

# Labor Market Assessment for: Computer Network Operations Occupations (0708.00 Computer Infrastructure and Support)

Inland Empire/Desert Center of Excellence, August 2025

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FOR LABOR MARKET RESEARCH

INLAND EMPIRE/DESERT

## Summary

Program LMI Endorsement	All LMI Criteria Met	Some LMI Criteria Met (Proceed with Caution)	LMI Criteria NOT Met
	✓	<input type="checkbox"/>	<input type="checkbox"/>

Program LMI Endorsement Criteria		
Supply Gap	Yes ✓	No <input type="checkbox"/>
	<i>Comments:</i> There is <i>projected</i> to be <b>812 annual job openings</b> throughout the Inland Empire/Desert region, which is more than the <b>132 annual average awards conferred by educational institutions over the last 3 years</b> . Supply data includes both community college awards (101) and non-community college awards (31).	
Living Wage	Yes ✓	No <input type="checkbox"/>
	<i>Comments:</i> All occupations have entry-level hourly wages <b>\$4-\$40 above the IE/D living wage of 20.42.</b> <sup>1</sup>	
Education	Yes ✓	No <input type="checkbox"/>
	<i>Comments:</i> The <b>minority (43%)</b> of annual job openings for these six occupations have <b>some college or associate degree</b> as their <b>typical entry-level education level</b> , however <b>more</b> than 33% of all workers in the field (33.4%) have completed <b>some college or associate degree</b> as their <b>highest level of education</b> . See Exhibit 9 for more details.	

The Inland Empire/ Desert (IE/D) Center of Excellence for Labor Market Research (IE/D COE) reviewed the following occupations to prepare this report:

- Middle-Skill (typically require training/education above a HS diploma but less than a bachelor's degree)
  - Computer Network Support Specialists (15-1231)
  - Computer User Support Specialists (15-1232)
- Above Middle-Skill (typically require a bachelor's degree)
  - Computer and Information Systems Managers (11-3021)
  - Information Security Analysts (15-1212)
  - Computer Network Architects (15-1241)
  - Network and Computer Systems Administrators (15-1244)

## Summary of findings

### Demand

- The number of jobs related to the assessed occupations is projected to increase 8% through 2029, with 812 annual job openings (new and replacement jobs).
- Hourly entry-level wages for all occupations are above living wage at the 25<sup>th</sup> percentile hourly wage ranging from \$24.97 to \$60.92 in IE/D.
- There were 1,782 online job postings from 641 employers over the past 12 months with the highest postings for systems administrators and IT specialists.
- Most job postings for target occupations require a bachelor's degree (48%), followed by a high school diploma or equivalent (34%), associate degree (17%), and above a bachelor's degree (2%).

### Supply

- On average, there were 132 annual awards conferred by educational institutions over the last 3 years in related fields: 101 from community colleges and 31 from other institutions (e.g., 4-year universities, private schools).
- IE/D community college students that exited these programs in the 2022-23 academic year earned a median annual wage of \$43,888 (\$21.10 per hour).
- 52% of students that exited their program in 2022-23 reported that they are now earning a living wage.

<sup>1</sup> The [UW self-sufficiency standard](#) is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2024. To provide an alternative perspective, the COE will provide an alternative living wage calculation from MIT in the analysis below as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is \$26.30 in Riverside County and \$25.17 in San Bernadino County.

## Introduction

California Community College Computer Infrastructure and Support (TOP 0708.00) programs prepare students for employment in network and operation systems design and administration, including certification preparation (Taxonomy of Programs, 2023). The knowledge, skills, and abilities trained by Computer Infrastructure and Support programs lead to employment in occupations related to network ops.

## Job Demand

In 2024, there were 10,326 jobs in occupations related to network operations in the IE/D region. Regional employment for this occupation group is projected to increase by 8% through 2029 with 812 job openings projected annually. Exhibit 1 displays the job count, five-year projected job growth, and job openings in the region.

