Information Technology

2000 *Salary Survey*

Information Technology

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Blazing a Clear Path Through the World of Technology

Growth continues at a rapid pace.

With the rapid evolution of technology, new job opportunities abound. The only apparent limit is one's training and expertise. To remain marketable, you must have an awareness of not only where the IT industry is today, but where it's headed. That's where our 2000 Salary Survey proves to be an invaluable resource. By identifying industry trends, reporting median salaries, and sharing various employment strategies, **kforce.com** provides a panoramic view of the IT industry – enabling you to choose the best career path.

Recall the song by Timbuk3, "Future's so bright, I gotta wear shades"? This is true for many IT professionals. The reason: computer professionals, including programmers and system designers, are in short supply. International Data Corporation (IDC) estimates that nearly 800,000 IT positions are open in the U.S. alone – roughly 20% of the total IT workforce. Furthermore, the Bureau of Labor Statistics predicts that 5.6 million people will be needed to fill IT positions by 2006. Overall, these factors have resulted in rapidly rising salaries. In an effort to attract and retain the best talent, salaries for IT professionals are rising 5% to 10% annually.

A *brisk stroll through the* IT *marketplace.*

Today, organizations in virtually all walks of business are becoming more dependent upon technology as they position themselves in the new millennium. Here's an overview of the major trends shaping the landscape of information technology.

Computer industry. With so many technological advances and the rapid pace of change, it's difficult to know where to start. One of the most dynamic trends is the explosion of the Internet. In fact, Forrester Research forecasts web-related business activities to grow to $32.7 billion by 2002. According to IDC, Internet users are projected to approach 400 million by 2002. Moreover, the number of websites continues to increase almost daily – soaring well beyond the 3 million mark. In response, the number of Internet servers has also grown dramatically. One factor driving this trend is the introduction of the sub-$1000 PC. Today, PC penetration in the U.S. hovers around 50% and accounts for more than half of the world's total Internet users, according to Dataquest. In the U.S., however, less than one-third of the population is connected – leaving plenty of room for growth. What's more, businesses have discovered Internet technologies as an inexpensive and powerful alternative to other forms of communication. Therefore, many have developed websites and intranets to integrate their company's disparate computers, software and databases into a single system – enabling employees, customers, suppliers and vendors to easily access information. A final note: one particularly strong area of Internet growth is full-streaming video.

e-Commerce. With the Internet growing at a rate of 500,000 users per month, Forrester Research predicts that business transacted over the Internet will reach more than $3.2 trillion by 2003. Companies taking advantage of e-commerce are seeking to streamline their sales operations by eliminating the middleman. However, security, virus and privacy concerns linger – spawning a new niche of companies specializing in the development of firewall, digital ID and encryption software. With the future promising faster computers and Internet connections as well as consumers and businesses eager to engage in transactions electronically, e-commerce is likely to continue growing and changing for years to come.

Y2K. A frequent topic of conversation, Y2K continues to be a factor after January 1, 2000. Although difficult to quantify, once spending subsides, budgets will be freed up for projects that enhance functionality – including major architecture changes that simply couldn't be started in time to avoid the Y2K issue; enhancements and changes that were postponed due to resource allocation issues; along with new areas of technology needed to remain competitive. However, a similar problem to Y2K still lurks – the Euro problem. Businesses and governments will have until January 1, 2002, to convert various forms of European currency to the Euro. Estimated costs to fix the problem range from $100 billion to $150 billion.

Java percolating. The advent of the Internet, intranets and the web are threatening the current PC software model. Java is heating up and may revolutionize the software industry. Software programs based on Java are called applets, and they can operate on any computer. As to be expected, software developers are forming relationships with organizations to write applet programs for their websites. Moreover, major computer vendors – including IBM, Microsoft and Oracle – have bought licenses to use Java technology. The Gartner Group predicts more than 60% of businesses will use Java by 2001. In addition, Forrester Research anticipates 80% of Fortune 1000 companies will be using Java as the main language for new software applications this year.

Other areas experiencing phenomenal growth are the development of systems management, middleware and ESM software; back-office and front-office automation; as well as systems integration and networking.

Telecommunications. Thanks to deregulation, the telecommunications industry has never been more competitive. One indication: Standard and Poor's forecasts overall growth at 14% for 2000. Over the next few years, companies will spend billions seeking the Holy Grail of broadband technology. According to Lucent Technologies, data traffic is tripling every year and should overtake voice by 2005. As a result, telecommunications companies are racing to develop digital networks that offer the same efficiency and reliability as voice networks.

Bandwidth race. In quest of the fat pipe, telecommunications companies are deploying high-capacity, fiber-optic cable and upgrading networks to packet-based switches. In fact, the total market for packet-based services like frame relay and ATM, according to IDC, is expected to grow to more than $10.5 billion in 2001. Lucent, Nortel, Cisco Systems, 3Com and Newbridge Networks are all chasing after this market – forging alliances and making acquisitions to gain key technologies. (Another example in the news is the planned merger between AOL, the nation's top Internet provider, and Time Warner, the world's top media conglomerate.) Plus, the 1999 Multi-Media Telecommunications Market Review and Forecast projects spending on DWDM, SONET/SDH transport equipment and digital cross-connects to grow to $22.9 billion in 2002. However, many believe the ultimate platform for full-featured multimedia services demanding increased bandwidth rests in the skies above with satellites.

Wireless phenomenon. Declining prices and smaller, more functional handsets are stimulating demand. Nokia estimates worldwide wireless subscribers will hit one billion by year-end 2004. Adding to the boom is PCS. Offering higher capacity, added features, better voice quality and lower battery usage, PCS is driving subscriber growth, not to mention handset manufacturers. On the other hand, 3G (the next technological breakthrough in telecommunications) is roughly four years away in the U.S. – ensuring that PCS phones will be in use for a few years to come. In addition, wireless local loop (WLL) systems are aggressively being pushed in international markets where the backlog for phone lines is so great that traditional wireline services can't be installed fast enough to meet demand. Allied Business Intelligence believes WLL systems will have between 197 million and 266 million subscribers by 2006, with developing nations representing 84% of the total marketplace.

Helping you seize new opportunities.

With the tight labor market and increased demand for high-quality talent, a growing number of IT professionals are choosing to work through IT staffing companies like **kforce.com**. We can find people assignments on a contract or full-time basis, or as a member of our kforce Consulting team. Our candidates interested in full-time employment benefit from our relentless pursuit of the best opportunities within world-class operations. Consultants, on the other hand, have more flexibility in choosing assignments, and may be paid on an hourly or salaried basis. We can provide our consultants greater opportunities, especially if they have unique skills that aren't always within a company's core competency. As a member of our kforce Consulting team, you work as part of a specialty project team strategically created to meet milestones and produce deliverables. Furthermore, our company's commitment to technology equips us to actively market you locally, regionally or nationally. And with our unparalleled marketing, recruiting and corporate network connections, we match your qualifications with key opportunities – instantly.

Going by the Numbers

How we gathered our data.

The 2000 Salary Survey data is based on an analysis of the current salaries of professionals from the **kforce.com** national database and our experienced recruiting specialists in the field. National and local salaries are established by positions, titles and levels of responsibility from both public and private companies. Furthermore, we used median salaries to keep our survey unaffected by extremes. In charting the difference between regional and national median salary levels, we averaged all the salaries within each industry group and compared them against the reported national median salaries within the same area.

