

WHITE PAPER

## **Ensuring Business Continuity Through Effective Network Asset Management**

A Standards-based Approach Speeds Disaster Recovery

## I. Business Continuity Planning: Front and Center, Once Again

Perhaps dulled by the lack of any major crises when the world woke up to January 1, 2000, many organizations have since allowed preparations for disaster recovery and business continuity to slip down their list of IT priorities. And, despite the terror attacks in the United States on September 11, 2001, and attendant fears of subsequent biological warfare and other terrorism attacks, many companies have still maintained only the most rudimentary of business continuity plans. Disasters, it seemed, remained a remote possibility, and proved to be poor competition for attention compared to more pressing, day-to-day IT requirements.

Hurricane Katrina, which struck on August 28, 2005, gave business executives and IT managers a collective jolt of harsh reality: disasters can indeed happen, serving up total destruction of IT infrastructure and network facilities across a wide swath of the southern states. The wholesale confusion that ensued in New Orleans and other cities brought into sharp focus the need for comprehensive business continuity plans that could be sprung into action at a moment's notice.

How can enterprises better prepare to enable business continuity in the chaos and devastation that disasters—natural and man-made—leave in their wake? When it comes to preparing enterprise networks for business continuity, the best strategy is surprisingly simple—and one that benefits organizations day in, day out. This white paper examines the benefits of a standards-based approach to managing network resources, utilizing best practices such as those provided by the IT Infrastructure Library (ITIL), and network asset management solutions such as Visionael® Network Resource Manager (NRM)—a combination that is rapidly emerging as the method of choice for network-centric organizations in all industries.

## II. The Network: The Most Vulnerable IT Asset

IT infrastructure is at the heart of modern business; its network, applications and servers are the most essential resources in the operation of any enterprise. The network is by far the most

vulnerable asset for two reasons: most of its equipment is housed outside the four walls of the enterprise, and the viability and performance of much of the network depends on external parties, i.e., service providers and the telecommunications hotels that house equipment around the world.

Given the extreme lack of control that IT organizations ultimately have over network assets, when disaster strikes, chaos and business disruption can result from:

- **Carrier outages:** An enterprise network itself may be up and running, but the carriers that provide necessary circuits are experiencing service disruptions of their own.
- **Damage to enterprise network resources:** This can include physical loss of network equipment, or subsequent disrepair of network equipment that cannot be serviced in the aftermath of a natural disaster or terror strike.
- **Lack of visibility into network resources:** By far the most prevalent problem, and the most difficult to solve because in the wake of a disaster, it is typically impossible to determine exactly which equipment has been taken out of service. Doing so usually requires a high level of human involvement as network professionals physically inspect sites—but what if a site is not available for inspection? This leads to a requirement for automated documentation of network resources.

### To err is human

To expand on this final point, the fallibility of the human element is often overlooked and almost always underestimated in disaster recovery exercises and business continuity planning. For example, in November 2005 London's financial sector engaged in a comprehensive exercise to test its preparedness for terrorist attacks, natural disasters and widespread infrastructure damage. More than 1,000 people from government agencies and 80 U.K. organizations took part in the test, which included simulations of car bomb attacks, casualties, market responses and news reports.

Afterward, England's Financial Services Authority (FSA), the Bank of England and the Treasury issued a study that "suggests that Britain's financial sector is well placed to cope with terrorist

attacks, natural disasters and other big disruptions... The bulk of Britain's core financial infrastructure can be recovered within two hours of a disaster. Within four hours it can be operating at between 60% and 80% of normal capacity. Give firms a day and almost all services, including trading and retail payments, can be back to normal.”<sup>1</sup>

But some of the study's findings are alarming, including the fact that only half of the participating firms have plans to cope with casualties among their staff, and only half of those have tested such plans. Additionally, the report noted that almost half of the critical sites identified in the study are located within six miles of the Bank of England, making the whole area vulnerable to a single catastrophic event.

Chilling as the prospect of the loss of human life may be, the reality is that without automated systems in place, IT infrastructure and networks in particular are vulnerable to business interruption when any disaster strikes. When both the production and backup sites that hold network equipment are inaccessible, organizations need an alternative means to take the first step in keeping networks remain up and running—they need an automated, remote way to determining which resources exist and are operational. To speed disaster recovery and help ensure seamless business continuity, this capability should be utilized within a larger management framework based on the IT Infrastructure Library, a service management framework developed in the late 1980s that has since become a worldwide de facto standard.

