To: MTB Distribution

From: T. H. Van Vleck

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Subject: Improvements to the answering service

This memo describes several possible improvements to the answering service. While each of these changes is desirable, none is urgent; and implementation of these facilities may be quite a ways off.

SCHEDULED OPERATIONS

This section describes a new answering service command which allows the installation management to automate more installation policy.

Several new commands will be added to the operator command repertoire to allow the specification of commands to be executed at some future time. The "at" command specifies that a given command line should be executed when a specified time arrives. The "from" command specifies that the given command line should be executed when the beginning time arrives, or immediately if the beginning time is in the past and the "until" time is in the future. When such a line is added to the system_start_up.ec, it will correctly arrange that the subject command is always done during the specified period. For example:

    at 21:00, stop

    from 08:00 12/25, until 24:00, exec holiday

Both command lines specify that the last phrase be executed as an operator command at some future time. In other words, each command is parsed to yield a command line and a time at which the command line will be executed. These schedule elements are saved in an internal data base of the answering service until an alarm wakeup arrives, and then passed to system_control_ as "admin" commands. The schedule settings are not saved across system shutdowns or crashes: if a schedule setting should be saved, an "at" or "from" command will be added to the installation's system_start_up.ec.

One use for this facility will be to allow installations to arrange for holiday schedules. Because many US holidays have no fixed calendar date, an "after" clause must be supported something like this:

from 08:00 Tue, after Mon, after 11/01, until 18:00, x vote

in order to specify the date of election day.

There are many possible uses for this facility. Since one of the subject commands may be "exec," the facility is not restricted to executing only the supplied operator commands: any sequence of system commands or special programs written by the installation management may be invoked, by inserting an appropriate section into "admin.ec." Furthermore, active functions in the exec_com may cause conditional execution of some commands, so that an installation policy like "shut down at 11 PM unless there are more than 10 users on; if so, check every 20 minutes and shut down when there are less than 10," may be implemented.

Some of the commands which might be particularly useful are:

set_local_time_zone

set_shift

add_line_to_motd (could be done with exec_com)

change_turing_parameters

reroute

set_unattended_mode

deltape

it is even possible to have an exec_com which makes some patch to the supervisor, or reconfigures the hardware, although I find this scary.

Answering service commands will also be added to list the current scheduled events and to cancel given events.

OVER-RIDING SHIFT TABLE

The facility described above would be useful for causing the system to charge weekend prices for holiday usage. A new command, "set_shift," must be implemented, which over-rides the automatic shift setting determined from the shift table in installation_parms. The code for this operator command is trivial.

INSTALLATION-SPECIFIED SEARCH RULES

The table in active_all_rings_data which gives the default
search rules should be changed to be of constant (maximum)
length, and an hphcs_ entry should be provided to allow the
installation to load this table when the system is coming up.
Perhaps two tables should be provided; one for interactive and
absentee users, and the other for daemon processes.

LOCAL TIME

There is a private version of date_time_ which has a
side-door entry point to set the user's personal time zone. This
program is very hancy when using a distant system. A regular
system command (SWG) should be provided for the user to set his
time zone, and the ready message and the convert_date_to_binary_
and datebin_ programs must also be modified to respect this
per-user variable. An hphcs_ entry should also be set up so that
the Initializer can change the installation's default time zone
from Daylight Savings to Standard and back without manual
intervention or shutdown.

IMPROVING PNT INSTALLATION

One of the most costly operations done by the Initializer in
response to an event wakeup is the installation of a new Person
Name Table (PNT). The operation is slow because the hash table
for the PNT is completely reconstructed every time a new table is
installed, and because each entry in the new PNT is checked to
see if it is new, or if any person name has been deleted. Most
installations delete names from their PNT once or twice a year,
if at all, in order to avoid security problems with ACL's. PNT
installation could be speeded up noticeably by adding the ability
to install an incremental change to the current PNT. This change
can be made easily; similar changes can be made to SAT and PDT
installation.

LOAD CONTROL TABLES

Currently, several of the system's load control parameters,
such as the default Maxunits and the maximum number of processes,
are stored in the header of the SAT. It would be much simpler
for future maintainers if all load control parameters were kept
in the same segment, the master_group_table. At the same time,
the master_group_table should be placed under the standard
"install" discipline so that modifications to this table can be
checked more carefully and logged for later reference. Making
this table installable will connect nicely with the
scheduled-event facility described above for those installations

who wish to have different load control tables for different time
periods.