



MANAGED SERVICES:

The e-Health Information Technology Managed Services Quadrant

October 2009



Written in collaboration with and sponsored by Spirit Telecom

Improving healthcare through innovative technology solutions

Table of Contents

The Healthcare Information Technology Landscape, 2009 and Beyond.....	1
EMR, EHR, and Underlying IT Infrastructure Requirements.....	1
Introduction to Small Business Focused Managed Services.....	2
The Annual IT Plan: A Prerequisite to Managed Services Success.....	3
The e-Health Information Technology Managed Services Quadrant.....	4
SBT Partners: Sustaining Client Value.....	10
Spirit Telecom: Maximizing Client Investment.....	11

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The Healthcare Information Technology Landscape, 2009 and Beyond

There is little doubt that the United States is moving toward major reforms within the healthcare industry to expand coverage, manage skyrocketing costs, and improve focus on outcome based patient care. The adoption of automated systems and software to build a patient Electronic Health Record (EHR) has long been in the mix to enable uniform access and security of integrated patient information to providers across all touchpoints in the patient care matrix. Among EHR goals are to achieve faster diagnosis and treatment turnaround while reducing costs.

The HITECH components of ARRA, the American Recovery and Reinvestment Act of 2009 (the stimulus package), ups the ante to get EHR rolling. Over the next several years financial incentives will be in place for physicians and hospitals to begin the process of automation that for many years has escaped the industry. Healthcare IT spending historically falls far below other industries. It has been a paper driven world but for good reason. The regulatory environment, combined with a sense that the cost of automation, particularly to the smaller physician practices (and there are many of them) have hindered technology growth and expansion within the industry.

The ARRA incentives revolve around the adoption of EMR (Electronic Medical Records) solutions that meet Certification Commission for Health Information Technology (CCHIT) requirements for software and satisfy a broad set of “meaningful use” criteria that ultimately leads to the industry adoption of EHR. If providers utilize certified EMR solutions they will be able to recover some of the costs of implementation and support beginning in 2011 and beyond in the form of Medicare and Medicaid payment bonuses. There will also, however, be penalties for those that do not adopt an automated solution.

Many practices, particularly the smaller ones, have been and will continue to be skeptical about EMR. EMR implementation is an expensive endeavor that is certain to cause organizational disruption bringing with it unknown costs and thus high risk. Implementing EMR and then keeping up with the ever changing requirements and restrictions adds a high administrative burden. However the requirements are now tied to CMS payments which can be as high as 30% of their revenue. Conformance may now be critical to their financial future.

It is not the purpose of this white paper to delve further into the complexities of EHR, meaningful use, pay for performance, or any of the other environmental factors that will certainly effect EMR utilization. The purpose is to help the small practices, those that don't have the economies of scale to spread costs over a broad base of revenue, to understand options that are available to them to help plan, optimize, and support their information technology environment if and when the transition to EHR automation begins.

EMR, EHR, and Underlying IT Infrastructure Requirements

All but the largest, most invested physician practices will be facing a steep information technology learning curve as they approach the planning and early adoption stage of their transition into an EMR implementation that evolves into the sharing of patient information. An EMR system automates the physicians encounter with the patient. By definition EMR exists solely for the physician operating within a standalone environment. EHR, on the other hand, implies interconnectivity and access to any and all patient information across all touchpoints, e.g. physicians offices, hospitals, emergency room, nursing home care, etc.

Medical images represent a component of the EMR and EHR patient record environment. Medicare costs related to image creation has climbed geometrically over the past five years as each

participant in the cycle requests and stores its own patient images, e.g. X-rays, CT, PET, MRI, ultrasound, etc. Billing transactions requiring printing and mailing by each participant in the cycle also add significantly to costs. Eliminating the duplication of images and transactions through the use of an electronic network is expected to save billions yearly.

Storing, transporting, and receiving patient records electronically adds significantly to the sophistication and cost EMR/EHR deployment and to the underlying information technology infrastructure. Access to high bandwidth wide area network environments providing high performance fiber-based capabilities that enable fast, reliable transmission of voice, data, and imaging adds a new dimension to a previously bounded EMR environment. Large storage of records requiring the utmost security protection under HIPAA regulations require sophisticated information protection strategies not previously encountered. High performance servers that manage large, networked files and provide application access to desktops and remote access devices require continual operating system upgrades to maintain consistent service levels. Enhanced security, intrusion detection, and performance management capabilities are all necessary to stabilize and protect the environment and to maintain HIPAA and other regulatory requirements.

