

<input checked="" type="checkbox"/> Endorsed: All Criteria Met			
Program LMI Endorsement Criteria			
	Met <input type="checkbox"/>	Partially Met <input checked="" type="checkbox"/>	Not Met <input type="checkbox"/>
Supply Gap:	There are projected to be <b>1,042 annual job openings</b> throughout Los Angeles and Orange counties for these cybersecurity occupations, which <b>is less than the 1,216 awards conferred by educational institutions</b> . However, these educational programs also prepare <b>students for 8 other related occupations, which account for 7,507 additional annual job openings</b> . <i>Because this program trains a variety of occupations with high demand, there is most likely an undersupply of labor for cybersecurity occupations.</i>		
Self-Sufficiency Standard Living Wage <sup>1</sup> :	Met <input checked="" type="checkbox"/>	Partially Met <input type="checkbox"/>	Not Met <input type="checkbox"/>
	<b>All majority annual job openings</b> for these cybersecurity occupations <b>have entry-level hourly wages above the OC living wage of \$27.13</b> .		
Education:	Met <input checked="" type="checkbox"/>	Partially Met <input type="checkbox"/>	Not Met <input type="checkbox"/>
	Although the majority (73%) of annual job openings for these middle-skill cybersecurity occupations typically require a bachelor's degree, <b>between 36% and 39% of workers in the field have completed some college or an associate degree as their highest level of education</b> .		

## Summary

The Orange County Center of Excellence for Labor Market Research (OC COE) prepared this report to determine whether there is a supply gap in the Los Angeles and Orange counties regional labor market related to three middle-skill occupations:

- *Computer Network Support Specialists (15-1231)*
- *Computer Network Architects (15-1241)*
- *Network and Computer Systems Administrators (15-1244)*

Although the number of awards exceeds demand for these specific occupations, supply is likely overstated because related educational programs train for an additional eight occupations. When considering the strong demand across these occupations, it is likely the

<sup>1</sup> The living wage endorsement criteria in this report uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard, which the COE refers to as a living wage; Orange County's living wage of \$27.13, was last updated in March 2024.

region faces a supply gap in cybersecurity. Additionally, the typical education requirements for these occupations align with a community college education and the majority of annual job openings offer entry-level wages above the Self-Sufficiency Standard living wage.

**Therefore, due to all the regional labor market criteria being met, the COE endorses this proposed program.**

Exhibit 1 lists the occupational demand, supply, typical entry-level education, and educational attainment for the three middle-skill occupations included in this report.

Exhibit 1: Labor Market Endorsement Summary

Occupation (SOC)	Demand (Annual Openings)	Supply (CC and Non-CC)	Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Computer Network Support Specialists (15-1231)	LA: 196 OC: 84 TTL: 280	Accounted for Below	OC: \$27.33	Associate degree	39%
Computer Network Architects (15-1241)	LA: 348 OC: 142 TTL: 491	Accounted for Below	OC: \$53.62	Bachelor's degree	36%
Network and Computer Systems Administrators (15-1244)	LA: 184 OC: 87 TTL: 271	LA: 749 OC: 467 TTL: 1,216	OC: \$40.48	Bachelor's degree	38%
<b>Total</b>	<b>1,042</b>	<b>1,216</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

## Demand

- In Los Angeles and Orange counties, the number of jobs related to these cybersecurity occupations is projected to decrease 1% through 2029, equating to 1,042 annual job openings.
- Hourly entry-level wages for these cybersecurity occupations range from \$27.33 to \$53.62 in Orange County; all annual openings have entry-level wages above the Self-Sufficiency Standard living wage.
- There were 5,944 online job postings for these cybersecurity occupations over the past 12 months. The highest number of postings were network engineers, systems administrators, and network administrators.
- The typical entry-level education for these cybersecurity occupations ranges from associate degree to bachelor's degree.
- Between 36% and 39% of workers in the field have completed some college or an associate degree as their highest level of educational attainment.

## Supply

- Between 2021 to 2024, an average of 1,081 awards were conferred by 27 community colleges for these middle-skill occupations in Los Angeles and Orange counties.
- From 2020 to 2023, non-community college institutions conferred an average of 135 awards for these middle-skill occupations.
- In the 2022-23 academic year, Orange County community college students that exited computer networking programs had a median annual wage of \$56,727 (\$27.27 per hour) post-exit, and 48% attained the regional living wage.
- Due to the low number of students, student outcome data is not available for students employed in their field of study.

## Demand

### Occupational Projections

Exhibit 2 shows the annual percentage change in jobs for these cybersecurity occupations from 2019 through 2029. Between 2019 and 2020, employment levels across Los Angeles and Orange counties declined sharply due to the broader economic impacts of the COVID-19 pandemic. From 2021 to 2023, the region saw slowing in the decline in growth. Beginning in 2024, these cybersecurity occupations are projected to grow at a lower rate compared to all occupations through 2029.