Systems Development

West Coast	Rocky Mountains	Southwest	Midwest	Southeast	Northeast	U.S. Average	Canada
63.1	62.9	61.0	52.3	55.0	59.0	56.2	52.8

Internet

West Coast	Rocky Mountains	Southwest	Midwest	Southeast	Northeast	U.S. Average	Canada
67.9	65.3	63.0	55.0	60.0	65.0	60.9	62.3

Business Systems

West Coast	Rocky Mountains	Southwest	Midwest	Southeast	Northeast	U.S. Average	Canada
73.5	69.7	68.1	61.7	67.7	70.5	67.0	57.3

Management

West Coast	Rocky Mountains	Southwest	Midwest	Southeast	Northeast	U.S. Average	Canada
104.7	94.2	92.6	80.4	85.0	90.2	90.0	96.9

Specialists

West Coast	Rocky Mountains	Southwest	Midwest	Southeast	Northeast	U.S. Average	Canada
73.1	67.6	67.9	61.0	60.7	66.1	65.0	60.0

Technical Sales

West Coast	Rocky Mountains	Southwest	Midwest	Southeast	Northeast	U.S. Average	Canada
88.9	72.8	82.5	76.0	78.8	75.3	79.6	54.5

Computer Ops/Data Center

West Coast	Rocky Mountains	Southwest	Midwest	Southeast	Northeast	U.S. Average	Canada
50.1	45.9	41.2	41.5	42.4	49.0	45.0	39.8

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Local Salary Survey Data
(in thousands)

Systems Development

	Los Angeles/Irvine	Portland	San Diego	San Francisco	San Jose	Seattle	Walnut Creek	Denver	Salt Lake City	Austin/San Antonio	Dallas/Fort Worth	Houston	Tulsa/Oklahoma City	Phoenix	Chicago	Cincinnati
	West Coast							Rockies		Southwest					Midwest	
Object-oriented/GUI Programmer/Analyst																
Junior Level Programmer	48.7	45.6	46.5	50.3	57.2	44.8	43.7	48.7	40.2	44.3	45.1	44.8	38.8	46.7	54.9	42.5
Programmer/Analyst	64.3	58.9	63.7	72.3	83.5	66.7	61.3	68.1	62.1	64.5	67.6	63.1	48.7	66.5	67.4	54.1
Senior Programmer/Analyst	85.6	76.7	84.8	98.4	93.0	81.1	71.7	79.6	73.5	85.6	78.6	73.4	63.3	76.9	74.0	64.6
Software Engineer																
Junior Engineer	53.4	44.0	49.8	53.2	60.4	48.9	44.8	52.1	44.1	49.7	52.1	47.4	39.5	53.4	56.5	44.1
Engineer	68.1	60.1	67.7	71.8	79.6	63.7	62.2	65.4	64.5	66.7	68.4	67.1	56.7	64.6	67.1	58.2
Senior Engineer	86.7	77.2	86.1	102.1	97.5	78.6	83.6	76.8	77.0	86.3	83.1	81.2	73.6	76.4	83.0	66.7
Mainframe																
Junior Level Programmer	48.3	41.3	46.9	49.8	47.8	43.3	44.0	46.9	39.5	45.1	38.9	37.3	35.6	45.3	45.0	41.8
Programmer/Analyst	62.6	52.7	60.6	68.2	57.7	57.8	62.1	61.6	54.7	58.6	57.9	53.5	46.8	60.7	59.9	52.0
Senior Programmer/Analyst	75.8	66.0	75.3	91.1	70.2	67.2	71.9	74.6	67.8	72.3	69.8	67.9	61.3	73.8	66.6	59.0
Midrange																
Junior Level Programmer	45.1	40.8	42.1	51.2	46.9	48.7	43.7	46.3	39.9	46.1	45.5	43.6	41.8	46.0	45.0	39.4
Programmer/Analyst	59.8	48.8	57.3	67.6	56.8	63.8	63.5	63.6	58.7	61.6	59.9	57.8	54.6	64.1	54.1	50.3
Senior Programmer/Analyst	77.2	63.9	73.2	92.6	71.7	76.3	78.9	75.8	73.2	74.7	77.4	72.6	64.2	74.9	70.7	60.9

Internet

	Los Angeles/Irvine	Portland	San Diego	San Francisco	San Jose	Seattle	Walnut Creek	Denver	Salt Lake City	Austin/San Antonio	Dallas/Fort Worth	Houston	Tulsa/Oklahoma City	Phoenix	Chicago	Cincinnati
Internet Project Manager	96.5	84.8	92.8	103.6	98.7	82.6	82.4	87.2	89.3	83.8	92.5	87.6	76.8	85.9	84.4	68.5
Web Developer	73.2	58.8	72.8	99.7	92.1	67.9	93.6	80.1	63.2	57.6	65.0	63.6	61.3	69.8	60.8	52.0
Web Administrator	68.7	50.2	67.9	81.2	64.9	57.3	54.2	68.2	56.1	53.2	62.4	58.6	54.0	59.7	63.0	48.5
Web Programmer	88.6	64.7	89.5	84.5	74.6	60.6	63.4	81.4	59.8	61.1	74.7	71.4	68.3	70.4	65.8	59.1
Web Graphic Designer	55.8	52.5	53.1	68.3	58.7	50.2	48.3	56.6	46.2	46.7	56.6	55.9	51.2	54.1	53.8	52.0
Webmaster	52.3	49.4	50.4	83.6	67.2	58.3	65.0	64.8	65.7	64.7	64.9	62.0	58.7	63.6	73.0	48.3

Business Systems

	Los Angeles/Irvine	Portland	San Diego	San Francisco	San Jose	Seattle	Walnut Creek	Denver	Salt Lake City	Austin/San Antonio	Dallas/Fort Worth	Houston	Tulsa/Oklahoma City	Phoenix	Chicago	Cincinnati
Business Analyst	64.6	65.7	63.7	89.7	73.0	64.5	72.6	63.8	64.4	61.1	62.1	60.8	57.8	64.6	78.3	53.0
Consultant	88.4	73.5	87.4	92.1	80.3	81.4	85.3	78.7	70.6	72.4	74.9	78.6	67.9	77.4	83.2	65.9
Systems Analyst	74.3	70.2	71.6	96.2	75.9	70.2	66.7	71.0	68.8	75.4	72.1	68.4	66.6	68.1	76.1	56.5

Management

	Los Angeles/Irvine	Portland	San Diego	San Francisco	San Jose	Seattle	Walnut Creek	Denver	Salt Lake City	Austin/San Antonio	Dallas/Fort Worth	Houston	Tulsa/Oklahoma City	Phoenix	Chicago	Cincinnati
MIS Director/CIO																
Small/Medium Shop	125.3	100.7	120.7	127.9	120.5	98.5	115.7	132.6	98.5	98.9	120.8	118.6	92.6	134.6	105.9	75.6
Large Shop	167.4	128.5	148.9	172.5	168.9	130.7	126.8	178.6	134.2	142.6	168.9	162.7	119.3	176.2	149.2	125.0
Manager of Business Applications	126.7	102.9	123.2	120.3	117.2	95.2	104.7	92.5	91.0	91.4	95.8	92.5	86.6	96.5	99.3	88.5
Applications Development	128.5	100.3	124.8	102.7	103.8	88.9	93.6	94.7	92.5	89.8	94.9	88.7	84.7	95.1	95.2	87.6
Technical Services Director	107.1	98.5	105.9	109.4	98.9	101.7	95.8	97.5	93.6	90.1	96.7	92.6	90.4	98.5	97.1	77.2
VP/Manager of Systems Engineering	114.8	103.6	113.9	115.2	138.7	105.9	138.2	104.7	97.1	98.8	105.4	99.2	95.1	114.3	125.3	87.6
VP/Manager of Customer Services	104.9	94.0	104.5	108.9	109.5	97.8	109.2	99.8	87.6	85.8	89.9	86.2	79.6	101.3	95.6	84.2
Project Manager	88.7	87.2	85.6	101.4	97.9	88.6	89.9	83.7	82.3	72.6	85.1	82.9	78.9	86.2	91.3	73.4
Project Lead	79.6	75.8	78.9	92.1	93.8	77.7	73.8	71.3	69.8	65.9	73.3	66.7	62.8	73.4	78.6	68.5

