



# Information Technology Occupations in New Hampshire

## Online Job Postings, June 1 through July 31, 2016

Information technology (IT), unlike manufacturing or health care, is not a unified industry classification. While there is an information services sector it defines the production and distribution of information; only publishing, broadcasting, film, telecommunications, and data processing are included. The information industry sector does not include activities commonly identified as “information technology,” such as application development, computer user support, server farms, or cloud computing services. Furthermore, IT jobs can be present in many different non-technology industries. To better understand the needs of employers in all industries who seek IT workers, this analysis focuses on occupations engaged in IT activities.

Information technology (IT) jobs are constantly evolving to coincide with new technologies. It can be challenging for occupational taxonomies to keep pace with new and evolving occupations and skills. While standard occupational classifications include basic job descriptions and characteristics to provide a means of comparison, these classifications are not updated frequently enough to capture changes in information technology occupations. For this reason, this report is based on occupations identified as the Information Technology Occupational Group by Burning Glass Technologies.<sup>1</sup>

Information technology (IT) positions are well-represented among online job ads, providing a generous sample of postings for analysis. For the 60-day period from June 1 through July 31, 2016, there were 1,185 online information technology job postings by New Hampshire employers. They accounted for roughly six percent of all job postings.

- Of these 1,185 job postings, more than 32 percent were classified as Applications Software Developers (15-1132).
- More than 23 percent of the job postings were classified as Computer Occupations, All Other (SOC 15-1199). Job titles that are not easily categorized into a specific occupation are designated as “all other.” These “all other” job titles are generally representative of new and emerging information technology occupations. The job titles classified as “all other” during this period included:
  - o Software Quality Assurance Engineers and Testers (15-1199.01)
  - o Computer Systems Engineers/Architects (15-1199.02)
  - o Web Administrators (15-1199.03)
  - o Database Architects (15-1199.06)
  - o Data Warehousing Specialists (15-1199.07)
  - o Business Intelligence Analysts (15-1199.08)
  - o Information Technology Project Managers (15-1199.09)
- Almost 11 percent of the job postings were for Computer Support Specialist (SOC 15-1151).
- Computer Systems Analysts (SOC 15-1121) represented just over seven percent of the job postings.

<sup>1</sup> Labor Insight, Burning Glass Technologies <http://laborinsighthelp.burning-glass.com/jobs/us/?p=98>

## New Hampshire Information Technology Online Job Postings

June 1 through July 31, 2016

Burning Glass		
SOC Code	Occupational Code	Posting Job Title
11-3021	11-3021.00	Computer and Information Systems Managers
13-1199	13-1199.02	Security Management Specialists
15-1111	15-1111.00	Computer and Information Research Scientists
15-1121	15-1121.00	Computer Systems Analysts
15-1122	15-1122.00	Information Security Analysts
15-1131	15-1131.00	Computer Programmers
15-1132	15-1132.00	Software Developers, Applications
15-1134	15-1134.00	Web Developers
15-1141	15-1141.00	Database Administrators
15-1142	15-1142.00	Network and Computer Systems Administrators
<i>15-1143</i>	<i>15-1143.00</i>	<i>Computer Network Architects</i>
<i>15-1143</i>	<i>15-1143.01</i>	<i>Telecommunications Engineering Specialists</i>
15-1151	15-1151.00	Computer User Support Specialists
15-1152	15-1152.00	Computer Network Support Specialists
<i>15-1199</i>	<i>15-1199.00</i>	<i>Computer Occupations, All Other</i>
<i>15-1199</i>	<i>15-1199.01</i>	<i>Software Quality Assurance Engineers and Testers</i>
<i>15-1199</i>	<i>15-1199.02</i>	<i>Computer Systems Engineers/Architects</i>
<i>15-1199</i>	<i>15-1199.03</i>	<i>Web Administrators</i>
<i>15-1199</i>	<i>15-1199.06</i>	<i>Database Architects</i>
<i>15-1199</i>	<i>15-1199.07</i>	<i>Data Warehousing Specialists</i>
<i>15-1199</i>	<i>15-1199.08</i>	<i>Business Intelligence Analysts</i>
<i>15-1199</i>	<i>15-1199.09</i>	<i>Information Technology Project Managers</i>
15-2041	15-2041.02	Clinical Data Managers
27-1024	27-1024.00	Graphic Designers
29-2071	29-2071.00	Medical Records and Health Information Technicians

Blue *italicized* text indicate job codes that are classified under the same Standard Occupational Code (SOC)