Exhibit 2: Annual Percentage Change in Jobs for Cybersecurity Occupations, 2019-2029

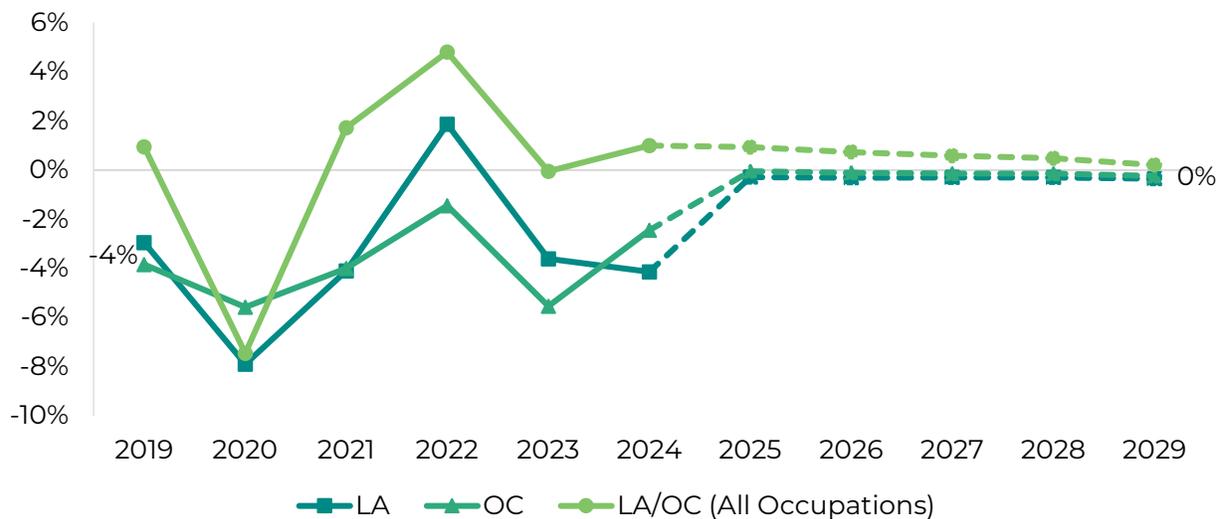


Exhibit 3 shows the five-year occupational demand projections for these middle-skill cybersecurity occupations. In Los Angeles and Orange counties, the number of jobs related to these occupations is projected to decrease 1% through 2029. There is projected to be 1,042 openings available annually.

### Exhibit 3: Middle-Skill Occupational Demand in Los Angeles and Orange Counties<sup>2</sup>

Geography	2024 Jobs	2029 Jobs	2024-2029 Change	2024-2029 % Change	Annual Openings
Los Angeles	13,269	13,064	(205)	(2%)	728
Orange	5,611	5,573	(38)	(1%)	314
<b>Total</b>	<b>18,879</b>	<b>18,636</b>	<b>(243)</b>	<b>(1%)</b>	<b>1,042</b>

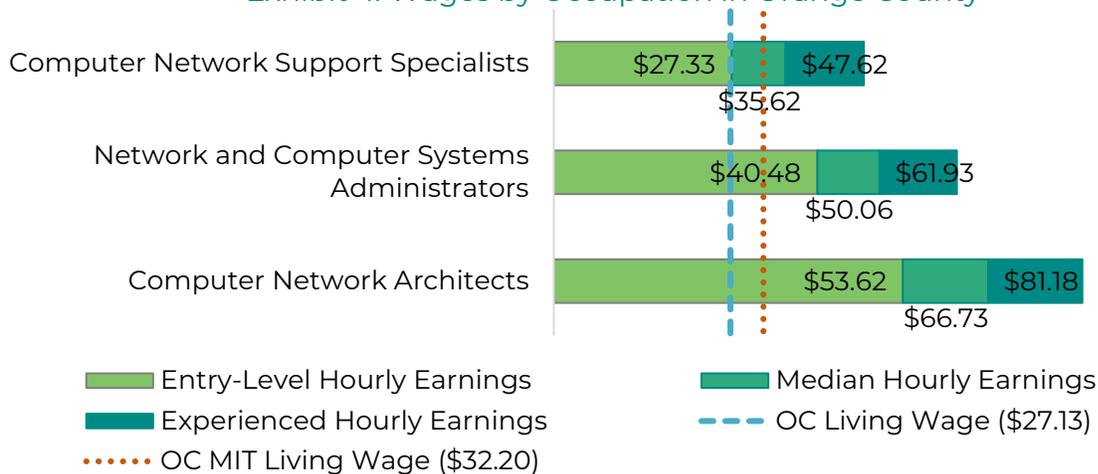
### Wages

The labor market endorsement in this report considers the entry-level hourly wages for these cybersecurity occupations in Orange County as they relate to the county’s living wage. Los Angeles County wages are included below to provide a complete analysis of the LA/OC region.

In addition to the Self Sufficiency Standard living wage, data for the MIT Living Wage (updated on February 10, 2025) is provided as a reference. Currently, the MIT Living Wage in Orange County is \$32.20. Both figures account for geographic-specific costs of necessities such as housing, food, health care, and transportation to assess the cost of living, and are notated in the exhibits below.

In Orange County, all annual openings for these cybersecurity occupations have entry-level wages above the Self-Sufficiency living wage of \$27.13 for a single adult. Entry-level wages range from \$27.33 and \$53.62. Exhibit 4 shows the wage range for each of these cybersecurity occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

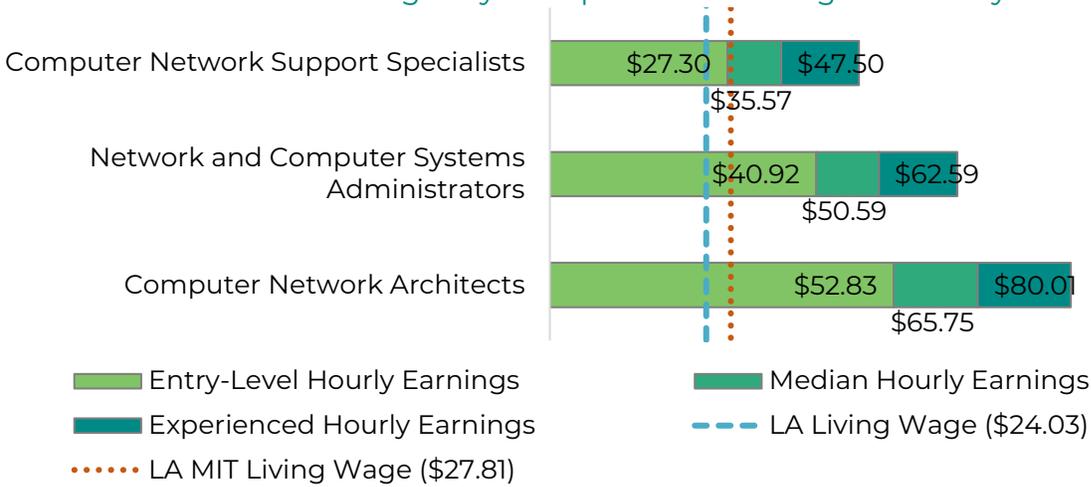
Exhibit 4: Wages by Occupation in Orange County



