

Data Center Energy Efficiency Goes Far Beyond Simply Instituting Best Practices

Transcript of a BriefingsDirect Podcast examining a good strategic plan is the first step to achieving energy efficiency.

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Dana Gardner: Hi, this is [Dana Gardner](#), principal analyst at [Interarbor Solutions](#), and you're listening to BriefingsDirect.

Today, we present a sponsored podcast discussion on significantly reducing energy consumption across [data centers](#). Producing meaningful, long-term energy savings in IT operations depends on a strategic planning and execution process.



The goal is to seek out long-term gains from prudent, short-term investments, whenever possible. It makes little sense to invest piecemeal in areas that offer poor returns, when a careful cost-benefit analysis for each specific enterprise can identify the true wellsprings of energy conservation.

In this discussion, we'll examine four major areas that result in the most energy policy bang for the buck -- virtualization, application modernization, data-center infrastructure best practices, and properly planning and building out new data-center facilities.

By focusing on these major areas, but with a strict appreciation of the current and preceding IT patterns and specific requirements for each data center, real energy savings -- and productivity gains -- are in the offing.

To help us learn more about significantly reducing energy consumption across data centers, we are joined by two experts from HP. Please welcome [John Bennett](#), worldwide director, Data Center Transformation Solutions at HP. Thanks for joining, John.

John Bennett: Delighted to be here with you today, Dana. Thanks.

Gardner: We are also joined by [Ian Jagger](#), worldwide marketing manager for Data Center Services at HP. Good to have you with us, Ian.

Ian Jagger: And, equally happy to be here Dana.

Gardner: John Bennett, let's start with you, if you don't mind. Just upfront, are there certain mistakes that energy-minded planners often make, or are there perhaps some common misconceptions that trip up those who are beginning this energy journey?

Bennett: I don't know if there are things that I would characterize as missteps or misconceptions.

We, as an industry, are full of advice around best practices for what people should be taking a look at. We provide these wonderful lists of things that they should pay attention to -- things like [hot and cold aisles](#), running your data center hotter, and modernizing your infrastructure, consolidating it, virtualizing it, and things of that ilk.



The mistakes that customers do make is that they have this laundry list and, without any further insight into what will matter the most to them, they start implementing these things.

The real opportunity is to take a step back and assess the return from any one of these individual best practices. Which one should I do first and why? What's the technology case and what's the business case for them? That's an area that people seem to really struggle with.

Gardner: So, there needs to be some sort of a rationalization for how you approach this, not necessarily on a linear, or even what comes to mind first, but something that adds that strategic benefit.

Cherry picking quick wins

Bennett: I am not even sure I'd characterize it as strategic yet. It's just understanding the business value and cherry picking the quick wins and the highest return ones first.



Gardner: Let's go and do some cherry picking. What are some of the top, must-do items that won't vary very much from data center to data center? Are there certain universals that one needs to consider?

Bennett: We know very well that modern infrastructure, modern servers, modern storage, and modern networking items are much more energy efficient than their predecessors from even two or three years ago.

So, consolidation and modernization, which reduces the number of units you have, and then multiplying that with [virtualization](#), can result in significant decreases in server and storage-unit counts, which goes a long way towards affecting energy consumption from an infrastructure point of view.

That can be augmented, by the way, by doing application modernization, so you can eliminate legacy systems and infrastructure and move some of those services to a shared infrastructure as well.

On the facility side, and we are probably better off asking Ian to go through this list, running a data center hotter is one of the most obvious ones. I saw a survey just the other day on the Web. It highlighted the fact that people are running their data centers too cold. You should sweat in a data center.

Lot of techniques like hot and cold aisles, looking at how you provide power to the racks and the infrastructure are all things that can be done, but the list is well understood.

Because he is more insightful in this and experienced in this than I am, I'll ask Ian to identify some of the top best practices from the facilities and the infrastructure side, as well.