The small physician practices will be faced with tough choices on how to plan, build, and support a cost effective infrastructure that requires high performance, high availability, interoperability, and compliance. Even the largest enterprises have great difficulty managing environments with such stringent requirements. They have the luxury, however, of possessing the financial resources and internal IT talent to sustain them.

When the time arrives to consider the move toward EMR/EHR, an important choice must be made...whether to ramp up of an internal expertise center to plan and deploy an IT infrastructure or to look at outsourcing as an alternative.

Introduction to Small Business Focused Managed Services

The outsourcing of information technology infrastructure planning, monitoring, and maintenance to a trusted managed services partner is becoming widely recognized, particularly by small businesses, as a viable and cost effective alternative to achieve IT performance requirements while reducing operating costs.

The managed services engagement model offered by SBT Partners can change the dynamics of IT service delivery from a tactical mode, characteristic of most small businesses, to a strategic process. The relationship between the managed services partner and the small business is based on performance-based rather than commodity-based pricing. A client pays for a level of service for any of a number of strategic solutions. Consulting services, incorporating annual IT plan with an IT roadmap to align technology with strategic business initiatives, becomes an integral part of the engagement model. A managed services partnership, such as that offered by SBT Partners, helps the small business create an IT roadmap that aligns with their strategic goals.

Given the technically complex HITECH landscape brought about by EMR/EHR, the SBT Partners engagement model can be a critical factor allowing a small physician practice to focus on medicine while leveraging the knowledge of experts to create and sustain an evolving EMR/EHR IT infrastructure.

The Annual IT Plan: A Prerequisite to Managed Services Success

Most small businesses lack the internal resources required to effectively integrate, optimize, and align information technology with their business strategies. It took years of effort and investment on the part of the largest enterprises to recognize the value of IT as a critical growth enabler. Given their experience, most large businesses now include an information technology executive, or CIO, in all strategic planning discussions.

There are many consulting firms that focus on business planning but either lack practical technology implementation skills or are far too expensive to be of interest to a small business. SBT Partners offers an alternative to its small business clients that is built into their managed services engagement methodology.

The development of a strategic IT managed services plan, the Annual IT Plan, that incorporates a roadmap for small business management decision making, is prepared in collaboration with the small business client and is updated annually. It is used to measure the success of all IT investments as expressed through the establishment of well defined requirements that support business needs. Services are deployed to conform with the deliverables and timetables defined in the roadmap.

This is particularly important given the transitions and timetables now faced by small physician practices when considering the EMR/EHR challenge. An Annual IT Plan that links EMR to infrastructure, to procurement, and to support is fundamental to its strategic and tactical success. The SBT Managed Services Engagement Model, combined with its ability to assist in the creation of an IT roadmap, is the most cost effective deployment alternative offering much lower costs, enhanced operational efficiencies, and optimum security when compared with building and maintaining an IT infrastructure internally.