In Los Angeles County, all annual openings for these cybersecurity occupations have entry-level wages above the Self-Sufficiency living wage of \$24.03 for a single adult. Entry-level wages range from \$27.30 and \$52.83. Exhibit 5 shows the wage range for each of these cybersecurity occupations in Los Angeles County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

<sup>2</sup> Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Exhibit 5: Wages by Occupation in Los Angeles County



### Resilient Jobs and U.S. News & World Report Best Jobs

Exhibit 6 shows if each occupation is considered an Orange County Great Recession-Resilient, COVID-19 Pandemic Recession-Resilient Job, or a 2025 U.S. News & World Report (USN&WR) Best Job. Only one occupation, *computer network architects*, met the criteria to be considered a COVID-19 Pandemic Recession-Resilient Job and USN&WR Best Jobs. *Computer network support specialists* and *network computer systems administrators* did not meet any of these designations.

Exhibit 6: Resilient Jobs and USN&WR Best Jobs Designations

Occupation	Great Recession-Resilient Job	COVID-19 Pandemic Recession-Resilient Job	2025 USN&WR Best Job
Computer Network Architects	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Computer Network Support Specialists	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Network and Computer Systems Administrators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Job Postings

**Important Job Postings Data Note:** There are limitations when analyzing job postings. A single job posting may not represent a single job opening for a variety of reasons.

There were 5,944 online job postings related to these cybersecurity occupations listed in the past 12 months. Exhibit 7 shows the number of job postings by occupation. Over 80% of job postings were for *network and computer systems administrators* and nearly 75% were for *computer network architects*.

Exhibit 7: Number of Job Postings by Occupation (n=5,944)

Occupation	Job Postings	Percentage of Job Postings
Network and Computer Systems Administrators	2,750	46%
Computer Network Architects	2,571	43%
Computer Network Support Specialists	623	10%
<b>Total Postings</b>	<b>5,944</b>	<b>100%</b>

The top job titles for these middle-skill cybersecurity occupations in the region, by number of job postings, are shown in Exhibit 8.

Exhibit 8: Top Job Titles by Number of Job Postings for Middle-Skill Occupations (n=5,944)

Job Titles	Job Postings	Percentage
Network Engineers	558	9%
Systems Administrators	378	6%
Network Administrators	114	2%
Linux System Administrators	73	1%
Windows Administrators	70	1%
Automation Engineers	67	1%
IT Technicians	63	1%
IT Administrators	56	1%
IT Systems Administrators	54	1%
Network Architects	53	1%

The top employers for these middle-skill cybersecurity occupations in the region, by number of job postings, are shown in Exhibit 9.

Exhibit 9: Top Employers by Number of Job Postings for Middle-Skill Occupations (n=5,944)

Employer	Job Postings	Percentage of Job Postings
Northrop Grumman	125	2%
The Judge Group	120	2%
Robert Half	106	2%
Insight Global	91	2%
TEKsystems	84	1%
Raytheon Technologies	74	1%
Boeing	60	1%
Canonical Group	51	1%
Anduril Industries	48	1%
Allegis Group	45	1%

The top specialized, soft, and computer skills for these middle-skill cybersecurity occupations listed by those most frequently mentioned in job postings (denoted in parentheses) are shown in Exhibit 10.

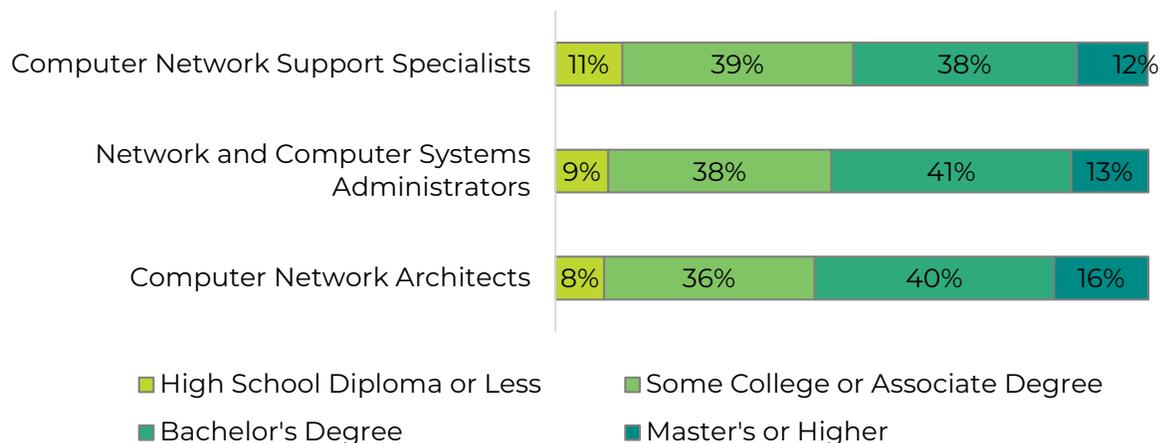
Exhibit 10: Top Skills by Number of Job Postings for Middle-Skill Occupations (n=5,944)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Computer Science (1,525)	Troubleshooting (Problem Solving) (3,054)	Firewall (1,269)
Network Routing (1,291)	Communication (2,736)	Operating Systems (1,207)
Firewall (1,269)	Management (1,985)	Linux (1,083)
Automation (1,241)	Operations (1,855)	Active Directory (845)
Operating Systems (1,207)	Problem Solving (1,516)	Python (Programming Language) (818)
Linux (1,083)	Customer Service (1,197)	Microsoft Azure (722)
Network Switches (1,066)	Information Technology (978)	Microsoft Office (639)
Network Engineering (961)	Planning (917)	Amazon Web Services (594)
Scripting (858)	Leadership (810)	Windows Servers (594)
Active Directory (845)	Detail Oriented (748)	Dynamic Host Configuration Protocol (DHCP) (577)