Jagger: Going back to the original point that John made, we have had the tendency in the past to look at cooling or energy efficiency coming from the technology side of the business and the industry. More recently, thankfully, we are tending to look at that in a more converged view between IT technology, the facility itself, and the interplay between the two.

But, you're right. There has been this well-published list in terms of what are best practices, and therefore, the manager's responsible. Be it IT or facilities, managers have a lot to implement on those best practices. Starting with the easy ones first, such as hot and cold aisles, blanking panels, being tidy with respect to cabling -- have cabling run under the floor, and items like that doesn't, as you alluded to, necessarily provide the best [return on investment \(ROI\)](#), simply because it's a best practice.

Areas of focus

When we undertake energy analysis for our customers, we tend to find the areas of focus would be around air management and environmental control -- very much to the point you mentioned about turning up the heat with respect to handling units -- and also recommendations around electrical systems and [uninterruptable power supply \(UPS\)](#).

Those are the areas of primary focus, and it can drill down from there on a case-by-case basis as to what works for each particular customer.

Gardner: Ian, what causes the variability from site to site? Clearly, there are some common things here that we have talked about, but what is it specifically that differentiates organizations, and they need to be mindful that they can't just follow a routine and expect to get the same results?

Jagger: Each customer has a different situation from the next, depending on how the infrastructure is laid out, the age of the data center, and even the climatic location of the data center. All of these have enormous impact on the customer's individual situation.

But there are instances where, for example, we could say to a customer, "Shut down some of your [computer-room air conditioners \(CRACs\)](#)," and we would identify which ones that should be shut down and how many of them. That clearly would create some significant savings. It doesn't cost anything to do that. Clearly, the ROI is much higher, because there is no capital expenditure that is required to shut down CRACs. That would be one good example.

Another example is placing floor grilles correctly, which would be on anybody's best practice list, and can have a significant impact in the scheme of things. So case-by-case would be the answer, Dana.

Gardner: Given that we have some best practices and some variability from organization to organization, let's look at these four basic areas and then drill down into each one. John Bennett, virtualization. What are the big implications for this? Why is this so important when we think about the total energy picture?

Bennett: If we look at the total energy picture and the infrastructure itself -- in particular, the server and storage environment -- one of the fundamental objectives for virtualization is to dramatically increase the utilization of the assets you have.

High utilization

This is especially a factor for industry standard servers. Historically, whether it's mainframes, [HP-UX systems](#), or [HP Integrity NonStop systems](#), customers are very accustomed to running those at very high utilization rates -- 70, 80, 90 percent plus.

With [x86](#) servers, we see utilization rates typically in the 10 percent range. So, while there are a lot interesting benefits that come from virtualization from an energy efficiency point of view, we're basically eliminating the need for a lot of server units by making much better use of a smaller number of units.

This can be further improved, as I mentioned earlier, by taking a look at the applications portfolio and doing application modernization, which has two benefits from an energy point of view.

One of them is that it allows the new applications to run on a modern infrastructure environment, so it can participate in the shared environment. Secondly, it allows you to eliminate legacy systems, sometimes very old systems, where very old is anywhere from 5 to 10 years in age or more, and eliminate the power consumption that those systems require.

Those are the benefits of virtualization, and very clearly anyone dealing with either energy cost issues or energy constraint issues or with a green mandate needs to be looking very seriously at virtualization.

Gardner: What sorts of paybacks are typical with virtualization? Is this a rounding error, a significant change, or is there some significant variability in terms of how it pans out?

Bennett: No, it's significant. It's not a rounding error. We're talking about collapsing infrastructure requirements by factors of 5, 6, or 10. You're going from 10 or 20 old servers to perhaps a couple of servers running much more efficiently. And, with modernization at play, you can actually increase that multiplication.

These are very significant from a server point of view on the storage side. You're eliminating the need for sparsely used dedicated storage and moving to a shared, or virtualized storage environment, with the same kind of cost saving ratios at play here. So, it's a profound impact in the infrastructure environment.