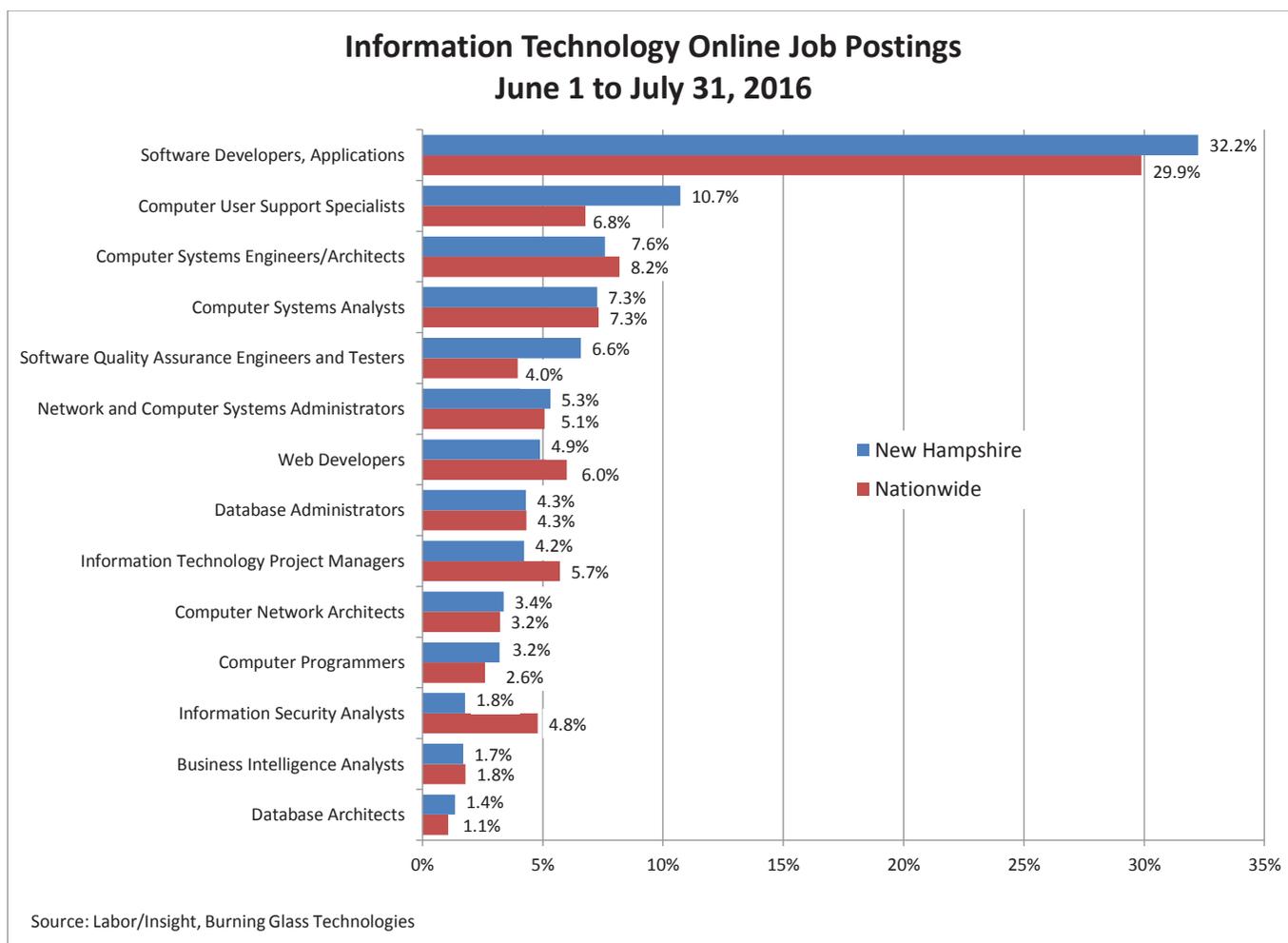
Source: Labor/Insight, Burning Glass Technologies

### Distribution of Information Technology Job Postings in New Hampshire versus Nationwide

The distribution of information technology job postings varied only slightly between New Hampshire and the nation, indicating that business needs in the state are not significantly different than those nationwide. The share of postings for seven job titles was slightly higher for New Hampshire than the nation:

- Software Developers, Applications
- Computer User Support Specialists
- Software Quality Assurance Engineers and Testers
- Network and Computer Systems Administrators
- Computer Network Architects
- Computer Programmers
- Database Architects

The share of New Hampshire job postings for Information Technology Project Managers and Web Developers, and Information Security Analysts were the only occupations with notably lower shares of postings than nationwide.

