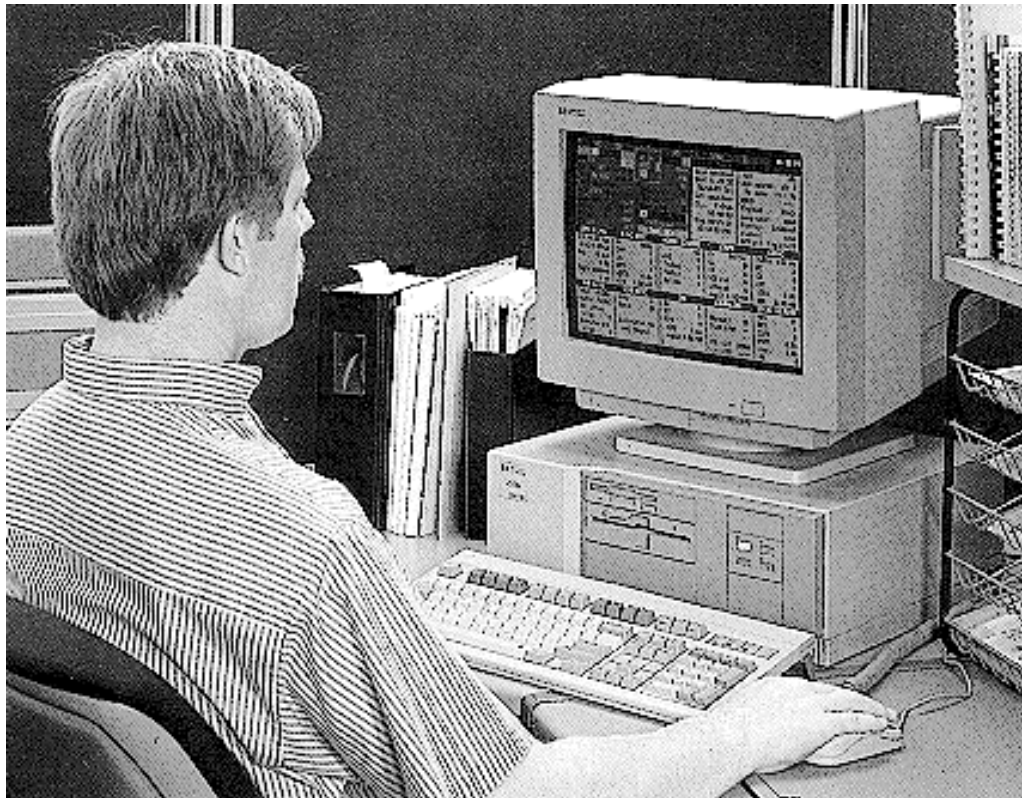

Maximizing revenue with in-service testing – centralized testing/monitoring systems

Application note 1237-2



This is the second booklet in a series of Application Notes dealing with Maximizing Revenue with In-service Testing. It is intended to provide an insight into the various centralized testing/monitoring systems available today. The first booklet gives some background information that will be useful when reading this booklet.

