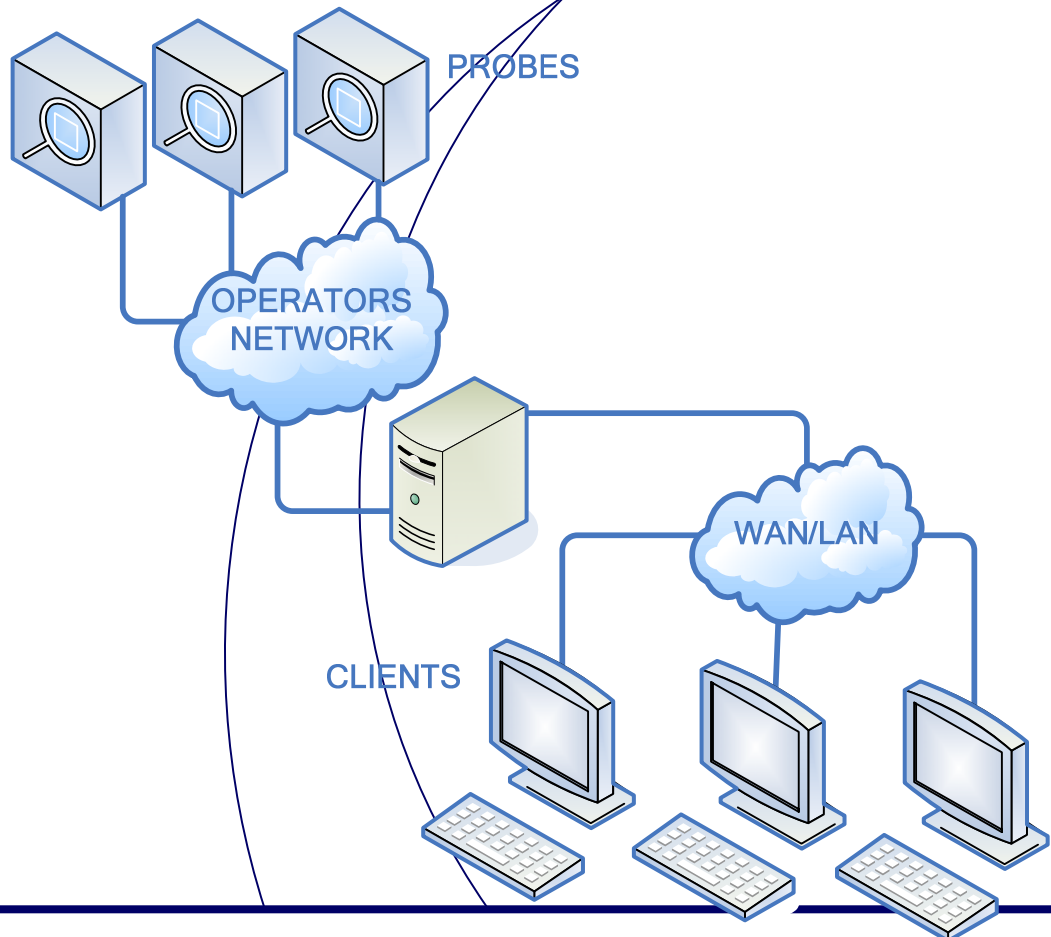


UQoS PHI

MONITORING SYSTEM

A PROTOCOL MONITORING SYSTEM
FOR OPERATORS OF
ISDN X.25
NETWORKS



LOSING CUSTOMERS AND MONEY?
INEFFICIENT NETWORKS OR PROJECTS MIGHT BE THE REASON.

WHETHER YOU'RE INTO MOBILE, VOIP, PSTN, OR ISDN BUSINESS,
GET ON TOP OF YOUR PROBLEMS NOW!



