

Metropolitan Fire and Emergency Services Board improves network availability and ensures speedy response to fires and medical events.



Table of Contents

Executive Summary

SECTION 1: CHALLENGE **2**

Ensuring key systems are always available

Keeping people safe with reliable network monitoring

A complex IT environment

SECTION 2: OPPORTUNITY **3**

Proactive IT management eases the burden

Customization extends CA SPECTRUM's value

OneClick, one view

Solid application integration

SECTION 3: BENEFITS **5**

Enabling responsive emergency services

Faster problem resolution

SECTION 4: CONCLUSIONS **7**

ABOUT CA **Back Cover**

Executive Summary

Challenge

The Metropolitan Fire and Emergency Services Board (MFB) is the primary provider of emergency response services in Melbourne, Australia. The organization's firefighters rely heavily on accurate information when they respond to fires and other emergency situations, making the availability of critical communications systems, GIS mapping tools and other applications essential. To ensure firefighters have the information they need to plan appropriate responses to incidents, the MFB needed better visibility and control of the many devices running across its complex network environment.

Opportunity

With the MFB's infrastructure growing rapidly, the organization needed a tool that would help the IT team ensure the availability of the systems, tools and applications running on its Cisco-based IP data network. Using CA SPECTRUM® Network Fault Manager (NFM), the MFB's IT team can pinpoint and resolve network performance and availability issues before they affect the delivery of crucial applications that deliver the information emergency crews rely on when they attend to fires and medical situations.

Benefits

With up to 4,000 emergency calls a month, the MFB cannot afford any network issues because any application malfunction can affect the ability of firefighters to respond to situations where lives and property are at stake. By using CA SPECTRUM NFM to monitor voice and data networks, the organization can:

- Resolve the vast majority of network events before they impact the MFB's ability to deliver critical data to emergency crews
- Improve availability and performance of systems used to dispatch fire and emergency crews
- Repair select network faults automatically without user intervention
- Gain a complete view of the network.

Most importantly, the improved network availability enables the MFB to fulfill its mandate of protecting the community from fire and other emergencies.

“Network availability is important; if the network doesn’t work, our applications won’t work.”

David Aitken
Infrastructure Services Manager,
Information and Communications,
Metropolitan Fire and Emergency
Services Board

Ensuring key systems are always available

Every organization relies on the smooth running of its network and critical applications to provide a consistent service to customers. When systems are offline for any period of time, staff productivity suffers and so does the business.

In the emergency services sector, having reliable network infrastructure is even more important. Any disruption to the availability of key applications can affect the ability of law enforcement agencies, fire and emergency crews, and healthcare professionals to respond promptly to hazardous situations. For example, without immediate access to mapping tools, fire and medical crews may waste precious minutes taking a longer route to the emergency, during which time the fire may have escalated or the patient’s condition worsened. Without networks and systems to deliver reliable information in a timely manner, personal property and human lives are put at risk.

Keeping people safe with reliable network monitoring

In Melbourne, the MFB receives up to 4,000 emergency calls each month to contain fires in homes and commercial buildings. The organization also responds to medical emergencies such as heart attacks under the Emergency Medical Response — First Responder Program. Around 1,600 firefighters provide emergency response services from 47 fire stations and specialist departments.

The MFB has invested heavily in network and application infrastructure over the past eight years to ensure it can deliver efficient emergency response services to a rapidly growing population of 4 million residents scattered across metropolitan Melbourne, an area of more than 1,000 square kilometers. This investment has created a complex IT environment comprising an IP network and various business applications that need to be constantly monitored.

During an emergency situation, the MFB dispatches fire and emergency crews using a range of communications systems, GIS tools and other computing resources that run on its network. A key part of the organization’s response and planning process is providing data such as the type of emergency and its location, a map of the area, and the risk profile (such as the existence of schools or other facilities that fire crews need to be aware of).

The MFB’s IT department of 35 provides first-level, 24-hour support for all the IT&T services the organization needs, from making sure the alarm bells at fire stations are fully operational to dispatching the most appropriate emergency crew to the site of the incident and equipping them with the information they need to fight the fire or treat sick patients.

“Network availability is important; if the network doesn’t work, our applications won’t work,” says David Aitken, Infrastructure Services Manager, Information and Communications Services at the Metropolitan Fire and Emergency Services Board. “It is particularly crucial in emergency services, as the majority of our calls are fairly short-response incidents, so we must get the information promptly to the point of need.”

