

# The affect of EHR software “Downtime” on Physician Practices

## *Connectivity Assurance*

### *The Essential Ingredient to Ensure an Effective EHR implementation*

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#### *A White Paper By:*

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# *Connectivity Assurance*

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### Executive Summary:



Software performance, speed, and reliability has become a major issue as healthcare organizations roll out critical clinical applications like Computerized Provider Order Entry (CPOE), Outcomes Measurement tools, Clinical Decision Support (CDS), and Office of the National Coordinator (ONC) Certified Electronic Health Record (EHR) applications. To ensure success, healthcare professionals must have the right management tools necessary to ensure the network's performance exceeds physician needs.

Traditional performance management tools are complicated, expensive, time consuming and tell you nothing about the network outside the four walls of the individual healthcare organizations. The industry needs a tool designed to make the management of client's network and their EHR applications easy to remotely monitor to ensure high software availability and real-time monitoring visibility. There is an ever increasing need for a simple solution to solve the visibility problem by providing network insight in both directions through localized and third-party networks – from datacenters to remote clinics and hospital sites, and everything in between. The industry is searching for Network Performance Management technology that proactively troubleshoots network performance problems, continuously monitors in real-time against service level agreements, and assesses network readiness for rolling out new electronic healthcare applications and services. The purpose of this white paper is to discuss connectivity issues and solutions via case studies and to introduce the concept of “**connectivity assurance.**”

### The Situation:

During the past three years, over 50,000 physicians have purchased a new Electronic Health Record (EHR) product for their medical practices. Once implemented, the EHR vendors have claimed that the average medical practice will achieve a quick return on investment. However over the past five years, most medical practices have not realized the majority of the cost savings that were promised by the various EHR vendors. One reason for the failure can be directly contributed to **inconsistent connectivity.** Connectivity comes in four forms:

1. Connectivity between the office and the hosting service which could be outsourced to the EHR vendor or a third party hosting company.
2. Connectivity between the workstations and the servers, either remotely hosting or located within the practice via a client-server design.
3. Wireless connectivity between the workstations, the wireless hub, and the software located on the server(s).
4. Connectivity between the EHR software program and the relational database holding all of the patient data, usually via indexing methodology

If any of these connections fail or degrade in any way, the entire system becomes unstable causing intermittent slow responses and software screen freezes. Remote access problems can typically be categorized into the following types of issues:

- Users cannot connect.
- Users can connect but cannot authenticate.
- Users can connect and authenticate but cannot reach locations beyond the remote access server.
- Users can connect, authenticate, and reach locations beyond the remote access server but the software becomes too slow throughout the day or the entire software freezes.

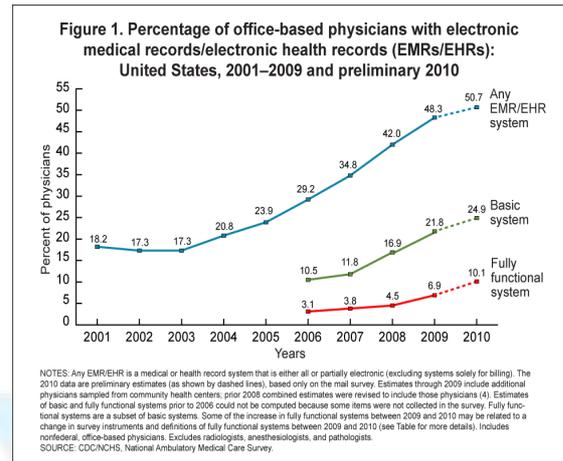
Physicians have realized that if the software product is not operating effectively when they are seeing a patient, the physician loses trust in the software, the vendor, and their own staff. When this occurs we find Physicians longing for the “old days” when a physician could just flip from one page to another in a paper record. To eliminate this kind of “day-dreaming” it is up to the industry to adopt

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tools designed to pre-asses the network prior to an EHR deployment; proactively monitor network connectivity and for to provide a simple and inexpensive methodology for “connectivity assurance. So how wide-spread is connectivity issues? Let’s start by looking at EHR trends over the past ten years.

