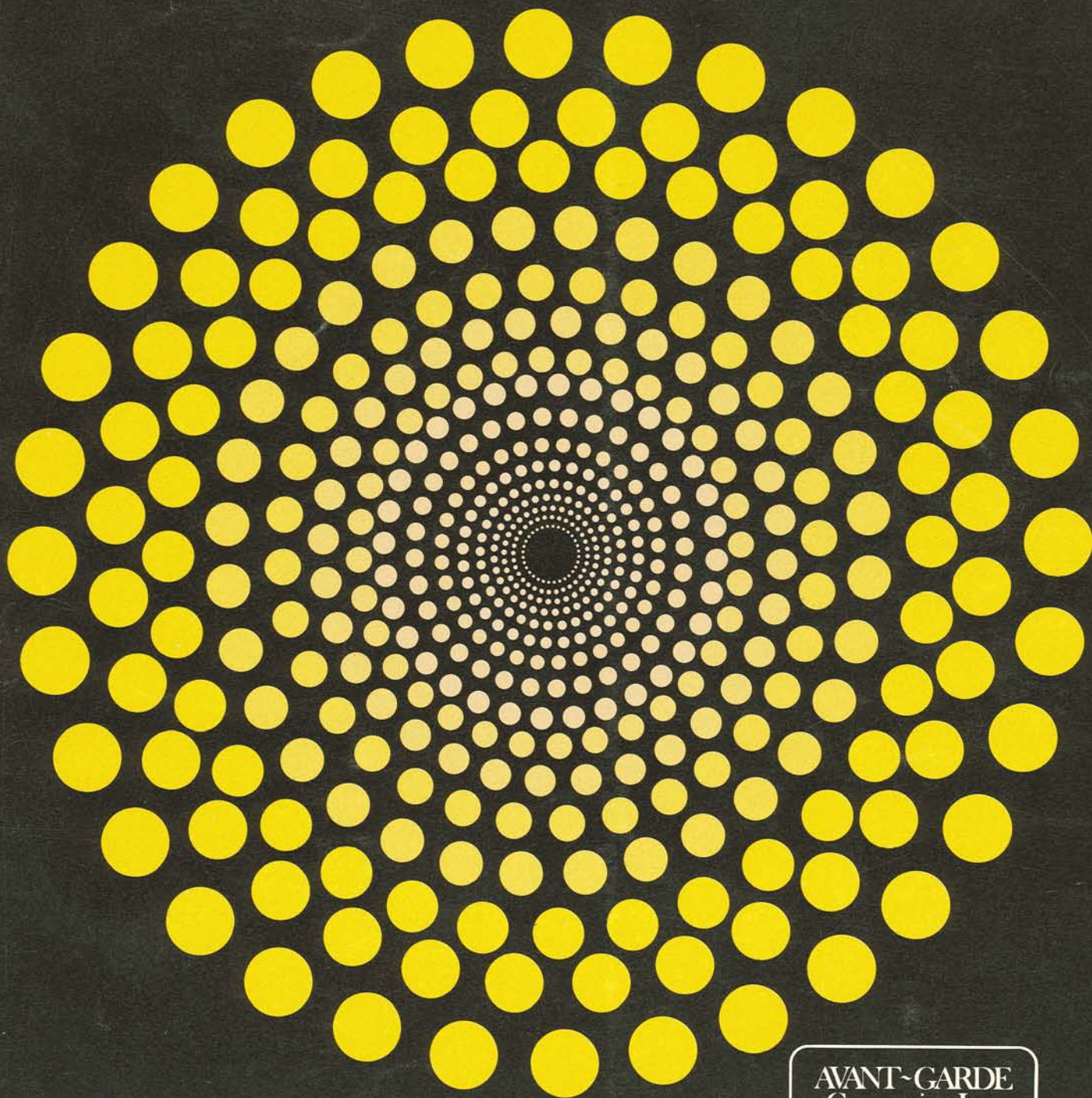


NET/ALERTTM
The TP performance spotlightTM

**BECAUSE YOU SHOULDN'T
LEARN ABOUT YOUR
TP NETWORK PROBLEMS
FROM YOUR USERS**



AVANT-GARDE
Computing, Inc.

"Running a telecommunications data center today is like driving a car without any instruments on the dashboard. You don't know you're out of gas until your car slows down, and you don't know response time is bad until a user calls to complain.

"Today's telecommunications environment can't tolerate such guesswork. We must know at all times the level of service we are providing our users. Operations management must be able

to act, not react, and that means knowing — every minute of every day — what is happening in our telecommunications system."