### III. Network Asset Management and ITIL: Keys to Business Continuity

Before thorough, standards-based network management can be performed, network resources must be identifiable quickly, and on an exhaustive basis. Network asset management solutions present an ideal approach to achieving an up-to-the-minute inventory of resources goal by providing perfect knowledge of the most granular network details—a capability that is indispensable in both business continuity situations and everyday operations.

Simply put, network asset management solutions are used in enterprise networks to keep track of how link resources are allocated to connections. The two primary resources these systems tracks are capacity (bandwidth) and connection identifiers. Network asset management systems provide tactical and strategic utility: first, they monitor network capacity and control the allocation of capacity to connections when requested. This information can be easily and automatically tracked as dynamic networks change—a far cry from manual inventory and spreadsheet- or diagram-based tracking methods. The most advanced network asset management solutions provide this capability and offer a high-level, strategic view of network resources, as well.

Network asset management is essential because if a network's capabilities are not known at both global and granular levels, enterprises will by default engage in a dangerous guessing game—exactly what is the status of the network?—which could not happen at a worse time than when faced with potential business disruption. How can choices be made quickly with anything less than complete, up to the minute information? When disaster strikes, quick decision-making can easily mean the difference between interruption-free operations and devastating downtime.

#### ITIL provides a framework of best practices

Even the best tools are of limited utility unless used within the proper procedural context. Network asset management solutions used within an ITIL framework therefore provide an optimal combination of tools and best process.

Developed in the late 1980s, the IT Infrastructure Library was developed as a guide for government organizations in the United Kingdom. Since then the ITIL framework has been proven to be useful to organizations in all industries, applied to IT resources ranging from servers to networks. ITIL documents industry best practice guidance, providing a framework that describes how to optimally organize IT service management. The models show the

<sup>1</sup> "Bunker Mentality," The Economist, December 14, 2005.

goals, general activities, inputs and outputs of the various processes, which can be incorporated within IT organizations.

Because it is a framework of proven best practices, the IT Infrastructure Library can be used within organizations with existing methods and activities in service management. ITIL emphasizes the relationships between the processes, allowing lack of communication or cooperation between various IT functions to be eliminated or minimized. It provides a proven method for planning common processes, roles and activities with appropriate reference to each other and how the communication lines should exist between them. Generic benefits include:

- Improved quality service provision
- Cost justifiable service quality
- Services that meet business, customer and user demands
- Integrated centralized processes
- Individual roles and responsibilities in service provision
- Learning from previous experience
- Demonstrable performance indicators.

Specifically, integrated service delivery refers to the need for Configuration Management, Change Management, Incident Management, Problem Management and Release Management processes that are linked together in a meaningful manner. For example, the process of releasing components to the live environment (the domain of Release Management) is also an issue for Configuration Management and Change Management, while the Service Desk is primarily responsible for liaison between IT providers and the users of services. Network asset management solutions play an instrumental role in documenting network status and change, enabling ITIL-based approaches to be executed based on accurate information.

## ITIL is the basis for “Visible Ops”

Increased awareness of disaster recovery requirements complements another major development in IT organizations across America: the challenge to comply with multiplying privacy and compliance regulations, such as:

- the Sarbanes-Oxley Act
- the Graham-Leach-Bliley Act
- HIPAA
- Payment Card Industry (PCI) Data Security Standard
- customer proprietary network information (CPNI) regulations in telecommunications industry
- in Europe, regulations such as Basel II.

In fact, as international commerce regulations increase, spending on regulatory compliance is growing at a rate twice that of IT spending.<sup>2</sup>

Recognizing that ITIL provides a framework to start defining repeatable and verifiable IT processes, IT industry veterans Kevin Behr, Gene Kim and George Spafford developed a methodology called “Visible Ops” that helps IT organizations answer the very difficult question, “How and where do you start?” in working toward an ITIL-based management approach.

The authors met with hundreds of IT organizations and identified eight high-performing IT groups with the highest service levels, best security and best efficiencies. Across the board, the high-performing IT groups shared a culture of change management, a culture of causality and a culture that fundamentally valued effective and auditable controls, promoting fact-based management. Visible Ops reflects the lessons learned about how these organizations work and describes a control-based entry point into the world of ITIL that others can leverage to spring-board their own process improvement efforts—which can help network management teams significantly improve disaster recovery processes and help to ensure business continuity.