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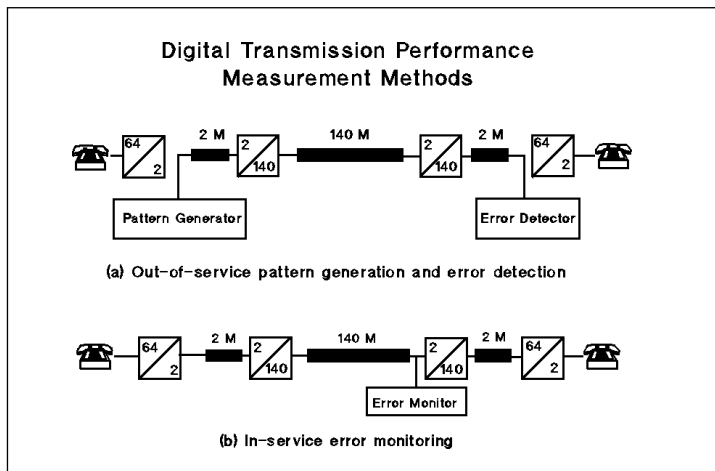
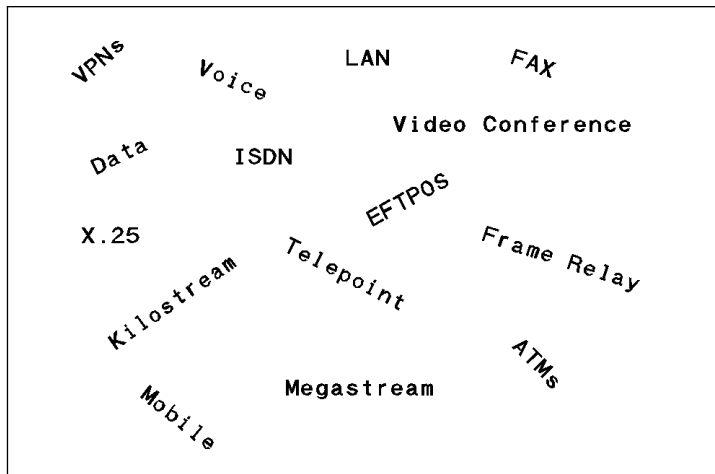
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Introduction

In recent years, there has been a dramatic expansion in the number and variety of services carried via digital communication networks. For an additional cost, customers are now prepared to lease lines of a guaranteed transmission quality and availability. This means that PTTs must monitor a link's performance and at the same time minimize downtime.

Traditionally, error performance tests meant taking the link out of service for extended periods of time which, as well as being wasteful of capacity, lost the network operator valuable revenue.

In today's world of privatized and more profit orientated PTTs, the emphasis is on maximizing capacity and minimizing downtime due to faults. A preventative maintenance strategy based on in-service monitoring provides the solution to both of these problems.



Centralized testing/monitoring systems

When you're under pressure to maintain service performance and capacity, the cost of providing effective and efficient network test and maintenance can be significant.

To help reduce maintenance costs, you need to minimize field-service travel time. It is also inefficient to send skilled operators to individual remote sites just to set up test equipment and run test routines.

A centralized test capability helps you use test resources efficiently. It's like putting an expert in every strategic location.

Centralized testing/monitoring systems allow problems to be solved in real time and enable centralized experts to provide quality support to field technicians. Previously these experts, in central locations, would often travel to the problem site in order to see first hand what was going on in the network. This time-consuming, expensive travel increased the overall mean time to repair (MTTR) of the customer network. In the competitive environment of providing quality services to customers, MTTR is becoming a critical bench mark. Centralized testing/monitoring helps to reduce MTTR.