David M. Magenheim
Vice President
CITIBANK, N.A.

NET/ALERT

The TP performance spotlight

A revolutionary new tool that shows operations managers how every terminal on every line in their telecommunications system is performing...right now!



NET/ALERT is a microcomputer-based system that continuously monitors the telecommunications system to provide on-line, real-time information to operations managers, data communications managers and other data processing management. NET/ALERT scans every data and control character entering or leaving the system, and transforms it into usable information on overall system performance • It continuously displays system status on a color graphics CRT • It watches for real or potential trouble such as response time or error retry problems • It provides early warning alerts — both visual and audible — for your operators • It records performance data on terminals, lines, and the overall system • It prepares easy-to-use management reports to help you measure and improve system performance and plan network development.

The moment an operational problem occurs, NET/ALERT detects it and reports it to operations management

- Know about poor response time or bad lines — before your user does
- Give your operators easy-to-use status information and trouble alerts to help them quickly identify and correct problems
- Get the facts you need to improve system performance
- Provide a higher level of service to your users
- NET/ALERT — action... not reaction

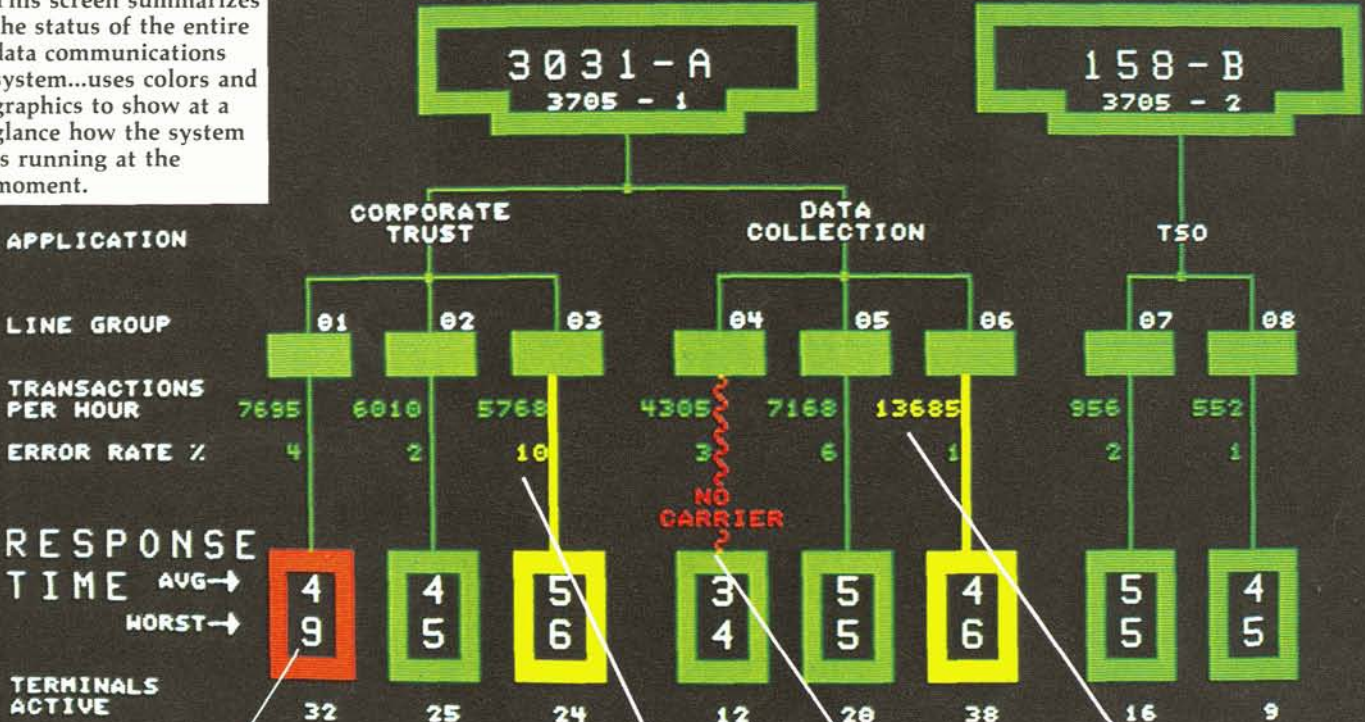
Take the "guesswork" out of operations management. Get real-time performance information on your network operation.

Learn about your TP network problems from NET/*ALERT*...not from your users!