Gardner: Correct me, if I am wrong, John, but virtualization helps, when we want to whittle down the number of servers while we increase utilization. Doesn't virtualization also help you to expand and scale out as your demands might increase, but at a level consummate with the demand, rather than in large chunks, which may have been the case without virtualization?

Rapid provisioning

Bennett: Oh yes. I could talk for the rest of this podcast just about virtualization benefits, so don't let me get started. But, very clearly, we see benefits in areas like flexibility and agility, to use the marketing terms, but also the ability to provision resources very quickly. We see customers moving from operational models, where it would take them weeks or months to deploy a new business service, to where they are able to do it in hours.

We see them able to shift resources to where they are needed, when they are needed, in a much more dynamic fashion.

We see improvements in quality of service, as a result of those things. We actually see availability in business continuity benefits from these. So virtualization is -- in my mind, and I have said this before -- as fundamental a data center technology as server storage and networking are.

Gardner: It seems that virtualization is the gift that keeps on giving. Not only do you get a significant reduction in energy cost when you replace older systems and bring in virtualization to increase utilization, but, as you point out, over time, your energy consumption, based on demand, would be low given this ability to provision so effectively and given the ability to get more out of existing systems.

Bennett: Yes, absolutely.

Gardner: Do you have any examples? Do you have a specific customers or someone that HP has worked with who has instituted virtualization and then has come back with an energy result?

Bennett: We have a number of examples. I'll just share one example here.

The [First American Corporation](#), America's largest provider of business information, had the requirement of being able to better align their resources to business growth in a number of business services, and also were looking to reduce energy costs; two very simple focuses. They implemented a consolidation and virtualization solutions built around [HP BladeSystems](#).

They are projecting that, on an annual basis, they're saving \$714,000 in energy costs in the data center, and an additional \$12,000 a year in endpoint power consumption outside of the data center.

Gardner: So that spells ROI pretty swiftly?

Bennett: Oh, yes, absolutely.

Gardner: Ian Jagger, let's go to you now on this next major topic -- application modernization. I've also heard this referred to as "cash for clunkers." What do we mean by that?

Investment opportunity

Jagger: There is a parallel that can be drawn there in sense of trading in those clunkers for new cash that can be invested within modernization projects.

John has done a great job talking about virtualization and its parallel, application modernization. I'd like to pull those two together in a certain way. If we're looking, for example, at the situation where a customer needs a new data center, then it makes sense for that customer to look at all the cases put together -- application modernization, virtualization, and also data center design itself.

I mentioned the word "converged" earlier. Here is where it all stands to converge from an energy perspective. Data centers are expensive things to build, without doubt. Everyone recognizes that and everybody looks at ways not to build a new data center. But, the point is that a data center is there to run applications that drive business value for the company itself.

What we don't do a good job of is understanding those applications in the application catalog and the relative importance of each in terms of priority and availability. What we tend to do is treat them all with the same level of availability. That is just inherent in terms of how the industry has

grown up in the last 20-30 years or so. Availability is king. Well, energy has challenged that kingship if you like, and so it is open to question.

Now, you could look at designing a facility, where you have within the facility specific [PODs](#) (groups of compute resources) that would be designed according to the application catalog's availability and priority requirements, tone down the tooling infrastructure that is responsible for those particular areas, and just retain specific PODs for those that do require the highest levels of availability.

Just by doing that, by converging the facility design with application modernization, takes millions and millions of dollars of data center construction costs, and of course the ongoing operating costs derived from burning energy to cool it at the end of the day.

Gardner: It sounds that with these PODs that are somewhat functionally specific we are almost mapping a [service-oriented architecture \(SOA\)](#) to the data center facility. Is that a fair comparison?

Jagger: Yeah. It's a case of understanding the application catalog, mapping that availability and prioritization requirement, allowing for growth, and allowing for certain levels of redundancy that ultimately you can then build a POD structure within your data center.

You don't need UPS, for example, for everything. You don't need [SOAP](#) to end redundancy or twice redundancy for all applications. They are not all that critical and therefore why should we treat them as all being critical.

