A TALE *of* TECH CITIES

A major study ranks the Potomac region as the second-strongest tech economy in America.

With experts now dangling evidence that certain segments of the economy are poised for a much-needed rebound, Northern Virginia's high-tech industry appears well-positioned to emerge as a leader in the anticipated economic recovery of the nation's technology sectors, according to an exhaustive study undertaken recently by Washington, D.C.-based American Electronics Association (AeA).

Issued six years after Northern Virginia/Washington initially surpassed Silicon Valley as one of the top U.S. regional tech strongholds, AeA's report has declared D.C. the nation's second-strongest "cybercity," defined by AeA as a metropolitan area with high concentrations of technology-related employers. Specifically, the metropolitan Washington area now trails only the far more populous New York City in economic factors, such as recent job growth. (See sidebar, page 10.)

In fact, the Potomac region fared extremely well in almost every aspect of the AeA report, "Cybercities 2008: An Overview of the High Tech Industry in the Nation's Top 60 Cities." For instance, the area now boasts not only the most educated,

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Photographs by David Kidd

AeA Findings

Virginia ranks **fifth** in AeA's list of largest cyberstates.

Washington ranks **first** in terms of computer systems design employment, second in R&D and testing labs, and third in internet services.

Washington added **7,500** jobs between 2001 and 2006, the most in the nation. In 2006 the Washington area added **6,100** jobs.

Washington reports that **132** out of every 1,000 workers is employed in the high-tech sector.

Washington is home to about **14,400** technology establishments.

Software services firms employ **half** of the area's IT workforce.

Washington's high-tech workers make **$92,700** compared to the national average of $55,000.

AeA uses the following criteria to assess cybercity size: high-tech employment, wages, establishments, payroll, wage differential and concentration of employment.

but also the most qualified of the nation's technical workforces. Thus, IT companies here are setting records in terms of compensating these highly skilled individuals. Local IT workers pull down an average of $92,000 per year, or about 67 percent more than their counterparts in other regions. Furthermore, at about three percent, local tech-related unemployment rates are almost nil.

While AeA's findings were overwhelmingly optimistic for the local tech economy, many point out that there are challenges tied to the local triumphs AeA heralds. For instance, some experts and industry executives are quick to acknowledge that there is now a notable shortage of qualified workers needed to fill the plethora of opportunities that beckon IT workers to the area. Further, many of these same voices cite the need for stronger ties between government and private sector endeavors, if the Washington area is to live up to its full potential in the near future.

"Our area should be viewed as a leader in terms of emerging technology. Therefore, one of our missions is to help this region become an innovation and commercialization force that compares favorably with other regions around the country, or even around the globe," said Roger London, a program director at Chesapeake Crescent Innovation Alliance, a consortium of universities that have banded together to promote entrepreneurial IT endeavors and research-based inventions that can be shepherded to the marketplace.

For the Potomac Region to become a hub for innovative and emerging technology—while remaining an enclave for government-related IT business—local companies must have access to the human capital necessary to spur technical progress.

For some, this access to skilled IT workers has not proved problematic. "The influx of talent from the multitude of major universities in and around the D.C.-metropolitan area, combined with the investment and influence of the federal government, amounts to an amazing confluence that enables business growth in our area. We have found no shortage of excellent software engineers in the D.C. area," noted Brent Gendleman, CEO of 5 AM Solutions, a Reston-based software solutions company.

Just as the lure of steady government-related work has swelled the base of qualified IT workers in the area, the opportunities for those workers have also skyrocketed. Together, those dynamics can make it difficult for some companies to scout talent, said Jim Phillips, area executive for Computer Aid, Inc.

"Our biggest challenge in the D.C. Metro geography is finding qualified people to fill the growing number of IT requirements. With low unemployment in regards to IT skills and a growing demand for workers, we have to find creative ways to identify and relocate skills to the D.C. Metro area to perform the service our customers need," Phillips said.

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Herndon-based managed services company BlackMesh, Inc. experienced similar difficulties, despite the abundant IT talent lured to D.C. "Washington has big companies with deep pockets, large government agencies, national associations and nonprofits. Because of the wide spectrum of companies, you will find an equally vast range of technology problems and employee skill sets," said CEO Eric Mandel.