16:50

This screen summarizes the status of the entire data communications system...uses colors and graphics to show at a glance how the system is running at the moment.

* NETWORK STATUS *



***** NET/*ALERT* MESSAGE AREA *****

* ♦ ALERT 216 16:33 (LN GR 01 LINE 3) - BAD RESPONSE TIME

* ♦ ALERT 217 16:45 (LN GR 04 LINE 2) - LOSS OF CARRIER

Average response time is good, but somewhere in the line group, response time has degraded to nine seconds. This exceeds the operations-specified parameter, so NET/*ALERT* issues an alert message to the operator by changing the response time block to blinking red.

An alert message at the bottom of the screen indicates a specific terminal on one line is having trouble. By using "next-level" NET/*ALERT* screens (see following pages), the operator can pinpoint line problems — learning, perhaps, that the response time on other terminals on this line, and on other lines, is about to exceed acceptable parameters. This may indicate a computer system is becoming overloaded with jobs — a problem that operations can react to immediately through scheduling changes.

Error retries are higher than usual and response time is going up. Operations can use NET/*ALERT* data to diagnose line problems.

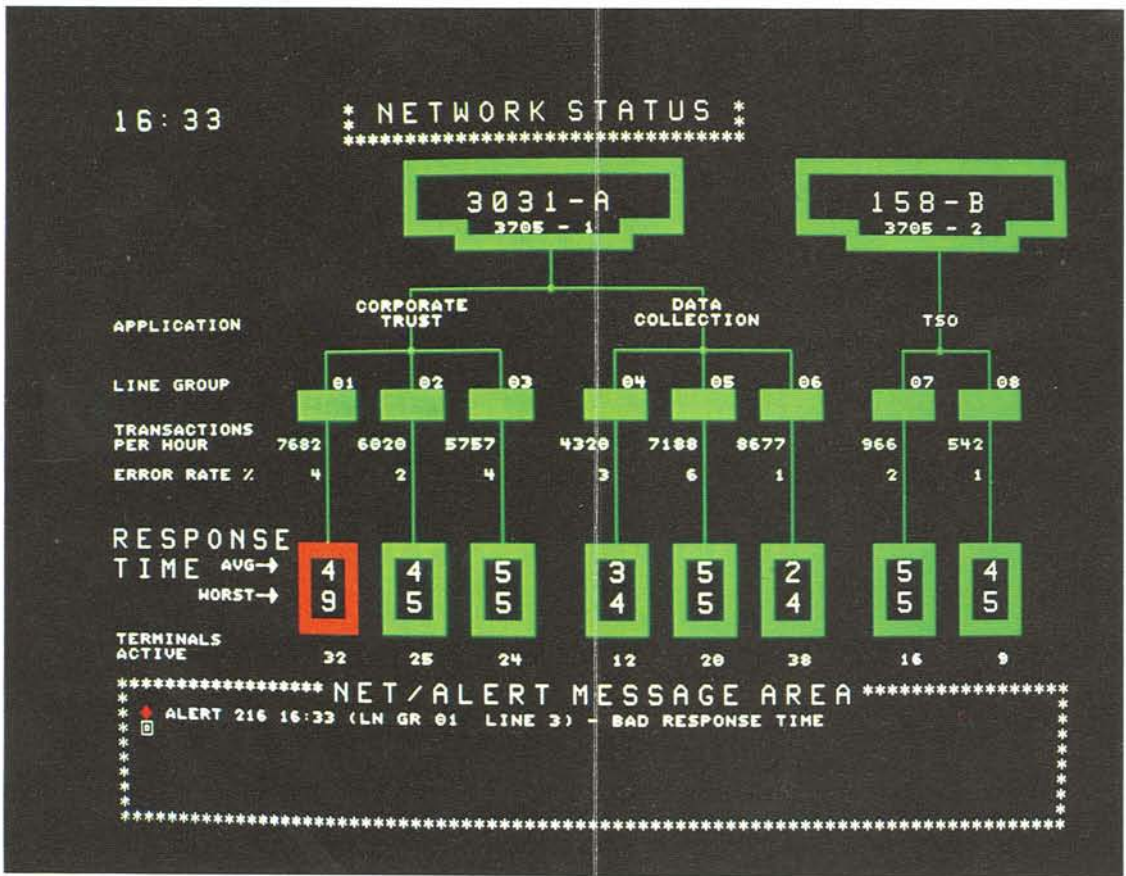
Carrier has been lost. All user terminals are down. The failure may be in the line or a modem. Operations knows immediately and can take action to get the users back on line.