Your customers will notice

UQoS PHI APPLICATION AREAS AND OVERVIEW



IMPROVED BUSINESS WITH LOW COST SOLUTIONS

- ◆ Helps you to satisfy your customers by improving Quality of Services in your network
- ◆ Helps you to get the most out of your existing investments in your network
- ◆ Resolve your network problems before your customers even notice
- ◆ No 1st or 2nd line support anymore, you have 3rd line support directly by world class specialists
- ◆ Tailor made solutions in just a few days
- ◆ Training available by some of the most experienced and skilled specialists in Norway

NETWORK MANAGEMENT

- ◆ Know the capabilities of your network
- ◆ Easily generate reports for your executives
- ◆ Resolve network issues easily
- ◆ Tune up your network for better performance
- ◆ Quality of Service & Network Performance analysis



FAULTFINDING & TROUBLESHOOTING

- ◆ Protocol decoding of all user parts and protocol layers makes it possible to track and search for protocol irregularities.

KEY FEATURES

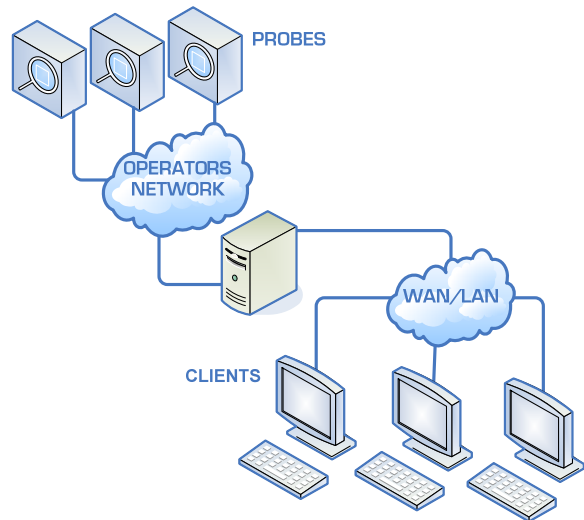
- ◆ Centralized monitoring and error tracking in ISDN X.25 networks
- ◆ Monitoring a number of E1 Packet Handler Interfaces (PHI)

OVERVIEW

Components

The cost-efficient UQoS test system from Utel Systems comprises the following components related to ISDN X.25 protocol monitoring:

- ◆ One or more probes with E1 interfaces
- ◆ Client software protocol analyzer application that are installed on each operator's PC



Centralized operation

- ◆ Reduced network maintenance cost
- ◆ Reduced error detection time
- ◆ Efficient use of expert personnel at central site
- ◆ Central maintenance and administration

Monitoring setup and decoding in one system

- ◆ Fast and efficient error tracking
- ◆ Improved network and service quality and customer satisfaction

Familiar/intuitive user interface

- ◆ Easy for new users
- ◆ Minimum of training required

Filtering function

- ◆ Fast and easy filtering and grouping of data

Open information model

- ◆ Fast documentation of errors e.g. as attachments to fault reports

UQoS PHI PROTOCOL MONITORING & ANALYSIS

Who is UQoS PHI for?

The typical network operator offering ISDN X.25 services will need efficient tools for monitoring the Packet Handler Interfaces. Traffic running in X.25 networks is often critical data such as bank and payment transactions, alarm information etc. and it is therefore important to locate and solve errors in an efficient way.