**Exhibit 1. Five-year projections for occupations related to network ops, IE/D Region, 2024-2029**

Occupation	SOC	2024 Jobs	2029 Jobs	2024 - 2029 % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
Computer and Information Systems Managers	11-3021	2,702	3,007	11%	1,243	249
Information Security Analysts	15-1212	492	580	18%	233	47
Computer Network Support Specialists	15-1231	738	799	8%	305	61
Computer User Support Specialists	15-1232	3,978	4,183	5%	1,504	301
Computer Network Architects	15-1241	647	706	9%	236	47
Network and Computer Systems Administrators	15-1244	1,769	1,827	3%	536	107
<b>Total</b>		<b>10,326</b>	<b>11,102</b>	<b>8%</b>	<b>4,056</b>	<b>812</b>

SOURCE: LIGHTCAST 2025.3

## Job Postings

The following analysis for occupations related to network operations using online job posting data.

**Important note:** The data produced in this section were generated by leveraging online job posting data sourced from Lightcast, which is the labor market analytics software tool COEs use to produce these briefs. The job posting data is collected from scraping online job boards such as LinkedIn, Indeed, Glassdoor and many others. The process Lightcast uses to assemble this data does have some limitations due to methods that recruitment professionals sometimes use (e.g., posting one job to fill multiple positions). For example, the number of jobs posted is not necessarily the same as the number of job vacancies.<sup>2</sup> While not perfect, Lightcast leverages machine learning and other AI technologies to enrich, deduplicate and aggregate this information to make it a meaningful dataset.

Exhibit 2 displays the number of job ads posted for occupations related to network operations over the last 12 months and the median posting duration. Over the previous 12 months, there were 1,782 unique job postings for occupations related to network operations in the region from 641 employers.

<sup>2</sup> "Job Posting Analytics (JPA) Methodology." Lightcast Knowledge Base, <https://kb.lightcast.io/en/articles/6957446-job-posting-analytics-jpa-methodology>

**Exhibit 2. Job ads and posting duration, IE/D Region, Aug 2024 – Jul 2025**

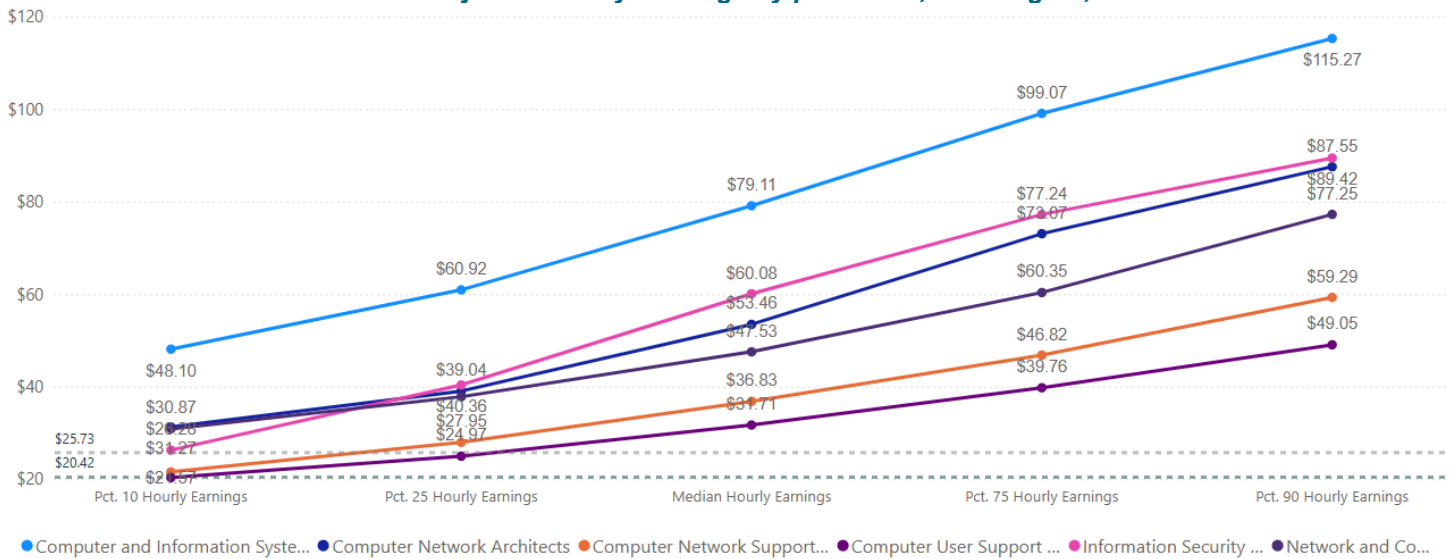
Job Title	Job Ads	Median Posting Duration
Computer User Support Specialists	730	23 days
Network and Computer Systems Administrators	508	22 days
Computer Network Architects	262	23 days
Computer Network Support Specialists	131	25 days
Computer and Information Systems Managers	76	31 days
Information Security Analysts	75	17 days
<b>Total</b>	<b>1,782</b>	