Transaction volume is high. Response time is going up. Operations can inform the user that he is pushing more work than usual through the system and may experience degraded service.

Unretouched photograph of actual NET/*ALERT* screen.

NET/*ALERT*

means
better
information
for
operations
managers



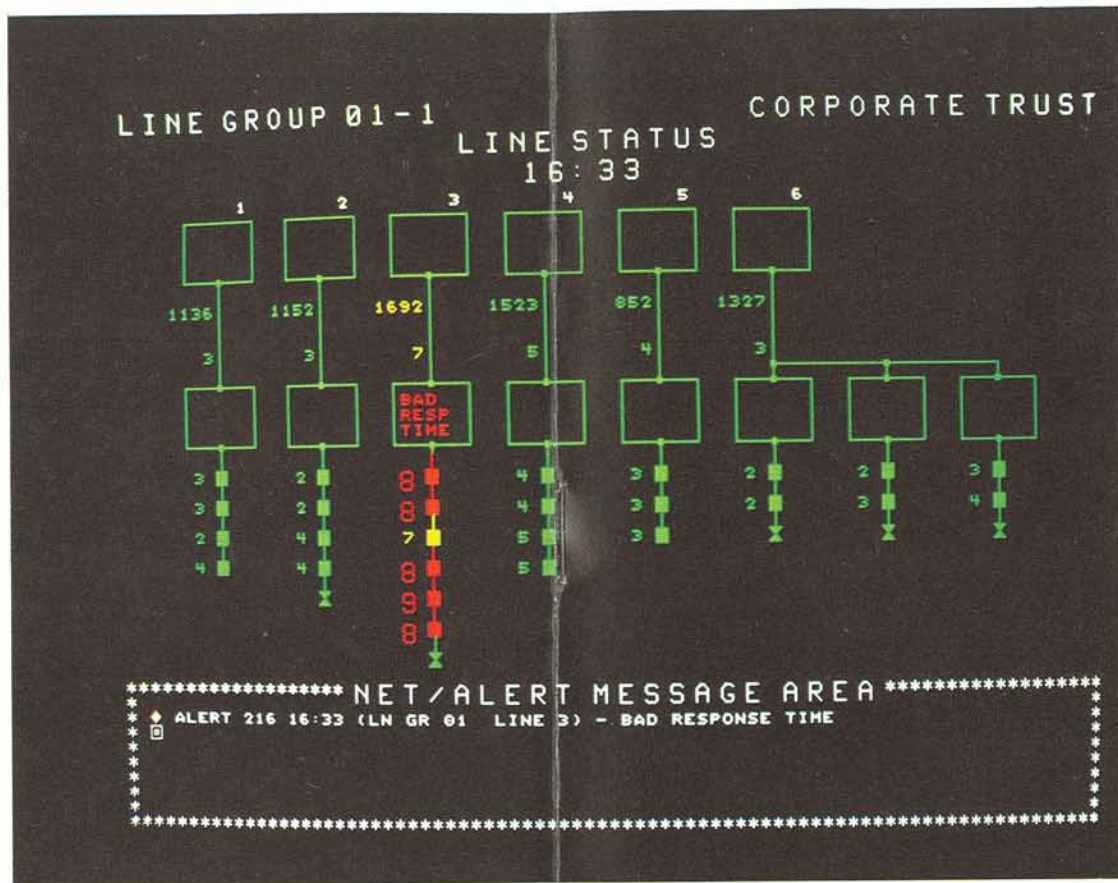
The NETWORK STATUS screen is the highest level summary display. A simplified system block diagram graphically displays the status of the entire telecommunications system, a group of applications, or a single application. Colors show condition at a glance. Green means normal. Yellow means potential trouble. Red means operator attention may be needed. Each line group schematic represents multiple lines. Measurements of transaction volume and error rates are for all lines in each line group.

Response time is an indication of how your user sees the level of service. NET/ALERT calculates response time for individual terminals, and smooths an average over an operations-specified interval. It then averages response time for all terminals on a line and in a line group. The result is displayed in the response time block. The "worst" response time is for one specific line and terminal.

This sample display shows NETWORK STATUS at 4:33 P.M. One of the eight line groups has a response time problem. Although the average response time is 4 seconds, the worst case is 9 seconds. The NET/ALERT message ("ALERT 216...") shows that Line 3 of Line Group 01 has bad response time.

Unretouched photographs of actual NET/ALERT screens.