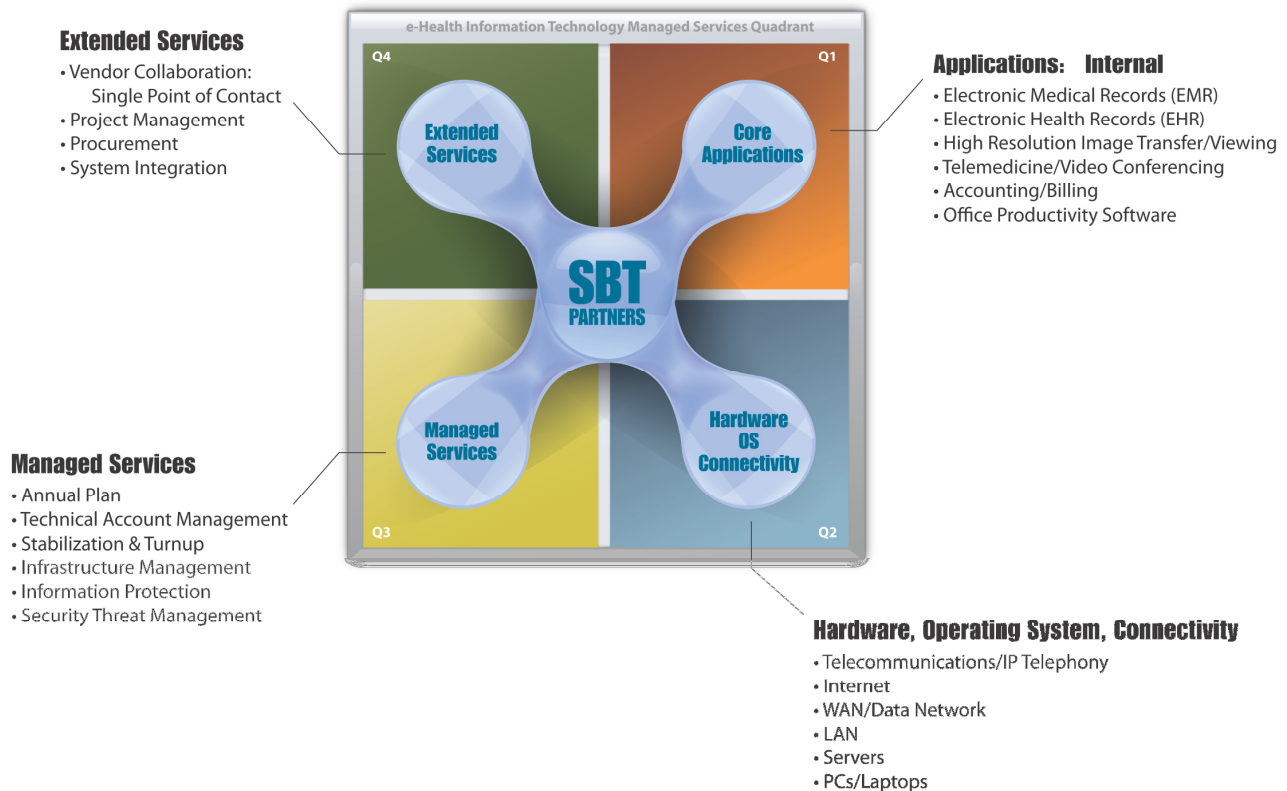
A comprehensive partnership that combines assessment, implementation, full-service support and planning...all at an affordable fixed price

The e-Health Information Technology Managed Services Quadrant

Aside from your certified EMR solutions vendor, solid relationships with a managed services integrator, such as SBT Partners, and a reliable provider of high speed broadband communications technology, such as Spirit Telecom, will be critical success factors in EMR/EHR deployment.

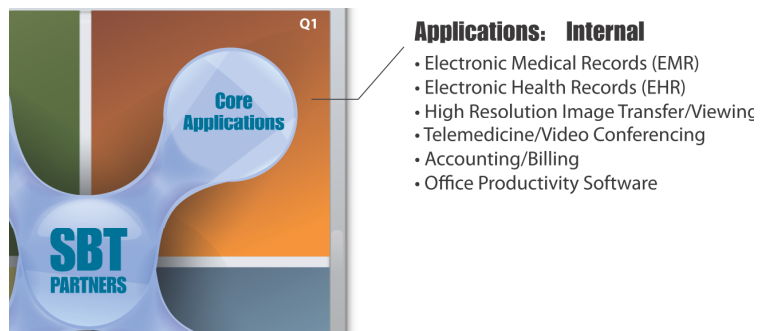
In collaboration with Spirit Telecom, SBT Partners has developed a conceptual framework that consolidates and defines those technology areas which, when integrated into a strategic planning process, can provide a reference model to guide e-Health deployment. We call it the *e-Health Information Technology Managed Services Quadrant*.

The Quadrant identifies four areas that require independent decisions but must be conjoined to ensure EMR/EHR success.



