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April 2016

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HOW TO ANSWER  
THE CALL TO  
MANAGEMENT **31**

COMPUTERWORLD  
**IT SALARY  
SURVEY**  
2016 Results

Paychecks  
*Get* **PUMMPED**



*Our survey of 3,300 tech pros reveals that skilled workers are in demand and **IT PAY IS SHAPING UP.***



# COMPUTERWORLD

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# Table of Contents



**30TH ANNUAL REPORT**

## Paychecks GET PUMPED

**IT SALARY SURVEY**  
2016 Results

**7** Well-compensated tech pros reveal their best **salary-boosting tips.** | **14** **Compare your pay:** View salaries for more than 40 IT job titles. | **18** **Hot tech specialties:** Employers pay top dollar in these 10 fields. | **23** It won't guarantee you a raise, but **an IT certification can pay off** in other ways.

**COVERAGE BEGINS ON PAGE 6** ➔

**NEWS ANALYSIS 3** Intel falls behind the **Moore's Law** upgrade cycle, but it hopes to catch up next year. | **OPINION 31** **Paul Glen** offers tips on how to answer the call to management. | **DEPARTMENTS 27** **Career Watch** | **29** **Shark Tank**

**MORE ON COMPUTERWORLD.COM**  
Use our **interactive Smart Salary Finder** to break down compensation data for more than 50 IT job titles by U.S. region and experience level.

Huawei's new MateBook uses an Intel Core M (formerly Skylake) processor – the precursor to the Cannonlake chips that Intel hopes will get it back on its two-year upgrade pace.



## Intel Falls Behind Moore's Law, Hopes to Catch Up in '17

Having seen its two-year innovation cycle grow by six months, the chipmaker aims to get back on track with the help of extreme ultraviolet lithography. **BY KEN MINGIS**

**I**NTEL, which in recent years has lost the chip manufacturing edge it once had over rivals like Samsung, TSMC and GlobalFoundries, is turning to a new lithography technology in hopes of getting back on top.

For years, Intel followed the path of Moore's Law, which envisions chip manufacturing advances that double the density of transistors every two years while the cost per transistor declines. It's named for Intel co-founder Gordon Moore.

For decades, Intel was able to routinely advance its manufacturing processes to keep pace with that two-year innovation cycle. But as chips got smaller and transistor density grew, the pace of development slipped and the company had to deal with product delays.

### Six-month Lag

Intel is now doubling the density of transistors on a chip every two and a half years instead of every two years, a timetable that held true for its current 14-nanometer manufacturing process and is expected to continue with the upcoming 10nm setup. Stacy Smith, Intel's chief

financial officer, acknowledged the delays at the recent Morgan Stanley Technology, Media and Telecom Conference.

“We would like to be at two years, but we’re not,” Smith said, adding that the company hopes to eliminate the six-month lag with its upcoming

**We would like to be at two years, but we’re not. We’re watching 7nm as being the . . . technology shift that might allow us to get back to the two-year cadence.**

STACY SMITH, CFO, INTEL

7nm process. “We’re watching 7nm as being the potential time where there’s a technology shift that might allow us to get back to the two-year cadence.”

Intel typically releases two chip architectures with one manufacturing process, but with the 14nm process it

will for the first time release three architectures. Specifically, two 14nm processors, the Broadwell and Skylake chips, will be followed later this year with the release of another line of 14nm chips under the code name Kaby Lake.

The company’s first chips based on the upcoming 10nm process — code-named Cannonlake — aren’t due until the second half of 2017.

### Costly Plans

Getting back on the Moore’s Law schedule will depend on a new technology called extreme ultraviolet lithography (EUV), which should cut out some of the complexity associated with making smaller chips. The technology uses ultraviolet light to transfer circuit patterns on silicon wafers using masks.

The hitch: While EUV could come into use with Intel’s 7nm process, the tools needed for it

to work don’t yet exist. It’s possible that EUV tools will be ready sooner than expected and could be rolled out in time for Cannonlake chips. But Smith said Intel is leery of counting on that.

For Intel, keeping up with Moore’s Law has gotten expensive — and it will grow even more costly as the company races to get back on the two-year cycle. The chipmaker last year estimated it would need to spend \$270 billion over a 10-year period on manufacturing and development. That’s more than double the \$104 billion it estimated in 2011. (The \$270 billion figure includes the cost of wafers, personnel and tools like EUV.)

Meanwhile, rival AMD is pushing its upcoming Zen chips as products that should hold crossover appeal for the Intel faithful and will allow AMD to regain its own standing in the chip market.



Zen processors are based on an entirely new architecture and are designed to eliminate inefficiencies that plagued older AMD chips, which performed poorly and damaged the company's reputation for innovation.

Mark Papermaster, AMD's CTO, described the company's plans at the same Morgan Stanley conference at which Intel's Smith spoke.

In its heyday in the early 2000s, AMD was seen as a serious threat to Intel — particu-

**With its new Zen chips, AMD hopes to deliver CPU performance improvements of a whopping 40%.**

larly after it released its Athlon 64, the first 64-bit chip for PCs. That move forced Intel to scramble to release its own 64-bit chip.

But missteps that started with AMD's Phenom chip in 2007 grew worse with Fusion, the first AMD chip to integrate a CPU and a GPU. A later AMD chip architecture called Bulldozer and its derivatives also came under fire for poor performance.

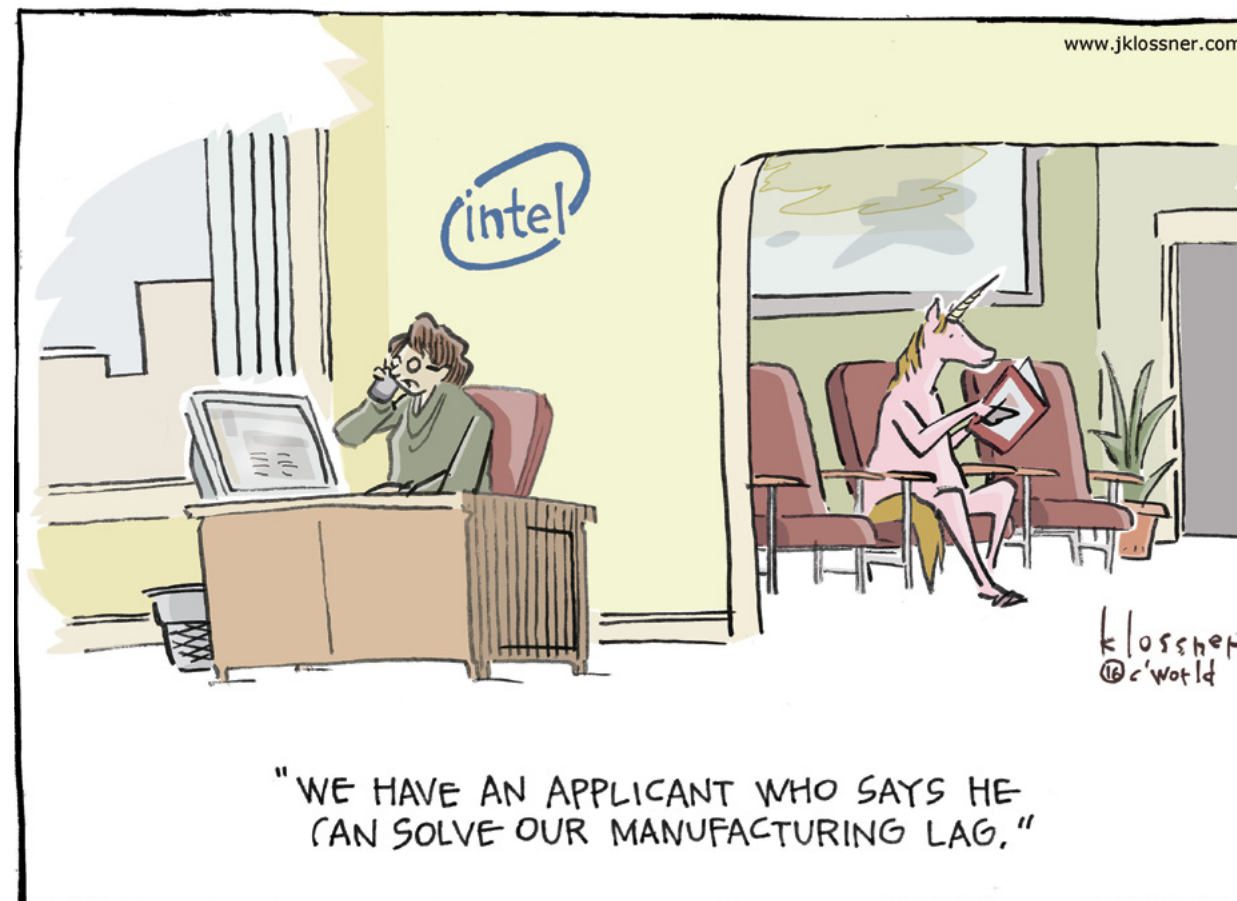
### AMD Performance Leap

But with the Zen chips, Papermaster said, AMD expects to deliver CPU performance improvements of a whopping 40%. That would be a historic jump in performance.

The first Zen chips are slated to ship for gaming desktops at the end of this year; they will go into servers and laptops in 2017 and then later will be used in embedded devices.

Keeping the pressure on

### BETWEEN THE LINES | JOHN KLOSSNER



Intel, AMD expects to be on par with its rival in manufacturing technology with the Zen chips; Papermaster said they will be made using the 14nm process. ♦

**AGAM SHAH** of the IDG News Service contributed to this report.





# SALARIES

## Shape Up

*For the second year running, IT pay gains are strong. Our survey of 3,300 tech pros reveals whose salaries are beefiest – and how you can add muscle to yours.*



**7** How to Pump Up Your Paycheck | **14** IT Pay by the Numbers | **18** Ten Tech Specialties With Rising Salaries | **23** Uncertain About Certs? Here's the Lowdown



# HOW TO Pump Up *your* PAYCHECK

Our 2016 survey of 3,300 IT workers shows that salaries are firming up — is yours? Get advice from tech pros who are making all the right moves. **BY JULIA KING**

**T**HE NUMBERS paint a pretty rosy financial picture for IT professionals. After a respectable 3.6% rise in 2015, IT compensation is up again this

year, according to *Computerworld's* 2016 IT Salary Survey results. The 3,300 IT pros who took the survey reported an average 3.9% increase in total compensation (base salary plus

bonus) for 2016. We haven't seen such strong consecutive-year pay increases in nearly a decade.