### Educational Attainment

The Bureau of Labor Statistics (BLS) lists an associate degree for *computer network support specialists*, and a bachelor's degree for *computer network architects*, and *network and computer systems administrators*. However, the national-level educational attainment data indicates between 36% and 39% of workers in the field have completed some college or an associate degree as their highest level of education. Exhibit 11 shows the educational attainment for each occupation, sorted by highest community college educational attainment to lowest.

Exhibit 11: National-level Educational Attainment for Occupations



### Requested Minimum Education Requirement

Among cumulative job postings for these cybersecurity occupations in Los Angeles and Orange counties, 63% (3,652) listed a minimum education requirement:

- 31% (1,169) requested a high school diploma or associate degree
- 67% (2,483) requested a bachelor's degree

## Educational Supply

The following supply tables display the total supply for these middle-skill cybersecurity occupations that align with these TOP and CIP codes and program needs.

### Community College Supply

Exhibit 12 shows the three-year average number of awards conferred by community colleges in the related TOP codes:

- Computer Information Systems (0702.00)
- Computer Infrastructure and Support (0708.00)
- Computer Networking (0708.10)
- World Wide Web Administration (0709.00)

The colleges with the most completions in the region are Coastline (144), then Long Beach (118), and Cypress (113). Over the past 12 months, there were two other related program recommendation requests from regional community colleges.

Exhibit 12: Regional Community College Awards (Certificates and Degrees), 2021-2024

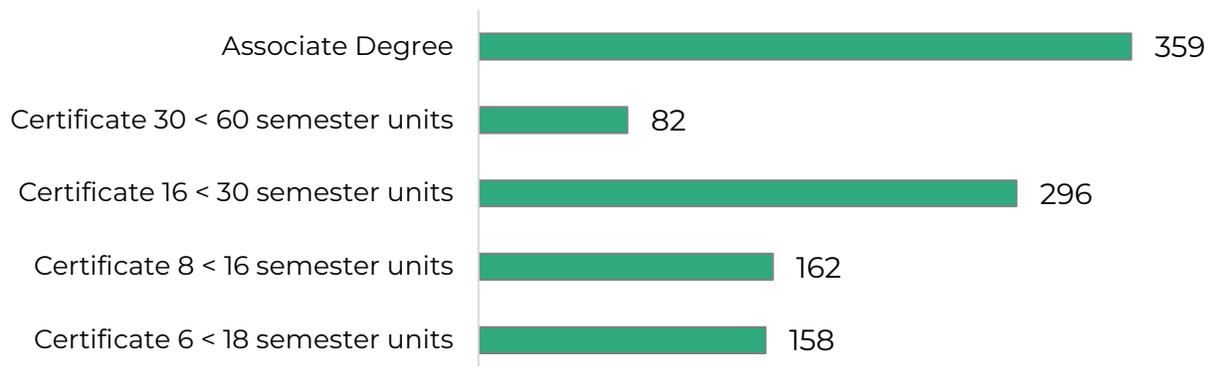
TOP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
0702.00	Computer Information Systems	Citrus	6	2	5	4
		Compton	12	4	4	7
		East LA	11	23	42	25
		El Camino	28	19	27	25
		Glendale	8	11	5	8
		LA City	3	4	20	9
		LA Harbor	1	2	3	2
		LA Mission	1	0	0	0
		LA Swest	21	20	10	17
		LA Trade	17	35	18	23
		Long Beach	0	6	26	11
		Mt San Antonio	68	41	41	50
		Rio Hondo	15	14	14	14
		Santa Monica	0	2	6	3
		West LA	14	8	7	10
		<b>LA Subtotal</b>	<b>205</b>	<b>191</b>	<b>228</b>	<b>208</b>
		Coastline	2	7	11	7
		Fullerton	49	48	51	49
		Irvine	0	1	0	0
		Orange Coast	1	0	0	0
		Saddleback	0	1	1	1