## Taking network management toward ITIL

The Visible Ops authors define a specific path toward achieving ITIL-based management practices that enable business continuity to be best ensured, and compliance demonstrated. As described by the authors, the phases are:

<sup>2</sup> “Gartner Predicts: The Cost of Compliance,” Daryl C. Plummer, December 9, 2005.

- *“Phase 1: ‘Stabilize the patient.’* In this phase, we curb the number of outages by freezing change outside of scheduled maintenance windows. We also modify the first-response process of problem managers by ensuring that they have all change-related information at hand about what could have caused the outage.
- *Phase 2: ‘Catch & release’ and ‘Find fragile artifacts.’* Often, infrastructure exists that cannot be repeatedly replicated. In this step, we inventory assets, configurations and services to identify those with the lowest change success rates, highest MTTR and highest business downtime costs. Fragile artifacts are identified and then treated with extra caution to avert risky changes and massive episodes of unplanned work.
- *Phase 3: Establish repeatable build library.* The highest return on investment comes from implementing effective release management processes. This step creates repeatable builds for the most critical assets and services to make it ‘cheaper to rebuild than to repair.’ We take the priceless paintings identified in the previous step and work to create equally functional prints that can be mass-produced.
- *Phase 4: Enable continuous improvement.* The previous steps have progressively built a closed loop between the release, control and resolution process domains. This step implements metrics to enable the continuous improvement of all of these process areas to best meet business objectives.”<sup>3</sup>

In network environments, Visionael NRM is essential in executing the tasks contained in all phases, as articulated below.

## IV. Visionael Network Resource Manager: Helping Ensure Business Continuity through Effective Network Management

Visionael Corporation provides a solution set of network asset management products and services that can help enterprises significantly reduce the risks of business discontinuity by:

- Providing a granular, visually presented inventory of all network assets, which can be updated as dynamically as change occurs on the network.
- Delivering a framework for managing network change that helps ensure success as key applications such as voice over IP (VoIP) are piloted and rolled out across the client enterprise. Visionael solutions allow network professionals to make sure the as-built state of the network reflects the planned state of the network.
- Offering after network discovery and change, ongoing life cycle management by continuously auditing the state of the network. This capability is critical as networks are increasingly affected by international regulations.

### Added value: Improving networks’ ability to support daily operations

Clearly, a lack of anything but complete, up-to-the-minute information on all network assets puts enterprises at a distinct disadvantage when quick decisions must be made. In addition, this requirement is a must to effectively manage day-to-day operations of dynamic, organic networks. Visionael NRM improves ongoing operations by providing a methodical process that helps ensure the successful planning, roll-out and ongoing maintenance of essential network resources—activities that are integral to management disciplines such as ITIL and Visible Ops. The steps in that process comprise:

- **Discover** – network assets, including devices, cards, ports and port-to-port connections. This step is of utmost criticality in business continuity situations.
- **Design** – scalable and collaborative graphic design, using logical diagrams and physical schematics depicting equipment layout and connectivity
- **Deploy** – automate the production of project installation and implementation documents
- **Provision** – carrier-grade circuit design and assign
- **Operate** – current, accurate and detailed information needed to effectively maintain business-critical networks and meet service level agreements (SLAs).

<sup>3</sup> Excerpted from "An Introduction to Visible Ops: Advice by Kevin Behr, Gene Kim and George Spafford," Computerworld, August 31, 2004.

## Visionael NRM product highlights

As previously noted, Visionael NRM can dramatically reduce the risk of network outages in the wake of a disaster, helping to ensure business continuity. When used as the foundation of an ITIL-based proactive management strategy, it can also help enable maximum agility in building, modifying and managing network resources to meet changing business needs. Visionael Network Resource Manager offers a host of critical capabilities and benefits including:

- **Automated infrastructure data collection:** Asset-oriented discovery provides detailed device information, reducing the need for physical audits, while regularly scheduled discoveries and reconciliation maintain up-to-date, accurate information.
- **Physical and logical network modeling:** NRM provides a comprehensive central repository of network devices and connections that contains data for all stages of the infrastructure life cycle, as well as detailed representations of the network in historical, current/as-built, and future views. Its complete physical network design and documentation capabilities include floor plans, rack locations and cabling views for accurate project details.
- **Open, scalable and reliable:** NRM provides the ability to support networks with thousands of objects, readily handling changes to the entire network as it evolves and grows. Auto-discovery and reconciliation maintains the accuracy of network data over time, and over 20,000 pre-defined objects provide easy access to all major vendors' equipment.
- **Flexible and customizable:** Open APIs and XML data export facilitate the creation of custom menus, property pages and objects; data import from and export to existing applications assures smooth integration with existing management systems.

