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Table of Contents

Seeking Safety in the Cloud
..... Page 1 - 2

Incident Reporting Foibles
..... Page 3

Health Spending Remains
Low In 2010 Page 4

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Seeking Safety in the Cloud

As cost savings and a scarcity of qualified network engineers drive hospitals of all sizes toward cloud computing, could a future of mega datacenters be far off? That's a question posed by Triona Guidry in the magazine, *HIT Exchange*.

It appears cloud computing is here to stay. With healthcare spending on cloud computing predicted to surpass \$1 billion by 2013, the question is no longer whether or not hospitals should use the cloud, but how they can secure it.

While most organizations have chosen private cloud services, some have found ways to use public variations without losing control of their data. The University of Pittsburgh Medical Center has more than 54,000 employees and includes more than 20 hospitals, 400 doctors' offices and outpatient sites and myriad other services.

"(Data storage) is a changing landscape," says John Houston, UPMC's vice president of privacy and information security. "We have an on-premises data center which provides our private cloud, because if at all possible, we prefer to host our own services. That's not to say we don't go out to industry...but we find a higher level of stability and availability."

The future of cloud computing could see large-scale computing housed in mega datacenters, with local IT people interfacing between the customer and the mega datacenter.

UPMC underwent an "IT transformation," forgoing a new, \$80-million data center in favor of private cloud architecture. As a leader in clinical information systems, they found their storage needs rapidly outpacing their support capabilities. Through a \$402-million partnership with IBM, UPMC migrated to a dynamic architecture that can grow with the health system's needs. The project reduced their Unix servers from 162 to 14 and Wintel servers from 1200 to 16, with corresponding reductions in power and space requirements.

Security was a major factor in the decision to go private. Still, Houston says there is a place for public cloud technology in hospitals. "If we can't run service in-house, and there are hosts of reasons we might not, we have the vendor deliver services via the Internet."

The experience has been similar at Advocate Health, the largest integrated healthcare system in Illinois. Advocate has more than 30,000 associates and 250 sites of care. "We really want to get out of the data center business," says Bruce Smith, senior vice president of information technology. "It's becoming more complicated and expensive, and the network engineers you need to maintain that kind of environment are becoming harder to find. We're looking for every opportunity to go to more cloud computing because it's more economical."

In smaller hospital systems, the challenge is meeting demand while

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Seeking Safety in the Cloud (Continued...)

streamlining costs. "I'd match the talent of our team against anybody, but we don't have enough resources," says Chuck Christian, CIO at Good Samaritan Hospital in Vincennes, IN. "We're challenged with everything in a community hospital."

With 250 beds and an IT staff of less than 25, Good Samaritan's environment may be smaller, but the issues remain the same. "We're all concerned about turning loose control of the data, even in a private cloud," says Christian. "In moving our e-mail to a cloud-based solution, I had to ask 'How does that work if it's being handled by the cloud? How can I secure it?'"

In recent months, cloud outages at big-name vendors like Amazon, Microsoft and Google have caused some to wonder if we're putting too much in the cloud too fast. "As you get into the cloud one of the biggest issues is control," Smith of Advocate says. "You're sharing control with a vendor, so you are somewhat at the mercy of their ability to provide the service."

Among the threats to cloud security, consumerization of IT is perhaps the fastest-growing. While tablets, smartphones and other mobile devices offer greater access to the cloud, those capabilities come with the price of vigilance.

"We're only in the infancy of how these devices are going to get used," Houston says. "In a perfect world, not only would we have password protection and encryption, we wouldn't have persistent data on devices, so that no matter what happens there's no chance that data could end up being lost."

The team at Advocate is trying to figure out how to transition to the mobile environment. "We used to supply desktop computers with a certain configuration. Now people are coming in saying they don't want a desktop, they want a laptop or a netbook or an iPad," Smith says. "We know we're going that way – there's no way to stop it."

At Good Samaritan, Christian takes consumer devices in stride. "If they want to connect, they have to follow our rules, same with remote access to e-mail. We're doing everything we can think of right now, but there has to be

a balance between what you can do and how much it costs."