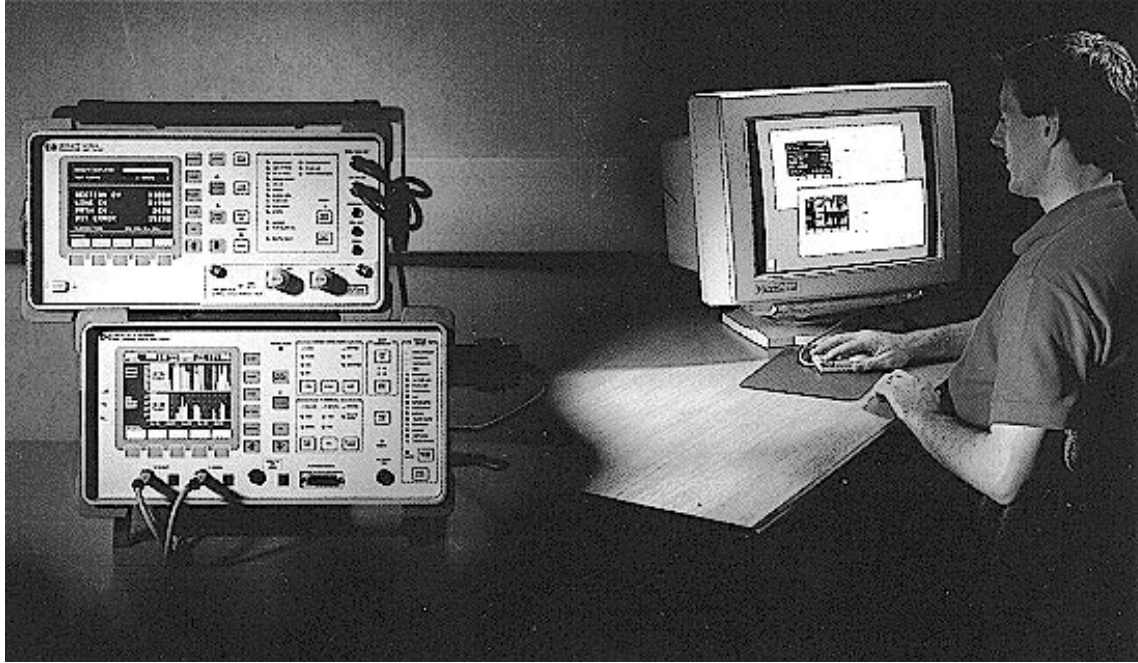
Features

- Centralized testing based on stand-alone testers – low entry cost to systems providing a solution now.
- Real-time control of remotely located HP 377XXA telecom test sets and analyzers – centralized testing capability helps utilize scarce test resources more efficiently, saving time and money.
- Full front panel displayed on the workstation or PC screen. All settings changed by the “mouse” on the workstation or PC are made on the remote test set in real time, and vice versa – easy-to-use, saves time.
- All test and measurement results are available at the workstation or PC – for a permanent copy of test results, attach a printer to the workstation or PC or to the LAN.
- Shortens overall customer downtime – reduces the MTTR factor.

There are 3 in-service centralized testing/monitoring systems offered by Hewlett-Packard just now. These are:

1. Virtual-remote capability – provides centralized supervision, operation and collection of results from remotely located HP telecom test sets and analyzers. Control of the instruments is via a centrally located HP workstation or PC.
2. FAS monitoring system – for connecting the HP 37730A frame analyzer to a number of remote monitor points. Control of the analyzer and selectors is from a centrally located PC.
3. External-control software – for central control of remotely located HP 37741A DS1 testers from a PC.

Virtual-remote capability



The HP 15800A virtual-remote software provides for the centralized supervision, operation and collection of results from remotely located HP telecom test sets and analyzers. From a PC or one or more workstations you have control of multiple remote HP telecom test sets. Up to 12 remote test sets are accessible simultaneously. These instruments may be a mix of different products, for example HP 37724A and 37722A, allowing comprehensive testing of problem sites. Each instrument is shown as a window with an identical front panel on the computer display. Where technicians intervene locally to use the test sets manually, all actions and results are immediately monitored back at the remote test center.