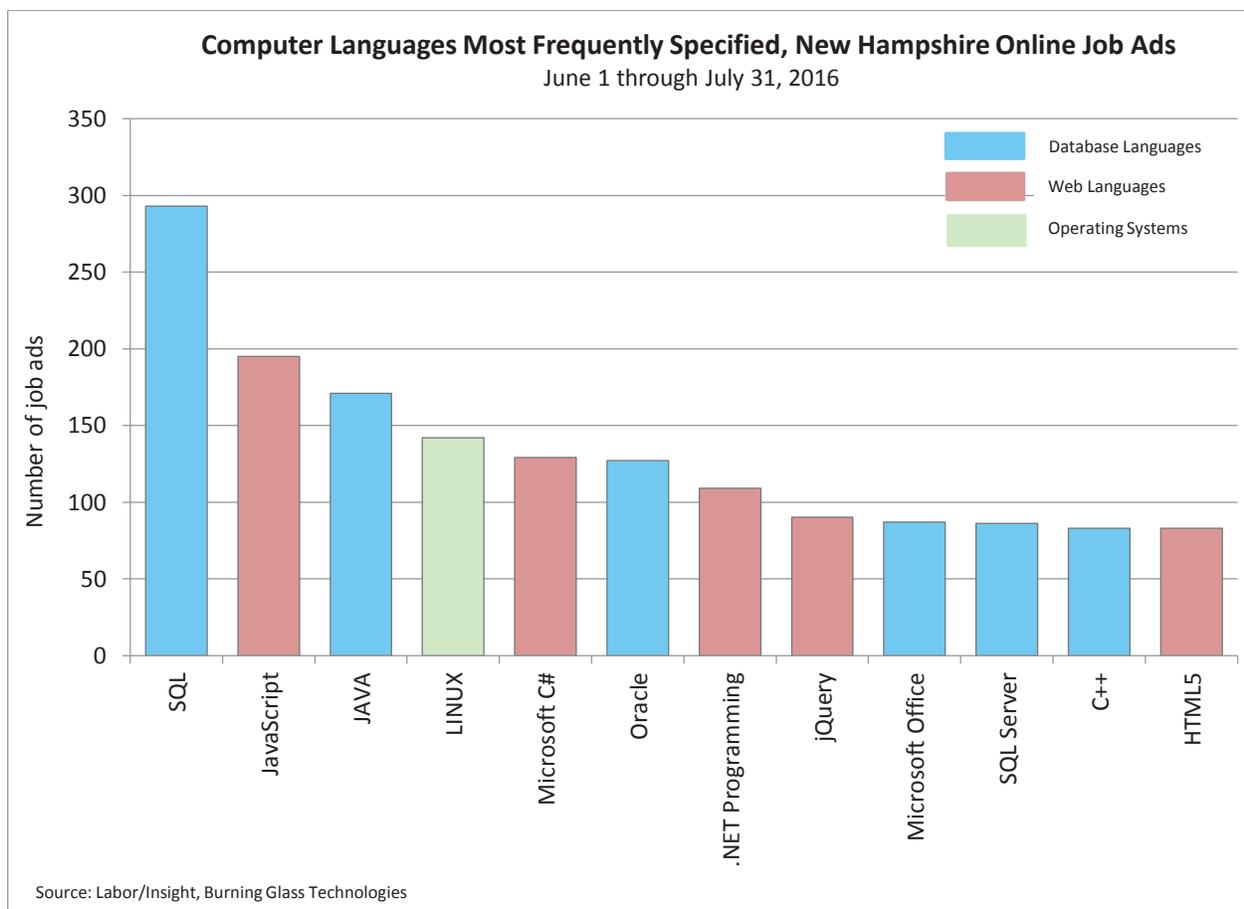


### Computer Languages Most Frequently Specified in Online Job Postings

More than 90 percent of information technology job ads specifically mentioned that experience or knowledge of a particular skill or computer language was preferred. In many cases, more than one skill or language was listed as desired in a single job posting.

In job ads from June and July, 2016, 12 computer languages were specified most frequently. These included:

1. Database Programming languages:
  - i. SQL
  - ii. Oracle
  - iii. Microsoft Office
  - iv. SQL Server
  - v. C++
  - vi. JAVA
2. Web languages:
  - i. JavaScript
  - ii. Hyper Text Markup Language (HTML5)
  - iii. .NET Programming
  - iv. jQuery
  - v. Microsoft C#
3. Operating Systems:
  - i. LINUX



### Top Job Titles and Computer Skills/Language Preference

Job postings are based on business needs, and posting details express the tasks and functions expected for the job. Information technology job ads, in particular, include detailed information on the computer languages or specific skills requested by employers. These details also highlight the differences between different information technology jobs. For example, an information technology support specialist is more likely to need skills with operating systems, while a software development engineer may need skills in database and general programming, web languages, as well as operating systems. The majority of job postings indicated the desire for applicants with more than one specific skill.

### Specific Skills and Computer Languages Most Frequently Requested in Information Technology Job Postings in New Hampshire June 1 through July 31, 2016

	SQL	JavaScript	JAVA	LINUX	Microsoft C#	.NET Programming	jQuery	C++	HTML5	Oracle	ASP	SQL Server	UNIX	Microsoft Windows	Python	Microsoft Excel	Extensible Markup Language (XML)	Git	CSS	JSON	NoSQL	Microsoft Operating Systems	Oracle PL/SQL	AngularJS	Apache Subversion (SVN)	Hypertext Preprocessor (PHP)
Software Development Engineer	53	37	37	35	45	38	22	34	16	16	26	10	22	13	14	5	11	6	4	11	3	9	2	4	3	3
Software Developer	37	40	46	12	19	19	24	10	11	7	7	7	4	1	3		3	13	6	2	10		8	6	8	5
.Net Developer	30	26	1		30	33	15		10	2	24	18					14		1	12		3	2	6		
Java Software Developer	15	16	35	9	1		12	7	9	7			3	1	1		2	9	6	2	10		6	6	4	
Applications Developer	13	8	8	1	3	3	9	1	6	8	1		4		1	2			4				8	2		4
Systems Engineer	1	3	5	14	2	1		12		2			9	6	9	4		4			1	6				1
Web Developer	2	12	3		1	1	7		9		1		3		1		3		8	3				1		5
Database Administrator	12		1	7						5		11	3		1	12					3		1			
Quality Assurance Engineer	9	2	9	5	9	2		2			1	2	2		4	2	1	1		1	2		1			
Java Software Engineer	3		11	9				4		6					4		1			3						
Programmer/Analyst	6	2	2	2	3	2	1	2	2	3		3	1	1	2		1	1					1		1	2
Business Intelligence Developer	10	1	1	1						5		9		2	1	2	2	1		1			1		1	
Front End Developer		13	3				2		11								2		3		2					1
Software Quality Assurance Engineer	5	1	7	2	7	2		2			1	2			2		1	1		1	1					
PHP Developer		7		1			5		3									2	3						2	8
User Interface (UI) Developer		8		5			4		1						5				1					5		
Business Systems Analyst	8									10		1				6							1			
Solutions Architect	1	1	2	5						5				1	1	1	1					3				
Senior Systems Engineer	1			2				5					2	2	3	4		1				1				
Systems Administrator	1			7									3	3				3							3	
Graphic Designer		7		1					5							5										
Network Engineer				11																		6				
Information Technology Support Specialist	5			5								1		6												
Desktop Support			1	1						1				9								3				1
Software Development Manager		2			2	2					2														4	
Systems Analyst		2			2	2					2														4	
User Interface (UX)/User Experience (UX) Designer		3							4							3										