SOURCE: LIGHTCAST 2025.3

## Earnings

Exhibit 3 displays the hourly earnings for occupations related to network operations compared to both the UW Self-Sufficiency Standard for the IE/D of \$20.42<sup>3</sup> and the MIT IE/D living wage of \$25.73.<sup>4</sup>

**Exhibit 3. Projected hourly earnings by percentile, IE/D Region, 2024**



Description	Pct. 10 Hourly Earnings	Pct. 25 Hourly Earnings	Median Hourly Earnings	Pct. 75 Hourly Earnings	Pct. 90 Hourly Earnings
Computer User Support Specialists	\$20.33	\$24.97	\$31.71	\$39.76	\$49.05
Computer Network Support Specialists	\$21.57	\$27.95	\$36.83	\$46.82	\$59.29
Network and Computer Systems Administrators	\$30.87	\$37.82	\$47.53	\$60.35	\$77.25
Computer Network Architects	\$31.27	\$39.04	\$53.46	\$73.07	\$87.55
Information Security Analysts	\$26.28	\$40.36	\$60.08	\$77.24	\$89.42
Computer and Information Systems Managers	\$48.10	\$60.92	\$79.11	\$99.07	\$115.27

SOURCE: 2025.3

All projected entry-level earnings (that is, the earnings of the lowest paid 25% of employees in the IE/D) were above the UW Self-Sufficiency Standard for the IE/D (see Exhibit 3). Five of the six occupations listed were also above the MIT living wage for an adult with no children (\$25.73) in projected entry-level earnings (see Exhibit 3).

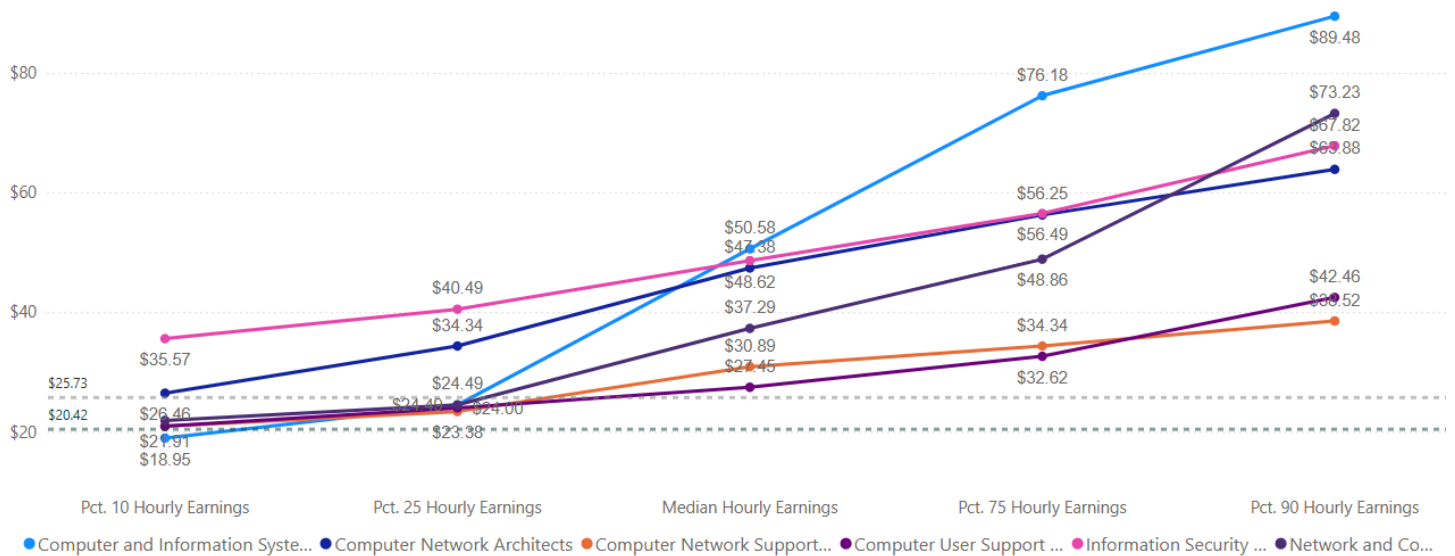
<sup>3</sup> The UW self-sufficiency standard is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2024. To provide an alternative perspective, the COE will provide an alternative living wage calculation from MIT in the analysis below as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is \$26.30 in Riverside County and \$25.17 in San Bernadino County.

