CIOs Project Hiring Increase in Third Quarter

CIOs projected an uptick in the hiring of IT professionals in the third quarter of 2007, according to the Robert Half Technology IT Hiring Index and Skills Report. Seventeen percent of executives surveyed planned to add IT staff in the three months, July-September, while 2 percent foresaw personnel cutbacks. The net 15 percent increase, the highest since the fourth quarter of 2002, would be up three percentage points from the previous quarter’s projection.

The national poll includes responses from more than 1,400 CIOs from a stratified random sample of US companies with 100 or more employees. IT was conducted by an independent research firm and developed by Robert Half Technology, a provider of IT professionals on a project and full-time basis. The company has been tracking IT hiring activity in the US since 1995.

Key findings from the report:
- Firms in the Pacific region (Alaska, California, Hawaii, Oregon, and Washington) region plan the strongest hiring activity in the third quarter.
- Business growth remains the top reason companies are adding IT staff.
- Help desk/end-user support is the job category experiencing the most growth.

- CIOs in the wholesale sector are most optimistic about employment gains.

Thirty-nine percent of CIOs who plan to hire said corporate growth or expansion is the primary factor driving their need for more staff, the report said. Also, 27 percent cited demand for increased customer and/or end-user support. The installation or development of new enterprise applications, and systems upgrades each received 12 percent of the responses.

Microsoft Windows administration (Server 2000/2003) remains the most sought-after skill set, cited by 79 percent of executives polled.

Telecommuting Becoming More Commonplace

The proliferation of wireless technologies and feature-rich Internet applications is making it easier for IT professionals to work outside the office. A new study by Robert Half Technology shows that telecommuting is becoming more commonplace among IT professionals. Nearly half (44 percent) of CIOs surveyed said their companies’ IT workforce is telecommuting at a rate that is the same or higher than five years ago; only 3 percent said IT staff work remotely less frequently today than five years ago. Improved retention, morale, and productivity were cited as the greatest benefits among firms that allow telecommuting.

The poll includes responses from more than 1,400 CIOs from a stratified random sample of US companies with 100 or more employees. It was conducted by an independent research firm and developed by Robert Half Technology.

According to the poll, 34 percent of CIOs whose companies allow telecommuting cited improved retention and morale through enhanced work/life balance as the greatest benefit. Increased productivity due to reduced commute time was cited by 28 percent of respondents.

Survey respondents indicated that telecommuting programs can have drawbacks. Nearly half (44 percent) of all CIOs surveyed felt that quality of work suffers due to diminished in-person contact with colleagues. Furthermore, nearly one in three (30 percent) CIOs surveyed felt that telecommuting employees are not as productive because they have less oversight.
WEARABLE TECHNOLOGY

Contest to Reward Best Battery Pack for Troops

The US Defense Department is sponsoring a competition to develop a wearable electric power system for troops.

Contestants are asked to design a prototype of a battery pack weighing less than 8.8 pounds and capable of powering a standard service member’s equipment for 96 hours, the department said in a news release. The standard, battery-operated equipment military personnel carry includes radios, night vision goggles, and a global positioning system.

Prizes will be awarded to the top three teams in a demonstration under realistic conditions scheduled for fall 2008. Prizes are US $1 million for first place, $500,000 for second, and $250,000 for third.

A public information forum was to be held in the Washington, D.C., area in September to brief potential competitors on the technical specs, competition rules, and qualification requirements. Competitors must register to participate in the program by 30 Nov. 2007.

The competition is open to international participation, but the individual or team leader must provide proof of US citizenship.

Details on the forum, contest registration, and rules are posted on the Department of Defense Research and Engineering Prize Web site at www.dod.mil/ddre/prize.
Fraunhofer Institute for Digital Media Technology (IDMT) researchers have devised an interactive media player that creates the impression of a 3D image.