Passwords remain a weak link in the security chain. Storing data in the cloud makes credential management more crucial than ever, and hospital systems are looking beyond traditional passwords at single sign-on portals, and other means of managing customer identity across multiple platforms and services. Smith says Advocate is "introducing a new portal that isn't single sign-on, but does take into account the majority of apps people tend to use."

But, he says, they have so many services that a single solution is impractical.

Emerging security threats mean continued diligence for the IT teams in the trenches. One of the most troubling is the proliferation of APTs – advanced persistent threats. These are highly targeted attacks that tend to operate under the radar of most detection tools. "APTs are designed to be very focused and might not show any signs," Houston says. "You need good security hygiene, solid perimeter security and next-generation firewalls. If you do everything really well your exposure is much less, but there's still a risk."

What about the future? "We'll see large-scale computing in mega-datacenters, and more effective cost- and service-oriented providers," Smith suggests. "Local IT people are going to manage those relationships and do the interfacing between the customer and the mega datacenter."

Houston predicts, "Every clinician will carry around a pad or device that will drive their workflow. The form factor will fit in the pocket of a lab coat and will have a user interface that is incredibly rich in high-quality data accessed in an intuitive way."

As for security, Christian cites continued diligence, warning that hospitals shouldn't get so distracted by other projects that they forget to review policies. "It's much easier to prevent than to clean up afterwards," he says.

Smith says, "We want cloud computing to be transparent to the end user. As a customer you don't care where your data is, you just want great service."

Incident Reporting Foibles

By: Rick Kneipper, Chief Strategy and Innovation Officer of Antheio Healthcare Solutions

Hospitals rely heavily on incident reporting systems to monitor adverse events and other patient safety issues. Hospitals use incident reporting to comply with federal regulations that require hospitals to develop and maintain a Quality Assessment and Performance Improvement (QAPI) program as a condition to participation in Medicare. Most hospitals demonstrate their QAPI compliance through their accreditation and certification process.

Suddenly the Office of Inspector General of the Department of Health and Human Services (OIG) weighed in this month with a report that issues an "in your face" challenge to the reliability of hospital incident reporting ("Hospital Incident Reporting Systems Do Not Capture Most Patient Harm," January 2012). Some of the startling OIG report findings:

- "Hospital staff did not report 86 percent of events to incident reporting systems... Of the events experienced by Medicare beneficiaries discharged in October 2009, hospital incident reporting systems captured only an estimated 14 percent." Only 14 percent – really?
- "Hospital administrators...explained that they rely heavily on incident reporting systems to identify safety problems" – and yet only 14 percent of incidents are reported?
- "Twenty-two of the 34 administrators indicated that underreporting of events by hospital staff leads to inaccurate measurement of patient harm" – what were the other 12 thinking that underreporting leads to?
- "Hospital administrators indicated that they encourage staff to report any instance of patient harm to incident reporting systems... However, none of the hospitals maintained a list of events required to be reported to incident reporting systems." And yet this is a primary tool that hospitals use to track and respond to incidents as a part of their patient safety programs?
- "Serious events not captured by incident reporting systems included hospital-acquired infections, such as a case of septic shock leading to death; and medication-related events... Incident reporting systems did not capture any of the five NQF Serious Reportable Events and only one of the eight Medicare HAC events in our sample." How could incident reporting systems be designed to not capture those kinds of serious patient safety events? Not surprisingly, the OIG report answered

that by stating that "because events on the NQF and Medicare HAC lists are widely recognized among medical professionals as constituting patient harm, many among the public and in the healthcare community may expect them to be reported by hospital staff."

- "Hospital administrators reported that only five of the 40 sample incident reports led to a hospital policy or practice change... the remaining 35 reported events did not result in a policy or practice change primarily because hospitals reviewed the event information and determined that the occurrences did not represent systematic quality problems within the hospitals." Wow – incident reporting is a primary tool for measuring patient safety and yet less than 13 percent of incidents reported lead to policy or practice changes? Since only 14 percent of incidents are reported and only 13 percent of those result in change, does that mean that only one percent of incidents result in no change?
- "[O]fficials from hospital accreditors noted the importance of incident reporting systems to hospital patient safety efforts. However, they also reported that they are unlikely to scrutinize the effectiveness of event detection methods, such as incident reporting systems, during hospital surveys." So, incident reporting is important, but accreditors don't scrutinize its effectiveness – really?

