

SENTINEL
NETWORKS SIMPLIFIED

*Managing Dispersed Remote Office IT:
The Challenges and Sentinel's Unified
Approach to Remote Site Management*

A Background to Branch Office IT

“Doing our own thing”

Not so long ago, branch offices might have had only a PBX and a VPN back to headquarters. As enterprises have become more decentralised and even international, some 80% of an organisation’s total number of employees may now be located in regional and branch offices. Each office demands that their systems always be available and operate seamlessly with the head office, but in reality these remote sites are often the most vulnerable to network failure as the management challenges are the greatest at these sites on the periphery of the enterprise network.

Each branch office has usually developed its IT, independently of any other office in the organisation with no standardised strategy. “We just did our own thing and added equipment as it was needed” is the usual explanation for this and this was easily justified when there was little criticality to the business as a whole. As business increasingly relies on its networking, managing this hotchpotch of IT devices which are widely dispersed across many sites has become a real problem for network managers. This is often compounded by different offices still employing different software and hardware products for their particular networking applications. In many sites, the IT systems are not even up to date and they are typically unorganised, unmonitored and unsecure in a space constrained environment which further complicates IT management. Add in the fact that these sites generally lack on-site dedicated IT staff to carry out routine maintenance and deal with non-responsive hardware when issues occur and IT management becomes very difficult.

The complex challenges that are associated with managing branch offices can be quite frustrating to IT managers, especially when issues lead to “close calls” that get senior management’s attention. Research has shown that as the total number of branches grows, the number of servers and associated complexity of the networks linking the branches to the head office increases. Organisations have different IT priorities that they hope to address in the next twelve months but research shows a large degree of agreement about the importance of improving network management, particularly at the branch office level. Improving IT management at remote locations is a top priority cited by over 40% of companies.

Managing these branch offices wherever they are located must be a unified approach. However, the coordination of IT resources in multiple locations can be a significant issue as it is difficult to identify effective network tools for branch office IT at a suitable cost. Companies will have employed comprehensive management solutions for their enterprise datacentres but these will largely be excessive for the smaller branch office IT deployments in terms of both functionality and cost.

This paper will examine the issues affecting remote site IT management, the tools required to meet these issues and outline Sentinel’s unified approach to remote office management.

IT Management Challenges at the Branch Office

As branch office IT becomes more sophisticated and more critical to core business activities, it brings specific challenges for IT support staff at the corporate head office. Faster speeds from ever increasing network bandwidth have improved communications between an organisation's corporate headquarters and its remote branch offices, even making it possible for employees to access remote applications hosted on central site servers via virtual desktops that are supported and maintained by central site IT staff. In recent years, these applications that were previously running in the branch office have now been moved elsewhere in the network meaning that any outage in the network, or in the local server connecting to that network, can impact significantly on business. That is why branch office IT, including servers, storage, and networking devices, must be easy to maintain and support remotely on a daily basis from a central location. Provision of adequate management tools will help to ensure smooth IT operations over time.



The main issues facing centrally located support staff tasked with managing remote office IT are:

- **Limited or No Dedicated IT Staff at the Remote Office**
Few organisations have dedicated IT staff at every remote office location which means that essential maintenance has to be undertaken by IT support staff visiting the site, with obvious implication for increased time and costs that this involves.
- **No Dedicated Server Room**
IT installations are haphazard and are often located in cramped conditions in small areas or even on the actual office floor itself. As business grows and relies increasingly on the IT systems in place, it becomes essential that this IT is properly installed in a rack enclosure. Companies may already have invested in rack enclosures to house their IT and for instance, better manage cabling and power distribution, but they will have very little spare rack space to install hardware specifically for remote management.

- **IT Sprawl**

As each remote location relies increasingly on IT, more equipment is installed and the overall IT environment within a company shows signs of IT sprawl with many servers and IT equipment installed in places that were simply not designed to support so many devices. Power and cooling issues will become prevalent and management costs will increase. Therefore, simplifying and streamlining IT support and management becomes more important and a centralised IT management strategy becomes the ultimate aim.