The system lets viewers walk through rooms and select objects, said Uwe Kühhirt, who heads the development at the IDMT. “Camera perspectives can also be interactively selected,” he said. “Ambient sensors that determine factors such as the brightness, the temperature, or the number of spectators, enable the scene to be dynamically controlled. For example, the viewer can be integrated into the three-dimensional scene with the aid of a video camera.

“We can put a person whom we have recorded in the studio into a room that has been generated on the computer,” Kühhirt said. From a 3D scene, the player generates separate views for the left and the right eye, enabling the overall image to be perceived in three dimensions. Kühhirt said users who do not have a 3D display can benefit from this technology too. The 3D scenes can basically be displayed on any type of monitor.

New Media Player Offers 3D Experience

Researchers at the University of Massachusetts at Amherst Materials Research and Engineering Center have produced findings that could affect scientific disciplines and applications, from cosmetics and coatings, to micro- and nanoelectronics. Understanding the mechanical properties of thin films is essential to their performance and optimization.

The research, which appears in the 3 August 2007 issue of Science, used a low-power optical microscope to observe a tiny drop of water on thin film as it floats in a Petri dish of water. Scientists found that the “capillary tension” of the drop of water produced a starburst of wrinkles in the film, and the elasticity and thickness of the film determined the number and length of the wrinkles.

In some of the materials studied, the wrinkles in the ultrathin polymer films vanished with time. This vanishing provides insight into the relaxation process of an ultrathin film by yielding information on the way polymer chains move in the highly confined geometry. Ultrathin films are nanoscopically thin layers of material that are deposited onto a metal, ceramic or semiconductor base.

Until now, determining the mechanical properties of these thin films was expensive and time-consuming, requiring powerful microscopes to view the films. This new research will give scientists a simple way to access the material properties of most thin films.

Research on Ultrathin Properties

Giving You the Edge
**HARDWARE**

**Breakthrough on Mobile Phone Chip**

Hyundai Semiconductor announced it had developed the world’s fastest and smallest 1-Gbyte chip for mobile phones. According to the South Korean company, mass production is scheduled for early 2008. The chip maker claims the new chip can process 1.6 Gbytes of data per second. The company said the chip can be applied to ultra-small electronic devices and memory products.

**Thin Slice of Paper Battery Invented**

Research scientists from Rensselaer Polytechnic Institute in Troy, New York, said they invented a lightweight paper battery that could serve as an enhanced power storage device for next-generation consumer electronic devices. According to the researchers, the battery produces electricity in the same way as conventional lithium-ion batteries, but all the components have been incorporated into a lightweight, flexible sheet of paper.

An early prototype of the device, which squeezes between a thumb and forefinger, produces 2.5 volts, and researchers say the battery can be scaled up to provide more power.

The team is working on ways to mass produce the paper battery cheaply.

The researchers reported the details of their invention in a paper that appears in the *Proceedings of the National Academy of Sciences*.

**School Patents Small Zoom Lens**

The University of Central Florida has signed a licensing agreement with Holochip Corp. for a portfolio of technologies that will allow zoom lenses, such as those used in digital cameras and camera phones, to be manufactured at a smaller size with what they claim will be no sacrifice in clarity.

Shin-Tson Wu, professor of optics at the university, and his research team at UCF’s College of Optics and Photonics, developed and patented technologies in the field of adaptive lenses, some of which closely replicate the working of the human eye.

Conventional zoom lenses rely on mechanically moving groups of glass or plastic lenses to adjust focus, magnification and field of view. Adaptive lenses, however, offer the ability to change focal lengths while eliminating the need to mechanically change the location of the lens. And it is all done in miniature. The typical aperture size for a lens in a cell phone, for example, is one to two millimeters in diameter.
CHIPS

Intel Ventures with STMicroelectronics NV

The European Union cleared the way for Intel Corp. and Switzerland’s STMicroelectronics NV to combine units that make a type of flash memory used primarily in cell phones. The two chip makers and private equity firm Francisco Partners will form a new company that will buy up Intel’s and STMicro’s NOR flash businesses.