Gardner: A big part of being energy wise is really just being smart about how you understand your requirements and then apply the resources -- not too much, not too little -- sort of the Goldilocks's approach -- just right.

Talk to your utility

Jagger: One of the smartest things you can actually do as a business, as an IT manager, is to actually go and talk to your utility company and ask them what rebates are available for energy savings. They typically will offer you ways of addressing how you can improve your energy efficiency within the data center.

That is a great starting point, where your energy becomes measurable. Taking an action on reducing your energy, not just hits your operating cost, but actually allows you to get rebates from your energy company at the same time. It's a no-brainer.

Gardner: Perhaps to reverse engineer from the energy source itself and find the best ways to work with that.

Jagger: Right.

Gardner: John Bennett, is there anything that you would like to add to the topic of application modernization for energy conservation?

Bennett: I'd like to comment a bit about the point made earlier about thinking smarter. What we are advising customers to do is take a more complete view of the resources and assets that go into delivering business services to the company.

It's not just the applications and the portfolio, which Ian has spoken of, and the infrastructure from a server, storage, and networking perspective. It's the data center facilities themselves and how they are optimized for this purpose -- both from a data center perspective and from the facility-as-a-building perspective.

In considering them comprehensively in working with the facilities team, as well as the IT teams, you can actually deliver a lot of incremental value and a lot of significant savings to the organization.

Gardner: Let's move on to our next major category -- data center infrastructure best practices. Again, this is related to these issues of virtualizing and finding the right modernization approaches. Are there ongoing ways in which business as usual in the data center does not work to our advantage when we consider energy? Let's start with you, Ian.

Jagger: As we talked about earlier in terms of best practices, it doesn't necessarily follow that a given best practice returns the best results. I think there has to be an openness on behalf of the company itself on what actions it should take, with respect to driving down energy costs and ensuring solid ROI on any capital expenditure that's required to do that.

Just for example, I mentioned earlier that shutting off CRAC units would be one of the best practices, and turning the temperature up produces certain results.

Payback opportunity

I am thinking of one particular customer, where we suggested that they shut down three CRAC units. Now, that would give them a certain saving, but the cost of some of the work that would have to be done with that equaled the amounts of saving for the first year. So, there is a one-year payback there, and of course the rest is all payback after that point.

But yet, with the same customer, we looked at and advised to say, well, if you use chillers with variable speed compressors, instead of constant speed compressors, then there is certainly a capital requirement there. In the case of this customer, it was about \$300,000. But the return on that was \$360,000 in one year.

That investment created a larger return on payback than simply shutting down the three CRAC units or indeed the correct placement of floor grilles within the data center.

That was a case not of best practice, but having higher impact than best practice itself. It's not easy for customers to get into the detail of this. This is where expertise comes into it. We need to go beyond the typical list of best practices areas of expertise, and how that expertise can highlight specific areas of payback and ROI and where the business or the IT can actually justify the cost of doing the work.

Gardner: John Bennett, when it comes to leveraging expertise in order to bring about these efficiencies and make the right choices on how to invest on this ongoing best practices continuum, how does HP enter into this?

What are some ways in which the expertise that you've developed as a company working with many customers over many years, come to bear on some of these new customers or new instances of requirements around energy?

Bennett: We can bring it to bear in a number of ways. For customers who are very explicitly concerned about energy and how to reduce their energy cost and energy consumption, we have an Energy Analysis Assessment service. It's a great way to get started to determine which of the best practices will have the highest impact on you personally, and to allow you to do the cherry-picking that we talked about earlier. We'll ask Ian perhaps to talk a little more about that service in a moment.

For customers who are looking at things a little more comprehensively, energy analysis and energy efficiency are two aspects of a data-center transformation process. We have a data center transformation workshop, again, not necessarily to "do it for a customer", but to work with the customer in defining what their personal roadmap would look like.

