ANRITSU NETCLAW
FINDING NEEDLE IN A HAYSTACK: ENABLING OPERATORS TO FIND PROBLEM CALLS IN NETWORK

Introduction

As PSTN networks increase in complexity with dozens of vendor equipment, multiple protocols and complex interfaces, the troubleshooting complexity also increases for network personal. Coupled with rising cost cutting at network operators leaving fewer in-house experts to troubleshoot and deal with complex problems, wire line operators typically have to look at hundreds of calls before they are able to find a particular call with a problem. NetClaw is Anritsu's powerful network and service analyzer which allows operators and vendors to quickly identify and troubleshoot a particular call instead of looking at hundreds of calls and spending countless man hours in debugging and troubleshooting.

Troubleshooting problem calls challenge

Most network protocol analyzer in the markets had traditionally been split either into protocol analyzers or in traffic generators. There has been not a single instrument which could bridge the gap between protocol analysis and the need to look at individual user phone calls at one time.

NetClaw is the first instrument which addresses both needs very well. It can perform a protocol analyzer function and also the functions for a network analyzer simultaneously. To ease these tasks the Anritsu NetClaw offers an intuitive and flexible solution via its sequencer function. The sequencer allows automatic tracing of transactions, calls and sessions in a SS7 network with the added benefit of embracing both VoIP and SS7 signaling for cross-domain analysis. This makes it easy to find problems related to failed calls, problems with specific user agents, and interoperability issues between soft switches and media gateways. With the NetClaw sequencer, first line support may use call trace to document if a customer does indeed have a problem, or whether the problem is related to network issues or the subscription. Second and third line support may use the NetClaw sequencer function to find the cause of the problem.

Troubleshooting live calls in live networks

A US facilities-based telecommunications services provider with a substantial customer base in the residential and commercial market segments, operating an extensive network with three switch locations, wanted to see details of particular calls from certain phone numbers (MSISDNs) in greater detail. The service provider was also interested to see both sides of a SS7 call. Calls going into the service provider's SS7 switch and exiting his SS7 switch at the same time. Looking at both sides of the calls enabled the service provider find problems relating to both ends of the SS7 signaling. NetClaw sequencer enabled the service provider to see both ends of the SS7 signaling and also to see details signaling in hex if he wanted to debug further.

