

Identification

Update\_accounting

T.H. Van Vleck

**DRAFT**date 3/21Purpose

The procedure "update\_accounting" is responsible for moving the resource-usage information collected in the Active Meter Table to the Account Data Segment.

Overview

"Update\_accounting" is called by the Wait Coordinator in the administrative ring preceding any call to block. The primitive reads the scratchpad information from the AMT entry for the account, places it in the ADS, and calls "price\_out", described in BO.3.01, to update the balance information in the ADS.

The call is of the form

```
call update_accounting (status);
```

where status is a bit string set to an error code if errors occur.

"Update\_accounting" calls a hardcore\_ring procedure as follows

```
call get_meters (metervalues, status)
```

in order to read the reset the hard-core accounting meters.

Because the call is made when faults are permitted, the AMT entry cannot be locked, and its contents may be changed by an interrupt or fault service,

or even another processor. Therefore, a "pseudo-interlock" cell is set up in each entry. When "<sup>get\_meters</sup>update\_accounting" is first invoked, it sets this cell to the process id of the process trying to update. An interrupt service which may lead to inconsistent information will zero the cell. If, after copying the information from the AMT entry, "get\_meters" finds the cell still contains its process id, it has snatched a stable copy. Otherwise, it adds one to the count of times it was not possible to update this entry, also kept in the AMT entry. "Get\_meters" will try again as many times as the count was when the AMT was first referenced. If still unsuccessful, it will give up and return an indication that it could not update in the argument "status."

If "get\_meters" succeeds in picking up a stable copy of the AMT entry, it resets the meters in the entry by using the read-alter-rewrite instructions of the 645 processor. It then returns to the administrative ring with status indicating success, and the array metervalues full of meter readings.

"Update\_accounting" checks status, and gives up if it was not possible to read the meters. Otherwise, it proceeds as follows:

1. fabricate the name of the desired Account Data Segment, and lock it.  
(The lock call is a "block-lock" call.)
2. add the meter readings returned by "get\_meters" to the values in the array named delta in the Account Data Segment. (This is done so that the Account Update Process may also increase this field. See BO.2.05).
3. Call the subroutine "proce\_out" to take care of actual cost accounting for this account. "Price\_out" is described in section BO.3.01.
4. Unlock the ADS and return.