Agilent acceSS7
Case Study

CLEAR Communications Ltd
Using Surveillance & Troubleshooting

Agilent Technologies
Innovating the HP Way
CLEAR Communications Ltd is a private company formed in 1990 by two overseas and three New Zealand companies. It began operating toll bypass services in 1991, and it now claims 22 per cent of New Zealand’s national and international toll business. Its customers benefit from state-of-the-art technology, including fiber optic cable, digital microwave radio, and computerized switching, and a product line that currently includes calling card, call centers, toll-free services, Internet, Intelligent Network, and Frame Relay/ATM services. Outstanding levels of quality and service, and an impressive record of innovation has helped CLEAR achieve a key position in the New Zealand telecommunications industry.

**Customer**

CLEAR Communications Ltd, Auckland, New Zealand.

**Challenges**

- To monitor a diverse, complex network as one entity.
- To satisfy customers by providing superior service.
- To compete with a recently privatized telephone monopoly.

**Solution**

Deployment of a Agilent acceSS7 real-time network monitoring system.

**Results**

- Early warning of potential network problems preventing or minimizing the effects of network failures.
- Improved customer satisfaction due to reduction in time taken to resolve network problems.
- Increased effectiveness and efficiency of the network operations group and reduced travel costs.
Agilent acceSS7 Helps CLEAR Service its Customers with High-Quality, Reliable Network Performance

In October 1995, CLEAR installed the Agilent acceSS7 real-time network monitoring system to obtain a better overall view of its diverse, complicated network and provide early warning of potential network problems. Now network operations staff throughout the company are benefiting from the system’s power and flexibility, using its maintenance and surveillance, planning and analysis, technical assistance for call tracing and the resolution of customer trouble tickets.

Investing in Innovation

CLEAR’s network is one of the most modern in the world, with 100% digital transmission and switching. The backbone is a Synchronous Digital Hierarchy (SDH) fiber optic ring between Wellington and Auckland in the North Island and a similar loop providing a seamless link between Wellington and Christchurch in the South Island. The network also has digital microwave links, intelligent network platforms, software driven digital switches and satellite systems, creating a fully independent transmission service for voice and data. CLEAR’s network includes interconnects to Telecom New Zealand and other service providers such as Vodafone (GSM), Telstra and Sprint.

Managing this advanced network is a daunting task. CLEAR’s switch and transmission network is made up of Nortel DMS switches, an extensive SS7 network including Tekelec Eagle STPs, and a transmission network which includes international, national backbone SDH/PDH and local SDH/PDH. Understanding the different SS7 protocols used in the network, including TUP, International ISUP, CS1-R, ANSI, ISUP, and ITU ISUP was enough to keep network administrators awash in data and acronyms.

Placing Customers First

Since CLEAR brought competition to the market in 1991, toll charges have dropped by up to 50 percent, saving New Zealanders more than half a billion dollars. The company places enormous importance on the excellence of its customer service, and employs a large number of customer service staff. Their top priority is to avoid and prevent network problems that might cause customer hardship and dissatisfaction.
In 1993 CLEAR decided to invest in a system that could be used to enhance its customer services, assisting in trouble ticket resolution, improving visibility of interconnection with other operators’ networks, and increasing overall network reliability. Since more than 90 per cent of CLEAR’s revenue traffic uses SS7 signaling, CLEAR wanted its own SS7 management system.

**Key Requirements**

One of CLEAR’s main reasons for deploying an SS7 monitoring system was its capability to perform pro-active fault detection in the SS7 network by using real-time and post-capture call traces. In addition, CLEAR planned to use historical network information for trouble ticket resolution and SS7 network planning and design. CLEAR also wanted a system that would allow engineers access to data across its network from any location, to help it to prioritize the faults it was experiencing.

As a builder of a modern network, CLEAR considered real-time monitoring and display of network information a key system requirement. It was also looking for a passive management system that would be unaffected by network outages.

In late 1993, CLEAR approached a number of potential suppliers of SS7 monitoring systems.

**Why CLEAR chose Agilent Technologies?**

After carefully considering all aspects of the project and extended negotiations with its potential vendors, CLEAR chose Agilent Technologies. Throughout the selection and implementation process, Agilent gave CLEAR concise written answers to its questions and detailed documentation on all aspects of its products. An understandable and consistent pricing structure and Agilent’s reputation for quality, delivery and support were major factors in the decision process. Overall, Agilent offered CLEAR a firm commitment to understanding its business needs and building a long-term business relationship with all levels of personnel, from local representatives to engineers at the factory.

