

VENDOR NEEDS AND STRATEGIES

Datacenter Infrastructure Management: A Competitive Landscape of Energy Efficiency Management in the Datacenter

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IDC OPINION

Today's datacenters lie at the heart of IT and, therefore, at the heart of keeping the business up and running. But few datacenter managers have in place a complete combination of processes, software, and hardware to ensure that the datacenter is up and running. Many of the datacenter managers IDC encounters are not sure of how many servers they run or how many datacenters their business operates, let alone their daily utilization rates or PUE (power usage effectiveness) rating. These IT decision makers are looking for a solution that is both tactical and strategic — one that will help them keep the datacenter running today and will make it run more efficiently tomorrow. Datacenter infrastructure management (DCIM) technology enables IT decision makers to continually ensure an optimal (and in some cases, not failing) datacenter environment to keep IT working properly today. DCIM vendors are also addressing concerns in IT optimization, capacity planning, inventory management, cost savings, process management, and datacenter automation for the future. DCIM is truly one of the only places where facilities and IT meet to think about the business' backbone in a tactical and a strategic manner. Within this sprouting market, IDC conducted a series of interviews with DCIM vendors. A number of themes arose during this process:

- ☒ **A holistic view of the datacenter is difficult but possible to achieve.** DCIM vendors attempt to create a complete, cohesive, live view of the datacenter. There are a myriad of methods to obtain this view, including APIs, appliances, sensors, and aggregating existing power and cooling information already found for specific systems. Some of these methods are more successful than others, and few are 100% complete.
- ☒ **Most DCIM vendors are working to provide automation, although most are not there yet.** IDC only found one vendor (CA Technologies) that could actively alter the datacenter environment without plugging in to another vendor's management system. Most of the other DCIM vendors plug into vCenter or Windows System Center or do not actively control the environment. Meanwhile, most datacenter managers are not comfortable with automation, yet.
- ☒ **High levels of partnering, competing, and merging are happening within the DCIM space.** The go-to-market strategy among the DCIM set varies widely. Some are selling directly; some are partnering with server, building management system (BMS), or datacenter infrastructure vendors; some are already server, BMS, or datacenter infrastructure vendors; and still others are doing all of the above.

IN THIS STUDY

This IDC study examines 15 datacenter infrastructure management vendors. In addition, IDC presents common themes among the DCIM vendors, including IT automation, vendor exclusivity, competition, hardware versus software solutions, and selling to facilities versus IT.

SITUATION OVERVIEW

Currently, the DCIM market is a rather fractured but booming section of the datacenter space. There are multiple dynamics affecting these firms and their users, which IDC expects to evolve over the coming years. As this market matures, DCIM vendors will need to confront the degree to which they want or need to be vendor exclusive, the level of control they want to provide datacenter managers (and how much datacenter managers even want that capability), to what degree competition will play in their go-to-market strategies, and even who they should be selling to within a business, facilities or IT.

Vendor Exclusivity in the Datacenter Versus Obtaining a Holistic View

Almost all of the vendors IDC spoke with monitor more than their own hardware or environments, but simultaneously no single vendor can detect, monitor, and control 100% of existing datacenter environments. IDC believes that, today, the degree to which monitoring 80% of the datacenter is good enough remains high. However, particularly in very advanced, highly virtualized, mobile, multi-enterprise-class datacenter environments, 80% may not be "good enough."

In most cases, vendor exclusivity fixes the problem of getting a complete view of the datacenter. If a given environment is 100% one vendor — PDUs, UPS, cooling, servers, storage, and networking are all from the same company — it becomes much easier to actively control and manage that environment from a DCIM perspective. Of course, almost no datacenters are run this way. Most enterprise-class datacenters are highly heterogeneous, running a plethora of workloads in optimizing the IT backbone for each.

Each vendor interviewed fell along different points on this continuum of either integrating with multiple vendors but giving up that holistic view of the datacenter or integrating with fewer vendors and obtaining a more complete picture of the IT environment. Multiple vendors IDC spoke with can "see" about 80% of the datacenter and have workarounds for the rest, including databases, external sensors, and appliances. IDC believes that by far the majority of today's customers will be more than satisfied with "seeing" 80% of their datacenter because it is an increase from the 0% of the datacenter that they are monitoring and analyzing in real time today.

