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Video Transcript: Building the Green Data Centre Business Case and RFP

An ROI Innovation Report



From the Green IT Innovation Series

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This document contains an edited transcription of a video interview with Steve Sams, Vice President, Global Site and Facilities Services for IBM, and Bernie Oegema, Data Centre Sales Leader, Site and Facilities Services for IBM Canada. Our interview was held in Toronto on March 1, 2010, and was conducted by Michael O'Neil, Chief Content Officer for IT in Canada.

Michael O'Neil: Welcome back to our discussion on innovation, ROI and greening the data centre, I'm Michael O'Neil, and I'm joined here today by Steve Sams who is the Vice President, Global Site and Facilities Services for IBM and Bernie Oegema, Data Centre Sales Leader for Site and Facilities Services for IBM Canada. Gentlemen, thank you very much for joining us on the IT in Canada Network.

Steve Sams: Thanks, Mike. Happy to be here.

Bernie Oegema: Thank you.

Michael: So Bernie, before you arrived, Steve and I were talking about the business triggers that indicated a need for a new data centre, or a significant retrofit of a data centre, and where one would look for the sources of savings and new capability, when an organization goes to justify that build out. Now I'd like to take the next step in that process and look at the IT manager who has recognized that there is a need for a new facility and has done their homework and understood what the benefits of the new facility are, and now they need to reflect that understanding in a business case. I'd like to ask what you see in Canada are the key issues of presenting a data centre business case to senior management. And do these issues vary at all, in your experience, between presentations supporting a new data centre or a significant retrofit of an existing facility?

Bernie: Yes, what we see a lot in the Canadian market, which I don't think is much different than global, but maybe our data centres are a little bit older, is people have waited too long to make changes to the data centre. So they have an old facility that is not flexible, and they're at a point where they've hit the wall on power and cooling. A lot of times we see them say, "Well, we need to do virtualization as a way to save power." But if you've waited so long that you have no room, you can't even



Bernie Oegema, Data Centre Sales Leader
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run a production environment and your test environment at the same time so you're stuck.

So this makes a point for building a new facility, in that case, plus the fact that the old data centre isn't flexible enough to accommodate the newer type IT application, which is higher-density, so the cooling system is not capable of supporting a higher-density compute environment.

Michael: And I think that you must be seeing that around the world, that the heat profile on the data centre floor has changed so much that it's difficult to make that transition.

Steve: Yeah, absolutely. Technology density continues to increase very, very quickly. Ten years ago, 500 watts a rack or 1,000 watts a rack was pretty typical. And now, the blade server environment is 20 to 30,000 watts a rack, the high-end Unix environment is 50 to 60,000 watts per rack, and we have supercomputing technologies we've actually implemented in our customer sites around the world now, that have 150 to 250,000 watts a rack. That means four racks are one megawatt. So these are enormous amounts of power and amounts of computing capacity in very small configurations.

Michael: As you say that, I'm kind of imagining these things glowing with like a heat halo around them as they sink down into the raised floor.

Steve: Well, it means that the technology, to be in a mode where it can be installed, has to actually change and worry about heat dissipation. Because once you're at, typically, the 20 to 30,000 watts a rack, you're at almost the limits of traditional air cooling technologies, and so you need to go to liquid or containment or other technologies to get to higher levels of density and cooling capacity.

Michael: And do tactics like in-rack or in-row cooling help to defer the need to present that business case to senior management for a new facility, or does it just hasten you down the same path?

Steve: When you're at that density level - when you're at 20 or 30,000 watts a rack - you need those kinds of technologies. In-row cooling technologies, containment technologies, supplemental water cooling technologies like rear door heat exchangers or other things. And then when you get past those, then you need to think of different ways.

Michael: And what do you see, when the people you work with go to their management and present the business case, what are the two or three key issues that they check off as being the most important issues [as they] say, "You know what? Nobody likes to spend money on this stuff, but we have to."

Steve: I think that there are really a couple of things that we're seeing consistently here. One is in many cases, clients and their boards aren't very receptive of a new stand-alone capital spend proposal.

Michael: Correct.

Steve: And so one of the things we're seeing quite regularly is customers pairing up a rationalization play with a capital spend play. They'll look around and they'll realize that their IT equipment is in five locations, 10 locations, 15 locations. Those may be data centres, they may be computer rooms, they may be wiring closets. The availability for that technology around their environment varies from fantastic to really poor. And so they come forward not with just a capital spend proposal but a rationalization proposal that gives them higher availability. It reduces their ongoing operating costs. But to do that, they

need something a little more robust and a little bit better-positioned for growth than their current environment. So we find this one trend of pairing these two things, and I think that's just smart.

The second thing that we're seeing is this big trend towards modular, a view of "why should I build the data centre to last 20 years?" You should *design* a data centre to last 20 years, but what you build and pay for today, maybe you only want to last four, and then when you hit the next [stage] - near the curve in turns of your demand, you plug-and-play some more components into it.