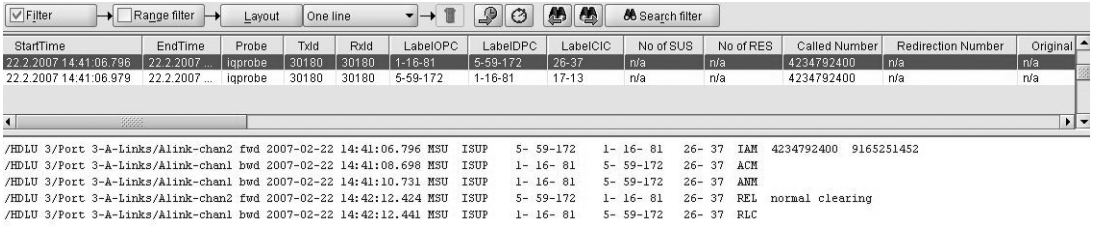


Figure 1 Service provider able to see both sides of a call

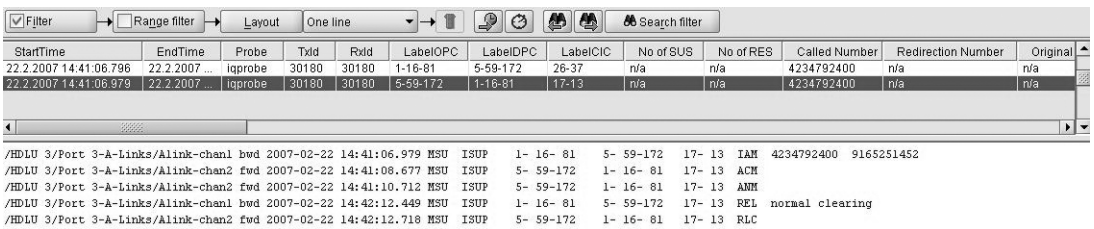


Figure 2 Second side of a call shown by the call sequencer

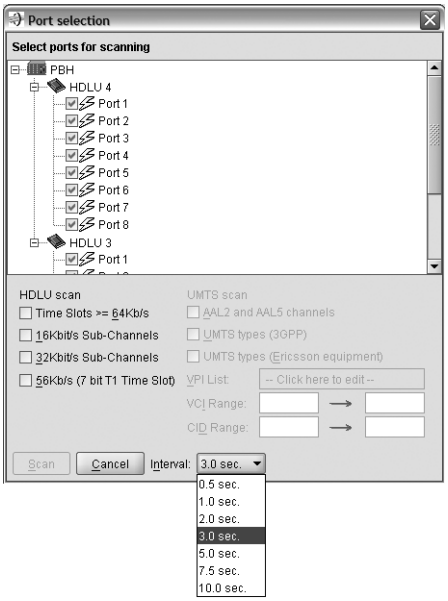
During the troubleshooting it was found that the service provider was using non-standard sub-system numbers in his network. This problem was fixed very fast by just looking the call sequences.

Setting up call sequence for Netclaw

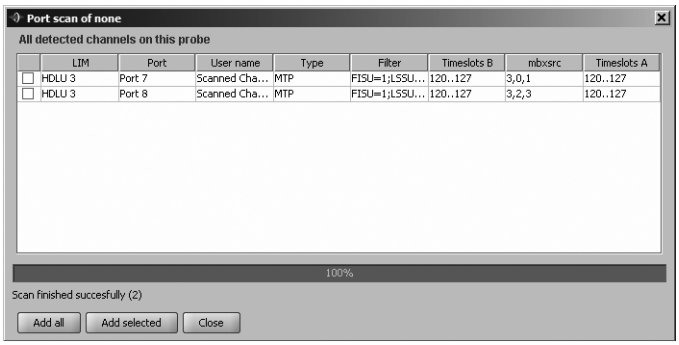
When a network operator has to troubleshoot and find a particular call he would immediately go to the NetClaw call sequencer. With a couple of steps a network user would be looking at any call sequence in their network as shown below.

1. Connect required interfaces- Connecting the required interfaces is easy as plugging in the network traffic bearing T1/E1 cables from service provider's monitor/mirror ports into the NetClaw. Netclaw can fully support 8 full duplex bi-directional links per HDLU card. Various connection cables like bantam cables are provided for easy connection to the service providers monitor/mirror ports.

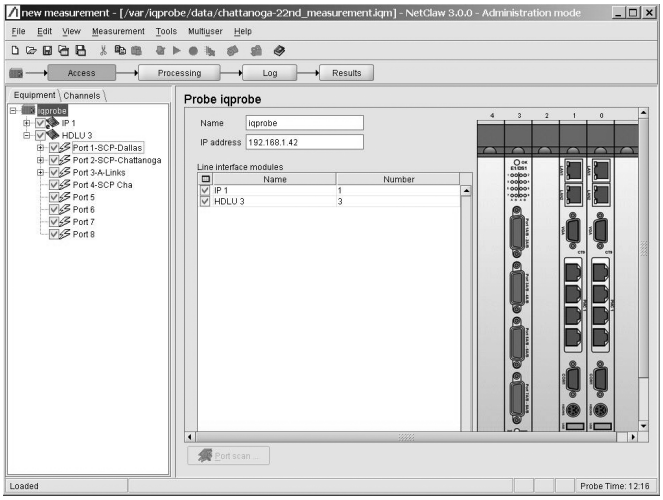
2. Detect/Select/Autoscan the traffic interfaces- This is shown in diagram below the connection to required interfaces is performed by performing an auto scan and then after the auto scan is performed you would get the configuration of the network automatically