However, as more, especially large, companies take steps toward private clouds including virtualization, consolidation, VM image catalogs, high levels of mobility, and automation, the 80% view may not be good enough. These companies will have to dramatically simplify their environments in terms of both physical infrastructure and VM customization in order to achieve visibility at higher levels.

Control and Automation Within the Datacenter

Currently, IDC believes that control and automation remain the last frontier, so to speak, of the DCIM market both from the vendor and the datacenter manager point of view. Many servers, chips, PDUs, CRACs, and other componentry within the datacenter walls can be adjusted lower or higher to accommodate changes in workload levels, outside temperature, inside temperature, equipment failures, or other aspects of datacenter dynamics.

Most datacenter managers that IDC speaks with are not yet comfortable turning over automation of VM location, equipment utilization levels, and so forth to a software product. Datacenter managers believe that they need some degree of human intervention and that their team can make better decisions and fewer mistakes than a software product can. Unfortunately, this is often not the case.

Meanwhile, almost all of the DCIM vendors IDC spoke with cannot automate or control the datacenter itself without plugging into another software suite (vCenter, Microsoft Systems Center, etc.). They are simply not seeing the pull from datacenter managers for that capability in their product set, yet.

Similarly to the good enough view in monitoring and analyzing 80% of the datacenter, IDC believes that automation and control by DCIM products is not for every company. Of course, the more complicated and larger the environment, the more it could benefit from enhanced features optimizing the datacenter minute to minute in terms of power, cooling, uptime, and workload functionality. Setting up DCIM products in large environments to recognize connections between servers, workloads, facilities, storage, and networking and to automate them takes time and is often an organizational, consulting type of engagement and not a simple auto-discover away.

IDC thinks that, like all of IT, the last mile will be the longest. Most of these products, although they are capable of more, will be used at first for finding orphaned servers, physically placing infrastructure on the datacenter floor, alerting on equipment failures, and generating the associated tickets. The last mile will consist of the automation and control piece that will go beyond those first big and quick wins. This last piece is what ensures that datacenter managers and DCIM vendors will not have to keep performing the first few miles over and over again.

Go-to-Market Strategies Among DCIM Vendors: Coopetition for All

One of the things that almost all DCIM vendors wanted to talk about were their "partner ecosystems." The decided variety among their partners is what IDC found surprising. The vendors on this list are partnering with each other, or with building management system vendors, or with the overall IT management software to automate and control (such as vSphere or Microsoft Systems Center), or with infrastructure vendors' software (PDU, UPS, or CRAC specific software packages), or with some combination thereof.

The varied go-to-market strategies of the vendors interviewed may simply be an indication of a still-maturing market. However, because of the nature of some of these solutions, playing with the largest number of other datacenter vendors may not be a bad strategy. In some cases, that does mean partnering with each other.

IDC believes that the winners here are the datacenter managers and customers of DCIM products. These vendors are working hard to make the list of products they can monitor and manage as long as possible, which works for their customer set. Many DCIM vendors are offering their products pre-integrated with larger software suites, while others are partnering with PDU, UPS, and CRAC vendors to show their connection to the facilities side of the house; still others are working with building management systems to show their willingness to monitor a customer's entire building, including its datacenter (lights, security, etc.).

Selling to Facilities or IT or, at Last, Facilities and IT

IDC asked each vendor on this list who they sell to, IT or facilities. Most vendors first said that they try to get facilities and IT together because their solution affects both parties. This situation is ideal and hopefully these solutions can illuminate just how connected IT and facilities are, especially in the datacenter. However, that melding together of IT and facilities has been developing for a long time and will continue to happen for the foreseeable future.

IDC finds that, realistically, most of these vendors are speaking with whoever they have the deepest connection with. For example, systems vendors are speaking with IT, and datacenter infrastructure/facilities vendors are speaking with facilities. The remaining newer, smaller vendors are speaking with a mix of IT and facilities. These sales require different foci.

Increasingly, IDC is finding that as datacenters run into power and cooling limitations, building limits, or problems, such as unpredictable spikes in power and cooling needs, facilities and IT have connected more in the datacenter. These problems are bringing up how much facilities can enable IT to help the business. For a long time, IT assumed most of what facilities provides is inexhaustible (i.e., there is limitless power and cooling in the building). Now those assumptions are being challenged as power and cooling, rather than floor space, are becoming the largest limitation in the datacenter.

