

A man with short brown hair and a light beard, wearing a light blue button-down shirt, stands with his arms crossed in front of a server rack. The server rack contains several units with perforated metal doors and circular handles. The background is a bright, out-of-focus window.

CCIE View into the Future of Networking

February 2010

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Survey Methodology

Conducted by Illuminas, a global research consultancy, the survey provides a unique perspective of some of the most knowledgeable and well-respected IT professionals in the industry. A total of 970 CCIEs from 79 countries provided their opinions on industry trends as well as their personal view on becoming a networking professional and a CCIE (see figure at right). The CCIEs who responded to the survey represent a wide variety of company sizes and industries, including telecommunications, network consulting, systems integration/value added reseller, manufacturing, financial services and education. The following is a summary of the results of the first ever global CCIE survey.





Managing increasingly sophisticated enterprise networks is a growing necessity for organizations around the world. As we enter the second decade of the 21st century, there are not enough skilled experts to design, deploy and manage these rapidly growing networks.

Technology is moving—between the proliferation of devices, converging solutions, evolving business models, and a wealth of new applications, networking professionals are being pushed to their limits. To gain insight into what corporate and public network infrastructures will look like over the next five years and the skills IT professionals will need to build and maintain them, Cisco Systems commissioned a survey of an elite group of industry experts: professionals holding Cisco Certified Internetwork Expert (CCIE) certifications.

The Cisco Certified Internetwork Expert (CCIE) program is one of the most widely recognized networking certifications

in the global marketplace. Cisco introduced the CCIE certification in 1993 to assist the industry in distinguishing the top echelon of internetworking experts around the world. Today, those with CCIE certifications are renowned for their expert network engineering skills and command of Cisco products and solutions. CCIEs are deployed into

the most technically challenging network assignments because of their established reputation of competence and ingenuity.

The participating group of CCIEs identified the following as key networking trends over the next three to five years:

- 67% foresee **virtualization** as the top networking investment area
- 64% expect **security and risk management** to continue to be the networking skills in greatest demand
- 47% indicate that **Unified Communications** will be a top trend, leading to increased collaboration in the workforce
- 24% believe that real-time **video solutions** will become a larger component of businesses and Internet traffic

“The CCIE certification has provided a level of respect from my customers that is unchallenged.” –CCIE North America

“The CCIE provides instant credibility with my customers and peers in the industry. Without it, I was just another network engineer.” –CCIE North America

Virtualization



“I believe the network engineering role has morphed into a system architect role. The traditional lines between security, server/systems, and network have been blurred if not erased due to advancements in virtualization.”

– CCIE North America

Virtualization as a technology has been around for a long time, but only in the past five years has it become a core data center strategy. Today, virtualization is being adopted by organizations who are striving to reduce costs and energy consumption, optimize data center space and improve data center resiliency and security. CCIEs clearly recognize the increasing importance of virtualization in networking and expect this trend to continue.

- 67% foresee virtualization as the top networking investment area
- 40% believe virtualization was one of the biggest trends over the past five years

It goes without saying that IT organizations continue to face immense cost pressures and productivity demands from their internal clients.



Two-thirds of CCIEs expect CIOs to continue to be hyper-focused on reducing IT costs over the next three to five years

Advancements in virtualization technology can yield significant operational advantages and allow networking engineers to realize conservation, but it can also introduce network complexity and new management challenges if not implemented properly. CCIEs suggest that network engineering skills alone will not fully support these changes—network architects will also be needed to effectively integrate virtualization into the current network infrastructure.

- 56% expect network architecting skills to be in high demand over the next five years

A comprehensive virtualization strategy is required to fully realize the benefits of increasing utilization, reducing costs, and simplifying data center management.

Security



"Security issues have become more important in the role of networking."

– CCIE Asia Pacific

"HIPAA and SOX have put additional pressure on network security design."