The OIG report reaches the obvious conclusion that:

"Given the importance of incident reporting to hospital safety efforts, AHRQ and CMS should take steps to improve reporting by hospital staff... [and] collaborate to create and promote a list of potentially reportable events for hospitals, other healthcare providers, and clinical educators... [and] CMS should provide guidance to accreditors for assessment of hospital efforts to track and analyze events and should scrutinize survey processes when approving accreditation programs."

How did this happen and why did it take so long to recognize what seems to be a rather obvious flaw in efforts to improve patient safety?

I would like to hear your comments.
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Health Spending Remains Low In 2010

U.S. healthcare spending experienced historically low rates of growth in 2009 and 2010 according to the annual report of national health expenditures (NHE) published in the January issue of the journal *Health Affairs*.

Analysts at the Centers for Medicare & Medicaid Services (CMS) report in the article that the increase in spending for 2009 represents the lowest rate of increase in the entire 51 year history of the NHE. The low rate of growth, the data show, reflects lower utilization in healthcare than in previous years. The report notes that U.S. healthcare spending grew only 3.9 percent in 2010, reaching \$2.6 trillion or \$8,402 per person, just 0.1 percentage point faster than in 2009.

In 2010, as health spending growth remained low, growth in U.S. economy as reflected in gross domestic product (GDP) (4.2 percent) rebounded. As such in 2010, the health spending share of the overall economy was unchanged at 17.9 percent. In the past, this share has increased, rising over time from 5.2 percent in 1960.

Key findings from the new report include:

- Household healthcare spending equaled \$725.5 billion in 2010 and represented 28 percent of total health spending, slightly lower than its 29 percent share in 2007. Growth in total private health insurance premiums slowed in 2010 to 2.4 percent from 2.6 percent in 2009, continuing a slowdown that began in 2003. Despite this deceleration, for the first time in seven years, the growth in premiums exceeded the growth in insurer spending on healthcare benefits, with the net cost of insurance increasing by 8.4 percent or \$11.3 billion in 2010. Out-of-pocket spending by consumers increased 1.8 percent in 2010, accelerating from 0.2-percent growth in 2009.
- Retail prescription drug spending (10 percent of total healthcare spending) grew only 1.2 percent to \$259.1 billion in 2010, a substantial slowdown from 5.1 percent growth in 2009 and the slowest rate of growth for prescription drug spending recorded in the NHE.
- The federal government financed 29 percent of the nation's healthcare spending in 2010, an increase of six percentage points from its share in 2007 of 23 percent, and reached \$742.7 billion. Part of that increase came from enhanced Federal matching funds for State Medicaid programs under the American Recovery & Reinvestment Act which expired in 2011. Medicare spending grew 5.0 percent in 2010, a deceleration from growth of 7.0 percent in 2009.
- Medicaid spending increased 7.2 percent in 2010, slowing from 8.9-percent growth in 2009.
- The state and local government share of total health spending declined from 18 percent in 2007 to 16 percent in 2010 and totaled \$421.1 billion, in part due to the temporary assistance in the Recovery Act.
- Hospital spending, which accounted for roughly 30 percent of total healthcare spending, grew 4.9 percent to \$814.0 billion in 2010, compared to growth of 6.4 percent in 2009.
- Growth in private health insurance spending for hospital services, which in 2010 accounted for 35 percent of all hospital care, slowed considerably in 2010.
- Physician and clinical services spending, which accounted for 20 percent of total healthcare spending, grew 2.5 percent to reach \$515.5 billion in 2010, slowing from 3.3-percent growth in 2009.
- Private businesses financed \$534.5 billion, or 21 percent of total health spending in 2010, down from a 23-percent share in 2007.

About



Anthelio provides comprehensive clinical informatics/analytics and deployment services as well as information technology and business process optimization (BPO) to hospitals and healthcare providers across the United States. By provisioning hospitals with comprehensive, high-quality, flexible and secure IT services, Anthelio improves hospitals' healthcare services while reducing costs and streamlining processes. It leverages knowledge and expertise built over a decade of operations about clinical and administrative IT processes and best practices to provide improved IT and BPO services at lower costs to customers. Anthelio is headquartered in Dallas, Texas. For additional information, visit the company's website at <http://www.antheliohealth.com>.