Source: Labor/Insight, Burning Glass Technologies

### Top Employers and Computer Language Preference

Among New Hampshire employers specifying computer languages and skills in job ads from June 1 to July 31, 2016, job ads posted by Fidelity Brokerage Services specified the most, requesting 50 different computer languages and skills. The 18 employers with the most job postings during this period listed 153 different skills and computer languages. JAVA, SQL, UNIX, and Oracle were specified most frequently in job ads. The specific employer posting an ad was identified in less than half (47.2 percent) of information technology job postings.

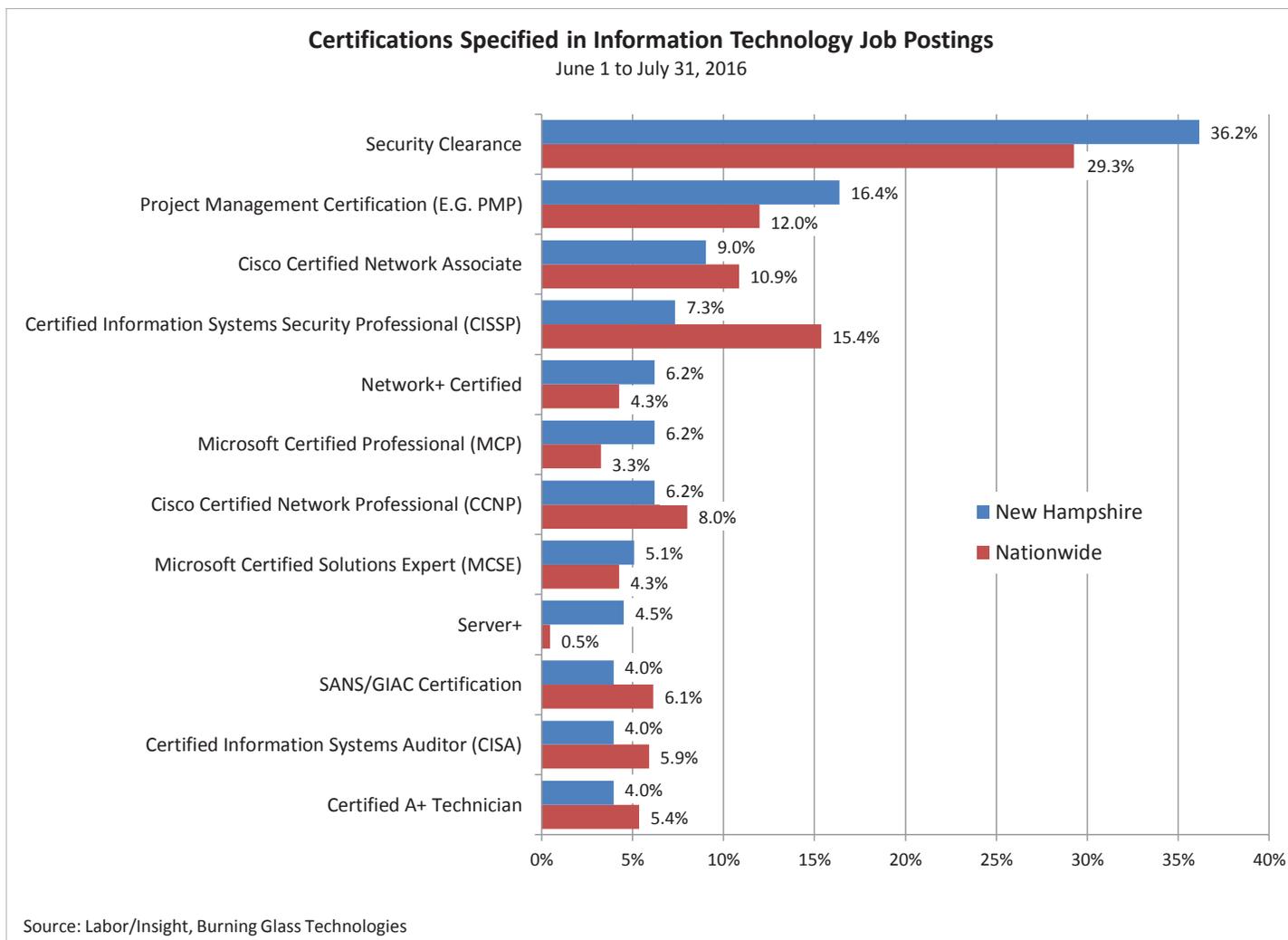
**Skills and Computer Languages Most Frequently Specified by  
Employers in Information Technology Job Postings in New Hampshire  
June 1 through July 31, 2016**

