Identifying IT Markets and Market Size

by Number of Servers

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Note: The data tables in this report were originally published in a previous ACR report titled *Market Opportunities for Colocation and Server Hosting Providers*. The data has not changed, but is presented here in the broader context of identifying markets by number of servers for any IT product or service. The estimating approach presented here is for market identification purposes only and is not appropriate for any type of IT department benchmarking.

Introduction: Characterizing IT Markets

The biggest challenge to identifying IT markets is the lack of detailed IT size data available in the market. If you hope to identify potential clients that have 10 servers, for example, there are very limited data sources that offer this kind of detail. One option is to use substitute demographic characteristics based on an understanding of how various types of companies utilize information technology.

This report explains an approach for defining markets and estimating market size, in terms of number of companies or potential clients, based on an estimated number of servers. Market size data is included based on this estimating approach and U.S. Census Bureau data. This information provides a useful introduction to the subject for the purpose of market identification, sizing, and planning activities for companies interested in targeting prospective clients based on the number of servers in use.

In particular, you can use data on number of employees, within various vertical industry groups, as a surrogate for number of servers by understanding how to apply some specific industry averages.

The words "company" and "firm" are both used throughout to mean an individual company. The word "firm" is terminology used by the U.S. Census Bureau, which tracks the number of firms and also the number of establishments (locations) operated by those firms. This report is focused on the number of firms, not establishments, which is most commonly where IT responsibility is located.

Defining target markets for any product or service can easily turn into a complex model with dozens of primary and secondary markets. The estimation approach in this report is relatively simplistic, but the data can be used to create more complex market segment definitions. Here are a few of the unique market characteristics that will help keep the data in context:

- **Very Small Organizations** – For smaller organizations it is questionable whether or not any servers are present (notwithstanding a limited number of businesses with relatively special IT needs). Not surprising, considering the evolution of the hosting, SaaS, and MSP service provider market. IT vendors selling local break/fix services or products like entry level storage or server management products that have an interest in this very small user market can use the data to set upper size limits for targeting

markets. In other words, the data can show the maximum size of organization to target if, for example, the target market is organizations with three or fewer servers.

- **Very Large Server Deployments** – Many organizations will have an extraordinarily large number of servers based on the sheer volume of work and/or based on their choice of systems architecture (choosing large deployments of smaller servers versus a smaller number of larger servers). Once you get to a target market of 500 or more servers (put your own number here), the data in this report is less reflective of the actual market. Specifically, it can not differentiate between those organizations that have opted for a large deployment of smaller servers and those organizations that use a smaller number of larger servers.

- **Setting Minimum Size for Target Markets** – The biggest benefit from this data is identifying minimum demographic size requirements for specific market segments. The data is not intended to pinpoint organizations with 20, 50, or 100 servers, but rather identify at what point, in terms of some demographic size characteristic, there is a reasonable probability that a certain number of servers will exist in an organization. In conjunction with the last two bullet points, it is most helpful for identifying organizations with 10 to a number of hundreds of servers.

Based on this information, consider defining your market in terms of number of servers to help you use the data in the context of your own business.

An Approach to Targeting Markets Using Number of Servers

Number of servers, as a way of identifying markets, is of primary interest to many IT vendor companies. On average, there are 20 deployed PCs per server. Hence, an organization with 100 PCs will have an average of five servers.

Warning: Number of deployed PCs or end-users is not the same as the number of employees. Some vertical markets like finance, legal, or engineering will have a very high ratio of PCs to total employees. Other verticals will have a far lower ratio of PCs to total employees. Retail is the most prominent example of this phenomenon as there is only one PC for every 5.2 employees. Most retail companies have multiple shifts of employees that work part-time, and only a limited number of them use a computer.

Having established that there is an average of one server for every 20 PCs and that the number of end-users will vary by vertical market, the final step is to isolate vertical markets and apply the ratio of PCs to total employees for each. From that result, an estimated number of servers can be determined and the resulting market size reported.

This approach is an estimating technique based on industry averages, not an absolute way to define all companies in the market. There are many companies that will have fewer or more servers than the average based on choices of systems architecture and application domain requirements.

Physical vs Logical Servers

The method in this report estimates the number of servers based on an average. To create the average ACR collected data on the number of physical servers being supported by a company, so the data in this report is based on physical rather than logical servers.