As shown on Figure 1, the 2010 CDC/NCHS national Ambulatory Care Survey projects that almost 50% of physicians have already purchased some type of EHR product, but only around 10% are using the product as a fully functional EHR product. Around 25% of physician practices are using an EHR as a basic input system. This means that 15% of all providers have purchased an EHR and are NOT using the product at all. Part of the reason is usability, identified slowdown in patient care, and many of these systems have crashed over time and data was lost. When this occurs, physicians lose trust in the EHR solution. A recent survey conduct by AC Group included 1,243 physicians, showed that 72% of the physician had indicated that they had experienced unacceptable software product downtimes and/or the EHR product was too slow during specific times of the day, affecting the physician’s ability to treat their patients in a quality manner. In 28% of the cases, physicians stated that appointments were cancelled because the EHR was not operating effectively, creating financial losses for the practice.



### Case Studies 1:

In 2009, seven medical practices located in Southern California, had installed and were trained on one of the top ONC certified PM/EHR application in the healthcare marketplace. However five of the seven were extremely dissatisfied with the software solutions that they were sold. In fact, the five practices that were unhappy were no longer using the ONC Certified PM/EHR software product and they were seeking a complete refund because as they stated, “the software product was too slow and the product stopped working throughout the day”. Once we heard their complaints, we decided to check with the other two medical practices that were satisfied with the same software on the same remote hosted network. The two practices that were not requesting a refund stated that the product was “fast and very reliable”. It became very clear that the problem was not with the software product, but something else. Questions arose: Was the problem related to inadequate training, hardware issues, network issues, wireless issues, remote hosting issues, or something else.

Of course the easy solution would be to for the software vendor to provide a complete refund since the software product did not perform as promised. However, the five unhappy practices were legally obligated to continue to pay for the software even though the software did not operate consistently. To resolve the issue, we conduct a detailed performance review of the software, the hosting company, the practice hardware, and the entire network.

### Investigation Findings:

Our investigation took over four months and countless hours of tracking down the real issues that affected overall software performance and reliability. One major problem we faced is that we had no data to evaluate. The physicians rightly complained that the product was slow and froze at certain times. However, there was no documented performance data and we could not consistently duplicate the events. The frustration level increased when the hosting company blamed the software vendor and the software vendor blamed the hosting company and the individual practices. The physicians within the practice did not care who was to blame – they just wanted the problem resolved or a complete refund.

Since the product was performing extremely well for two of the seven practices, we were able to determine that the issues the five practices were experiencing were not necessarily related to the software product or the hosting company. We also determine that the staff at the five practices was well trained and except for somewhat poor documentation of the issues, the practice employees were

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not contributing to the numerous issues the practice was facing with software performance. We then turned our attention to the local hardware within the practice, the network that connected workstations and the local wireless routers.

### The Solution:

To assist our team in measuring network performance we turn to AppNeta (<http://www.appneta.com>). AppNeta is revolutionizing [network performance management](#) with a cloud-based network performance solution that offers tightly integrated path-based SLA and performance validation, active hosted-application performance monitoring, in-depth netflow/traffic analysis and 100% remote packet capture for distributed networks. AppNeta's PathView Cloud service provides us with end-to-end performance visibility into any device across any network, out to remote sites or 3rd party networks. With this insight we finally understand the way patient data travels across the complex distributed infrastructure in real-time. We plugged in the AppNeta microAppliance and immediately began seeing visual reports of network performance and enabling us to quickly pinpoint *exactly* when and where the network was slow and why it was occurring. Whether it was a bandwidth issue or an application performance problem such as jitter, latency or data loss, PathView Cloud gave us this insight and we could remediate the issue quickly and efficiently.



With the appropriate performance data, we were able to pinpoint the network performance issues and within three days all five of the practices that were previously experiencing software performance issues were once again happy with their overall selection of their EHR vendor, the hosting company, and with their internal staff.