	JAVA	SQL	LINUX	Oracle	JavaScript	Python	UNIX	Microsoft Excel	Oracle PL/SQL	Microsoft Windows	HTML5	PERL	C++	jQuery	Microsoft Office	Microsoft Operating Systems	AngularJS	Extensible Markup Language (XML)	Shell Scripting	MATLAB	Microsoft Powerpoint	Ruby	Git	Microsoft PowerShell	MySQL
Fidelity Brokerage Services	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Dartmouth College	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
JP Morgan Chase Company	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Liberty Mutual	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
C&S Wholesale Grocers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
BAE Systems	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Msys Incorporated	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Sirius Computer Solutions	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Dyn Corporation	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Diverse Lynx	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Oracle	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Extreme Networks	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
American Express	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Revolution Technologies	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Automatic Data Processing Incorporated	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Dartmouth-Hitchcock Medical Center	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Advantage Solutions	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Source: Labor/Insight, Burning Glass Technologies

### Certifications Most Frequently Specified

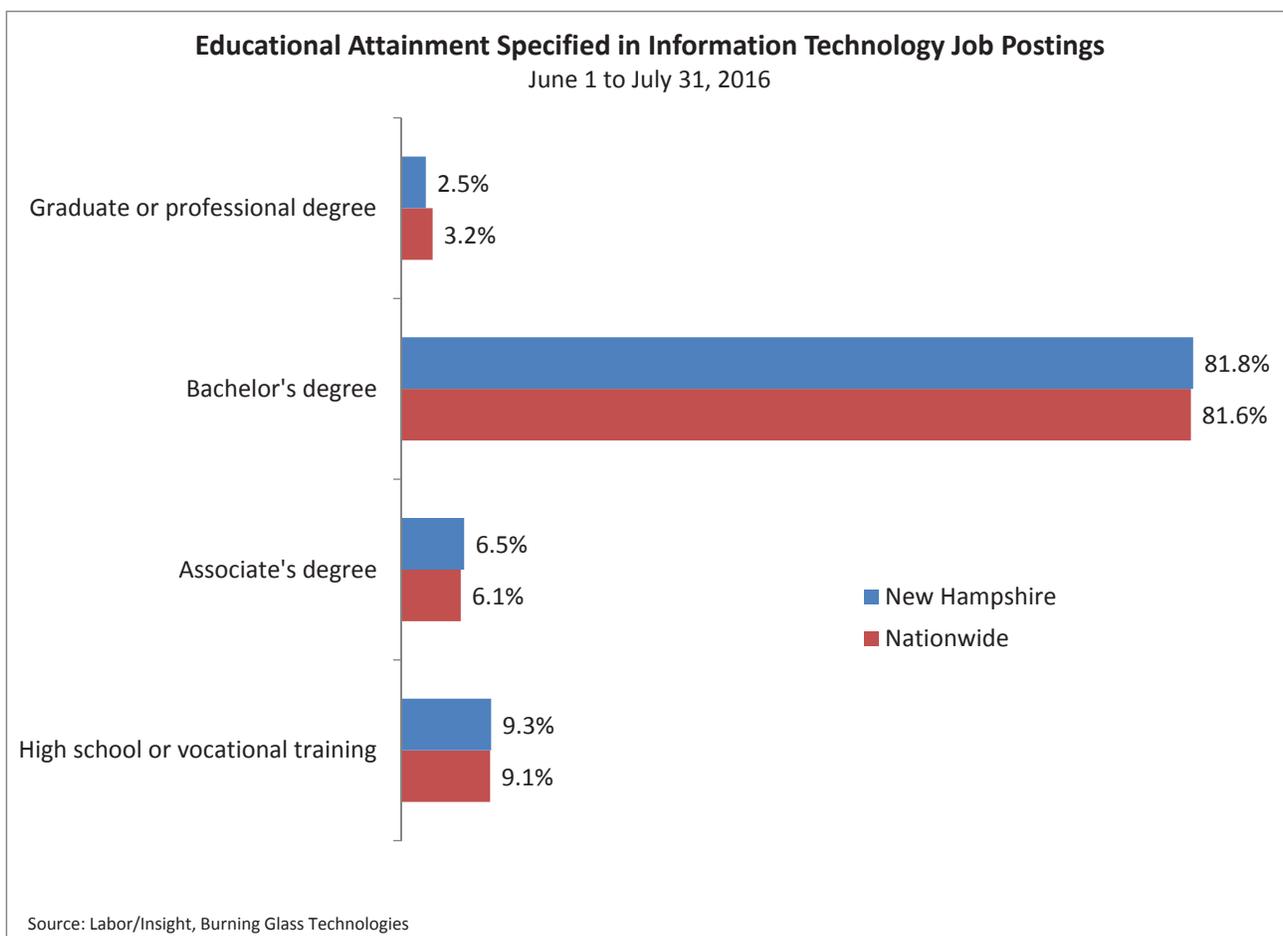
Almost 15 percent (177) of information technology job postings for New Hampshire during June and July included a specific certification sought by an employer. These details about New Hampshire job postings, as well as a comparison of specific certifications sought in New Hampshire compared with the nation, can assist job seekers in determining additional training needs in order to qualify for jobs posted.



