FCO's.

6. URC Reader/Punch: Assumes FW-30 availability of CISL machine.

7. On-Line T&D Support for CR, CP, Console: Assumes FW-30 availability of CISL machine. Requires IOM FCO for Service installation. Because of the large amount of new, complex software to be integrated and debugged, this schedule is high-risk.

8. On-Line T&D Support for Tape: Requires FCO's for IOM and MTS500 for Service installation. Also high-risk schedule (see Item 7, above).

9. URC Printer (PRT303): We plan to support this device but do not know if it should be included as part of the standard product. This issue should be resolved.

10. URC Printer (PRT1200): Availability dates of this device for testing at CISL and for first shipment as part of the standard product are unknown. We need direction here.

11. More than 2 CPU's: Until this project is formally scheduled, we cannot determine its impact upon other development schedules. We need real schedule requirements for this capability.

    This capability poses special test requirements: software debugging must occur in Phoenix and cannot begin until all n CPU's (suggest n=3) support service on System M in all possible pair-wise combinations with all System controllers.

12. NPL Names: New software will utilize generic names; therefore renaming of peripherals will be 'solved" for reader, punch, printer, and MTS500 this year as new software is submitted. Suggest delaying renaming Datanet 355 and DSU 191's until new communications software and new Storage System are implemented. Other solutions impact schedule. Please determine if this solution is acceptable.

SUMMARY

The following issues require resolution for the next iteration of these schedules.

1. PRT303: Should this be planned as part of the standard product? When is software required from CISL? When available at CISL?

2. PRT1200: When will one be available at CISL? When will they start shipping to Multics customers?

3. More than 2 CPU's: Formal schedule requirements needed. When could testing begin on System M?

4. NPL Names: Is the proposed solution OK?

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