Program Endorsement Brief: 0708.00/Computer Infrastructure and Support Cyber Security

Los Angeles/Orange County Center of Excellence, October 2018

Summary:

The Los Angeles/Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide regional labor market supply and demand data related to cyber Security. This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with relevant occupations.

The following summarizes key findings from this data brief:

- Cyber security-related occupations are increasing by 4% over the next five years, and nearly 1,800 job openings will be available annually due to new job growth and replacement need.
- Over the past 12 months, there were 2,989 online job postings related to cyber security in Los Angeles and Orange Counties.
- Three other related program recommendation requests were received between January and September 2018 from regional community colleges.
- Thirteen colleges in the region have programs closely related to cyber security.
- Between 2014 and 2017, community colleges in the region conferred an average of 305 awards annually (associate degrees and certificates) in related training programs.

Occupational Demand—In Los Angeles/Orange County the number of jobs for cyber security-related occupations is projected to increase by 4%. There will be nearly 1,800 job openings per year through 2022 (Exhibit 1).

Exhibit 1: Occupational demand in Los Angeles and Orange Counties[1]

Geography	2017 Jobs	2022 Jobs	2017-2022 Change	2017-2022 % Change	Annual Openings
Los Angeles	16,574	17,123	549	3%	1,201
Orange	7,420	7,793	373	5%	567
Total	**23,994**	**24,916**	**922**	**4%**	**1,767**

Wages—Entry-level hourly wages for cyber security-related occupations in the region are between $19.50 and $26.90. Entry-level wages are higher than the MIT Living hourly wage for one adult in the region ($13.54 in Los Angeles County, $15.31 in Orange County). Experienced workers earn between $57.56 and $70.27 per hour, which is higher than the living wage. Regional wages are below the average statewide wage for this occupation.

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[1] Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Job Postings—There were 2,989 online job postings related to cyber security listed in the past 12 months. The majority of job postings are for security engineers, security analysts, information security engineers, security managers and information security analysts. Top technology skills are: Linux, Python and Unix. The top three employers, by number of job postings, in the region are: Deloitte, Booz Allen Hamilton and Mantech International.

Educational Attainment—The BLS lists an associate or Bachelor's degree as the typical entry-level education for these occupations. The national-level educational attainment data indicates between 28% and 45% of workers in the field have completed some college or an associate degree. In Los Angeles/Orange County, 93% of job postings request a Bachelor's degree.

Community College Supply—Appendix A shows the three-year average number of awards conferred by community colleges in the related TOP codes: Computer Infrastructure and Support (0708.00) and Computer Networking (0708.10). Coastline college reports the most completions for both Computer Infrastructure and Support (0708.00) and Computer Networking (0708.10). Between January and September 2018, there were three other related program recommendation requests from regional community college.

Appendix A: Regional community college awards (certificates and degrees), 2014-2017

TOP Code	Program	College	2014-15 Awards	2015-16 Awards	2016-2017 Awards	3-Year Award Average
0708.00	Computer Infrastructure and Support	Citrus	6	9	-	5
		Coastline	-	93	67	53
		Cypress	10	7	1	6
		LA Valley	-	-	3	1
		Long Beach	1	1	1	1
		Mt San Antonio	15	12	16	14
		Subtotal/Average	**32**	**122**	**88**	**81**
0708.10	Computer Networking	Cerritos	5	5	10	7
		Coastline	114	14	20	49
		Cypress	30	27	28	28
		Fullerton	1	-	-	0
		Irvine	27	12	19	19
		LA City	9	6	11	9
		LA Pierce	16	21	32	23
		Long Beach	12	11	25	16
		Mt San Antonio	11	2	9	7
		Saddleback	15	23	21	20
		West LA	35	55	47	46
		Subtotal/Average	**275**	**176**	**222**	**224**
		Total/Average	**307**	**298**	**310**	**305**

Appendix B: Occupational demand and wage data by county

Exhibit 2. Los Angeles County

Occupation (SOC)	2017 Jobs	2022 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
Network and Computer Systems Administrators (15-1142)	9,933	10,091	158	2%	645	$23.89	$42.67	$64.12
Computer Network Support Specialists (15-1152)	4,526	4,715	189	4%	369	$20.11	$32.92	$58.53
Information Security Analysts (15-1122)	2,115	2,318	203	10%	186	$27.33	$50.52	$69.94
Total	**16,574**	**17,123**	**549**	**3%**	**1,201**			

Exhibit 3. Orange County

Occupation (SOC)	2017 Jobs	2022 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
Network and Computer Systems Administrators (15-1142)	4,447	4,590	143	3%	305	$23.52	$42.52	$63.12
Computer Network Support Specialists (15-1152)	2,136	2,241	105	5%	178	$17.57	$33.80	$55.14
Information Security Analysts (15-1122)	836	962	126	15%	84	$26.06	$45.20	$71.32
Total	**7,420**	**7,793**	**373**	**5%**	**567**			

Exhibit 4. Los Angeles and Orange Counties

Occupation (SOC)	2017 Jobs	2022 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
Network and Computer Systems Administrators (15-1142)	14,380	14,680	300	2%	951	$23.77	$42.61	$63.88
Computer Network Support Specialists (15-1152)	6,662	6,956	294	4%	547	$19.50	$33.19	$57.56
Information Security Analysts (15-1122)	2,951	3,280	329	11%	270	$26.90	$49.20	$70.27
Total	**23,994**	**24,916**	**922**	**4%**	**1,767**			

Appendix C: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (EMSI)
- Employment Development Department, Labor Market Information Division, OES
- Employment Development Department, Unemployment Insurance Dataset
- Living Insight Center for Community Economic Development
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- MIT Living Wage

For more information, please contact:

Lori Sanchez, Director
Center of Excellence, Los Angeles/Orange County Region
Lsanchez144@mtsac.edu

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