2 With lightpen or keyboard input, an operator can request the screen at right, a level 2 display. This **LINE STATUS** screen shows graphically the state of each individual line within a specific line group. (If a line group includes more than eight lines, multiple screens are used.) The display details the present status of each



terminal on each line. This example more specifically shows the trouble being encountered on Line 3 of Line Group 01. Five terminals on this line are experiencing response times beyond operations-specified parameters. Also, both the transaction volume and error retry rate are in the potential trouble range.

NET/ALERT tells you how your TP system is running right now...or why it's not!

NET/*ALERT* tells you how your TP system is running right now...or why it's not!

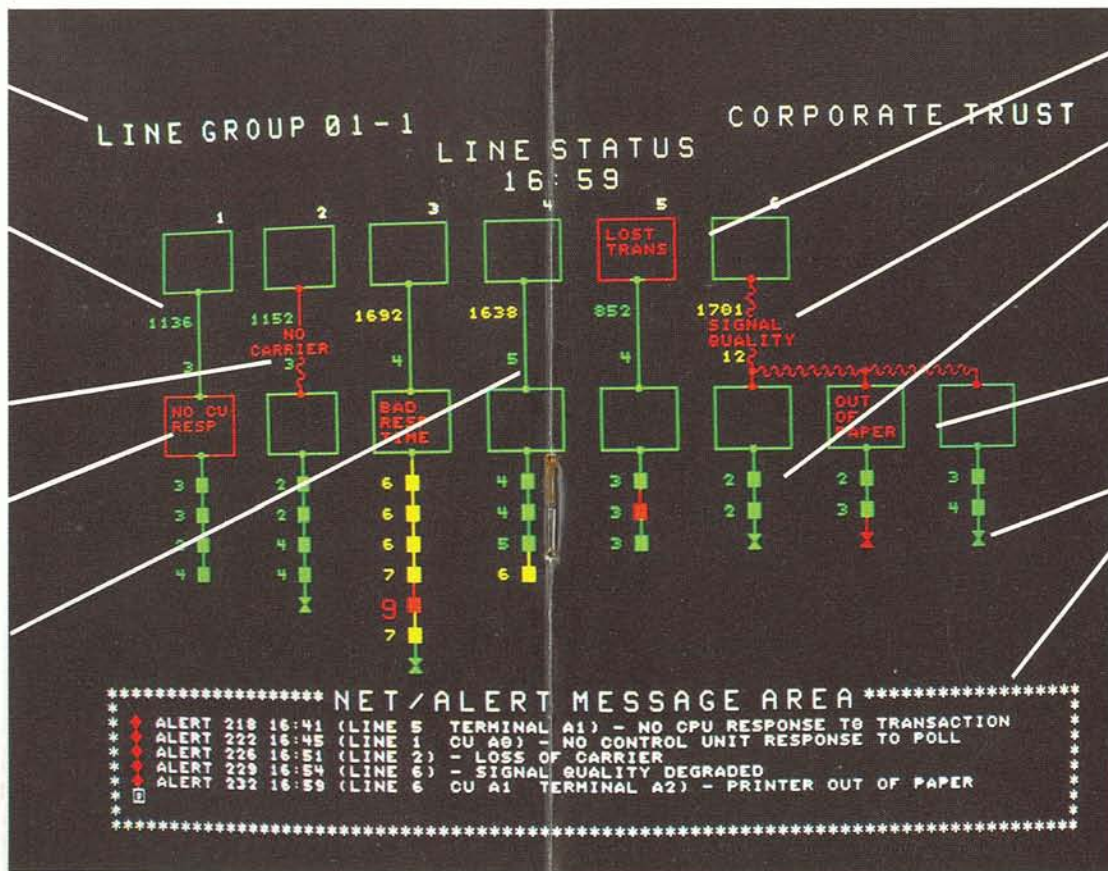
This screen shows five point-to-point lines and one multi-point line in Line Group 01. If there are more lines in a line group, they are displayed on subsequent screens.

Transactions per hour is a measure of how busy a line is. NET/*ALERT* counts transactions, calculates the hourly rate, and displays the results at operations-specified intervals. If the transaction volume nears or exceeds operations-specified parameters, the numbers change color, to yellow or red.

NET/*ALERT* has detected a line or modem failure, indicated by a loss of carrier.

A remote control unit has failed to respond to a polling sequence from the host computer.

Error rate is a measure of line performance. NET/*ALERT* counts error retries, calculates the ratio of retries to total transmissions, and displays the result at operations-specified intervals. Numbers change from green to yellow to red as error rates increase.



A transaction from a terminal has not received a response from the host computer.

