

SELECTING YOUR STRATEGIC DATACENTER PARTNER

By Sachin Bhardwaj

The right selection of a datacenter is a blend of auditing tangible metrics and assessing the human side of operations. Every datacenter has its share of strengths and characteristics that is the sum of its capital investments and innovative way of operations. An end-customer wanting to select a datacenter that meets its requirements in terms of availability and reliability must be ready to go down both the paths of assessments.

What should you look for in your datacenter partner? Below are some important categories for assessment:

1. Certifications

Third party certifications can help end customers gain confidence in the publicly available credentials of a datacenter. As an example, The Global Data Center Authority, Uptime Institute's Tier Standard offers four grades I, II, III, IV in the areas of constructed facility and operational sustainability. If a datacenter is compliant and graded for its constructed facility it becomes eligible to be certified for operational sustainability.

In summary, it covers staffing levels, skills, training, qualifications, effectiveness of maintenance and datacenter operations, policies that affect planning and coordination of activities, building characteristics, site location, organisational controls and security. Certifications are also independently provided by Payment Card Industry and HIPAA amongst others.

2. Location

The location of the datacenter is one of the most important single factors that can influence its selection. Is the datacenter located in a region of extreme weather change susceptible to large scale changes of wind, rain, and snow? These can fre-

quently limit movement and activity. Or is the datacenter located in a region of geologic activity with frequent tectonic movements that can stress the building structures?

Is there a significant power feeder connection or utility substation nearby that ensures that uninterrupted power is available for the datacenter? What is its distance to the nearest highway, urban city, airport, nuclear plant, important infrastructure, that needs to be balanced in terms of remoteness, accessibility and proximity as required?

3. Design

An important attribute inside a datacenter is not just how much existing equipment is stacked and how it is stacked, but also how new equipment will be stacked and configured. What are the options available to bring in new equipment in terms of individual cabinets, cages with racks, data modules and private rooms? And once decided how the equipment will be stacked and configured, what is the availability of power and cooling per square area of space leased.

Does the datacenter follow raised floors and cooling below with equipment racks directly secured to the concrete floor slabs? This is usually an important consideration for heavy and sensitive equipment. Other parameters to validate during selection are cooling efficiency, power density per rack, modular approach to build up, and just in time space expansion. Lastly, what is the availability of temporary office space when employees from end-customer organizations are expected to function on-site.

4. Connectivity

The best advantages for an end-customer are when the datacenter offers the choice of network connectivity from multiple service providers and from multiple landing points. This allows the end-



customer to become less susceptible to latency issues that may arise from time to time with specific providers and through specific routes.

The ideal situation arises when the datacenter provides direct connectivity to service providers they are contracted with. As well as the option of bringing in other service providers on demand without any specific preferences or bias towards any of them. This is sometimes referred to as carrier neutrality.

5. Operations

Auditing the physical attributes of a datacenter is usually one side of the selection process. The other side is the human audit. How well does a data-

center go to reduce human errors? Are the processes and procedures of operation documented? How well are the staff trained on these processes and procedures? Are the processes flexible enough and is change management built into the datacenter operations? How does the datacenter manage service level agreements, maintenance schedules, and planned downtime?

Datacenters compliant with Tier III and Tier IV levels have redundant and fault tolerant capacities inbuilt and hence should rarely have any downtime. But datacenters compliant with Tier I and Tier II levels will need to go through planned downtime and will need to actively manage their service level agreements accordingly. A datacenter is also a business and the stability of the business model, shareholders, and profitability is an important part of the consideration.

6. Other factors

Physical security is an integral part of the operations with varying degrees of importance for every datacenter. This usually includes surveillance, biometrics and two factor authentication. Similarly, commissioning and maintenance of critical equipment is an important operational procedure. This covers end of life replacement, selection of new equipment, and incorporation of redundant equipment. Critical equipment is usually UPS devices, generators, switchgear, chillers, utility connections, control monitoring systems. Another key aspect is the presence of Data Center Infrastructure Management that can alert when there is a reduction in planned availability and reliability in real time. Finally, most datacenters tend to offer their own share of hosted IT solutions and going forward this may increasingly become the final point of differentiation. — Sachin Bhardwaj is Director, Marketing & Business Development at eHosting DataFort.



