Virginia's Cybersecurity Industry

Cybersecurity

Virginia IT companies, from startups to large systems integrators, are leaders in the development of cyber security solutions for industry and government. Currently 67,850 people work in cybersecurity occupations in Virginia. With the constant advancement of information technology infrastructure security, Virginia-based companies are at the forefront of technologies such as cryptography, forensics, intrusion detection, and firewall devices. Many of Virginia's universities are at the forefront of cybersecurity research and development, while also educating and training the IT professionals of tomorrow.

In the past 5 years, there have been 20 announcements related to cybersecurity which plan to create more than 980 new jobs, including

- Cyber Defense Solutions
- FoxGuard Solutions
- GE
- Kaspersky Government Security Solutions
- Technology Management Solutions
- Telos

Cybersecurity Employment Outlook

Despite an overall decline in the number and collective value of federal contracts received by businesses in the IT industry since FY 2010, occupations associated with cyber security remain in high demand. That demand is expected to grow through 2020.

- During the month of May 2015 over 7,500 job openings for cyber security related occupations were advertised through the Virginia Employment Commission.
- As of June 7, 2015, over 3,800 postings for positions in these occupations remain active.
- The average ratio of candidates in this occupational group to the number of jobs posted is 0.38 candidates per posting.
- The number of persons employed in this occupational group in the Commonwealth is expected to increase by 25% from 2012 through 2022.
- Nationwide, employment in this occupational group is expected to increase by over 17% during the same period.

Sources: USAspending.gov, Virginia Employment Commission, and US Bureau of Labor Statistics

Number and Value of Federal IT Contracts for Virginia Businesses				
Fiscal Year	Total Received by Recipient from Federal Contracts	Number of Federal Contracts	Total Received from Department of Defense Contracts	Number of Department of Defense Contracts
FY2010	$13,045,787,088	61,389	$8,676,199,655	39,427
FY2011	$14,091,088,472	63,474	$9,818,811,130	46,034
FY2012	$12,275,714,463	62,090	$8,022,275,347	42,287
FY2013	$11,312,847,727	41,918	$7,132,513,372	24,331
FY2014	$12,543,559,832	44,411	$7,444,323,314	27,331