Quadrant 1: Certified EMR and Related Productivity Applications

EMR is a complex, evolving solution. In addition to providing computerization of paper records it offers capabilities for E&M coding, electronic prescribing and formulary, bi-directional laboratory integration and pay-for-performance tracking. Under current meaningful use standards, a certified EMR solution must provide



patient demographic and clinical health information, such as medical history and problem lists, must have the capacity to provide clinical decision support for use within physician order entry to capture and query information relevant to healthcare quality, and must be able to exchange electronic health information with, and integrate such information from other sources. The requirements will grow over time. In 2011 providers must be able to provide patients with electronic copies of patient records and in 2015 providers must be able to provide real time patient health record (PHR) access.

The price range and features of EMR vary across a myriad of vendors. It will require significant effort for the physician practices to make a determination of what solution best fits their individual needs and price constraints. When the selection is made, it will be instrumental to overall effectiveness of the solution to ensure that the underlying infrastructure is designed, maintained, and supported seamlessly. High performance and availability, a necessity for long term EHR capability, requires that all vendors somehow come together to ensure that evolutionary plans are joined and critical operations issues are resolved without conflict over responsibilities or blame.

Quadrant 2: Hardware, Operating System, Connectivity

EMR/EHR will require a closely integrated infrastructure and services framework. That framework must provide high availability, exceptional performance, business continuity, security, and information protection. The environment must meet complex and changing HIPAA as well as the National Institute of Standards and Technology (NIST) requirements as set forth in the ARRA HITECH guidelines for PHI (Protected Health Information) security as it relates to administrative, physical, and technical safeguards and documentation. The physician practices will certainly require leadership within their organization to manage eligibility assessments, reporting, and attestation processes that will need to be submitted to the government over a multi-year period as EMR/EHR deployment commences.



Hardware, Operating System, Connectivity

- Telecommunications/IP Telephony
- Internet
- WAN/Data Network
- LAN
- Servers
- PCs/Laptops

It is not likely that this person or group will also provide IT expertise across the complex IT environment that will require most certainly require service integration. The clinical leader or team will need a support resource to ensure that the underlying technology meets all required standards.

A partnership with a trusted managed services integrator (MSI), such as SBT Partners, will relieve the practice of developing an IT expertise center, a costly addition to any small business. The MSI provides the expertise to ensure that the infrastructure, comprised of local and wide area network components, servers, and a variety of client devices, will be effectively optimized to meet the needs of the practice. It allows medical practitioners and administrators to concentrate on their strengths.

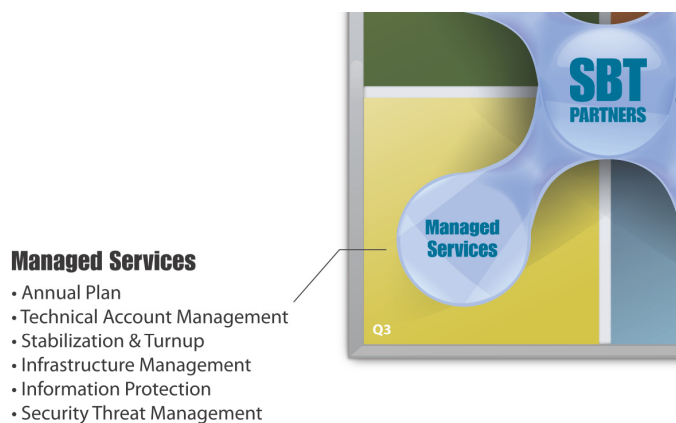
In addition to an MSI, the infrastructure partner that will be the most critical to the success of the EMR/EHR deployment is the broadband services provider. Unconstrained bandwidth and highly dependable quality of service (QoS) is required to manage bi-directional access and transmission of

patient records that consist of many diagnostic-quality images. “Annual storage requirements for many healthcare providers are increasing at a rate of 20% to 100%,” says Gary Sevounts, senior director of product marketing for Symantec’s electronic health group. “A CT scan that in the past had eight slices, or images, can now have 256 or more slices. That’s many times more than the older images,” (Information Week, August 9, 2009).

Spirit Telecom provides access to a secure, high performance, and scalable Carolina-based fiber optic MPLS network that enables providers the capability to cost effectively support e-Health solutions such as EMR/EHR. Their MedACCESS healthcare service suite, combined with a dedicated focus on small to mid-sized physician practices, provides them with an understanding of both the evolving needs within e-Health and the capabilities to access funding for “last mile” services into sites currently without high bandwidth support.