Local Salary Survey Data
(in thousands)

	Cleveland/Akron	Columbus	Dayton	Detroit	Grand Rapids	Green Bay/Fox Valley	Indianapolis/Fort Wayne	Kansas City	Milwaukee	Minneapolis/St. Paul	Omaha/Des Moines	St. Louis	Atlanta	Charlotte	Louisville	Miami/South Florida	Orlando	Raleigh/Durham/Greensboro	Tampa
Systems Development							Midwest							Southeast					
Object-oriented/GUI Programmer/Analyst																			
Junior Level Programmer	41.5	43.5	42.8	41.8	39.7	40.5	41.2	44.5	42.0	44.6	43.0	43.5	51.2	46.3	43.0	39.8	40.1	46.5	40.0
Programmer/Analyst	52.5	55.4	53.8	52.0	51.6	51.0	52.0	53.0	53.8	57.2	51.5	57.9	63.4	59.2	57.3	55.2	55.2	60.2	50.0
Senior Programmer/Analyst	60.0	65.5	60.7	62.4	65.7	63.2	58.0	65.0	65.2	71.2	63.5	66.3	76.2	69.1	72.0	65.2	65.3	74.9	60.0
Software Engineer																			
Junior Engineer	45.0	43.4	44.5	44.0	36.3	41.0	40.0	42.0	43.5	45.4	40.5	40.2	47.7	43.9	45.3	40.0	40.2	45.0	45.0
Engineer	56.0	56.1	58.2	53.8	49.4	49.6	54.0	54.0	51.6	54.6	52.5	57.3	61.8	54.5	56.5	55.0	58.0	55.0	55.0
Senior Engineer	67.0	67.0	63.1	67.6	58.1	62.0	59.0	67.0	64.3	65.9	65.5	64.6	79.1	70.0	68.5	65.1	70.0	70.0	65.0
Mainframe																			
Junior Level Programmer	36.5	39.1	37.1	40.2	34.2	39.0	42.0	40.0	40.4	45.1	38.5	39.5	46.4	35.2	45.3	35.2	38.0	35.0	35.0
Programmer/Analyst	48.0	50.5	55.7	49.8	46.3	47.0	54.0	50.0	49.0	57.0	48.5	56.5	57.9	44.7	55.5	50.0	54.0	50.0	45.0
Senior Programmer/Analyst	57.5	61.1	61.3	62.0	57.3	60.5	59.0	61.0	62.3	66.8	59.5	63.2	67.5	58.8	66.3	62.3	62.0	60.0	55.0
Midrange																			
Junior Level Programmer	40.0	39.5	38.9	42.0	37.3	36.0	40.0	38.0	38.0	42.5	36.5	41.3	47.4	35.6	41.8	39.9	38.0	40.0	45.0
Programmer/Analyst	52.0	51.3	45.3	53.0	50.7	45.2	53.5	46.0	47.8	50.4	44.5	54.4	58.6	43.0	52.0	52.3	54.0	50.0	55.0
Senior Programmer/Analyst	63.0	63.6	57.7	64.2	61.5	54.0	65.0	56.0	56.7	65.6	54.5	62.1	74.5	63.4	60.8	65.1	62.0	65.0	60.0
Internet																			
Internet Project Manager	70.0	71.6	64.8	71.4	70.7	70.5	65.0	88.0	72.0	82.3	86.5	85.7	83.8	75.4	67.8	80.0	70.0	90.0	70.3
Web Developer	45.0	54.3	53.8	59.4	58.7	61.0	52.0	56.0	64.0	68.7	54.5	64.1	74.2	70.2	61.0	60.0	55.3	75.0	55.0
Web Administrator	50.0	52.8	44.3	60.4	42.1	52.6	45.0	53.0	54.7	55.3	51.5	62.7	64.1	55.3	58.5	60.0	54.8	65.0	50.2
Web Programmer	60.0	57.2	53.8	58.0	45.1	58.2	50.0	67.0	60.0	65.1	65.5	61.3	62.8	65.8	57.8	60.0	60.2	65.0	60.3
Web Graphic Designer	40.0	48.7	43.8	48.4	34.7	48.8	48.5	56.0	50.7	55.2	54.5	56.7	54.7	57.4	51.5	57.0	45.1	50.0	45.1
Webmaster	50.0	50.3	44.3	57.0	42.1	47.0	45.0	54.5	49.1	50.4	53.0	58.9	58.4	67.8	55.5	60.0	45.0	50.0	60.2
Business Systems																			
Business Analyst	65.0	56.0	58.1	56.2	62.7	56.9	52.0	55.0	58.6	63.3	53.5	57.8	67.7	54.5	65.8	58.0	55.0	65.0	50.4
Consultant	65.0	64.3	66.1	67.0	75.3	60.7	60.0	58.0	63.2	70.7	56.5	68.0	89.6	75.6	71.6	75.0	75.0	85.0	70.0
Systems Analyst	70.0	60.5	57.3	65.4	60.1	62.9	59.1	49.0	64.6	65.6	47.5	68.0	75.3	67.2	71.0	62.0	65.0	75.0	50.2
Management																			
MIS Director/CIO																			
Small/Medium Shop	80.0	80.0	75.3	82.4	73.5	91.6	75.0	76.0	95.0	110.0	74.5	85.3	121.9	83.2	92.5	75.0	75.0	95.0	80.0
Large Shop	150.0	125.8	107.8	124.0	110.3	116.0	105.0	98.0	123.0	155.0	96.5	124.4	178.6	127.0	127.5	125.0	125.0	150.0	100.0
Manager of Business Applications	95.0	89.5	72.2	83.2	78.3	92.4	82.0	74.0	95.0	100.0	72.5	81.8	109.2	95.5	88.2	85.0	72.0	90.0	80.2
Applications Development	95.0	85.4	82.6	81.0	76.3	78.2	75.0	74.0	80.6	90.0	72.5	85.3	102.8	101.0	89.1	85.3	79.8	90.0	80.0
Technical Services Director	85.0	84.8	68.0	84.0	75.7	71.0	75.0	84.0	73.1	82.1	82.5	78.0	95.6	85.0	85.1	75.0	64.9	90.0	75.0
VP/Manager of Systems Engineering	90.0	91.1	84.3	91.0	79.2	82.2	80.0	86.0	84.0	91.5	84.5	90.1	112.8	96.6	80.5	80.0	85.0	90.0	90.3
VP/Manager of Customer Services	80.0	75.2	68.1	80.0	80.1	65.1	85.0	85.0	67.0	79.6	83.5	75.3	89.3	68.0	71.6	75.0	65.0	85.2	80.0
Project Manager	70.0	74.3	68.7	77.0	67.2	73.0	70.0	69.0	75.4	83.5	67.5	74.4	94.1	77.0	71.8	75.3	75.3	80.2	75.0
Project Lead	62.0	70.8	65.3	71.4	65.2	66.2	65.0	61.0	67.9	75.6	59.5	69.0	79.8	68.0	71.4	70.0	62.0	75.0	70.1