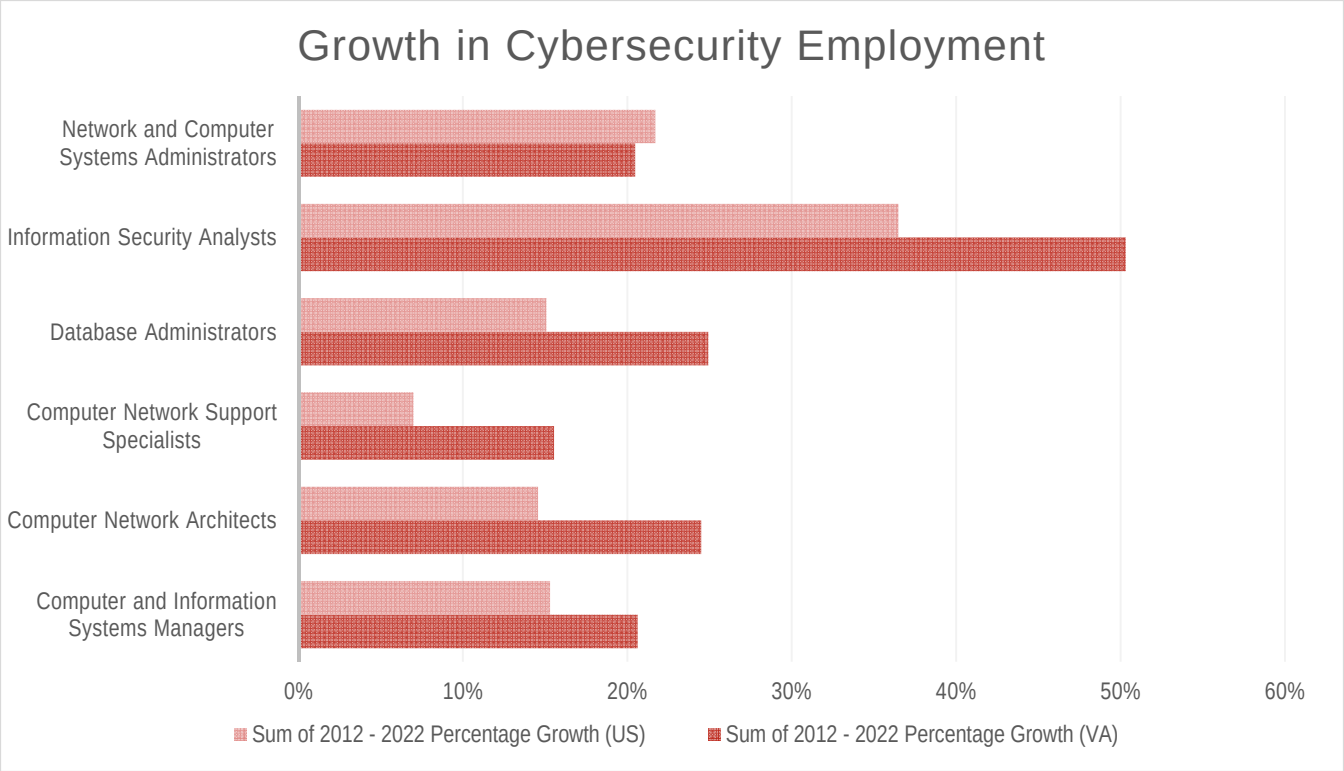
Source: USAspending.gov

Virginia Job Openings in Cybersecurity			
Occupation Title	Current Job Openings	Potential Candidates	Candidates per job
Computer and Information Systems Managers	330	377	1.14
Computer Network Architects	462	40	0.09
Computer Network Support Specialists	126	140	1.11
Database Administrators	746	89	0.12
Information Security Analysts	801	118	0.15
Network and Computer Systems Administrators	1,759	297	0.17
Telecommunications Engineering Specialists	35	69	1.97
Average in Occupational Group	608	161	0.27

Source: Virginia Employment Commission as of April 14, 2016

Employment Growth in Cybersecurity						
Occupation Title	2012 Employment (VA)	2022 Projected Employment (VA)	2012 - 2022 Change in Employment (VA)	2012 Employment (US)	2022 Projected Employment (US)	2012 - 2022 Change in Employment (US)
Computer and Information Systems Managers	16,732	20,184	21%	332,700	383,600	15%
Computer Network Architects	11,379	14,167	25%	143,400	164,300	15%
Computer Network Support Specialists	8,858	10,235	16%	174,600	186,800	7%
Database Administrators	6,215	7,764	25%	118,700	136,600	15 %
Information Security Analysts	10,025	15,069	50%	75,100	102,500	37%
Network and Computer Systems Administrators	20,146	24,272	20%	336,400	409,400	22%