- **Budgetary Constraints**

Budgets in the IT industry are set to rise by 1.8% this year, but mandatory spending and maintenance work will still take up most of the IT budget. On average, more than two thirds of IT spending is allocated to maintenance and mandatory spending. Therefore, network managers will need to work hard to implement new branch office networking management technology, given the relatively modest rise in spending. It is clear that branch offices require network management but this can only be implemented if it is affordable. Many solutions will be over-kill as they have been developed for the enterprise networking environment and not the smaller branch office.

- **Lack of time to Research New Product Solutions**

Choosing the right IT network management solutions for branch offices is a strategic decision that requires the careful planning and consideration of every IT function you wish to provide. Many factors can influence your ultimate choice. High functionality is a must, but what about cost? Is it user-friendly? How long will it take to implement? It can sometimes be difficult to distinguish irrelevant factors from truly crucial ones. These considerations can be painstaking; after all, every IT management team dreads the risk of choosing the wrong product solution.

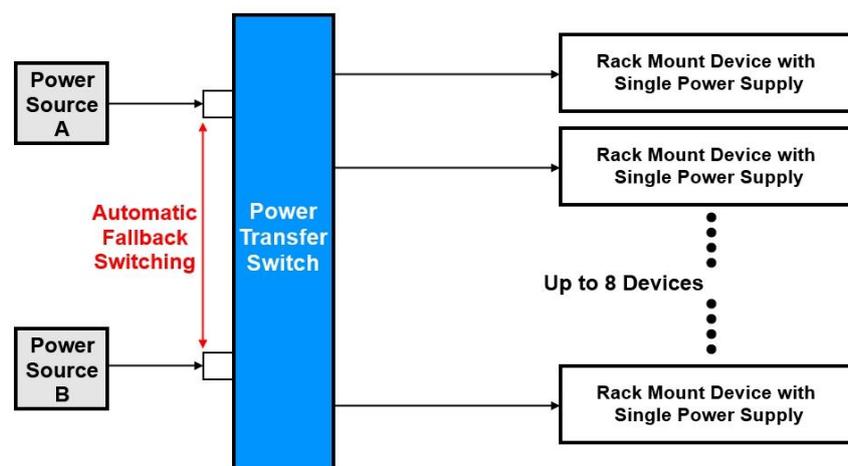
The general issues affecting remote site IT management are considerable. An effective support strategy must be introduced if organisations are to avoid expensive downtime associated with IT outages at the remote site. Likely key problem areas in branch office IT must be identified so that the correct tools are implemented to avoid unnecessary downtime.

Effective Troubleshooting: Terminal servers have often been used as console servers but these only provide basic console access with no advanced features such as event monitoring, alarm notification and port buffering. Cisco access servers are still used as improvised console servers but they are not a strategic long term solution as IT infrastructure evolves. Unlike a terminal server, products specifically designed for console management will allow quicker troubleshooting by capturing the critical moments preceding a server or networking crash.

Out of Band Access: Infrastructure problems such as a hardware, network infrastructure or operating system failure may disrupt access to your remote equipment across the WAN. Infrastructure failures are to blame for a large portion of unplanned downtime and the system management tools that rely on an Ethernet connection to access remote IT assets become useless. Infrastructure failures can only be resolved quickly if out-of-band access is available.

Out-of-band management provides direct, dial-up access to the console port of the affected IT asset when the network is down. For example, if a router loses its configuration and prevents the network from allowing access to restore connectivity to the primary IP network, out-of-band access is the only way to connect and resolve the issue. In the case of remote office locations, this option is absolutely indispensable as it removes the need for an engineering call-out to site. By allowing quicker troubleshooting and a fast response, network downtime is shortened considerably.

Power Redundancy: One of the challenges of working with entry level or legacy network equipment at remote offices is that sometimes networking devices only have a single power supply. This introduces a weakness into what might otherwise be a robust, highly available networking infrastructure. If there is a power interruption, perhaps due to a breaker tripping on a fuse board, all the systems in your branch office will go down and business stops. Power supply redundancy ensures that vital network capabilities always have a continuous supply of power, by switching to a backup power source from the primary source.



Power Redundancy Cont'd: Replacing these single-corded devices will be both costly and time consuming, but without power redundancy, a simple power outage or generator failure can quickly bring your network services down. An Automatic Power Transfer Switch offers a simple, cost-effective solution to enhance the uptime of single corded devices by providing them with the benefit of redundant power without replacing any of your single-corded equipment.