Overall, career satisfaction levels are positive, with 60%

of workers reporting that they believe an IT career path — and its potential for salary advancement — is more promising than other career paths. Only 9% of IT workers feel that IT offers



less potential than other careers. And a whopping 85% of survey respondents said they are satisfied or very satisfied with their decision to pursue a career in IT.

### Steady Growth

Not surprisingly, money occupies a prime spot in workers' self-proclaimed happy place. As the economy has continued to improve in the past 12 months, so has the number of IT professionals reporting a raise. This year, 71% of IT workers — up from 67% in 2015 — said they received a raise. Just 3% reported a pay cut, down slightly from 2015's figure of 4%.

"We've seen a continued methodical increase in compensation in tech," says John Reed, senior executive director of IT staffing firm Robert Half Technology (RHT). "It's an encouraging picture. Over the last three to five years, we've seen

mid-single-digit salary increases. It's steady growth."

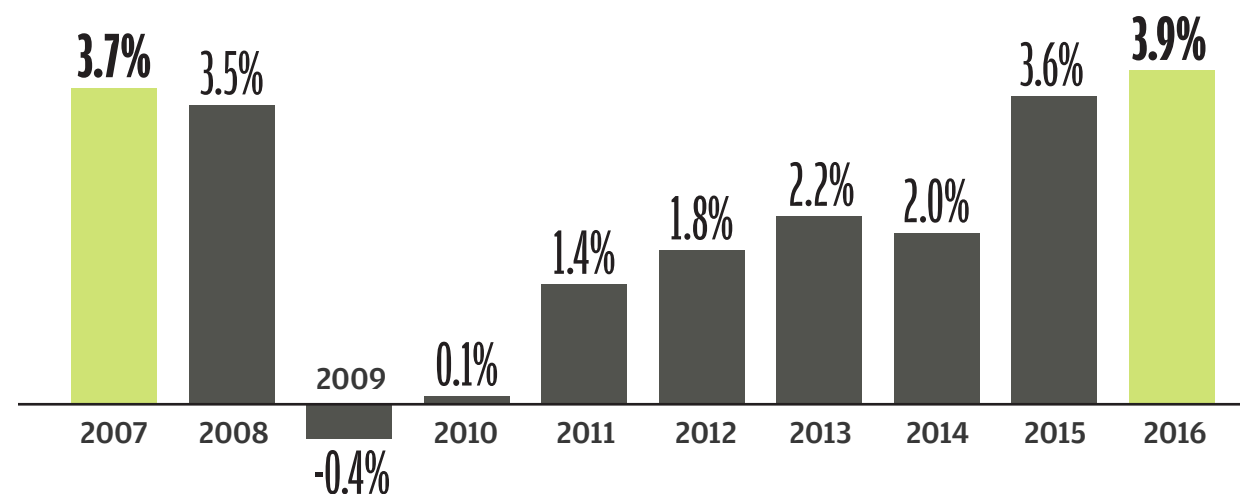
But not everyone is feeling the love. True, after a half-decade of salary upticks, more IT workers feel good about their overall financial picture. Four years ago, just 32% of IT professionals polled by *Computerworld* felt that they had gained ground financially in the prior two years. This year, 41% said that they feel they have gained ground.

That shows progress, but more than half of 2016 survey respondents said that their financial situation has remained flat — or worse, lost ground — in the past two years and that their salary isn't keeping pace with business growth.

What gives? How does one join the elite group of IT pros bringing home fatter paychecks? Here's a short list of suggestions from IT professionals who have done so.

### IT Pay Increases Return to Pre-Downturn Levels

Average increase in total compensation



### A Rosier Outlook

Over the past two years of your career, do you feel you have financially...

|                        | 2012  | 2013  | 2014  | 2015  | 2016  |
|------------------------|-------|-------|-------|-------|-------|
| Gained ground          | 32%   | 32%   | 31%   | 35%   | 41%   |
| Stayed flat            | 39%   | 39%   | 39%   | 39%   | 37%   |
| Lost ground            | 29%   | 28%   | 30%   | 26%   | 22%   |
| Number of respondents: | 4,337 | 4,251 | 3,673 | 4,863 | 3,301 |

[ Percentages may not add up to 100 because of rounding. ]



### Move On to Move Up

Troy Whittaker had advanced five times through various IT functions at the University of Minnesota before butting up against a statutory requirement that capped his salary as a state employee. “No matter how well I performed or what I achieved, I couldn’t make more than

someone else in my job code, which was programmer/analyst — a title invented in the 1970s,” Whittaker says.

So, Whittaker, 39, started looking elsewhere, eventually joining ITS Partners, a small IT services and consulting firm based in his hometown of Grand Rapids, Mich. “I started

off in a consulting role and increased my base salary by 50%,” he recalls. That was in May 2010.

Whittaker also received a signing bonus and earned various incentive bonuses in his first 12 months with ITS. “In that first year, I more than tripled my income,” he says.

Nearly six years later, Whittaker is still with ITS as vice president of core infrastructure, leading a technical practice. “I have a base salary which is quite fair, and I’m able to live the way I want without making a lot of hard choices,” he says.

There’s also ample opportunity to bolster his income through the company’s incentive program, which accounts for 40% of Whittaker’s total compensation and which has unlimited potential: The more business he brings in, the higher his commissions. “It’s like an accelerator,” he says.

The number of IT pros who are changing employers is on the rise, according to Reed. “We’re seeing a stronger job churn,” he says. “Up until about three years ago, the predominant mentality was ‘The devil you know is better than the one you don’t.’ But now we’re seeing an increase in willingness among IT professionals to put themselves out in the market to get an increase.”

Indeed, fully three-quarters of the respondents to *Computerworld’s* survey reported that a salary increase is the factor that would most influence them to change jobs. That said, only 10% are actively looking for a job with a different employer, with another 35% passively seeking a job with a different employer.

But the rest aren’t necessarily being shortsighted, according to Reed. Despite the potential for earning significantly more

### Considering a Change

Which of the following describes your job search status?

|   |     |
|---|-----|
| Not looking for a new job                                   | 48% |
| Passively looking for a new job at a different organization | 35% |
| Actively looking for a new job at a different organization  | 10% |
| Seeking a new job within the same organization              | 7%  |

Base: 3,301 respondents

Why are you looking for a new job?

|   |     |
|---|-----|
| Looking for higher compensation               | 62% |
| Seeking career advancement                    | 49% |
| Looking for more interesting/challenging work | 38% |
| Looking for more personal fulfillment         | 37% |
| Seeking a better benefits package             | 24% |

Base: 1,711 respondents who are looking for a new job; multiple responses allowed.



money with a new employer, Reed says he always tells IT professionals that their greatest value is at their current company because “they know you, you know them, you have insider knowledge of how things get done.”

### Become Indispensable

Sheree Goldstein, a senior business analyst at New York-based Kate Spade & Co., has been working on the same project since 2011 — replacing a global point-of-sale system for the upscale fashion design company.

“Being an expert in parts of that larger system has contributed to me being well thought of,” she says. “It’s a business-critical project, and I think that’s a really important part of it.”

In 2015, for example, the company had a major layoff, but Goldstein, 60, survived the cut. “We were already pretty lean, so some of the people who left

in the layoff were damn good,” she says. The differentiator, she adds, is “they weren’t necessarily on mission-critical projects.”

In addition to keeping her job, Goldstein, who has been with the company for nine years, last year received a cost-of-living raise of about 3%, plus a financial bonus that was more than she expected. Things look good for the coming year as well. “We began in the last couple of years to make money,” she notes — and she remains attached to a project related to the all-important global POS system. “So I’m anticipating that 2016 will be a bonus year,” Goldstein says.

Individual effort and achievement can also contribute mightily to the pay equation. Consider the case of Alison Diem, 36, a business analyst at Detroit-based Quicken Loans. She joined the company after her previous employer closed

### Motivated by Money — and More

*What matters most to you about your job?*

|  |     |
|--|-----|
| Base pay   | 52% |
| Job stability  | 43% |
| Benefits   | 36% |
| Vacation time/paid time off                            | 32% |
| Flexible work schedule/telecommuting/working from home | 31% |
| My opinion and knowledge are valued                    | 28% |

|  |     |
|--|-----|
| Job atmosphere/community                         | 27% |
| Challenge of job/responsibility                  | 27% |
| Potential for career advancement and development | 22% |
| Commute distance/location                        | 18% |

Base: 3,301 respondents; multiple responses allowed.

*Which factors would most influence you to change your job?*

|                          |     |
|--------------------------|-----|
| Salary increase          | 75% |
| Better work/life balance | 37% |
| Job security             | 36% |
| Large sign-on bonus      | 30% |
| More vacation time       | 29% |

|                                   |     |
|-----------------------------------|-----|
| Access to new technology projects | 29% |
| Organizational stability          | 27% |
| More training                     | 22% |
| More responsibility               | 22% |
| New title                         | 15% |

Base: 3,301 respondents; multiple responses allowed.



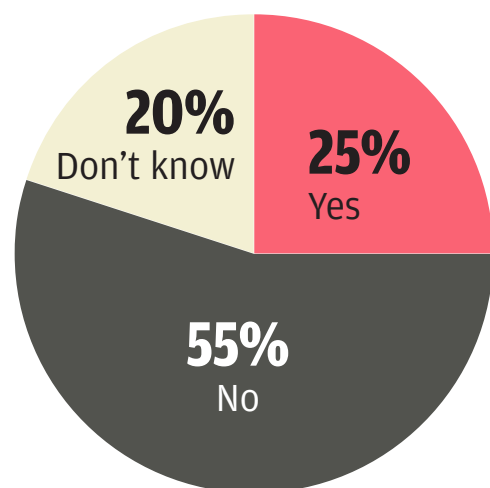
its Los Angeles office.

