PERSPECTIVES:
Addressing the Talent Shortage in Data Center Industry

By Joselito Lualhati

The data center industry continues to experience rapid growth, and with this growth has come a dramatic increase in the need for mission critical operators, the operations personnel who maintain the diverse and complex infrastructure of the centers. According to industry experts, the lack of awareness of the mission critical operator role as a career field, the ongoing shortage of talent, and the lack of a formal or recognized program for education and training to create the required skill set have been major issues for data centers, and the resulting personnel deficits can translate into serious implications for performance.

The key to a healthy pipeline of employees for any industry is the ability to attract a broad range of personnel. Tony Rossi, head of mission critical solutions for AirTight FaciliTech in Charlotte, NC, noted, "Visibility of this industry as a whole is lacking. People are not aware of what the jobs are. They have heard the words 'data center' but they primarily think of IT when they consider what jobs are available there." Sharing this view, Marcus Hassen, Data Center Program Manager for AT&T's Real Estate Operations, states, "There's not a whole lot of awareness or buzz in my opinion of the type of professional opportunities the industry offers. There is a general knowledge and understanding around IT and computers, from a programming or a network administration standpoint, but that's a markedly different field than the mission critical operator field."

Data centers have also struggled to attract a diverse workforce. Jim Larson, Senior Manager of Mission Critical Facilities at The Walt Disney Company, states, "The field of critical facility support does not seem to be attracting the interest or the talent of younger people. We're also not doing a good job of attracting women and people of diverse ethnic backgrounds."

Compounding this issue is the tight U.S. labor market. According to Dennis Cronin, CEO of Resilient Solutions, "We're effectively at full employment in the U.S. It's bad enough that people don't have the skills needed to work as an operator in a data center. We just don't even have the people. This creates a great challenge for us: how do we operate and maintain these facilities in a safe, economical, and efficient manner?" Add to that the graying of the

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American workforce. With the baby boomer generation reaching 65 and retiring in record numbers, the data center industry has felt the effects intensely. Todd Pagliarulo, senior project manager for Clark Nexsen, says, "There's a lot of white hair in this industry and not a lot of people to backfill."

The lack of awareness of the opportunities available for mission critical personnel and the tight labor market are not the only causes for worry about the future data center workforce; another issue is the lack of programs communicating about and preparing people for the work.

Educational institutions have been slow to respond to the personnel needs of this sector. While training for some of the required traditional trades still exists (e.g., HVAC, electricity) and some community colleges have developed programs focused on the data center industry, there is an overall dearth of education to address the full scope of the operations side of the field. The perception among many on the hiring end of the industry is that educational programs are needed to address the broad-ranging, cross-disciplinary knowledge that is critical for today's data center operators. To operate these increasingly complex data centers, says Cronin, personnel trained in multiple, overlapping functions are required, "people who know not just about, let's say, electrical, but also know mechanical, plumbing, fire protection, and regulatory requirements. I see our education system as lacking in that respect." Ideally, education for the fundamental knowledge needed in all data centers would be based on industry-created standards.

The personnel skill set that this industry requires is unique. Employers need operators who can work well with a high degree of accountability, adapt to continuously changing technologies, address a broad variety of systems, and most importantly, quickly identify issues and handle emergencies. In the opinion of Ray Caponi, vice president at T5 Facilities Management, "If you don't plug the right people in, you're toast."

The costs to businesses of insufficient staff with the right skills can be enormous. Pagliarulo notes, "It can impact downtime if you have an issue pop up that

is beyond the ability of the person on the spot to deal with. If you have to wait for somebody else to come address it, you can have a cascade and shut the entire building down very, very quickly." Adding to this idea, Cronin said the cost of having a talent deficit can result in, "A disaster. Process interruption. Data center downtime, misapplication of assets. We're talking about millions if not billions of dollars worth of assets that are put at risk every day because of this inability to address an issue properly." For a third-party personnel provider, this has added costs; Rossi noted that such organizations have to issue credits if they miss the problem-solving time limits written in their contracts.