A complex IT environment

However, it has not always been easy for the MFB to maintain high network availability. Prior to the year 2000, the organization had no network management tools in place and was forced to debug network problems manually. The helpdesk relied upon users reporting most faults.

This forced the emergency organization to spend a large amount of time managing the network components responsible for the smooth running of Oracle databases, SAP financials, human resources and site maintenance applications across 60 servers. These applications are used by 2,200 staff in 55 locations.

The biggest issue for the MFB's IT team was the lack of network visibility, which made it difficult and time-consuming for the IT team to locate the source of the fault. The longer they searched for the root cause of the fault, the greater the impact on system availability and performance. And without the guarantee of immediate availability, the organization would be hampered in its ability to alert emergency crews or provide them with detailed information when calls for help were received.

With the MFB depending on systems functioning normally all the time, the pressure was on the IT department to fix any network problems as soon as possible. That placed a 24-hour, 7-day a week requirement on technical staff to maintain the underlying network that delivers the mapping tools and communications, dispatch and information systems the firefighters rely on. As a result, the MFB started searching for a way to manage its complex network infrastructure and improve the availability of key business applications.

SECTION 2: OPPORTUNITY

“CA SPECTRUM NFM’s versatility is reassuring; it gives us the freedom to add more devices and applications that further enhance our emergency response capabilities.”

David Aitken
Infrastructure Services Manager,
Information and Communications,
Metropolitan Fire and Emergency
Services Board

Proactive IT management eases the burden

In 2000, the MFB turned to CA SPECTRUM® Network Fault Manager (NFM) to address its lack of network management tools and improve the ability of IT staff to locate and fix problems. Over the next eight years, the organization upgraded the solution after installing a Cisco-based IP telephony and data network. Aitken says CA SPECTRUM NFM r8.1 had a “better understanding” of the IP telephony environment and the custom devices running on the network.

“CA SPECTRUM NFM gives us greater flexibility because it can be adapted to monitor custom devices such as our Mediator i-50 devices (used to interface with building management systems), UPS equipment, SDH transmission equipment, laser printers and the Station Turn-out workstations that run on our network, and integrated with third-party products such as our SMS notification application,” says Aitken. “Its versatility is reassuring; it gives us the freedom to add more devices and applications that further enhance our emergency response capabilities.”

The MFB's fault-tolerant network ensures IT staff are alerted about incidents before users even realize that there's a problem. In fact, at least 80 percent of network incidents are resolved prior to having any impact on users.

Without CA SPECTRUM NFM, Aitken says the MFB would not even know that these faults existed. “As soon as a network incident is detected, we receive an immediate notification,” he says. “In some cases, the issue is automatically fixed, so we don't even have to do anything.”

Ultimately, it means there is little risk that emergency response systems will be affected and business can run as usual.”

The MFB can also detect network performance issues that may not necessarily have an immediate impact on a user, but may affect them in the future. For example, the organization recently had to move a number of its servers as part of a datacenter relocation. In this situation, it used CA SPECTRUM NFM as a system assurance tool to check whether or not everything was indeed running smoothly. Likewise, during prolonged power outages in January 2006, the MFB was able to monitor the UPS status at all its sites and deploy generators appropriately so that no site lost its power feed for critical equipment during that time.

Customization extends CA SPECTRUM NFM's value

The MFB engaged CA partner Green Hat Consulting to manage the deployment. It took around two weeks to upgrade the CA SPECTRUM NFM solution, which Aitken described as “less difficult than expected”. The legacy solution was run in parallel with the new system for a month while the MFB changed servers and end devices.

Green Hat also customized CA SPECTRUM NFM to suit the MFB's needs. It created CA SPECTRUM NFM models for custom network devices that the solution would not normally recognize. This included monitoring capabilities for a PC-based station turnout system, which alerts on-duty firefighters to respond to a fire or medical emergency. The system sends information about the incident, attending crews, mapping and local areas of risk such as schools and nursing homes, and activates the building controls to open the engine bay doors.

Devices related to mission-critical operations, including the activation of alarm bells at fire stations, are also monitored using CA SPECTRUM NFM. The solution will also detect if a printer is running out of paper and send out an alert to tell someone to refill it. This ensures dispatch notes can always be printed when emergency situations arise.

“Green Hat was effectively the brains we needed to install and configure CA SPECTRUM NFM because it's not practical for us to maintain the skills in-house,” says Aitken. “This is the first time we've worked with Green Hat and we are happy with their work overall.”

