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The IT Skills Shortage

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How serious is the IT skills shortage? According to a recent report by the U.S. Department of Commerce it is very serious. The report, entitled "The Digital Workforce," was released at the end of June 1999. And, according to the figures, things look grim for those looking to employ IT folks; but bright for the IT savvy.

Those of us in the IT industry are well aware of the state of affairs. It is difficult to find and retain quality, qualified professionals. The rate at which computers, software, and networks have been adopted has resulted in a very high tech, complex infrastructure that needs to be supported. However, not enough new, skilled workers are available to implement, manage, and administer those systems.

According to the government study, the average annual growth rate for computer scientists, systems analysts and computer engineers will exceed 100% by the year 2006. More than 1.3 million new IT professionals will be required to fill the need. This includes new job openings and replacing workers who exit the IT industry.

There is indeed opportunity for students who wish to pursue computer technology as a career. The study indicates a small, recent increase in the number students earning computer science degrees. From 1995 to 1998, students enrolled in bachelor degree

programs rose 108%; for masters degree programs the increase was 106%; PhD programs, 71%. However, there are not enough students enrolled in universities today to fill the demand for IT jobs into the immediate future. Whether this is because folks are scared of technology, view technology as for "nerds," or simply that growth has been too torrid to supply the demanded personnel, IT management needs to understand and address the issue.

The report also indicates that IT was responsible for more than a third of the growth in the U.S. economy between 1995 and 1997. Technology is driving the Internet and is imperative for the data warehousing, customer relationship management, and knowledge management initiatives underway in most organizations. So IT will continue to drive the economy.

As such, the need for more IT jobs will continue to grow. But coupled with the need for more IT professionals, is the need for the

right mix of IT professionals. Managing your IT infrastructure is not getting easier, it is getting more complex. We are co-mingling more and more different types of technologies than ever before. For example, most organizations have between three and ten different database management systems installed and operational. And each DBMS is different, requiring different skills and knowledge to maintain. And the DBMS is but one part of the IT infrastructure. The IT infrastructure consists of all the things required to enable the IT shop to function. This includes your applications, databases, desktops, networks, and servers. It is both hardware and software. Implementing, managing, and maintaining a complex IT infrastructure spread throughout the globe is a daunting task.

The Commerce report hints at this complexity. It acknowledges that the skills, knowledge, and techniques need to perform IT tasks varies position to position, making it difficult to find, hire, and retain the right employees with the

right mix of skills. A DBA must know different things than a programmer, who in turn needs different skills than a network engineer. Even within an IT job position the skills mix will differ. Is a mainframe programmer with COBOL, JCL, and CICS experience interchangeable with an E-commerce programmer with XML, HTML, and Java skills? I think not.

Automation

One of the ways to help mitigate this problem is through automation. As IT professionals we have not automated our jobs as much as we have automated other areas of the organization. Through tools such as proactive performance management systems, graphical management consoles, and visual development toolkits, the job of developing, maintaining, and administering complex systems can be made easier.

Instead of waiting for problems and then having to memorize (or look up) arcane and complicated commands, automated tools can search for problems and help to correct them before they become bigger problems. The earlier performance problems are detected, the easier they are to solve with minimum impact to system availability.

Furthermore, management and development consoles make it easier to develop using graphical interfaces, shared code, and run time debuggers.

The wise IT shop will have a full battery of development and management tools to make their IT staff more efficient. An efficient staff can help to minimize the problems that will be created by a less than full staff.

Synopsis

As IT tasks get more complex and IT professionals are harder to employ and retain, more and more IT duties should be

automated using the computer. If computerized methods can be used to help run IT, the amount of time, effort, and human error associated with managing the IT infrastructure will decrease. Of course, this will not solve the IT skills shortage, but it might help to make it easier to bear.

NOTE

This U.S. Department of Commerce report referenced in this article can be viewed at http://www.ta.doc.gov/reports/itsw/Digital.pdf

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