A Glimpse of the Future: The New Wave of Prevention

Trending Ideas in Data Center Efficiency and Capacity Planning

Although most data center managers don't have a crystal ball, everyone seems to expect their data center manager to be a master of what the future holds.

This is a constant challenge given the bombardment of conflicting demands and the fact that change is the only constant in the complex and dynamic world of data center management. The need to manage both tactical and strategic initiatives is often in conflict, leading to uneven waves of attention and action. To an extent, this pattern reflects the different needs of departmental stakeholders and is exasperated when new assets are added at break-neck speed.

When it comes to planning for change the inevitable question is simple: is there any way to predict if the change required will cause or prevent future problems? At the end of the day, the buck stops with the data center manager who has to decide on burning issues such as:

- Am I running things effective?
- To what extent should I deploy new technologies as opposed to continuing with existing ones?
- Am I conforming to all the current regulatory requirements?
- How do I keep IT assets safe and secure?
- What am I missing?
- How do I figure out what to do next and where to start?

Prevention Planning: Getting from Here to There

These questions mask a critical issue related to how we prepare for and prevent--in advance-- the unseen problems lying in wait. An irony is that although data center technologies have made many positive strides, they haven't yet been optimized to help managers foresee risks and develop preventative strategies. Case in point: although point-based planning and analysis tools are available to integrate with existing systems, they rarely provide meaningful knowledge, are prohibitively expensive, and incapable of futuristic prediction. In addition, while many cool tools are being built for the cloud, it's important to also build tools for the majority of data centers that are still premise-based, internal to the company or at co-location sites.

The modern data center manager needs a platform of integrated tools that not only take the risk out of decision-making but also de-mystify the reasoning behind change for all company stakeholders. Ensuring that these tools provide knowledge to stakeholders outside of the data center is an important, often overlooked component. Without easy to understand insights into data center planning and operations, it's difficult to help stakeholders understand the tradeoffs and decisions surrounding the overwhelming demand in new services while maintaining existing ones during times of shrinking budgets.

Addressing these needs is what the emerging wave of prevention is all about. It involves data center managers using new technologies to better understand and plan for potential risks and issues before they happen. These technologies include solutions to help data center managers systematically assess the options and choices available, bringing a laser-like focus to critical decisions and issues. The expectation is that these tools will help data center manager's effect positive change by spurring new ways of thinking, prioritizing and preventative planning so that they can more effectively address tactical and strategic alternatives before a decision is made. This requires the ability to run holistic "what if" scenarios to determine in advance the impact of change. It assumes that the technology will help in answering questions such as:

- How to most effectively manage a data center move?

- How to optimize capacity and power?
- The introduction of new mandatory regulations
- Technology refresh implications
- How to reduce costs while increasing productivity?

Prevention Planning Technologies

Historically, prevention planning has been crippled by systems that don't provide the capability for data center managers to easily extract information with the intent of doing analysis in an environment where the implications can be seen. New technologies are starting to cure this ailment. For example, it is possible today to wave a wand, such as an RFID scanner, across a data center, capture all essential asset details and locations, and then from a single screen, use virtual technology to "move things around" or "virtually re-rack" the data center. With this ability, the door opens to the possibility of being able to study ideas related to growth challenges, design, or managing capacity. Today, a growing number of solutions provide this capability, and the ability to see the impact of future changes ahead of time. Here are some examples:

Visual 3D Prevention: There are now solutions that provide a 3D visualization of the datacenter including visualizations of the impact of change scenarios. For example, scenarios can reveal all servers greater than four years old and corresponding "what if" questions such as: what if these servers were replaced with new "model x" servers? With the ability to put the "old assets" on a virtual palette this technology can then show the impact of the new servers on rack space, power, cooling and maintenance costs. The same is true of every other conceivable scenario.

Remote Access Tools: For many data center managers a key challenge is how to manage assets, infrastructure and facilities in multiple locations. Remote access tools have been around for years however, they were often standalone applications, highly expensive and often difficult to use. Today's new breed of cloud-based remote access tools are less expensive and embrace smart asset tagging and sensor technologies. These capabilities unchain the data center manager from the desktop and enable critical real-time information to be immediately accessed on a smartphone, regardless of location. With this type of remote access, a data center manager in New York could understand and determine in advance the preventative actions needed to avert an IT emergency in Singapore.