<sup>4</sup> *ibid.*

# Advertised Salary from Online Job Ads

Exhibit 4 displays the regional online advertised salaries for the occupations related to network operations over the last 12 months. The salary information of online job ad data suggests employers advertise entry level hourly wages between \$23.38 and \$40.49 (estimated to be equal to an annual salary between \$48,630 and \$84,219).

**Exhibit 4. Hourly earnings of job postings by percentile, IE/D Region, Aug 2024 – Jul 2025**



Description	Pct. 10 Hourly Earnings	Pct. 25 Hourly Earnings	Median Hourly Earnings	Pct. 75 Hourly Earnings	Pct. 90 Hourly Earnings
Computer and Information Systems Managers	\$18.95	\$24.49	\$50.58	\$76.18	\$89.48
Computer Network Architects	\$26.46	\$34.34	\$47.38	\$56.25	\$63.88
Computer Network Support Specialists	\$20.92	\$23.38	\$30.89	\$34.34	\$38.52
Computer User Support Specialists	\$20.92	\$24.00	\$27.45	\$32.62	\$42.46
Information Security Analysts	\$35.57	\$40.49	\$48.62	\$56.49	\$67.82
Network and Computer Systems Administrators	\$21.91	\$24.49	\$37.29	\$48.86	\$73.23

SOURCE: LIGHTCAST 2025.3

# Online Job Advertisements: top job titles, skills, education & work experience.

Exhibit 5 displays the job titles most frequently used in job postings for the occupations related to network operations over the last 12 months. Assessing the top advertised job titles may provide insight into the types of positions sought by employers.











**Exhibit 5. Job titles most frequently used in job ads, IE/D Region, Aug 2024 – Jul 2025**

Job Title	Unique Postings
Systems Administrators	82
IT Specialists	50
IT Technicians	50
Network Engineers	45
IT Support Specialists	40
Help Desk Technicians	34
Network Administrators	31
Desktop Support Analysts	27
IT Support Technicians	27
Desktop Support Technicians	25

SOURCE: LIGHTCAST 2025.3

Exhibit 6 displays the employers posting the most job ads for this occupational group during the last 12 months. Showing employer names can provide insight into where students may find employment after completing a program and may inform job development and other employer engagement targets for faculty and staff involved in related programs. Canonical Group and NavitsPartners had the highest unique job posts for this occupational group in the last 12 months. Posting intensity is the ratio of total job posts to unique job posts which are deduplicated. A higher posting intensity can represent the level of effort and activity the organization is putting into hiring for that position. The following report comes directly from Lightcast’s Job Posting Analytics dashboard.

