



**Program Endorsement Brief: 0702.00/Computer Information Systems and 0708/Computer Infrastructure and Support
Information and Operation Systems Security; Linux; Network Security; Networking; Telecommunications; Windows Operation System Administration**

Los Angeles/Orange County Center of Excellence, February 2019

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 computer information systems, infrastructure and support. 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:

- Computer information systems, infrastructure and support occupations are increasing by 4% over the next five years, and more than 6,000 job openings will be available annually due to new job growth and replacement need.
- Over the past 12 months, there were 40,205 online job postings related to computer information systems, infrastructure and support in Los Angeles and Orange Counties.
- Twenty-six other related program recommendation requests were received in 2018 from regional community colleges.
- Twenty-four colleges in the region have existing programs closely related to computer information systems, infrastructure and support.
- Between 2014 and 2017, community colleges in the region conferred an average of 446 awards annually (associate degrees and certificates) in related training programs.

Occupational Demand—In Los Angeles/Orange County, the number of computer information systems, infrastructure and support jobs is projected to increase by 4%. There will be more than 6,000 job openings per year through 2022 (Exhibit 1).

Exhibit 1: Occupational demand in Los Angeles and Orange Counties¹

Geography	2017 Jobs	2022 Jobs	2017-2022 Change	2017-2022 % Change	Annual Openings
Los Angeles	54,380	56,471	2,091	4%	4,097
Orange	24,977	26,290	1,313	5%	1,970
Total	79,357	82,760	3,403	4%	6,067

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.

Wages—Entry-level wages for computer information systems, infrastructure and support occupations in the region are between \$16.20 and \$30.07. Entry-level wages for these occupations are higher than the MIT Living hourly wage for one adult in the region (\$13.54 in Los Angeles County and \$15.31 in Orange County). Experienced workers earn between \$42.97 and \$84.80, which is higher than the living wage. Regional wages are below the average statewide wage for this occupation.

Job Postings—There were 40,205 online job postings related to computer information systems, infrastructure and support listed in the past 12 months. The majority of job postings are for information technology/help desk technician, systems analyst, systems administrator, network engineer and data engineer. Top specialized skills are: SQL, Linux, Oracle, Python and VMware. The top three employers, by number of job postings, in the region are: Northrop Grumman, Best Buy and Deloitte.

Educational Attainment—The BLS lists a Bachelor’s degree as the typical entry-level education for five of these computer information systems, infrastructure and support occupations (computer systems analysts information security analysts, database administrators, network and computer systems administrators and computer network architects), an associate degree for computer network support specialists and some college/no degree for computer user support specialists. The national-level educational attainment data indicates between 23% and 45% of workers in the field have completed some college or an associate degree. In Los Angeles/Orange County, 78% 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 Information Systems (0702.00), Computer Infrastructure and Support (0708.00), Computer Networking (0708.10) and Computer Support (0708.20). The colleges with the most completions in the region are: Coastline, West LA and Cypress. During 2018, there were 26 other related program recommendation requests from regional community colleges.

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
0702.00	Computer Information Systems	Citrus	-	-	5	2
		Compton	2	2	1	2
		Cypress	5	4	5	5
		East LA	16	14	14	15
		El Camino	12	24	15	17
		Fullerton	7	7	7	7
		Glendale	1	3	2	2
		LA City	2	4	2	3
		LA Harbor	2	-	-	1
		LA Mission	4	9	3	5
		LA Trade-Tech	19	14	22	18

		Pasadena	-	-	2	1
		Rio Hondo	9	10	10	10
		Santa Ana	35	5	18	19
		Santiago Canyon	2	2	2	2
		West LA	11	5	10	9
		Subtotal/Average	127	103	118	116
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
0708.20	Computer Support	Cypress	3	8	3	5
		Glendale	1	4	2	2
		LA Pierce	6	12	12	10
		Long Beach	2	-	-	1
		Pasadena	10	12	1	8
		Subtotal/Average	22	36	18	25
		Total/Average	456	437	446	446

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
Computer User Support Specialists (15-1151)	17,346	18,336	990	6%	1,476	\$15.43	\$26.37	\$42.34
Computer Systems Analysts (15-1121)	14,855	15,213	358	2%	1,021	\$25.69	\$43.21	\$67.82
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
Computer Network Architects (15-1143)	3,090	3,148	58	2%	210	\$31.06	\$54.09	\$90.23
Database Administrators (15-1141)	2,514	2,650	136	5%	189	\$21.43	\$46.64	\$72.13
Information Security Analysts (15-1122)	2,115	2,318	203	10%	186	\$27.33	\$50.52	\$69.94
Total	54,380	56,471	2,091	4%	4,097			

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
Computer User Support Specialists (15-1151)	8,713	9,242	529	6%	748	\$17.41	\$26.73	\$44.08
Computer Systems Analysts (15-1121)	5,747	6,033	286	5%	430	\$28.09	\$44.25	\$67.49
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
Computer Network Architects (15-1143)	1,792	1,848	56	3%	127	\$25.10	\$51.55	\$76.65

Database Administrators (15-1141)	1,305	1,374	69	5%	98	\$21.39	\$42.10	\$62.76
Information Security Analysts (15-1122)	836	962	126	15%	84	\$26.06	\$45.20	\$71.32
Total	24,977	26,290	1,313	5%	1,970			

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
Computer User Support Specialists (15-1151)	26,059	27,578	1,519	6%	2,225	\$16.20	\$26.50	\$42.97
Computer Systems Analysts (15-1121)	20,603	21,246	643	3%	1,450	\$26.51	\$43.50	\$68.01
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
Computer Network Architects (15-1143)	4,882	4,996	114	2%	337	\$30.07	\$53.05	\$84.80
Database Administrators (15-1141)	3,819	4,024	205	5%	287	\$21.42	\$44.96	\$68.61
Information Security Analysts (15-1122)	2,951	3,280	329	11%	270	\$26.90	\$49.20	\$70.27
Total	79,357	82,760	3,403	4%	6,067			

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
- Chancellor's Office Curriculum Inventory (COCI 2.0)

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