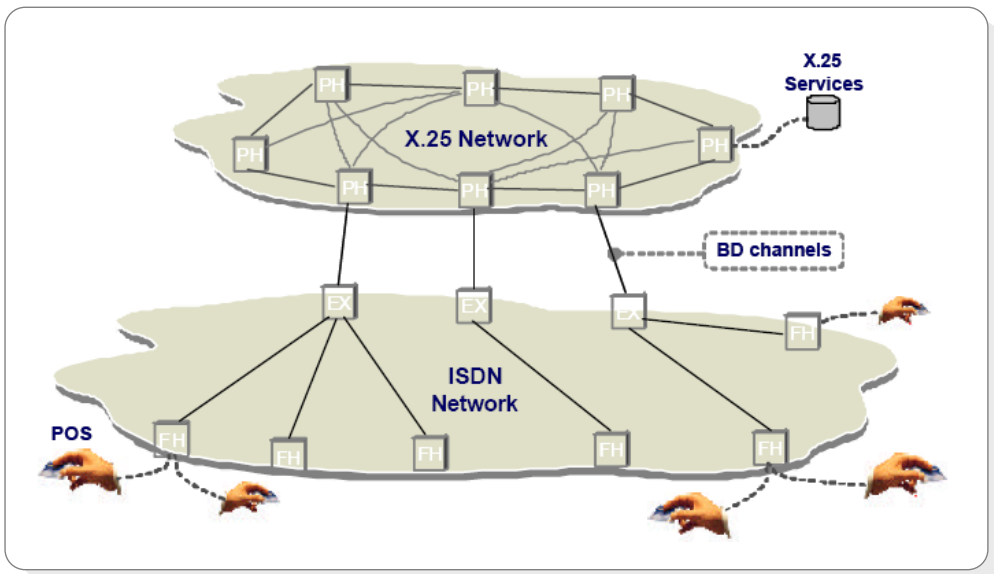


Figure: Terminals accessing X.25 services are often connected in the ISDN network - such as Point Of Sales (POS) terminals as shown on the figure.

The ISDN X.25 network

The different services in the X.25 network are more and more accessed from the ISDN network, for example through Point of Sales (POS) terminals. As the X.25 transaction reaches the public switch, the Frame Handler (FH) function directs the call to the Packet Handler (PH). The call is sent through the PSPDN X.25 network to the correct X.25 service.

Challenges

The carrier's Network Operating Centre (NOC) needs to have full control on the Frame Handler (FH), the Packet Handler (PH) and the Bd channels.

System operation

UQoS PHI meets the requirements for a centralized monitor solution. The system comprises different

remote units - or "probes" which are connected to the E1 systems between the Packet Handler and the exchange in the ISDN network. One Probe can monitor from one to eight E1 systems and probes can easily be stacked where a large number of E1 systems need to be monitored.