Business Continuity Planning Tools: The use of modern planning tools can have a profound impact on data center operational efficiency and best practices. In many instances, these applications can simulate the effect of any change and provide insight into what could happen. In essence, with these tools, data center managers can now predict the impact of change on power, cooling as well as space and capacity and stop failures from occurring. Furthermore, these applications allow management to design a proactive plan of action in anticipation of the failure of a particular rack, row, room or zone.

Performance Monitoring: Today tools exist that enable health checks on the data center whether physical or virtual. These fully automated solutions provide performance metrics on the data center as a whole and can drill down to an individual machine. They are useful in prevention planning because they demonstrate how efficient the data center is performing in real-time; map the relationships and inter-dependencies between applications, and infrastructure components; analyze where risks may exist; and help in designing preventive measures to catch performance problems before they happen.

Energy Efficiency: It is a well-known fact that over the last five years the increase in use of IT systems, and the power and cooling infrastructure that supports them, have doubled energy use. This places an increasingly heavy burden on the data center and the enterprises they serve. Today there are solutions that can help to guide the creation of high-performance, energy-efficient data centers. They help to create a tightly integrated, closed-loop solution that can provide answers to all company stakeholders. These solutions bring intelligence and visibility to power consumption and utilization of each data center asset so that utilization can be optimized. They also provide the ability to build a thermal profile of devices to identify heating and cooling factors and allow for thermal targeting; monitoring of problematic hotspots as they occur; and modeling of current, future-state or historical

snapshots of the datacenter. Most importantly, data center managers can calculate the money that can be saved by reducing redundancy and expose any risks or benefits in energy utilization.

Together these ground breaking solutions create a valuable by-product. Their use enables key stakeholders to collaborate, invest and understand what's going on in the data center from their own functional perspectives. In essence, more minds are brought to a common table to share ideas and knowledge to collectively prevent and plan for potential problems ahead of time.

Prevention Planning Requires Agility

For organizations readying their data center operations to tap into this new wave of prevention, there are two key pre-requisites that must be addressed.

Get Automated: The old adage "information is king" has never been truer. Before one can even think about getting ahead of the curve, automating data center facilities and asset information is mandatory. The days of using spreadsheets are over, especially in medium-to-large enterprises. In addition, "automation" means far more than dumping data into an antiquated and expensive ITAM system that can't adequately address the complex needs of today's data center manager. There are simple to use next-gen solutions that offer sophisticated capabilities and a holistic view of the data center form every possible vantage point.

Get Rid of Legacy Inventory Management: Although having the right application to manage information about the data centers is important, to fully capitalize on "prevention", its critical to have systems that capture real asset data on the floor. The great news is that inventory management and data center audits are evolving rapidly. They now include high tech applications on mobile devices using Bluetooth, barcode and RFID readers linked to hand-held, tablet computers. Written for mobility, these applications are wirelessly networked into centralized asset management databases. The result is that everything can be connected making all the asset information instantly available and fully automating the inventory management process. Audits take a fraction of the time, are less expensive, and are completely accurate. Staff can verify and validate asset information easily by carrying the Bluetooth device during a simple walk through the data center. All exceptions are identified and captured for immediate or later resolution. And this is just the beginning. Companies are already working with robotics to advance newer and faster inventory management techniques.

With these two capabilities in place, the "Agile Data Center" is within grasp, as are the tools needed to support it. This is the foundation required to enable data center managers to be able to take advantage of preventative technologies and anticipate future issues so that they can take proactive, preventative measures.

Organizations need to embrace the tools and technology now available to position their companies to take advantage of this coming wave of prevention. Fortunately, getting there doesn't have to be expensive. The truth is that technology advances now allow companies to build state-of-the-art solutions at a fraction of the cost of their dysfunctional predecessors. In fact, in many cases cheaper can now translates to cost-effective, competitive and comprehensive.

Prevention planning also requires letting go of past approaches that don't work and embracing new ways of solving problems. The good news is that the change will be worth it because the new solutions available can and will take a huge amount of risk off the shoulders of data center managers. In addition, they will enable all stakeholders to learn, share and understand the value and use of data center assets under their control.

The wave of prevention is officially upon us. Companies must move into the 21st century and grasp this new age of fully integrated tools that finally offer the benefit of seeing the data center holistically, from any viewpoint. The financial and productivity benefits are substantial and provide the ability to manage for the future while heading off all manner of risk and threats. There's still no crystal ball, but this wave of prevention is unquestionably the new alternative.

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Vizualiiz has created a new approach for asset management called LightsOn™. Bob Cartwright is the President and Craig Kelly is Chief Technology Officer. For more information visit Vizualiiz.com.