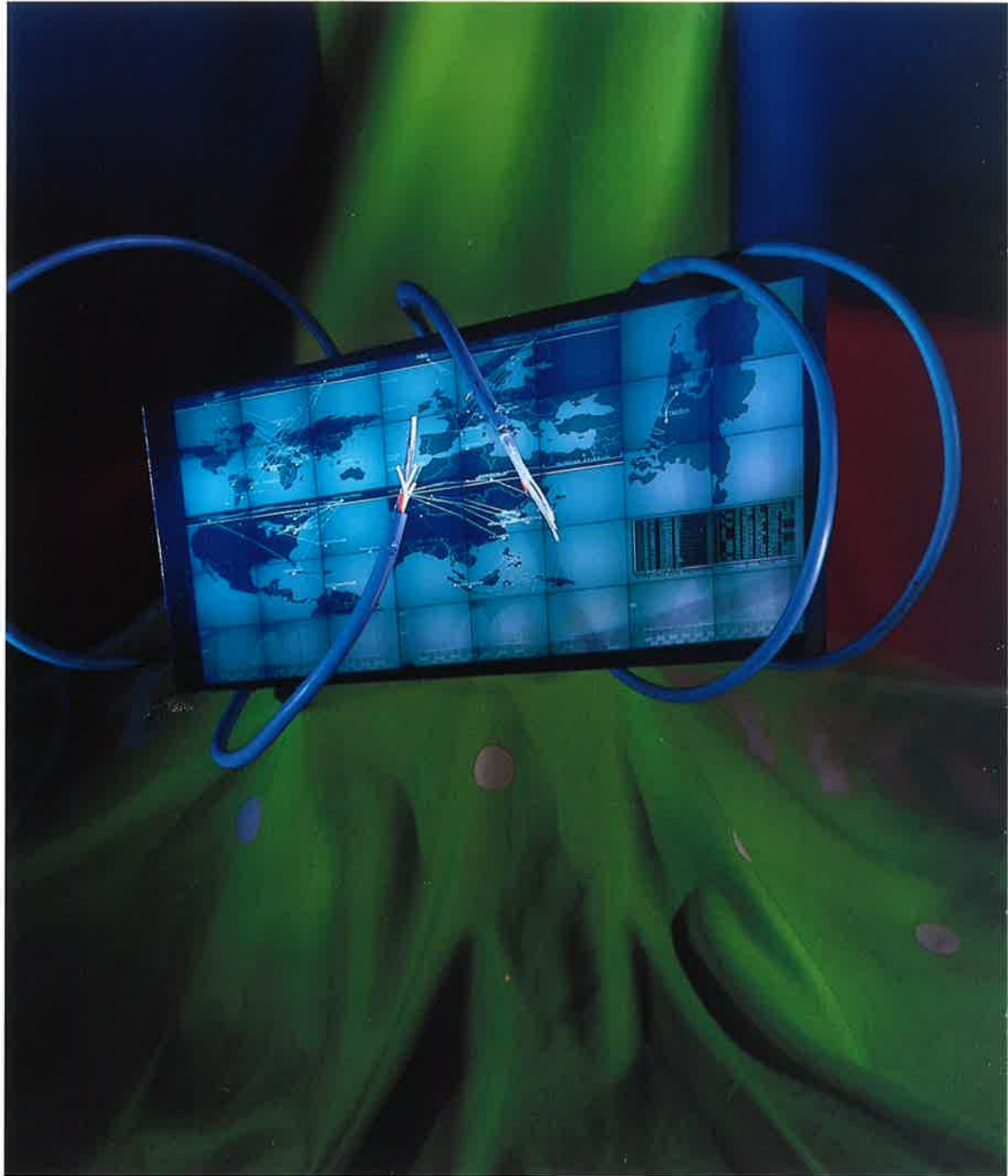


MONITORING INTERNATIONAL LEASED CIRCUITS



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THE VOLUME OF TELECOMMUNICATIONS TRAFFIC HAS INCREASED DRAMATICALLY IN RECENT YEARS WITH THE INTRODUCTION OF MORE AND MORE NEW SERVICES. BUSINESS AND RESIDENTIAL USERS ARE OBVIOUSLY BECOMING INCREASINGLY DEPENDENT ON A RELIABLE NETWORK. IT WAS TO ENHANCE THIS RELIABILITY THAT PTT TELECOM NETHERLANDS SET UP ITS INTERNATIONAL NETWORK MANAGEMENT CENTRE (INMC). SINCE OPENING IN MID-1991 THE INMC HAS BEEN MONITORING INTERNATIONAL TELEPHONE TRAFFIC AND THE AVAILABILITY OF INTERNATIONAL LEASED CIRCUITS.

PTT Research provided advice regarding implementation matters during preparations for the start-up of the INMC.

And cooperation with a software house resulted in the development of a system which monitors international leased circuits to ensure they are available for use by customers. This article describes the INMC and the working of the system which keeps a watch on leased circuits.

International Network Management Centre

A nerve centre for international telecommunications is probably the best way of describing the International Network Management Centre (INMC) of PTT Telecom Netherlands. Round the clock the network managers observe telephone traffic to and from the Netherlands and also the international leased circuits of PTT Telecom's top twenty business customers. The INMC, located in Hilversum, is part of PTT Telecom's Cable and Radio Transmission Department.