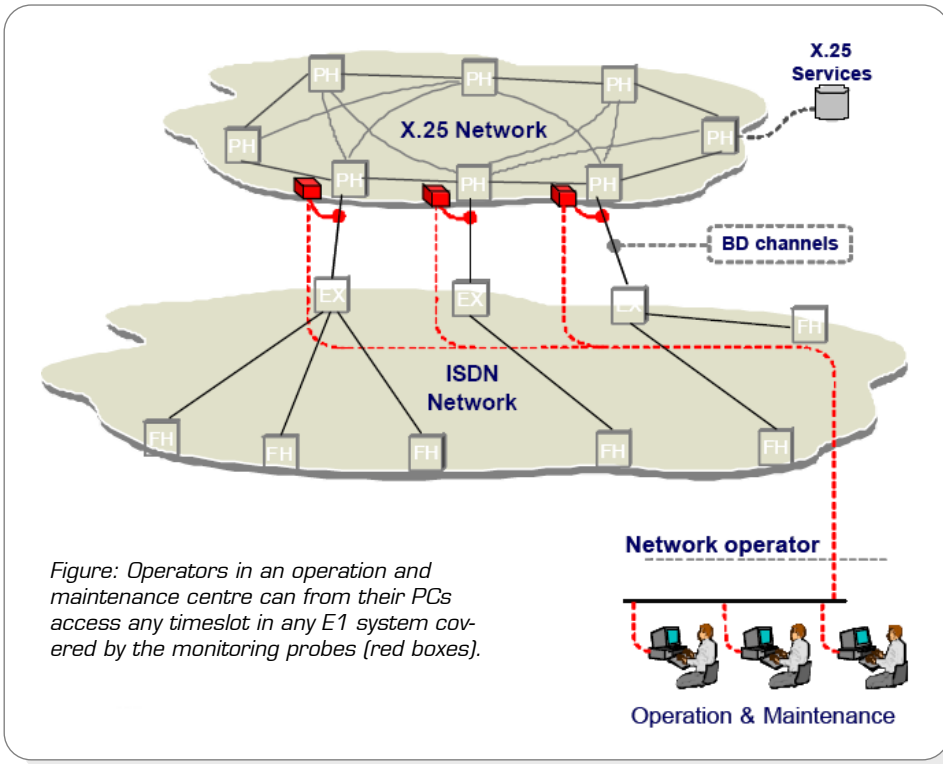
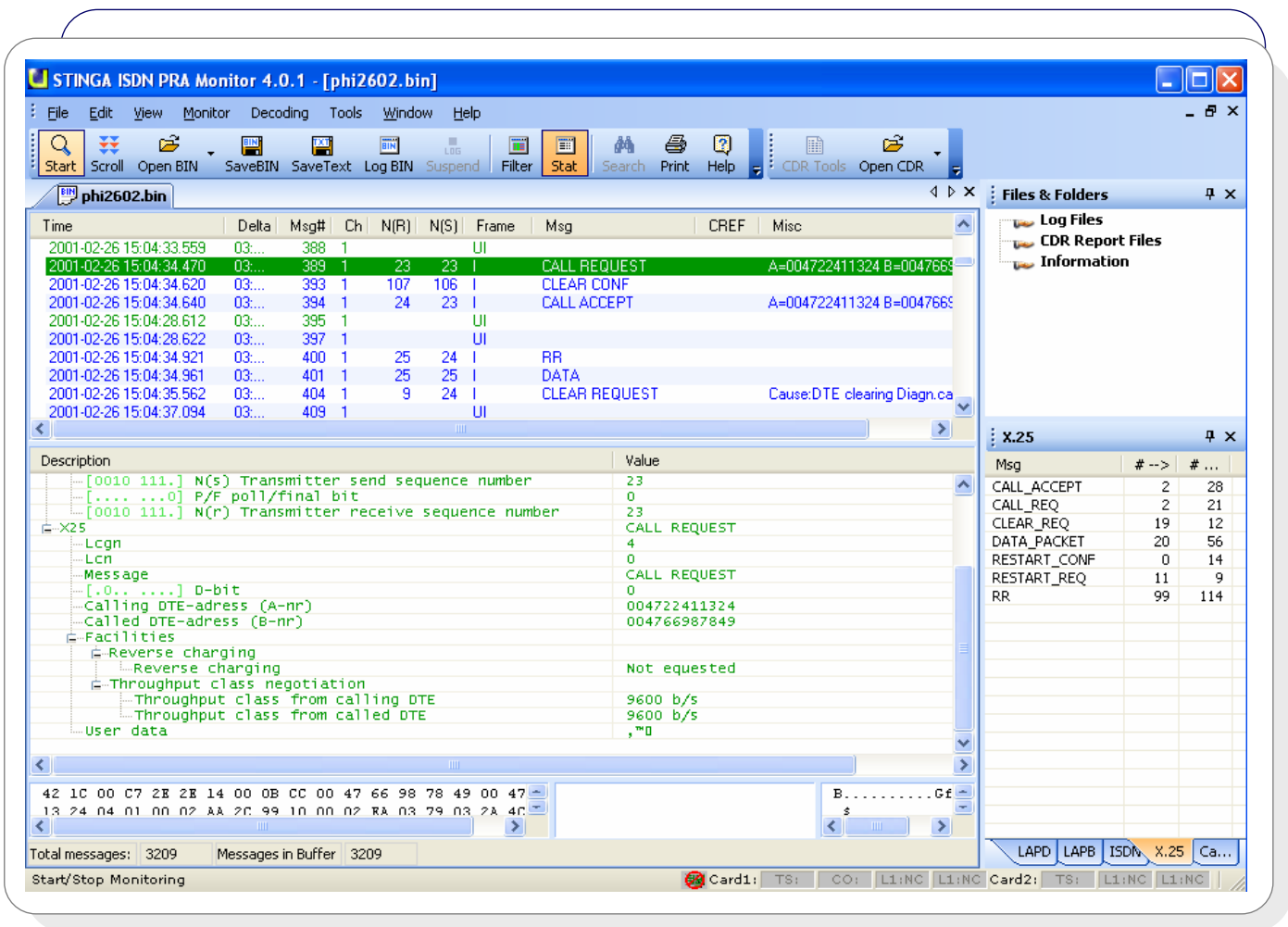


Figure: Operators in an operation and maintenance centre can from their PCs access any timeslot in any E1 system covered by the monitoring probes (red boxes).