**Exhibit 6. Employers posting the most job ads, IE/D Region, Aug 2024 – Jul 2025**

Company	Total/Unique (Aug 2024 - Jul 2025)	Posting Intensity	Median Posting Duration
Canonical Group	87 / 45	2 : 1 	23 days
NavitsPartners	67 / 36	2 : 1 	17 days
County Of Riverside	69 / 34	2 : 1 	39 days
Esri	83 / 30	3 : 1 	33 days
Best Buy	153 / 28	5 : 1 	27 days
Palo Alto Networks	55 / 23	2 : 1 	42 days
Ashley Furniture	65 / 23	3 : 1 	9 days
Prime Healthcare Services	73 / 19	4 : 1 	19 days
Indian Affairs	19 / 15	1 : 1 	23 days
AAA	43 / 14	3 : 1 	24 days

SOURCE: LIGHTCAST 2025.3

Exhibit 7 displays the top common, specialized and computer skills that were included in the job postings over the last 12 months. Today’s demand is an important indicator of which skills employers are looking for in the current market. Analyzing skills from a historical perspective as well as projecting the future needs of employers may provide insight into how the job posting skills demand compares to the market as a whole. Rapidly growing skills are those that are increasing in demand at a faster rate than the market as a whole. <sup>5</sup>

**Exhibit 7. Top 10 in-demand skills from employer job ads, IE/D Region, Aug 2024 – Jul 2025**

Common skills	Total Postings	Skill Growth Relative to Market
Troubleshooting (Problem Solving)	959	
Communication	815	
Customer Service	618	
Management	516	
Problem Solving	513	
Operations	498	
Information Technology	431	
Leadership	282	
Microsoft Office	248	
Planning	242	

<sup>5</sup> “What are Lightcast Skill Projects”, Lightcast Knowledge base, <https://kb.lightcast.io/en/articles/8496296-what-are-lightcast-skill-projections>

Specialized skills	Total Postings	Skill Growth Relative to Market
Computer Science	467	Growing
Technical Support	413	Growing
Operating Systems	400	Stable
Help Desk Support	297	Lagging
Information Systems	225	Rapidly Growing
Firewall	218	Lagging
Technical Issues	218	
Cyber Security	216	Growing
Active Directory	212	Stable
Local Area Networks	209	Growing

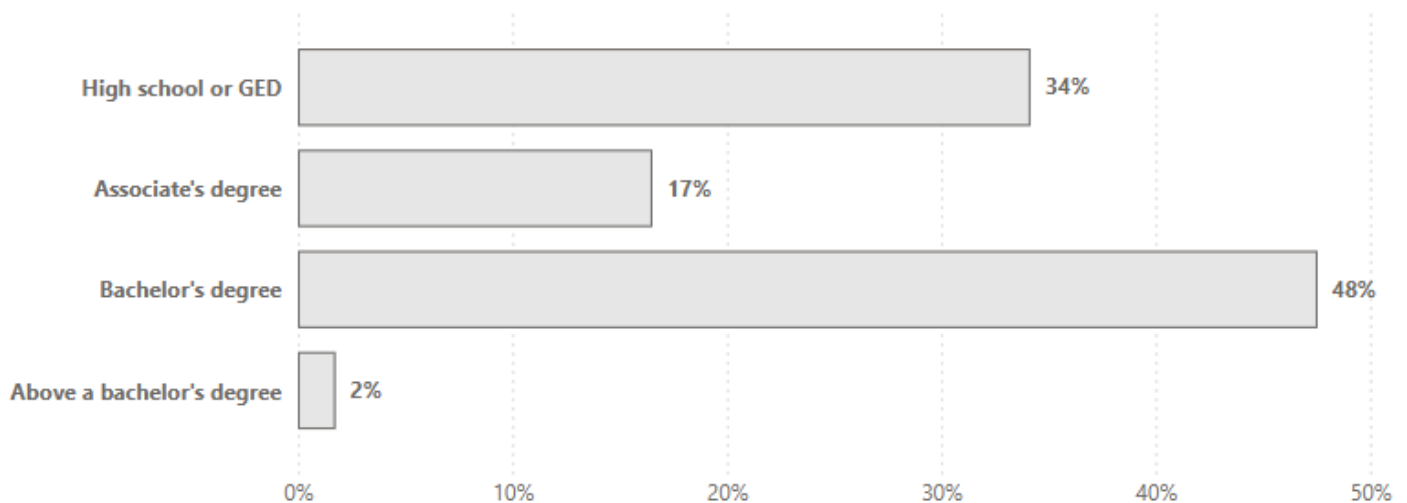
  

Computer Skills	Total Postings	Skill Growth Relative to Market
Operating Systems	400	Stable
Microsoft Office	248	
Firewall	219	Lagging
Active Directory	212	Stable
Linux	184	Lagging
Microsoft 365	141	Rapidly Growing
Microsoft Azure	124	Growing
Windows Servers	119	Lagging
Microsoft Outlook	113	
Microsoft Excel	109	

SOURCE: LIGHTCAST 2025.3

Exhibit 8 includes the minimum educational requirements from job postings for this occupational group with bachelor's degree (48%) greater than high school diploma or equivalent (34%) or associate degree (17%) or above a bachelor's degree (2%).