	Baltimore	Boston	Hartford	New Hampshire	New York City	Northern New Jersey	Philadelphia/Delaware/Southern NJ	Pittsburgh	Princeton	Upper Fairfield/New Haven, CT	Washington, D.C.	Westchester, NY/Lower Fairfield, CT	Calgary	Edmonton	Halifax	Montreal	Ottawa	Toronto	Vancouver
Systems Development						Northeast										Canada			
Object-oriented/GUI Programmer/Analyst																			
Junior Level Programmer	39.2	51.8	44.2	50.5	50.0	46.6	50.0	42.5	45.5	46.6	53.5	48.0	49.7	48.6	48.0	49.1	51.9	52.0	50.4
Programmer/Analyst	50.3	65.4	60.3	62.1	73.0	61.1	70.0	53.5	66.1	65.1	64.4	69.0	66.9	65.4	64.6	66.1	69.7	70.0	67.6
Senior Programmer/Analyst	70.1	78.7	72.5	68.8	85.0	75.0	73.0	69.4	80.0	77.7	79.2	79.0	69.8	68.2	67.4	68.9	72.7	73.0	70.5
Software Engineer																			
Junior Engineer	40.2	54.5	44.4	53.2	53.3	53.3	50.0	42.3	45.0	46.6	53.0	48.0	47.8	46.7	46.2	47.2	49.8	50.0	48.3
Engineer	55.2	67.3	60.9	65.7	65.5	65.5	65.0	53.0	65.1	65.1	71.5	65.0	62.1	60.7	60.0	61.3	64.7	65.0	62.8
Senior Engineer	70.3	82.4	74.7	82.1	83.5	81.5	70.0	63.0	78.6	80.0	80.0	81.0	66.9	65.4	64.6	66.1	69.7	70.0	67.6
Mainframe																			
Junior Level Programmer	37.2	45.8	41.0	45.6	50.0	44.4	35.0	40.0	44.4	41.0	43.0	44.0	33.4	32.7	32.3	33.0	34.8	35.0	33.8
Programmer/Analyst	45.0	56.3	52.3	54.3	66.0	62.0	45.0	54.2	52.2	55.1	59.0	59.0	43.0	42.0	41.5	42.5	44.8	45.0	43.5
Senior Programmer/Analyst	70.3	70.1	64.1	64.9	80.0	70.0	58.0	62.3	63.8	65.0	81.0	68.0	55.4	54.2	53.5	54.7	57.7	58.0	56.0
Midrange																			
Junior Level Programmer	37.0	45.3	40.4	42.6	50.0	44.4	38.0	40.1	41.1	42.3	48.0	47.5	36.3	35.5	35.1	35.9	37.8	38.0	36.7
Programmer/Analyst	47.3	55.0	55.8	53.2	64.4	57.7	50.0	50.8	50.0	58.0	56.5	61.0	47.8	46.7	46.2	47.2	49.8	50.0	48.3
Senior Programmer/Analyst	70.0	70.2	62.5	69.1	84.7	73.3	70.0	60.6	64.0	67.0	64.0	71.0	66.9	65.4	64.6	66.1	69.7	70.0	67.6
Internet																			
Internet Project Manager	80.2	84.7	85.3	82.3	110.0	110.0	75.0	69.8	92.5	87.0	98.0	89.0	71.7	70.1	69.2	70.8	74.7	75.0	72.4
Web Developer	64.8	65.1	60.6	63.4	90.0	85.0	70.0	59.8	85.0	60.0	55.0	85.0	66.9	65.4	64.6	66.1	69.7	70.0	67.6
Web Administrator	50.2	51.2	62.5	49.9	80.0	75.0	55.0	48.8	74.0	67.0	60.0	64.0	52.6	51.4	50.8	51.9	54.8	55.0	53.1
Web Programmer	65.3	66.7	62.5	64.9	85.0	83.5	75.0	56.2	76.0	65.0	65.0	72.0	71.7	70.1	69.2	70.8	74.7	75.0	72.4
Web Graphic Designer	48.0	64.3	50.1	58.7	74.0	62.3	50.0	53.2	58.0	50.5	59.5	57.0	47.8	46.7	46.2	47.2	49.8	50.0	48.3
Webmaster	52.2	52.8	60.8	49.1	78.5	67.0	60.0	57.2	67.0	70.0	51.2	74.0	57.3	56.0	55.4	56.6	59.7	60.0	57.9
Business Systems																			
Business Analyst	60.0	58.2	57.7	56.2	75.0	72.0	60.0	61.3	66.0	60.4	68.0	65.0	57.3	56.0	55.4	56.6	59.7	60.0	57.9
Consultant	60.0	77.9	75.0	74.4	98.0	94.4	60.0	68.7	78.0	76.8	86.1	83.0	57.3	56.0	55.4	56.6	59.7	60.0	57.9
Systems Analyst	60.0	74.7	66.6	72.1	80.0	75.0	60.0	65.5	70.0	72.5	71.0	74.5	57.3	56.0	55.4	56.6	59.7	60.0	57.9
Management																			
MIS Director/CIO																			
Small/Medium Shop	90.1	84.6	85.5	83.7	92.0	80.0	95.0	79.1	72.0	90.0	125.4	90.0	90.8	88.7	87.7	89.7	94.6	95.0	91.7
Large Shop	110.0	125.9	103.3	123.8	132.0	120.0	150.0	118.0	120.0	125.1	177.9	125.0	143.3	140.1	138.5	141.6	149.3	150.0	144.9
Manager of Business Applications	85.0	95.3	87.7	93.2	115.0	93.0	105.0	82.1	90.0	90.4	104.7	110.0	100.3	98.1	96.9	99.1	104.5	105.0	101.4
Applications Development	85.0	95.1	87.2	92.2	115.0	93.0	105.0	84.4	90.0	90.3	113.3	110.0	100.3	98.1	96.9	99.1	104.5	105.0	101.4
Technical Services Director	85.0	92.4	87.5	90.1	105.0	80.0	95.0	78.3	78.0	90.0	93.0	101.0	90.8	88.7	87.7	89.7	94.6	95.0	91.7
VP/Manager of Systems Engineering	90.2	106.2	92.9	104.3	130.0	101.0	105.0	84.6	90.0	99.5	111.6	119.0	100.3	98.1	96.9	99.1	104.5	105.0	101.4
VP/Manager of Customer Services	85.0	84.7	87.4	83.1	105.0	90.0	105.0	78.0	85.0	89.6	102.1	99.0	100.3	98.1	96.9	99.1	104.5	105.0	101.4
Project Manager	75.3	86.1	75.7	84.5	110.0	97.0	75.0	71.4	85.0	83.6	90.1	99.0	71.7	70.1	69.2	70.8	74.7	75.0	72.4
Project Lead	65.0	71.8	68.8	70.5	95.0	85.0	70.0	68.7	75.0	75.7	79.5	89.0	66.9	65.4	64.6	66.1	69.7	70.0	67.6

Local Salary Survey Data
(in thousands)