\*Certifications are not correlated with a specific computer language, but to the Computer and information technology occupational group as a whole.

### Educational Preferences Specified in Job Postings

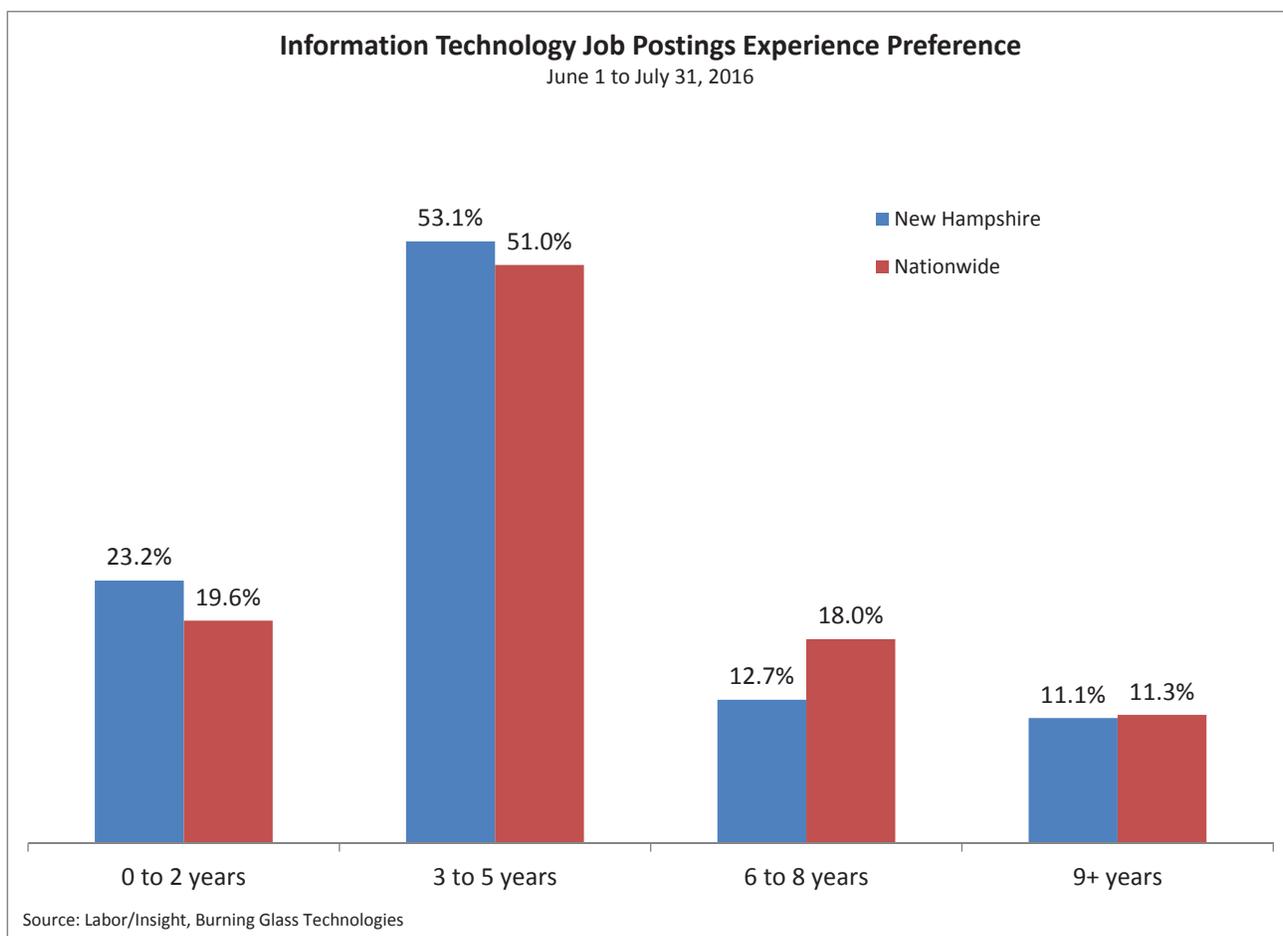
A preference for educational attainment is not mandatory for an online job posting. In many cases, the employer may assume applicants know a particular job will require a minimum level of educational attainment, so it is not necessary to specify it in the job posting. In other cases, employers may have no preference for educational attainment, but are more interested in specific skills. Among computer and information technology occupations, 57.5 percent of postings for New Hampshire, and 59.8 percent nationwide, did specify a preference for educational attainment; when specified, the largest portion by far indicated a Bachelor's degree. Among job postings specifying educational attainment, those posted for New Hampshire were very similar to those posted by employers throughout the nation.



### Work Experience Listed in Job Postings

Some employers may prefer candidates with work experience along with - and sometimes in lieu of - formal education. Roughly 63 percent of information technology job postings for New Hampshire specified a requirement for previous work experience, compared to 66 percent nationwide.