Sources: Virginia Employment Commission and US Bureau of Labor Statistics



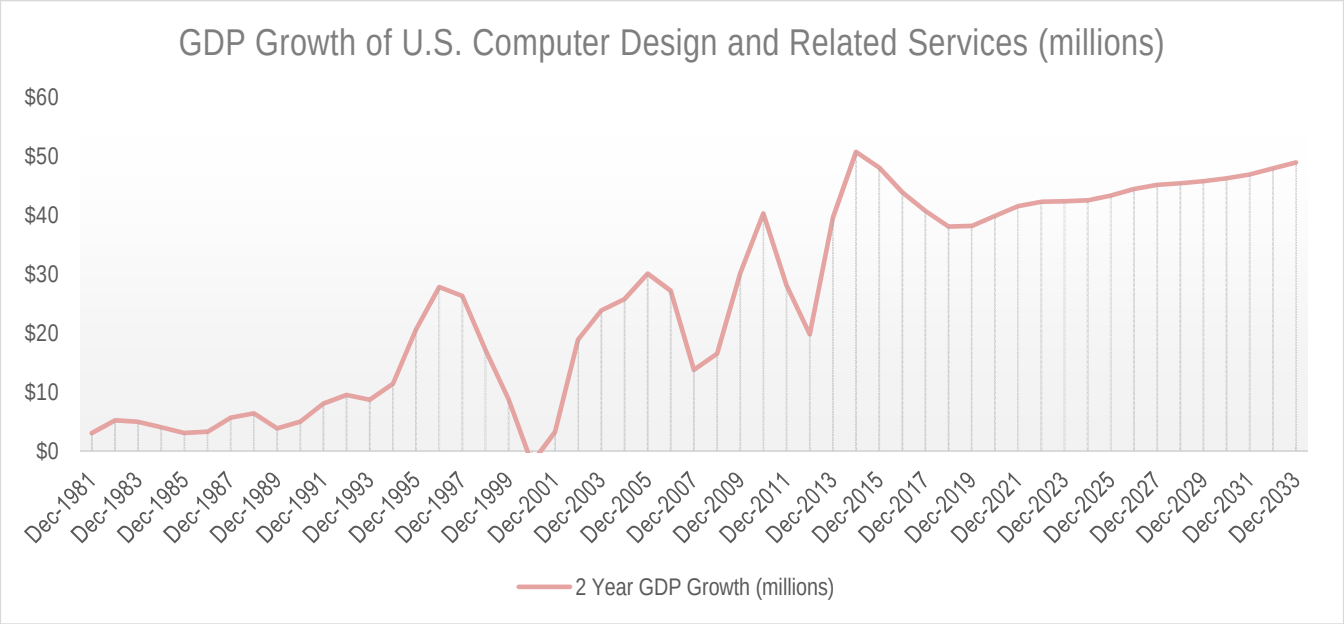
Sources: Virginia Employment Commission and US Bureau of Labor Statistics

Cybersecurity Industry Outlook

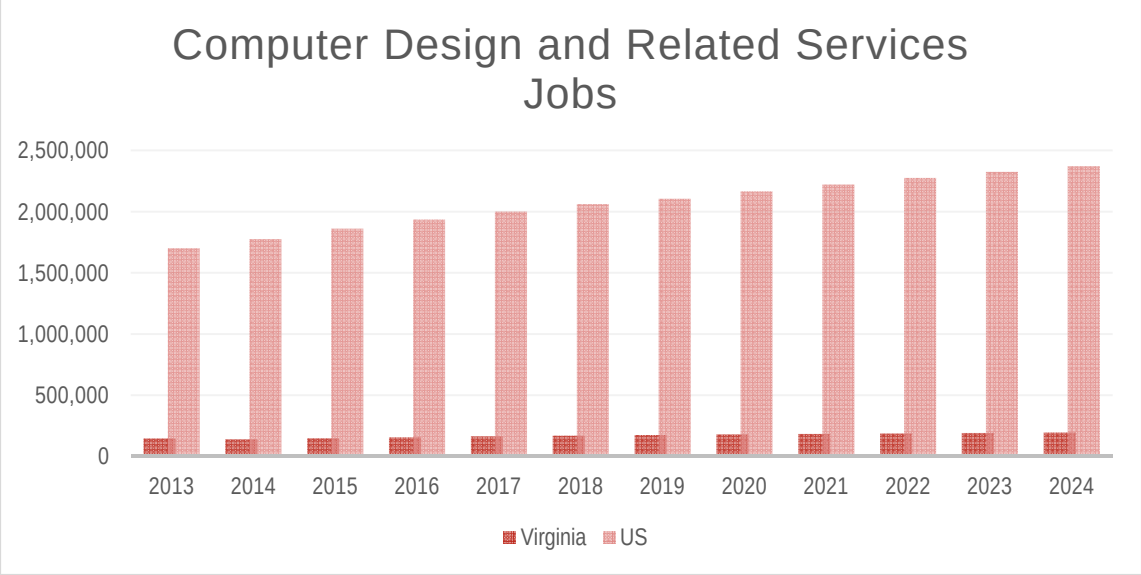
Projections indicate that the overall size of the IT Security Consulting Industry will continue to expend with respect to the number of businesses, GDP, and revenues. According to estimates from IBISWorld, IT Security Consulting currently generates approximately $8.5 billion in annual revenue nationwide and is expected to grow at an annual rate of 11.0% through 2020.