**Putting Agilent acceSS7 to work**

CLEAR’s SS7 management system is based on the Agilent acceSS7 network monitoring system. As a result, CLEAR’s diverse and complicated SS7 network, with its many different protocols, now appears as a readily understandable entity to the Agilent acceSS7 users. The Agilent acceSS7 system, installed at CLEAR in October 1995, consists of one central site plus three remote monitoring sites - one international monitoring site and STP monitoring sites in Auckland and Wellington. Each site is connected via a Wide Area Network to workstations and application servers. Additional disks are configured enabling CLEAR to create large message buffers which can then be used for post capture Call Trace and Protocol Analysis sessions.

"Our business case was built around increasing the efficiency of our current headcount rather than reducing it and supporting many different applications on one system."

Alister Gough, General Manager Technology Operations,
“Real-time call trace functionality for fault diagnostics was a main driver for CLEAR in the selection of Agilent acceSS7. The ability to diagnose the signaling for call failures on specific route selections quickly and accurately provides CLEAR with a powerful tool in the repair process. Furthermore, CLEAR required the 'call set up sequence' and 'message decode' functions of Agilent acceSS7 Call Trace to be very easy to use and provide the level of detail to give full confidence to the personnel using the tool. These functions work very well, to the extent that Agilent acceSS7 Call Trace results can be decoded to a level that can even provide an ongoing training resource for the technical staff involved.”

Mark Bodell, TAG Team Manager, CLEAR Communications Ltd
Improving Efficiency and Cutting Costs

With Agilent acceSS7, Clear has reduced travel costs for fault clearance. Fault clearance times are reduced as well; Agilent acceSS7 applications are available via any networked PC and the system is always connected across all the SS7 network. CLEAR has also cut training costs by installing one single-vendor network management system that is totally user friendly. Ongoing training is extremely important, helping the company obtain maximum benefits from the Agilent acceSS7 system.

Thanks to Agilent’s customer responsiveness, training, backup and support, CLEAR now has a system that helps it respond to its customers more effectively and meet their needs more efficiently.

Agilent acceSS7 in Action

Recently, one of CLEAR’s major customers experienced numerous international call failures from an Australian carrier. CLEAR used Agilent acceSS7 Call Trace to decode and analyze all the call related messages on both the national and international SS7 links. CLEAR quickly discovered that there was a problem with the protocol being used by the Australian carrier. Although the protocol worked correctly in the Australian carrier’s network, it caused an alarm condition in CLEAR’s network causing the call to fail. CLEAR used Agilent acceSS7 to prove to the Australian carrier that their network was causing the problem. In fact, the Australian carrier was pleased, because without the benefit of Agilent acceSS7, it had been struggling to resolve the problem for three days. CLEAR also uses the Agilent acceSS7 system for problem solving in a laboratory-like environment, utilizing a switch/IN network for lab testing purposes. When a new software load needs to be tested, Agilent acceSS7 plays a major part in confirming message routing, message structures and sequences, and parameter contents. Data retrieval is fast and trouble-free, and the risk of a new software load causing network problems is greatly reduced.

Meeting Customer Needs - now and in the future

The network management knowledge base has been broadened throughout the entire CLEAR organization, with all users able to use the capabilities of Agilent acceSS7 to share information. They can now perform their own jobs more efficiently and are far better equipped to service CLEAR’s customers. With the Agilent acceSS7 system up and running, CLEAR has the opportunity to implement marketing initiatives by developing interfaces between Agilent acceSS7 and CLEAR-specific applications. The company is also exploring other uses of the Agilent acceSS7 system, including network planning and fraud management. Obtaining a clearer picture of call patterns helps CLEAR to learn its customers' preferences and support them even better.

“One of the major business drivers for CLEAR purchasing an SS7 management system was to give technical staff a tool which would allow a significant reduction in the resolution times of troubles reported by customers. The Agilent acceSS7 system has been a major success in this area.
Alister Gough, General Manager Technology Operations,
CLEAR Communications Ltd
Agilent Technologies' extensive expertise in all areas of telecommunications helps us to provide you with complete, high-quality, reliable and affordable solutions. Agilent acceSS7 helps you stay in control of your network, increase your profits and strengthen your market position.

And deliver the highest standards of customer care.
For more information about Agilent acceSS7, visit our website http://www.acceSS7.com

You can also contact one of the following centers and ask for a test and measurement sales representative.

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