**Exhibit 8 Minimum educational requirements in job postings for this occupational group, IE/D Region, Aug 2024 – Jul 2025**



SOURCE: LIGHTCAST 2025.3

For the assessed occupations, the Bureau of Labor Statistics (BLS) education attainment data in Exhibit 9 for current professionals in the occupations of interest indicates that between 21% and 39% of workers have completed some college or an associate degree as their highest level of education.

**Exhibit 9 National-level Education Attainment for the Occupational Group**

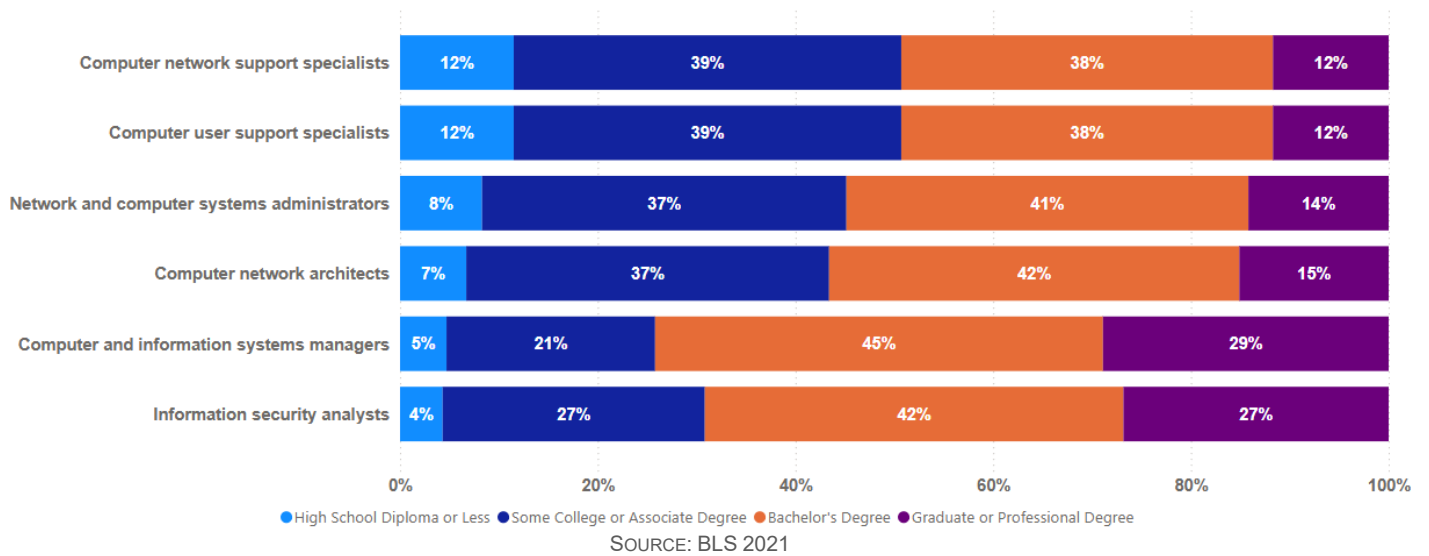
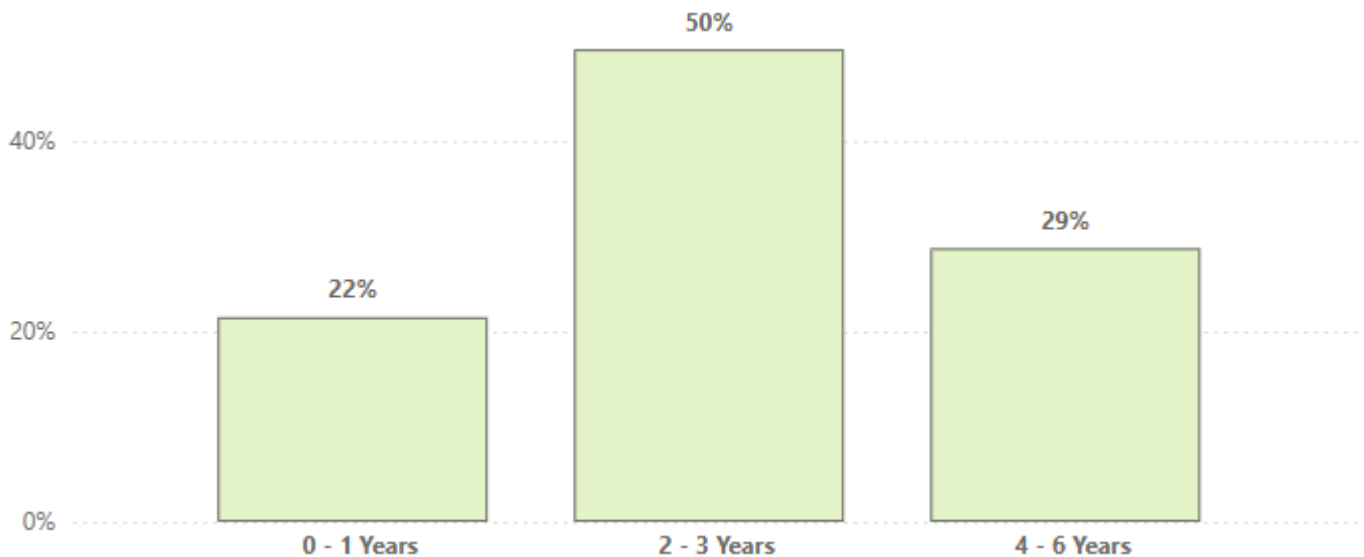