TOP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
		Santa Ana	18	8	23	16
		Santiago Canyon	1	5	2	3
		<b>OC Subtotal</b>	<b>71</b>	<b>70</b>	<b>88</b>	<b>76</b>
<b>Supply Subtotal/Average</b>			<b>276</b>	<b>261</b>	<b>316</b>	<b>284</b>
0708.00	Computer Infrastructure and Support	Cerritos	9	14	14	12
		East LA	3	11	3	6
		El Camino	5	8	13	9
		Glendale	11	3	4	6
		LA City	12	19	50	27
		LA Harbor	2	1	0	1
		LA Mission	32	20	58	37
		LA Valley	3	2	3	3
		Long Beach	2	24	37	21
		Mt San Antonio	36	17	35	29
		Pasadena	8	17	3	9
		Rio Hondo	19	30	31	27
		West LA	7	4	7	6
		<b>LA Subtotal</b>	<b>205</b>	<b>191</b>	<b>228</b>	<b>208</b>
		Coastline	91	81	137	103
		Cypress	1	0	1	1
		Fullerton	0	0	1	0
		Orange Coast	7	2	2	4
		Saddleback	13	14	14	14
		Santa Ana	14	20	18	17
		Santiago Canyon	0	1	1	1
<b>OC Subtotal</b>	<b>71</b>	<b>70</b>	<b>88</b>	<b>76</b>		
<b>Supply Subtotal/Average</b>			<b>276</b>	<b>261</b>	<b>316</b>	<b>284</b>
0708.10	Computer Networking	Cerritos	6	10	13	10
		Glendale	2	2	0	1
		LA City	8	6	11	8
		LA Pierce	19	14	24	19
		Long Beach	52	70	39	54
		Mt San Antonio	25	13	21	20
		Rio Hondo	5	7	10	7

TOP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
		Santa Monica	0	1	0	0
		West LA	24	24	68	39
		<b>LA Subtotal</b>	<b>141</b>	<b>147</b>	<b>186</b>	<b>158</b>
		Coastline	49	17	36	34
		Cypress	71	116	151	113
		Irvine	18	27	34	26
		Saddleback	15	17	15	16
		Santa Ana	45	47	88	60
		<b>OC Subtotal</b>	<b>198</b>	<b>224</b>	<b>324</b>	<b>249</b>
<b>Supply Subtotal/Average</b>			<b>339</b>	<b>371</b>	<b>510</b>	<b>407</b>
0709.00	World Wide Web Administration	Cerritos	3	3	7	4
		Glendale	7	2	6	5
		LA Pierce	0	2	1	1
		Long Beach	44	39	15	33
		Mt San Antonio	0	4	8	4
		Santa Monica	0	3	3	2
		West LA	7	8	5	7
		<b>LA Subtotal</b>	<b>61</b>	<b>61</b>	<b>45</b>	<b>56</b>
		Fullerton	0	0	1	0
		Saddleback	3	3	0	2
		<b>OC Subtotal</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>2</b>
		<b>Supply Subtotal/Average</b>			<b>64</b>	<b>64</b>
<b>Supply Total/Average</b>			<b>954</b>	<b>984</b>	<b>1,304</b>	<b>1,081</b>

Exhibit 13 shows the annual average community college awards by type from 2021-22 to 2023-24. The plurality of the awards are for associate degrees and certificates between 16 and less than 30 semester units.

Exhibit 13: Annual Average Community College Awards by Type, 2021-2024



## Community College Student Outcomes

Exhibit 14 shows the Strong Workforce Program (SWP) metrics for computer networking programs in Rancho Santiago County Community College District (RSCCD), the Orange County Region, and California. Due to the low number of students, the number of computer networking students in 2023-2024 who attended RSCCD is unknown, and student outcome data for median annual earnings and attaining the living wage is not available at the district level. However, a lower percentage of computer networking students in Orange County attained the living wage (48%) when compared to all computer networking students in the state (58%).

Exhibit 14: Computer Networking (0708.10) Strong Workforce Program Metrics, 2021-2024<sup>3</sup>

SWP Metric	RSCCD	OC Region	California
SWP Students	Insufficient Data	996	10,203
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	Insufficient Data	43%	46%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	Insufficient Data	46%	71%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	29	186	910
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2022-23)	Insufficient Data	47	351
SWP Students with a Job Closely Related to Their Field of Study (2021-22)	Insufficient Data	Insufficient Data	68%
Median Annual Earnings for SWP Exiting Students (2022-23)	Insufficient Data	\$56,724 (\$27.27)	\$54,738 (\$26.32)
Median Change in Earnings for SWP Exiting Students (2022-23)	Insufficient Data	31%	23%
SWP Exiting Students Who Attained the Living Wage (2022-23)	Insufficient Data	48%	55%

## Non-Community College Supply

To comprehensively analyze the regional supply, it is crucial to include data from other institutions offering computer networking programs. Exhibit 15 displays the annual and three-year average awards granted by these institutions under the related Classification of Instructional Programs (CIP) codes:

- Network and System Administration/Administrator (11.1001)
- Computer and Information Systems Security/Auditing/Information Assurance (11.1003)

No awards were conferred for the related CIP codes:

- Computer Systems Networking and Telecommunications (11.0901)
- Cloud Computing (11.0902)

<sup>3</sup> All SWP metrics are for 2023-24 unless otherwise noted.

The available data covers 2020 to 2023. During this period, non-community college institutions in the region conferred an average of 135 awards annually in a related program.

Exhibit 15: Regional Non-Community College Awards, 2020-2023

CIP Code	Program	College	2020-2021 Awards	2021-2022 Awards	2022-2023 Awards	3-Year Award Average
11.1001	Network and System Administration/Administrator	ABCO Technology	40	104	46	63
		Brand College	16	9	6	10
<b>Supply Subtotal/Average</b>			<b>56</b>	<b>113</b>	<b>52</b>	<b>74</b>
11.1003	Computer and Information Systems Security/Auditing/Information Assurance	ABCO Technology	0	0	0	0
		Azusa Pacific University	0	0	0	0
		California State University-Dominguez Hills	8	39	37	28
		InterCoast Colleges-West Covina	0	2	6	3
		Lernet Academy Inc	4	3	1	3
		Loyola Marymount University	0	0	0	0
		Platt College-Los Angeles	0	0	7	2
		University of La Verne	0	0	0	0
		University of Southern California	29	13	35	26
		Westcliff University	0	0	0	0
<b>Supply Subtotal/Average</b>			<b>41</b>	<b>57</b>	<b>86</b>	<b>61</b>
<b>Supply Total/Average</b>			<b>97</b>	<b>170</b>	<b>138</b>	<b>135</b>

## Regional Demographics

The following section presents occupational, community college program, and population demographic data for Orange County. This comparison can help identify possible equity gaps between the local workforce and the student pipeline who are preparing for these occupations. These insights can inform program development, outreach, and support strategies to better align community college programs with current labor market needs.

