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→ Cutter Survey on 2015 IT Trends

Since 2006, Cutter Consortium consultants research and publish each year their forecasts of key IT trends in the new year. Will you participate this year? Take our survey and we'll send you a free copy of the most recent results, "Gaining Momentum, But Where Are We Going? IT Trends in 2014," plus $50 to spend in the Cutter Bookstore. You will also read the experts' opinions in a future issue of The Kit.

→ Ten Most Popular ACM Skillsoft Courses

Here is an eclectic list of online courses offered by ACM - made up of the most popular course in each of 10 different areas of specialization:

- Introduction to Business Analysis & Essential Competencies
- Certified Ethical Hacker (CEH) v8: Hacking & Penetration Testing
- Using SQL to Query Your Database
- ITIL 2011 Edition Foundation: ITIL & the Service Lifecycle
- Junior Level LPIC-1 Exam 101: Linux System Architecture
- Java SE7 Fundamentals: Introduction to Java
- Managing Projects within Organizations (PMBOK Guide 5th Edition)
- Microsoft Windows Server 2012 R2: Installing and Configuring Servers
- VMware vSphere 5. Part 1: Introduction to Virtualization
- Introduction to HTML5 and CSS3

→ Back to Basics: Algorithms

When you learned computer science 40 years ago, there were no supercomputers and no graphical interfaces, so much of the teaching and research was about algorithms, languages and compilers, and AI. Apart from obscure writings in ACM journals, work on algorithms hasn't been as popular as in the days of Don Knuth's *The Art of Computer Programming*. The rapid increase in computing speeds in the following decades was probably a factor in the relative loss of interest in this discipline. A new initiative launched by the National Science Foundation (NSF), "Algorithms in the Field" (AitF) is noteworthy as it aims to foster collaboration between theoreticians and practitioners of algorithm design, verification and evaluation. Applications for grants under this program are accepted until Feb. 2015.

→ Internet Traffic Encryption

A year ago, in issue 109, we reported that the backlash against "domestic spying" by the US National Security Agency (NSA) had led the Internet Engineering Task Force (IETF) to promise a "fully encrypted Web" with version 2.0 of HTTP, the hypertext transfer protocol, by the end of 2014.

Well, that deadline has arrived. On the technical front, the proposed HTTP/2 standard will be submitted for consideration this month -- on time! It *requires support for encryption* while also offering an optional unencrypted mode. On the policy front, the Internet Architecture Board (IAB) is now calling for encryption *as the default* for all Internet traffic.

While encryption improves (let's not say "guarantees") privacy, and also helps protect free speech in places where it cannot be taken for granted (incidentally, there was just another report of a way to "de-anonymize" users of the Tor system), it raises a large security concern, as most malware detection tools require the ability to scan the content of internet packets. This article in the DARKReading section of InformationWeek is a good summary of the conflict (long on handwringing, short on solutions), and the thread of reader comments below the article is also very instructive.

The Supercomputing Speed Curve

The arrival of the first exascale supercomputer in the US is now predicted for 2023, according to the US Department of Energy. This means a computer capable of a sustained rate of 1 exaFLOPS, 10^{18} floating point operations per second. The first petaFLOPS computer (10^{15}) came in 2008. In other words, speed doubles about every 18 months, which is faster than Moore's original law (probably because you can exploit denser circuits, but also better architectures to build faster machines).

This ComputerWorld article describes the race to exascale in US-centric terms, focusing on the risk of political funding cuts. From a global perspective, *someone* will get there around that time, and if not the US, then it will probably be Japan. The writer also shows his ignorance of Moore's Law, mathematics, or both, by claiming that Moore's Law should lead to an exascale machine by 2018. Exercise: find the error.

Seen Recently...

"The goal here is to blow away the reviewers via complexity. This may work for SoSyM..."

-- Excerpt of a letter received by Jordi Cabot (@softmodeling)
from someone asking him to co-author a research paper,
as reported in his blog and tweeted by Jean B�zivin.
SoSyM is Springer's Software & Systems Modeling Journal.