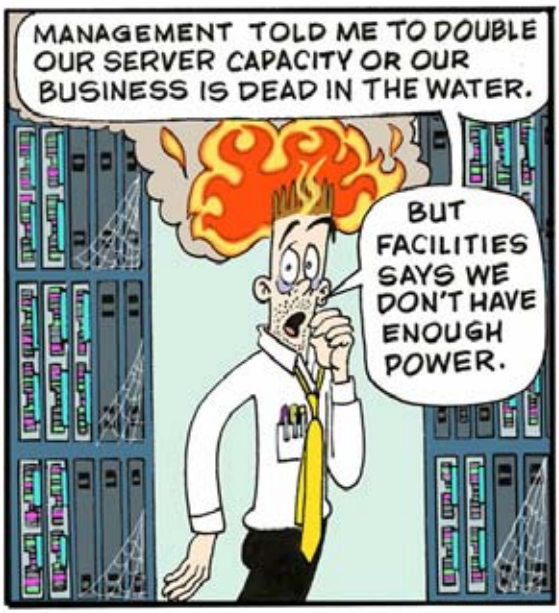
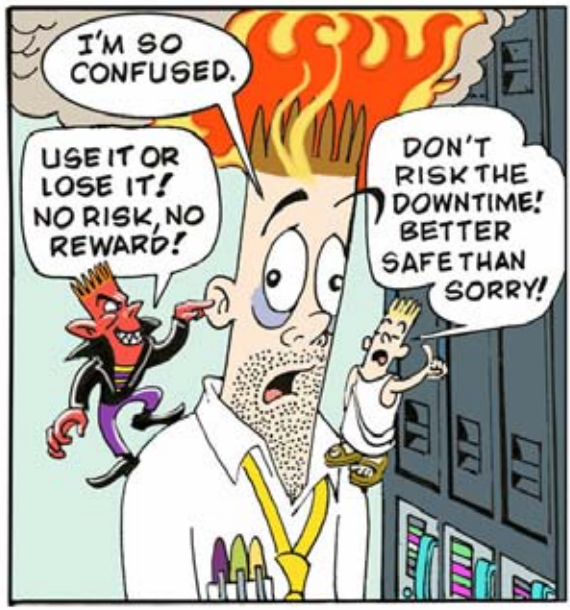
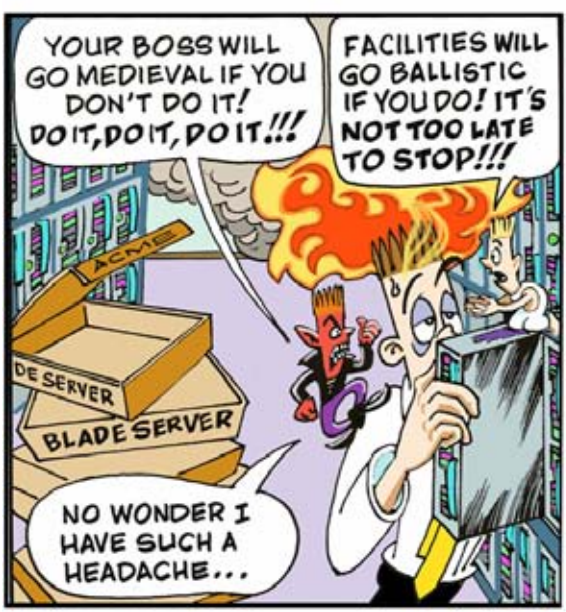
Alternative thinking on saving significant time while managing ProLiant Servers

Chapter 5
Freeing up More Power to Grow

THE POWERS OF Good VS. EVIL



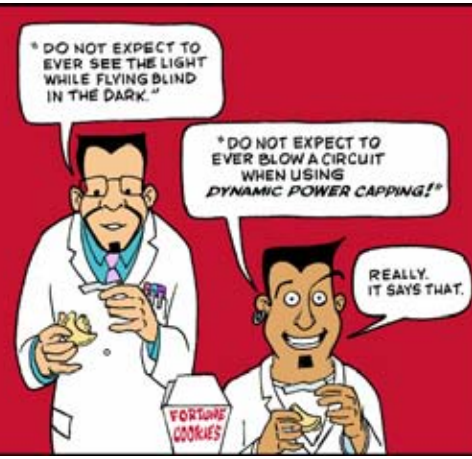




CHAPTER FIVE:

Freeing Up More Power To Grow

What If You Already Had the Power and Didn't Know It?



