

APPENDIX B: CALIFORNIA CYBERSECURITY LABOR MARKET SURVEY

F1. California Governor's Office of Business and Economic Development (GO-Biz)

Link: <http://www.business.ca.gov>

Check any that you would like more information for:

- Site-selection services
- Permit assistance
- Regulatory guidance
- Business expansion support
- International trade development
- Small business and innovation support
- Cybersecurity
- Other, please specify: _____

CASCADE Partners*

Check any that you would like more information for:

- Cyber physical security for Manufacturers
Led by: California Manufacturing Technology Consulting (CMTC) Link: <https://www.cmtc.com>
- Defense supply chain resiliency seminars
Led by East San Diego County Economic Development Council Link: <http://eastcountyedc.org>
- Defense supply chain workshops
Led by California Community Colleges Small Business Sector Navigators Link: <http://smallbusinesssector.net/>
- Commercial, government, or international contracting 101 training
Led by California Community Colleges Small Business Sector Navigators Link: <http://smallbusinesssector.net/>
- Procurement opportunities workshops for underrepresented businesses Link:
Led by Nehemiah Community Foundation Link: <https://nehemiahcorp.org/>
- Entrepreneurial skills development training
Led by Cal State University San Bernardino, Inland Empire Center for Entrepreneurship (IECE) Link: <http://iece.csusb.edu>

*Partners as per the CASCADE U.S. Department of Defense grant. For additional CASCADE partner information, visit business.ca.gov/CASCADE.

ASK if Q25 A-I is selected OR Q26=YES

Please provide your contact information below:

Name: _____

Organization: _____

Email: _____

Phone: _____

APPENDIX C: CYBERSECURITY LABOR MARKET ANALYSIS RESEARCH ADVISORY GROUP MEMBERS

Advisory Group Members

Brian Hom
Cybersecurity Analyst
San Diego Supercomputer Center
UC San Diego

Lou Rabon
Founder and CEO
Cyber Defense Group
Los Angeles, CA

Stephen Monteros
Vice President
ConvergeOne
Ontario, CA

Steve Linthicum, JD, CISSP
Interim Project Director
Cybersecurity Apprenticeship Program
Coastline Community College

Richard Grotegut
Deputy Sector Navigator
Information and Communications Technologies
Bay Region Community Colleges

Barbara Sirotnik
Director
Institute of Applied Research and Policy Analysis
California State University, San Bernardino
CASCADE Supply Chain Mapping and Analysis Components
(Project #4)

Additional Cybersecurity Subject Matter Experts Supporting the Cybersecurity Labor Market Analysis:

Marian Merritt
Lead for Industry Engagement
National Initiative for Cybersecurity Education
National Institute of Standards and Technology

Bill Newhouse
Deputy Director
National Initiative for Cybersecurity Education
National Institute of Standards and Technology

Noel Kyle
Cybersecurity Education and Awareness Branch
U.S. Department of Homeland Security

APPENDIX D: WORK ROLE PROFILES

Technical Support Specialist - California, 2018

Provides technical support to customers who need assistance utilizing client level hardware and software in accordance with established or approved organizational process components. (i.e., Master Incident Management Plan, when applicable).

NICE Framework Category: Operate and Maintain

Specialty Area: Customer Service and Technical Support

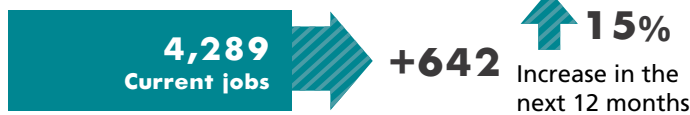


Total Employer Survey Responses
129

Permanent jobs



Temporary jobs



84%
of employers reported having the **Technical Support Specialist** work role

Employers said...



Education & Work Experience

40% Bachelor's degree
and
47% 1 to 2 years of experience



Soft Skills

44% Problem Solving
37% Troubleshooting
37% Communication Skills



Certifications

35% Microsoft Certified System Administrator (MCSA)
35% Certified Information Security Manager (CISM)



55%

of Technical Support Specialists spend **more than a quarter of their time** on cybersecurity issues.



57%

of employers said the amount of **time spent** on cybersecurity issues has increased compared to **12 months ago**.

APPENDIX D: WORK ROLE PROFILES

Cybersecurity skills Technical Support Specialist must possess to perform their job.

(combined percent of employers that said each skill was very important or important)

Accurately defining incidents, problems, and events in the trouble ticketing system



Using the appropriate tools for repairing software, hardware, and peripheral equipment .



Identifying possible causes of degradation of system performance or availability and initiating actions needed to mitigate this degradation



Designing incident response for cloud service models



APPENDIX D: WORK ROLE PROFILES

Network Operations Specialist - California, 2018

Plans, implements, and operates network services/systems, including hardware and virtual environments.