Likewise, companies will also find a vast array of competition in landing IT talent. "Large government agencies are working with large budgets and large data sets," said Mandel. Couple the personnel needs of government agencies with the wealth of government contractors situated in the area, and the battle for employees becomes fierce. "When we were looking to hire new employees at the beginning of the year, it was very difficult to find good technical people to hire," Mandel continued.

Michael Gordon, founder and president of Fairfax-based consulting firm CC Pace, agreed. "It used to be that the federal government did not pay its IT people well, but that is no longer the case. From a salary and competitive position, the federal government, whether through direct hires or federal contractors, is now paying market-competitive salaries. That salary increase is causing a job shortage here."

While BlackMesh, CC Pace, CAI and others often must scurry to find creative ways to attract and retain skilled workers, some companies are facing corporate peril, should technical positions go unfilled. It's a problem that may be getting worse, noted Lloyd Griffiths, dean of George Mason University's Volgenau School of Information Technology and Engineering.

"My major concern is that we are not producing enough technically trained graduates to fill the strong demand that exists in our region. As a result, companies are often hampered in their ability to meet the demands of the federal contracts they have received. The primary issue is one of pipeline. Today, young people are less inclined to study mathematics and science in grades K-12 and are thereby locking themselves out of technical degrees in engineering and software. That is, of course, a national problem, but it is more severe in our region due to the high demand," Griffiths said.

While Griffiths makes the case that the problem may well be increasing among younger members of the IT workforce, others like CC Pace's Gordon note current difficulties in efforts to recruit executive-level or IT leadership candidates. "What we have found, and what most people will

DAVID KIDD

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Diversify and Survive

While some Washington-area companies are working toward a blend of government and private-sector opportunities, CC Pace Systems, Inc. is also maximizing its efforts across private sector verticals to stay healthy in these lean economic times.

"We have a large financial services practice that has clearly been hurt by the downturn in the market space. To counterbalance that, we have put our efforts into a new method for developing software," said founder and president Michael Gordon.

Specifically, CC Pace is working with several corporate clients to develop applications using the Agile software development method, which puts software programmers side-by-side with corporate business experts in an attempt to generate "production-ready" code in a matter of weeks instead of months.

"Studies have shown that a majority of IT development projects fail. The track record has not been good, and this has caused a rift between developers and business people, who often don't work well together and don't trust one another. By using this method, we help instill trust by making business executives more involved in the development process," Gordon explained.

CC Pace's Agile efforts and other endeavors are kept separate from the company's financial sector business in an effort to stem the tide of trouble now pervading the financial market.

"Any vertical is going to go through its ups and downs. For us, it is important to keep our presence in those markets, even though the markets may not be as strong as they once were," said Gordon.

tell you, is that there is a worker shortage, especially in terms of top IT people. There appear to be exponentially more 'journeymen' types out there, as opposed to those qualified to fill IT leadership positions."

What's more, IT workers presented with a spate of options may feel a sense of empowerment and decide to head in a different direction, added Bob Nelson, CEO of CrossMine, Inc., a network of more than 400 venture capital firms and a slew of local technology companies.

"Some studies have suggested that the number of small businesses is set to grow significantly as workers choose to start their own businesses, rather than work for large companies. In this case, corporations will find that the best way to acquire the talent they need to accomplish their goals will not be from hiring employees, but instead from hiring small companies, some of which may be one-person companies," Nelson noted.

Be it a spate of career options facing a single skilled IT worker or the potential to jumpstart one's own entrepreneurial endeavor, most Washington D.C.-area opportunities can be traced in some fashion to government IT spending.

"In general, it is highly likely that government has been a driving factor for job growth here versus other regions. Government agencies have served as anchor customers for many local companies. Increases in overall government spending and the additional IT funds pouring out of the Defense Department and the Department of Homeland Security have helped many companies in our area," said London at Chesapeake Crescent.

Many area companies are already striving toward government partnerships aimed more at innovation, instead of simple status-quo contracting.