OneClick, one view

The MFB is particularly happy with CA SPECTRUM's OneClick graphical user interface, which gives help desk and remote staff easy access to network management functionality. With the OneClick interface, the MFB has graphical representations that mirror its geographic network layout, providing it with a clear picture of every network event and giving it the ability to pinpoint and resolve issues before business and emergency response applications are affected.

“We like that level of awareness,” says Lester McClure, Senior Network Engineer at Metropolitan Fire and Emergency Services Board. “We have the ability to display the information on multiple screens where we can look at different components simultaneously. It's an effective management tool for a help desk or network management group because it allows them to locate the root cause, see what services may be affected as a result of the issue, and develop an effective fix for the problem.”

“As soon as a network incident is detected, we receive an immediate notification. In some cases, the issue is automatically fixed, so we don't even have to do anything. Ultimately, it means there is little risk that emergency response systems will be affected and business can run as usual.”

David Aitken

Infrastructure Services Manager,
Information and Communications,
Metropolitan Fire and Emergency
Services Board

“We now have an effective presentation tool for help desk or network management groups. It allows them to locate the root cause, see what services may be affected as a result of the issue, and develop an effective fix for the problem.”

Lester McClure

Senior Network Engineer, Metropolitan Fire and Emergency Services Board

“Prior to the OneClick interface, it was very difficult for us to provide the help desk and infrastructure management groups with access to the network management system, and to also make it available remotely,” he adds. “Now, everyone can benefit from a real-world view of the network and we can maintain the availability that’s necessary for our organization to deliver responsive emergency services.”

Solid application integration

CA SPECTRUM NFM was integrated with the MFB’s Attention Software SMS and voice notification application to ensure the IT team, who are on call 24 hours a day, can act quickly when network issues are detected. When CA SPECTRUM NFM detects a network issue, the Attention Software application sends a text message to alert IT staff about the fault so it can be fixed immediately, so there is minimal or no interruption to the MFB’s ability to provide relief from fires and other emergencies.

“The notifications are automatically escalated,” says Aitken. “If a problem hasn’t been fixed within four hours, I get an SMS message and if it isn’t resolved after 12 hours, my manager is alerted.”

SECTION 3: **BENEFITS**

Enabling responsive emergency services

Proactive fault resolution ensures critical systems are highly available and performing optimally. As a result, emergency crews are able to fulfill their main function: responding quickly and efficiently to fires and medical emergencies.

The fulfillment of this function has been enabled in large part by the CA solution, which has eliminated manual network debugging and given IT staff greater insight into network performance. “One of the features we like the most is the consolidated view of the network, which gives us the benefit of event correlation and root cause analysis so we don’t chase false alarms,” says Aitken. “We know if something is not working correctly and although we can’t guarantee 100 percent availability, we can be confident that our network is performing at its best. It gives us peace of mind that we can identify network incidents before they start affecting our day-to-day emergency services.”