CORK, Southern Ireland: A man passing by buildings on The Apple campus in Cork, southern Ireland. — AFP

13 BILLION EUROS WOULD BE HUGE WINDFALL FOR IRELAND

BRUSSELS: 13 billion euros (\$14.5 billion) looks like a ton of money for any nation. But for the 4.6 million people of the Republic of Ireland, among the least populous in the 28-nation EU, it's almost unfathomable. Should Apple eventually pay the Irish that sum, it would represent about 2,825 euros (\$3,150) per man, woman and child. In government coffers, that money would easily wipe out Ireland's 2016 deficit and put the country back in the black for the first time in a decade.

Ireland's accelerating economy is already producing rapid growth in tax collections from workers, sales tax and an EU-leading multinational sector of around 1,000 companies with Irish bases. Last year the country spent around 48.5 billion euros - some 13 billion euros of that on health care, the same sum as Tuesday's tax order - and recorded a deficit below 5 billion euros.

1:15 pm

Apple has derided the European Union's ruling that it must pay up to 13 billion euros (\$14.5 billion) in back taxes to Ireland. In a response yesterday, it accused the EU competition authorities of ignoring international and Irish tax law and seeking to scare foreign investment out of Europe. Like the Irish government, the company vowed to appeal and overturn the order. Apple said in a statement: "The European Commission has launched an effort to rewrite Apple's history in Europe, ignore Ireland's tax laws and upend the international tax system in the process." It added: "The commission's case is not about how much Apple pays in taxes, it's about which government collects the money. It will have a profound and harmful effect on investment and job creation in Europe."

1:05 pm.

Ireland's tax collection agency, the Revenue Commissioners, insists that Apple hasn't dodged a penny of lawfully calculated tax in Ireland. The Revenue Commissioner chairman, Niall Cody, says the overarching

problem is "mismatches between different countries' tax rules." Whereas Ireland taxes only a multinational company's profits on sales within Ireland - a country of barely 4.6 million and representing a tiny fraction of those companies' global business - the United States often seeks to recoup tax on a US-headquartered company's profits worldwide.

Cody said Apple's profits "that are not generated by their Irish branches - such as profits from technology, design and marketing that are generated outside Ireland - cannot be charged with Irish tax under Irish tax law." He says the Revenue Commissioners applied the same Irish tax rules to Apple as to around 1,000 other multinationals, most of them American, with bases in Ireland. He says: "Full tax due was paid in accordance with the law."

12:45 pm

Irish Finance Minister Michael Noonan has rejected the European Commission's ruling and says Ireland will appeal the judgment, insisting that Ireland's tax rules were transparent and straightforward. He has rejected findings that Ireland cut an especially generous tax-avoidance deal to boost Apple's investments in Ireland, where the company employs 5,500 and plans to expand further. Noonan said Tuesday in a statement issued minutes after the judgment: "I disagree profoundly with the commission's decision. Our tax system is founded on the strict application of the law ... without exception. The decision leaves me with no choice but to seek Cabinet approval to appeal the decision before the European courts." He accused European regulators of trying to undermine the integrity of Ireland's tax system and subverting rights reserved for sovereign EU states. He said a successful appeal, which could take years, would "provide tax certainty to business." Ireland's Cabinet will meet Wednesday to confirm plans to appeal the judgment. —AP

LIVESTREAM OF KIM DOTCOM HEARING A FIRST FOR NZ

WELLINGTON: A New Zealand judge gave permission yesterday for the hearing of German tech entrepreneur Kim Dotcom's appeal against his extradition to be streamed on YouTube, making it the country's first court case to be broadcast on the Internet. The six-week hearing opened in Auckland this week, nine months after a lower court ruled Kim Dotcom could be sent to the United States to face copyright infringement and money-laundering charges over the file-sharing website Megaupload.