Vendor Profiles

IDC met with 15 DCIM vendors between January and October of 2010. These briefings focused on each vendor's capabilities in the DCIM space, primarily in regard to software. The sections that follow provide summaries of what IDC gleaned from these meetings, particularly what each vendor offers and how each vendor compares to the rest of the DCIM market.

There have been a few substantial updates since some of these briefings were conducted. The first is that Cisco announced its intention to acquire Arch Rock, one of the vendors described. Second, Emerson Network Power (Aperture) announced its

Trellis Platform, which IDC looks forward to learning more about soon. The Trellis Dynamic Infrastructure Optimization Platform is expected to be available in 4Q11.

Another vendor to watch out for is American Power Conversion (APC) by Schneider Electric. APC recently updated its DCIM software called APC's InfraStruxure Management Software Portfolio consisting of InfraStruxure Central, Mobile, Capacity, Operations, Efficiency, Change, Energy Cost, and Mobile. Each of these InfraStruxure components is a part of the overall InfraStruxure Management Software Portfolio. IDC believes that APC's DCIM solution is definitely one of the most advanced products on the market today.

This is by no means an exhaustive grouping. Vendors are grouped by their heritage in the datacenter: systems vendors, datacenter infrastructure/facilities vendors, and energy resource management vendors. For more on these groupings, see *Datacenter Energy Management: How Rising Costs, High Density, and Virtualization Are Making Energy Management a Requirement for IT Availability* (IDC #223004, April 2010).

Systems Vendors

IBM

IBM was founded in 1896, and its businesses encompass IT services, security, servers, hosting, software, storage, and semiconductors. IBM is ranked 14th in *Fortune's* annual Fortune 500 and is headquartered in Armonk, New York. IBM's solutions in the datacenter energy management space include Maximo Asset Management for Energy Optimization, Tivoli Monitoring for Energy Management, Tivoli Asset Management for IT, and Maximo Data Center Infrastructure Management. Maximo Asset Management for Energy Optimization and Tivoli Monitoring for Energy Management work together to provide real-time monitoring of the IT and facilities within the datacenter and then create a datacenter map with hot spots, CRAC zones, and 3D environmental monitoring of the datacenter. These products also include reporting on energy consumption, financial cost of energy, carbon footprint driven by the datacenter, real-time DCIE/PUE/DCeP calculations, and analytics to make better decisions on everyday tasks, such as where to place virtual machines for optimal energy efficiency. Tivoli Asset Management for IT provides IT asset life-cycle management and can track all asset data including HR, inventory, and MAC (moves, additions, and changes) as well as initiate work orders and scheduling. Maximo Data Center Infrastructure Management is built out using IBM's recent Drawbase source code acquisition and provides the ability to visualize the datacenter floor plan and assets, plan the actual MACs, and perform scenario analysis.

Maximo Asset Management for Energy Optimization, Tivoli Monitoring for Energy Management, Tivoli Asset Management for IT, and Maximo Data Center Infrastructure Management work best when they are put together. IBM's strengths in the overall energy management space are its strong partner ecosystem (including major industry players such as Johnson Controls, Schneider Electric, Honeywell, Siemens, Liebert, and Eaton), and its breadth of integration across Tivoli to manage work orders, tickets, and inventory. IBM has the furthest reach into the business itself to align physical infrastructure with applications and lines of business. IDC thinks IBM needs to decide if it will continue to build out energy management capabilities itself to tie into the overall Tivoli portfolio or allow other third-party DCIM software vendors to tie into Tivoli or pursue both.

HP

HP (Hewlett-Packard) was founded in 1939 and is headquartered in Palo Alto, California. HP placed 10th on the Fortune 500 ranking in 2010. HP sells servers, storage, networking, printers, PCs, software, and services worldwide. On the energy management side, HP offers a number of solutions as part of its Data Center Smart Grid strategy, including energy-efficient servers, storage, and networking options. On the software side, HP's Insight Control and HP's Intelligent Power Discovery are at the heart of its energy management strategy. Insight Control 6.2 is a server management tool, and its abilities include power optimization at the server group level. Insight Control can measure, regulate, and analyze power usage and capacity. Intelligent Power Discovery ties together HP's servers with its best-in-class, intelligent PDUs. This allows for two-way communication between the power provider (iPDU) and the power consumer (server).