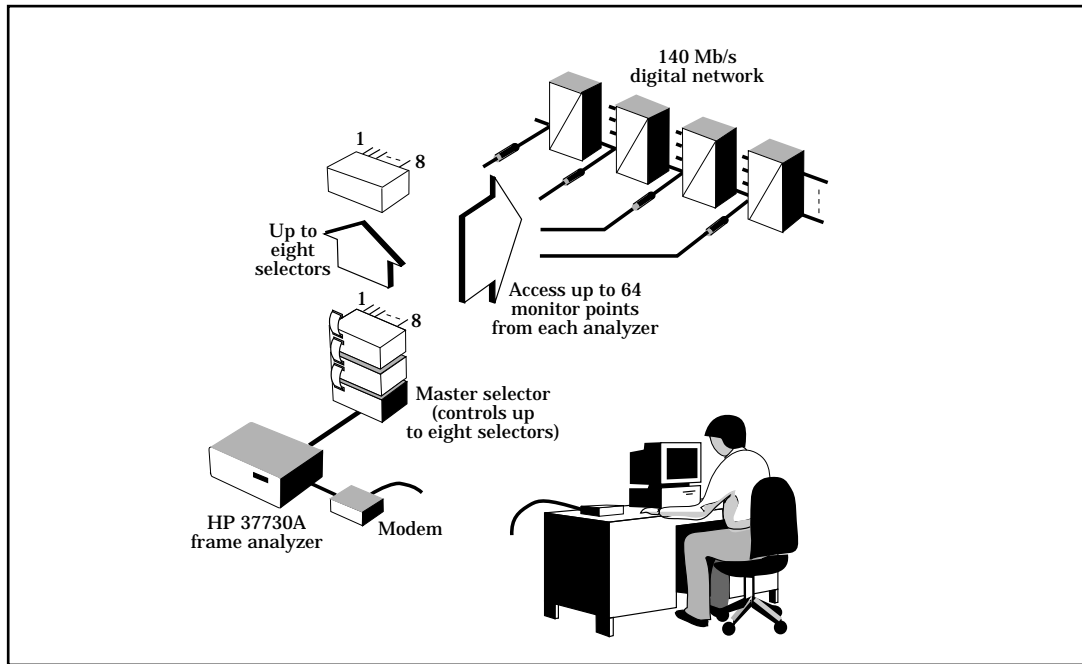
User-named screen icons and menu keys keep operation simple, providing uncluttered access to multiple windows. A printer attached to the PC, workstation or to the LAN provides a permanent copy of test results. Alternatively, send the results to the PC or workstation screen, or archive them to a file.

HP 15800A virtual-remote capability software runs on HP 9000 Series 300, 400 or 700 graphics workstations operating under HP-UX version 8 with compatible V11/Vlib window environments. The software is also available to run on a 486 PC with a minimum of 8 MB of RAM, Microsoft compatible mouse, and COM1 serial port. HP 377XXA Option V01 virtual-

remote capability enhances HP telecom test set firmware to respond to the HP 15800A software, via an RS-232-C connection.

The HP 15800A transforms a PC or workstation into a small systems escalation center, providing the expert with a window into the problem.

FAS monitoring system



The HP centralized FAS monitoring mini system lets a centralized expert spot trouble early.

The system consists of:

- Remotely located HP 37730A frame analyzers
- Centralized FAS monitoring software for a PC
- Master selector and selector (monitor-point selectors) - also known as access switches
- The system also comprises a PC and modems

Each remote site is given a name, site telephone number, and a list of routes for that site. Each route is defined by input bit rate, gain, tributaries and monitor point.

The software has three modes:

- Manual – call a single remote site and use the frame analyzer as if you were there.
- Sequence – tell the system to call a number of sites in a sequence, start a measurement period at each site and later retrieve the counters values and G821/M550 results.
- Trace – choose 10 remote sites which you want to monitor continuously. The software polls the sites and stores all events and alarms as they happen.

The results can be stored in files for printing or disk storage.

For security you can set a password to enter the system.

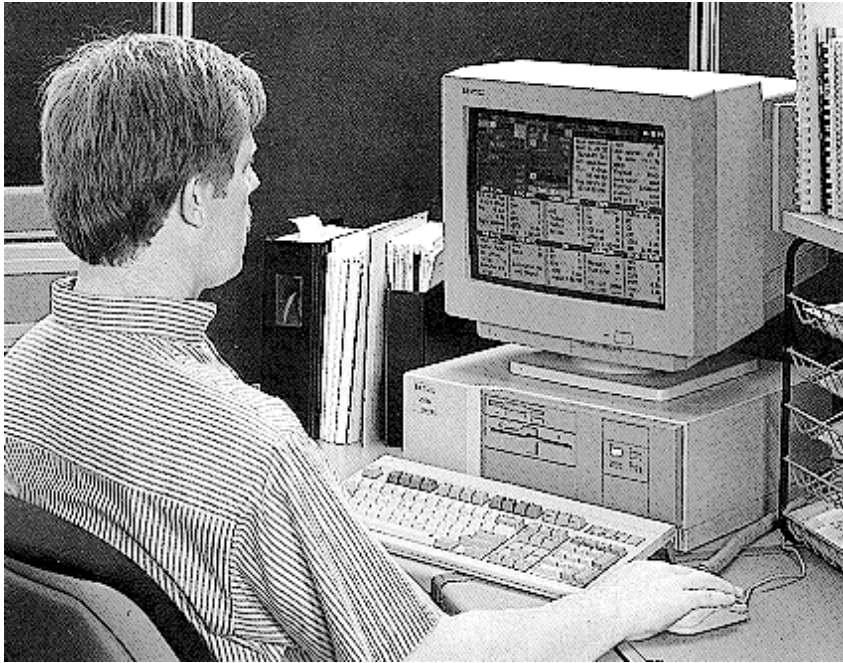
The software needs a minimum of a 386 PC, 512 KB memory, COM1 serial port and MS-DOS 3.0 or later with compatible Labwindows environment and VGA monitor.