	Los Angeles/Irvine	Portland	San Diego	San Francisco	San Jose	Seattle	Walnut Creek	Denver	Salt Lake City	Austin/San Antonio	Dallas/Fort Worth	Houston	Tulsa/Oklahoma City	Phoenix	Chicago	Cincinnati
Specialists	West Coast							Rockies		Southwest					Midwest	
Database Management																
Data Modeler	97.5	71.9	95.9	96.5	117.3	72.6	76.8	68.4	63.9	68.3	73.2	71.3	64.3	68.5	78.0	73.0
Database Analyst	84.7	70.6	82.4	98.6	113.5	73.1	77.9	74.5	67.4	72.2	74.1	72.7	66.7	75.6	78.5	57.5
Database Administrator	87.9	81.0	85.9	97.8	97.6	82.2	90.9	81.9	71.1	74.3	77.7	74.4	69.2	79.9	87.4	72.5
Datawarehousing	97.1	73.8	94.7	114.4	116.6	82.0	111.8	87.3	72.5	68.5	82.5	80.2	71.1	86.7	92.0	68.0
LAN Administrator	62.4	58.9	61.0	70.2	66.3	65.8	56.3	57.6	57.6	53.4	66.9	65.0	55.4	56.9	64.7	52.1
Network Engineer	77.2	68.7	76.1	86.3	84.2	64.9	63.5	68.9	66.8	68.8	72.5	73.6	62.6	69.2	75.8	62.7
WAN Administration																
Voice Analyst	61.2	53.2	56.1	65.7	63.1	55.6	60.2	55.5	55.7	52.5	63.9	60.2	56.8	54.8	61.4	58.5
Data Communications/Analyst	73.1	63.0	68.4	85.6	84.7	64.3	68.7	78.9	65.6	62.4	74.4	62.6	58.0	78.7	69.9	63.1
WAN Administrator	77.5	72.0	75.7	86.1	83.1	67.3	67.4	83.2	63.3	65.0	70.2	69.8	66.5	76.8	78.9	64.2
PC Software Specialist	47.5	45.9	44.9	60.3	58.7	44.9	59.8	43.2	38.8	44.1	46.7	45.5	38.6	44.7	52.3	41.7
Systems Administrator/Manager	86.1	65.0	83.8	85.7	86.1	68.9	74.8	74.9	66.2	67.8	68.7	64.7	58.9	73.4	73.8	63.5
Systems Programmer	77.6	70.0	74.2	93.9	98.2	72.0	84.9	73.6	69.3	72.8	79.6	76.5	70.9	78.3	76.9	63.1
IT Auditing																
IT Auditor	62.1	59.7	61.3	75.6	73.4	60.2	54.7	70.2	54.7	58.0	62.1	60.7	53.9	68.6	54.0	51.5
Senior IT Auditor	74.3	70.0	73.9	87.9	84.1	71.4	66.3	86.9	67.8	68.9	80.7	77.9	68.2	81.2	67.7	61.2
Technical Trainer	77.8	68.3	72.4	73.1	70.7	68.5	65.5	62.3	54.8	58.9	67.3	65.5	56.7	59.9	64.7	46.1
Technical Writer	60.2	47.7	57.8	71.7	76.4	50.9	58.4	55.6	44.6	50.1	56.7	55.8	48.6	47.8	49.7	46.2
Systems Architect	104.3	83.6	98.9	115.1	113.9	79.8	90.0	92.5	71.7	73.8	81.1	80.6	68.8	87.7	96.9	74.2
QA/Test Analyst	68.3	68.9	65.2	68.6	62.5	62.4	57.8	64.8	55.8	54.7	58.9	56.2	51.3	57.6	64.4	47.5
Telecommunications Manager	77.1	70.1	74.1	88.3	86.2	75.7	83.7	76.7	68.7	67.9	73.7	69.1	66.8	78.1	88.3	61.5
Telecommunications Analyst	52.8	47.6	51.1	74.9	71.3	58.9	69.6	63.2	57.2	61.1	66.4	59.8	57.8	67.4	66.4	54.2
ERP Software Integration & Implementation	92.3	89.6	87.9	107.2	95.8	85.9	92.7	95.5	78.5	63.7	82.6	81.2	71.4	89.4	82.7	66.7
Technical Sales																
Account Representative	101.3	76.6	99.7	94.7	85.1	80.3	79.2	73.4	67.7	82.5	103.8	79.9	71.2	79.3	105.3	96.5
Pre/Post Sales Support Representative	87.9	74.2	85.3	88.9	81.2	78.7	72.7	72.1	61.2	59.8	84.2	77.9	58.7	68.9	75.0	67.2
Management	134.2	116.6	128.9	112.8	106.9	115.4	98.4	95.5	92.1	102.9	126.8	105.8	89.5	94.6	142.1	96.3
Computer Operations/Data Center																
Data Center Manager	79.3	72.1	78.3	88.5	89.2	80.6	87.9	79.6	73.6	69.7	79.4	77.3	66.3	83.5	76.1	69.3
Operations Support	52.1	47.7	51.3	55.9	57.5	52.6	50.1	54.4	43.2	41.1	47.3	46.9	38.9	52.1	47.6	35.2
Communications Operator																
Operator	40.2	38.2	38.7	41.7	42.4	42.4	39.8	39.1	36.8	35.6	38.9	37.2	32.5	36.8	45.5	36.2
Senior Operator	51.7	48.3	49.9	52.6	53.8	50.5	47.9	48.6	49.4	42.5	45.9	43.3	38.9	47.3	53.8	47.2
Help Desk Analyst/Customer Service	44.6	41.2	41.2	53.7	45.2	40.7	43.2	38.9	32.0	33.1	39.8	36.3	30.9	41.2	55.2	39.5