HP's Insight Control works across hypervisors and third-party enterprise management consoles (HP Operations Manager, Microsoft Systems Center, vCenter). IDC believes this kind of cross-vendor functionality is pivotal to success in the DCIM space. Insight Control is able to provide monitoring of third-party equipment, but the overall solution is much more robust on HP's ProLiant servers (ML, BL, and DL lines) and iPDUs. Insight Control is available as a separate license or bundled with a server or enclosure.

HP has a range of technologies for energy management including Thermal Logic Dynamic Power Capping, Intelligent Power Discovery, and Insight Control, and partnerships with nlyte Software and Eaton Power Xpert Software. HP is currently coming at the datacenter energy problem from the IT side and partnering to complete the picture, providing improved energy efficiency, data management, and cost savings. IDC believes this is a good strategic choice for HP. Further partnerships should be explored to allow more choices for HP customers.

VMware

VMware is headquartered in Palo Alto, California, and was founded in 1998. VMware focuses on virtualization and cloud infrastructure. VMware's offerings in the energy management space include Distributed Power Management (DPM), which is a part of the Distributed Resource Scheduler (DRS). DRS aggregates compute resources into a single, logical pool and balances workloads (by memory and CPU usage) across physical servers using vMotion. DPM works with DRS to consolidate workloads and reduce power consumption. For instance, if DRS moves all virtual machines (VMs) off from one physical host, then DPM automatically puts the server into sleep mode or standby. DPM identifies when more server resources are powered on than are actually needed, and powers off those that are not needed. Then DPM monitors loads to bring resources back online when needed. An alert will also be triggered if DPM tries to power on a host but fails, allowing users even more insight and control. This is coordinated with DRS so that there is no downtime for VMs or impact on performance. Using the least amount of physical infrastructure possible decreases power and cooling costs.

VMware's offering in the energy management space is quite different from the others profiled in that it concentrates on the server. VMware does not offer power-related

monitoring, analysis, or reporting on storage, networking, or the facilities side of the datacenter. IDC finds VMware to be a pivotal connector in the DCIM space through vCenter, vMotion, and its own DRS and DPM solutions.

Datacenter Infrastructure/Facilities Vendors

Aperture

Aperture was integrated in 2010 with Emerson Network Power's acquisition of Avocent, bringing together a robust set of DCIM solutions. The Aperture suite of solutions addresses many DCIM concerns for customers. The Integrated Resource Manager (IRM) and Capacity Manager deliver actionable, holistic datacenter information by aggregating real-time data from disparate systems, sensors, software, and devices. The Capacity Manager correlates the information from the IRM module to business growth forecasts to provide a forecast of IT capacity in relation to business expansion. The Aperture Configuration Manager provides visualization, monitoring, analysis, and reporting on the information gathered by the IRM. Aperture's Integrated Process Manager helps with the people side of the datacenter, managing tasks, optimizing processes, and providing alerts when things go wrong. Aperture also integrates with BMC's and HP's management software packages through the Integration Manager.

The Aperture solution is mainly a monitoring and reporting tool. The solution itself cannot alter the state of the datacenter through automation — for example, moving VMs. It can see the virtual and physical layers of IT and the applications running on physical and virtual servers. Aperture is a great bridge between more niche, equipment-specific products and uber-management suites, such as HP's Asset Manager and BMC's certified Remedy Change Management.

Rittal

Rittal is based in Herborn, Germany, and is the largest company in the Friedhelm Loh Group. Rittal has 9,000 employees worldwide and is one of the world's leading system suppliers for housing and enclosure technologies in the area of IT infrastructure. The company offers complete solutions for modular and energy-efficient datacenters. The product range includes server racks, network enclosures, UPSs, PDUs, IT cooling, and datacenter monitoring systems and other rack and room security systems. Rittal's software solution in the DCIM space is called RiZone.

RiZone measures power, cooling, temperature, and humidity throughout the datacenter. The measurement is from real-time sensor data, and the tool also performs historical trending analysis. RiZone can compute consumption analyses down to the server level. RiZone is compatible with all of Rittal's facilities infrastructure and plugs into Microsoft's Systems Center to be able to control and change the IT environment.

