

Abstract

All industries are tethered to a common lifeline --- Telecommunications. Without effective telecommunications, networks, systems and applications become isolated and compromised. An outage anywhere in your infrastructure can be financially devastating, and even life threatening, especially in the Healthcare industry. The trend in healthcare is driven towards TeleHealth, encompassing TeleMedicine, TeleRadiology and TelePresence further accentuating the requirement for integrated and resilient infrastructures. There are also regulatory requirements such as Emergency Communication and Mass Notification and Verification stemming from recent natural disasters and the growing occurrences of man-made outages often referred to as 'backhoe fade' and even vandalism. Accordingly, the practice of provisioning redundant facilities has proven to be inadequate.

Current Technology Trends and Availability

Traditional means of providing redundancy are costly, and are susceptible to sharing the impact from a common event, for instance, an earthquake, hurricane or a line cut. It is our philosophy the best way to backup an infrastructure environment is to use dynamic modes and not rely on the same fundamental paradigm using one technology. Rather, utilize alternative methods of ingress and egress, not just different facilities, in order to provide a **resilient network** infrastructure yielding the highest level of availability.

Typical Service Level Agreements (SLA's) assert 99.99% availability. This is an easily manipulated statistical value which can be, and is designed to be a defensible metric to enhance marketing positions and prevent loss of revenue for the provider. It is not an absolute value or certainty by any means. The chosen variables and formulas skew the actual impact. This suggests the need to examine alternative methods predicated upon:

- **Facility based Vulnerability Assessment**
- **Evaluation of alternative technology costs/needs**
- **Emergency Communication Planning & Response**

In many cases a business has a LAN, MAN, WAN, and SAN, but what they lack is an active P-LAN (backup plan b.) This is attributable to the inter-departmental nature of less than seamless management of infrastructure(s,) and the challenges of maintaining up-to-date, accurate and consistent documentation. Arguably most documentation is flawed since it is based on non-real time, incomplete and outdated information and is typically the sole source relied on to make infrastructure. Accordingly, this process repeats itself, as a result of business timing needs and IT environments over time become vulnerable and require patch fixes.

A New Paradigm Begins!

A more integrated, thorough and collaborative means of communication is necessary to benefit all levels of infrastructure and corporate management, from the technician in the wiring closet to the CEO. This leads us to requiring resilient solutions to provide for:

- Comprehensive discovery and vulnerability assessment for all infrastructure networks, systems, and applications
- Assess the ability to meet and complete compliance with regulatory mandates
- Crisis Management and Mitigation
 - Instant activation of multi-level emergency plans
 - Adaptive mass notification and verification
 - Ability to stay connected (inbound/outbound)

With diverse technologies, we can address the needs and solutions for business continuity effectively. The answer is to build automatic and scalable solutions addressing escalating levels of outages.

Redundant or Resilient?

A redundant system typically fails over to the same or similar technology, in many cases this is a second access facility or provider. These lines commonly traverse the same 'pipe' or even same aggregating service provider. A simple well placed backhoe bucket can take out both. A flood or other disaster will certainly have drastic implications for these types of solutions.

Conversely, resilient solutions provide alternate and more flexible, scalable failsafe services, based on your needs, which will sustain a 'hit' more reliably. While it is true in some cases there may be consciously degraded services in an outage, at least there will be service. Simply relying on redundant terrestrial facilities, cell services or other fixed wireless solutions is insufficient. A major disaster can easily impact or disable any or all of these services for days or weeks.

A new methodology must include a needs assessment to reach cost performance balance of the right mix of redundant and resilient capabilities. This enables you to supercharge your emergency communications planning, utilizing the appropriate technology responses to automatically re-direct services as the circumstances, *or you*, deem appropriate. The new methodology includes, but is not limited to:

- Assessments:
 - Infrastructure – Network, Systems, Applications
 - Vulnerability
 - Regulatory Compliance
- Emergency Communications Planning (ECP)
- Telecommunications Failsafe and Business Continuity

Benefit Analysis: Redundant vs. Resilient ,

There are three critical elements to any emergency plan:

- 1) The Plan Itself – Anticipating the Needs
 - a. Contingency Requirements
 - b. Contingency Resources
 - c. Process & Procedures for Each Scenario
- 2) Mass Notification and Verification
 - a. Emergency Response Team(s)
 - b. Employees, Students, Staff, Customers
 - c. Community At Large
- 3) The availability of Failover Facilities and Capacity

A goal of business continuity planning is to receive the most benefit at the least cost that meets your needs – **the best value with the best fit**. Current trends for emergency planning and preparedness predominantly rely on the provisioning of redundant, expensive facilities (lines and equipment). Due to recent, real-life experiences we realize these redundant facilities are subject to the same fate as the primary facilities.

The new methodology assesses those vulnerabilities along with the need to comply with new, more detailed requirements, regulations and customer expectations.