The case has been closely watched by the media industry and developers in the file-sharing business for signs of how far the United States is willing to go to protect US copyright holders. "It's very important that the entire world gets to see the court-

room," said Dotcom's lawyer, Ira Rothken. "The Internet isn't run by any one nation, so we thought the solution itself would come from the Internet." Dotcom was arranging for a videographer to start recording the proceedings from Wednesday, the lawyer added. They will appear on YouTube with a 20-minute time lag to ensure removal of any material suppressed by the court.

The judge ordered the stream to be taken down at the end of the hearing. New Zealand government prosecutors, who are representing the United States, had argued against the livestreaming. The government law office did not immediately respond to a request for comment but a spokeswoman on Monday said it was not appropriate to comment while the matter was before the courts. — Reuters

SELF-DRIVING CARS GO PUBLIC; UBER NOW OFFERING RIDES

SCIENCE-FICTION STORIES SLOWLY BECOMING REALITY

SAN FRANCISCO: The option to hail a ride in a self-driving car, which was science fiction just a few years ago, will soon be available to Uber users in Pittsburgh, the first time the technology has been offered to the general public. Within weeks, the company announced Thursday, customers will be able to opt into a test program and summon an autonomous Ford Fusion. But since the technology has not been perfected, the cars will come with human backup drivers to handle any unexpected situations.

Although other companies including Google are testing self-driving cars on public roads, none offers rides to regular people. As an enticement, the autonomous rides will be free, the company said. Uber, which has a self-driving research lab in Pittsburgh, has no immediate plans to deploy autonomous cars in other cities. But in an interview with The Associated Press, CEO Travis Kalanick said development of the vehicles is paramount for the San Francisco company, which has grown exponentially after starting seven years ago. "We've got to be laser-focused on getting this to market, because it's not a side project for us," he said. "This is everything. This is all the marbles for Uber." Without drivers, the cost of hailing a ride will be cheaper than owning a car, changing the way we all get around, Kalanick said.

Signal of intent

By using human backup drivers, Uber is basically testing the technology and taking people along for the ride, said Bryant Walker Smith, a

University of South Carolina professor who studies self-driving technology. "Part of this is marketing in the sense that they're going to be doing continued research and development of these systems," he said. Uber also announced that it was acquiring a startup called Otto that has focused on developing self-driving big rigs and is stocked with big talent in the still-small world of self-driving technology, including Anthony Levandowski, one of the field's pioneers. Kalanick said the acquisition signals Uber's intent to get into the movement of goods and freight.

In another deal, the company announced a \$300 million alliance with Volvo to supply vehicles and technology. The announcements may push it ahead of its prime competitor, Lyft, which earlier this year took a \$500 million investment from General Motors. Those arrangements are part of a flurry of deals between Silicon Valley tech companies, traditional automakers and ride-hailing companies as they vie for autonomous car leadership. Google has been testing self-driving cars on public roads since 2009 but has never offered large-scale rides to the public. Uber's move to haul passengers with autonomous vehicles is not surprising, given the company's history of pushing into gray areas with little or no regulation, Walker Smith said.

Local laws in Pittsburgh may require a driver behind the wheel, but Pennsylvania has no laws governing autonomous cars and their role in ride-hailing, he said. He predicted that drivers will often have to intervene in Pittsburgh, with its winding, hilly roads and vast number of bridges.

Each winter the city gets about 30 inches of snow, which can cover lane lines and trick autonomous car sensors that use them to help guide the ride.