The EMR solution and infrastructure, the right hand quadrants, must provide the features and capacity to support migration to EHR. The time spent on due diligence related to Q1 and Q2 vendor evaluations will help ensure initial deployment success. Experience indicates, however, that most small businesses pay little attention to the left hand quadrants, the ones that will ensure long term success and cost avoidance. The planning process, the Annual IT Plan, begins with the initial research and analysis of Q1/Q2 alternatives. This initial discovery period is the best time to consider all options for future capacity, performance levels, services, and support.

Quadrant 3: Managed Services



Guided by the roadmap created within the Annual IT Plan, the services provided within Quadrant 3 address the daily operational issues that focus on ensuring maximum uptime and performance while providing a predictable and contractual service level to resolve any infrastructure issues that arise. The base level services that will be most important to a physician practice are *Infrastructure Management* and *Information Protection*. Each of these is described below with even more comprehensive information

available in additional whitepapers on www.sbtpartners.com.

First, however, it is critical to understand the oversight function provided by SBT Partners working as the practice IT partner to guide both planning and ongoing support.

The process begins with the assignment of a Technical Account Manager, or TAM. The TAM acts as the customer advocate to the managed services support center once a solution is deployed providing ongoing oversight of services and ensuring that any issues that are not resolved within the center are managed in conformance with the Service Level Agreement. The TAM has access to every incident through the use of sophisticated online tools and remains in constant contact with the client when incidents occur, serving as the liaison between client and support center. The TAM

coordinates the onsite delivery of highly trained and experienced technical resources when those resources are necessary to resolve a problem that cannot be resolved within the support center. The TAM is responsible for quality of service and client satisfaction.

All important technical communication flows between the client and the TAM. TAM involvement begins during the front-end phases of the client engagement through interaction with the client as the primary technical advisor. The TAM assists in the creation of the IT annual plan and roadmap, develops solutions and ad hoc project plans, and ensures project deliverables are achieved.

The TAM is also the owner of the required Stabilization and Turn-Up Phase that occurs prior to the establishment of the link to the managed services support center. All desktops, servers, and network appliances are assessed, upgraded, and installed with monitoring “agents” so that the support center can efficiently monitor the performance of the environment as well as identify, track, and resolve incidents. If the environment is stabilized properly, the managed services solution is optimized for success.

Finally, the TAM will proactively schedule regular client meetings to review the status of the annual plan. During these sessions the TAM reviews relevant metrics to ensure the plan meets the expectations created during the Stabilization and Turn-up phase providing statistics, service call data, reports, and remedies that have been or will be taken to meet SLA requirements for both *Infrastructure Management* and *Information Protection*.

Infrastructure Management

The Infrastructure Management Solution offered by SBT Partners to any small business including physician practices combines the elements of desktop and remote server management with network component support. The combination of these three critical base level services are optimized for performance and stability allowing the small business to focus on its strategic mission.

A managed services approach to Infrastructure Management eliminates the need for building and maintaining infrastructure internally, an alternative that is costly requiring continual upgrades in processes and personnel skills to accommodate business growth. With any complex infrastructure environment of the kind required to support the EMR/EHR evolutionary process, the internal costs of support will far outweigh that of a managed services solution.

SBT Partners ensures that all systems and devices are updated and maintained using a comprehensive preventative maintenance program. Most small businesses rarely maintain the latest revision levels across all systems and components making support much more costly and time consuming. An internal Infrastructure Management program seldom can achieve the stringent service level agreement (SLA) targets regarding response time turnaround and uptime performance that SBT Partners is capable of committing to.

The following provides an overview of the Information Management solution:

- Complete desktop/laptop user and back office support for a flat monthly fee. There are no “per-incident” charges.
- A highly qualified staff of technical professionals located within a 24x7 network operations center (NOC) proactively analyzes and filters data from servers, desktops, and network components and remediates issues remotely on a best effort basis. Unresolved issues are reported to the SBT Partners’ Technical Account Manager for immediate onsite resolution.

