TechTips Newsletter

Insider Tips To Make Your Business Run Faster, Easier And More Profitably

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This monthly publication provided courtesy of Richard Lynn, VP Sales & Marketing, Tech Hero

Our Mission: To build a community of successful minded entrepreneurs that inspires excellence, encourages collaboration and expands the capacity of all members to achieve great things.

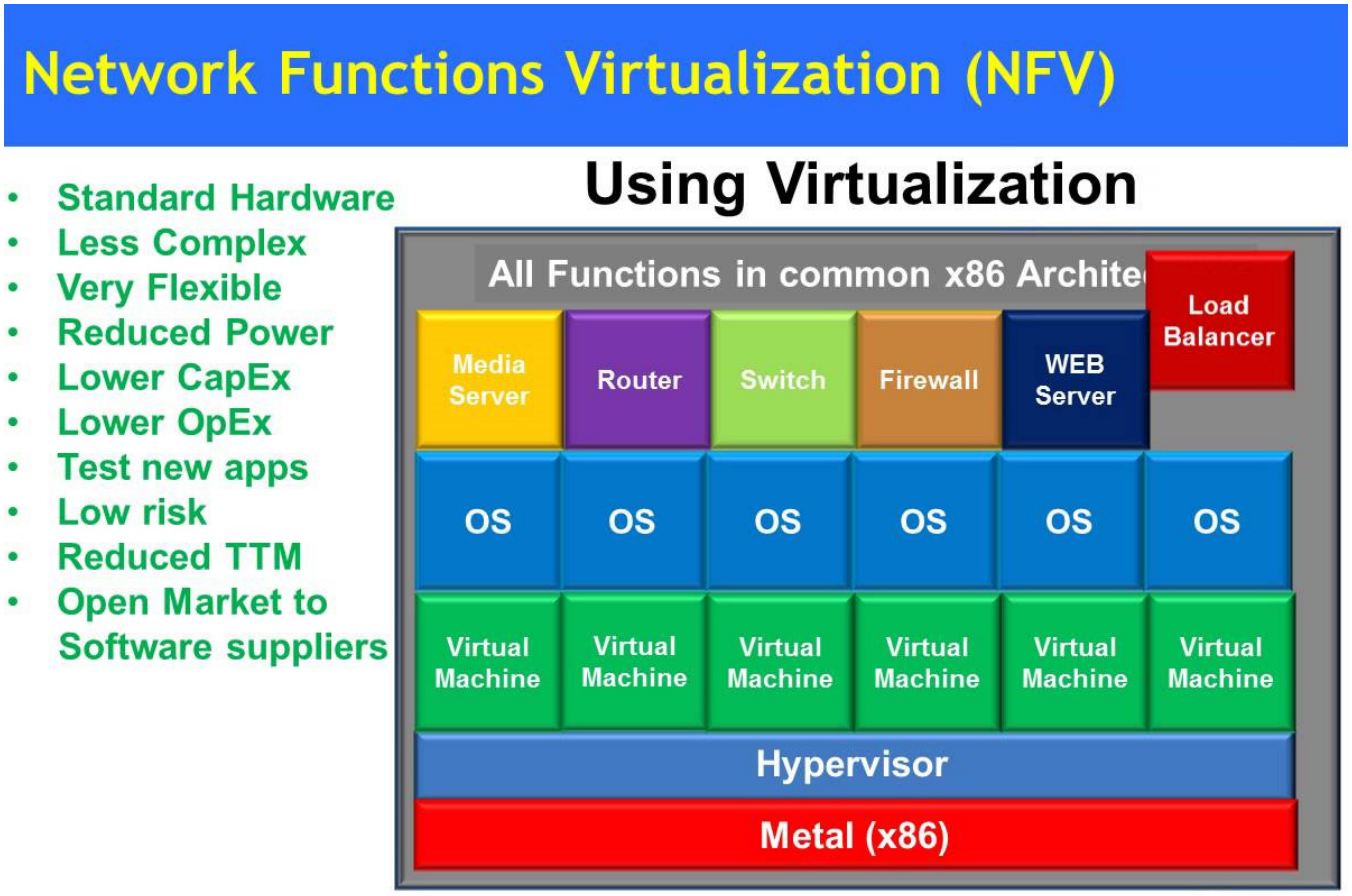
Emerging networking technologies to keep an eye on

