

Effective Implementation of Distributed Electronic Time Management and Scheduling

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Introduction - Time Management Systems

Time management systems are a significant tool to a great many people. How many times have you had someone say to you "Wait, let me check my calendar"? Indeed, some individuals would not be able to function properly without their trusty time management tools at their sides.

The popularity of time management tools is apparent by the proliferation of different systems that allow you not only to manage your time, but your phone numbers, finances, goals, contacts, even your diet. You can do all of this by the minute, hour, day, week, month, year, or longer. Several companies have even gone so far as to offer versions for children - as a way for them to "get a head start" on other children.

Time management systems have spread to the personal computer world as well. While computerized scheduling systems are nothing new, their use on PC systems has become more widespread than they ever were on mainframes, probably due to the "personal" nature of the desktop computer.

Time management systems of both kinds are much easier to find today. For the paper-based systems, there was a time when you either had to order them directly from the manufacturer or pick them up at an office supply house. Now you can get them in your local department stores, drug stores, or grocery stores. Electronic systems differ in size and range almost as much as manual ones do - ranging from PC-based packages such as Borland's SideKick, Timeworks Partner PC and the Microsoft Windows calendar to centralized packages such as HP Desk and PROFS.

Paper-based time management systems are not without their problems. For one thing, it's hard to get people to agree on the "right" way to do things, so there are multiple formats available, most of them incompatible in some way with one another. It is also difficult to schedule group activities, as the availability of the workgroup members is not stored in a central location. The size of some of the systems has caused a number of people to make use of more than one system: One for the workplace, and another, simpler version for evenings and weekends. But this also complicates the process because appointments may have to be transferred between systems.

Electronic time management systems also have problems. First, you can't take them with you very easily. Second, most people have been using some kind of paper-based appointment book for some time, and don't want to change. Third, if the electronic scheduling package runs on an individual's PC, then it is difficult (if not impossible) to perform any kind of group scheduling.

To some extent, the problem of portability is being addressed through the use of portable computers and specialized "calculators" that track appointments. However, this does not provide a solution for

An "Ideal" Electronic Calendaring System

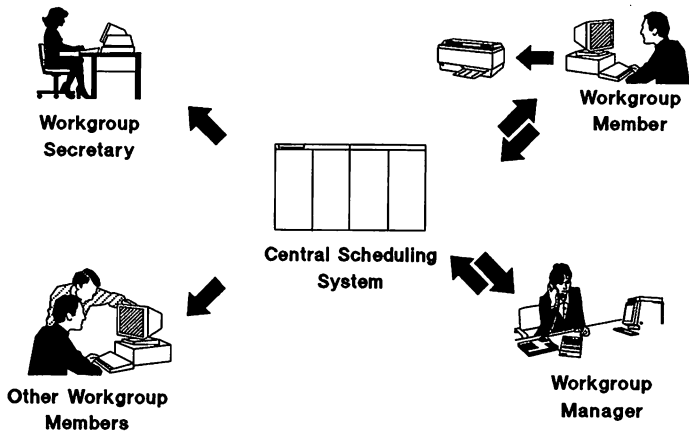


Figure 1.

the person who wishes to use a paper-based system. And the portable computer also fails to address the group scheduling problem.

An Ideal System

A combination of both paper and electronic systems best suits the needs of the workgroup (*figure 1*). A "centralized" electronic system can contain all appointments for the people in a workgroup. This places the necessary information in one location accessible in various degrees to everyone in the group. Workgroup members maintain their own calendars on this central system, either via direct terminal-based entry, or via their personal computer, which can upload that information to the central system.

This upload process eliminates the need for the workgroup member to learn how to use the central system. He can go on using the calendar program that he is used to using, eg., SideKick. The information can be moved to the central system via a "batch" process, probably at a time when the user is not present.

The department manager or his designate can schedule group events on the central system, using the input from all members of the group. These group meetings can be added to the schedules of the

workgroup members. The department manager can also use this information to control the resources of the department. Scheduling information can easily be moved into a spreadsheet or project planning package.