Network operator
Operation & Maintenance

UQoS PHI PROTOCOL MONITORING & ANALYSIS



Error tracking

If the system is fully equipped, the users in Network Operating Centre have remote access to every PHI for analysing the customer's X.25 traffic.

It is possible to do real-time monitoring of a specified timeslot on a specified E1 interface or using LIC-filter or DIX-filter to get the traffic from one particular customer using the Bd channel. It is also possible to filter calls to or from a specified called/calling DTE address. All X.25 layer 3 and layer 2 information is decoded.

If line-switched access to the PH is used by the customer, DSS1 signalling in timeslot 16 is analysed and X.25 traffic in the corresponding timeslot can be monitored.

Screenshot: In the upper window the Call Request message is selected. Notice that a lic-filter is used in order to display messages from only one payment terminal (lic=229386). In the lower part details in this message are displayed (such as sapi, call ref, tei value, dix and lic values etc).

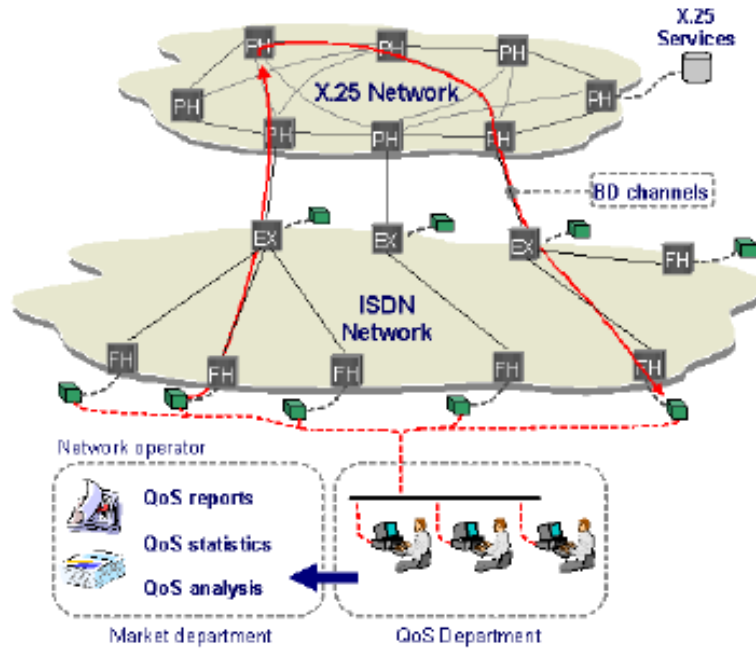
UQoS PHI UQoS SYSTEMS

Other related solutions

Utel Systems also provides the system UQoS EDGE which is a traffic route test system for digital networks. This system comprises a central server managing a number of active test units placed out in the national network. Each remote test unit is a call simulator meaning it simulates the behaviour of remote users. By generating calls in a complex but efficient test call matrix, a variety of statistical QoS reports are available. For a carrier providing ISDN X.25 services the following functionality can be of interest:

1. QoS statistical reports on the X.25 network, including:
 - Response times on layer 2 and 3 (call setup time)
 - Throughput and roundtrip delay
 - Failed call ratio and cause values
2. Alarm generation, meaning alarm messages will be generated and forwarded to a management system if certain user defined thresholds are exceeded. This is achieved as the UQoS EDGE remote test units are continuously generating loop test calls when not generating test call for QoS statistical reports.