Exhibit 10 displays the work experience typically required from employer job ads for this occupational group. The majority (50%) of employers listing minimum experience requirements sought candidates with 2-3 years of previous work experience.

**Exhibit 10 Work experience requirements, IE/D Region, Aug 2024 – Jul 2025**



SOURCE: LIGHTCAST 2025.3

## Student Completions and Program Outcomes

Exhibit 11 displays student completions for the Computer Infrastructure and Support (TOP 0708.00) programs over the last three academic years (2021-2024). In the previous three academic years, three regional community colleges issued an average of 101 awards in relevant programs.

**Exhibit 11 Annual average community college awards for Computer Infrastructure and Support (TOP 0708.00), IE/D, 2021-2024**

Top Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
0708.00	Computer Infrastructure and Support	Riverside	26	28	94	49
0708.00	Computer Infrastructure and Support	Chaffey	45	47	52	48
0708.00	Computer Infrastructure and Support	Moreno Valley	2	4	4	3
<b>Total</b>			<b>73</b>	<b>79</b>	<b>150</b>	<b>101</b>

SOURCE: MIS DATA MART

### Non-Community College Supply

Exhibit 12 displays award completion data available for these IE/D non-community college programs: Computer Systems Networking and Telecommunications (CIP 11.0901), Network and System Administration/Administrator (CIP 11.1001), Computer and Information Systems Security/Auditing/Information Assurance (CIP 11.1003).

However, student award completion data was not found in the IE/D for other related non-community college programs: Cloud Computing (CIP 11.0902), Computer Support Specialist (CIP 11.1006), System, Networking, and LAN/WAN Management/Manager (CIP 11.1002).

In the previous three academic years, three regional non-community college institutions issued an average of 31 awards in relevant programs.