Frame analyzers at remote sites must be rev 3.3 or later.

There are two types of access switch: a master selector and a selector. You can connect one master selector to each frame analyzer, and up to 8 selectors to a master selector. Each (slave) selector can switch between up to 8 monitor points. This means that from one HP 37730A you can access up to 64 monitor points.

The system is flexible because it's made up of portable instruments and selectors which can also be used separately if needed. It's also easy to install.

External-control software



The HP 15726A software provides central control of remotely located HP 37741A DS1 testers from a PC. It gives control of test setup and results presentation without the need to move from the office.

There's immediate feedback of results. The PC display shows the full set of results at all times, updated every second.

Software installation and tester configuration is easy. There are no hidden setup screens or cryptic commands to learn. The PC displays the full 10 screens of the DS1 tester at all times. Test-screen control is via a mouse.

Context-sensitive help screens provide the operator with additional assistance immediately it is needed, and keep training to a minimum.

For long-distance operation, the software supports an unlimited store of phone numbers for dialing to remote sites using autodial modems. For distances up to 2 m, the PC connects direct to the tester.

The software needs a minimum of a 12 MHz 286 PC with 512 Kb memory, Microsoft compatible mouse and serial port. The modem, if required, should be 2.4 or 9.6 kb/s and MNP-5 or V.42 bis error correcting.

Summary

HP's centralized testing/monitoring systems provide real benefits to progressive PTTs. The expansion in digital networks and services, and the customer's demands for high quality lines and maximum availability must be met cost effectively.

The Virtual Remote Software controlling multiple remote HP test sets, FAS Monitoring System controlling a number of frame analyzers at remote sites, and the External Control Software remotely controlling DS1 testers provide the network operators with the tools.

These systems allow your skilled engineers to control testing at remote sites without moving from the central office, saving on travel costs and time, improving the engineer's availability to deal with critical and complex problems and reducing the MTBF for customers.

Make more-effective use of your skilled engineers with centralized testing/monitoring systems and see real cost savings.



For more information on Hewlett-Packard Test & Measurement products, applications or services please call your local Hewlett-Packard sales offices. A current listing is available via Web through AccessHP at <http://www.hp.com>. If you do not have access to the internet please contact one of the HP centers listed below and they will direct you to your nearest HP representative.

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Measurement Assistance Center
9-1, Takakura-Cho, Hachioji-Shi
Tokyo 192, Japan
Tel: (81-426) 48-0722
Fax: (81-426) 48-1073

Latin America:

Hewlett-Packard
Latin American Region Headquarters
5200 Blue Lagoon Drive
9th Floor
Miami, Florida 33126
USA
(305) 267 4245/4220

Australia/New Zealand:

Hewlett-Packard Australia Ltd.
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Blackburn, Victoria 3130
Australia
1 800 629 485

Asia Pacific:

Hewlett-Packard Asia Pacific Ltd.
17-21/F Shell Tower, Times Square
1 Matheson Street, Causeway Bay
Hong Kong
Fax: (852) 2506 9285

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