

XEROX
BUSINESS SYSTEMS
Systems Development Department

To: W. C. Lynch
From: H. C. Lauer
Subject: Progress report: Pilot

Date: February 22, 1979
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Reference: *Pilot (Teak) Development Schedule (version 2)*, memo of February 15, 1979 from H. Lauer.
Tasks for Pilot 3.0 and beyond (Version 8), memo of January 25, 1979 from H. Lauer.

Pilot and Teak

Planning

The memo *Tasks for Pilot 3.0 and beyond (Version 8)* was circulated on January 25 defining the task list and priorities for the Teak release of Pilot. No substantial changes are expected to be made to this list.

The memo *Pilot (Teak) Development Schedule (version 2)* dated February 15 is the current work plan and schedule for the development of Pilot 3.0. This itemizes the detailed tasks for the five major milestones reflecting internal releases of Pilot.

Progress

Pilot A, originally scheduled for February 15, was not released on time. This is primarily due to the lack of microcode and a D0 with which to begin the development of Pilot B. Development is therefore continuing on Pilot A—including several tasks scheduled for later versions of Pilot, a large number of CR's, and some miscellaneous performance improvements—until it is feasible to convert to Mesa 5.0 and begin Pilot B development. Pilot A is now likely to be released during the week of February 26. In addition, the following tasks originally scheduled for Pilot A will be deferred:

- Free Storage Package

- Driver for Display/Keyboard/Mouse, implementing a permanent Mesa interface for these on the IUTFP and Dallas display.

An estimate for the completion of Pilot B, based on the best estimates for microcode and D0 availability, will be made during the Pilot group meeting on February 26. The principle items upon which we depend are: (1) Alto compatible Mesa 5 microcode for the D0; (2) a D0 in building 33 which is available full-time for the Pilot group and capable of running Mesa 5; and (3) Microcode 3.0 (as defined in the *Pilot (Teak) Development Schedule*) supporting the Mesa process facilities and software booting.

Technical

The new rigid disk driver includes several meters and counters which have provided substantial insight into Pilot's performance in handling page faults. These and subsequent measurements indicate that the compute time per page is several times longer than the disk transfer time per sector. This performance bug is being aggressively pursued.

Several known performance bugs reported previously have been corrected, including those in the real memory allocator and in Space.Create.

Common Software

Peter Bishop has joined the Pilot group on loan for the purpose of implementing the transaction file package specified in his *Transaction, Virtual Memory Sharing, and Locking Functional Specification* of January 23. The ground rule of this implementation is that it support the Star File System and that it be done within the time scale of Teak.

Peter has made available a 'facade' which implements the interface of his *Functional Specification* without actually implementing the substance of this system. This allows clients to develop software which uses this interface while the actual common software package is under development.

Staffing and Equipment

Bob Ladner will report on March 1 to become the common software coordinator.

The Pilot group is still short by one person. Several good candidates have been interviewed and an offer is expected to be made soon. However, I do not expect that a new person can come on board and get up to speed soon enough to contribute to Teak in any significant way.

As a result of the Pilot group assuming partial responsibility for utilities, an offer is being made to a person to implement these.

Altos will be needed for all new people.

Other

H. C. Lauer and E. H. Satterthwaite have completed a paper entitled *The Impact of Mesa on System Design*. This has been submitted to the Fourth International Conference on Software Engineering to be held in Munich in September.

T. Horsley and W. Lynch have (nearly) completed a paper entitled *Pilot: A Software Engineering Case Study*. This will be submitted to the same conference.

Issues

It is becoming apparent that there are a lot of different ideas about what kind of support is required for the Display, Keyboard, and Mouse. It is also apparent that no one has a clear, coherent picture of what facilities must be provided in microcode, Pilot, and client-level software. I propose that a User Terminal Working Group be convened to resolve these issues. Until such a working group provides a report, I do not believe that it will be possible to assign implementation responsibilities in such a way that everyone has confidence that the right thing is being done.

In the interim, the Pilot group will define a Mesa interface for the Display, Keyboard, and Mouse which reflects the style and general character of the UTVFC and UTLF. These will be implemented on the IUTFP and Dallas Display in order to support the Debugger, test programs, etc.

Assignments

Bishop—implement the Transaction/VM Sharing package.

Redell—complete Logical volume support, implemented *PrincOps* process machinery for Pilot B, serve on Architecture Board

McJones—provide Mesa-level support for software booting, convert Pilot to Pilot B

Horsley—reconfigure Pilot for Pilot kit, release Pilot A, come up to speed on managing microcode releases

Gobbel—implement interim Display, Keyboard, and Mouse driver for IUTFP, convert DCS to use it

Ladner—come up to speed

Lauer—attend Management Action Workshop, make Technical Review Presentation, present Duality paper at Louisiana Computer Conference, manage Pilot implementation

In addition, we are counting on the following assistance in implementing Pilot B and converting the D0 to something more closely resembling the architecture defined by the *Processor Principles of Operation*:

Pitts Jarvis to update microcoded device controllers to move the magic memory locations to the *PrincOps* I/O page.

Rich Johnsson and/or Jim Sandman to make the debugger track conversion to *PrincOps* architecture.

Dick Snow and/or Rich Johnsson to convert process microcode to *PrincOps* data structures.

c: D. Redell, P. McJones, T. Horsley, R. Gobbel, P. Bishop