	Cleveland/Akron	Columbus	Dayton	Detroit	Grand Rapids	Green Bay/Fox Valley	Indianapolis/Fort Wayne	Kansas City	Milwaukee	Minneapolis/St. Paul	Omaha/Des Moines	St. Louis	Atlanta	Charlotte	Louisville	Miami/South Florida	Orlando	Raleigh/Durham/Greensboro	Tampa
Specialists	Midwest												Southeast						
Database Management																			
Data Modeler	70.0	68.9	71.4	64.0	77.3	69.6	75.0	67.0	72.0	87.7	65.5	73.2	82.8	73.5	75.0	75.0	75.0	84.8	70.2
Database Analyst	65.0	65.4	57.4	66.0	72.7	67.7	70.5	63.0	70.0	78.1	61.5	62.1	77.4	70.1	67.1	60.0	65.0	80.0	65.0
Database Administrator	75.0	76.1	71.3	73.6	75.0	64.5	75.2	64.0	66.5	85.5	62.5	69.6	92.6	83.6	85.5	75.0	84.8	75.2	65.0
Datawarehousing	70.0	75.6	79.8	73.4	67.3	67.0	68.0	66.0	72.1	77.0	64.5	73.2	94.7	81.0	79.4	80.2	85.0	85.0	70.0
LAN Administrator	50.0	54.6	51.7	56.4	42.3	45.4	45.0	43.0	47.0	48.6	41.5	48.1	59.5	49.2	52.3	50.0	45.2	50.0	40.3
Network Engineer	60.0	64.3	64.0	59.8	55.6	56.8	50.0	47.0	58.2	64.8	45.5	60.8	69.2	63.5	61.8	60.0	58.0	65.0	50.0
WAN Administration																			
Voice Analyst	52.5	52.0	42.7	52.0	47.0	57.7	48.6	44.0	50.0	56.4	42.5	55.0	58.4	51.6	67.4	50.3	54.8	55.2	55.0
Data Communications/Analyst	45.0	61.2	59.7	55.0	56.1	60.9	52.0	44.0	83.3	65.0	42.5	57.9	65.8	63.9	68.3	54.9	55.2	55.3	58.1
WAN Administrator	75.0	64.8	65.8	61.6	63.4	62.9	58.0	53.0	65.1	68.0	51.5	62.3	74.6	56.2	60.3	60.2	60.2	60.3	60.0
PC Software Specialist	40.0	39.5	38.8	40.4	37.3	40.7	36.0	43.0	33.2	42.0	41.5	38.5	49.9	35.6	42.3	35.0	32.0	35.0	30.2
Systems Administrator/Manager	50.0	62.4	54.9	58.2	62.1	61.0	55.0	65.0	62.5	65.0	63.5	62.1	68.4	58.9	57.5	70.0	42.0	45.0	65.0
Systems Programmer	65.0	65.2	63.7	62.2	70.7	67.7	65.0	67.0	68.1	68.8	65.5	63.2	75.9	60.7	65.6	65.0	65.0	65.0	60.0
IT Auditing																			
IT Auditor	65.0	50.5	42.1	50.5	43.7	51.6	45.0	58.0	53.0	54.7	56.5	56.9	57.6	46.4	55.0	55.2	45.8	55.0	45.8
Senior IT Auditor	70.0	60.3	54.3	61.3	54.0	58.2	55.0	62.0	60.4	62.2	60.5	66.1	68.6	68.0	60.5	65.0	57.4	65.0	57.4
Technical Trainer	42.0	42.4	42.1	47.3	50.3	49.5	48.0	48.0	52.0	60.6	46.5	46.2	62.6	48.0	50.0	45.3	45.2	55.0	45.0
Technical Writer	45.0	41.6	36.8	42.8	41.7	37.0	42.0	52.0	38.7	45.8	50.5	44.8	50.4	50.1	54.3	47.0	45.1	55.2	45.0
Systems Architect	75.0	76.2	74.3	66.0	76.7	73.2	67.0	69.0	75.0	80.3	67.5	70.2	88.9	72.0	76.8	65.0	65.0	85.0	70.3
QA/Test Analyst	40.0	50.3	49.4	52.8	41.3	46.7	52.0	58.0	48.2	52.7	56.5	55.9	73.7	58.2	53.1	50.3	58.0	70.0	50.0
Telecommunications Manager	70.0	69.3	53.2	65.2	65.2	68.6	65.0	63.0	70.3	71.3	61.5	68.4	88.6	60.0	66.0	60.0	70.0	75.0	70.0
Telecommunications Analyst	60.0	60.1	58.6	56.2	51.7	60.4	53.0	53.0	62.0	63.1	51.5	53.4	67.5	48.0	64.3	50.2	55.3	65.0	60.2
ERP Software Integration & Implementation	75.0	75.7	67.3	66.8	65.7	68.5	70.0	69.0	71.0	80.8	67.5	115.6	96.3	88.2	76.7	80.2	80.2	90.0	75.3
Technical Sales																			
Account Representative	55.0	87.0	87.0	79.6	94.2	75.0	75.0	67.0	77.0	89.9	65.5	94.2	105.4	70.0	71.4	70.1	85.0	85.0	78.8
Pre/Post Sales Support Representative	46.0	60.9	57.1	57.8	74.2	54.4	70.0	54.0	57.0	85.4	52.5	79.1	86.4	55.3	82.5	65.0	64.9	70.0	54.9
Management	70.0	99.7	98.3	86.0	105.7	78.0	95.0	69.0	82.0	130.4	67.5	102.6	145.1	81.2	106.3	75.2	75.3	84.7	102.3
Computer Operations/Data Center																			
Data Center Manager	90.0	74.3	68.1	69.0	55.0	63.7	55.0	56.0	66.0	83.6	54.5	64.4	103.6	60.0	77.6	65.0	68.2	85.0	60.0
Operations Support	45.0	42.7	41.2	47.8	36.3	35.4	38.5	45.0	37.0	49.9	43.5	41.2	48.2	32.4	45.0	35.0	35.3	45.0	30.1
Communications Operator																			
Operator	36.0	37.2	31.1	36.6	28.7	37.9	27.5	32.0	40.0	46.1	30.5	34.8	47.3	33.2	37.8	32.3	28.0	35.0	38.0
Senior Operator	42.0	45.1	42.0	43.2	32.1	41.8	40.0	34.5	44.1	55.2	33.0	45.1	56.6	40.0	43.6	37.0	38.2	40.0	52.0
Help Desk Analyst/Customer Service	40.0	39.4	33.4	36.8	37.5	37.7	40.0	32.0	41.0	46.4	30.5	38.7	49.1	36.4	42.4	35.2	32.0	45.3	25.0

Local Salary Survey Data
(in thousands)

Specialists	Baltimore	Boston	Hartford	New Hampshire	New York City	Northern New Jersey	Philadelphia/Delaware/Southern NJ	Pittsburgh	Princeton	Upper Fairfield/New Haven, CT	Washington, D.C.	Westchester, NY/Lower Fairfield, CT	Calgary	Edmonton	Halifax	Montreal	Ottawa	Toronto	Vancouver
				Northeast												Canada			
Database Management																			
Data Modeler	75.2	65.1	67.2	63.4	90.0	85.0	75.0	78.0	80.0	70.1	63.8	81.0	71.7	70.1	69.2	70.8	74.7	75.0	72.4
Database Analyst	70.3	65.7	67.9	62.7	89.0	76.0	82.0	62.3	72.0	70.1	79.9	80.0	78.3	76.6	75.7	77.4	81.6	82.0	79.2
Database Administrator	80.0	76.1	78.4	74.8	90.0	85.0	75.0	75.0	80.0	85.5	87.0	87.5	71.7	70.1	69.2	70.8	74.7	75.0	72.4
Datawarehousing	70.2	75.9	82.0	73.8	95.0	87.0	80.0	88.5	80.0	85.1	82.0	87.5	76.4	74.7	73.8	75.5	79.6	80.0	77.3
LAN Administrator	50.1	55.1	55.6	52.1	74.0	68.0	50.0	47.0	63.0	58.0	57.6	60.0	47.8	46.7	46.2	47.2	49.8	50.0	48.3
Network Engineer	65.0	72.6	72.2	71.1	80.0	74.0	58.0	60.1	68.0	75.4	71.0	77.0	55.4	54.2	53.5	54.7	57.7	58.0	56.0
WAN Administration																			
Voice Analyst	57.1	51.7	57.8	51.1	71.0	65.0	55.0	55.5	60.0	60.7	67.5	63.0	52.6	51.4	50.8	51.9	54.8	55.0	53.1
Data Communications/Analyst	57.4	62.4	67.3	62.3	71.0	65.0	55.0	64.0	60.0	70.0	85.3	70.0	52.6	51.4	50.8	51.9	54.8	55.0	53.1
WAN Administrator	65.0	61.7	80.8	59.8	87.0	80.0	65.0	61.1	70.0	82.0	63.2	84.0	62.1	60.7	60.0	61.3	64.7	65.0	62.8
PC Software Specialist	42.0	51.3	48.8	49.8	60.0	55.0	38.0	46.3	53.0	50.0	54.0	55.0	36.3	35.5	35.1	35.9	37.8	38.0	36.7
Systems Administrator/Manager	64.9	71.1	70.7	69.6	86.0	80.0	63.0	63.0	73.0	75.0	77.1	77.0	60.2	58.8	58.1	59.5	62.7	63.0	60.8
Systems Programmer	60.2	74.3	68.9	73.4	87.7	74.4	65.0	65.2	64.7	75.0	75.4	79.0	62.1	60.7	60.0	61.3	64.7	65.0	62.8
IT Auditing																			
IT Auditor	46.4	54.1	58.7	53.8	77.0	70.0	60.0	53.0	68.0	60.4	61.0	71.0	57.3	56.0	55.4	56.6	59.7	60.0	57.9
Senior IT Auditor	65.8	64.5	63.3	63.1	82.5	78.0	65.0	63.0	77.0	65.5	69.0	75.0	62.1	60.7	60.0	61.3	64.7	65.0	62.8
Technical Trainer	45.0	52.4	55.5	51.4	70.0	60.0	55.0	45.0	55.0	60.0	55.0	65.0	52.6	51.4	50.8	51.9	54.8	55.0	53.1
Technical Writer	45.0	54.1	55.7	53.2	65.0	59.0	55.0	47.1	52.0	60.0	49.0	62.0	52.6	51.4	50.8	51.9	54.8	55.0	53.1
Systems Architect	70.1	84.5	85.2	81.2	78.0	71.0	75.0	78.8	65.0	88.0	71.7	78.0	71.7	70.1	69.2	70.8	74.7	75.0	72.4
QA/Test Analyst	46.9	64.8	60.5	63.3	70.0	65.0	60.0	54.2	61.0	61.0	63.1	64.0	57.3	56.0	55.4	56.6	59.7	60.0	57.9
Telecommunications Manager	80.0	65.8	68.4	64.4	73.0	63.0	75.0	79.9	61.0	70.0	75.6	75.0	71.7	70.1	69.2	70.8	74.7	75.0	72.4
Telecommunications Analyst	65.0	50.2	58.1	50.1	62.0	55.0	62.0	68.5	54.0	60.0	58.0	60.0	59.2	57.9	57.2	58.5	61.7	62.0	59.9
ERP Software Integration & Implementation	75.3	67.1	80.0	66.3	91.0	78.0	80.0	85.0	73.0	80.0	81.1	84.0	76.4	74.7	73.8	75.5	79.6	80.0	77.3
Technical Sales																			
Account Representative	70.3	97.1	55.0	98.0	74.5	62.5	50.0	88.8	62.5	60.0	85.8	62.0	47.8	46.7	46.2	47.2	49.8	50.0	48.3
Pre/Post Sales Support Representative	57.3	64.9	60.2	64.1	84.0	76.0	57.0	72.7	73.0	66.6	68.7	71.0	54.5	53.2	52.6	53.8	56.7	57.0	55.0
Management	80.2	104.1	80.8	100.4	101.0	92.0	78.0	97.0	85.0	90.0	111.1	93.0	74.5	72.9	72.0	73.6	77.7	78.0	75.3
Computer Operations/Data Center																			
Data Center Manager	79.9	68.6	76.1	66.9	83.0	76.0	90.0	74.0	71.0	79.8	87.8	79.0	86.0	84.1	83.1	84.9	89.6	90.0	86.9
Operations Support	50.0	40.1	42.2	38.8	58.0	52.0	50.0	41.9	50.0	44.4	49.0	50.0	47.8	46.7	46.2	47.2	49.8	50.0	48.3
Communications Operator																			
Operator	40.0	41.2	40.8	40.3	44.0	41.0	35.0	35.7	38.0	42.6	46.6	43.0	33.4	32.7	32.3	33.0	34.8	35.0	33.8
Senior Operator	45.1	57.9	51.5	56.6	54.5	51.0	40.0	45.0	49.0	53.0	58.3	48.0	38.2	37.4	36.9	37.8	39.8	40.0	38.6
Help Desk Analyst/Customer Service	43.2	50.3	42.7	48.9	49.0	44.0	40.0	40.0	40.0	45.0	59.4	46.0	38.6	37.7	36.9	38.5	40.0	42.0	38.8