Members of the group are able to look at the schedules of other members through some kind of simple "Whereis" command to find out where they are or what their future schedules look like. This helps in simplifying job coverage when a member of the group is away, as well as eliminating the need for a group member to "let everyone know" where he is. That information is already in a known location.

Each member of the group can have a "personalized" system that ties into the main system in some way. This can be a paper-based system, or it can be electronic. The workgroup member can even elect to have both. This personal system uses a format familiar and comfortable to the group member. For instance, if someone is using a particular paper-based time manager before implementation of the electronic system, he can go on using it. The central system just generates hard copy in the old format. The workgroup member could continue to use his existing PC-level time manager (if any) or could learn how to enter appointments directly on the central system. The workgroup member could learn about the additional capabilities of the new system (alternative output formats, uploading and downloading to PCs, etc.) as necessary.

The system must be expandable. This can be accomplished by modularizing the system very carefully, and allowing for "hooks" to other packages to be inserted at a later time. Such interfaces between modules must be carefully documented and rigidly adhered to.

The HP Desk "Engine"

The calendar section of HP Desk is the type of centralized system that serves these needs well. Workgroup members can easily store their appointment information on this system. The group manager can retrieve that information and use HP Schedule to set up group meetings. Using HP Desk as a basic "engine" and adding software customized to the workgroup's particular needs provides a powerful combination for time management activities.

CALSCAN

CALSCAN was originally conceived as an HP 3000 program to address some of the issues raised earlier in this paper. It scanned through the HP Desk calendar for a particular user, and returned a sequential ASCII file containing the requested output. This output could then be used by a number of different programs for various purposes, or printed directly. The HP 3000 version of CALSCAN became the central module of a series of scripts and programs that allowed users to look at or change information contained in the HP Desk database. For example, it is used within a package that allows schedules to be moved between HP Desk and the Time Manager program on the HP Portable Plus computer. Another set of routines implements a "Whereis" function within HP Desk itself.

In its original form, CALSCAN did not take much advantage of the processing power of the PC. The program was HP 3000-driven. To take advantage of the idle processing power, it was decided to

CALSCAN Operation

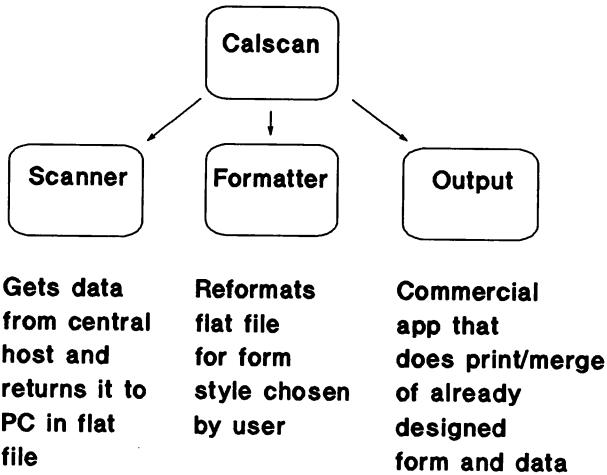


Figure 2.

move most of CALSCAN to the PC. This would also give us a greater flexibility in output formats, as well as making it easy to move the data into other PC-based applications. Because as "robust" a package as possible was wanted, it was decided that custom code was the proper way to go, rather than trying to rely on a combination of command files, scripts and macros to do the job. It was also desired that the package appear to be "seamless", even though several programs might be called to accomplish all the steps. The application had to be available through either the HP New Wave environment or the standard MS-DOS command interpreter.

The new system had to accept data entry through the MS-DOS command line, via a full-screen data entry form, or by way of a Windows dialog box or similar construct. The modular approach enabled the alteration of programs (or the addition of new ones) without affecting the rest of the system. It also had to allow for the smooth transition to Windows (and later, to the OS/2 Presentation Manager).

It was also decided to incorporate outside packages and tools into the code to reduce the amount of time needed to complete the package. The initial pass on the package would be a non-MSWindows approach, and would be encapsulated into the New Wave environment as an "oldapp". Again, this would reduce the coding time.

For handling the non-Windows user interface, we chose an in-house input forms package. To handle the final output, we selected a third-party output forms package. To provide the interface between the PC and the HP 3000, we used HP Co-operative Services.