Whether it's in-row cooling devices or whatever it happens to be, you design it in a way where the capacity of that facility can grow over time. Grow in terms of the number of racks it can support and grow in terms of the density of the technology the customers implement over time. Because in many cases, the current data centre infrastructure is supporting some older technologies that are running at relatively low density. So, you may not want to build out a whole data centre to support 20 kw per rack when you are running at three. You're wasting a whole bunch of money. So, why not design an environment that can grow from three to six to nine to 12 to 15 to 20 over time.

Michael: Bernie, when you deal with Canadian customers do you see this emphasis on rationalization as one that's spurring or encouraging senior managers or the board to release the funds for a single data centre that manages to consolidate multiple...

Bernie: Absolutely, that does makes it an easy rationalization because now it becomes a cost take out issue as opposed to an additional capital cost.

Michael: Do you see your customers leaning heavily on the OPEX side of the justification to help them to help make the CAPEX pill a little bit easier to swallow?

Bernie: Absolutely, in the case of a well design data centre, the savings and operating costs far outweigh the cost of the data centre itself. There are huge benefits to a properly designed data centre facility.

Michael: Do you find that your Canadian customers go through that rationalization and present those numbers in clear, easy to understand language to their management and to the board?

Bernie: Unfortunately not. I think the trend is increasing, but a lot of times the CIO doesn't even pay for the power, so we really need to go high in the organization to get that level of visibility. Facilities pays for the power and IT just pays for the hardware, which leads to the wrong type of decision-making.

Michael: Right, and that was actually the discussion that Steve and I had earlier, was what fraction of the CIO's that are you dealing with are seeing those power bills come in the door and are reflecting those on the IT budgets as opposed to in the facilities budgets?

Bernie: A very low fraction but we're seeing them, the progressive ones are saying give me that budget and then the savings will accrue to my budget, realizing how much money they can save in power consumption.

Michael: That must be a very unusual management request. "Let me have more costs..."

Bernie: Well, yes, they get the cost allocation as well as the budget.

Michael: So...forced to guess, which I guess you are since the camera is rolling – what fraction of your customers do see power on their bill?

Bernie: Less than half of them do, definitely.

Michael: Less than a quarter?

Bernie: Less than a quarter would be my guess.

Michael: And then the other issue that we were talking about, or that Steve was talking about, was the modular build-out. Are you getting requests for that – from the Canadian customer base, to help them to spec out an entire data centre with a 20-year shelf life and then to populate it 20, 25 percent of the floor space at a time?

Bernie: We are actually teaching them about the modular approach. It is not something that people are aware of at the CIO level, but it is definitely a message that rings true with them because coming from an IT environment, that message is the same as they would have on their server side.

Steve: It's interesting, Michael that what we are seeing is what we believe is a significant market-changing factor. When we first announced a family of modular data centre designs about two years ago, we surveyed the marketplace and about 12 percent of the audience was interested in modular design, and their definition was relatively narrow. We just did a survey about six weeks ago, same population worldwide, what percentage of clients are interested in new data centres are focused on modular design, and it is over 80% now.

So we've significantly changed the way that customers are thinking about it when they are actually now into, "I need to build a new data centre, what do I do?" But, we've still got a whole bunch of the population to educate who are not quite there yet.

Michael: Are there any industries, particularly in Canada, where it is easy to find role models that have succeeded with a modular data centre build-out, or is still too early to have a lot of references that we could point to?

Bernie: We've had references here in Canada that have used our modular design that are very happy with it.

Michael: Any particular industries?

Bernie: No. Across the board, public sector as well as the general business community.

Steve: I'll give you an example, Michael. When we announced, roughly two years ago, a family modular designs, the first one that we actually brought to the market was something called Scalable Modular Data Center. It's not that the Toronto Dominion Bank's version for a data centre. It's for a more mid-market client – and we have over 250 of them installed now worldwide. So, it has taken off pretty significantly. In almost every major country in the world we have it installed somewhere.

Michael: And that is almost a data centre in a container approach?

Steve: No, it is really a data centre...

Michael: I picture it that way when you say “scalable modular data centre.”

Bernie: We do have those too – Portable Modular Data Center. What we find is that most clients recognize that they want the right security, the right environment around their data centres. So containers, they are all curious about, but they’re not necessarily what they are really buying. Scalable Modular Data Center is really...I guess from a building perspective, a more traditional data centre design, it does not require a raised floor and basically, scales power and cooling almost at the rack level. There are quite a few references from here in Canada. We had a lot of early installs here.

Michael: That is actually not a bad transition to the other half of this discussion. Once the business case is approved, between that and having reference accounts, IT management needs to formalize requirements for an RFP and use that to evaluate suppliers. Do you have any guidance for firms that are constructing an RFP, other than ‘pick us?’ Do you have any guidance that will help him them to understand what they should look for in suppliers so that they can get something that makes business sense today and will make business sense over time?