Table Data Description

Each of the data tables builds upon or is related to the previous table(s). The flow can be a bit complex, so this summary is meant to assist in the interpretation and show the practical application of the data.

Table 1 simply shows the ratio of PCs to total employees. It is this statistical data that is the basis for calculating the number of PCs in use, which is then used to calculate the number of servers.

Table 2 uses the ratios from table 1 to calculate the number of PCs in use by industry, then from that data the number of servers in use by industry. The number of firms and employment data is from the U.S. Census Bureau. This table shows the relative size of each industry in terms of number of servers in use.

Table 3 uses the size ratio data from Table 1 to calculate the average number of servers, by industry, based on the employment size ranges that are then also used in Table 4. For example, firms with 100 to 299 employees in healthcare are likely to have 2 to 7 servers, but firms in retail with 100 to 299 employees are likely to have only 1 to 3 servers.

Table 4 shows the number of firms for each industry that fit into the size ranges originally defined in Table 3. The purpose of Table 4 is to estimate the size of a market in terms of number of firms. For example, if the target market is firms in healthcare and retail with 10 servers, we would use the data in Table 3 to identify the appropriate employment size range for 10 servers, then find the number of firms that fit that profile in Table 4.

Table 5 is not meant to necessarily relate to the previous tables with regard to market sizing by number of servers, but is a summary of total number of firms by employment size. It provides a basic perspective on overall market size by number of employees.

The data in this report is a high-level overview of the market, but the approach can be used to identify much more specific markets.

Estimating Number of Servers: Ratio of PCs to Total Employees

There are literally hundreds of vertical markets based on SIC/NAICS codes. For this report we have consolidated them into eight basic verticals which loosely follow the SIC/NAICS primary classifications. Table 1 shows the ratio of PCs to total employees. This data will be used to calculate the number of PCs in each industry based on total employment data.

Table 1: Ratio of Deployed PCs to Total Employees
Data is read as 1 PC per nn employees.

Industry	PC to Total Employees
Education	1:0.79
Finance/Bank/Insurance	1:1.54
Government*	1:1.48
Healthcare	1:2.05
Manufacturing	1:2.59
NonProfit*	1:1.99
Retail	1:5.20
Services	1:2.28
Transportation	1:3.72
Utilities	1:2.04
Total	1:1.94

Source: Applied Computer Research, Inc.[1,2]

*Table 1 includes data for government and non profit organizations. These vertical markets are not included in the following tables because they are not reported in the U.S. Census Bureau data.

The ratios in Table 1 were calculated based on data collected in the *Directory of Top Computer Executives* database.

Estimating Number of Servers: Overall Market Totals by Industry

Table 2 includes totals for each industry based on U.S. Census Bureau data. The number of PCs is calculated based on the ratio data in Table 1, then the number of servers is calculated using the 20 PCs per server average discussed earlier. The U.S. Census Bureau data includes only employer firm data and does not include firms without a payroll. U.S. Census Bureau data indicates there are over 30 million firms in the U.S., but there are only slightly more than six million firms with payroll. Those six million firms with payroll are reported here.

Table 2: Totals by Industry

Industry/NAICS	Number of Firms	Number of Employees	Number of PCs	Number of Servers
Education 61	77,102	3,039,385	3,847,323	192,366
Finance, Bank, Insurance 52	264,193	6,548,868	4,252,512	212,626
Healthcare 62	615,067	16,797,647	8,193,974	409,699
Manufacturing, Mining, Media Construction 11, 21, 23, 31-33, 51	1,205,829	24,860,360	9,598,595	479,930
Retail, Entertainment, Accommodations, Food Service 44-45, 71, 72	1,306,562	29,333,359	5,641,031	282,052
Services 42, 53, 54, 55, 56, 81	2,457,239	34,993,802	15,348,159	767,408
Transportation 48-49	174,265	4,395,432	1,181,568	59,078
Utilities 22	6,123	622,757	305,273	15,264
Totals	6,049,655	120,604,265	48,368,435	2,418,423

Source: Applied Computer Research, Inc.[1, 2], U.S. Census Bureau[3]

There are some interesting characteristics in Table 2. First, the number of PCs and servers are not meant to represent the total being used in the market. The number of servers in the business market is much larger than the 2.4 million total in Table 2. IDC estimates are probably around 12 million.[4] The disparity is the result of two primary factors: Servers in the very small business market, 20 or fewer employees, are not included in the calculation since the basis is 1 server per 20 PCs. The second factor is a relatively small number of companies with massive amounts of servers.[5] The hosting market and companies like Google for example.