The European Commission concluded that the joint venture would not cause antitrust problems because strong rivals existed for the flash memory and customers would be able to choose from a sufficient number of alternative vendors.

Ionic Wind Engine Cools Chips

Researchers have demonstrated a new technology using tiny “ionic wind engines” that might dramatically improve computer chip cooling, possibly addressing a looming threat to future advances in computers and electronics.

Purdue University researchers, in work funded by Intel Corp., have shown that the technology increased by as much as 250 percent the “heat-transfer coefficient,” which describes the cooling rate.

“Other experimental cooling-enhancement approaches might give you a 40 percent or a 50 percent improvement,” said Suresh Garimella, a professor of mechanical engineering at Purdue, in a news release. “A 250 percent improvement is quite unusual.”

When used in combination with a conventional fan, the experimental device enhanced the fan’s effectiveness by increasing airflow to the surface of a mock computer chip. The new technology could help engineers design thinner laptop computers that run cooler than today’s machines.

The next step in the research will be to reduce the size of components within the device from the scale of millimeters to microns. Miniaturizing the technology will be critical to applying the method to computers and consumer electronics, allowing the device to operate at a lower voltage and cool small hot spots, Garimella said.

COMMUNICATION

MS Device was Broken

Microsoft Corp. on 13 August 2007 gave a simple reason why its prototype for beaming high-speed Internet service over unused television airways failed a government test: the device was broken. The Federal Communications Commission said on 31 July that the device did not reliably detect unoccupied spectrum and could interfere with other TV programming and wireless microphone signals.

On 13 August, Microsoft sent the agency a letter explaining that a subsequent test determined the equipment was defective.

Representatives for Microsoft and other technology companies met with FCC engineers and determined the device “was working improperly and an internal component was broken,” Microsoft’s managing director for government affairs, Jack Krumholtz, said in a statement.

“This accounted for the FCC’s aberrant test results,” Krumholtz said. Microsoft is part of a coalition of companies that wants to beam high-speed Internet service through unoccupied TV channels, also known as “white spaces.”
SECURITY AND PRIVACY

Police Surveillance Cameras Installed in China

At least 20,000 police surveillance cameras are being installed along streets in Southern China and will soon be guided by sophisticated computer software from an American-financed company to automatically recognize police suspects and detect unusual activity, according to a story in the New York Times.

Beginning in a port neighborhood and then spreading across Shenzhen, a city of more than 12 million people, residency cards fitted with powerful computer chips programmed by the same company will be issued to most citizens, the story said.

According to the news article, data on the chip will include not just the citizen’s name and address but also work history, educational background, religion, ethnicity, police record, medical insurance status, and landlord’s phone number. Even personal reproductive history will be included for enforcement of China’s “one child” policy. Plans are being studied to add credit histories, subway travel payments, and small purchases charged to the card.

SEARCH

Search Engine Pulls Table Data from PDFs

United States computer scientists have created a search engine that can identify and extract tables from PDF documents, as well as index and rank the results.

The search engine—called TableSeer—developed by Pennsylvania State University researchers has a ranking algorithm that also can identify tables found in frequently cited documents and weigh that factor as well in the search results, assistant professor Prasenjit Mitra said.

Mitra said TableSeer is believed to be the first search engine for tables.

Although some software can identify and extract tables from text, existing software cannot search for tables across documents, Mitra said. TableSeer automates that process, capturing data not only within the table, but also in tables’ titles and footnotes.

In addition, it enables column-name-based searches so a user can search for a particular column in a table.

The development of TableSeer is part of an open-source project funded by the National Science Foundation.

TableSeer can be tested online at http://chemxseer.ist.psu.edu. The source code will be made available near the completion of the project, the researchers said.

IEEE Software Engineering Standards Support for the CMMI Project Planning Process Area

By Susan K. Land
Northrup Grumman

Software process definition, documentation, and improvement are integral parts of a software engineering organization. This ReadyNote gives engineers practical support for such work by analyzing the specific documentation requirements that support the CMMI Project Planning process area. $19

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