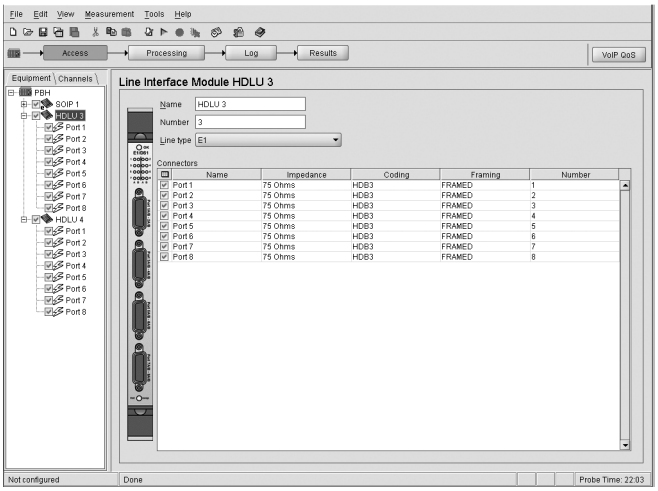
After the scanning is complete we are shown a window which depicts channels which could were found during the scan and if the network user wanted to add all the channels or only selected channels as shown below.



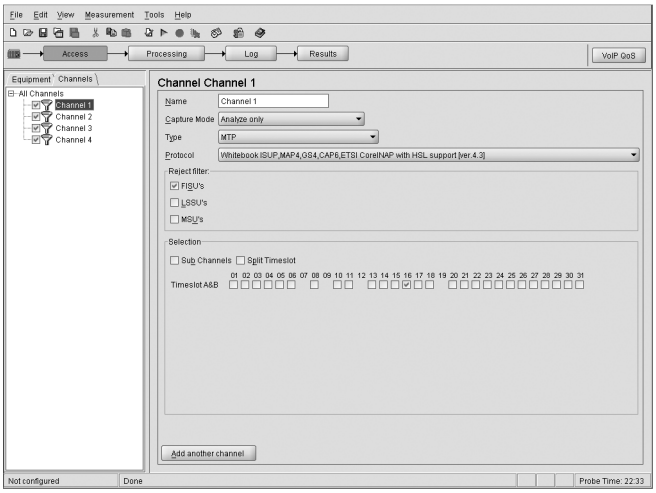
The access window is shown below which shows the 8 ports for 1 HDLU cards and what channels are configured on each port.



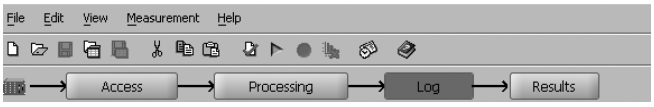
We can also change each port of the HDLU card as given below



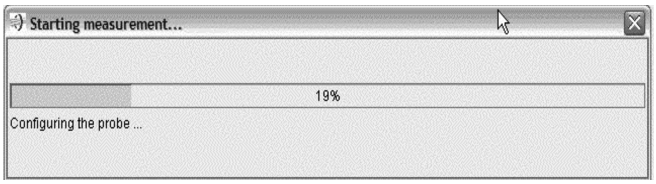
The individual channels for each T1/E1 link would be set up as given below.



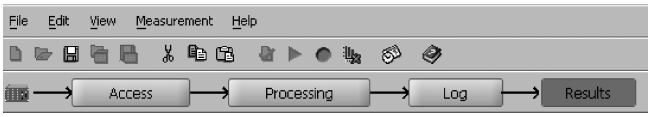
3. Start measurement by pressing the green arrow as shown below.



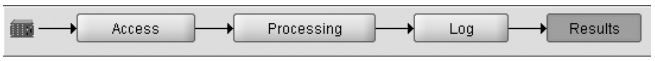
4. After the measurement is started we get a dialog saying the system is preparing to start the measurement as given below.



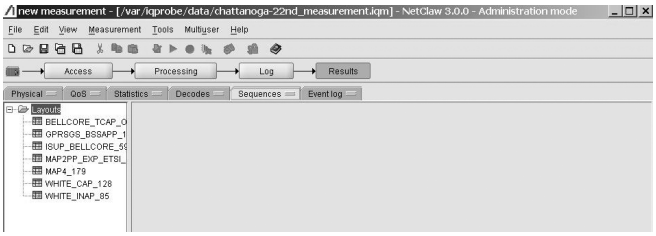
5. After the measurement has successfully started the green arrow would turn into a round circle as shown below.