CALSCAN Output Options

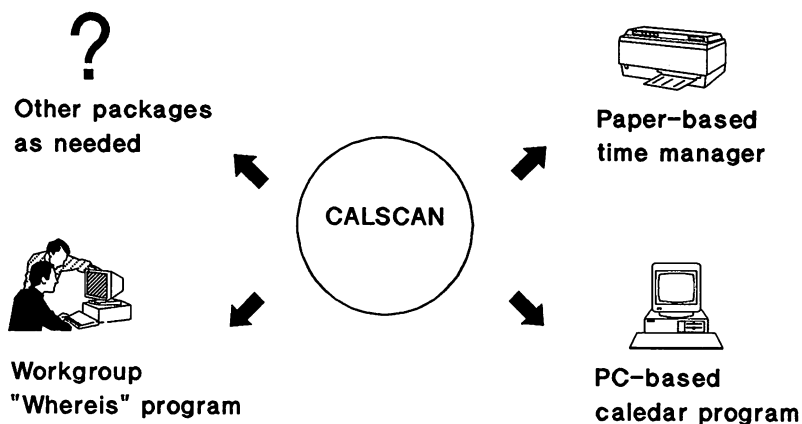


Figure 3.

HP Co-operative Services (HPCS) is a series of routines which can be linked to a PC application program to provide direct use of certain HP 3000 intrinsics within a PC-based program. These intrinsic routines can be used by PC programs written in COBOL, PASCAL, or C. (The PC part of CALSCAN is written entirely in Microsoft C, version 5.0).

In the final design (*figure 2*), CALSCAN is the driver program, and the user interface. It, in turn, executes the other programs as necessary. The scanner program gets the information from the HP 3000, returning a flat file to the PC. The formatter program reformats that flat file according to the user's choice of output format. And the output program, a commercial application, performs a print/merge operation for the appropriate print device. The user is unaware that several programs are operating, and the main program is all that must be encapsulated into the NewWave environment.

Output from the CALSCAN program can be handled in a number of ways (*figure 3*). The user can elect to send the output to a laser printer to get hard copy matching the format of his paper-based time management system. He can have it downloaded to his PC to use in a local calendar program, or to place the information into another PC package. The workgroup as a whole can have a "Whereis" program that would enable them to quickly query the HP Desk system as to a member's current location. This can incorporate security checks.

Calscan vs. "Ideal"

Compare this design to the "Ideal" stated earlier. The system uses HP Desk as the central storage location for the schedules of everyone in the work group. Users enter their data either through the usual HP Desk interface, or into their PC-based calendar package. If HP Desk is being used, then no other steps need be taken. If a PC-based package is used, then the additional step of moving the data to the central system must be added. However, this upload of information could be automated to occur when the user is away from his desk.

Monday	Tuesday	Wednesday	Thursday	Friday
<div>2</div> <div>1200 PHONE DUTY</div>	<div>3</div>	<div>4</div>	<div>5</div>	<div>6</div> <div>1330 Get into off Ruam</div>
<div>9</div> <div>1200 Lunch w/Kristy and</div>	<div>10</div> <div>1200 Lunch with Seth</div>	<div>11</div> <div>1200 Phone Duty</div>	<div>12</div>	<div>13</div> <div>0900 Division Coffee Br</div>

Figure 4. A monthly format.

Each user can download his own scheduling information to the PC, where it can be printed in a desired format (figure 4) or moved into another program, for example, SideKick or Windows. The problem of multiple calendars (one on the 3000 and one on paper) has been eliminated.

Terminal-based group scheduling is possible through HP Schedule. The group manager is able to schedule members of the group because the information to do so is all in one place. A PC-based group scheduling program can be written to fit into the CALSCAN system. For example, a program can be added that would download information for several members of the workgroup and format that information appropriately for a spreadsheet or project management package. This allows the group manager to make better use of his available resources. Figure 5 shows a sample Excel spreadsheet containing this "consolidated" information.