- The NOC supports monitoring and management of Windows or Linux servers, including applications commonly used by small businesses.
- PC Proactive Care bundles support and issue resolution with comprehensive preventative maintenance for all desktops and laptops to include anti-virus and patch management.
- The solution also provides the capability to deploy software applications remotely.
- Network components are monitored and managed at the NOC to include routers, switches, and firewalls, and issues are elevated if required to SBT Partners for onsite remediation.
- Intelligent “Agents” are installed on all managed devices allowing the NOC to run automated processes and perform routines to ensure that all devices are operating smoothly; the management of all processes runs within a highly secure environment. Client specific information content, confidential or non-confidential, is not accessible to the NOC.
- All services are provided under stringent Service Level Agreements (SLAs) to ensure issue resolution turnaround that meets the small business client’s requirements.

Information Protection

An Information Protection solution that provides business continuity planning, data backup, and disaster recovery, incorporates industry best practices for backing up and recovering data. It can be a complex undertaking to do it right. Given HIPAA requirements for security and patient record protection combined with the need for high availability access to such records, no healthcare practice can afford to take this important area lightly.

Small businesses very often lack the in-house IT resources to achieve the demanding planning, technical, and process requirements associated with a comprehensive Information Protection solution. They either neglect to implement a business continuity plan or else approach data backup and recovery in a sporadic, rudimentary fashion that fails to conform to industry best practices.

Using its engagement methodology, SBT Partners will assess the physician practice’s data backup and disaster recovery processes against established industry guidelines for an efficient and cost effective managed services information protection solution. Goals for such a solution are:

- A comprehensive solutions approach that is designed to reduce any server down time.
- Near real-time backups-as frequent as every 15 minutes.
- Offsite storage at an affordable cost
- A low cost, speedy disaster recovery process.
- Utilization of the lowest-cost, highest-performance data backup medium based on emerging industry trends on storage cost and efficiency. *Small businesses will likely benefit from the shift to disk storage, versus tape storage, as recent advances in design and manufacturing lower the total cost of disk-based storage in terms of storage cost per bit.*
- Encryption to ensure no data, whether located on local disk storage, in support centers that monitor servers or at remote storage facilities, is accessible to anyone without a passkey.
- Elimination of the cost and time of managing on-site tape backup to include monitoring and managing the entire logistics process.
- A single cost structure comparable to the cost of buying and managing tape backup but also ensuring predictable backup via an on site virtual server, remote storage capability, timely disaster recovery, and 24x7 management of the entire process.

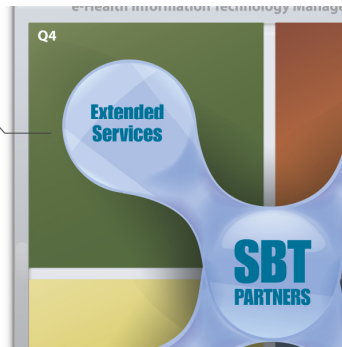
There are other potential solutions that can be identified during the Annual IT Planning process that may add to future practice efficiency and cost reduction. Examples include the implementation a

higher level of security for email users or telecommunications enhancements such as the incorporation of teleconferencing or unified messaging. SBT Partners will work in continued collaboration with partners such as Spirit Telecom to provide integrated planning and support for such services.

Quadrant 4: Extended Services

Extended Services

- Vendor Collaboration:
 - Single Point of Contact
- Project Management
- Procurement
- System Integration



The overriding concern of many businesses, large or small, when deploying and supporting complex technology based solution is that of collaboration between vendors to ensure seamless operation. Too often vendors will claim responsibility for their own products leaving solutions vulnerable to delays in scheduling and servicing. These delays are costly in terms of both dollars and lost productivity.

An Annual IT Plan is the cement that holds all components together. Therefore the Annual IT Plan, and its roadmap component, drives relationships and behavior across all quadrants. Although difficult when working across multiple vendors to coordinate a single point of contact for both current issue resolution and extended service planning, the presence of a Managed Services Integrator can help remediate a range of potential collaboration issues.

The EMR solution and its evolution to EHR serves as the catalyst for overall practice planning. The Annual IT Plan however is the catalyst for ensuring roles and responsibilities are clearly identified across all technology touchpoints. Decisions concerning the IT infrastructure cannot be made independently of the EMR software solution. Supporting the infrastructure at the base level, as expressed in Quadrant 3, cannot be independent of either initial infrastructure procurement and subsequent expansion or EMR software selection. These interactions must be addressed in the Annual IT Plan.