One element that is considered are the facilities and the data centers themselves. It may very well end up saying, "You need a data-center strategy project. You need to have an analysis done of the applications portfolio to business services to understand how many data centers you have, where they should be, what kinds they should be, what you should do with the data centers you have." Or, it may be that the data centers are not an issue for that particular customer.

Gardner: Another big area where cost plays into these operational budgets, the ongoing budgets, is labor. Is there a relationship between labor in the IT operations and energy? Is there some way for these two very large line items within the IT budget; labor and energy, to play off of one another in some productive manner?

More correlative than causative

Bennett: Well, there is a strong relationship, especially on the infrastructure best practices that impact labor. I would treat it as correlative rather than causative, but as you ruthlessly simplify and standardize your environment, as you move to a common shared infrastructure, you actually can significantly reduce your management costs and begin the process of shifting your IT budget away from management and maintenance.

We see most customers spending 70 percent plus of their operational budget on management and maintenance, the opportunity is flipping that around to where they spend 70 percent of their operational budget on business projects. So, there is a strong set of benefits that come on the people side along with the energy side.

Now, for organizations that have green strategies in addition to having strategies for energy efficiency, one can use IT to help the organization be greener. Some very simple things are to make use of things like [HP's Halo](#) rooms for video conferencing and effective meetings without travel and to set up remote access with the corresponding security, so that people can work from home offices or work remotely. A lot of things can be done with green benefits as well as energy benefits.

Gardner: John, just briefly for our listeners, how do you distinguish green from energy conservation, what's the breakdown between them?

Bennett: Well, I am not sure how to characterize the breakdown, but energy is very typically focused either on reducing direct energy cost or reducing energy consumption.

The broader green benefits will tend to look at areas like sustainability, or having what some people refer to as a neutral carbon footprint. So, if you look at your supply chain backwards and out to your customers, you're not consuming as much of the earth's resources in producing your goods and services, and you are helping your people not consume resources needlessly in delivering the business services that they provide to their customers.

It's about just recycling practices, using recycled goods, packaging efficiency, cutting out paper consumption, changing business processes, and using digitization. A lot of things one can do that are more than just "pure energy savings". It falls back often to energy, but the whole idea of sustainability is a little bit of a different concept.

Gardner: Ian, I have heard many times the issue around cable management come up in best practices as well. What's the relationship between energy and cable management in a complex data center environment?

Jagger: Cable management, as you say, is one of those best-practice areas. There are a couple of ways you can look at that. One is from the original plant design with respect to cable ducting and just being accurate with respect to the design of that.

Continuous operation

The second part is running an operation continuously. That operation is dynamic, and so it's never going to stand still. Poor practice starts to take over after a while, and what was once well-designed and perhaps tidy, is no longer the case. The cables are going to run here and there, you move this and you move that, and so on. So, that best practice isn't sustained.

You can simply just move back in and just take a fresh look at that and say, "Am I doing what I need to be doing with respect to cabling?" It can have a significant impact, because cabling does interrupt the airflows and air pressures that are running underneath the raised floor.

It's simply a case of getting back to the best practice in terms of how it was originally designed with respect to cable management. There are products in there that we ourselves sell, not just from a design perspective, but racking products that enable that to happen.

Gardner: On the topic of good design, let's move to our fourth major area -- data center building and facility planning. This is for those folks who might not want to, but need to build a whole new data center. Or, if they've got an issue where they want to consolidate numerous data centers into a single facility, they might think about moving one or replacing it. A lot of different scenarios can lead to this.

How about starting with you John Bennett? What do you need to consider, when you are going to this whole new facility? I would think the first thing would be where to put the thing -- where is the location.

Bennett: Actually, before you get to choosing the location, the real first question is, "What is the type of facility do you need?" I've talked earlier about the hybrid data center concept, but the first questions are how big do you need and what does it have to be to meet and support the needs of the business? That's the first driver.

Then, you can get into questions of location. One of the interesting things about location is that there is no right answer, and there is no right answer because of qualitative aspects of customer's decision making that come into play.