JUNE - 1988		Mon-30	Tue-31	Wed-1	Thu-2	Fri-3
Mike Smith	am	Training	Off-Site		Las Vegas	Las Vegas
	pm				Las Vegas	Las Vegas
Susan Jones	am					
	pm					Vacation
Nell Lambert	am		Sales Training			
	pm					
Patricia Evans	am	Vacation	Vacation	Vacation	Vacation	Vacation
	pm	Vacation	Vacation	Vacation	Vacation	Vacation

Figure 5. An Excel spreadsheet.

Thursday

DATE: May 20, 1988

KEY TASK	
1	

OTHER KEY TASKS	
2	
3	
4	
5	
6	
7	
8	
9	

SHORT TASKS	

Time	Task
8:00	
8:15	
8:30	
8:45	
9:00	
9:15	
9:30	GTE Visit
9:45	
10:00	
10:15	
10:30	
10:45	
11:00	
11:15	
11:30	
11:45	
12:00	
12:15	
12:30	
12:45	
1:00	
1:15	
1:30	
1:45	
2:00	
2:15	

Figure 6. A daily format.

If a workgroup member's job responsibilities suddenly changed and the output format he was using no longer suited his needs, it would be a simple matter to change over to a different output style. Nothing else would have to be altered. For example, instead of the monthly output format shown in figure 4, he could use the daily format displayed in figure 6. Other formats could be easily customized using the formatter.

Workgroup members can check one another's schedule by requesting that one instead of their own. A "Whereis" facility of this sort would have to be simple to use and quick to run. It would not provide for any hardcopy output. It should probably run as a pop-up type window so that it can be accessed at any time.

Conclusion

Calendaring systems have become quite important to many people to allow for the proper management of their time. However, too many of these systems, electronic or otherwise, suffer from a lack of flexibility. This has limited their usefulness, and in a few cases made them unusable.

Most of the tools for implementing a flexible electronic system exist. It is a matter of combining the right off-the-shelf packages with some amount of customized code to create the kind of system that will be useful to the workgroup. The CALSCAN system discussed here is just one possibility, one that we expect to continue evolving as both new needs and new tools appear.

**"I Have to Teach the Others Back at Work":
When Customer Education Is Really Train-The-Trainer**

**Mary Humphrey
Hewlett Packard Co.**

You are conducting the usual introductions to a full class of customer students. As you go around the room asking names, company or department, and reason for coming to class, you discover several students have come with their own "hidden performance objective." They were sent to training with the expectation that they would return to work to reteach the course to their coworkers. They may be apprehensive about this assignment, or they may feel it is an acceptable way to cut training costs for their company.

Problem or Opportunity?

This opening situation has the potential to produce students who feel threatened or disappointed, students' managers who perceive your training to be ineffective or failing to meet their needs, and "the others back at work" who will continue to be untrained and will not be good prospects for future training. Or, the situation could result in students who appreciate the efforts you make to help them achieve realistic results with reteaching, students' managers who perceive the value-added to your training, and the others back at work who will receive some benefit from reteaching and who will become candidates for future training. The key factor in determining which result occurs is the trainer.

The following list of trainer's DOs and DON'Ts is a prescription for turning a hidden performance objective into a positive result. It is important that none of these activities requires a change in course content or organization, none requires a special preparation by the trainer, and none compromises the delivery of the training to other students. In fact, several of the DOs can actually improve students' level of learning and the probability of transfer of training to on-the-job use.

[The conference presentation of the following list includes examples and demonstrations of specific techniques. There is a session handout of notes and the personal contract listed in item 7.]

1. DON'T Ignore Their Needs or Waste Time Trying to Change Their Objective

Ignoring a student's objective to be able to "teach the others back at work," is a poor idea. The objective won't just go away. It is often accompanied by a student's fear that he/she will not learn well enough to teach others. This can interfere with learning, increasing the probability that the reteaching will be a failure.

Another point to keep in mind when you encounter the hidden train-the-trainer objective is that it is a waste of time to argue that the objective is unfair to the student, a misuse of training, not highly successful...or any of a number of other truths. You are not going to change the mind of the manager who made the decision by presenting counter arguments to the student. Trying to do so is likely to further stress the student and reduce chances of successful learning even more.