### Ethnicity

Exhibit 16 compares the ethnicity of Orange County community college students enrolled in computer networking programs, the overall Orange County population, and occupation-specific data for the three cybersecurity occupations included in this report.

White, Hispanic or Latino, and Asian individuals together comprise 91% of the workforce, and account for 80% of students in cybersecurity programs—indicating that these three groups dominate both the labor force and training pipeline.

White individuals account for almost half (49%) of the cybersecurity workforce but represent just over a quarter (27%) of computer networking students. Asian individuals are the next most represented group in the workforce (29%), which is relatively aligned with their share of program enrollments (23%). In contrast, Hispanic or Latino individuals make up just 13% of cybersecurity workers, which is significantly less than their representation of computer networking students (30%). Notably, Black or African American individuals make up 2% of cybersecurity workers and 8% of students. These differences indicate a potential disconnect between training and employment outcomes.

Exhibit 16: Program and County Demographics by Ethnicity

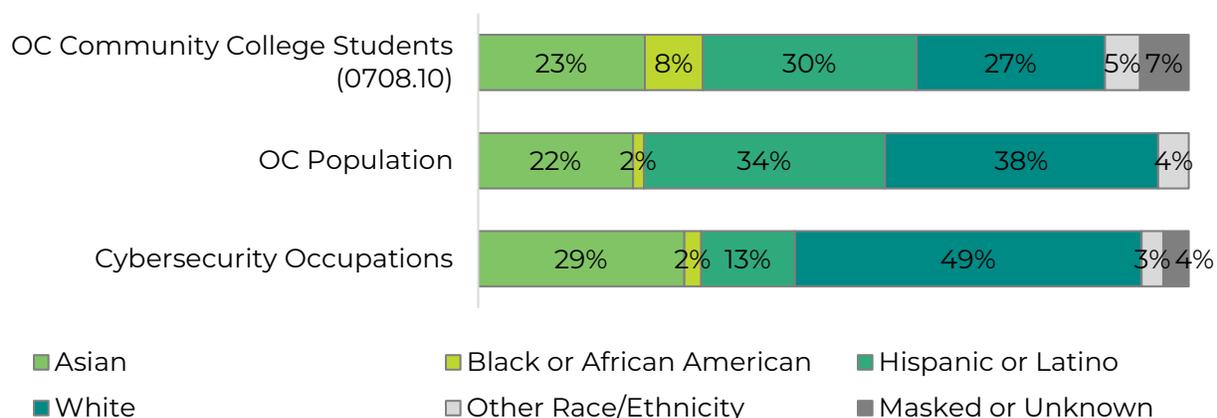
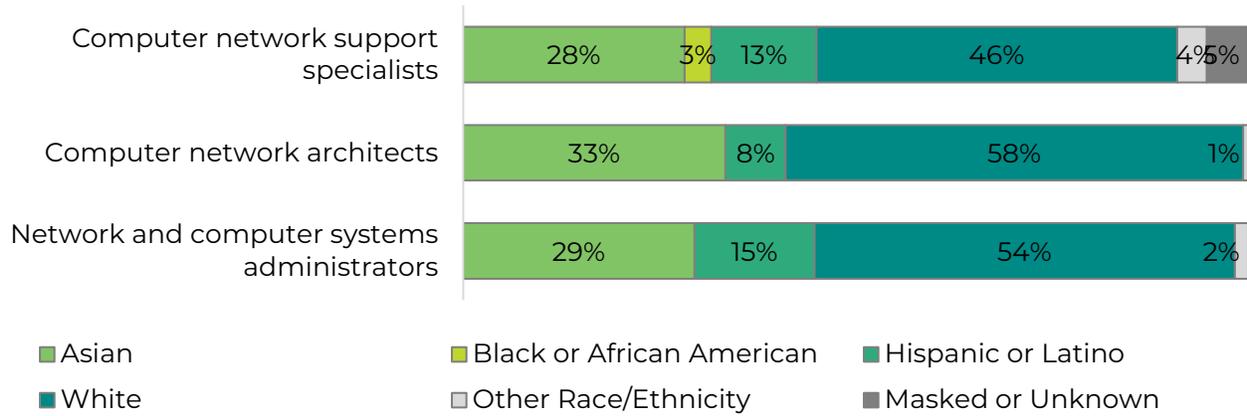


Exhibit 17 shows the disaggregated analysis, revealing notable differences in representation among these cybersecurity occupations.

White individuals account for the largest share of workers across all three occupations, and make up more than half (58%) of the highest paying occupation (\$53.62 per hour) — *computer network architects*, which also requires a bachelor's degree. All other racial and ethnic groups are represented at similar rates across all three occupations, with one notable exception: Black or African American individuals comprise 3% of the lowest-paying (\$27.33 per hour) occupation – *computer network support specialists*, which also requires an

associate degree, and are absent in the higher-paying occupations, *computer network architects* and *network and computer systems administrators*.