Monitoring international telephony

Network managers use a computer system to retrieve measurements once every fifteen minutes from the international exchanges in Amsterdam and Rotterdam. These statistics are used to calculate quality parameters for comparison with predefined quality standards. If a parameter falls below a certain threshold value, the network managers are alerted and a map projected on a large video wall (4 x 8 metres) shows the below-standard traffic streams by means of signal lines and blocks. The signal lines have colour codes to indicate the seriousness of the problem. Once the network managers have located the cause, they are able in many instances to devise an immediate stopgap solution. The INMC can, for instance, reroute congested traffic. If a solution is impossible at the INMC, the network managers provide guidance to the operational departments of PTT Telecom until the problem has been resolved.

Monitoring of international leased circuits

Many companies use international leased circuits for their data flows and other forms of communication between offices in different countries. They lease these circuits from PTT Telecom Netherlands for their exclusive use on account of the high degree of availability and transmission quality.

Until fairly recently, however, it was generally the customers themselves who first noticed something was wrong with a circuit, such as an interruption caused by a break in an optical fibre cable.

A desire to put an end to this situation was one of PTT Telecom's objectives in setting up the INMC. The company recognized it needed a system capable of immediately locating irregularities in international leased circuits.

However, an examination of the market revealed that there were no suppliers who could deliver a suitable system within the time required by PTT Telecom. The company therefore decided to commission the production of its own system. It was developed by PTT Research in cooperation with Rijnhaave Automatisering BV.

How the monitoring system works

The system is connected to an alarm collection and transport system called D01. It retrieves alarms generated inside the infrastructure and transmits them to the INMC, which selects all alarms originating from 2 Mbit/s multiplexers. The monitoring system has internal databases containing the following information:

- Infrastructure data

This information is used to examine each incoming 2 Mbit/s alarm to see whether it originated in a route containing one or more international leased circuits. Simultaneously, the names of those circuits are sought.

- Customer data

All circuit names are linked to the names of the customers who leased the circuits.

A real-time picture of defective circuits and the customers involved is obtained by combining the database information of the monitoring system with the incoming 2 Mbit/s alarms. The network managers are alerted as soon as the system observes problems in any international leased circuit. All circuits defective at any one time are displayed. At the same time, the system projects on the video wall the routing of the defective circuits through the Netherlands and the location of all 2 Mbit/s multiplexers in the alarm condition. This speeds up the tracing of faults.

The INMC plays an important role in clearing faults in international leased circuits. Major faults are reported to the Customer Support Centre in Amsterdam which liaises with customers while the INMC coordinates action aimed at restoring or rerouting circuits as quickly as possible.

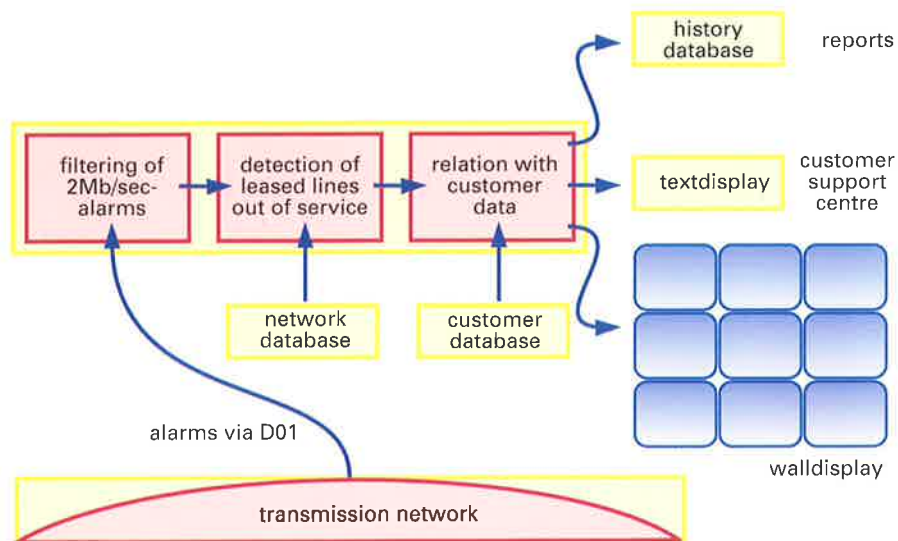
Information on every fault which occurs is stored in a database. It is used to produce weekly and monthly reports which detail the faults observed in each customer's circuits.

The monitoring system has been implemented on a PC. It is currently being used to monitor the international leased circuits of PTT Telecom's top twenty business customers.

The system was developed and installed in a short space of time. It is essentially an operational tool which has greatly facilitated PTT Telecom's efforts to provide high-quality international leased circuits.

Summary

Many companies use international leased circuits for their data flows and other forms of communication between offices in different countries. PTT Research cooperated with a software house to develop a system now being used to monitor the availability of the international leased circuits of PTT Telecom's top twenty business customers. The system is located at the International Network Management Centre (INMC) in Hilversum, PTT Telecom's nerve centre for international telecommunications. This article describes the INMC and explains how the monitoring system works.



Scheme of the monitoring system of international leased circuits

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