When Customer Education Is Really Train-The-Trainer

2. DO Reset Their Expectations and Motivation

Restate the basic rule that knowing about how to do something is not as hard as actually doing it, but teaching how to do something is even more difficult. Set the expectation that being able to reteach the course material will require extra effort and detail on the students' part. Make clear that you will make changes in your presentation to help them, but that you can not guarantee that they will achieve their reteaching objective.

You can create a positive attitude by pointing out that the efforts and techniques they will use to help prepare themselves to reteach are also likely to increase their own learning and mastery of the material. Most people are aware that they recall very little of what they hear, a bit more of what they see, and even more of what they both see and hear. Continue this analysis by pointing out that the best levels of retention are when people say what they are doing as they do it. This is a technique they will be using when they prepare to reteach and when they actually do teach others. While their assignment to go back and teach the others may not be easy, it does have some benefits to them personally.

3. DO Use the Course Design

Start with the Student Performance Objectives (SPOs). Identify those that will be critical to reteach to others in order for them to achieve the overall course goal. Be sure the course goal and SPOs are visible to the students. Point out how the course design provides teaching activities to support the achievement of each SPO. State clearly what activities are planned for each SPO, and encourage students to make note of the connections. Knowing the purpose of each activity will help them to present the activities to others. It will also help to keep them organized and thorough.

4. DO Make Your Teaching Techniques Visible

At the beginning of every training activity, state how you will present it and monitor their learning. Tell the students key information such as why you have chosen a given method, what effect an example or demonstration is designed to have, how to make key information visible, and when to give practice and feedback. Remember that they probably will not be conducting a class, but tutoring 1:1 or with small groups. If appropriate, make suggestions for how they might adapt a presentation of the course content for a small group. Keep this brief and specific. You spend time better by modeling a useful teaching technique than by talking about how to do a different one.

5. DO Stress the Use of Class Materials and Other Support Resources

Remind the students often to take detailed notes that will be useful to others. If the course materials include references, documentation or other written material, emphasize the students' need to be familiar with what information they contain and how they are organized. Identify other post-class resources such as coworkers who may have already had the same training, on-site support services, or management.

6. DO Present Practice and Feedback On Two Levels

To successfully reteach, the students will need the usual practice and feedback on performance, but they will also need to know how to give others practice and feedback. Simply asking them to restate the objectives and instructions for each lab or exercise will be useful. Ask them also to state how performance is measured and give examples of acceptable performance of the lab activity. Point out typical errors others might make in an exercise and give examples of how to monitor for this and give corrective feedback. Be sure students understand the purpose of a practice activity as well as how to deliver it -- they may need to adapt labs for use back at work.

When Customer Education Is Really Train-The-Trainer

7. DO Plan for On-the-Job Application Including the Reteaching

At key points in the training and at the conclusion of the class ask students to plan for their use of the information or skills back at work. With students who plan to reteach, you can present teaching others as a particularly effective post-class practice for themselves.

One good technique for improving their probability of success at reteaching is the Personal Contract Method. It requires only a pen and paper and about 10 to 15 minutes. Have students actually write out answers to each of the following questions. Review their answers and provide any additional answers, explanations, examples or other help to assist with the weak points they identify.

- * Who will you be teaching and when (give specific names, dates, times if possible)?
- * What Student Performance Objectives will you select as appropriate for your reteaching? (List or check off SPOs from a class materials list.)
- * What teaching activities will you present to support each SPO? (List briefly, or circle items from the class agenda or table of contents.)
- * What practice will you provide and how will you monitor performance?
- * What will you need to practice, prepare or organize to be able to teach the others?
- * Review your answers to the above questions. What is most likely to go wrong?
- * What can you do now (before the end of class, or before you have to teach others) to strengthen the weak point or reduce its probability of occurring?

Asking students to sign their contracts, exchange copies with each other, give you a copy, or plan to review them with their managers, are all additional steps you can use to make the contracts more effective.

Conclusion

The next time a customer comes to your training and announces that he/she is expected to go back and teach the others at work, view it as an opportunity to make your teaching skills pay off for both of you. You can help the student achieve his/her personal objective while you enhance your own motivation and value as a trainer. And you can accomplish this with relatively little effort and planning.