NICE Framework Category: Operate and Maintain

Specialty Area: Network Services



Total Employer Survey Responses
121

Permanent jobs



Temporary jobs



81% of employers reported having the **Network Operations Specialist** work role

Employers said...

Education & Work Experience

51% Bachelor's degree and
43% 1 to 2 years of experience

Soft Skills

52% Problem Solving
43% Troubleshooting
33% Teamwork/Collaboration

Certifications

51% Certified Network Professional (CCNP)
43% Certified Network Associate (CCNA)



56%

of Network Operations Specialists spend **more than a quarter of their time** on cybersecurity issues.



65%

of employers said the amount of **time spent** on cybersecurity issues has increased compared to **12 months ago**.

APPENDIX D: WORK ROLE PROFILES

Cybersecurity skills Network Operations Specialist must possess to perform their job.

(combined percent of employers that said each skill was very important or important)

Protecting a network against malware. (e.g., NIPS, anti-malware, restrict/prevent external devices, spam filters)

88%

Developing and applying security system access controls.

88%

Implementing, maintaining, and improving established network security practices

86%

Securing network communications

85%

Configuring and utilizing computer protection components (e.g., hardware firewalls, servers, routers, as appropriate)

83%

Implementing and testing network infrastructure contingency and recovery plans

80%

APPENDIX D: WORK ROLE PROFILES

System Administrator - California, 2018

Installs, configures, troubleshoots, and maintains hardware and software and administers system accounts.

NICE Framework Category: Operate and Maintain

Specialty Area: Systems Administration

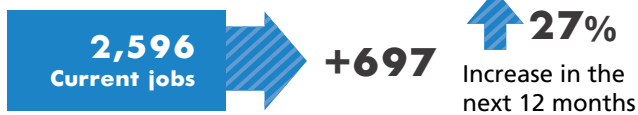


Total Employer Survey Responses
127

Permanent jobs



Temporary jobs



89%
of employers reported having the **System Administrator** work role

Employers said...



Education & Work Experience

44% Bachelor's degree
and
48% 1 to 2 years of experience



Soft Skills

52% Problem Solving
38% Troubleshooting
32% Communication Skills



Certifications

55% Microsoft Certified System Administrator (MCSA)
39% Certified Information Security Manager (CISM)



56%

of System Administrators spend **more than a quarter of their time** on cybersecurity issues.



65%

of employers said the amount of **time spent** on cybersecurity issues has increased compared to **12 months ago**.

APPENDIX D: WORK ROLE PROFILES

Cybersecurity skills System Administrator must possess to perform their job.

(combined percent of employers that said each skill was very important or important)

Accurately define incidents, problems, and events in the trouble ticketing system



Applying cybersecurity and privacy principles to organizational requirements (relevant to confidentiality, integrity, availability, authentication, non-repudiation)



Configuring and utilizing software-based computer protection tools (e.g., software firewalls, antivirus software, anti-spyware)



Establishing and maintaining automated security control assessments



APPENDIX D: WORK ROLE PROFILES

Software Developer - California, 2018

Develops, creates, maintains, and writes/codes new (or modifies existing) computer applications, software, or specialized utility programs.

NICE Framework Category: Securely Provision

Specialty Area: Software Development



Total Employer Survey Responses
123

Permanent jobs



Temporary jobs



77%
of employers reported having the **Software Developer** work role

Employers said...



Education & Work Experience

54% Bachelor's degree
and
42% 1 to 2 years of experience



Soft Skills

55% Problem Solving
41% Teamwork/Collaboration



Certifications

49% Microsoft Certified System Administrator (MCSA)
36% CISCO Certified Network Associate (CCNA)



52%

of Software Developers spend **more than a quarter of their time** on cybersecurity issues.



65%

of employers said the amount of **time spent** on cybersecurity issues has increased compared to **12 months ago**.

APPENDIX D: WORK ROLE PROFILES

Cybersecurity skills Software Developer must possess to perform their job.

(combined percent of employers that said each skill was very important or im-portant)

Applying cybersecurity and privacy principles to organizational requirements (relevant to confidentiality, integrity, availability, authentication, non-repudiation).



Developing and applying security system access controls.



Using Public-Key Infrastructure (PKI) encryption and digital signature capabilities into applications (e.g., S/MIME email, SSL traffic).



Secure test plan design (e. g. unit, integration, system, acceptance).



Designing countermeasures to identified security risks.



Discerning the protection needs (i.e., security controls) of information systems and networks.



Conducting vulnerability scans and recognizing vulnerabilities in security systems.