### Case Study 2:

Four months ago, Bill Gillis, Manager Clinical Application Services at Beth Israel Deaconess Medical Center in Boston was experiencing network connectivity issues. As he rolled out EHRs to small provider offices, often with challenging internet connections, remote monitoring of cloud network performance became even more critical. Immediately following the move to EHR, remote access to the data center from the clinics experienced a dramatic slowdown resulting in application errors and delayed information retrieval. The latency experienced between sites, and even between same-site wireless devices, led to the threat of data loss due to the application timeout and the delay of critical hospital and clinic operations. Bill tried using an SNMP tool to identify the problem, but found that he didn't have the visibility he needed out to the remote sites. He hired technical engineers to go to each site, and still wasn't able to pinpoint the problem due to the transient nature of the issues. Inconsistent and unreliable application performance continued for more than four months.

Bill and his team needed a tool that would allow them to monitor network speed and performance in real time, so they selected AppNeta's PathView cloud technology. This new technology provided Bill and his team with exactly the insight he needed and it was simple to deploy and simple to manage, with an easy plug-and-play deployment.

According to Bill, "the level of detail and depth of available metrics and reports is amazing. A low cost, zero administration, cloud-based service that truly gives me visibility to the most critical IP targets in our network. That's cool!" The deployment of AppNeta's PathView Cloud Network Performance Management enabled Bill and his team to ensure the hospital can confidently integrate new technology and cost efficient changes into its healthcare network without compromising network performance or patient care. Bill spent one afternoon using PathView Cloud to test between the hospital's centralized datacenter and the remote locations experiencing the most problems. Within the same day, Bill's team was able to locate and diagnose the primary causes of the slow network and site-to-site latency. The new EMR system and additional electronic information use throughout the healthcare facility limited the available bandwidth causing a slow network and delayed application response time.

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### **Results:**

With this insight, Bill's team was able to quickly change the QoS to ensure the Citrix applications were given top priority in bandwidth distribution in order to meet the new demands on the network. The physician and their staff saw immediate results and improved performance within hours. Overall, this new network monitoring solution:

- Decreased troubleshooting time from one hour a day to one hour a month
- Ensured the migration to electronic health records goes smoothly
- Pin-pointed performance problems within complex deployments
- Maintained and optimized performance of wireless PCs and other devices
- Protected the clinical staff against unpredictable connectivity issues and loss

### **Summary:**

Functionality advancements and deployment of EHR application will require more consistent and high-speed band-width over for the next five years. However, without **"Connectivity Assurance"**, the EHR deployment failure rate will continue to remain high. EHR vendors must assist their healthcare clients by providing inexpensive, easy to use, and simple to deploy solutions so that network performance can be measured in real time. We believe all EHR vendors should offer to deploy solutions like AppNeta's PathView Cloud service so they can assure their healthcare clients that speed and performance will not be an issue. In fact, organizations that have deployed AppNeta's solution have experience the following performance improvements:

- 74% reduction in network issues.
- 57% reduction in network speed issues.
- 68% reduction in the amount of time it took to resolve a network issue.

We encourage all EHR vendors to evaluate this type of simple and inexpensive solution so they can quickly and affordably mitigate performance issues and avoid the software performance similar problems to those of our five clients in Southern California.

### **More about the Author:**



Mr. Mark Anderson, CEO of AC Group, Inc. is one of the nation's premier IT research futurists dedicated to health care. He is one of the leading national speakers on healthcare and physician practices and has spoken at more than 850 conferences and meetings since 2000. He has spent the last 39+ years focusing on Healthcare – not just technology questions, but strategic, policy, and organizational considerations. For the past eleven years, Mr. Anderson has spent the majority of time in the evaluation, selection, and ranking of vendors in the PM/EHR healthcare marketplace and during those eleven years has published a semi-annual report on the Digital Medical Office of the Future. His EHR evaluation decision tool has been used by more than 25,000 physicians since 2002.

Besides serving at the CEO of AC Group, Mr. Anderson served as the CEO of Doctor's Diagnostic Hospital, the interim CIO for the Taconic IPA, VP of healthcare for META Group, Inc., the Chief Information Officer (CIO) with West Tennessee Healthcare, the Corporate CIO for the Sisters of Charity of Nazareth Health System, the Corporate Internal IT Consultant with the Sisters of Providence (SOP) Hospitals, and the Executive Director for Management Services for Denver Health and Hospitals and Harris County Hospital District.



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