Faster problem resolution

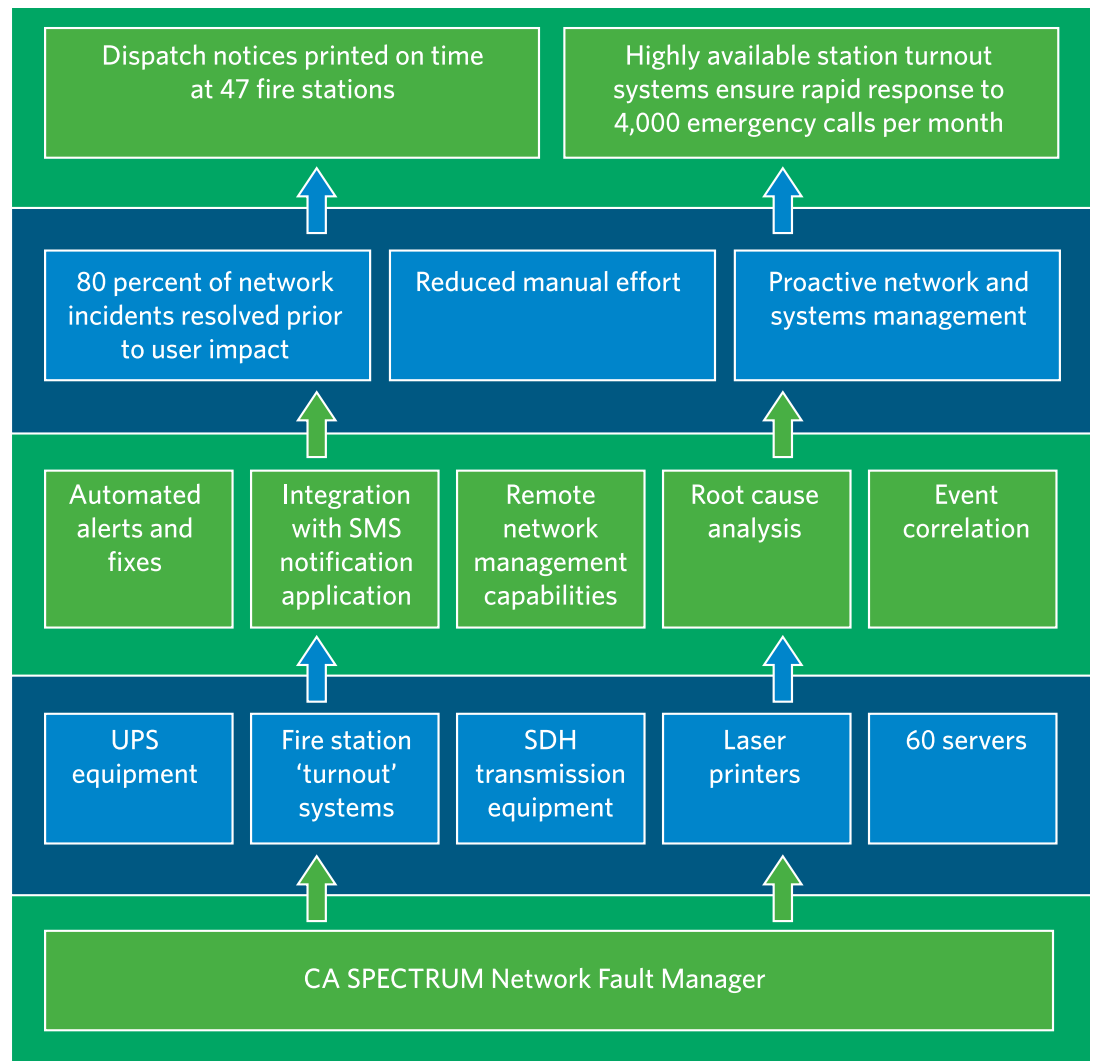
On average, three network faults are now being resolved automatically every week. As a result, the MFB's IT staff can focus on more proactive network management tasks that improve application availability and performance.

“The increased emphasis on proactive management means we are actually looking at more events these days — but they are being resolved faster and with less impact on end users. In short, more events but fewer faults” says Aitken. “Disk storage monitoring, for example, notifies us when a low watermark is reached, thus avoiding shortages. While we may need to react to more events, it actually reduces the overall effort. If we run out of system disk space, for example, the work we have to do to fix the problem is much greater, what with the flow-on effects on applications, debugging, restarts and associated fault reports.”

PROACTIVE MANAGEMENT

By using CA SPECTRUM NFM to monitor the network and systems supporting its 47 fire stations, the MFB has been able to increase IT performance and availability, which means a speedy response to emergencies.

FIGURE A



The project has been so successful that the MFB is now looking at additional features that will keep its network humming. This includes exploring the possibility of using additional modules such as virtual LAN, multicast and service management, which includes service dashboard. The VPN and multicast modules provide more visibility into other protocols running on the network.

“We want to be able to present network events in a more meaningful way to upper levels of management,” says Aitken. “For example, this might include providing information on the availability of services rather than whether a server is up or down.

“Some of the things we are doing with CA SPECTRUM NFM help us align our management practices with general industry good practices,” he adds. “In terms of risk management, we can say with confidence that we know the state of our environment and are in a position to address any business and technology shortfalls before they hamper our ability to protect the community from fire and other incidents.”

SECTION 4: CONCLUSIONS

Maintaining business continuity is essential for all organizations, particularly those responsible for providing emergency services. When lives, property and security are at stake, there is no tolerance for downtime or errors that arise as a result of miscommunication.

When IT drives core business processes at emergency response organizations, it is imperative that critical applications are available and network infrastructure is performing well. This requires the business to equip IT staff with failsafe methods to detect and resolve incidents before they impair normal operating procedures and risk the lives of constituents.

By optimizing network performance and availability, emergency services providers such as the MFB can access information and resources to help them act quickly to protect the community.

To learn more about the CA SPECTRUM NFM architecture and technical approach, visit ca.com/us/root-cause-analysis.aspx.

CA, one of the world's largest information technology (IT) management software companies, unifies and simplifies the management of enterprise-wide IT for greater business results. Our vision, tools and expertise help customers manage risk, improve service, manage costs and align their IT investments with their business needs.

Learn more about how CA can help you transform your business at [ca.com](https://www.ca.com)