In her former job, Diem serviced accounts and customers for a financial firm. “I never intended to be in IT,” she says, but “the only thing Quicken Loans had open [at that time] was a position in IT dealing with wholesale mortgages.” So she took it. That was more than three years ago.

Since then, Diem has been

### Still Feeling Underpaid

*Do you feel that your salary is keeping pace with business growth and demands?*



Base: 3,301 respondents

on a project to digitize all documents for easier access and audit purposes, and she says she has intentionally made herself the go-to person for anything and everything to do with servicing documents.

“I have received both raises and bonuses,” she says. “I also feel where I’m gaining ground is the continual learning process. I’m always learning new things, systems or tools. We do a lot of projects that come up very suddenly when new regulations are enacted. Lots of pieces need to be updated.”

Ultimately, Diem has her eye on a role as a subject matter expert — a relatively new career path Quicken Loans created for workers who wish to advance but would prefer to remain in a specialized technical role rather than take on a leadership or managerial position.

“I feel like that is now definitely in the cards for me. I can

be compensated as an expert without having to become a leader myself.”

### Switch Your Specialty

The average pay increase for IT pros overall, notes RHT’s Reed, is in part being lifted by “certain disciplines, such as cybersecurity, big data and analytics, and cloud computing, that are seeing much more robust [salary] growth. If you’re in those fields, you’re probably seeing your compensation grow by 8% or 9% or 10% on average year to year,” he says.

A new role in security, one of the hottest job categories in IT today, might be especially lucrative. In *Computerworld’s* 2016 IT Salary Survey, information security managers reported an average pay increase of 6.4%, and security pros from all levels report a 4.6% bump.

“Information security is one of the best growth fields on the

### Career Outlook

*Where do you expect to be in your career five years from now?*

|   |     |
|---|-----|
| Promoted to a higher-level position within the same company | 28% |
| At a higher-level position within a different organization  | 25% |
| At the same job in the same organization                    | 20% |
| Retired   | 11% |
| At a similar job in a different organization                | 10% |
| Self-employed   | 4%  |
| In a job outside the IT profession                          | 3%  |

Base: 3,301 respondents. Percentages do not add up to 100 because of rounding.

infrastructure side of things,” says Chris Fuhrman, 39, who last summer transitioned from a desktop engineer role to a security administrator role, and



in doing so, raised his salary at Life Time Fitness by \$5,000. “It was a nice little bump,” says Fuhrman, who’s now responsible for endpoint security at the Chanhassen, Minn.-based chain of health and fitness centers.

Fuhrman attributes the salary jump directly to switching

IT specialties. “For me, it was the change into security. Before, I wasn’t doing poorly, but I definitely had a feeling I could stagnate there. Where I moved now is pretty much unlimited for growth,” he says. “I’m depended on as a subject matter expert to evaluate new things

rather than keep old things up and running.”

Steve Chopelas took a page from the same playbook. A former software developer at Fidelity Investments, Chopelas, 46, saw the writing on the wall a few years back.

“I saw a lot of software development going offshore, so I started to look for something else. Fidelity wanted to keep all security internal, so it was a hotspot to gravitate to,” he recalls. He got into information security as a means of ensuring job security.

Then, two years ago, he was recruited for a leadership role as an information security manager at Boston-based Homesite Insurance. His salary increased by about 7%. “I was already in a highly compensated salary range, so that was significant,” he says. “The recruiter who recruited me said that security and mobile development were

**At some point, the money becomes less important. It’s being happy and doing what you want.**

STEVE CHOPELAS,  
SOLUTIONS ARCHITECT

two areas [with] negative unemployment.”

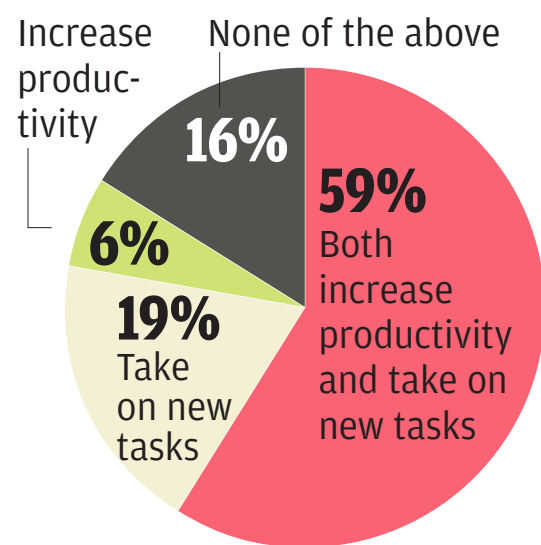
(See “10 Tech Specialties With Rising Salaries” for more fields seeing significant salary growth.)

**Make More Than Money**

At ITS, Whittaker acknowledges that earning more money has definitely been a plus. But at the core of his overall sense of gaining ground in his profes-

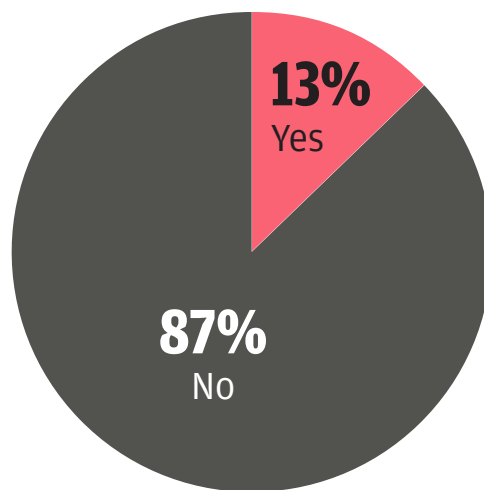
**Pressure Without Pay**

*Within the past year, have you felt pressure to increase productivity or take on new tasks?*



Base: 3,301 respondents

*Has your salary been adjusted to compensate for the added workload?*



Base: 2,760 respondents who have been asked to increase productivity and/or take on new tasks



sion is the ability to work independently in the environment of his choice.

His company's culture is "built on self-motivation," he says, and he appreciates being able to work remotely when he chooses. "I think of my work as analogous to creative work. Office environments are nonproductive, and [in IT] you need several hours of creative time." At ITS, he adds, "it's your job to go out and make use of your resources."

Other respondents to *Computerworld's* survey also said they look beyond their paychecks. When asked what matters most about their job, respondents frequently cite tangible rewards such as base pay (52%), benefits (36%) and vacation time (32%). But many also name less-tangible factors, including job stability (43%), flextime and telecommuting options (31%), being valued for

their opinion and knowledge (28%), and having challenging work (27%).

Chopelas, too, has come to the conclusion that it's not all about money. Despite his high pay at Homesite, he found the job to be a struggle, and not just because of the grinding commute between his home in New Hampshire and the office in Boston.

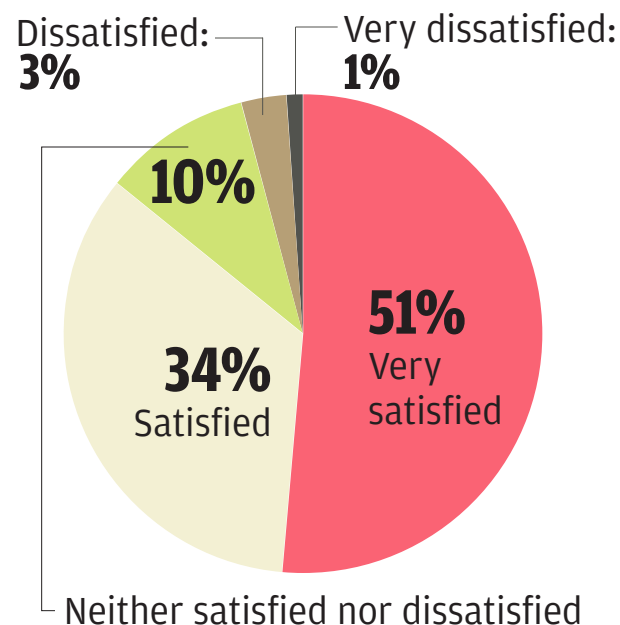
### Career Epiphany

Chopelas says he's best in an individual contributor role. So after two years in management at Homesite, he recently resigned from the company to take a new position as a solutions architect with security consulting firm Optiv.

Here's the twist: He didn't take the job for more money or because he didn't feel appreciated and valued at Homesite. This is the first time he switched jobs when money wasn't the driving

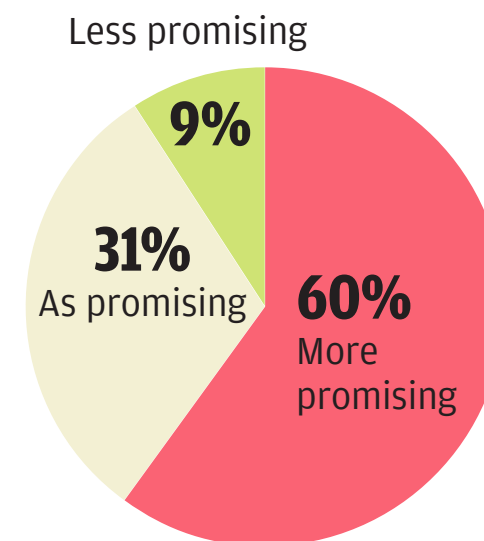
### Glad to Be in IT

How satisfied are you with your decision to pursue a career in IT?



Base: 3,301 respondents. Percentages do not add up to 100 because of rounding.

Compared with most other professions, do you believe an IT career path and the potential for salary advancement in IT are...



Base: 3,301 respondents

factor, he says.

