

Managing the physical layer infrastructure

A joint interview with William L. DiBella, President and CEO, Centric Solutions and Neil J. Unger, Chief Technical Officer, Centric Solutions

ITO: What changes are on the horizon regarding how physical layer connectivity infrastructure is managed?

NU: Asset and connection management has traditionally relied on a manual documentation process. Manual processes often breakdown over time as errors or omissions and tend to cascade through the connection and asset data bases. Auto location and self description technologies, such as RFID and Electronic Product Code (EPC) standards, have now matured to the point that has assured their inclusion into physical layer management processes.

In this scenario, every component of the infrastructure is tagged with an RFID chip. These chips contain everything about the component, from assembly through the last service. The RFID tag is applied by the manufacturer. The information is encoded in a standards based format. Management systems will automatically use and update information over the life of the component. This technology will change the efficiency of infrastructure management for the better.

ITO: What are the most important factors for Data Center leaders who are starting to look at Green Initiatives?

NU: Capacity planning, capacity planning and capacity planning! There's no doubt one big machine will use less energy than many little ones. The days of adding more servers to the farm when you need more power are over.

Marriott's Marsha Reservation System is a perfect example of a winning Green Strategy. By eliminating the server's front-end and right sizing their engines, they maintain 1,200 transactions a second and have less than 30 minutes per year in downtime (5-9's) with their engines pulling only 6.3kW/h. Servers are using less energy than seven years ago, with an 800 percent increase in traffic.

ITO: What best practices should companies adopt for power and cooling in the Data Center? How important are power and cooling audits to ensure energy costs decrease and make long term efficiency a reality?

WD: Start with the basics, identify and concentrate your efforts on areas of unrestricted airflow that cause you to waste power and cooling resources by:

- Installing blank filler panels in your cabinets to direct airflow where it matters most to your equipment.
- Seal up all floor tile openings and cut outs such as data and power cable entry points with devices such as Kold-lok.
- Improve your cable management situation, organize the cables under the floor and in the cabinets, remove any old disconnected data cables and when ordering cables specify the minimum length needed

- in order to keep cable slack management issues from occurring.
- When installing fiber optic trunk cables, specify loose tube small diameter construction.
- For copper 5e cables, consider running 25 pair trunk cables above the floor instead of standard four pair cables in basket tray under the floor.
- Implement virtualization for servers and tape.
- Install high efficiency, uninterruptible power systems.
- Discuss shifting power distribution from 120V to 208V / 230V.
- Monthly inventory your equipment and turn off idle hardware.
- Review equipment purchases and reject those that are not manufactured with high efficiency power supplies.
- Implement best practices for data center cooling such as hot aisle cold aisle.

Power and cooling audits are significant tools ensuring success not just in the crucial areas of improved energy efficiency and cost savings, but contribute greatly to improving the performance and health of not only the hardware within the enterprise but the entire enterprise itself. You cannot fix what you cannot identify. Audits provide that needed starting point to ensure that you are correctly identifying the problem areas in a quantitative manner that maximizes your results with these savings providing the needed funding to continue the process as the simple and least expense areas are solved first. Start by understanding where your biggest energy expenses are, how much energy is consumed by each devices within your enterprise from CRAC units to servers by installing monitoring equipment to identify the areas of highest cost and waste. In conclusion, elect a team leader who will have the responsibility to monitor the status and report on the progress of your audit.

ITO: How should organizations prepare for E2k?

WD: Unlike the Y2k issue, which was a fixed point in time addressed, albeit, with much confusion, cost and last minute fanfare, preparing for E2k goes beyond the IT concept of processing with less energy and concentrates on becoming more efficient and green. Preparing for E2k is a long continuous undertaking, as truly obtaining efficiency is a journey that continues well after the easiest approaches have been applied to reduce energy consumption and reduce cooling costs. Begin with the process of performing an energy assessment; keep in mind to specify on your future hardware purchases that power supplies must be at least 80 percent efficient. Rethink, revisit and pre-plan your technology refreshes, asset swaps and end of lease occurrences well in advance and view them as E2k opportunities. Installing monitoring equipment and discuss upcoming technology options with all your vendors from CRAC units to UPS's, and cabinets. Consider replacing servers with mainframes etc. most of all do your research.

ITO: Where and how does RFID fit within the Data Center?

NU: RFID technology will fit in three areas within the Data Center; Asset Management, Connection Management and Security.

Asset Management: RFID tags hold and report self descriptive information. This information is used and updated by asset management programs over the component's life.