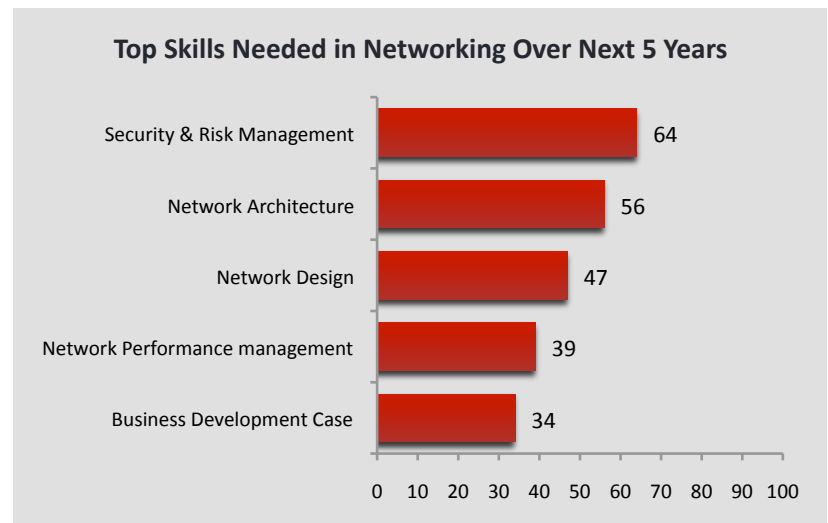
– CCIE North America

As organizations embrace globalization, securing the network and intellectual property has become an increasingly important component of IT strategy. IT organizations are tasked with preventing intrusion and theft of company data assets, as well as eliminating network security vulnerabilities. Over the past five years, CCIEs have experienced the importance of network security on a daily basis and view this as a continuing trend.

- 33% expect network and information security breaches to remain a top concern of CIOs
- 24% believe network security will remain at the forefront of networking strategy over the next few years

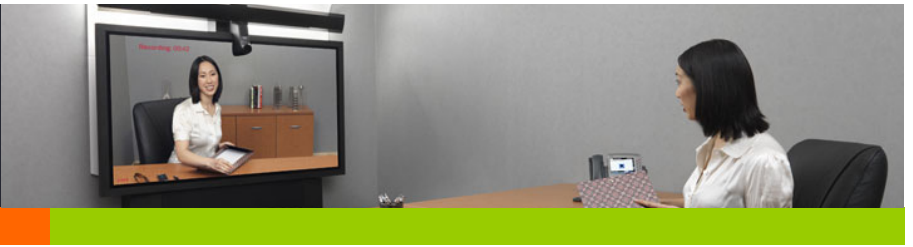
Networks are continuously under threat from the ever evolving skill and sophistication of attackers from around the world. CCIEs believe it's critical that network engineers stay ahead of the increasing number of internal and external security breaches that jeopardize today's networks.

- 64% agree that security and risk management will be the networking skills in greatest demand over the next five years



Businesses must have a security policy in place that thoroughly assesses current risks to the network, monitors the network to prevent security breaches and has a disaster recovery plan to quickly address security violations.

Unified Communications



“Networking has become more complex, with lots of specialization. With unified communications it has changed a lot.”

– CCIE Emerging Markets

“The evolution of technologies such as Unified Communications and virtualization is demanding new technical/commercial skills. The preparation process of the CCIE certifications forms a mental structure in the Engineers preparing them to face these different technologies.”

– CCIE Emerging Markets

Today’s business environment is more collaborative than ever. Businesses are working with vendors, partners, employees, and customers all over the world. The need to communicate on a global basis, combined with an increasingly mobile workforce that requires real-time, anywhere access to information, is driving businesses to make significant investments in new collaborative technologies. CCIEs experienced the rapid growth of IP telephony and are now seeing businesses focus on implementing Unified Communications solutions.

- 77% cited IP telephony as the single biggest trend in networking over the past five years
- 47% believe Unified Communications will be a leading networking industry trend over the next five years
- 30% expect the complexities of accommodating the needs of a highly collaborative, global workforce to be a top CIO concern over the next five years

Unified Communications solutions integrate voice, video, data, and mobile applications on fixed and mobile networks so users can easily collaborate in real-time without actually being there. Unified Communications has the potential to increase workforce efficiency, improve customer intimacy, and accelerate time-to-resolution for problem-solving and communications.

Video



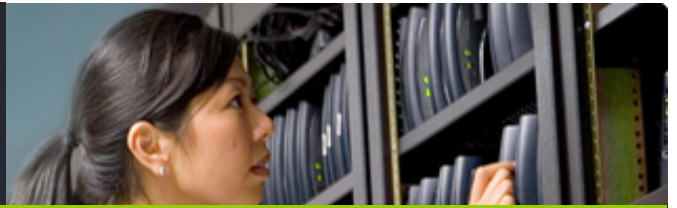
Collaborative technologies that utilize real-time video and provide the same level of intimacy found in an in-person meeting have become increasingly important to many businesses. Technologies such as desktop video conferencing and telepresence complement and enhance the communication and resulting productivity of virtual interactions. With the additional benefits of reducing travel expenditures and carbon emissions, businesses are finding it even easier to justify investments in video. CCIEs not only see businesses more rapidly adopting video technology, but they also see how the green aspect of video will impact networks and network engineers:

- 52% believe that real-time video solutions, like telepresence, will be one of the top green initiatives impacting networks and network engineers
- 24% believe that the use of real-time video for collaboration is a growing trend

Historically, the use of technology within businesses has driven technology adoption in the home; over the last 20 years however, this trend has reversed and we are now seeing home use of technology driving adoption in the workplace. From FaceBook to YouTube, personal technology use is forcing businesses to invest in technology that matches how employees work. As we watch the usage of video in businesses and in homes around the world continue to increase, the impact on network infrastructures will be significant.

