

Automation of the Fault Management System

The Challenge

Innovation takes many forms. Often, those that think about problems differently find the greatest benefits in new solutions. This was the case at one of Canada's leading network operator when confronted with the perennial telecommunications problem of improving customer service, while reducing operational costs and increasing the network capacity.

The major obstacle to these goals was fault and configuration management. There were solutions that filtered alarms, prioritized cases and scheduled activities; but it was very clear that network operators were spending most of their time managing element management systems and not managing the network itself.

The company recognized that too much information was coming in to the network operations centre, but that filtering the incoming data might prevent access to important data. The company prepared an RFQ for a new system for true management of network problems:

- It should automatically resolve at least 70% of network problems without human operator input
- It should support alarms and interfaces from all new and existing switch suppliers and network vendors
- It should have a rules development methodology owned and maintained by operations staff (rather than high level engineering staff). This should not require the need for programming skills.
- It should be fully resilient and easily scalable to support large scale network and operations growth

Several network and OSS vendors proposed systems to achieve these goals, but during evaluation it was clear that they all required a large staff of experienced programmers to develop rules. One system took 6

months to develop two rules in C++ while another vendor drew the conclusion that the requirements were impossible to achieve.

The Automation Solution

After evaluating the customer environment COMsolve recommended the Pivotal Ltd. Cortex platform. Pivotal had deployed systems that were responsible for managing problems in highly critical process control environments. Pivotal's thinking was to consider alarms and any other network data together, in order to have a holistic view of fault management and automation.

On first installation the product exceeded its target of automatically resolving 70% of network problems with a minimal rule set. Since then, the network operators have added 400 new rules and the system is now resolving over 98% of all network problems. Rules have been developed and fully tested at a rate of two per day by the network operator's staff using the graphical development system supplied with the product.

Cortex is running as a fully redundant dual system on different geographic sites. One system acts as the master – responsible for actually resolving problems. The standby system exactly mirrors the master in all respects, apart from problem resolution, but will instantly take over if required.

The Benefits

The overriding benefits the network operator has experienced as a result of deploying Pivotal's Cortex Run Book Automation OSS were complete control over the network and very significant reductions in unit costs. Other benefits include:

- The network has grown in size and complexity with the same number of operational staff
- Customer service has improved dramatically – problems are resolved before the customer is even aware of them
- A reduction in capital cost by consolidating all fault monitoring onto a single platform
- An improvement in the management of complex services across multiple vendor equipment
- A reduction in the number of field engineers needed to be called to sites for further assistance
- Improved resolution of inter-switch faults
- Many unplanned switch outages have been prevented by identifying when customer service is at risk

- The environment is much more rewarding for operational staff that now spends their time attending to non-mundane issues and creating new automated rules for the system.
- More problems have been identified and resolved than the network operator ever thought existed
- A reduction in the impact of staff turnover as operational knowledge is in the Cortex system