Pathway Communications President, Nandan Atre

Data centre goes green by going off-grid

Pathway Communications makes energy autonomy a top priority

NANDAN ATRE, PRESIDENT OF Pathway Communications in Markham, is no mathematician. One thing he can calculate, however, is the number of kilowatts his data centre consumes every hour. He also understands that typical data centres, as we know them today, will have to come up with a whole new algorithm if they intend to remain sustainable in the long-term.

Pathway Communications' new data centre – the only facility in Canada designed to meet the standards for Tier III certification for reliability from the Uptime Institute — is as atypical as its chief executive. Rather than relying on ever-increasing amounts of electricity, Pathways' new data centre will reduce demand on the electricity grid by generating its own electricity on-site. And that's just one of the demand management strategies the company is adopting in order to carve out a competitive position as a green data centre provider.

"Today, a typical computer cabinet uses five kilowatts of electricity per hour, about the same amount as the average Canadian household," says Mr. Atre. "The same cabinet, five years from now, will use upwards of 20 kilowatts of power per hour. In addition, the infrastructure used to cool data centres requires as much electricity as the computers themselves. Based on current trends, and the movement toward more dense, hotter-running computers, power usage is expected to double, again, by 2011. This doesn't add up to a very sustainable situation."

Counter-intuitive as it sounds, Pathway's strategy is to meet this challenge head-on by becoming as energy-independent as possible. Six natural-gas-fuelled micro turbines (natural gas has a smaller environmental footprint than coal-generated electricity) will power the data centre, each one generating one megawatt of electricity. Waste heat from the turbines will be used to run absorption chillers and to heat the company's offices in winter.

With the additional use of 'free cooling' during the colder winter months, Pathway estimates it will use less than 10 percent of the power used in traditional data centres; and will obtain an average net power utilization efficiency of 80 percent, compared to the 20 percent achieved by typical coal-fired power generation stations.

The results of smart design will add up in the long-run. Mr. Atre calculates that once the various demand management initiatives he envisages are in place, Pathway's data centre will save $1.5 million in power costs each year, savings which can then be passed on to its clients. In addition, the company estimates that by building green technology right into its infrastructure, it will avoid 38,000 tons of greenhouse gas emissions annually.

Is this one case in which thinking outside the proverbial box also makes good economic sense?

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*The new Data Centre Incentive Program (see **www.powerstream.ca**) provides financial incentives for companies that implement energy conservation initiatives with measurable results. On the demand management side of the equation, companies may wish to investigate the High Performance New Construction Program, offered since 2008 through the Ontario Power Authority.*

POWERSTREAM

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