There are a lot of customers, for example, who have, and run, data centers downtown in cities like New York, Tokyo and London -- very expensive real estate, but it's important to the business to have their data centers near their corporate offices.

There are companies that run their data centers in remote locations. I know a major bank on the West Coast that runs their primary data centers in Iowa. You can have strategies for having regional data centers. I think that the [Oracle](#) data center strategy is to have data centers around the world, in three locations.

HP has its data centers, six data centers, three pairs, located in different parts of the United States, providing worldwide services.

Environmental benefits

You can choose to locate them at places that have environmental benefits, like geothermal benefits. We have a new data center that we are opening up in the UK, which is incredibly energy efficient -- perhaps Ian can talk briefly about that -- taking advantage of local winds. You can take advantages of natural resources from a power point of view.

Gardner: The common philosophy here is to be highly inclusive, bringing in as many aspects of impacting on the decision and long-term efficiency. This is what needs to take place top-down.

Bennett: There are a lot of factors at play. The priorities and weightings of those for individual customers will vary quite significantly. So all of those need to be taken into consideration.

If you are doing a new data center project, chances are this is something that is not just going to your CFO for approval, but probably to the board of directors. It's something that not only is going to have to have a business case in its own right, but have to meet the corporate hurdle rates and be viewed as an opportunity cost for the organization. These are very fundamental business decisions for many customers.

Gardner: Ian Jagger, when we look to these new facilities factoring in a much lower energy footprint that may not have been the case with older facilities might help make that decision and might prompt that board to move sooner than later.

Jagger: Right. Going to the point of actually where to locate it, some companies do have preferences for a data center to be located adjacent to where they are actually conducting business, That doesn't necessarily follow for everyone.

But the play of climate on a data center and energy efficiency is truly significant. We have a model within our Energy Efficiency Analysis that will model for our customers the impact of where a data center could be based, based on climate zone and the relative impact of that.

The statistics are out there in terms of breaking up climate zones into eight regions -- One being the hottest and Eight, the coldest -- and then applying humidity metrics on top of that as well. Just going from one to the other can double or even triple the [power usage effectiveness \(PUE\)](#) rating, which is the usage of energy to power IT over the total end users coming into the data

center in the first place. Siting the data center can have an enormous impact on cost and efficiency.

Gardner: I imagine that your thoughts earlier about the PODs and the differentiation within the data center based on certain new high-level requirements. This could also now be brought to bear along with cabling when you are planning a new facility, something that you might not have been able to retrofit into an older one.

Rates of return

Jagger: It's easier for sure to design that into a new facility than it is to retrofit it to an old one, but that doesn't exclude applying the principle to old ones. You would just get to a point where you have a diminishing rate of return in terms of the amount of work that you need to do within an older data center, but certainly you can apply that.

The premise here is to understand possible savings or the possible efficiency available to you through forensic analysis and modeling. That has got to be the starting point, and then understanding the costs of building that efficiency.

Then, you need a plan that shows those costs and savings and the priorities in terms of structure and infrastructure, have that work in a converged way with IT, and of course the payback on the investment that's required to build it in the first place.

Gardner: I wonder if there are any political implications around taxation, carbon footprint, and cap-and-trade types of legislation. Any thoughts about factoring location and new data centers in with some of those issues that also relate to energy?

Bennett: Certainly, there are. The UK, for example, already has regulations in place for new buildings that would impact a new data center design project. There is a [Data Center Code of Conduct](#) standard in the European Union. It's not regulation yet, but many people think that these will be common in countries around the world -- sooner rather than later.

Gardner: So, yet another indication that getting a full comprehensive perspective when considering these energy issues is very important.

Let's go back to examples. Do we have some instances where people have created entirely new data centers, done the due diligence, looked at these varieties of perspectives from an energy point of view, and what's been the result? Are there some metrics of success to look at?

Jagger: I think John spoke earlier about a data center we recently built in the UK. The specific site was on the Northeast coast of the UK. I know the area well.

Bennett: It sounds like you might Ian.