I've always been particularly fascinated by the power of networking computing devices together. Over the last several decades the hardware, software, and protocols that undergird how networks work have been evolving at an incredibly fast rate. Successful enterprises always need to be forward-looking if they are going to maintain their momentum, so it's important that the IT professionals who work for such businesses keep up with the latest developments in the field of computer networking. Along those lines here are two emerging networking technologies you may want to keep your eyes on in the coming years.

I'm not suggesting that these technologies will all pan out and become raving successes, but if even one of them takes the lead over its contenders, then becoming familiar with it in advance might just give your company the competitive advantage it needs to stay afloat in an increasingly accelerating world.

Software-defined networking (SDN) is currently all the rage in the rush toward cloud computing and the modern datacenter. But SDN, which had its roots in campus networks where administrators were sick and tired of always having to tediously reconfigure network devices whenever they needed to change the underlying architecture of their networks to provision new kinds of services to customers, has turned

out to be only a partial solution toward radically simplifying the programmatic reconfiguration of enterprise networks.



While SDN enables network layer abstraction, it doesn't really solve the problem of the increasing proliferation of how to configure and manage the proliferation of vendor-specific network hardware appliances. OpenFlow was developed by the Open Networking Foundation as a standardized way of implementing SDN controllers and its adoption by Cisco, Brocade, and other networking vendors has helped drive the adoption of SDN in many quarters. Network functions virtualization (NFV) takes this a step further, though, by integrating other networking functions and then virtualizing them in industry-standard ways to help further reduce the capital expenditure (CapEx) and operational expenditure (OpEx) involved in implementing and maintaining SDN-enabled datacenters.

NFV standardization is driven mainly by the European Telecommunications Standards Institute (ETSI), which, with the involvement and cooperation of seven networking industry and telecom powerhouses, established an Industry Specification Group (ISG) in 2012 to help drive standards through proof-of-concept to vendor testing toward market availability. The NFV ISG has produced over 50 whitepapers and other publications since they were established and they continue to host a series of ongoing events to move the industry toward full implementation.

IEEE 802.11ax

When most people think of WiFi, they think Internet access and often complain "Boy, the WiFi is sure

slow today!" Everybody and his dog wants faster WiFi, and that's not just end-users but also businesses whose employees rely on WiFi access to be able to get their work done. Because of the increasing demands on existing WiFi networks, standards bodies and networking hardware vendors continue to furiously work to ensure that WiFi protocols and standards continue to evolve to meet the needs of the marketplace.

The Institute of Electrical and Electronics Engineers (IEEE) has been at the forefront of coordinating the development of 802.11 wireless networking standards in ways that will ensure interoperability between products and solutions offered by different vendors. Since its lowly beginnings in 1997 when the 802.11 committee was first set up by the IEEE, the protocol standards for wireless networking have evolved from 802.11a and 802.11b to the faster 802.11g and the even faster 802.11n and 802.11ac standards that provided faster data transmission over the same bandwidth with less power.

What's almost scary though is that 802.11 protocols have been proliferating faster than rabbits! As of last year, there are at least 16 different 802.11 wireless networking standards that have been defined by the IEEE 802.11 working group, although many of these are refinements of earlier versions of WiFi protocols. Then on top of this there are a similar plethora of specifications that have been developed by the WiFi Alliance, a global consortium of companies that includes Cisco, Intel, Apple, Dell, Microsoft, Broadcom, and many other major vendors as sponsors and contributors. So on the one hand academia is driving the basic protocols forward while on the other hand the vendors themselves of networking hardware and software (and of devices and applications that use networks) are also pushing things forward. It's no surprise that it can be hard to know which developments are important to keep your eyes on in such a rapidly changing landscape!