"At some point, the money becomes less important. It's being happy and doing what you want and being satisfied with what it pays," he says. "I like to take things apart and figure out what makes them tick and put

them back together. Ten years ago, I wanted to be a CIO. Not now. Now, I like being able to do what I like to do. It took me a while to get there." ♦

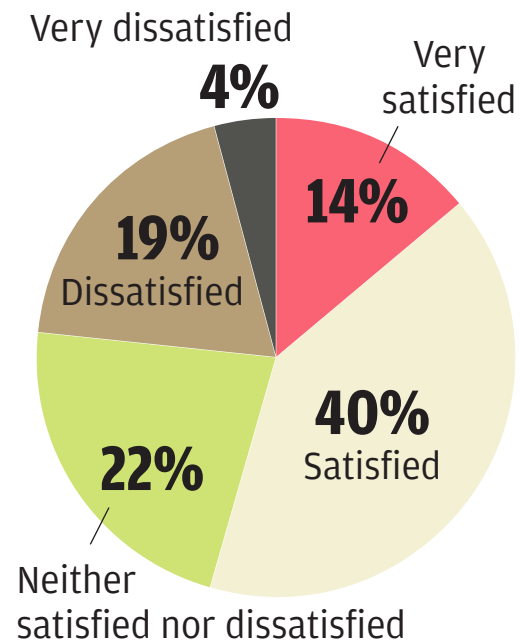
**KING** is a writer and editor in the Philadelphia area.





# MONEY

How satisfied are you with your total compensation package?



How did you feel 12 months ago?

|                |     |
|----------------|-----|
| More satisfied | 15% |
| Less satisfied | 23% |
| The same       | 62% |

Base: 3,301 respondents

[ Percentages may not add up to 100 because of rounding. ]

## Senior Management

|   | AVERAGE SALARY | AVERAGE BONUS | 2016 TOTAL | 2015 TOTAL | % CHANGE TOTAL COMP |
|---|----------------|---------------|------------|------------|---------------------|
| <b>Chief information officer/VP of IT</b>       | \$149,555      | \$23,488      | \$173,043  | \$165,617  | 4.5%                |
| <b>Chief security officer</b>                   | \$140,204      | \$21,860      | \$162,064  | \$154,214  | 5.1%                |
| <b>Chief technology officer</b>                 | \$136,927      | \$14,866      | \$151,793  | \$146,237  | 3.8%                |
| <b>Director of IT</b>                           | \$115,291      | \$10,367      | \$125,659  | \$121,697  | 3.3%                |
| <b>Director/VP of systems development</b>       | \$148,351      | \$29,576      | \$177,927  | \$170,810  | 4.2%                |
| <b>Internet technology architect/strategist</b> | \$145,593      | \$25,375      | \$170,968  | \$166,258  | 2.8%                |

## Middle Management

|  |           |          |           |           |      |
|--|-----------|----------|-----------|-----------|------|
| <b>Application development manager</b>     | \$120,303 | \$9,039  | \$129,342 | \$124,782 | 3.7% |
| <b>Computer operations manager</b>         | \$100,953 | \$6,059  | \$107,012 | \$103,071 | 3.8% |
| <b>Database/data warehousing manager</b>   | \$118,725 | \$9,000  | \$127,725 | \$125,145 | 2.1% |
| <b>Help desk/technical support manager</b> | \$78,824  | \$4,259  | \$83,083  | \$80,604  | 3.1% |
| <b>Information security manager</b>        | \$115,989 | \$6,351  | \$122,340 | \$115,029 | 6.4% |
| <b>IT manager</b>                          | \$91,881  | \$5,011  | \$96,892  | \$93,483  | 3.6% |
| <b>Network manager</b>                     | \$89,982  | \$4,290  | \$94,272  | \$90,592  | 4.1% |
| <b>Product manager</b>                     | \$109,857 | \$10,393 | \$120,250 | \$111,866 | 7.5% |
| <b>Project manager</b>                     | \$104,468 | \$7,032  | \$111,500 | \$108,120 | 3.1% |

■ Highest percentage compensation change for this category

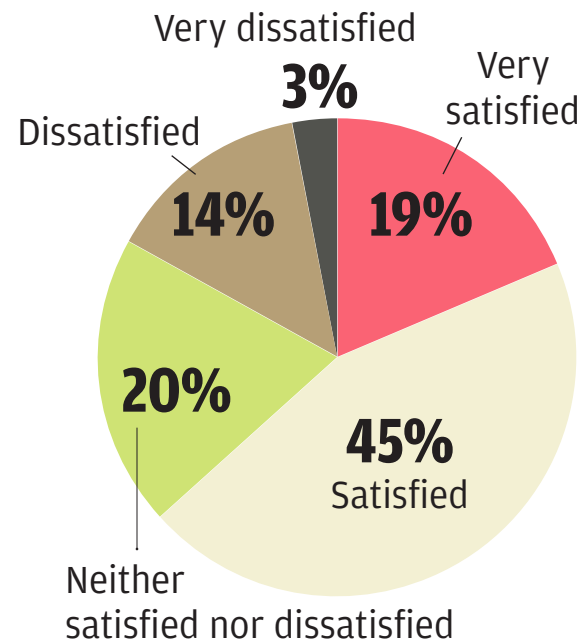
Continued on page 15





# CURRENT JOB

How satisfied are you with your current job?



How did you feel 12 months ago?

|                          |     |
|--------------------------|-----|
| More satisfied           | 20% |
| Less satisfied           | 18% |
| The same                 | 58% |
| Not in the same position | 4%  |

Base: 3,301 respondents

[ Percentages may not add up to 100 because of rounding. ]

## Staff and Entry-Level

|   | AVERAGE SALARY | AVERAGE BONUS | 2016 TOTAL | 2015 TOTAL | % CHANGE TOTAL COMP |
|---|----------------|---------------|------------|------------|---------------------|
| <b>Application developer</b>                  | \$86,999       | \$4,093       | \$91,092   | \$87,222   | 4.4%                |
| <b>Business analyst</b>                       | \$83,926       | \$4,521       | \$88,448   | \$86,608   | 2.1%                |
| <b>Business intelligence analyst</b>          | \$87,990       | \$4,023       | \$92,013   | \$88,344   | 4.2%                |
| <b>Cloud specialist</b>                       | \$107,600      | \$11,290      | \$118,890  | \$111,265  | 6.9%                |
| <b>Database administrator</b>                 | \$94,047       | \$4,166       | \$98,213   | \$96,377   | 1.9%                |
| <b>Database analyst</b>                       | \$83,270       | \$7,100       | \$90,370   | \$87,332   | 3.5%                |
| <b>Database architect/developer/modeler</b>   | \$101,285      | \$5,875       | \$107,160  | \$103,206  | 3.8%                |
| <b>Data scientist</b>                         | \$110,000      | \$6,323       | \$116,323  | \$113,023  | 2.9%                |
| <b>Enterprise architect</b>                   | \$120,759      | \$10,593      | \$131,352  | \$128,952  | 1.9%                |
| <b>Help desk/technical support specialist</b> | \$52,476       | \$1,426       | \$53,902   | \$52,166   | 3.3%                |
| <b>Information security specialist</b>        | \$90,649       | \$4,196       | \$94,845   | \$90,624   | 4.7%                |
| <b>Network administrator</b>                  | \$61,209       | \$1,149       | \$62,358   | \$59,506   | 4.8%                |
| <b>Network architect</b>                      | \$106,908      | \$5,268       | \$112,176  | \$109,394  | 2.5%                |
| <b>Network engineer</b>                       | \$84,002       | \$3,251       | \$87,253   | \$83,377   | 4.6%                |
| <b>Programmer/analyst</b>                     | \$81,781       | \$3,794       | \$85,574   | \$82,371   | 3.9%                |

■ Highest percentage compensation change for this category

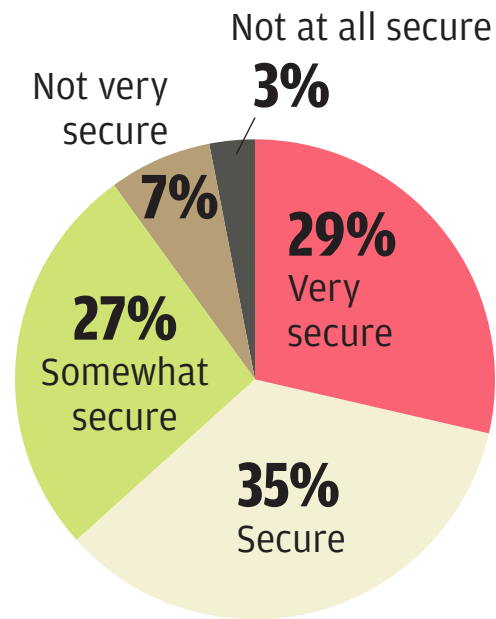
Continued on page 16





# SECURITY

How secure do you feel your job is?