Systems Development

Object-Oriented/GUI Programmer/Analyst

Oversees all or part of the full life-cycle development process, ranging from user analysis to implementation and support. Development is usually focused upon the front-end of the applications within client/server or distributed systems. Requires Visual Basic, Lotus Notes, Java, Delphi, PowerBuilder, Visual C++, C++/MFC, SQL and ODBC knowledge.

Software Engineer

Directs all or part of the full life-cycle development process. Development is usually focused upon analyzing business, engineering or scientific problems, and developing well-defined procedures and programs to deliver practical systems solutions. Solutions could also include PLDs or embedded systems. Requires C/C++ in Unix or Windows or Assembly language.

Mainframe Programmer/Analyst

Responsible for all or part of the full life-cycle development process with an emphasis on supporting existing applications, modifying them to support current needs and effecting the changes necessary as the needs of the business units change. Usually involves high-volume and large-scale batch or online processing. Expertise with COBOL (multiple versions), CICS, embedded SQL (linking with DB2 or IMS), PL/1 and Assembly Language within an MVS, VMS or other mainframe environment.

Midrange Programmer/Analyst

Similar to above position, but requires expertise with RPG, COBOL, Synon or other 4GL, in an AS/400 environment. Could also include C/C++ or other language within an IBM R6000/AIX, DecAlpha/Unix on midrange systems.

Internet

Internet Manager/Project Manager

Supervises the ongoing analysis, design, development, implementation and support of an Internet or e-commerce system. Works with the management team developing and executing the company's Internet strategy, plus works with the company marketing and customer service divisions. Must have knowledge of project management, web technologies, marketing and advertising, including expertise in leading systems-related projects.

Web Developer

Analyzes, designs, develops, implements and supports web applications and functionality. Supports the presentation and marketing-related features on a website, as opposed to business/e-commerce applications. Works with HTML, JavaScript, VBScript, Perl, PhotoShop and Flash, with knowledge of multimedia and CGI principles. Depending on specialization, web developers may work in a front-end or back-end environment.

Web Administrator

Maintains the link between the ISP and the web server. Oversees website performance and functionality. Involved in maintaining the connectivity between the Internet and a company's LAN/WAN, e-mail/Intranet/Internet operations, firewalls and overall site security.

Internet/Intranet Programmer/Analyst

Analyzes, designs, implements and supports web-related applications in support of the company's Internet/Intranet strategy. Maintains e-commerce or business-related applications. Experience with Java, ASP, C/C++, Cold Fusion, ActiveX, Visual Basic and HTML/DHTML, and an understanding of COM/DCOM, CORBA and linking back-end databases.

Web Graphic Designer

Develops graphical content and other multimedia aspects. Maintains more of a marketing focus than applications development. Uses Photoshop, Flash and other multimedia applications.

Webmaster

Handles overall web development, administration and management. Works with C, HTML, Python Scripting, Perl, plus database interfacing, object-oriented programming, Java applets and multimedia applications.

Business Systems

Business Analyst

Works with management and users to analyze, design, implement and/or support business applications and systems. Develops detailed, functional system and program specifications using structured design methodologies and CASE tools. Strengths usually revolve around communication, organization and cross-functional knowledge.

IT Consultant

Facilitates organizational change while providing expertise on technical, functional and/or business topics during the development or implementation of automated systems. Performs business requirements analysis, recommends selection of software, develops proposals for consulting services and manages the execution of projects at client sites. Self-directed and focused on a goal or end-state as opposed to specific tasks.

Systems Analyst

Specifies computer system requirements for the solution of moderate to difficult business problems, or for portions of more complex problems and formulates procedures for their solutions. Responsible for "owning" certain business systems and applications.

Management

MIS Director/CIO

Directs the information and data integrity of the enterprise and its groups for all information service functions. Oversees data centers, technical service centers, production scheduling, help desks, communication networks (voice and data) and computer systems operations. Maintains all electronic and optical books, reviewing computerized and manual systems; information processing equipment and software for acquisition, storage and retrieval; and the strategic direction of all information processing and communication systems and operations. Guides all computer and communication activities within the company, providing a leadership role in the day-to-day operations of the Information Services functions. Provides needed direction as the enterprise expands.

Manager of Business Applications

Directs overall planning, execution and management of multiple projects and/or project managers enterprise-wide. Works with CIO and senior management to determine systems development strategies and standards. Usually administers department budgets to attain the systems group's overall business objectives.

Applications Development Manager

Manages all applications that support the administrative or operational functions of the company or applications needed to serve customers effectively. Involved in the direct management of project or team leaders, database groups and user support areas. Works with operations or data center manager.

Technical Services Director

Plans and oversees the research, evaluation and integration of new technology, systems development, methodologies, data administration, capacity planning, training and technical support. Focused on strategic endeavors as opposed to current operations.

VP/Manager of Systems Engineering

Directs the development of systems within Information Systems on mainframe, midrange and PC systems. Systems development includes the configuration of data, security, resource monitoring and reporting, plus the development of specialized programs.