Exhibit 17: Ethnicity Distribution by Occupation



## Age

Exhibit 18 compares the age of Orange County community college students enrolled in computer networking programs, the overall Orange County population, and occupation-specific data for the four cybersecurity occupations included in this report.

Overall, the cybersecurity workforce is much older than computer networking students training for these occupations, with 73% of cybersecurity workers 35 and older compared to 30% of computer networking students. This may indicate the need for accumulating training or on-the-job experience to become a cybersecurity worker.

Exhibit 18: Program and County Demographics by Age

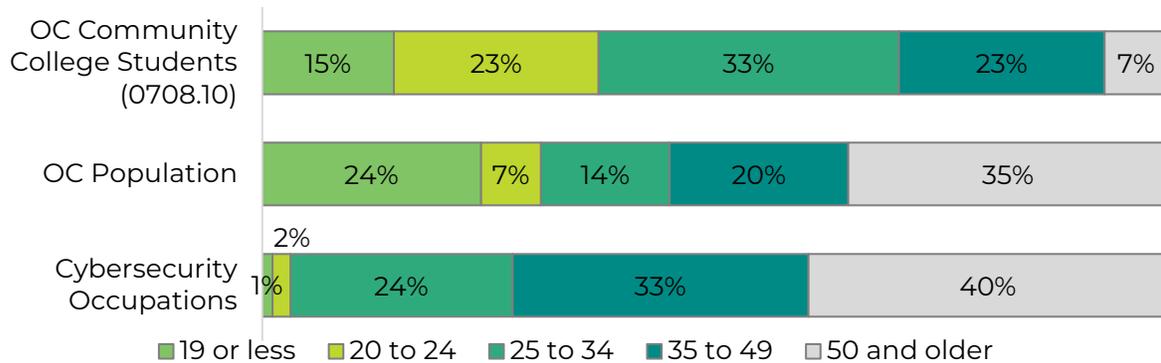
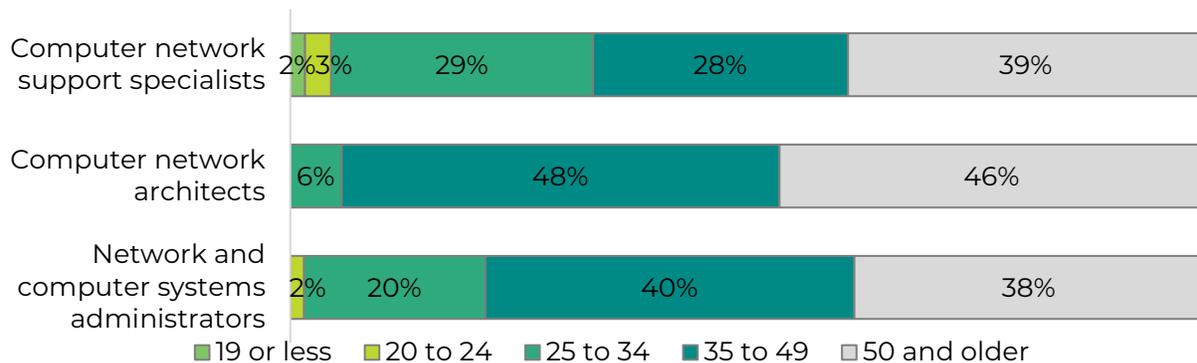


Exhibit 19 shows the disaggregated analysis, revealing notable differences in age distribution among these cybersecurity occupations.

Those who are 35 and older in cybersecurity occupations make up a substantial proportion of the workforce in the highest wage (\$53.62 per hour) highest educational requirement (bachelor's degree) occupation *computer network architects* where they represent 94% of the workforce. By contrast, they account for 67% of *computer network support specialists*, the lowest wage occupation (\$27.33 per hour). This pattern suggests that career mobility into higher-paying cybersecurity roles may occur later in workers' careers, after gaining additional training.

Exhibit 19: Age Distribution by Occupation



## Sex

Exhibit 20 compares the sex of Orange County community college students enrolled in computer networking programs, the overall Orange County population, and occupation-specific data for these cybersecurity occupations.

While women make up about half of the general population (50%), they represent only about a fifth of computer networking students (19%) and cybersecurity workers (20%).