Conventional planning is too narrow in scope. The recent deliberate ‘hacksaw cut’ of fiber lines in California is testimony that any circumstance can impact all lines. This simple incident took out AT&T, Sprint and Verizon lines all at once from one manhole. It interrupted the service of 100,000+ land-lines to home and businesses, cell phones, 911 services and internet services.

- Entire communities’ communications were ‘lost’ – incurring significant expense and risk in attempting to ensure residents’ safety .
- AT&T Inc., posted a \$250,000 reward for information.
- Verizon’s phone and internet services were also disrupted, since they use AT&T’s “long-haul” facilities.

There are many possible scenarios, all of which must be addressed for one reason or another. This ranges from basic communications to data backup and access. If inbound and outbound traffic is compromised, land lines, cell phones, or radios, any scenario can be devastating.

Emergency Communication Plan: A Resilient Solution

Expensive, redundant facilities and equipment do not meet the needs for effective Emergency Communications. We advocate a new approach predicated on resilient solutions.

A resilient solution provides an affordable flexible, adaptable alternative that will automatically redirect all inbound calls via predetermined protocols based on the level of emergency or disaster. Outbound calling, data communication and backup are enabled with the addition of network enhancements.

A simple line cut by a backhoe may be a Level 1 emergency – Internal systems remain functional, but inbound calls are cut and outbound calling has become limited to cell phones and satellite phones.

An effective solution must include the ability to automatically notify staff, customers, outside agencies, and even patient families of the current emergency (as required) with a specific message(s,) with verification that the message has been received. In addition, the solution should include polling for various pre-programmed responses, and the ability to press a single key and instantly join a live conference call.

Completely different sets of requirements, parameters, protocols and procedures that apply to a Level 2 emergency (may result from a storm or fire) or a Level 3 emergency (that may involve site evacuation) can all be addressed with the features of a resilient solution.

These are just a few of the many scenarios which will impact your ability to communicate and thus deliver services. Each type of interruption should be anticipated and an automatic and adaptable solution should be instantly at your finger tips.

Governance, Compliance and Security

eGlobal Insight provides solutions for compliance with policies and regulatory stipulations, as well as the ability to specify details on facility resources and who is responsible. This includes support for government legislation and industry standards such as JCAHO (Joint Commission), HIPAA (Health Insurance Portability and Accountability Act), Sarbanes-Oxley, etc.

eGlobal Insight works with you to capture and evaluate data from multiple management sources and provide cohesive modeling across them. From this, we can help you establish adaptive protocols which can be applied to an integrated dataset that identifies and dynamically depicts non-compliant elements or conditions. These protocols can easily be adjusted to address the situation, on the fly.

Recent Real-Life Experiences

There have been hurricanes, earthquakes, floods, cable cuts (both accidental and deliberate) which have caused major outages in the San Francisco Bay Area – hack-saw hacker, in Kentucky – a flood, in Gulf Coast regions - hurricanes, in the Northeastern United States – cyber attacks, in Boston - a simple backhoe cut took down a large law firm for 3 days!

These and many, many more have tested current recovery plans, many of which did not meet the challenge, regardless of planning or expense.

In all cases, primary and redundant facilities were compromised, inbound calls are dead, outbound calls can be maintained only via cell phone (if active) or satellite phones (uncommon and expensive) or radio (if active and compatible). The next call goes nowhere. This is an unacceptable and expensive (hard dollars and soft dollars, opportunity costs, even lawsuits) scenario for any industry, and for healthcare and communities, in particular, life threatening and a violation of the new requirements for emergency communications preparedness.

- Is your plan resilient?
- Will your plan adequately adapt?
- How will you know?
- It is not “IF” it is “WHEN”...

In Perspective

eGlobal Insight shares its depth and breadth of experience with the client organization to develop a resilient solution set that meets or exceeds its needs. Ultimately the objective of any viable approach to communications services is to rationalize multiple brands and solutions to coexist harmoniously in support of the broader process and business initiatives. You don't have time, or maybe even the communications ability, to coordinate multiple vendors in a disaster response.

Through eGlobal Insight solutions, companies stand to save a significant percentage of expenditures through a variety of benefits ranging from cost optimization, reduced downtime, faster and more efficient service provisioning, satisfying compliance initiatives, elimination of redundant facilities and services, and risk mitigation.

In Summary

In summary, unknown conditions and parameters inevitably surface in most disaster situations. Therefore, a primary goal of the new paradigm must be a plan encompassing a resilient and active architecture that enables your infrastructure to adapt, at a moments notice, providing a transparent, portable and flexible solution. A secondary goal is to provide **best value, best fit** solutions at the most competitive price/performance ratio. A third goal is to enhance your business' ability to continue normal operations, support its decision support process and enable this process with access to voice, data and expertise that is accurate, understandable, reliable and readily available.

No solution can be simply derived from or bounded by any single stratum. The bigger picture must be explored, evaluated and included in any effective solution or solution set. Global dependence on telecommunications services is increasingly critical in our lives and economy, their fragility is inherent. New planning and implementation methodologies must provide the necessary tools and solutions to prepare for and adapt to any disaster, while positioning you for your future needs.

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