How did you feel 12 months ago?

|                          |     |
|--------------------------|-----|
| More secure              | 22% |
| Less secure              | 12% |
| The same                 | 62% |
| Not in the same position | 4%  |

Base: 3,301 respondents

[ Percentages may not add up to 100 because of rounding. ]

Staff and Entry-level, continued from page 15

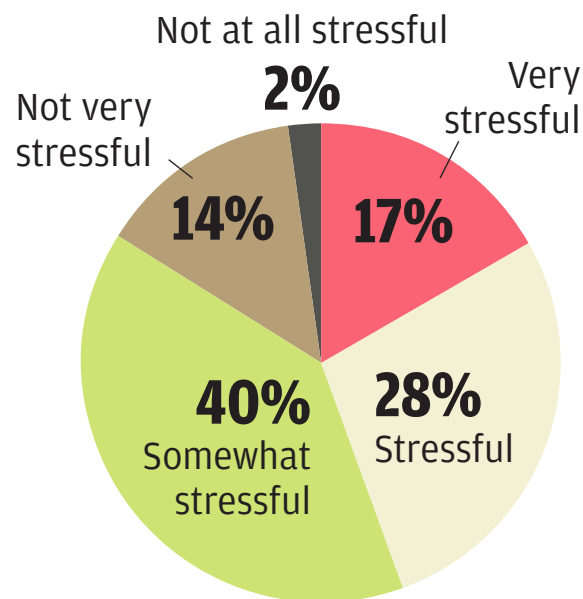
|   | AVERAGE SALARY | AVERAGE BONUS | 2016 TOTAL | 2015 TOTAL | % CHANGE TOTAL COMP |
|---|----------------|---------------|------------|------------|---------------------|
| <b>Project leader</b>                           | \$102,432      | \$9,714       | \$112,147  | \$107,452  | <b>4.4%</b>         |
| <b>Quality assurance specialist</b>             | \$82,741       | \$6,856       | \$89,597   | \$86,790   | <b>3.2%</b>         |
| <b>Software developer</b>                       | \$89,710       | \$7,606       | \$97,316   | \$92,918   | <b>4.7%</b>         |
| <b>Software engineer</b>                        | \$98,843       | \$6,257       | \$105,100  | \$100,595  | <b>4.5%</b>         |
| <b>Storage administrator/architect/engineer</b> | \$106,093      | \$6,281       | \$112,374  | \$108,359  | <b>3.7%</b>         |
| <b>Systems administrator</b>                    | \$74,550       | \$2,130       | \$76,680   | \$72,825   | <b>5.3%</b>         |
| <b>Systems analyst</b>                          | \$76,131       | \$3,534       | \$79,665   | \$75,042   | <b>6.2%</b>         |
| <b>Senior systems analyst</b>                   | \$96,510       | \$5,259       | \$101,769  | \$98,861   | <b>2.9%</b>         |
| <b>Systems architect</b>                        | \$115,764      | \$7,667       | \$123,431  | \$118,686  | <b>4.0%</b>         |
| <b>Systems programmer</b>                       | \$97,357       | \$3,433       | \$100,791  | \$98,867   | <b>1.9%</b>         |
| <b>Technical trainer</b>                        | \$75,571       | \$1,000       | \$76,571   | \$74,277   | <b>3.1%</b>         |
| <b>Technician</b>                               | \$50,376       | \$1,050       | \$51,426   | \$49,625   | <b>3.6%</b>         |
| <b>Technology/business systems analyst</b>      | \$84,033       | \$4,407       | \$88,440   | \$84,424   | <b>4.8%</b>         |
| <b>Web developer</b>                            | \$78,624       | \$3,203       | \$81,828   | \$78,367   | <b>4.4%</b>         |





# STRESS

How stressful is your job?



How stressful was it 12 months ago?

|                          |     |
|--------------------------|-----|
| More stressful           | 19% |
| Less stressful           | 19% |
| The same                 | 58% |
| Not in the same position | 4%  |

Base: 3,301 respondents

[ Percentages may not add up to 100 because of rounding. ]

## Career Worries

Top 5 career concerns for 2016:

|  |     |
|--|-----|
| Keeping skills up to date/being valuable to employer | 22% |
| Flat/stagnant salary                                 | 15% |
| Finding an appropriate new position for my skill set | 14% |
| Increased workload                                   | 12% |
| Changing structure and role of the IT department     | 11% |

Base: 3,301 respondents

## Biggest Challenges

Top 5 challenges facing IT pros today:

|   |     |
|---|-----|
| Keeping up with technology advancements | 18% |
| Alignment of IT with the business       | 17% |
| Undervaluing older workers              | 14% |
| Job losses due to outsourcing           | 14% |
| IT talent shortage                      | 12% |

Base: 3,301 respondents

## Workplace Woes

Top 5 factors negatively affecting working conditions:

|                                     |     |
|-------------------------------------|-----|
| Increased IT workload               | 50% |
| New, understaffed projects          | 34% |
| Budget cuts                         | 27% |
| Unfilled open positions             | 24% |
| Increased line-of-business workload | 17% |

Base: 3,301 respondents; multiple responses allowed.

## How We Conducted the Survey

**Computerworld's 30th annual IT Salary Survey was administered via the Internet.**

The survey results include responses from both *Computerworld* digital magazine subscribers and visitors to Computerworld.com.

The collection of data began on Aug. 25, 2015, and

concluded on Nov. 19. A total of 3,878 people responded to the survey. Of those respondents, 3,301 were employed full time or part time and were eligible to complete the entire survey. At the 95% confidence level, the margin of error for this sample size is 1.6 percentage points.

Compensation figures for 2015 were calculated based on the percentage change reported by respondents.

You'll find a detailed look at the survey methodology and much more in our online [IT Salary Watch](#) package.



# 10 TECH Specialties with RISING SALARIES

As demand for skilled IT pros continues to grow, employers are paying top dollar to attract and retain talent – particularly in these 10 fields. **BY MARY K. PRATT**

**O** **N THE WHOLE**, the financial news has been good for IT professionals. Data from the U.S. Bureau of Labor Statistics shows that IT employment grew 3.1% in 2015, and 44% of

IT managers who participated in *Computerworld's* 2016 IT Salary Survey said they expect to expand their IT staffs this year. Salaries are growing, too. *Computer-*

*world* survey participants reported an average compensation increase of 3.9% this year, the highest year-over-year pay hike we've seen in our survey results since 2001.



Other industry watchers have seen similar gains: Research firm Foote Partners reports a 3.3% overall rise in IT skills and certification pay premiums for 2015, and IT staffing firm Robert Half Technology predicts that starting salaries for tech pros will rise 5.3% in 2016.

But pay raises are higher in some IT disciplines than they are in others. “The competition for some niche skills is driving up salaries for those positions. In some areas for some skills there are rapid gains; in other areas the gains are more modest or flat,” says Tim Herbert, senior vice president of research and market intelligence at the non-profit trade organization CompTIA.

According to *Computerworld’s* 2016 IT Salary Survey, these are the 10 IT specialties seeing the biggest salary increases.

### 1. ERP

People who work in enterprise resource planning reported a bigger year-over-year compensation gain — 5% — than survey respondents in any other area of IT.

Because ERP can refer to both a business process — automating and integrating key parts of an organization’s business

functions — and the software suites that facilitate that process, it’s easy to assume that a role in enterprise resource planning is all about managing a software system. But Drew Moen, CTO at StratServ, a tech services firm in Browns Summit, N.C., says it’s really about managing the business and understanding how technology supports that job.

“ERP is operations. It’s process engineering, and it’s what gives you a quantitative advantage. It’s why your call center has 10 people and not 100 people,” Moen says.

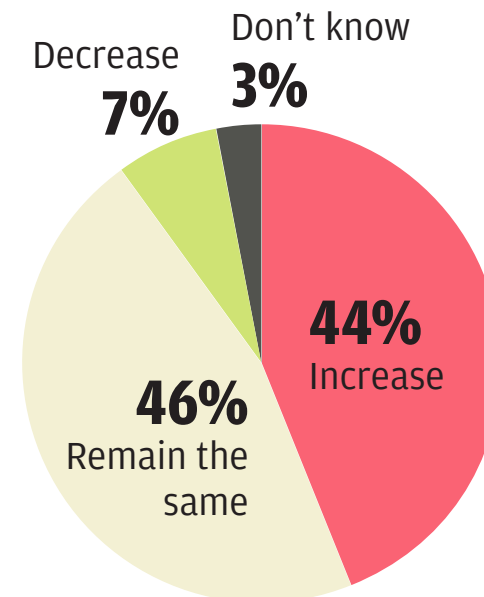
To do the job, Moen says, an ERP expert “has to be a master of many trades, and someone who can speak truth to power.” In other words, an ERP pro needs to have the

expertise and the strength of character to explain to executives what works — and what doesn’t — in operational processes, how to improve them and where technology fits within those scenarios.

Those are traits that companies are willing to pay increasingly higher rates to get, recruiters say.

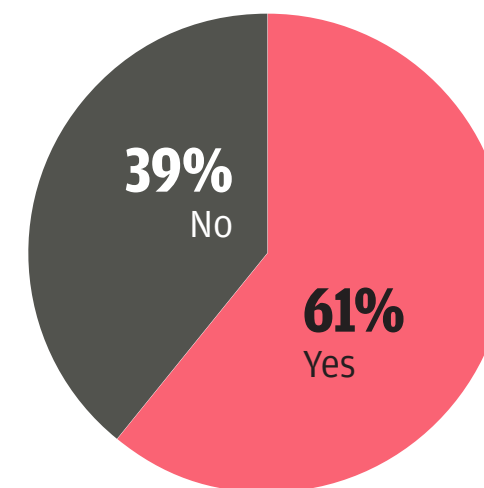
### Tech Pros in Demand

In the next 12 months, do you expect your organization’s IT staff head count to . . .



Base: 1,434 IT managers

In the past 12 months, have you been approached by a hiring organization or headhunter about IT job opportunities?



Base: 3,301 respondents



## 2. Cloud Computing

As detailed in *Computerworld's Forecast 2016* report, moving enterprise systems and applications to the cloud has become a top priority for U.S. businesses. As more organizations do more in the cloud, competition for people with cloud experience heats up, and that in turn has driven up salaries, says Herbert.

Pay for cloud experts is up 4.8% this year, according to our survey, and people who work in the field say they're feeling popular. Take Eric McDuffee, senior director for data and technology at the American Lung Association of the Northeast in East Hartford, Conn. The nonprofit no longer has on-premises applications, so McDuffee, a 16-year employee with the organization, has become a cloud expert. That gets him noticed. "I don't have people beating down my door, but there definitely has been an uptick in recruitment," he says.

## 3. Security

No surprise here: One of the most in-demand specialties today is information security expertise. Our survey shows an average pay gain of 4.6% over 2015 for those

who work in security, and more than a quarter of IT managers who plan to expand their staffs this year cited security as an area in which they will be adding personnel.