Besides the time IT professionals are grudgingly giving away to their existing power and cooling issues, we were blown away to discover how much time they are also spending on the power and cooling they wish they had.

The entire IT industry is concerned about a "data center power crisis" and the Uptime Institute's survey showed us that 41.7% are worried that their data center will run out of power capacity in 12-24 months.

In interview after interview we heard from stressed out Admins who told us they have the rack space and floor space to add the new servers their companies need to grow – what they do not have is the power and cooling capacity and they're spending way too much time and money desperately looking for solutions.

The costs and time-toll of building out are obscene and for many, unacceptable. The costs of doing nothing are even bigger. Once again our Alternative Thinking Time Lab's breakthrough research on HP's Insight Control Environment revealed life-changing benefits for anyone paralyzed over this power puzzle.

Here's how our friend, Hair on Fire (HOF) approaches running out of power and cooling capacity in his data center: Responding to his management's mandate that he add new servers and increase compute capacity, HOF starts the process by conducting a power inventory the only way he knows how. First he physically adds up the power ratings on all his servers' faceplates then he doubles that number to cover his redundancy reserve.

HOF feels trapped by his facilities team's insistence on budgeting him so little available power and holding so much back in reserve. He thinks having to budget power based on the faceplate number - just in case all the servers go to full power simultaneously – is stupid, because they never do that.

HOF is sure that most of his servers don't actually use anywhere near that much electricity since so many of them are only 20--30% utilized. Then again, even though most of his servers run at 200 watts, sometimes they can spike to 400 or 500 watts. But he can't really prove that, since he doesn't know how much electricity each server actually uses – which drives him nuts.

The numbers HOF does have, from his power inventory, add up to bad news his boss won't like. He has the rack space, and even room for more enclosures, but not enough available power to add the servers management wants.

HOF doesn't want to be the one to tell them that they're going to have to build out new facilities at $300 a square foot and another $25 million for the power and cooling infrastructure on a 1MW data center – he already knows they don't have that kind of money in the budget.

Adopting the power management breakthroughs we verified in our most recent Time Lab work simplifies and streamlines this entire scenario:
As soon as you get management's message to boost compute capacity and add new servers you review the power usage data you already have for every server in the center. You note peak and average power consumption for the past six months and compare that for the performance data you have going back three years to get a clear picture of current power needs.

You also evaluate the readily available temperature data for every server, making it a lot easier to enact intelligent planning decisions about your cooling needs.

Having these power performance specifics at your disposal makes it quick work for you to achieve maximum efficiency by setting the power cap for each server based on its actual measured power requirements. You spend zero time worrying about it knowing that your infrastructure is protected from tripping a circuit and causing you any unplanned downtime.

The blades enclosure you're using goes even a step further and gives you the ability to pool and share the power you budget for it. It allows busy servers to "borrow" power from idle servers, with each server in the enclosure getting enough power to deliver the performance it needs to do its job.

You're managing your power with unprecedented control and for the first time ever you're able to safely free up enough reserve electricity to give you power you can not only bank on, but power you can run new servers on. You report back to management that you'll have no problem adding the servers they've asked for in the space you've already got.

The different pieces of HP Insight software that helped you free up more power to grow include:

HP Systems Insight Manager – SIM – which continually monitored every server for real-time power and thermal readings and saved that information in a database.

HP Insight Power Manager – IPM – which utilized the SIM database to store and provide you with up to three years worth of your historical power data.

HP Dynamic Power Capping – which allowed you to set a power cap "budget" to allocate among all blades in the enclosure enabling them to pool and share power.

HP Onboard Administrator – which graphed the power and caps used on every blade in the enclosure, updating every 15 seconds while saving 24 hours of historical data.

HP Power Regulator – which allowed you to choose from three different server power efficiency modes – Dynamic, Power Efficient or High Performance.

HP Integrated Lights-Out Advanced Remote Management - iLO2 – which gave you current and 24 hours of historical P-state reporting, providing a real-time power graph updated every 15 seconds.

We've seen the benchmarking data that shows Thermal Logic with Dynamic Power Capping reclaims enough unused power and cooling capacity - to *TRIPLE the capacity of their existing data center. Read the brand new whitepaper. We've seen the bench.

** To be precise, the percentage increase in server density compares the number of servers that can be deployed using Dynamic Power Capping with the number of servers that can be deployed using server face plate values. Density improvements may vary based on how customers budget power and cooling resources.*