Exhibit 20: Program and County Demographics by Sex

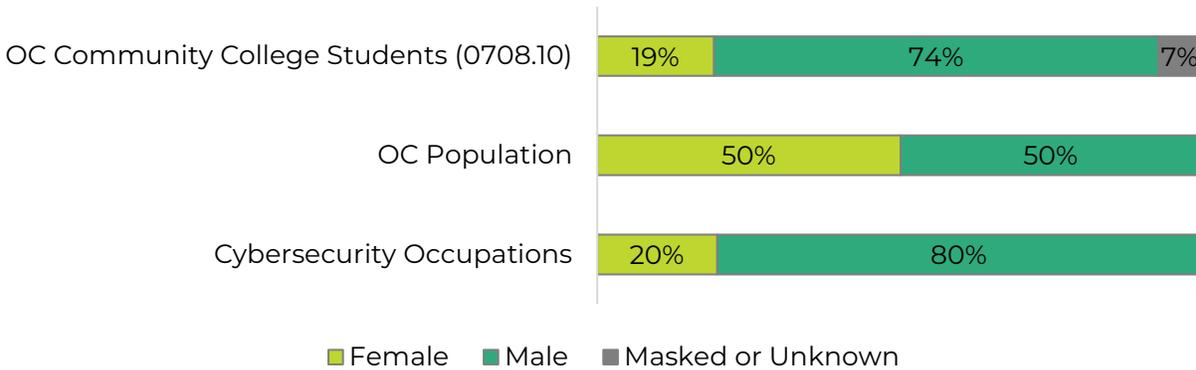
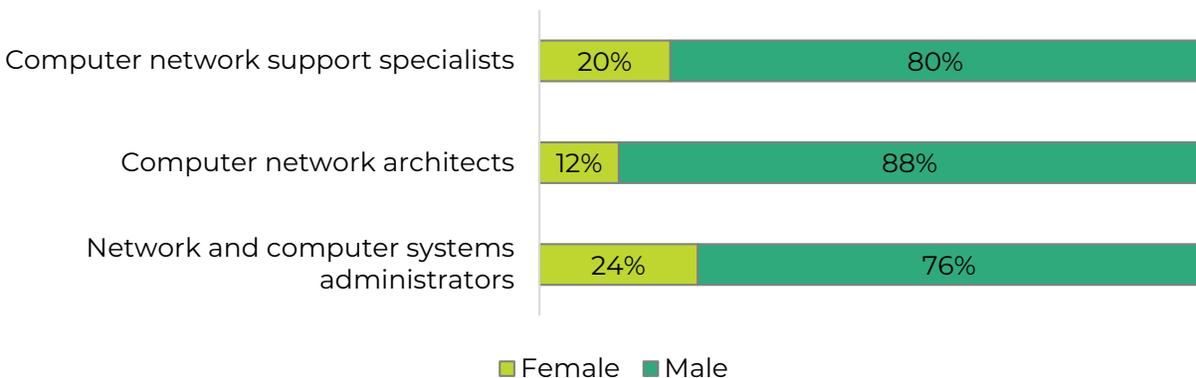


Exhibit 21 shows the disaggregated analysis, revealing notable differences in representation among these cybersecurity occupations.

Men make up the majority of cybersecurity workers, with a disproportionate share of over 75% across all three occupations. In the highest-paying occupation, *computer network architects* (\$53.62 per hour), men account for 88% of the workforce, suggesting a gender imbalance within the field.

Exhibit 21: Sex Distribution by Occupation



## Appendix A: Methodology

OC COE prepared this report by analyzing occupational and educational program data. Occupational data comes from Lightcast, a labor market analytics firm which compiles information from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS), and other agencies. Analysis of emerging occupations is predicated on online job postings data combined with Occupational Information Network (O\*NET) profile descriptions. Program supply data was sourced from the California Community Colleges Chancellor's Office Data Mart (MIS Data Mart) ([datamart.cccco.edu](http://datamart.cccco.edu)) and the Integrated Postsecondary Education Data System ([nces.ed.gov/ipeds/use-the-data](http://nces.ed.gov/ipeds/use-the-data)), also known as IPEDS, which was integrated into the COE's Supply Table. (IPEDS).

Using a TOP-SOC crosswalk, the OC COE identified middle-skill jobs for which programs within these TOP codes train. Middle-skill jobs include:

- All occupations that have an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

The OC COE determined labor market supply for each occupation (SOC code) by analyzing the number of 3-year average program completers or awards in related TOP and CIP codes. TOP code data comes from MIS Data Mart and CIP code data comes from the IPEDS. The TOP is a system of numerical codes used at the state level to collect and report information on California community college programs and courses throughout the state that have similar outcomes. CIP codes are a taxonomy of academic disciplines at institutions of higher education throughout the United States and Canada. The California Community Colleges are the only system that use TOP codes.

The analysis reflects labor market demand for occupations closely related to the proposed program as expressed by the requesting college in consultation with the OC COE. assess current and projected employment based on data trends for detailed occupations, as well as annual average awards granted by regional postsecondary educational institutions. Real-time labor market information (online job postings) assesses employer preferences but cannot be used to measure the quantity of open positions, number of jobs, or annual openings.

All findings are based on the most current available data and a combination of primary and secondary sources. While care was taken to ensure accuracy, the OC COE, its host district, and the California Community Colleges Chancellor's Office are not responsible for individual decisions made based on this report.

## Appendix B: Data Sources

Data Type	Source
Occupational Projections, Wages, and Job Postings	Traditional and real-time labor market information are captured using data from <a href="#">Lightcast</a> (v.2025.3), a labor market analytics firm.
Living Wage	<p>Per the CCCCCO's this report's endorsement criteria uses the <a href="#">University of Washington's Center for Women's Welfare Self-Sufficiency Standard</a> last updated in March 2024, which is \$27.13 per hour (\$57,294 annually) in Orange County.</p> <p>The <a href="#">MIT Living Wage</a>, updated on February 10, 2025, is a nationally recognized living wage metric and is provided for reference. The current MIT Living Wage in Orange County is \$32.20.</p>
Typical Education and Training Requirements, and Educational Attainment	The <a href="#">Bureau of Labor Statistics (BLS)</a> uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data.
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	The <a href="#">O*NET</a> database includes information on skills, abilities, knowledges, work activities, and interests associated with occupations.
Educational Supply	<p>The <a href="#">CCCCCO Data Mart</a> provides information about students, courses, student services, outcomes and faculty and staff.</p> <p>The <a href="#">National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS)</a> collects data on the number of postsecondary awards earned (completions).</p>
Student Metrics and Demographics	<a href="#">Data Vista</a> (v.2.0), a statewide data system supported by the California Community Colleges Chancellor's Office provides data on progress, success, employment, and earnings outcomes for California community college students.
Population and Occupation Demographics	<p>The <a href="#">Census Bureau's American Community Survey (ACS)</a> is the premier source for detailed population and housing information.</p> <p>Data is sourced from <a href="#">IPUMS USA</a>, a database providing access to ACS and other Census Bureau data products.</p>

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FOR LABOR MARKET RESEARCH

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