Rittal envisions RiZone running in the background of Microsoft's Systems Center and feeding information about the physical facilities side into Microsoft's user interface. RiZone is very facilities focused, which matches Rittal as a vendor. IDC believes that Rittal has the capability to expand in the DCIM market through further partnerships with other systems management vendors and other facilities infrastructure vendors.

Raritan

Raritan has been around since 1985, historically specializing in KVM appliances for datacenters. Raritan offers many products in the energy management space, but its DCIM-specific solution is dcTrack. dcTrack is a software-only solution that sits as an SQL instance or on a VM running on an SQL server. dcTrack is an asset manager, visualization tool, and a means for capacity and change management. Most of Raritan's customers use the solution to plan capacity, a management gap in most datacenters IDC sees.

dcTrack reads power use and distribution in real time and does not rely on a database. dcTrack also has an auto-discover function for getting the lay of the datacenter in terms of servers, network devices, power, and connections among them, as well as environmental conditions, power consumption, and floor load. dcTrack cannot control or change the datacenter environment on its own but does offer change management work-flow automation to manage change requests. Raritan considers its key competitive advantage to lie in its installed base and existing datacenter relationships through its existing hardware offerings. Another key component of Raritan's solution is its ability to see connections between each component of the datacenter to avoid a downtime domino effect.

Energy Resource Management Vendors

CA Technologies

CA Technologies is one of the more established players in the management software arena compared with the start-ups competing in this space. CA ecoMeter is a part of its CA ecoSoftware solution. CA ecoMeter is designed to address operational energy management concerns in the datacenter by monitoring UPSs, CRACs, PDUs, IT equipment, and generators in real time. CA Technologies is one of the few vendors in this space that can change the datacenter environment based on information collected and calculated by its software. If a datacenter manager is not comfortable with ceding partial control to CA ecoMeter, then the alternative solution is email and service ticket alerts. CA ecoMeter can also integrate with existing building management solutions so that the overall value of any such system is enhanced with the advanced alerting, reporting, and control capabilities of CA ecoMeter.

Currently, CA ecoMeter passes on energy data to virtualization software suites such as vCenter and the ecoMeter calculation engine can be used to calculate the power consumption at a VM level in relation to the CPU, memory, I/O, and network utilization data for every poll. Despite this, ecoMeter from CA Technologies is one of the most advanced solutions IDC has seen in this space. Rightfully so, CA Technologies is targeting service providers and enterprise datacenters. CA ecoMeter would probably be best utilized in a medium-sized to large datacenter or in multiple datacenter setups and is probably too advanced for a small datacenter environment.

Arch Rock

Arch Rock is a five-year-old company based in San Francisco. Arch Rock offers a two-part solution in the DCIM space. The first is a hardware-based, wireless sensor network. Arch Rock accomplishes this network with its PhyNet servers, routers, and sensor nodes. The hardware monitors electrical power usage; air pressure; rack

intake air temperature and humidity; and HVAC chiller water flow rates, supply, and return temperatures. The second part of the solution is the Arch Rock Energy Optimizer (AREO). AREO is the dashboard and reporting user interface that can be used with Arch Rock's PhyNet system or another vendor's sensor network.

Arch Rock can deploy the physical solution and sensor network without the user interface, the user interface without the physical solution, or the two together. Typically, its preliminary engagement with customers is through facilities to measure if the current air containment system (hot and cold aisles) is successful. The reporting component of AREO calculates PUE, temperature, total kW, kWh, detailed dollar cost of power, and CO₂ footprint.

PhyNet and AREO can monitor and report out on the power and cooling aspects of the datacenter, but not on workloads, virtual machines, or other IT-specific parts of the datacenter. PhyNet and AREO supply real-time feedback for both IT and facilities to make sure the datacenter is being cooled and powered optimally. Potential power and cooling savings is a large and growing opportunity for both the IT and the facilities sides of the house.

Sentilla

Sentilla was founded in 2003 and is based in Redwood City, California. The company's software solution is called Sentilla Energy Manager 3.0. Sentilla's approach to the energy management space is a rather unique one. Sentilla aims to be the "manager of managers." Sentilla takes data from the solutions already in place in the datacenter that are equipment type or vendor specific to create a comprehensive view of the datacenter.