Connection Management: RFID in connectors and cables will allow a connection map to be automatically maintained. The second a cable is connected or disconnected the system recognizes the change. While it may be physically possible to mate different fiber types, the system would recognize the error by interrogating the information in the cable tags.

Security: RFID technology is now deployed as a tracking system. Simple systems use a portal technique, where readers on doors keep track of what passed. More advanced systems use a grid system of antennas to track within inches. Track your people and assets. An interesting example is a system that tracks 3,490 tape cartridges. The amount of personal information on just one tape is an identity thief's dream.

Neil J. Unger | William L. DiBella

ITO: Please can you describe AAMM? (Automation, Auto-discovery, monitoring and modeling for the enterprise market)

WD: AAMM is the pathway to a premium position of efficiency, cost containment, infrastructure optimization, and improved risk management position, ensuring higher overall enterprise performance. The corner stone of any successful organization is not just information but auto-generated, easily transferrable knowledge that is timely and comprehensive in scope. Today's data center managers have a distinct advantage in affordable, readily available products, software and solutions to analyze, monitor and generate short and long term data to lead them into an extremely accurate and timely proactive enterprise management position.

For example, today's use of modeling software before you purchase or install any hardware on your raised floor environment enables you to create a graphical representation of a virtual, pre-modeled environment, which, based on the layout of the infrastructure, hardware and cabinets selected, will identify any hot spots and pinpoint your energy usage as well as assist you in capacity planning. The benefits here not only include increased efficiencies and money savings up front, but allow the new found ability to analyze and evaluate hardware in areas of such as heat generation and cooling requirements that before were only discovered after the hardware was purchased and installed. Now with AAMM you possess the ability to design out problems in advance of implementation.

In existing facilities, utilizing AAMM methodology, such as advanced monitoring of temperature, humidity, power surges and equipment power usage provides the comprehensive infrastructure data needed to facilitate the process of performing an energy assessment audit. The use of RFID technology, with its inherent auto-discovery capabilities, provides a solution to asset management issues all data centers face.

ITO: How can Centric Solutions help?

WD: Centric Solutions as a business partner is akin to possessing a readily available, in house team of industry experts in physical layer infrastructure connectivity and auto discovery asset management solutions. Our emphasis is on providing total turnkey support in engineering, design, manufacturing and installation. Products and services range from unique customized cabling connectivity solutions, specifically designed cabinets to house, monitor and provide superior cooling capabilities for your hardware, and our technology leading RFID asset management solutions. Increase your organizations efficiency and performance by utilizing one vendor that can deliver to you, best of breed cabling infrastructures, implementation of asset management programs, consulting and assessment services in the critical infrastructure areas of power, cooling and greening.



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Mr. DiBella has been a long time innovator and designer of unique physical layer infrastructure cabling products for the fiber optic and copper industries. He continues to be instrumental in providing and implementing unique, customized solutions and services tailored for the Data Center and LAN environments.

William founded Fiber Optic Systems and Connectivity Technologies, serving as President of both companies. He has also served as President of AFCOM, the leading trade organization for the Data Center industry. His current position is President and CEO of Centric Solutions, headquartered in Dallas, Texas.

Mr. DiBella has been published in ITO America, Strategic Path, BMUS, CXO, and RFID Journal, and has appeared on MSNBC, CNBC, and TXCN.

William's technical engineering background fuels the creativity associated with advanced industry technologies, fostering the development of a unique understanding of the enterprise marketplace. His business acumen and understanding of strategic relationships between manufacturers, vendors, and end users are talents that have been mastered from over 25 years of experience. Mr. DiBella maintains and instills in his peers a demanding attention to client needs that possess no bounds. His mantra has always been "over service the client with best of breed performance, and deliver unsurpassed customer service".

Mr. Unger, an Electrical Engineer, has spent 25 years defining and developing high available information connectivity systems for airlines, financial institutions, telecommunications, military, and intelligence organizations.

He began his career trouble-shooting faults in large scale mainframe systems, and went on to develop Bus and Tag, ESCON and FICON Switches, Directors, Extenders, Storage, and Channel to Channel devices.

As founder of Data Switch's Fiber Management System division, Mr. Unger wrote and was awarded patents on how optical networks are implemented and managed, and how processors of different architectures can share information. After 9/11, as founder and general manager of Inrange's Application Integration Division, he developed information search and storage systems that allowed government security agencies to track and evaluate airline passengers.

Mr. Unger is presently Chief Technical Officer for Centric Solutions, and is developing Radio Frequency Identification (RFID) products that automate the tracking of assets and connectivity management for large scale information environments.