In his more than 20 years in IT, Bob Riley says he has seen security move from a side role in everyone's job to a front-and-center function that's in demand. Riley is a mobile security architect at Duluth, Ga.-based NCR, and he says his employer's security team has grown from three people three years ago to 26 today.

"The average systems administrator can't keep up with the threats that are coming every day, so security became a new role," he says. "Now security has the CEO's focus. That means budgets are up."

Riley himself isn't looking for a new job, but based on what he sees in the job market and what he's hearing from colleagues, he says companies are offering higher salaries for top-notch security talent.

## 4. Web Design/Development

Companies continue to invest in their websites, so they still need skilled Web designers and developers, says Blake Angove, director of technology services at Chicago-

## Red-Hot Specialties

Tech functions with the greatest reported compensation increases in 2016:

| SPECIALTY                       | PAY RAISE |
|---------------------------------|-----------|
| ERP                             | 5.0%      |
| Cloud computing                 | 4.8%      |
| Security                        | 4.6%      |
| Web design/development          | 4.6%      |
| Business intelligence/analytics | 4.2%      |
| Networking                      | 4.2%      |
| Application development         | 4.0%      |
| Data center management          | 3.9%      |
| General IT                      | 3.9%      |
| Help desk/IT support            | 3.6%      |

Base: 3,301 respondents

based staffing and recruiting firm LaSalle Network. *Computerworld's* IT Salary Survey shows that pay was up 4.6% for these workers in 2016.

Job seekers with strong portfolios and broad sets of Web design and development skills can get multiple offers and command \$70,000 to \$90,000 or more annually, even if they have only a few years of experience, Angove says. Developers with Java and .Net programming skills are most in demand, he adds.

## 5. Business Intelligence/Analytics

The push to put data into the hands of workers at every level is driving demand for business intelligence and analytics systems — and IT professionals who support those systems and their users. Survey respondents who work in those areas reported an average pay bump of 4.2% in 2016.

Lauretta Ayers, a business analyst at the Turlock Irrigation District in California's Central Valley, says she sees that demand firsthand. In her part of the country, government agencies, farming operations and businesses of all kinds are using data to drive decisions related to everything from water requirements to livestock feed schedules.

With data playing such an important role in business today, IT workers who specialize in BI and analytics can command ever-higher salaries, recruiters say.

## 6. Networking

Pay in this field is up 4.2%, according to our data, with average compensation ranging from \$62,000 for network administrators to \$112,000 for network architects. CompTIA's Herbert notes that the number of job postings for network and computer systems operators increased 37% from 2014 to 2015, and postings for computer network architects jumped 44%.

“Demand for network engineering skills has remained consistently high,” says Angove. “As the number of data centers in the country increases, we will see the demand for engineers grow.” He notes that people with Cisco Certified Internetwork Expert certifications continue to command the highest salaries; network engineers with strong firewall and security knowledge are also up there.

## 7. Application Development

Enterprise IT shops have a continuing need for application developers to deliver not only back-end software to help run their operations but also customer-facing apps, recruiters and IT leaders say. Companies are willing to pay a premium for experienced people with proven skills. Pay jumped 4%

## In-Demand Skills

What types of IT skills do you expect your organization will hire for in the next 12 months?

|  |     |
|--|-----|
| Application development                | 45% |
| Help desk/IT support                   | 33% |
| Security                               | 26% |
| Business analytics                     | 23% |
| General IT functions in multiple areas | 20% |
| Business intelligence                  | 18% |
| Database analysis and development      | 17% |
| Cloud computing                        | 17% |
| Networking                             | 15% |
| Network administration                 | 14% |
| Enterprise application integration     | 12% |
| Web design/development                 | 12% |

Base: 609 IT managers expecting to hire in the next 12 months; multiple responses allowed.

for developers who took our survey.

But a bigger paycheck alone isn't enough



to draw in the most talented developers, says Ben Vesta, development manager at Aceyus, a Charlotte, N.C.-based maker of contact center management tools. Savvy developers are looking for companies that have more to offer than just generous pay. “Location, work environment, and the ability to grow skill sets and advance in the company are equally important,” he says.

## 8. Data Center Management

As more companies move to private clouds, they need people who can manage the data centers that support those setups, Herbert says. And the vendors selling cloud services likewise need skilled professionals to manage their data centers. New business models, notably streaming services, also require significant data center capacity.

All that adds up to competition for data center managers, and that, in turn, has driven up compensation. *Computerworld* survey respondents who manage data centers reported an average boost in pay of 3.9% this year.

## 9. General IT

It might seem unusual to find general IT work in a list of hot specialties, but An-

drew Ho isn't surprised. As vice president of technology at Global Strategy Group, he is the public affairs firm's sole IT staffer. Ho, who oversees consultants and vendors, says small and midsize companies increasingly want people like him who are capable of handling a range of IT duties.

“In that market, there's not enough money to pay for specialists,” he says. “Companies see the value in people who can wear multiple hats.” *Computerworld's* survey data backs him up: Nearly 20% of the IT managers who are looking to hire this year said they need IT generalists, and the general IT workers who took the survey said their pay is up 3.9%.

## 10. Help Desk/IT Support

With companies using a growing number of increasingly complex systems and devices, there's a need for more expertise in the tech support role — so it makes sense that help desk compensation is on the rise, Herbert says. IT Salary Survey respondents who work in tech support reported an average pay increase of 3.6%. And tech support is the second most sought-after skill among managers who plan to hire this year, 33% of whom said they were looking for

## Specialists Wanted

If IT is hiring in your organization, are the majority of open IT positions . . .

|                                       |     |
|---------------------------------------|-----|
| Highly skilled specialist positions   | 67% |
| Staff/entry-level technical positions | 28% |
| Management positions                  | 2%  |

Base: 626 IT managers expecting to hire in the next 12 months. Percentages don't add up to 100 because of rounding.

people to work on the help desk.

Jean Everson, a Level 2 service desk specialist at rail freight company CSX in Jacksonville, Fla., has worked in tech support for nearly two decades and says she has seen demand for her services (and pay) steadily increase over the years.

She says the job keeps her and her colleagues busy, and she doesn't expect that to change anytime soon. “I'll have a job as long as I want one,” she says. ♦

**PRATT** is a *Computerworld* contributing writer in Massachusetts. You can contact her at [marykpratt@verizon.net](mailto:marykpratt@verizon.net).

# Uncertain About CERTS? HERE'S THE LOWDOWN



Earning an IT certification won't automatically land you a job or a pay raise, but it can be valuable in the right circumstances.

BY BETH STACKPOLE

**A** **IN IT VETERAN** with more than 40 years of experience, George Craft got his start in the technical trenches and eventually crossed over to management, earning choice certifications along the way to advance his career. His first credential — a Certified Data Processor designation in the late 1970s — gave him credibility as a “computer guy” at a time when IT was a fledgling field, he says.

His subsequent certs, including a CNE (Certified Network Engineer), an MCSE (Microsoft Certified Solutions Expert) and a CCNA (Cisco Certified Network Associate), also came

in handy, giving him the footing to pursue new opportunities as particular technologies got hot.

Now director of IT for Motorola's Smart Public Safety Solutions (SPSS) unit, Craft acknowledges that none of those top-drawer certifications was the linchpin in landing a new job or scoring a big pay raise. “It's not necessarily a ticket in the door,” he says. Nevertheless, he views certifications as assets in the right context. “[Each] time I went to change jobs, having that certification was a qualifier,” he adds.

Craft, like many senior IT executives and hiring managers, sees value in IT certifications as a way for tech pros to keep their



skills fresh and as indicators that job candidates are seriously committed to enriching their technical expertise.

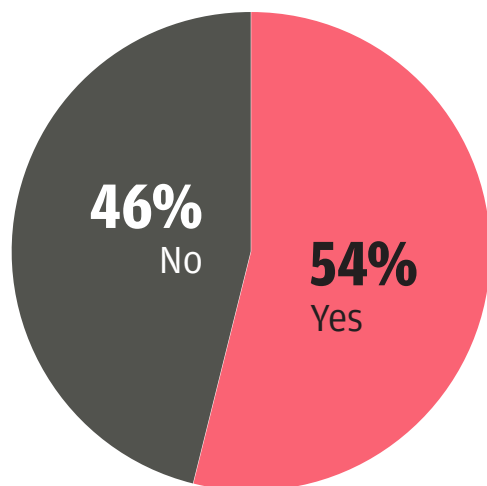
Computerworld's 2016 IT Salary Survey, conducted in the fall of 2015, shows solid interest in certifications among the 3,301 respondents: More than half (54%) said they have IT-related certifications, and 44% said they plan to pursue an IT certification within the next 24 months.

Security topped the list of the most popular types of certifications, with 22% of those polled saying they planned to pursue a credential in that area. Networking was next, cited by 16% of the respondents, followed by project management (15%) and systems administration (14%).

At the same time, there appears to be no strong correlation between having an IT certification and earning higher pay or moving up the career ladder

### Certifications Widely Held

Do you have any IT-related certifications?



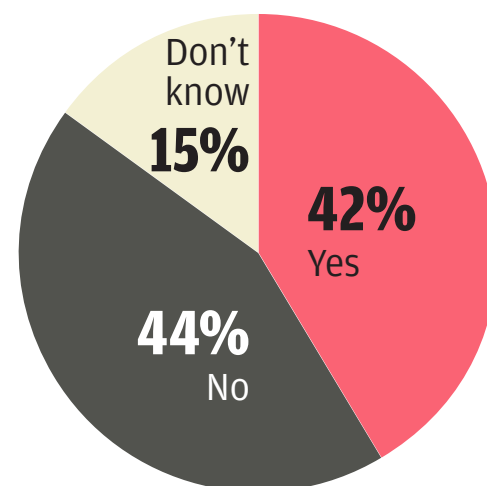
Base: 3,301 respondents

more quickly. Only 42% of certification-holding respondents to the *Computerworld* survey said their cert(s) helped them land a job, score a promotion or earn more pay.