Regardless of such fluidity, one thing businesses might want to keep their eyes on is the emerging 802.11ax standard. The goals of the working group driving this new standard is to target one of the main pain points hitting companies using WLANs, namely the difficulty of achieving optimal throughput and spectral efficiency in the presence of interfering sources of electromagnetic energy, and especially with dense heterogeneous networks where access points are heavily used by users. As the Internet of Things (IoT) continues to drive relentlessly toward ubiquity while per-user download loads increase and 4K streaming video becomes a reality, the expected appearance of 802-11ax WiFi hardware and its backward compatibility with existing 802.11a/b/g/n/ac standards is likely to trigger a new tsunami of WiFi network appliances that attempt to conform to the performance expectations of the emerging new 802.11ax standard.

Already announced in the marketplace is a chipset developed by Qualcomm that will be compatible with the new 802.11ax standard. Devices using this chipset will mainly target the enterprise market for access points (APs) and wireless routers. The speeds promised by such WiFi devices will be phenomenal — up to 4.8Gbps divested across eight 5GHz data streams and four 2.4GHz streams. A similar chip has also been developed by Qualcomm for client devices such as laptops, tablets, and smartphones, with a promised bandwidth of 1.775Gbps over two data streams.

What business should be careful of, however, is that the 802.11ax standard itself has not yet been ratified — the final draft of this standard is currently expected in 2019. So customers with WiFi-hungry users may want to exercise a bit of caution before jumping on the 802.11ax bandwagon once WiFi appliances become available and are said to comply with this standard. Remember, emerging technologies are just that — they're still working their way out of the dark into the cold hard light of day.

Client Spotlight

Easterseals Florida is the leader in providing exceptional services, education, outreach, and advocacy so that people living with autism and other disabilities can live, learn, work and play in our communities. We are honored to be Easterseals Florida's managed services provider for the past 17 year.

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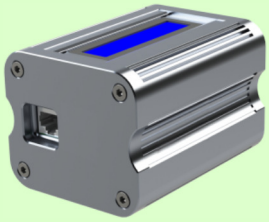

Vulnerability Management Solution

The new NetDefender Vulnerability Management Solution enhances security by proactively identifying, monitoring, and notifying businesses of potential vulnerabilities in their networks—all with breakthrough simplicity and affordability.

Utilizing proprietary software and the compact NetDefender Sensor, NetDefender works in three phases:

1. Identification

The user's network is continuously scanned to locate and identify every connected device with an IP address, from computers and smartphones to printers and smart devices

Includes scanning of external-facing IPs to provide a 360-degree view of network vulnerabilities

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All connected devices are then scanned 24x7 for vulnerabilities such as missing software patches

3. Notification

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Changing tech workforce: What CIOs need to know

The workforce on a global level continues to evolve, and the United States has been no different. For job seekers, these changes should help them align their actions toward the acquisition of skills that matter the most. For employers, keeping track of these changes helps them prepare for the future.
No job market is changing more rapidly than that of tech jobs. With technology life cycles shortening and enterprise technology proliferation surging, the demand for IT talent is at an all-time high, and the trend is likely to continue with added vigor for the next five years. It is too bad America's immigration code does not allow for more talented people with valuable tech skills to be able to enter this country and to remain here after they secure an advanced degree from a U.S. college. Hopefully, this is something President Donald Trump and the Congress deals with very soon.

Silicon Valley, Chicago, and New York have been the traditional hotbeds for tech talent. However, in the past few years, other U.S. cities have bridged the gap and expanded the talent market. Of course, this is just one of the changes that chief information officers of enterprises need to be mindful of. Let's know more about these workforce changes, what they mean for enterprise IT departments, and how CIOs can prepare their companies better.

Changes happening in the U.S. workforce

The traditional channels of IT talent for U.S. employers are:

- U.S. university programs of computer sciences (or equivalent programs).
- Foreign students with degrees in computer sciences.

Because demand is outpacing supply, and because of the changing sentiment around granting work visas to foreign nationals, these channels are not sufficient anymore. By 2022, the gaps will be so prominent that IT hiring will

become one of the major headaches for CIOs as has been mentioned already.