**Exhibit 12 Annual average non-community college awards for network operations programs, IE/D, 2020-2023**

CIP	Program	College	2020-2021 Awards	2021-2022 Awards	2022-2023 Awards	3-Year Award Average
11.0901	Computer Systems Networking and Telecommunications	DeVry University-California	39	22	14	25
11.1001	Network and System Administration/Administrator	California Baptist University	1	1	0	1
11.1001	Network and System Administration/Administrator	University of Phoenix-California	1	1	0	1
11.1003	Computer and Information Systems Security/Auditing/Information Assurance	California Baptist University	5	0	0	2
11.1003	Computer and Information Systems Security/Auditing/Information Assurance	University of Phoenix-California	9	1	0	3
<b>Total</b>			<b>55</b>	<b>25</b>	<b>14</b>	<b>31</b>

SOURCE: IPEDS

### Strong Workforce Program Outcomes

California SWP program outcome data may provide useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP code and region is provided in Exhibit 13.

**Exhibit 13 Computer Infrastructure and Support strong workforce program outcomes, IE/D & California,  
AY 2022-23**

<b>Program Metric Title</b>	<b>Inland Empire</b>	<b>Statewide</b>
Students	312	7,073
Earned 9+ Career Education Units	53%	42%
Completed Noncredit Workforce Preparation Milestone	-	84%
Earned an Award: Degree or Cert or Attained Appren. Journey Level Status	18%	9%
Transferred to a Four-Year Institution: Four-Year Postsecondary Institution	6%	4%
Median Annual Earnings	\$43,888	\$57,612
Median Change in Earnings	35%	26%
Attained Living Wage	52%	57%

SOURCE: DATAVISTA

## Appendix: Methodology

Exhibit 11 displays the average annual California Community College (CCC) awards conferred during the three academic years between 2021 and 2024 from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variations that might be present in a single year.

Community college student outcome information is from DataVista and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from California's Employment Development Department's Unemployment Insurance database. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for DataVista's Strong Workforce Program Metrics Data Element Dictionary in the Resources section (DataVista, 2025).

## Appendix: References

Type of Data	Source
Occupational Projections, Wages, and Job Postings	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment. <a href="https://lightcast.io/">https://lightcast.io/</a>
Living Wage (UW)	Center for Women's Welfare, University of Washington. (2024). The self-sufficiency standard for California 2024. <a href="http://www.selfsufficiencystandard.org/California">http://www.selfsufficiencystandard.org/California</a> .  The COE refers to the Self-Sufficiency Wage as a "living wage." This calculation measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. The living wage for one adult in San Bernardino County is \$20.07 per hour (\$42,392 annually). The living wage for one adult in Riverside County is \$20.76 per hour (\$43,854 annually). The average living wage to represent Inland Empire/Desert is \$20.42 per hour (\$43,123 annually).
Living Wage (MIT)	Glasmeier, A. K. (2024). <i>Living wage calculator</i> . Massachusetts Institute of Technology. Accessed on April 14, 2025, <a href="https://livingwage.mit.edu/states/06/locations">https://livingwage.mit.edu/states/06/locations</a>  The living wage is derived from MITs Living Wage Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. For more information, see: <a href="https://livingwage.mit.edu/pages/methodology">https://livingwage.mit.edu/pages/methodology</a> The living wage for one adult in San Bernardino County is \$25.17 per hour (\$52,353.60 annually). The living wage for one adult in Riverside County is \$26.30 per hour (\$54,704 annually). The average living wage to represent Inland Empire/Desert is \$25.74 per hour (53,539.20 annually)
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS 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. For more information, see <a href="https://www.bls.gov/emp/documentation/education/tech.htm">https://www.bls.gov/emp/documentation/education/tech.htm</a>
Educational Supply	The CCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: <a href="https://datamart.cccco.edu">https://datamart.cccco.edu</a> The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the

	<p>number of postsecondary awards earned (completions). For more information, see <a href="https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions">https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions</a></p>
<p>Student Metrics and Demographics</p>	<p>DataVista aims to provide up-to-date and useful information on students within the California Community Colleges and its Adult Education partners. DataVista is a modernization of the supporting architecture and visualization of metrics previously available on the LaunchBoard.</p> <p>DataVista is a collaboration between the California Community Colleges Chancellor's Office and WestEd, see: <a href="https://datavista.cccco.edu/data_views/swp_report">https://datavista.cccco.edu/data_views/swp_report</a></p>