Bernie: Sure. I think the overall guidance that we would give is that they buy a data centre as a solution, not as components. So many times in the construction industry, we have a design at a component level, and it's usually based on the design the engineering firm did last time, whereas looking at the IT architecture and infrastructure, and saying, "We want to optimize the design of the data centre for this environment, " and using energy consumption and operating expenses as a design point, is very important. And that's not traditionally how data centres are designed.

Steve: One of the potential ways of approaching the question that you asked is, “have we seen a bunch of major customer problems, and what has caused a problem in this data centre environment?” In fact, we're thinking about writing a white paper around it. Basically, we found two or three major issues that keep getting repeated when people run into these projects, and they become not great projects but troubled projects. And they're basically around two or three major factors. The first is that we find customers have a belief that they have some expertise that actually doesn't exist. They may not have actually built a data centre in the last 10 or 15 or 20 years. And although they may have great relationships with a real-estate organization or a construction firm, those organizations may not have really recent data centre experience. And data centres are unique animals.

The second is we found that they've organized in a way where there isn't really strong collaboration between all the partners. This is a very complex exercise of engineering design, construction management, and starting with a set of very well-defined requirements. And if those three things aren't tightly linked, the hand-offs between those pieces could create a disaster. And so, making sure that you've got all of the members together that are going to create this end-to-end environment and they're working on the project together through the life of that environment is a critical success factor.

And then the point that I kind of mentioned earlier, statement of requirements, we find that in many cases, customers say, "OK, I found this amount of money. Here's what I'm building," and they haven't really stepped back and aligned that to what their real IT requirements are over what period of time.

And they've gone too far down the path and spent a whole bunch of money before they really understand what the base requirements are, and in many cases will stop the project and start all over on: what are the requirements? Because you can continue to throw more money into this hole, but that's not a good exercise until we really understand if what we're building actually meets the things that you're going to need over time.

Michael: And that's a common problem in IT, not just in facilities...

Steve: Absolutely. It's a common problem for all of us, right? We've all gotten into that mode of, "Let me just start. I'll figure out where I'm going after I started."

Michael: "Ready, fire, aim!"

Steve: Exactly – not a good approach.

Michael: But it's funny. You mentioned weak collaboration between partners. It seems like there's even a step, before you start aligning the construction partners, in aligning IT and facilities as partners, to make sure that those other pieces hang together against a well-understood statement of requirement...

Steve: Absolutely. And in many cases, you'll find that the real estate or facilities organization and the IT organization are kind of at odds. They're not used to collaboration. They're not working together in a productive way. They're blaming each other for the gaps that they're causing in the organization instead of working together to find some comprehensive solution to those problems. In these environments, it's pretty easy to get into a contentious environment: "Well, you never told me in advance you needed that. 1,000 blade servers landed on the loading docks, and you never asked me if I had the power and cooling capacity to support them."

Michael: Or, "why you need visibility into stuff that's in my domain..."

Steve: "Yeah, yeah – I know everything about power and cooling. Why do you need to get involved in the design aspects?" Right?

Michael: So Bernie, if I were to ask you, what are the three key points that a customer should keep in mind when they're looking to build a business case or an RFP – not to put you on the spot, but what would the three key points be for a customer who's thinking, "I need to put together a business case and an RFP around a new facility, and I need to think about..."

Bernie: Scalability. Ease of moves, adds, and changes. IT is known for that: moves, adds, and changes. And operating efficiency.

Michael: That's really impressive.

Bernie: And I've got to have capital costs as number four.

Michael: You know what? I'll give you a fourth. That's a really good one to have.

Bernie: OK, thank you.

Michael: Steve, if I were to put you on the same spot, I mean, you just did give me three, with the internal expertise, the weak collaboration, the statement of requirements...

Steve: Yeah, and that's more of a why projects fail versus what they need to focus on in the requirements, and so I'd support Bernie's elements. I mean, operating and capital costs are clearly critical. And this whole flexibility, which we think is provided through modular design, is an element that... Let me put it this way. There's not one client I've ever visited that's built a data centre to last 20 years that hasn't had to go back and retrofit. So why not spend the money up front, in terms of getting the design right, so that you're not pulling the building apart, so that you're not disrupting your facilities, so that you can add this new capability at the lowest possible cost instead of, in essence, starting all over from scratch with a retrofit?

And so we think that's what modular design really offers clients, is this flexibility. And flexibility, I mean, think of it...the future is really unknown. Our ability to predict the growth of any one of our businesses, the ability to predict where technology is going, the ability to predict where computing models are going, over the next 5, 10, 15, 20 years? I wouldn't take those bets, that we could predict them accurately, because we can't.