- The number of business establishments in IT Security Consulting is expected to increase by 9.2% nationwide by 2020.
- Revenues for companies in this industry are expected to rise by 68% during the same period.
- Booz Allen Hamilton, headquartered in Mclean, VA, is recognized as a major company within this field and is expected to see increased revenues in FY 2015 after recovering from a decline in FY 2013 and FY2014; partially as a result of decreased demand from the public sector.
- GDP from businesses in computer design and related services is expected to increase steadily through 2033.
- The total number of jobs in computer design and related services is expected to increase by 33% in Virginia and by 39% nationwide.
- To meet this rising demand, Virginia's universities have established over one dozen degree and certification programs in Computer and Information Systems Security/Information Assurance.

Sources: IBISWorld, Moody's Analytics, EMSI, and The State Council of Higher Education for Virginia



Source: Moody's Analytics



Source: EMSI

Computer and Information Systems Security/Information Assurance			
Institution	Degree Title	Degree Level	Program Area
George Mason University	MS	Master's Degree	Information Security and Assurance
Hampton University	MS	Master's Degree	Information Assurance
James Madison University	CERT	Post-Baccalaureate Certificate	Network/Information Security
Liberty University	CRT	Award of less than 1 academic year	Information Assurance
Marymount University	MS	Master's Degree	Cybersecurity
Marymount University	PBC	Post-Baccalaureate Certificate	Computer Security and Information Assurance
Norfolk State University	MS	Master's Degree	Cybersecurity
Northern Virginia Community College	AAS	Associate's Degree (Occ/Tech Credit)	Cybersecurity
Old Dominion University	CERT	Post-Baccalaureate Certificate	Cyber Security
University of Virginia	CERT	Post-Baccalaureate Certificate	Cybersecurity Management
Virginia Commonwealth University	MS	Master's Degree	Computer and Information Systems Security
Virginia Tech	CERT	Post-Baccalaureate Certificate	Information Assurance Engineering

Source: The State Council of Higher Education for Virginia

Virginia's Assets for the Cyber Security Industry

- Virginia is home to several Federal agencies that focus on cyber security, including the U.S. Army Cyber Command (ARCYBER), U.S. Department of Defense, U.S. Department of Homeland Security's National Cyber Security and Communications Integration Center and the Defense Advanced Research Projects Agency (DARPA).
- The International Cyber Center (ICC) at George Mason University facilitates strategic collaboration and information sharing to better identify and address priorities and issues related to information and communications technologies.
- The Center for Secure Information Systems (CSIS) at George Mason University provides a dedicated environment to encourage the development of expertise in both theoretical and applied aspects of information systems security. Established in 1990, CSIS has the distinction of being the first academic center in security at a U.S. university. It is one of the National Security Agency's original Centers of Academic Excellence in Information Assurance Education, a designation it still holds.
- Cyber@VT is an interdisciplinary collection of research groups and laboratories at Virginia Tech organized under the Hume Center for National Security and Technology that focus on the research challenges of cyber security. Through these groups, Virginia Tech provides a diverse research portfolio to address the critical challenges that lie ahead in the fields of computer and network security.
- The Cybersecurity Innovations Laboratory, a partnership between Virginia Tech, the Naval Postgraduate School and L-3 Communications, is home to a number of cybersecurity-related programs in Virginia Tech's National Capital Region with focused research in the areas of wireless and network security.
- James Madison University's Institute for Infrastructure and Information Assurance (IIIA) integrates and supports the university's efforts in the area of homeland security. IIIA actively seeks research sponsorship and provides funding for cutting edge research within the context of improving the nation's security.