“Certifications are like a college education — they don’t necessarily imply anything,” says David Foote, chief ana-

### Valuable for Some

Has your certification helped you land a job, earn a promotion or gain a pay raise?

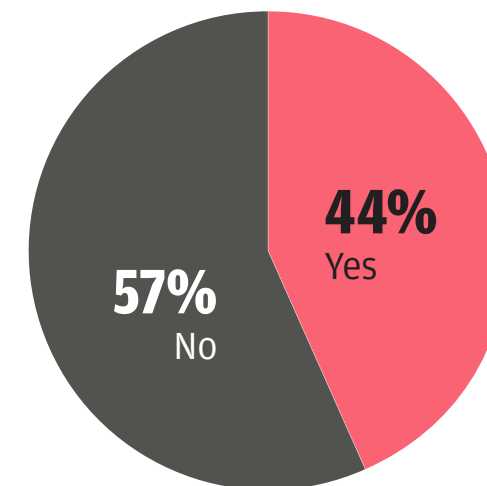


Base: 1,782 respondents who hold IT certifications. Percentages don't add up to 100 because of rounding.

lyst and co-founder of Foote Partners, a research firm that publishes benchmark studies on skills and certifications pay premiums. “Companies look well beyond technical skills — they want people who have done something and made an impact . . . and they don’t need a certification to tell them that.”

### Still Desired by Many

Do you plan to pursue any IT-related certifications in the next 24 months?



Base: 3,301 respondents. Percentages don't add up to 100 because of rounding.

### Experience Trumps Certs

Clayton Lee, director of business technology at the Corval Group, an industrial contractor, is generally bullish on certifications when evaluating prospective hires — to a point. All things being equal, real-world experience will trump a paper certificate, says Lee, who himself has

a number of certifications, including a Project Management Professional (PMP) credential.

“Say you’re an MCSE — you’ve read the book, taken the test and gotten practical experience, but not corporate experience,” he says. “Everything you learn is the best-case scenario, and in the real world, things never set up in the best way.

“Someone with a certifica-

## Top 5 Cert Topics

*What type of certification are you most likely to pursue first?*

### 1. Security

2. Networking

3. Project/process management

4. Systems administration

5. Architecture

Base: 1,435 respondents who plan to pursue an IT certification

tion and no experience shows initiative and that they’re on the right track, but experience wins every time,” he adds.

Certifications have gotten a bad rap in many organizations, Foote says, because some haven’t lived up to expectations, weren’t rigorous enough or were associated with vendors making false promises.

To avoid such issues, Jason Hayman, research director at IT staffing and services firm TEKsystems, warns IT practitioners and hiring managers to be sure that certifications are well known and that the vendors that grant them are well established.

“There’s been a lot of certifications popping up over the years where you go online and, after a few hours or days, take a test and get some sort of certification in programming or architecture,” he explains. “These are the types that businesses are skeptical of now.”

## Most Valuable Training

*What type of training do you find most beneficial to your IT career advancement?*

| Training in specific technologies                | 61% |
|--|-----|
| IT certification training                        | 40% |
| Leadership training                              | 34% |
| Project management training                      | 29% |
| Technology-related undergrad or graduate degrees | 17% |
| Communication skills training                    | 16% |
| Data analytics training                          | 14% |
| Business-related undergrad or graduate degrees   | 11% |

Base: 3,301 respondents; multiple responses allowed.

## Where Certs Can Pay Off

Certifications have a slightly different status in the IT consulting sector, where clients want the credibility when they’re paying for a particular type of expertise. That’s the case at Momentum Consult-

ing, where IT staffers are encouraged to get certifications in technologies from partner companies, including Oracle, Microsoft and Informatica, according to Jose Leyba, director, solution delivery.

“It’s important for customers



to validate the level of expertise of the people we're putting on-site on their projects," he explains. "It's a stamp of approval."

Leyba says it's also important for staffers to bolster their skills in other ways, like participating in forums or speaking on technical panels. "That elevates their street cred," he says.

Leyba himself says he pursues the occasional certification—most recently, for SharePoint—mostly to build credibility among his direct reports, for whom certification is a must.

Joseph Morgan has also had positive experiences with certifications, his most recent being

in IBM's DataPower integration appliance. Since there isn't a wide pool of experts who are knowledgeable about DataPower, Morgan says his certification has opened up a lot of doors.

"It's gotten me into companies that need a DataPower guy, and they're willing to offer a lot more money if I'm certified," says Morgan, manager of Web service integration at KPMG. "With .Net or Java, there are so many people out there, but with DataPower, you can't just download the tool and start learning."

But even in more popular specialties, certain certs are in high demand. Of the 395 cer-

tifications that Foote Partners tracks, those in security, program management and architecture are most in vogue, Foote says. Among the hottest: AWS Certified DevOps Engineers, GIAC Certified Forensics Examiners, Certified Cyber Forensics Professionals and GIAC Certified Penetration Testers; people with those credentials are seeing particularly sharp rises in salaries, says Foote. Other fast-growth certs include Six Sigma Black Belt and Master Black Belt and VMware Certified Advanced Professional.

For his part, George Craft got his last certification in 2009

when he moved into management and began to focus on nontechnical skills. However, he says there may be more technical certifications in his future—for virtualization and the cloud, in particular—if he doesn't decide to retire before he needs them.

"Those will be next up," says Craft. "Certification can help as a manager by providing technical credibility. I feel like it's worth my time and effort." ♦

**Stackpole**, a frequent Computerworld contributor, has reported on business and technology for more than 20 years.

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# Career WATCH



## With STEM Degrees, It's Not the School That Matters

**I**N TERMS OF PAY, it may not matter whether you went to a prestigious, top-tier school, one from the middle tier or a local state universi-

ty. Your compensation may not be much different from that of your peers.

In a new study, researchers looked at STEM (science, technology, engineering and math) salaries 10 years after graduation. It compared the pay of more than 7,000 people and found little difference in wages for STEM graduates. But people who had earned liberal arts degrees, for instance, from top schools did earn more than their counterparts who went to lower-ranked schools.

“We don’t know why we see this difference” in the impact of school ranking on STEM salaries as opposed to some other majors, said Mark H. Showalter, a professor of economics at Brigham Young University, in an interview. He was one of three researchers on the study. The other two were Eric Eide, an economics professor at Brigham Young, and Michael Hilmer, an economics professor at San Diego State University.

It could be the result of standardization in science and engineering curriculums, said Showalter.

It’s important to note that the researchers worked to make this an equivalent comparison of students. They included SAT scores as a measure of capability, as well as family income at graduation and other demographic data.

If you look at just the raw salary data and don’t account for test and income data, then you



## The Fastest-Growing IT Jobs

IT employment rose by 3.1% over the course of 2015, according to an analysis of government data by CompTIA. That was despite a severe shrinking of the IT ranks in the oil and gas industry, where IT employment fell by 4%. For the overall U.S. economy, however, the 2015 IT job growth rate was the highest in more than a decade, according to CompTIA’s analysis.

| RANK/IT OCCUPATION                   | TOTAL NO. OF JOBS | INCREASE |
|--------------------------------------|-------------------|----------|
| 1. Cybersecurity analyst             | 85,200            | 4.8%     |
| 2. Web developer                     | 243,800           | 4.2%     |
| 3. Software developer (applications) | 775,000           | 4%       |
| 4. Software developer (systems)      | 428,000           | 3.8%     |
| 5. Systems analyst                   | 647,000           | 3.8%     |
| 6. Computer user support specialist  | 685,000           | 3.3%     |
| 7. IT manager, CIO                   | 371,000           | 3.1%     |

SOURCE: COMPTIA



will see a difference in wages, said Showalter.

The researchers aren't suggesting students should skip Stanford or Carnegie Mellon and seek out lower-cost, lower-tier schools. But there was little difference in salaries a decade past graduation for STEM graduates from all three school tiers. "The scatter plots look pretty much the same," said Showalter.

This data may support conventional wisdom about the value of employment history over academic achievement, as other surveys that look at the issue have done.

- PATRICK THIBODEAU

**71%**

Percentage of CIOs polled by Robert Half Technology who said skills and experience carry more weight than the prestige of a job applicant's alma mater.

SOURCE: ROBERT HALF TECHNOLOGY SURVEY OF 2,400 CIOs

## 6 Hot IT Skills That Will Get You a Raise

Sharon Florentine of *CIO.com* put together a list of 20 skills that could help you score a big pay increase if you add them to your portfolio. Here are six of them.