VP/Manager of Customer Services

Manages pre-sales and post-sales support, the help line and documentation in a software vendor environment. For large packages, manages customization of the core product for specific customers.

Project Manager

Responsible for achieving the goals and milestones associated with all applications or systems projects. Oversees the analysis, design, execution and support of all assigned projects, including resource planning, team selection, performance appraisals and budgets.

Project Leader

Coordinates resources, project schedules and communications for systems development projects. Requires being managerially and technically responsible for all assigned projects and expertise in both areas. Performs both systems analysis and programming responsibilities, as well as technical assistance and leadership. Serves as contact with user groups, project or systems manager.

Specialists

Database Analyst or Data Modeler

Uses data modeling techniques and tools in analyzing and specifying data usage within an application area and creates queries and reports for specific business areas. In a client/server development environment, responsibilities include back-end development, ensuring that all front-end development efforts correlate with the appropriate tables and fields. Also defines logical views and physical data structures.

Database Administrator

Administers and controls an organization's data resources, including multiple relational databases and servers. Performs physical and logical database design, works with system administrators and uses data dictionary software packages to ensure data integrity and security, recovers corrupted data and eliminates data redundancy. Uses tuning tools to improve database performance. Expertise with Oracle, Sybase, MS SQLServer, or other relational databases. Works with the applications development team(s), focusing on the back-end portion and interaction.

Data Warehousing Specialist

Focuses upon designing and developing enterprise-wide repositories for all corporate data tools, e.g. Oracle, Sybase, other database systems or other specialized decision support or expert systems. Interfaces all current and legacy data and uses queries and reporting tools to support corporate business units or external customers.

LAN Administrator

Installs and maintains local area network hardware and software. Adds new users, troubleshoots network usage and peripheral issues, supports Help Desk analysts, resolves LAN connectivity issues and maintains LAN and Internet connections. Expertise with Novell, Windows NT or other less common or older packages.

Network Engineer

Analyzes business needs plus designs, implements and supports network solutions on one or multiple platforms via LAN or WAN architecture. Operates at a higher level than administrators due to their expertise in creating network and enterprise-wide solutions. Manages team of technicians and administrators, and are the last level of support for troubleshooting network usage and equipment issues. Certifications include Novell CNE or MCSE.

Voice Analyst

Designs voice networks, integrates telephony hardware and network services. Supports systems development in telephony-intensive applications, such as IVR and call centers. Experience in traffic engineering and carrier management and understanding of network hardware, plus familiarity with PBX and ACD systems planning.

Data Communications Analyst

Aids in the design, installation, maintenance and troubleshooting of data networks. Common environments include T-1's, TCP/IP, fiber optics, SNA or frame relay. Assists users with connectivity problems, analyzes data flow, configures modems, DSUs, multiplexers and routers. Similar to administrators, but more focused upon the flow of data.

WAN Administrator/Engineer

Analyzes, designs, implements and supports wide-area networks. Responsible for providing WAN transport services, performing analysis and diagnostics, configuring network hardware – routers, hubs and multiplexers. Must be familiar with WAN routing protocols such as SLIP, X.25 or various others.

PC Software Specialist

Works with PC applications such as word processors, spreadsheets, database management systems, e-mail and other desktop applications. Evaluates, installs and supports PCs and various printers, graphics and storage peripherals, and trains new users. Supports Help Desk environment fielding desktop application questions.

Systems Administrator/Manager

Manages all applications and functions associated with UNIX-based servers, mainframe or mid-range systems, or other similar systems. Duties include installing and maintaining operating systems, database management systems, compilers and utilities. Monitors and tunes systems software, peripherals and networks. Also installs new users, creates batch administration scripts and runs system backups and disaster recovery operations.

Systems Programmer

Installs and maintains operating systems, communications software, database management software, compilers and utility programs associated with mainframe systems supporting MVS or other operating systems. Conducts low-level systems maintenance, such as socket programming in a UNIX/C environment. Provides technical support to application developers, hardware/software evaluation and planning. Creates and modifies utility programs. Ensures systems efficiency and integrity.

IT Auditor/EDP Auditor

Analyzes the functionality and operations of systems to determine adequate security, controls and data integrity. Evaluates systems and operational procedures and reports findings to senior management. Writes ad hoc report programs using fourth generation languages and specialized audit software. Senior EDP Auditors have from 4-6 years experience and are associated with systems that process large amounts of financial data and consulting groups specializing in accounting and finance.

Technical Trainer

Creates and executes training plans for employees as directed by the IS Manager or other managers. Training revolves around existing desktop applications, new applications or advanced training on specific topics. Requires strong communication and presentation skills and the ability to work with vendors and other training firms.

Technical Writer

Works with systems analysts and programmers to create and edit application and systems documentation, user manuals, training courses and procedures. Prepares proposals and technical reports plus works with project managers. Works with word processing, presentation and web authoring applications for documentation on the Internet/Intranet.

Systems Architect

Analyzes, designs, develops and supports all major information systems. Involved in the strategic direction of systems, determines the tools, languages and databases to be used, and understands how all data, applications and hardware function and interact. Involved in all major developments or re-engineering efforts. Applications and administration expertise in multiple areas, including UNIX-based servers, relational databases, LAN/WAN architectures and other similar environments.

QA/Test Analyst

Ensures all software development processes and procedures are in place, standardized and fully utilized. Involved in the final portion of the software development lifecycle to ensure development efforts are acceptable prior to implementation. Involved in assuring the quality of all modifications for existing applications prior to implementation. Requires experience with SEI software development maturity modeling, ISO9000, design review, test plan preparation, and execution and automated testing.

Telecommunications Manager

Manages all groups and equipment associated with a company's telecommunications efforts, including satellite communications, video teleconferencing services, PBX or other phone systems. Teams with the WAN/LAN administrator(s). Directs the strategies of future telecom endeavors, coordinates with vendors and supervises the day-to-day operations.

Telecommunications Analyst

Oversees the deployment and enhancement of router-based, multi-protocol networks. Excellent problem solving and diagnostic skills; knowledge of TCP/IP, SNA, IPX, or other protocols; working knowledge of WAN services, including frame relay, DDS, ISDN or analog. Requires router configuration skills and knowledge of EIGRP and RIP.

ERP Software Integration and Implementation Specialist

Designs and determines system specifications for integrating all business processes into a single company-wide application. Requires a knowledge of multiple business areas, process engineering and re-engineering, excellent user and communication skills, strong documentation skills plus an understanding of at least one package in-depth or a general acumen of multiple ERP systems. Frequently customizes ERP package.

Technical Sales

Account Representative

Generates sales prospects, analyzes customers' needs, proposes business solutions and negotiates sales. Oversees implementation of new products from a customer service and relationship perspective.

Pre/Post Sales Support Representative

Supports sales by analyzing customer requirements, proposing and demonstrating technical solutions, ensuring proper product installations, training users, and providing technical support and problem resolutions.

Sales Manager

Manages sales and support representatives. Serves a mentoring role for sales associates and accountable for the overall sales success.

Computer Operations/Data Center

Data Center Manager

Oversees server and mainframe equipment, computer and peripheral operations, data entry, data control scheduling and quality control. Supports multiple business locations by "housing" their applications within the data center.

Operations Support/System Operator

Analyzes and supports computer operations by controlling production applications, monitoring system resources and response times, and provides first-line support for operational problems.

Communications Operator

Monitors and maintains communications network operations, which include troubleshooting communications hardware, software and transmission problems.

Help Desk Analyst/Customer Service Support

Provides first-level or higher user/customer telephone support for computer systems, which includes software, hardware or telecommunication systems. Troubleshoots hardware and software problems, assists users with desktop applications and provides user training. Utilizes applications such as Tivoli to track user requests from ticket generation through completion.