Most datacenters do not have an energy monitoring solution in place for every component in the datacenter (servers, storage, networking, cooling, power subsystems). To fill this gap, Sentilla has an Inference Engine. The Engine takes subcomponents of various datacenter systems (processor, memory, disks, etc.), computes the amount of power they use, and then runs the permutations of the subcomponents for energy utilization and optimization. The subcomponent approach to energy monitoring is essentially an elegant database solution. Instead of keeping track of all the server specifications, Sentilla tracks each subcomponent and sums the consumption to compute the energy used by the system. Another value-add for Sentilla lies in its Analysis Engine, which is used to correlate workloads back to the physical consumption source and then translate that into cost. The purpose of this monitoring and amalgamation of information from various sources is to create a unified picture of the health of the datacenter.

Sentilla works with existing power management solutions, such as building management solutions, equipment-level built-in sensors, and other management protocols to not reinvent the wheel. Simultaneously, Sentilla meters previously not tracked equipment with its Inference Engine. The solution reports on the current state of the datacenter, performs "what if" scenarios, and suggests actions for improved efficiency.

CiRBA

CiRBA is based in Richmond Hill, Ontario, and was founded in 1999. CiRBA customers use their Data Center Intelligence (DCI) product in two ways. The first use for DCI is for transformation analysis that can assist datacenter managers with virtualization planning, hardware refresh, datacenter consolidation and relocation, and cloud analysis. The second use for DCI is for efficiency and capacity management, which can assist with workload placement, capacity health monitoring, risk analysis, VM balancing, DR and HA scenario planning, and utilization forecasting and planning.

CiRBA is analytics software and does not actively change the datacenter environment on its own. CiRBA DCI provides analysis for VMware, Citrix, Hyper-V, LPARs, Zones, WPARs, and mainframes. IDC thinks that many IT organizations will find this extensive compatibility, especially across CPU virtualization types, valuable. CiRBA utilizes a database approach to calculating its analyses. This type of solution is great for short- and long-term planning, and for use in assessing environment health and status on a day-to-day basis, but not for constantly changing environments (currently the minority of datacenters by far).

Viridity

Viridity, an innovative start-up out of Burlington, Massachusetts, produces a product called EnergyCenter. EnergyCenter utilizes Viridity's database of various server makes and models and relies on power readings from the datacenter to get utilization and capacity calculations. EnergyCenter auto-discovers the equipment in the environment and measures power input, and from there uses its patented modeling process to create an action plan. In addition, the software allows the user to create "what if" scenarios. The software does not control or automate the infrastructure automatically. In addition to EnergyCenter, Viridity recently launched a second, free product called EnergyCheck. EnergyCheck is an energy efficiency diagnosis application that identifies opportunities for cost savings in the datacenter. Within just one week of deployment, EnergyCheck software completes a server utilization-power consumption assessment and delivers a high-level report estimating the total number of server retirement and consolidation candidates, as well as the estimated associated IT and power/cooling savings opportunity.

Viridity's advantage is in the auto-discovery phase and the matching of utilization with power consumption. The auto-discovery phase takes just a few hours and is completely automated. The modeling matches server utilization with server power consumption to enable IT managers to optimize each server's utilization level with the power that is available. Viridity's go-to-market strategy is both direct and indirect, through various regional system integrators.

nlyte

nlyte Software is a seven-year-old DCIM solutions provider based in Menlo Park, California. The nlyte 5.3 suite is a software-only solution that enables capacity planning resulting in the most efficient use of power, cooling, and space through the optimal placement of datacenter assets. The nlyte 5.3 suite can automatically discover IT assets; visualize the physical infrastructure; model the move, add, change (MAC) initiatives; and control datacenter processes and personnel by sending emails

and alerts, and monitoring and defining the processes users must follow to make changes to the datacenter environment successfully. The nlyte 5.3 suite can report on progress using an integrated analytics engine and predict capacity resources, which can help plan future changes to a datacenter environment. The nlyte 5.3 suite can also send emails, alerts, or reminders to warn of potential power and cooling problems within the datacenter. nlyte cannot move VMs, power down servers, failover systems, or actually change the environment in the datacenter on its own. nlyte does, however, make these decisions much easier for a datacenter manager. The nlyte solution can reduce datacenter operating expenses, reduce the time to deploy new assets, and prolong the life of a datacenter. nlyte Software sees its strategic advantages in being easy to deploy and easy to integrate into existing environments. IDC believes this is very valuable to datacenter managers. Customers that will find these solutions valuable are already resource and time constrained. Ease of deployment and integration cannot be underestimated in this space.