Cooling: It is unlikely that there will be dedicated air-conditioning for the IT at the branch office. Yet high temperatures are highly likely to cause a shutdown. Temperature monitoring will assist this so that action can be taken to lower the rack temperatures before systems start to fail. It is also helpful if your remote temperature probe alerts you as soon as the temperature exceeds a safe level. Effective monitoring can prevent outages and equipment damage.

Power Monitoring: Managers are under pressure as never before to improve the energy efficiency of their facilities. With energy prices soaring, electricity supply problems becoming more common and legislation to force companies to cut their carbon emissions, it is preferable if you understand your power usage at each office.

Information on power usage will also allow managers to make informed decisions on actual and future power requirements. Traditional methods of measuring power usage by adding up the values on the device labels to give a total current requirement result in a substantial overestimate. The difference between the power consumption values stated on a device label and the actual power consumed by that device may be as much as 75%.

Monitoring power consumption within each rack over time is the only accurate indicator of actual power usage and the best predictor for future growth. Accurate data gathering means that rack space can be utilised to maximum efficiency, a requirement that is becoming more critical as racks reach capacity. Moreover, future power requirements during a branch office expansion will not be overestimated and cooling requirements can be accurately predicted if required.

Power monitoring and reporting at a branch office should not have to be a complicated and expensive affair. However, most solutions require the purchase of an additional software license and the need to maintain a cumbersome database to log the measurements to. This creates additional expense and can be time consuming to maintain. We think power management should be a simple and our designs follow this ethos.

Alarm Notification: Proactive alarm functions will provide you with a range of tools to help you identify networking issues before they become critical. Comprehensive activity logs on your branch office management tools create a record of all your power switching and monitoring activity and will help you identify issues before they become critical. If alarms are generated and sent by email, text message, SNMP, SYSLOG or audibly, you will have advanced warning of problems with attached equipment such as lost voltage or high rack temperatures so that you can take action before outages have an impact on the branch office business.

Sentinel's Unified Approach to Branch Office Management

The tools required to effectively manage remote office IT are numerous and have traditionally required the purchase of separate products for each management task. This would be excessive for the remote office IT environment in terms of cost and also functionality as most solutions have been designed primarily for the enterprise network.

Moreover, organisations will have more effective remote office management if they aim to implement standardised tools that do not vary from site to site within an enterprise, so that the IT assets can be accessed and maintained in a more consistent way. Proven templates for successful, pre-tested solutions can deliver that element of repeatability to branch office solutions as they are easier to roll out across multiple branch office locations.

It is not easy to implement a standardised product solution if it has to incorporate so many of the tools that have been identified in this paper. Separate product solutions will have to be sourced from different manufacturers, increasing the project time that will be required to evaluate, purchase and install more than one solution. Sentinel has recognised the unique challenges that are raised in managing the remote branch office and has specifically identified a robust management solution to respond to the many branch office challenges identified.

The CPM Console + Power Manager is a multi-function tool that will allow effective management of remote branch office IT; easy to implement, simple to use with one user interface, compact and affordable. The CPM Console + Power Manager provides network administrators with five invaluable network management tools in one compact 1U rack mountable unit. Combine console access, remote reboot, power metering, temperature monitoring and automatic power transfer switching into one innovative unit and simplify branch office IT management today.

CONCLUSION

The introduction of Sentinel's CPM Console + Power Manager brings a new focus to branch office IT management. Sentinel's considerable expertise in power and console management over the last fifteen years has resulted in a multi-function, affordable branch office solution that can be installed and replicated across all your remote branch office sites.

The combination of console, power and other management tools in one simple solution provides a new cost effective method of supporting branch office IT when there is no IT support staff at the remote office site. Organisations, many of which are consolidating branches, are looking to align IT costs with business requirements and will be exploring new ways to centrally support and maintain their remote technology. By consolidating five essential remote management functions into one simple, cost effective rack mountable unit. Sentinel's innovative remote management solution for branch office IT is designed to address all your branch office management challenges at an affordable cost.

Your IT is at the heart of your organisation. If it fails, business stops. Sentinel has over fifteen years' experience in power and console management. With products located in thousands of mission critical IT facilities, ranging from offshore oil and gas installations to global 24/7 rolling news providers, backed up with the highest MTBF in the industry, our track record is second to none. Entrust your business continuity with Sentinel.