The modem signal quality indicator identifies a marginal line.

Each block represents a terminal with its NET/*ALERT* response time (in seconds) indicated to the left. The color changes to yellow or red when the NET/*ALERT* response time exceeds operations-specified parameters.

A remote control unit has sent a status message to the host computer indicating that a terminal printer requires operator intervention.

Terminal printer.

NET/*ALERT* messages are logged on the printer and displayed on the color CRT.

LINE GROUP 01
LINE 3

16:33
TERMINAL STATUS

CORPORATE TRUST

CIRCUIT NO: 3745-509-735290
LOCATION: 53RD ST 29TH FLOOR
USER PHONE: 212-558-7510
CONTACT: S. MILLER

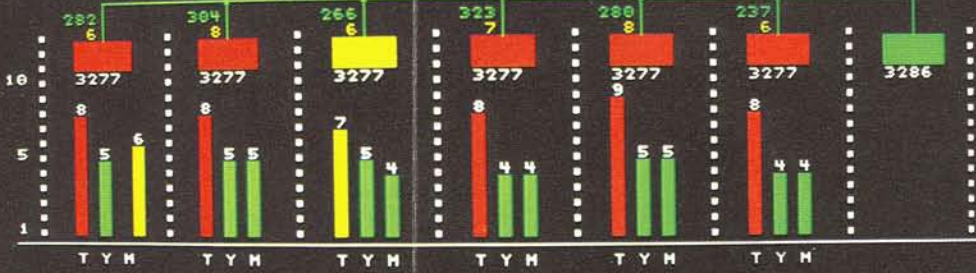
MODEM: C-7 BELL 208 2400 BPS
FEP: 3705-1 LAA = 32
CPU: 3031-A UCB = 1A2
CICS: LINE 3

BELL 208

TRANS/HOUR 1692
ERROR RATE % 7

3271 CU

BAD
RESP
TIME



LINE RESPONSE TIME



3 An operator can next call the most detailed screen, the TERMINAL STATUS screen shown above. This screen shows the present status of each terminal on a single line plus response time comparisons with prior periods. Also shown are transaction and error rates for each terminal. The response time bar charts indicate, for each terminal, the response time today (T), yesterday at this time (Y), and month-to-date at this time (M). The graphs at the bottom of the screen show trends in response time for the entire line by: • each hour of the current day • overall line response time today, this time yesterday, and this time month-to-date, and • month-to-date average response times for each hour of the day. The section at the top of the screen shows reference data about the line.

NET/*ALERT*

means
better
service
for
on-line
users

NET/ALERT TECHNICAL INFORMATION

HOW NET/ALERT GATHERS STATUS AND PERFORMANCE DATA

The NET/ALERT data gathering device is the Microprocessor Line Set (MLS). The MLS includes a microprocessor, local memory and intelligent line interfaces. Each teleprocessing line to be monitored is attached to a MLS. The function of the MLS is to monitor the status and performance of the line by interpreting modem signals: transmitted and received data and control characters, and modem status indicators. (See Figure 1).

The MLS is attached to the teleprocessing line by a "T-Connection".

The connection is made on the digital side of the modem, between the modem and the transmission control unit or front end processor (See Figure 2). The NET/ALERT connection is passive. It does not delay or alter the data as it passes between the host computer and the line. The "T-Connection" is normally installed either at the modem RS232C connector or at a communications panel.

The MLS performs serial-to-parallel conversion on the bit stream between the modem and the transmission control unit. It interprets the data and control characters according to the speed, protocol and coding specified for the line in an operations-controlled parameter file. It monitors bisynchronous, asynchronous, and HDLC protocols. Because the MLS includes expanded protocol capabilities, it is capable of interpreting the data transmissions to determine block and transaction counts, error retries,

Figure 1.

PIN #	DCE	DTE	FUNCTION	MLS NET/ALERT
1			Frame Ground	
2	•		Transmitted Data	•
3		•	Received Data	•
4	•		Request to Send	•
5		•	Clear to Send	•
6		•	Data Set Ready	•
7			Signal Ground	
8		•	Carrier Detect	•
9		•	Positive DC Test Voltage	
10		•	Negative DC Test Voltage	
11			Unassigned	
12		•	Secondary Received Line Detector	•
13		•	Secondary Clear to Send	•
14	•		Secondary Transmitted Data	•
15		•	Transmitter Clock	•
16		•	Secondary Received Data	•
17		•	Received Clock	•
18	•		Unassigned	
19	•		Secondary Request to Send	•
20	•		Data Terminal Ready	•
21		•	Signal Quality Detect	•
22		•	Ring Indicator	•
23	•		Data Rate Select	•
24	•		External Transmitter Clock	•
25			Unassigned	

DCE — Data Communications Equipment (modem)
 DTE — Data Terminal Equipment (terminal)
 MLS-NET/ALERT — Modem signals monitored by MLS at RS232C Interface

response times, status messages from remote control units, polling frequency and protocol validity.