This makes it ultra-important for CIOs as well as human resources bosses to acknowledge the changes in the U.S. workforces across enterprises. Understanding these changes will help CIOs and HR pros prepare well, and proactively hire sufficient IT talent. Too bad there was not too much talent when making "Jurassic World," but that is another topic!

Changing composition of workforce

The U.S. workforce's composition is changing. Here are a couple of facts to help drive home the point.

Dev Bootcamp, a U.S. company offering industry relevant IT education, has already witnessed this spread in its students. Cody Leclaire, executive director of a careers division in his firm, estimates a future 30 percent women student force, higher than the current 16 percent representation of women in the tech workforce.

And Amazon recently announced the launch of a training program aimed at helping veterans join the company's workforce. By 2022, Amazon expects to employ 25,000 veterans and veteran spouses. Not a bad deal!

These developments are clear indicators of the changing composition of the workforce. CIOs would do well to stay ahead of these changes, and help mold their company's hiring practices to tap the potential of these newer segments. The best ones are doing that already. The competition for these employees is intense, and every organization must work hard so they do not get too far behind with tech talent on their payroll.

Looking beyond educational qualifications

As per U.S. Bureau of Labor statistics, there will be 1.3 million new jobs generated by the tech industry by 2022. Only 2 percent of the jobs will necessitate the candidates having an advanced degree.

In contrast, candidates with just an associate degree or even just some college experience will be considered to be qualified applicants for 23 percent of the jobs. Today, most IT jobs require at least a bachelor's degree. However, going

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has made the Pioneer 250 list of CRN's 2017 Managed Service Provider 500 List!

The 2017 MSP 500 list recognizes companies in North America whose approach to delivering managed services is one innovative step ahead.

The MSP Pioneer 250 is a list of channel companies with business models weighted toward managed services and largely focused on SMB market.

forward, CIOs would ideally want to strategize with HR decision makers and make the hiring criteria more flexible, at least for entry level IT jobs.

In-house apprenticeship programs

Enterprises are looking to develop in-house apprenticeship programs to help entry-level IT staff and junior hires evolve in a highly contextualized environment. Not only does this help enterprises put a tab on turnover rates, but it also makes the company more appealing for talented job seekers. Everest Group, a management consultancy, is the perfect example. The firm has created internal boot camps and firm on-boarding and transitioning pipelines to enable, train, and empower new and existing IT staff. This has helped the company overcome high attrition rates.

Impact of an overhaul to visa rules

Earlier this year, one of the hottest topics around the cyber-sphere was the proposed overhaul of U.S. work visa allocation. The impact was immediate, with stock prices of major Indian multinational IT service companies dropping by 5 percent. Among the major proposed changes is the increase in the minimum annual wage requirement for foreign nationals to be eligible for an H-1B work visa. Most tech companies oppose this potential change and are working with the Trump administration to find compromises.

If enacted, this could completely change the hiring model for many U.S. companies that rely on IT talent from India and China. The potential void this can create has to be filled by local IT talent. The ramifications of this for CIOs are numerous. Lack of sufficient local IT talent, significant increase in potential salaries, and possible revisions of multimillion dollar outsourcing contracts are just a few.

Geographical spread of the IT workforce

As has been mentioned earlier briefly, the traditional hotbeds of IT talent are being challenged by other cities now. Dallas, Phoenix, Kansas City, Mo., St. Louis, Austin, and Atlanta have surfaced as fertile grounds for IT talent. Also, Utah is offering unprecedented low taxes and leisure options (hence, attracting startups), hoping to make Salt Lake City and its peripheries the equivalent of Silicon Valley for the next wave of tech startups. (Some call it Silicon Slopes!)

This has not only created a geographic diversity in the IT workforce across the nation, but has also got CIOs thinking in terms of setting development centers and IT support centers in these parts.

With so many challenges, opportunities, and political realities changing the dynamics of the U.S. work force, CIOs have their job cut out for them to ensure their enterprise's IT staffing needs are met.