Since the numbers are calculated based on total employment in the industry, they represent a way to compare the relative size from one vertical market to the next. However, focusing on a vertical market with a large total number of servers can be deceiving without taking into consideration the total number of firms in that vertical.

To be consistent, the data in Table 2 was created using the same approach for all vertical markets. However, the education market probably represents a wild card in the bunch. By the very nature of the education market there are commonly many more deployed PCs than there are employees in educational institutions. On the academic side computing is typically network intensive with student applications on the web, as opposed to applications that are hosted locally, which would require more servers and support. Therefore, there is reason to suspect the number of servers in education may be lower than the averages calculated here. More study is needed for this vertical market.

Estimating Number of Servers: Number of Servers by Employment Size

The estimated number of servers in Table 3 is calculated based on the PC ratios reported in Table 1. For the companies with less than 20 employees a value of 0 or 1 server is an assumption, not calculated. For the other columns the number of servers value is a minimum number of servers based on the averages.

If your market focus is locating companies with 10 or more servers, the data shows what employment size ranges for each vertical is likely to be using 10 or more servers. For example, in the finance market the target is companies with 300+ employees whereas in the retail market the target would be companies with 1000+ employees.

Table 3: Estimated Number of Servers Based on Employment Size

Industry/NAICS	<20 Emps	20-49 Emps	50-99 Emps	100-299 Emps	300-499 Emps	500-999 Emp	1000+ Emps
Education[1] 61	0-1	0-3	3-6	6-18	19-32	32-63	63+
Finance, Bank, Insurance 52	0-1	0-1	1-3	3-10	10-16	16-32	32+
Healthcare 62	0-1	0-1	1-2	2-7	7-12	12-24	24+
Manufacturing, Mining, Media Construction 11, 21, 23, 31-33, 51	0-1	0-1	0-2	2-6	6-10	10-19	19+
Retail, Entertainment, Accommodations, Food Service 44-45, 71, 72	0-1	0-1	0-1	1-3	3-5	5-10	10+
Services 42, 53, 54, 55, 56, 81	0-1	0-1	1-2	2-7	7-11	11-22	22+
Transportation 48-49	0-1	0-1	0-1	1-4	4-7	7-13	13+
Utilities 22	0-1	0-1	1-2	2-7	7-12	12-24	25+

Source: Applied Computer Research, Inc.[1,2]

Estimating Number of Servers: Total Number of Firms by Industry and Employment

The data in Table 4 shows the actual number of firms in each vertical for the various employment size ranges. This data can help establish an approximate overall market size based on the vertical markets and employee size data of interest in Table 3. Using the same example from the previous section, finance and retail firms with 10+ servers, there would be 717 finance firms with 300+ employees and 2814 retail firms with 1000+ employees, for a total market of 3531 firms.

Table 4: Number of Firms by Industry and Employment Size

Industry/NAICS	<20 Emps	20-49 Emps	50-99 Emps	100-299 Emps	300-499 Emps	500-999 Emp	1000+ Emps
Education[1] 61	59,580	9,220	3,995	2,657	485	531	634
Finance, Bank, Insurance 52	242,951	10,953	4,493	3,371	717	556	1,152
Healthcare 62	535,893	44,162	15,227	13,284	2,591	1,831	2,079
Manufacturing, Mining, Media Construction 11, 21, 23, 31-33, 51	1,049,404	93,222	32,419	20,358	3,703	2,765	3,958
Retail, Entertainment, Accommodations, Food Service 44-45, 71, 72	1,127,163	119,335	35,312	16,973	2,842	2,123	2,814
Services 42, 53, 54, 55, 56, 81	2,232,942	123,739	41,383	31,402	7,892	7,089	12,792
Transportation 48-49	153,087	11,412	3,922	2,949	686	682	1,527
Utilities 22	4,745	538	332	260	49	39	160
Totals	5,405,765	412,581	137,083	91,254	18,965	15,616	25,116

Source: U.S. Census Bureau[3]

A Word About the U.S. Census Bureau Data

The data in Table 2, Table 4, and Table 5 has been calculated by ACR from the two U.S. Census Bureau Excel data tables referenced in the Sources section below. The summary industry classification scheme and employment size ranges were designed by ACR and the data adapted to fit the design.