The maximum bandwidth of the MLS for synchronous protocols is 56,000 bits per second. Each MLS can therefore monitor any combination of line speeds up to the

56K bps limit (See Figure 3).

Since the MLS is a "read-only" device, it is invisible to the host, the transmission control unit, the remote control units and all other hardware units in the system. It is also invisible to software at all levels, including operating systems,

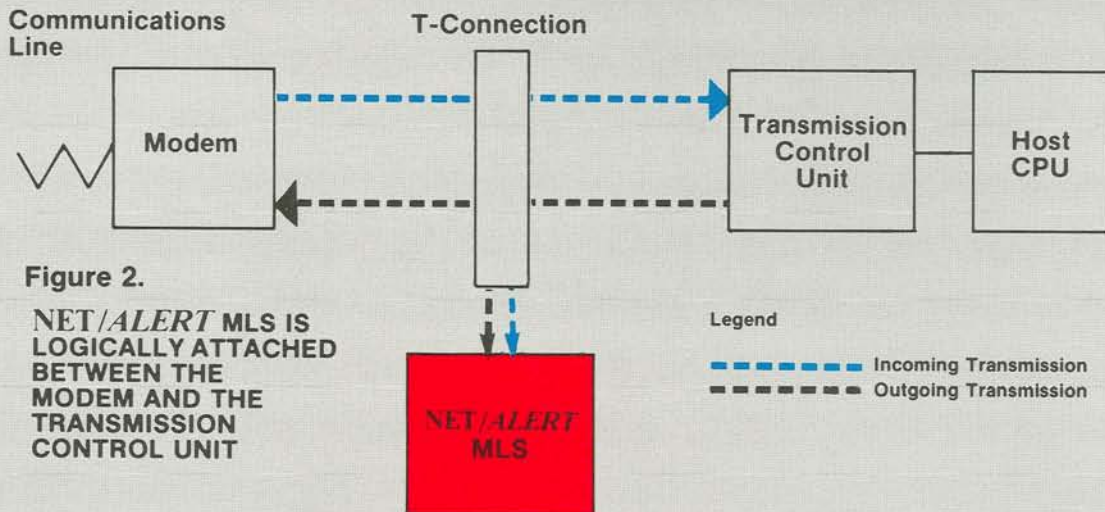


Figure 2.
NET/ALERT MLS IS LOGICALLY ATTACHED BETWEEN THE MODEM AND THE TRANSMISSION CONTROL UNIT

Figure 3.

LINES ATTACHABLE TO EACH MLS	
LINE SPEED	NUMBER OF LINES
1200	
or less	8
2400	8
4800	8
9600	4
19,200	2
56,000	1

teleprocessing monitors, access methods and application programs.

The physical attachment of the MLS "T-Connection" is designed to minimize space requirements in the modem or communications panel rack. The connector can be removed and reinstalled in another location quickly to facilitate frequent changes in line and modem configuration. Line speed can be changed by entering a new parameter through the NET/ALERT system console.

A TYPICAL NET/ALERT SYSTEM

The basic NET/ALERT System includes a System Control Unit, one or more Microprocessor Line Sets, a Disk Drive, a Log Printer and a Color Graphics CRT Display (See Figure 4).

The Color Graphics CRT Display is the heart of the system. Display formats make maximum use of graphics and color to communicate status data and NET/ALERT messages in a form instantly usable by operators. The Display is a large screen