- A recent Cisco research study, Cisco Visual Networking Index: Forecast and Methodology, 2008-2013¹, found that Internet video is now approximately one-third of all consumer Internet traffic
- By 2013, it predicts that that the sum of all forms of Internet video (IPTV, video on demand, Internet and peer-to-peer) will account for over 91 percent of global consumer traffic

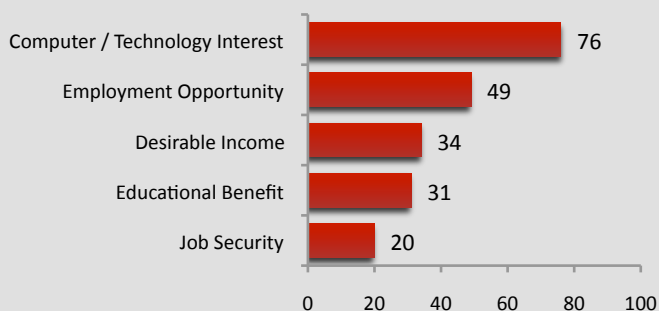
A Networking Career is More Than a Job



As the global economy emerges from the latest recession, never has it been so evident that technology and networks will continue to grow as a part of how we conduct our everyday lives. Information technology has become one of the most important components of business and economic strength. Combined with the exponential growth in consumer and enterprise adoption of technology, global networks and data centers are being challenged to keep up with the demand. This demand will continue to drive the need for highly trained IT talent. There are many reasons why individuals choose a career in networking, but the primary reasons cited by the CCIEs we surveyed were related to intrinsic motivation and financial gain.

- Three-quarters chose a career in networking because of their interest in computers and technology
- Almost half cite 'employment opportunities' as a primary reason for pursuing a career in this industry
- One out of three indicate 'desirable income' heavily influenced their career choice

Top Reasons for Choosing a Networking Career



According to CCIEs, their employment in networking has been positive and something they would encourage others who are interested in technology to pursue.

- 98% of the CCIEs who responded to the survey are currently employed
- 80% are very or extremely satisfied with their career choice
- 75% would recommend a networking career to someone else

These statistics beg two important questions: What is the driving force behind such high levels of satisfaction, and what is it about a career in networking that produces such a strong sense of self-fulfillment? The answer is very simple and quite altruistic. For many of these CCIEs, the knowledge that they are having a positive impact within their organization and within their community provides as much reward as any paycheck.

- 71% have shared their knowledge and expertise on key networking projects that have benefited their organization
- 66% have successfully mentored others who are seeking to develop their networking skills
- 42% have been involved in the design and implementation of a networking project that improved the welfare of citizens within their country, state, city or town

"Being a CCIE has allowed me to travel to multiple national and international locations and meet people from all walks of life"
 – CCIE North America

"CCIE allowed me to get an excellent job with excellent benefits and salary. I am also highly esteemed for my achievement. This allowed me to be promoted several times; interact with senior government officials."
 – CCIE Emerging Markets



About Cisco

"Developing Technical Talent for the World!"
Learning@Cisco addresses the need for technical talent worldwide for Cisco customers, partners, and network professionals by providing the educational training, certifications, communities and consulting services necessary to accelerate productivity, opportunity, and growth. As the network continues to evolve, so does demand for highly skilled networking professionals. Through education and expertise, Learning@Cisco drives the talent development needed to evolve the workforce of today to meet the demands of tomorrow, and the global networking skills talent gap. From award-winning certifications and training to the first social learning community, the [Cisco Learning Network](#), revolutionary online self-assessments and state-of-the-art technology games, Learning@Cisco helps the world master the language of the network.



About Illuminas

Illuminas is a global market leading research consultancy that uses scientific methods to gain insight to specific issues relevant to our clients. Illuminas' Austin-based practice specializes in technology research and focuses on the ways technology intersects with other industries, such as retail, financial services and healthcare. Illuminas has offices in London, New York, Austin, Hong Kong and Shanghai