## Visionael NRM helps enable ITIL-based management such as Visible Ops

Network asset management solutions like Visionael NRM play a prominent role in allowing Visible Ops benchmarks (modified to

reflect network-specific environments) to be realized in the network management area:

- *“Server to system administrator ratios greater than 100 to 1:* This means that each system administrator controls more than 100 servers. In contrast, organizations not using effective processes see ratios around 15 to 1.
- *Low ratio of unplanned to planned work:* Only 5% of operational expense goes toward unplanned work. From our ongoing benchmarking, we find that average organizations spend 25% to 45% of their total operational expenses on unplanned, unscheduled work.
- *Higher staffing early in the IT life cycle:* Continual deployment of resources and staff in the preproduction build phase, where the cost of defect repair is least expensive.
- *Collaborative working relationships between functions:* IT operations and security work together to solve common objectives, with IT operations performing most of the work and security acting as coach and consultant.
- *Posture of compliance:* Trusted working relationship between IT operations and auditors, because controls are visible, verifiable and regularly reported on.
- *Culture of change management:* Ubiquitous understanding throughout the organization that changes must be managed in order to achieve business objectives.
- *Culture of causality:* Through the use of controls and metrics, these groups identify and solve problems through logical use of cause and effect, instead of a culture of ‘let’s see if this works.’
- *Management by fact:* These organizations value controls and metrics, not only to aid effective problem-solving, but to aid fact-driven decision-making, as opposed to ‘management by belief’ or ‘management by the honor system.’”<sup>4</sup>

<sup>4</sup> Ibid.

## Added value from Visionael Professional Services

Visionael Professional Services provides a strong complement to the value enterprises receive by deploying NRM. This team of highly experienced professionals provides technical consulting services that help customers capitalize on the full power of Visionael software and reduce the time to realize return on investment (ROI). Varying in scope and purpose, these services are conducted by Visionael consultants or the company's certified partners. Visionael consultants and partners have extensive experience installing and configuring Visionael products to meet organizations' specific needs.

## V. Summary

In the years since the IT industry's last big business continuity push—Y2K preparedness—our world has become a much more complicated place. So have networks, which now carry blended voice and data traffic, and hundreds or thousands of applications in the typical enterprise. As a result, networks are being pushed to their limits by ever-increasing user demands. This scenario presents tremendous risk should disaster strike—or if a company merely wants to maximize the value of its IT investments by extracting the highest performance levels possible from the network.

In today's environment, traditional business continuity approaches and manual network asset management tools are woefully ineffective. Network redundancy is not feasible due to cost and complexity, and network outages cannot be remedied by simple solutions like backup generators or even backup data center sites. Increasingly, business continuity requires the physical movement of people from one location to another which, in the event of a major natural or man-made disaster, can be utterly impossible.

### A well-documented network is everything

No matter which business continuity strategies are put into place, their efficacy depends on having a well-documented network as the source for all related decision-making. Management frameworks of best practices, such as ITIL and Visible Ops,

combined with automated solutions such as Visionael NRM, provide the pinpoint accuracy and up-to-the-minute detail on network resources that are necessary for making informed decisions in times of operational crisis. This combination of product and processes also enables ongoing operational efficiencies to be attained and sustained.

Automated network discovery, as part of a network life cycle methodology complemented by workflow, is also the foundation for building and managing a high-performance production network for "business as usual." By eliminating tedious manual processes, Visionael NRM allows complex, rapidly growing enterprise networks to be understood and tamed—the first step in achieving an IT environment that can stand the test of any disaster it may encounter.

## About Visionael

Visionael Corporation is a software and services company that enables customers to effectively plan for and respond to the ever-changing complexity associated with large computer networks. Enterprises, government organizations, network outsourcers, and telecommunications services providers rely on Visionael tools and insights to know and manage the risks associated with deploying new network technologies and services. The company has an extensive worldwide customer base, including Alpheus Communications, Comcast, EDS, Kaiser Permanente, IBM Global Services, Sprint and Vodafone. Channel, system integrators and partners include Dimension Data, EDS, Logica and Pride. Visionael Corporation is a privately held company, headquartered in Mountain View, California, with major development facilities in Tulsa, Oklahoma. Sales offices are located throughout North America and Europe. For more information, please visit <http://www.visionael.com/>, or call +1-650-963-0960.

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