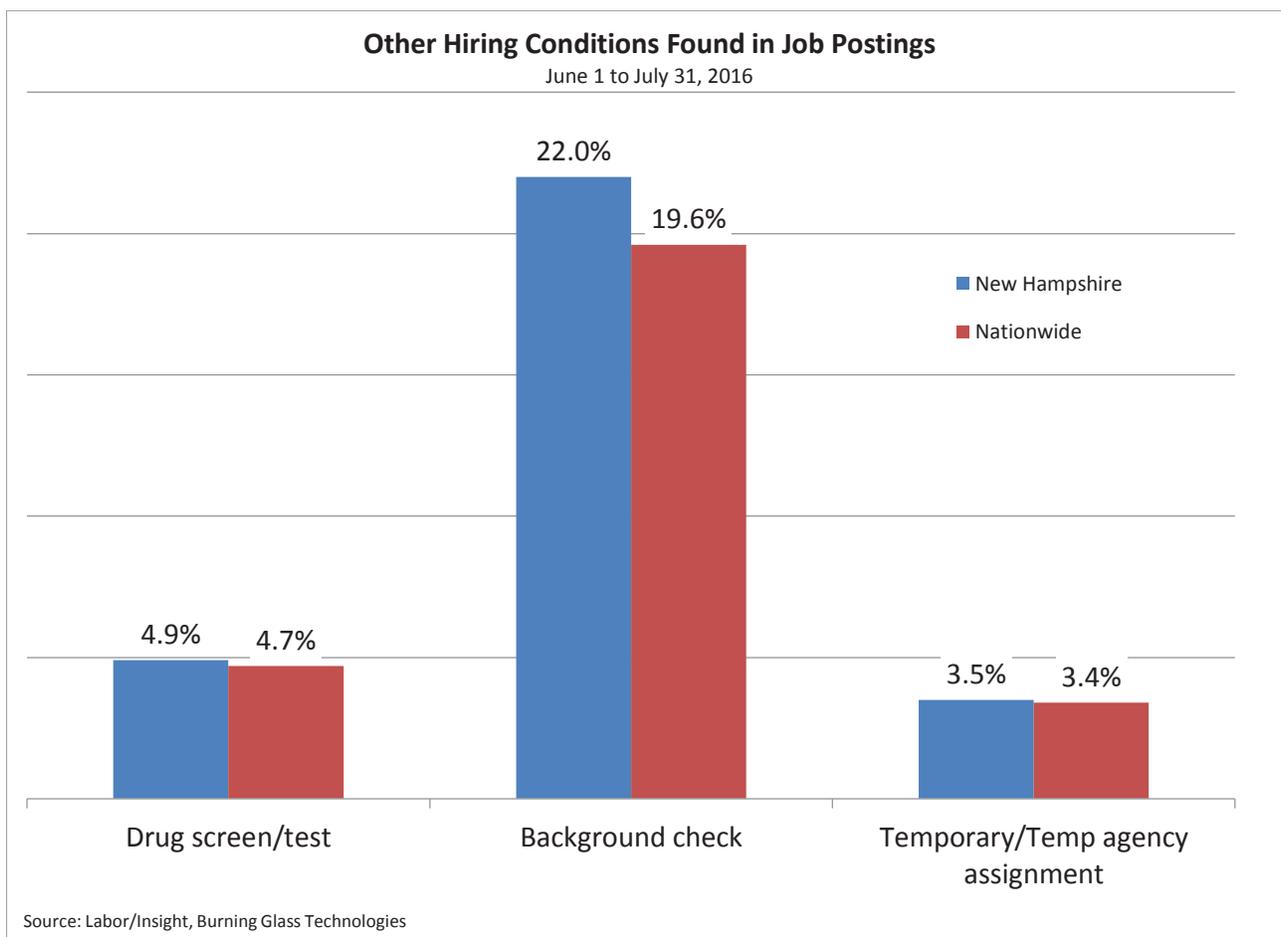
Of those postings that specified a preference for previous work experience, over half specified three to five years of experience. A higher share of job ads for New Hampshire specified two years or less and three to five years of experience than postings nationwide. On the other hand, New Hampshire had a smaller share of job postings specifying six to eight years of experience.



### Other Hiring Conditions Found in Job Postings

Businesses sometimes specify pre-hire conditions other than education or experience. The three conditions most frequently found among computer and information technology job postings were: temporary status, background check or security clearance, and drug screening.

The share of postings for New Hampshire specifying a drug test or screening and those indicating a temporary assignment were nearly the same as nationwide. A slightly larger share of New Hampshire employers required a background check compared to nationwide.



## The Future Outlook for Jobs in Information Technology Occupations

According to New Hampshire employment projections for 2014 to 2024,<sup>2</sup> employment in all industries, including government, the self-employed and unpaid family workers, is expected to increase by 7.0 percent, a gain of 47,300 jobs. Employment in information technology occupations is expected to increase by 11.2 percent over the ten-year period, a gain of 2,700 jobs.

Occupational projections data estimate both job openings created due to industry growth, and job opportunities created by the need to replace workers leaving the occupation, usually to retire. From 2014 to 2024, employment in information technology occupations is expected to have 642 annual job openings; 291 jobs from occupational growth, and another 351 jobs to replace workers leaving these occupations.

Most information technology occupations are projected to have employment increases through 2024. Software developers, applications; Computer systems analysts; and All other business operations specialists are expected to add the most new jobs. Statisticians, Web developers, and Information security analysts are projected to have the largest percentage increases.