Backup drivers

Use of the backup drivers is also an acknowledgement that current autonomous driving systems cannot handle the wide range of unpredictable circumstances on public roads. Timothy Carone, a Notre Dame professor who has written about the future of automation, noted that Uber is mitigating the risk with its own drivers - unlike Tesla Motors, which put semi-autonomous technology in the hands of individual customers. "This is a way to get autonomous cars out there and accepted and increase the adoption rate," Carone said. "It will take a decade of testing before an 18-year-old can get in the car and tell it where to go." Uber-branded test cars have been on Pittsburgh roads for several months. Standing at a bus stop, Anthony Fielder of the suburb of Carnegie was open to the idea. "I'd be willing to try it as long as there's a real human there to hit the brakes, you know, if the thing goes belly-up," he said. "We can only rely on technology so much or it's going to bite us." Kalanick would not speculate on when Uber might be ready to dispense with the human driver, saying that full automation can only be used now in limited places with little traffic. That's different from the relative chaos of even a small downtown, much less a big city where drivers do not always follow the rules. — AP

RACE FOR FACEBOOK DATA CENTER RAISES TAX-BREAK QUESTIONS

SALT LAKE CITY: The race between a small town on the Rio Grande in New Mexico and a Salt Lake City suburb to entice a new Facebook data center with millions of dollars in tax breaks and subsidies is raising questions about public investments in a booming cloud-computing economy that typically brings few local jobs.

In West Jordan, Utah, an initial plan to offer some \$240 million in tax breaks over two decades fell apart after several local leaders said the lure was too rich. Negotiations have since restarted. In New Mexico, the Los Lunas Village Council agreed to give up all property taxes for 30 years in exchange for annual payments that start at \$50,000 and top out at nearly a half-million dollars. The village has yet to provide a tally of the revenues it would forgo under a complex economic development agreement that also involves tax breaks on billions of dollars in computer equipment over time. Officials in West Jordan say they can hardly compete with the generous offer from the town of 15,000 people in New Mexico. Dave Swenson, an economist at Iowa State University, says West Jordan's initial offer was greater than the total combined tax breaks offered for seven other data centers in Iowa. "This is nothing but a giveaway," Swenson said. Los Lunas officials foresee a possible \$1.8 billion construction project that provides as many as 300 direct temporary jobs, and just 50 permanent jobs thereafter - a fraction of the steady employment at the local Walmart distribution center.

Still, supporters of such deals see an opportunity to attract a hot company that would bring tax revenue despite the incentives and could attract other high-tech companies. "If you're in the market for a new car and this dealer offers a rebate for the same car and this dealer doesn't, where are you going to buy the car?" said Vale Hale, executive director of the Utah Governor's Office of Economic Development. Facebook's latest expansion comes as the social media giant looks to beef up its video presence, said John Harrington, a data center expert with Verify Research Associates. Video is increasingly the



WEST JORDAN UTAH: Land in West Jordan, Utah, that may be purchased by Facebook for a data center. The race between the small town of Los Lunas in New Mexico and the Salt Lake City suburb of West Jordan to entice a new Facebook data center with millions in tax breaks and subsidies is raising questions about public investments in a booming cloud-computing economy that typically brings few local jobs. — AP

way to attract advertisers and eyeballs, but it also requires more space.

Data centers are typically large facilities filled with rows of hard-drives and servers that store and process vast amounts of information. They're increasingly essential to the global economy, but on the ground they function more like storage facilities that need few people to keep them running.

While the Facebook plan has been contentious in Utah, it's enjoyed broad political support in New Mexico, where the Los Lunas Village Council voted to sweeten the offer last week.

New Mexico officials appear eager to please businesses willing to set up shop in a state hit

hard by a downturn in the oil and natural gas sectors, and where computer chip maker Intel has been steadily unwinding a major manufacturing plant that was an early beneficiary of similar property tax breaks using industrial revenue bonds. There's been some question about whether the estimated 50 jobs are worth the trouble, but state Rep. Alonzo Baldonado, R-Los Lunas, anticipates that construction will spill over into other parts of the economy. Among other infrastructure upgrades, three industrial-scale solar power plants would be built to offset electricity consumed by the data center. The plants would be paid for through a power purchase agreement with Facebook. — AP