Upon deployment, daily operation requires a clean handoff between vendors to determine where an issue arises. Within the e-Health Quadrant, first call will likely go into the managed services support center that is directly monitoring the infrastructure. If elevation occurs to the TAM, in collaboration with the support center, a determination will be made to eliminate problem sources from the mix. If it is logically determined that such issues are the scope of the EMR vendor, an incident report with conclusions is available to help the EMR provider provide a remedy. If a call is initiated to the EMR provider, there can be a coordinated effort to resolve the issue using the TAM as a contact point. Under this integrated scenario, there is no reason for the blame game that can often be a part of multi-vendor environments.

As mentioned previously, the EMR software provider, the managed services integrator, and the broadband service provider are likely to be the most critical partners in the implementation of EHR. SBT Partners working in close collaboration with Spirit Telecom ensures that two thirds of the critical support services are managed and integrated successfully. The EMR vendor, whichever is selected, will welcome the collaboration between the infrastructure partners to help ensure their success during all phases of deployment and support.

SBT Partners: Sustaining Client Value

SBT Partners was established to provide managed services to small businesses. The founder and managing partner, Dan Rahko, brings over 10 years of experience in creating, perfecting, and implementing the managed services model. He has extensive expertise in the design and implementation of managed services solutions that include end-to-end infrastructure support, provided from within high performance data centers, as well as onsite IT service delivery and troubleshooting.

The SBT Partners' engagement model focuses on the client. As a Managed Services Integrator (MSI), we contract with an industry leading managed services infrastructure providers as well as other proven partners as required to build a client solution. SBT Partners provides our clients with a single point of responsibility for planning, deployment, and support. This model benefits our client by enabling cost savings derived from our partners' economies of scale while serving as the partner solutions integrator within the small to midsized business (SMB) market. A market they do not serve directly.

The IT Annual Plan, the starting point for any successful relationship with our clients, provides valuable strategic assessment of the client's IT environment and links all managed services to an IT Roadmap. The Annual Plan is updated yearly to meet evolving needs of the client. This IT Roadmap, and the assignment of a Technical Account Manager (TAM) as your single point of contact, is embedded in the solutions we offer. The choices that evolve from the Annual Plan across a variety of new IT areas provide exceptional opportunities to improve productivity and business growth while reducing costs.

SBT Partners cost effectively aligns technology with our client's core business strategy by introducing services you need, when you need them.



Spirit Telecom: Maximizing Client Investment

Spirit Telecom is a Carolina's based provider of the latest in voice and data services technology. Spirit Telecom is backed by 12 independent phone companies, and in partnership with PalmettoNet owns an extensive fiber optic network, (in excess of 3,100 miles and growing), throughout the southeast. Spirit provides services to clients in the financial, legal, government, architectural and medical vertical markets, but it is health care that has moved to the forefront. "We are embedding communication services into the fabric of the health care IT environment," says, Roddy Broadnax, Regional Director of Enterprise & MedACCESS Sales.

In 2009 Spirit launched their MedACCESS line of services. Spirit / MedACCESS is focused on delivering the services and technologies that will enable physicians, clinics and larger medical groups to manage network services costs more effectively and efficiently. Even more important than the services, Spirit works closely with clients to identify grant and stimulus opportunities that are available to health care providers for EMR adoption, infrastructure upgrades, and network services. The key is in properly preparing the requests for submission which is time consuming. Many physicians and clinics just don't have the time to do this and in the process lose access to funding that is available.

Spirit in partnership with PalmettoNet and FRC, LLC proactively procured funding for 83 physicians, clinics and hospitals in South Carolina for HSSC (Health Sciences South Carolina). The funding provided for the implementation of a private data network with 10Mb connections for physicians offices and up to 100Mb connections for hospitals. In a collaborative effort Spirit is working with East Carolina Telemedicine and The Lineberger Institute (UNC Chapel Hill) in North Carolina to expand existing telemedicine networks to provide telemedicine and other vital services to underserved rural areas of North Carolina. These are just 2 examples of Spirit's dedication to providing world class products and services to the health care industry.