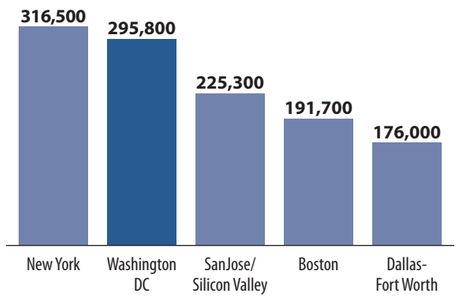
GMU's Griffiths agreed. "The government IT outsourcing process has led to the development of thousands of local companies that are either directly or indirectly funded by the federal government. This work is IT-based and, as a result, requires leading-edge Internet access and software. Recent interest and concerns in the areas of cyber security and identity theft have also driven the development of Internet-based software systems. I anticipate that this trend will continue and that the region will suffer relatively little from the current economic downturn," said Griffiths.

Yet, as the current downturn begins to trend upward, many are beating the drum for more Washington-based companies to branch out from government contracting at least to some degree. "One of our challenges has been to help companies engage government as a partner in innovation. However, over-reliance on government or being joined at the hip with government doesn't promote entrepreneurship or a culture of healthy risk," warned Chesapeake Crescent's London.

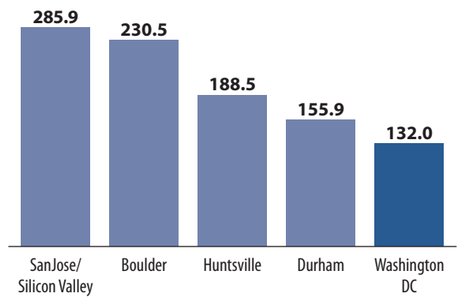
Indeed, many area companies are already striving toward government partnerships aimed more at innovation, instead of simple status-quo contracting. Consider the fact that the Washington area for some time has been home to a significant number of venture capital (VC) firms that regularly seed formidable IT and biotechnology endeavors. What's more, the Washington Metro region now has the largest workforce dedicated to both computer systems design and to engineering services, according to the AeA report.

Specifically, AeA reports the following: "Washington, D.C., led by employment in the computer systems design sector with 137,100 workers in 2006, nearly three times as many as third-ranked San Jose/Silicon Valley. It also led in engineering services sector with 44,400 workers."

Employment



Tech Worker Concentration (per 1,000)

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Certainly, much of the initial strength in these two sectors can be attributed to stable government IT spending. Washington's strides in computer systems design and engineering services also grew out of the efforts of some formidable Internet giants, many of which spawned businesses in the D.C. area and then either moved or merged, according to one of AeA's report authors, Matthew Kazmierczak, vice president of Research and Industry Analysis.

Kazmierczak referenced America Online, several large telecommunications companies and former Internet services behemoth UUNET, now part of Verizon, as major contributors to Northern Virginia's healthy systems design and engineering sectors. "Many of the companies now thriving here grew out of the Internet bubble or the pre-heyday era. They transformed the industry by becoming their own cluster of expert software services companies," he said.

Yet, despite Washington's gains from the Internet spike in the late 1990s, government has always proved the 800-pound gorilla in terms of shaping the local economy. Finally, that fact might begin to change. "Going forward, the local tech economy will not be anchored by government, though it will still certainly benefit from government dollars. For instance, the number of government integrators here will still grow and expand, while other companies will benefit from being located near the Defense Department," Kazmierczak offered.

Chesapeake Crescent is doing its part to urge Washington region-based businesses to make the most of those government anchors but to sail whenever possible into new waters. In some instances, that is already happening, said London. "We have a foothold on security technologies. We are also seeing a real foothold being established in the area of life sciences. Also, we are seeing more of an effort to build out more supercomputing efforts, as well as some IT initiatives that stake a claim to the energy sector," he added.

While Washington will always be synonymous with government at least on some level, the key is to push past old ways, offered CrossMine's Nelson. "We are now in a position to turn the Washington region into one of the great high-tech centers in the U.S. and in the world, if we can only stimulate greater cross-pollination between government, university and corporate researchers, and translate their work into new ventures," he said. **nvtc**

Jobs Increase

	2001		2006
New York	384,700	▼	316,500
Washington DC	288,300	▲	295,800
San Jose/Silicon Valley	309,700	▼	225,300
Boston	233,200	▼	191,700
Dallas-Fort Worth	228,100	▼	176,000
Los Angeles	189,100	▼	172,200
Chicago	207,800	▼	164,000
Philadelphia	134,500	▼	132,200
Seattle	129,400	▼	127,700
Atlanta	148,200	▼	126,700

Washington Metro was the only region in the top 10 to experience a net increase in tech jobs from 2001-06