The U.S. Census Bureau data is primarily compiled from Internal Revenue Service and Social Security Administration, with additional data from U.S. Census Bureau research data. The data excludes nonemployer businesses, private households, railroads, agriculture production, and most government entities.

Contact Alan Howard at Applied Computer Research, Inc. for more information.

Total Number of Firms by Employment Size Only

As a point of interest and to add perspective to the total size of the U.S. marketplace, Table 5 shows U.S. Census Bureau data for the number of employer firms based on employment size. Although this final table does not directly relate to the previous data tables in terms of markets by number of servers, it is certainly useful for those companies that base their market targeting on organization size alone. It is particularly useful as a basis for comparison when sourcing data for marketing related activities.

Table 5: Number of Firms by Employment Size

Number of Employees	Number of Firms		50-74	86364		5000-9999	952
Total	6049655		75-99	41810		10000+	975
0-4	3705275		100-149	39316			
5-9	1060250		150-199	18620		Cumulates	
10-14	425914		200-299	17780		<20	5410367
15-19	218928		300-399	8155		<500	6031344
20-24	134254		400-499	4715		500+	18311
25-29	89643		500-749	6094		1000+	9247
30-34	64753		750-999	2970		5000+	1927
35-39	47641		1000-1499	2916			
40-44	38331		1500-1999	1542			
45-49	29705		2000-2499	942			
			2500-4999	1920			

Source: U.S. Census Bureau[3]

Additional Available Data for the Data Center Market

The medium and large end-user data center market is not specifically addressed in this report. Number of firms based on employment is interesting data, but does not define where to find end-user operated data centers. Additional data and information is available on the data center market in ACR's report *Defining the Data Center Market and Data Center Market Size*, available at www.itmarketintelligence.com/mo-reports.htm.

ACR is also in the process of developing a method for estimating the square foot size of end-user managed data centers based on similar approaches used in this report. Any input on this subject is appreciated.

Estimating Number of Servers: Final Thoughts

This report covers a relatively simplistic approach for defining and sizing U.S. markets based on an estimated number of servers. It uses number of employees as the basis for these estimates because it is the most readily available and commonly used demographic characteristic. However, when actually segmenting marketplace data it is preferable to use either number of IT employees or number of deployed PCs when available, as they have a more direct correlation to IT usage characteristics than number of employees.

There are many options for more clearly defining, identifying, and targeting specific markets on a case by case basis. Committing to use a more strategic approach to market definition and targeting should translate to more productive market coverage and penetration.

Sources:

1. *Directory of Top Computer Executives* database, Applied Computer Research, Inc., 2010. Information available at www.itmarketintelligence.com.

2. *Inside IT Departments: Comparing Organization Size to IT Usage and Infrastructure Traits,* Applied Computer Research, Inc., 2010. Available at www.itmarketintelligence.com/mo-reports.htm.

3. Firm and employment data from U.S. Census Bureau, *Statistics of U.S. Businesses: 2007. Available at* http://www.census.gov/econ/susb/index.html, (under the heading "U.S. and States:" the data tables are at "U.S., NAICS sectors, small employment sizes" and "U.S., NAICS sectors, large employment sizes."

4. There are several references on the internet that indicate IDC (www.idc.com) estimates for number of servers in use in the U.S. Here are a couple of those:. *Available at* http://blogs.business2.com/greenwombat/files/serverpowerusecomplete-v3.pdf (this article originally published at http://enterprise.amd.com/Downloads/svrpwrusecompletefinal.pdf), http://www.treehugger.com/files/2008/06/data-centers-computer-servers-energy-usage-statistics.php#,

5. An ad hoc list of companies with a particularly large inventory of servers. *Available at*http://www.datacenterknowledge.com/archives/2009/05/14/whos-got-the-most-web-servers/

Applied Computer Research, Inc. publishes the ***Directory of Top Computer Executives***, a database of the mid size and large IT user organizations in the U.S. and Canada. Over 34,000 organizations and 63,000 IT executives are included. ACR uses the techniques discussed in this document, and many others, to develop sales support and marketing campaign lists for telemarketing, direct mail, email marketing campaigns and field sales support. Visit www.itmarketintelligence.com, or call 800-234-2227 for more details. Contact Alan Howard at 800-234-2227 or alan@topitexecs.com if you have additional questions about this document or its content.

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