Modems T-Connections

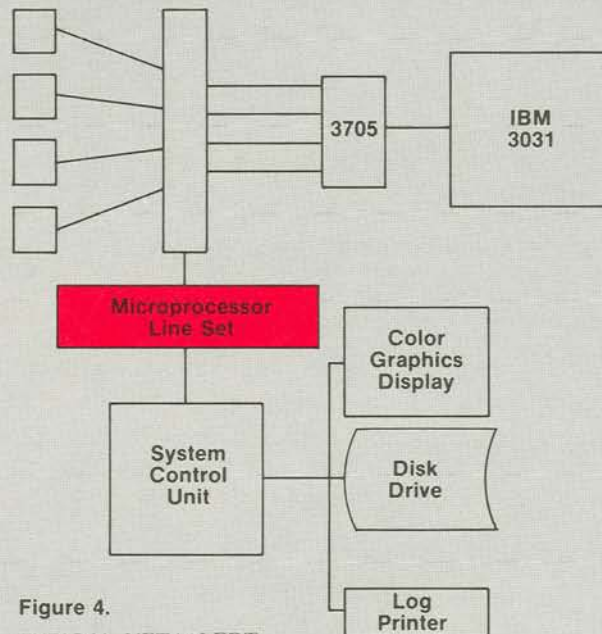


Figure 4.
TYPICAL NET/ALERT CONFIGURATION

(19 inch or 25 inch) color monitor. Display screen formats have been designed so that important conditions, such as the status of a line group, are visible from up to 20 feet away. Blinking color blocks highlight changes in status. An optional audible alarm is used to call the operator's attention to critical situations which are defined by operations-specified parameters. The optional lightpen facilitates operator access to NET/ALERT's various status screen formats.

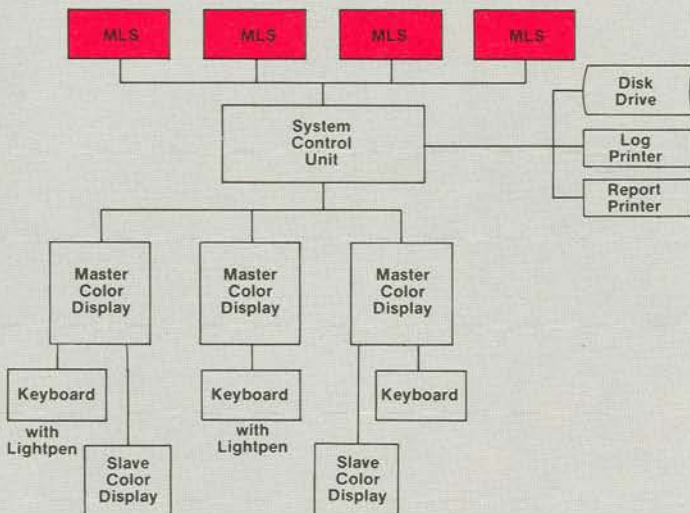
The System Control Unit is a microprocessor-based central processor that includes logic and memory at several levels, input/output channels, and control program software. It receives status and performance messages from the Microprocessor Line Sets, analyzes the messages, issues status and alert displays, records statistics for subsequent reports and analysis. The System Control Unit is capable of down-line loading the microcode necessary to control the Microprocessor Line Sets.

EXPANDED SYSTEMS

The basic NET/ALERT system can be expanded in two ways: (1) expanded data gathering by adding Microprocessor Line Sets to monitor more lines; (2) expanded input/output by adding Master Color Graphics Displays or Slave Color Graphic Displays. Multiple MLS units can be attached to the System Control Unit. (See Figure 5).

A Master Color Graphics Display includes a keyboard (and optional lightpen) and permits full access to the NET/ALERT data base. Up to eight Master Displays can be attached to the NET/ALERT System Control Unit. A Slave Display Unit has no keyboard. It duplicates the display on the Master Display Unit to which it is attached. Up to eight Slaves can be attached to each Master Display.

Figure 5. EXPANDED CONFIGURATION





October 31, 1979

Mr. Robert Rath
Planning Specialist
Pacific Gas & Electric
245 Market Street
San Francisco, CA 94106

Dear Bob:

I have enclosed a brochure describing the "NET ALERT" Telecommunications monitoring system. I sincerely believe that this device is one of the most innovative things that has happened to data processing in the last number of years.

As you can see from the literature, the NET ALERT system will monitor your entire telecommunications network system from the host down to the individual terminal. The use of color graphics greatly enhances the impact of spotting potential and/or problem areas.

In most cases I have already spoken to you about the enclosed system. If we have not arranged for a meeting and you wish to discuss this further, please feel free to contact me at your earliest convenience.

Western Data Memories and Avant-Garde are planning a seminar to take place within the next two months. At this demonstration I will have a live CRT on display for your review.

In closing, I will be more than happy to answer any questions that you may have regarding a NET ALERT so do not hesitate to contact me and arrange for an in-house demonstration.

Sincerely yours,

A handwritten signature in blue ink that reads "David J. Wagner". The signature is written in a cursive style with a long, sweeping tail on the "n".

David J. Wagner

DJW:pjb
Enclosure

