



Spring 2014

IT & Engineering Services Update

## ▶ Latest Trends in IT & Engineering Staffing and Solutions

### Is perfect security possible? (spoiler alert: yes!)

Barely a day passes without news of a massive and often costly new security breach. Recently, one of the most widely used authentication systems was found to be vulnerable via the Heartbleed coding error in Open SSL. The error left many companies exposed with little recourse other than to tell everyone to change their passwords. The Heartbleed security breach has left many wondering if an effective security protocol is possible.

In fact, there is! According to an article on LiveScience.com, it is possible to achieve “perfect security” through *quantum cryptography*. Quantum cryptography relies on quantum mechanics and many experts believe it indeed is the solution.

The problem with many existing encryption systems is two-fold: 1) generating a truly random key code and 2) delivering the key code to the recipient without it being intercepted.

Traditional encryption – RSA encryption, which is the web standard – relies on creating key codes based on multiplying two large prime numbers, thereby creating an even larger key code that is very difficult to crack. Despite the difficulty of deciphering RSA encryption, it can be done. With enough computing power RSA encryption can be compromised as soon as someone figures out a way to readily calculate large prime numbers.

Quantum cryptology – more precisely labeled as quantum key distribution, and sometimes referred to as QKD is based on physics.

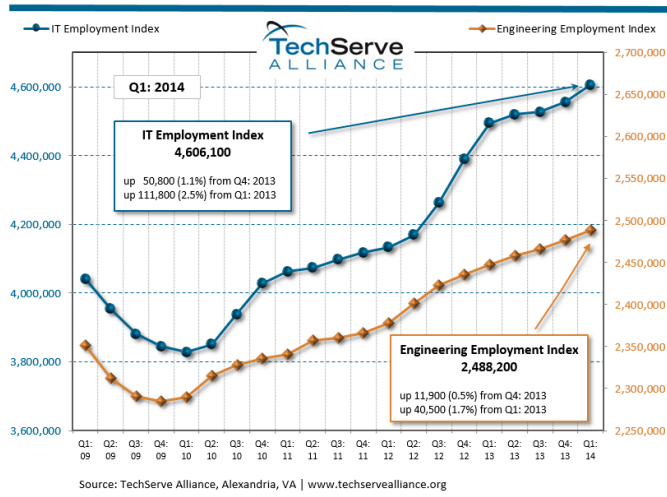
In addition to being able to generate a completely random code, quantum cryptography is secure because it is impossible to measure the quantum state of a system without disturbing that system. In simple terms, if the key code is interrupted in any way the key code changes foiling any attempted security breach.

### Latest unemployment rates for IT and engineering workers well below the national average

Despite arguments that there is no shortage of qualified STEM (science, technology, engineering, and math) candidates, the unemployment rate in IT and engineering suggests otherwise. In Q1 2014, the unemployment rate in IT occupations is significantly below the unemployment rate of the overall workforce at 6.7%.

IT Occupations (Q1 2014)	
Computer hardware engineers	2.1%
Computer and information research scientists	2.0
Computer and information systems managers	3.0
Computer network architects	0.8
Computer programmers	2.6
Computer support specialists	2.3
Computer systems analysts	0.8
Database administrators	2.7
Information security analysts	3.8
Network and computer systems administrators	3.2
Software developers, applications and systems software	2.8
Web developers	0.7
Engineering Occupations (Q1 2014)	
Civil engineers	3.6
Electrical and electronic engineers	2.1
Engineering technicians, except drafters	3.7
Industrial engineers, including health and safety	4.1
Mechanical engineers	2.9
Engineers, all others	3.3
<i>Source: unpublished tabulations of Current Population Survey data furnished by the U.S. Bureau of Labor Statistics</i>	

TechServe Alliance, the national trade association of IT & engineering staffing and solutions industry, produces proprietary indices on IT and engineering employment. In the first quarter of 2014, the IT Employment Index rose sharply by 1.1 percent, or nearly 51,000 jobs. The Engineering Employment Index, which tends to be less volatile, went up 0.5 percent, or almost 12,000 jobs.



## Health IT spending growing

*Becker's Hospital Review*, a healthcare industry business publication, recently reported that IT spending comprises approximately one-third of a typical hospital's capital budget. A major part of these IT expenditures is for EHR (electronic health records) also referred to as electronic medical records (EMR).

A new report from Kalorama Information, an independent medical market research firm, estimates the global market for electronic medical records (EMR) was \$123.2 billion in 2013. Upgrades as well as new purchases in EMR are "helping to build a robust market." According to the report, "hospital EMR adoption will supersede doctors EMR adoption..." The report identifies several reasons for dissatisfaction with current systems which include: "lack of key features, a cumbersome and complex interface, poor EHR usability, and bad hardware."

*HealthCare IT News*, part of HIMSS Media that reports on many aspects of the healthcare sector, identified some key HIT (healthcare information technology) trends:

- Increasing reliance on the Cloud: Many healthcare professionals mistakenly believe that locally stored patient information is more secure than the cloud.

With the U.S. Department of Health and Human Services recently saying that 69 percent of all individual data breach cases are the result of theft or loss of physical assets (such as laptops, memory cards, etc.), the cloud appears to be a more secure place to store data. That is likely to accelerate reliance on the cloud.

- Use of Big data/analytics: The health information from EHRs can be used by research scientists for predictive modeling and by medical professionals to make better diagnoses and treatment plans.

## Avoiding blurred vision

Businesses have come a long way by incorporating ergonomics into the workplace environment. While there has been a reduction in the incidence of such conditions as carpal tunnel syndrome, a number of new conditions attributable to the workplace have been identified including issues associated with the ubiquity of computer screens throughout daily life.

According to the BGER, a.k.a. Boy Genius Report, many people spend six hours a day looking at a display, whether it's a smartphone, laptop, tablet, or desktop screen.

All of this staring at computer screens can lead to CVS, or "computer vision syndrome." According to the American Optometric Association, symptoms may include eyestrain, headaches, blurred vision, dry eyes, and neck and shoulder pain.

The causes of CVS include uncorrected vision, poor lighting along with screen glare, improper viewing distances and poor seating posture. The AOA goes on to say that many of the symptoms are only temporary and go away once the source of the problem is addressed.

Even if an individual doesn't need corrective lenses for driving, reading or any other daily activities, a minor vision problem may surface and be aggravated by computer use. According to the AOA, "Don't take a vision problem to work."

There are some easy steps an individual can take that may help alleviate the symptoms of CVS. Besides blinking on a regular basis, consider adopting the 20-20-20 rule; every 20 minutes look at something 20 feet away for 20 seconds.