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Time for Fresh Thinking on Data Center Management

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By Penny Crosman

This morning, I dropped in on the [thinktank: data center Expert Series Tour](#) our sister publication Network Computing is running; today's event was at the posh St. Regis Hotel in New York City (my clothes are almost starting to dry). Art Wittmann, Network Computing's Editor in Chief, zeroed in on some of the key issues facing data managers and executives trying to efficiently run data centers today. Most of the attendees had plans to build new data centers or remodel existing ones. Wittmann pointed out that although Gartner predicts IT spending will increase about 3.8% this year, that's not a huge increase compared to the exploding growth in data center servers, cooling and power needs. He then offered suggestions for keeping costs down while maintaining data center expansion and performance.

To control HR costs – the largest cost in IT -- Wittmann recommended eliminating repetitive tasks by automating them. Not only will this save man-hours, he said, but it will enable more accurate logging and provable regulatory compliance.

And keep staff out of the data centers by using remote systems, he suggested. "It's safer and healthier," he said. "The noise level can reach 100 decibels and if you stand in 50-degree air for a while, sooner or later you get sick." He emphasized that sometimes people hesitate to trust remote monitoring, but they shouldn't. At a Network Computing data center, the remote monitoring tools read the center's temperature above 200 degrees and the humidity 100%, and people assumed the controls were wrong. It turned out that there had been a fire in the beauty salon upstairs and there was a major equipment failure in the center.

To manage increasing power costs, Wittmann strongly recommended server consolidation. "While new processors from Intel and AMD can save 20 to 40 watts per server, eliminating the server itself saves 300 to 500 watts." Localized cooling can save 20 kilowatts per rack, and blades help provide better density and lower power consumption.

I've only recapped the opening speech here – the expert series' other segments cover remote data center system management, physical data center design best practices, and designing flexible server farms in depth.

Back at the office, I spoke with Steve Yellen, vice president at data center software company [Aperture](#), about a survey its research arm recently conducted. The results -- that data center requirements are outpacing the physical data centers that exist -- dovetail nicely with Art's recommendations.

The survey of 100 managers at Fortune 1000 companies who oversee data centers found that, among other things:

1. Data centers are growing -- 36% of respondents are building or planning to build new data centers by the summer of 2008.
2. Data centers are running out of capacity -- 44-45% of companies have 90% of their data center space allocated, they're almost full. "We see lots of companies looking to build new data centers," Yellin says.
3. Blades are big: 87% of respondents have blade servers in their data centers. However, half the respondents said 10% or fewer of their servers were blades.
4. Servers and racks are getting more power hungry. It used to be that server racks consumed about 3-6 kilowatts. Among survey respondents, 15% are running over 13 kilowatts per rack, almost 60% are running more than 7 kilowatts per rack. "Most companies are still operating data centers built in the early 2000s, designed for 2-3 kilowatts per rack," Yellin says. "One interesting thing we saw in our survey was that 21% of respondents don't know the maximum power density of their racks. People who are going to higher density racks but not managing them well don't know where their limits are."

His firm advocates applying ITIL (Information Technology Infrastructure Library) principles to data centers. Although ITIL doesn't directly address things like server configurations, power, and cooling, its core ideas like capacity management can be applied here. "If you don't have good management practices and good tools, how do you know you won't fall off the cliff tomorrow?" he says. "You're operating with out a net."