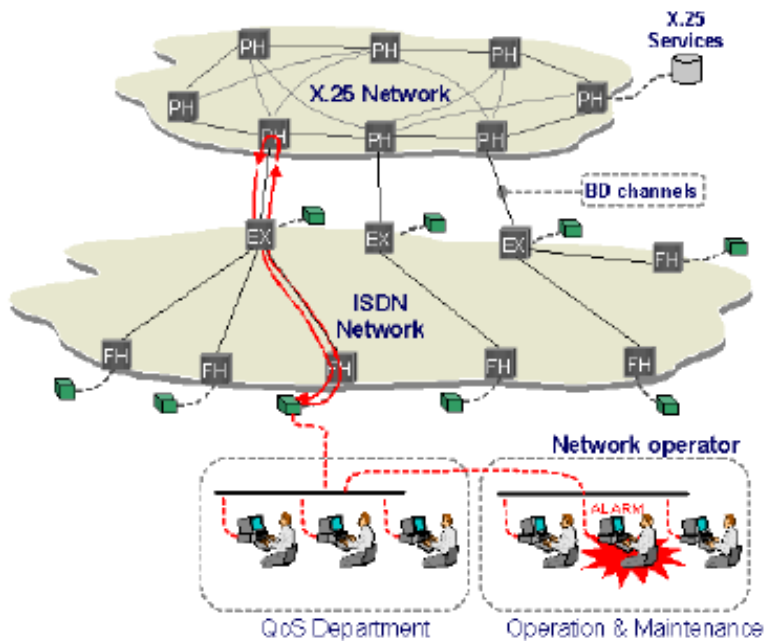
Option: UQoS EDGE with the X.25 module



The above figure illustrates how one remote test unit makes a test call to another remote test unit. The test call passes through the X.25 network. By making thousands of such test calls different QoS reports from the ISDN X.25 network can be generated.

Option: UQoS EDGE with the X.25 module

The figure to the right shows an example of how one remote test unit makes a loop test call when not engaged in QoS statistical tests. If a threshold is exceeded an alarm is generated and sent to the management system.



UQoS PHI PROTOCOL ANALYSER

TECHNICAL SPECIFICATIONS

Hardware & Software Requirements

- ◆ One or more Linux probes with E1 interfaces
- ◆ One or more client software protocol analyzer applications that is installed on each operator's PCs:
 - Windows XP or 2000 operating system

Administrative communication requirements

- ◆ IP network

Central Server

- ◆ A central server handles the multi user/multi probe environment

Protocols Supported

- ◆ Four or eight E1 PHI (ISDN Primary Rate Accesses) per monitor probe are covered
- ◆ DSS1 layer 2 (Q.921/I.441)
- ◆ Euro-ISDN layer 2, LAPD, LAPDE, LAPB, LAPBE
- ◆ DSS1 layer 3 (Q.931/I.451)
- ◆ Euro-ISDN layer 3
- ◆ National ISDN-2 (NI-2)
- ◆ X.25 (B and D channel, layer 3)
- ◆ Layer 6 and 7, ASN.1 (Supplementary Services)
- ◆ PPP and IP in B channel
- ◆ Supplementary Services
- ◆ Other protocols and national protocol variants are implemented on customer requests.

Related Products

- ◆ **UQOS EDGE** - End-to-End Traffic Route Test (TRT) System presenting customer perceived Quality of Service (QoS) and Network Performance (NP).
- ◆ **UQOS INSIGHT** - Link Monitoring System (LMS) covering SS7 and ISDN PRA.
- ◆ **UQOS ProMon for S12** - Centralised solution for protocol monitoring based on network element log files. The system covers both ISDN subscriber signalling and SS7 network signalling. Alcatel S12 switches is currently supported.
- ◆ **NQR** - Subscription Service for Network Quality Reports documenting Quality of Service (QoS) and Network Performance (NP) parameters in telecom networks.

Manufacturer

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Distributor

Please contact us for information about your local distributor.
A distributor overview is also available at our web site.



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