

## The Best And Worst Cities For Data Centers

A new report looks at 35 cities as potential homes for data centers and analyzes which are the most and least expensive.

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The big East and West Coast cities may be losing their luster when it comes to building and operating data centers. The place to be is the heartland, where labor, land, and power costs are lower and the risks of terrorist attack or natural disaster are smaller.

It costs 45% more to build and operate a data center in New York than in Sioux Falls, S.D., according to a study of data center costs in 35 U.S. cities to be released this week. A 125,000-square-foot facility staffed by 75 would cost about \$14.1 million a year in New York; in Sioux Falls, \$9.7 million.

Businesses are being priced out of locations like Boston, San Diego, and New York," says John Boyd Jr., a consultant with site selection consulting firm The Boyd Co., which prepared the report for clients in the financial services industry. Comparative economics are the deciding factor in many site selection decisions, the report says. "The idea of attracting and retaining a workforce in a small city in the Midwest today is actually quite compelling."

The report names 10 cities as prime candidates for cost-effective and secure data centers, with Sioux Falls, S.D., coming out on top (see chart, right).

The ranking is based on factors such as land and power costs, telecom infrastructure, and a local workforce with data security skills, including people trained at universities recognized as National Centers of Academic



Excellence in Information Assurance Education, which are certified by the National Security Agency. Other considerations include airline service from national carriers, insulation from natural disasters, and quality of life.

There are considerable cost differences between the Big Apple and the Gateway to the Plains. Annual salaries in New York for those 75 data center workers would be around \$7.2 million; in Sioux Falls, \$5.6 million. The cost of buying land and building a data center in New York would be \$4.2 million annually, compared with \$2.8 million in Sioux Falls. Power and cooling would cost \$1.2 million a year in New York, but only a third of that in Sioux Falls.

Taxes and travel-related expenses are part of the tab, too. Property and sales taxes come to \$1.1 million a year in Buffalo, N.Y., compared with \$680,000 in Cincinnati. Annual travel to and from a data center would cost about \$196,000 in Winston-Salem, N.C.; in Detroit, add another \$29,000.

When everything is tallied, which cities are most expensive to operate data centers? New York is at the top, followed by San Francisco; Oakland, Calif.; Boston; Detroit; Chicago; Philadelphia; Cherry Hill, N.J.; Minneapolis; and Buffalo.

### **The Power Factor**

All of these factors--real estate, workforce, telecom infrastructure, electricity--are becoming more important as companies seek to expand or consolidate data centers, or build backup sites for disaster recovery and redundancy. Cost is important to most companies; some want a long distance between their primary and backup sites for additional protection. There also are discussions under way in industries like financial services and health care whether to impose regulations to require that backup data centers be a certain distance--say 300 or 500 miles--from a primary center.

All things considered, Sioux Falls is the best city for a data center, Boyd says. Among the companies that already have set up data center operations there: Automatic Data Processing, Citigroup, HSBC, Premier Bankcard, and Wells Fargo.

For companies with data centers holding tens of thousands of servers, cheap power has become a deal maker. Financial services firm HSBC, based in London, recently said it will spend nearly \$2 billion over 15 years to create a 275,000-square-foot data center in Pendleton, N.Y., near Buffalo, after it won an incentive package that includes 11 megawatts of cheap hydropower from the New York Power Authority, a grant from the state to buy equipment, and tax breaks. Google, Microsoft, and Yahoo are building massive data centers on the Columbia River in Oregon to get cheap hydroelectric power.

Intel is creating megacenters of 70,000 square feet or more in Albuquerque, N.M., and Hillsboro, Ore., as it consolidates about 100 data centers worldwide into a handful of regional hubs. In Albuquerque, Intel was able to retrofit an old semiconductor plant. Having the existing building was nice, but low utility costs and the availability of high-

speed fiber connections were the deciding factors, says Don Wright, Intel's project manager.

Power costs in Albuquerque are 4 cents to 5 cents per kilowatt hour, or about half of the price in California, while Oregon's power costs around 6 cents per kilowatt hour, he says. In addition, Oregon has no sales tax, so Intel will save \$80,000 for every \$1 million spent on equipment by not building in California. And Intel has had no problem attracting talent to New Mexico. "Real estate prices in New Mexico are attractive," Wright says. "We had one person in California agree to move because he was thrilled that he could finally afford to purchase a home."

Hosting provider Rackspace, formed in 1998 by three graduates of Trinity University in San Antonio, has expanded operations in that city due in large part to the availability of cheap land and labor, says Paul Froutan, VP of research and development. The company built a second large data center in San Antonio, but the company is branching out as it grows. It's also purchased or built data center facilities in Dallas; Herndon, Va.; and three locations in the United Kingdom.

More expansion is planned. "We're considering the Midwest and Northwest, someplace where you can get good rates on power," Froutan says. He listens to Boyd's Top 10 list of the best places to build a data center. "All those cities are on the list."

### **Far-Flung Locations**

Even companies that don't operate their own data centers want the benefits of low-cost locations. General Motors uses EDS, Hewlett-Packard, and IBM to host and manage its data centers. The automaker's domestic data centers are housed in places like Plano, Texas; Auburn Hills, Mich.; and Atlanta. "Our suppliers know it's incumbent upon them to ensure they are as low cost as possible in terms of utilities, labor, and floor cost," says Mark Hillman, GM's director of global data center operations. GM's also establishing data centers in Singapore, Germany, Australia, and India.

While there's no rush to move data centers out of major U.S. cities, "new data center projects will be the No. 1 generator of new high-paying jobs in smaller markets," consultant Boyd says.

For some companies, moving data center operations to a distant state isn't an option. Many want the center to be within driving distance of their metro area offices. The Baltimore Technology Park, for example, provides data center collocation services to companies in Maryland, northern Virginia, Washington, D.C., New Jersey, and New York, says Jim Weller, VP of business development.

Many potential customers have had a hard time finding space to expand their data center operations, particularly space that can accommodate high-density server installations. So the Baltimore Technology Park is expanding its floor space from 5,000 to 15,000 square feet, and doubling its power supply to meet the demand. "Northern Virginia and New

York are risky markets" for a data center operator, Weller says. "But the talent base in Baltimore is sufficient, and much lower in cost than some primary markets."

Dan Blake, president and CEO of CourseMax, which provides hosted software to schools, recently moved its data center from Ashburn, Va., to the Baltimore Technology Park. CourseMax's internal development team is located mainly in St. Petersburg, Fla., where salaries are lower than in major East Coast cities. But several executives are moving to the new headquarters in Baltimore. "Baltimore and D.C. are getting further and further away from each other because of traffic," he says. "And the logistics of trying to work in northern Virginia have become increasingly difficult."

As his company grows, Blake says he may locate a data center more toward the middle of the country. "There are many smaller cities in the Midwest and elsewhere that are dying to grow their technology economy," he says. "There's no reason why the flattening world can't benefit them, too."