Addressing this talent deficit will require both immediate and longer-term solutions. In the short term, one way to bring the next generation of employees up to speed on the necessary baseline knowledge and skills is through training and development programs—both external for industry standards, and internal for training on specific data center systems. Given that "three-quarters of all incidents affecting downtime are human-related," Rossi states, "companies do not want to wait for an incident" to start training.

The question of how and when to best conduct fundamental training is a dilemma for most organizations. Pagliarulo says, "It's the question that a lot of facilities are now faced with: do we bring on individuals that have certain skills and we train them and teach them, or do we look for people that already have a skills base or knowledge base? But that all comes with certain dollars and experience levels and it has different implications there too." Also recognizing the cost implications of both initial and ongoing training programs, Caponi believes that strategic decision must come from the top: "It has to start at the executive level, and there has to be a commitment by management to establish budgets that can carry training, whether it's third party through a vendor or in-house."

Training can cover more than knowledge. Caponi is a believer in the need for high-quality, mandatory, on-site training programs that drill employees to prepare for emergency scenarios: "Unfortunately what people call training still leaves people ill prepared for the

realities that they're going to face in the data center when they're by themselves at 2:30 in the morning on a Sunday." Not only does good training lead to an increase in operational safety, he says, but "that training points back to retention as well, being able to keep people happily employed and not have them leave for a 50-cent-an-hour increase."

Certification programs are another of the resources companies can use to help hire the right people and ensure their current staff has the required knowledge. But many in the industry complain that current certification exams are aimed at the IT or management side of the business and not at the operations side. "Very little certification applies to the electrical, mechanical, fire protection—all the basics that support the data center. It's like, we spend all of our money every year repaving roads, but we pay very little attention to the bridges," says Cronin.

Hassen sees operational certification as having great potential in the screening and hiring process, allowing those resumes with mission critical operator credentials to rise to the top of the pile. "We can have a high degree of confidence, then, that this candidate has the varied skill set we need and has applied it with an emphasis on our industry, and the range of knowledge goes beyond just an IT certification." Some major companies are already listing some credentials as highly desirable or required in their job descriptions, and this may eventually become an industry standard.

Until the pipeline of certified individuals grows, some data centers are addressing the desire to have their people master industry-developed standards by requiring new employees to prepare for and take select certification exams within a specific time frame after being hired. And, given the variability of the training and education currently available in support of mission critical operations, Larson said that focusing on standards-based, fundamental level certification provides the "assurance that the person that I have hired or I'm contemplating hiring will perform successfully in our environment and understand our terminologies and at least the fundamentals of some of the processes that we apply."

So, what has been done to address these issues? Groundbreaking work has been started in North Carolina, funded by the U.S. government. Recognizing the need and opportunity for employees in the data center industry, the U.S. Department of Labor funded a Trade Adjustment Assistance Community College and Career Training grant for Cleveland Community College (CCC). CCC worked with industry experts to create a list of the skills and knowledge viewed as fundamental to data center operations; this list (known as the Essential Body of Knowledge or EBK) was validated via an industry-wide global survey. CCC is now working with other schools as part of the National Consortium of Mission Critical Operations to expand upon and use the curriculum, career path, and Certified Mission Critical Operator textbook (see ncmco.us for details) developed from the EBK standards. The certification program (the Certified Mission Critical Operator or CMCO) they built is now offered nationwide (see mccerts.com) and is being used by major data center owners and users to identify new talent for the industry. The hope is that these programs will continue to spread across the United States, bringing a standard level of knowledge to the new generation of mission critical operators.

Longer-term solutions include a much stronger focus on education across the country. Industry leaders hope to see the development of more educational programs at the trade and college levels that reflect the need for employees to master broad, cross-disciplinary knowledge in order to be an asset to the data centers they support. And in order to attract talent and maintain a healthy pipeline, the industry must do a better job of creating awareness of career opportunities in the field both within educational channels and amongst the broader U.S. labor market.

In a field where skilled personnel play an essential role, these long-term issues will require sustained industry attention. Awareness, training, education, and certification all play a role in addressing the talent shortage.

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