Saltzer
File - Multics design proposals

RECEIVED
APR 26 1972
J. H. SALTZER

TO: John Gintell

FROM: David M. Jordan

DATE: April 26, 1972

SUBJECT: Proposed Addition to Directory Reformatting Proposal

One problem which has proven bothersome to those of us involved with library maintenance is that there currently exists no easy method for determining who made the most recent change to a given segment. The ideal solution to this particular problem would involve changes to page control to update some information any time the modified bit in a page table word is turned on. Unfortunately, this solution has two critical drawbacks: first, that the segment may be active in several processes, thus making it impossible to tell who actually modified it; and second, that it would be quite expensive to implement.

One relatively trivial method available now, while the directory format is open, is to provide an audit trail on the order of the bit count attribute. Currently the bit count is not necessarily valid - it may have been set incorrectly or may not have been set at all. In spite of these drawbacks, the bit count is generally considered to be a useful piece of information about a given segment. I propose that we extend the bit count setting primitive to add the caller's process group-ID to the segment's directory entry. In this way, we have added useful information with no change at all to existing interfaces. Moreover, most of the procedures which modify segments (editors, compilers, archive, etc.) already make use of the bit count attribute and thus, in most cases, would leave the audit trail we desire. Once this change has been made to the directory format and the set bit count primitive another primitive can be added at any time to allow the user to extract this information.