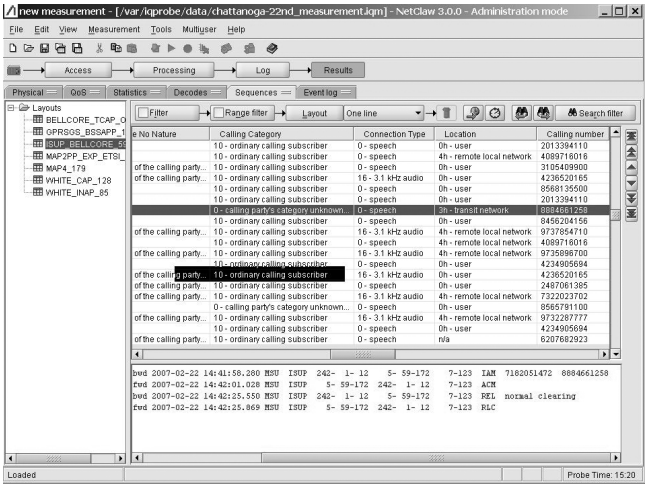
6. After you start the measurement, from the start measurement icon on top of the main window. The operator would go into the results window view.



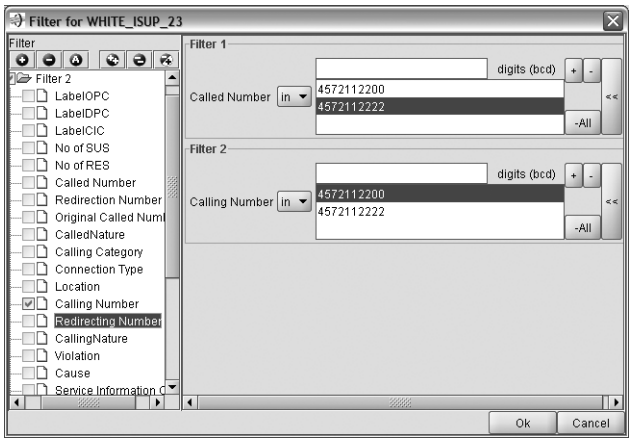
7. The network operator can then look at entire call sequences in the sequence view under results window, as shown below.



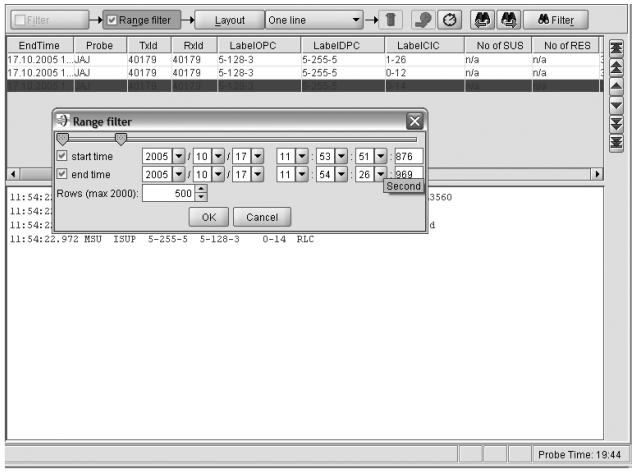
8. Using the call sequencer the network operator can find particular calls occurring in particular time periods, calls based upon calling number, called number, originating point code, destination point codes, release cause values, and call violations.



Another powerful feature of call sequencer is the filter function. The filter function can quickly allow the operator to seek a single call from a several thousand calls based on the particular field. As shown below we see a filter at work in the sequencer window searching for messages based on called number and calling number.



In addition to the filtering function network operators can also view a certain segment of call sequences for example the network operator is interested in all calls from phone number 410-740-7800 from 8am to 11am. This could be managed by running a time range filter in the sequence window, as given below.



Conclusion

The NetClaw sequencer application covers all SS7 network interfaces, is easy to use while delivering results fast. The sequencer for call and session tracing is easy to use from any browser and hides the complexity for the end user; e.g. you can perform the dialog correlation in advance and relevant parameters for filtering are right at hand. Combined with the NetClaw statistical application, NetClaw protocol analysis and proactive alarming, NetClaw sequencer is a very powerful solution for rapid troubleshooting of SS7 networks.

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Specifications are subject to change without notice.

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