Along with employment change, projections data include a future employment favorability rating. Occupations with a very favorable outlook are expected to have the best prospects. Nine of the 20 information technology occupations in New Hampshire are expected to have a very favorable outlook, while another seven have a favorable outlook. Occupations with a very favorable outlook have a very high percent change (12.1 percent or above) and a very high number of annual openings (50 or more).

The number of information technology occupations needing less than a baccalaureate for entry-level employment is small. Web developers, Computer network support specialists, and Desktop publishers usually need an Associate's degree for entry-level employment. Computer, automated teller, and office machine repairers, and Computer user support specialist are expected to have some college education, but not necessarily a degree, while Computer operators need only a high school diploma and one to 12 months of on-the-job training. All but Desktop publishers and Computer operators have a very favorable or favorable employment outlook through 2024.<sup>3</sup>

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<sup>2</sup> Economic and Labor Market Information Bureau, New Hampshire Employment Security, Employment Projections by Industry and Occupation, base year 2014 to projected year 2024. [www.nhes.nh.gov/elmi/products/proj.htm](http://www.nhes.nh.gov/elmi/products/proj.htm)

<sup>3</sup> 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, post-hire training to each occupation for which BLS publishes projections data.

**New Hampshire Occupational Employment Projections, 2014 - 2024**

Code	Occupation Title	2014	2024	Numeric Change	Percent Change	Average Annual Openings		
		Estimated	Projected			Growth	Replace	Total
Total, All Occupations		677,951	752,244	47,293	7.0%	5,194	16,176	21,370
Information Technology Occupations		24,011	26,710	2,699	11.2%	291	351	642
<b>Occupations with the Most Total Annual Openings</b>								
15-1132	Software Developers, Applications	4,450	5,286	836	18.8%	84	64	148
13-1199	Business Operations Specialists, All Other	5,374	5,794	420	7.8%	42	64	106
15-1121	Computer Systems Analysts	2,242	2,670	428	19.1%	43	29	72
11-3021	Computer and Information Systems Managers	1,819	2,127	308	16.9%	31	22	53
15-1131	Computer Programmers	1,703	1,515	-188	-11.0%	0	42	42
15-1134	Web Developers	907	1,172	265	29.2%	26	12	38
15-1133	Software Developers, Systems Software	1,410	1,585	175	12.4%	18	20	38
15-1142	Network and Computer Systems Administrators	1,827	1,923	96	5.3%	10	24	34
27-1024	Graphic Designers	1,061	1,078	17	1.6%	2	25	27
15-1141	Database Administrators	507	572	65	12.8%	6	11	17
<b>Occupations with the Largest Percent Change</b>								
15-2041	Statisticians*	88	126	38	43.2%	4	2	6
15-1134	Web Developers	907	1,172	265	29.2%	26	12	38
15-1122	Information Security Analysts	223	278	55	24.7%	6	3	9
15-1121	Computer Systems Analysts	2,242	2,670	428	19.1%	43	29	72
15-1132	Software Developers, Applications	4,450	5,286	836	18.8%	84	64	148
11-3021	Computer and Information Systems Managers	1,819	2,127	308	16.9%	31	22	53
15-1141	Database Administrators	507	572	65	12.8%	6	11	17
15-1133	Software Developers, Systems Software	1,410	1,585	175	12.4%	18	20	38
15-1143	Computer Network Architects	350	393	43	12.3%	4	4	8
<b>Occupations with Very Favorable Outlook</b>								
15-1121	Computer Systems Analysts	2,242	2,670	428	19.1%	43	29	72
15-1132	Software Developers, Applications	4,450	5,286	836	18.8%	84	64	148
11-3021	Computer and Information Systems Managers	1,819	2,127	308	16.9%	31	22	53
15-1141	Database Administrators	507	572	65	12.8%	6	11	17
15-1133	Software Developers, Systems Software	1,410	1,585	175	12.4%	18	20	38
15-1199	Computer Occupations, All Other	723	795	72	10.0%	7	9	16
15-1152	Computer Network Support Specialists	512	560	48	9.4%	5	7	12
13-1199	Business Operations Specialists, All Other	5,374	5,794	420	7.8%	42	64	106

\* The Burning Glass Information Technology occupational group included O\*Net-SOC 15-2041.02, Clinical Data Managers. This occupation is classified as SOC 15-2041, Statisticians, for purposes of occupational projections.

**Entry-Level Education Less than a Bachelor's degree**

SOC	Occupation Title	2014	2024	Numeric Change	Percent Change	Average Annual Openings			Education
		Estimated	Projected			Growth	Replace	Total	
15-1134	Web Developers	907	1172	265	29.2%	26	12	38	Associate's degree
15-1152	Computer Network Support Specialists	512	560	48	9.4%	5	7	12	Associate's degree
43-9031	Desktop Publishers	68	57	-11	-16.2%	0	2	2	Associate's degree
15-1151	Computer User Support Specialists	2,456	2,753	297	12.1%	30	32	62	Some college, no degree
49-2011	Computer, Automated Teller, and Office Machine Repairers	865	915	50	5.8%	5	17	22	Some college, no degree
43-9011	Computer Operators	327	272	-55	-16.8%	0	2	2	HS diploma or equivalent

For more information on this and other ELMI publications, contact:

Anita Josten, Research Analyst  
(603) 228-4173

Katrina Evans, Assistant Director  
(603) 229-4370



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