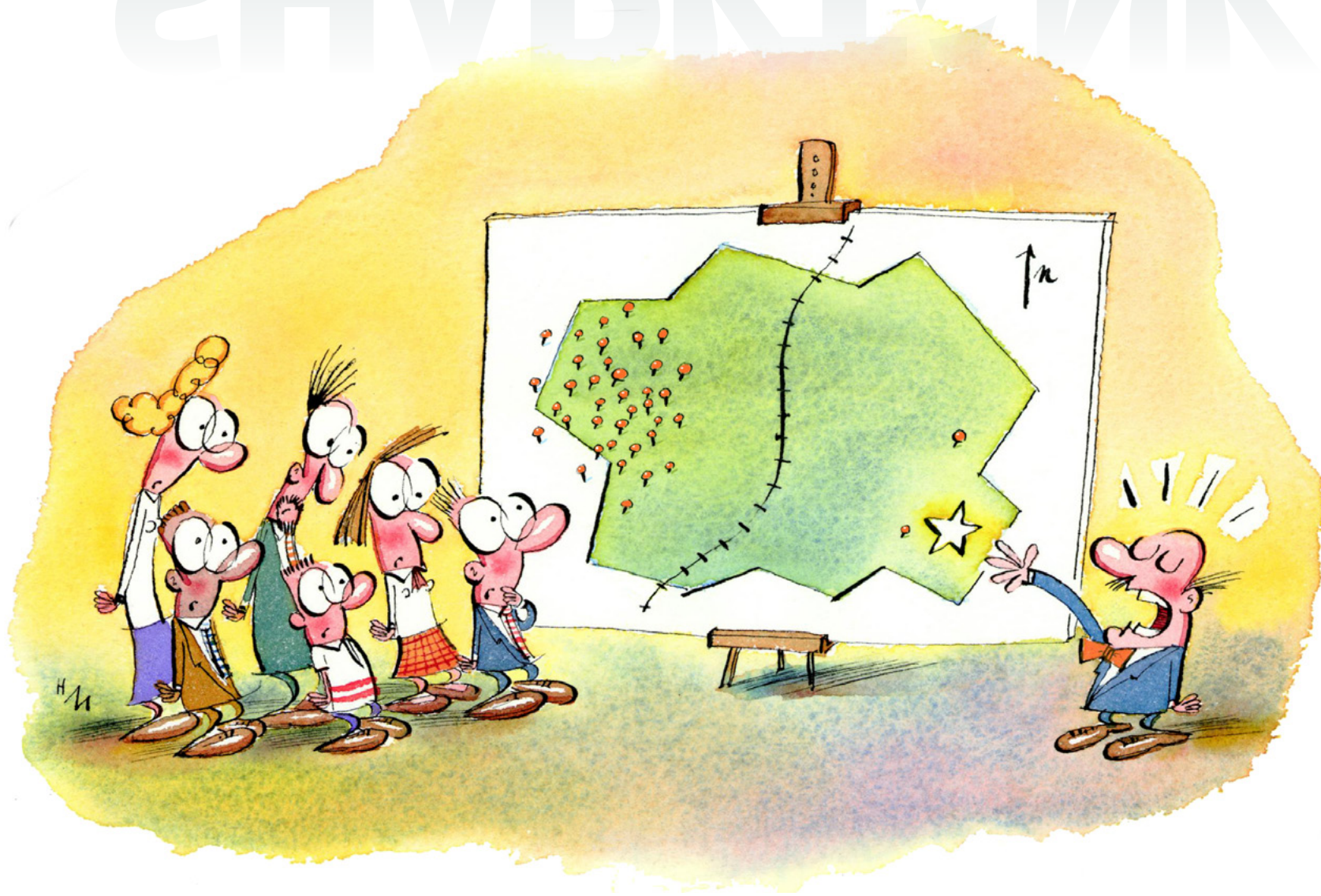
| Title   | Typical jobs, current median salary   | Potential pay increase by adding this skill |
|---|---|---|
| <b>SCALA</b><br>A general-purpose language for building Web services  | Entry-level software developer \$77,400<br>Senior software engineer \$106,700<br>Software architect \$126,900         | <b>24.8%</b>                                |
| <b>ALGORITHM DEVELOPMENT</b><br>A critical skill for software engineers, product and program managers, and anyone who's working on a data-intensive project | Entry-level software developer \$77,400<br>Senior software engineer \$106,700<br>Research scientist \$77,800          | <b>22.1%</b>                                |
| <b>APPLE XCODE</b><br>The integrated development environment used with the Swift programming language   | Junior software engineer \$77,400<br>Senior software engineer \$106,700<br>Mobile application developer \$72,300      | <b>20.1%</b>                                |
| <b>RUBY ON RAILS</b><br>A Web application framework   | Junior software engineer \$77,400<br>Web developer \$57,300<br>Senior software engineer \$106,700                     | <b>19.9%</b>                                |
| <b>NODE.JS</b><br>A server-side JavaScript environment  | Entry-level software developer \$77,400<br>Front-end developer \$67,500<br>Senior software engineer \$106,700         | <b>19.6%</b>                                |
| <b>Objective-C</b><br>An object-oriented programming language used to create Apple software and applications  | Entry-level software engineer \$77,400<br>Mobile application developer \$72,300<br>Senior software engineer \$106,700 | <b>18.3%</b>                                |

SOURCE: Payscale Inc. Median salary data for IT workers. For the full list, click [here](#).



# SHARKTANK

TRUE TALES OF IT LIFE AS TOLD TO SHARKY



## Because the More Data, the Better, Right?

**THIS 300-PERSON TECHNOLOGY COMPANY** has been in the same offices for years, but an influx of high-priced real estate developments nearby means it's time to move. "Management would like to pick a new site that's convenient for the employees' commutes," says a pilot fish on the scene. "To that end, they call a general meeting and trot out a large map of the region. 'We would like all employees at all levels

to come up after the meeting and place a pushpin on the map where they live,' big boss says. 'To start things off, we're putting in pins for ourselves now' – and each executive takes a pin from the box and puts it on the map. The meet-

ing ends, people line up to place pins, and by the time everyone has left the room, the map shows that most people live in one area – and everybody thinks this was a great idea. Months go by, and everyone is guessing where we'll be



# LOG

**Under the law, if someone in the public wants a record, all they have to do is make the request, and if it exists we have to give it to them.**

moving to. Finally, management announces the moving date and the address of our new building. Almost everyone goes back to the map to see where the new address is – only to find that it’s very near the cluster of pins that management inserted on the map.”

## Record Breaker

Small California city gets an information request under the state’s Public Records Act, and it lands in this IT pilot fish’s lap. “Under the law, if someone in the public wants a record, all they have to do is make the

request, and if it exists we have to give it to them,” says fish. “This request is for ‘a copy of the most current IT service contract and all addendums for the city. Any contract regarding the day-to-day management and maintenance will suffice.’ Taken at face value, this is *every* service contract the IT department has ever entered into, whether we still own the software or replaced the hardware two decades ago. Needless to say, we’re sending the request back with notice that either the requested records do not exist, or the

requester must narrow the request and provide detail on what they are looking for. The kicker? The requesting company provides outsourced service and support for IT. We aren’t outsourced, which means they want us to do their research on a model we don’t use and have no plans to use.”

## Not Even Remotely Clear on the Concept

This user’s 64-bit PC has only 4GB of RAM, and she complains that it’s running slowly, according to the pilot fish who gets the trouble ticket. “I get the

OK to order more memory, and check with the user on a good time to install it,” fish says. “She tells me she has a meeting at 9 a.m. I go to the PC at the appointed time and note that it’s still powered on. I jiggle the mouse to light up the screen to start a graceful shutdown – and am greeted by the words *User Logged In Remotely From Conference Room.*” ♦

**LOG IN** and send your true tale of IT life to [sharky@computerworld.com](mailto:sharky@computerworld.com). You’ll score a sharp Shark shirt if I use it.



**PAUL GLEN** is the co-author of *The Geek Leader's Handbook* and a principal of *Leading Geeks*, an education and consulting firm devoted to clarifying the murky world of human emotion for people who gravitate toward concrete thinking. You can contact him at [info@leadinggeeks.com](mailto:info@leadinggeeks.com).

# How to Respond When You Get the Call to Management

**MOST OF US** who choose careers in IT do so because we love the hands-on work. We start on the front lines as developers, DBAs, designers, administrators or support techs. With time, we grow into new roles as our drive and curiosity prompt us to learn — about the technical areas we have chosen, the products and platforms we work on, the new technologies we'd like to work on and the roles we have yet to play in technical organizations and projects.

At some point along this tra-

jectory, we may hear a question whose implications are more profound for our careers and lives than we probably realize: “Do you want to be a manager?”

Those probably won't be the exact words you're asked. (And you may not be asked at all; instead you'll have a “promotion” into management thrust upon you without the opportunity to really think about whether it's something you want.) But however it's put to you, the question can seem innocuous, suggesting that you're being

asked to take on a few new minor responsibilities in addition to your current job: “Can you lead a team of three developers on the next sprint?” “Will you take charge of the next deployment?” “Would you like to manage the late shift on the help desk?”

Your impulse will probably be to say “sure” and then return to what you were doing without giving it a second thought. The reality — you're now on a management path — won't sink in for a long time. And by then,

getting off that path could be much more difficult than getting on it was.

If a question like that comes at you from out of the blue, take some time to consider your answer. It would be even better to start thinking about entering management ahead of time, so you have your thoughts in order by the time somebody asks you. Here are a couple of key questions to consider.

**Do you understand what it means to be a manager?** Most of us want to be recognized for



the work we do and expand our capacities. We want the respect, pay and promotions that we feel should come with our achievements. And we want the opportunities to try on new roles, to move up in the world.

But is management the best way for you, individually, to achieve those things? Do you hold misconceptions about management — that management roles bring you power, when they actually depend on influence, or that having been a technician means you understand what technicians need to be happy and productive? Such misconceptions can lead you to be bad at managing or miserable while trying.

**Are you ready for a career change rather than a promotion?**

Although most people think of moving into management as a natural career progression for strong individual contribu-

tors, nothing could be further from the truth. Being the best developer in your organization doesn't mean that you would make a good manager of developers. In fact, the reasons that you are such a good developer — a love of solitary work, of finding clear solutions to well-defined problems or of getting rapid and unambiguous feedback on how well you're doing — may lead you to hate being a manager. And you have to realize that if you do well in a management role, you will have to give up much of what you now love about your job. You won't be able to maintain your technical chops and develop new managerial ones at the same time. You'll have to choose one or the other.

Supposing that you have thought about those two questions and have decided that management will be a good fit,

you will want to ask these two additional questions before accepting that offer to lead the next deployment.

**What support will be available for me as I learn to lead?** You're going to need help understanding your new role, and you'll need someone safe to talk to who shares your concerns and can offer advice. New managers often feel challenged but are afraid to ask for help for fear of looking incompetent. They also may feel frightened and alone.

**How can we arrange things so that, if I decide that being a manager isn't right for me, I can go back to a technical role without it**

**looking like I've been demoted?**

Engineers who enter a management track can feel stuck. They want to go back to what they love doing, but the only way they can see doing that without losing face is to leave the company. Chart a path back if you like the organization you're in — and want to stay in it if management isn't for you.

If you spend a little time thinking about whether you'd like to become a manager, you're more likely to have a good experience when the opportunity appears rather than struggling when you need your clarity most. ♦

**If you're asked out of the blue whether you want to be a manager, you need to take some time to consider your answer.**