Jagger: The highly chilled air coming off the sea has a significant part to play in the cooling efficiency of the data center, because we have simply taken that air and are using it to chill the data center. There are enormous efficiencies there.

We've designed data centers using geothermal activity. Iceland is a classic. Iceland sets itself up, as, "Come to us. Bring your data center to us, because we can take advantage of the geothermals that are in place with respect to that."

Examining all factors

To slightly argue against that, there are a number of data centers being sited in locations like Arizona, where you would consider the cost of cooling the data center to be much greater. Well, the humidity factor plays into that, because there is relatively low humidity there.

The other factor that's coming into that is how you work with the utility company and what the utility rates are? How much you are paying per kilowatt-hour for energy? Still other factors come into play, like general security with respect to the data center.

There are lots of instances where siting the data center is determined by the political considerations that you've talked about. It could be in terms of taking advantage of natural resource. It could be in terms of whether incentives are greater. There are many, many reasons. This would be part of any study, and the modeling that I talked about should take it all into account.

Gardner: So, clearly, there are many, many variables, a great deal of complexity of having a global perspective, and a great deal of experience certainly would come to be very productive when moving into this.

Jagger: Just to give you a specific example, we recently ran an analysis for a company based in Arizona. They were interested in understanding what the peer comparison would be for other companies in a similar climate zone -- how efficient were they in comparison to peers that they could correctly compare themselves to?

You can look at energy efficiency, but part of that game is in understanding your relative efficiency compared to others. What is it that you consider efficient? A data center with a PUE of 2 may be incredibly efficient, compared to a data center with a PUE of 1.4, based on climate location. In other words, the one with a PUE of 2 is actually more efficient than the one with 1.4, because of the influence of climate. If they were peer to peer, it would reflect that.

Gardner: How does an organization begin? We've talked about new data centers, modernization, virtualization, and refining and tuning best practices. Any thoughts on how to get started and where some valuable resources might reside?

Do you have a plan?

Jagger: To me, the only question would be whether you're improving efficiency according to a plan? Do you know the business benefit and the ROI of each improvement that you would like and that you would consider there? If you don't start at that point, you're going to get lost. So what is the plan that you are looking to do, and what is the business benefit that would follow that plan?

Bennett: That plan derives from having a data center strategy, in the positive sense of the word, which is understanding the business strategy and its plans going forward. It's understanding how the business services provided by IT contribute to that business strategy and then aligning the data centers as one of many assets that come into play in delivering those business services.

We see a lot of customers who have either very aged data center strategies or don't have formal data center strategies, and, as a result, aren't able to maximize the value that they deliver to the organization.

Jagger: You may have noticed this thing throughout this podcast from John and me, one of convergence or synchronization between IT and the facilities. I think that's apparent.

Don't necessarily focus on IT as a starting point. At the end of the day, typically, power cuts even by an average data center is actually not going to the servers, but to cooling, fans, and lighting, or the non-IT productive elements. Less than half would be going to the servers.

So, look at some of the other areas beyond IT itself. Those generally would be infrastructure areas.

You've also got to consider how you're going to measure this. How do you look at measuring your efficiency? Some level of energy automation and discovery of measuring energy that should be built in.

Gardner: So, that falls back into the realm of IT financial management.

Jagger: Right.

Gardner: We have been discussing ways in which you can begin realistically reducing energy consumption across data centers -- old data centers and new data centers -- and applying good practices, regardless of their age or location.

Helping us understand how to move in the conservative use of energy, we have been joined by John Bennett, worldwide director for Data Center Transformation Solutions at HP. Thank you, John.

Bennett: My pleasure Dana. Thank you.

Gardner: We've also been joined by Ian Jagger, worldwide marketing Manager for Data Center Services. Thank you, Ian.

Jagger: You are very welcome Dana.

Gardner: This is Dana Gardner, principal analyst at Interarbor Solutions. You've been listening to a sponsored BriefingsDirect podcast. Thanks for listening, and come back next time.

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