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Energy Costs Color Data Center Boom

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Propelled by requirements of the Sarbanes-Oxley Act and the Health Insurance Portability and Accountability Act (HIPAA) as well as a surge in Internet traffic, data center development is enjoying a revival as companies scramble to find places to store sensitive data. Unlike the data centers built during the 1990s tech boom, companies this time around are paying closer attention to energy costs.

The data center market is "the fastest-growing sector of the site selection field right now," says John Boyd, founder and president of Princeton, N.J.-based site selection consulting firm The Boyd Co. Inc. Because of the centers' hefty contributions to local tax rolls and their addition of high-paying jobs, Boyd says, "this is the new coveted type of corporate facility that mayors and governors are trying to attract to their communities."

A prime example: Microsoft Corp. announced in January that it will build a $550 million, 400,000 sq. ft. data center on 44 acres in San Antonio. The center will employ about 75 full-time workers who will earn up to $70,000 a year. Government officials, who are granting tax breaks for the center, expect the project to reap more than $20 million in economic benefits over 20 years.

Experts say that nearly all of the data-center remnants of the tech wreck now are occupied and that the number of new data centers being developed is on the rise. In the first half of 2006, for example, demand for U.S. data centers climbed nearly 13% compared with the same period in 2005, according to Tier1 Research, an information technology and telecommunications analysis firm in Minneapolis. Meanwhile, new supply inched up by 3.7% during that period.

The power of power

Communities best suited to lure data centers have readily available low-cost power, experts say. As computer servers stored inside data centers devour an increasing amount of energy, the need to tap a cheaper source of power is critical. Microsoft picked San Antonio over neighboring Austin because electricity is 2 cents per kilowatt-hour more expensive in Austin, according to Tom Freeman, senior vice president in the global data center practice at Chicago-based real estate services company Jones Lang LaSalle Inc. Freeman worked on the Microsoft deal.

A kilowatt-hour is a unit of energy equaling 1 kilowatt of power used for one hour. Consumption of power by homes and small businesses typically is measured in kilowatt-hours. Larger businesses and other big users of power often apply the megawatt-hour measurement. One megawatt-hour equals 1,000 kilowatt hours.

Bill Kosik, managing principal in the Chicago office of information technology consulting firm EYP Mission Critical Facilities Inc., says that five to seven years ago, a server cabinet — a refrigerator-sized metal box that houses the computer equipment — typically contained about 40 servers with a total capacity of 5 to 6 megawatts. With the advent of slimmer, higher-density blade servers, however, 60 to 80 servers gobbling up to four times as much energy can fit into the same data-center cabinet, Kosik says.

Given the energy considerations, location can make or break a data center. Experts say it costs roughly $1,000 to $2,000 per sq. ft. to build a fully equipped data center in the United States. The price rises exponentially for each penny added to the cost of power per kilowatt-hour. For instance, a data center that can accommodate 40 megawatts of electricity would pay an extra $2 million in annual operating costs, Freeman says. A new study commissioned by chip maker Advanced Micro Devices Inc. found that in 2005, power consumption by U.S. data centers — including servers, cooling systems and auxiliary equipment — amounted to about 45 billion kilowatt-hours. The total utility bill: $2.7 billion.

An abundance of cheap electricity is why central Washington has become a hotbed for data centers, with Microsoft, Google Inc. and Yahoo Inc. scooping up sites in the region. Electricity in that area, where hydropower is king, costs about 3 cents per kilowatt-hour, Freeman says, compared with about 14 cents per kilowatt-hour in Los Angeles.

A 50-city study recently released by The Boyd Co. Inc. found Sioux Falls, S.D., to be the least expensive U.S. location to operate a

hypothetical, newly constructed 150,000 sq. ft. health care data center with a workforce of 150. Annual operating tab: $16.1 million. The most expensive place was New York City, where yearly operating expenses reached $22.5 million.

Aside from central Washington, U.S. hot spots for data centers include Northern Virginia, Atlanta, San Antonio, Austin, Dallas and Chicago, according to Freeman. In addition to power costs, considerations in choosing a site include access to fiber-optic networks and IT talent, experts say.

Data-center upswing

Buyer demand also has made the data-center market increasingly liquid. Last year, San Francisco-based Digital Realty Trust Inc. spent $552.5 million to buy 17 data-center properties in the United States and Europe. In 2006, the REIT leased about 300,000 sq. ft. of data-center space to single and multitenant users.

Unlike the last go-round, this growth spurt appears to have legs, as 77% of respondents in a 2006 AFCOM survey indicated that they planned to relocate or make major improvements to their data centers by 2016. AFCOM, based in Orange, Calif., is a trade association for data-center professionals.

Rob Kennedy, managing director at Dallas-based Stream Realty Partners LP, is marketing for sale a 150,000 sq. ft. speculative shell in the Dallas suburb of Plano that it built to house a data center. The firm is considering development of at least three or four more data-center shells, with Atlanta, Dallas, Denver and Phoenix among the prospective markets.

Foster City, Calif.-based Equinix Inc. also is riding the new data-center wave. Howard Horowitz, vice president of real estate at the data-center services provider, says Equinix operates 16 domestic data centers and four in Asia, with three more in the U.S. pipeline and a fifth on the way in Asia.

Horowitz says he thinks the current demand for data centers is sustainable. That stands in sharp contrast to the tech frenzy of a few years ago, when artificial demand hinged on “pie-in-the-sky projections,” Horowitz says. “Then, there was a mad rush to market.”