nlyte is already embedded in various partner's solutions, including HP, VMware, and BMC. IDC believes this is a smart move on the part of nlyte Software. Many of these energy management companies are looking to partner with larger hardware or software management vendors. If vendors can partner and pre-integrate before even reaching the customer, that is ideal for IT organizations. Energy management is one less thing to worry about because it would already be included in a larger solution. However, these smaller players need to try to remain as vendor agnostic as possible, as this is also a plus in the eyes of an IT manager.

1E

1E is an energy management software vendor that has been around for 13 years. It offers power management solutions for both PCs and servers. The server-focused product is called NightWatchman Server Edition. This software-only solution uses virtualization APIs to obtain visibility into the power environment at both the physical and the virtual level.

1E's largest point of differentiation is that its product measures power usage versus "useful work." "Useful work" refers to processing power put toward what the server was intended to perform — for example, an SQL server putting processing power toward SQL. "Useful work" does not count server management, antivirus, or other standard applications that should be running on all servers. Therefore, 1E can equate power input with business value output.

1E's solution provides views of useful work versus power used for each physical or virtual server. NightWatchman Server Edition also finds rogue applications and orphaned servers. These are all opportunities for savings through decommissioning unutilized assets or decreasing the power used for servers not performing high proportions of "useful work." NightWatchman Server Edition does not perform these follow-up tasks for the customer, but rather shows where quick wins can be accomplished. The software is mainly for ongoing reporting and monitoring of the datacenter environment.

Modius

Modius is a DCIM company out of San Francisco that has been managing multisite deployments in larger enterprises since 2004. Modius is able to collect real-time

performance data from various types of facilities equipment using primarily a software approach, which can work across all major protocols (Modbus, BACnet, SNMP, etc.). For non-networked equipment, Modius provides its own serial-to-IP conversion appliance, or can use off-the-shelf industrial PCs. The Modius flagship product, OpenData, offers three principle solution areas:

- ☒ **Unified infrastructure monitoring** provides centralized alarm management and device measurement from one interface.
- ☒ **Datacenter analysis** calculates PUE, carbon footprint, and other datacenter performance metrics based on the data gathered from the unified infrastructure monitoring module.
- ☒ **Datacenter cooling management** uses the existing server and sensor instrumentation throughout the datacenter to measure hot and cold spots on the datacenter floor. The Cooling Management module then forwards that facilities information to BMS, including those of JCI, Honeywell, ALC, and Siemens.

Modius' OpenData modules do a great job of monitoring, reporting, and analyzing the datacenter environment. Currently, OpenData achieves automation by integrating with building management systems and feeding server-level environmental metrics to their control interfaces. IDC believes that most companies are not comfortable with automation at this time. Modius is aiming to tie together IT and facilities in one user interface, which is definitely needed. Among the various vendors in this piece, Modius is one of the few that ties in with BMS in the datacenter.

Power Assure

Power Assure is based in Santa Clara, California, and offers software-based DCIM solutions. Power Assure has two products for DCIM: Dynamic Power Management (DPM) and Dynamic Power Optimization (DPO). Power Assure's DPM is a software solution that integrates with existing infrastructure to pull live power and utilization data, create a dashboard, run analytics, and view historical trends. DPM is meant to assist with capacity planning, "what if" scenarios, and consolidation and equipment placement, in addition to tracking real-time power usage and measuring savings. DPO takes existing client-created runbooks and automates that process to optimize existing datacenter infrastructure so that total capacity at any time meets actual customer demand. This process of control is done through the network (load balancing), the software (vMotion), the physical infrastructure (iLO), or using Intel's Datacenter Manager (DCM).

Power Assure is aiming to put together views from disparate management systems that are already in place. If a customer is missing some of this table stakes management backbone, then these holes need to be plugged first before the solution can be used to its full potential. Power Assure, correctly, is targeting Global 2000 companies with its DCIM products. IDC believes that the Power Assure products could be used to the great benefit of companies with good procedures and tools in place that are not connected yet. Creating that cohesive, comprehensive view of the datacenter is very valuable.

FUTURE OUTLOOK

IDC believes the future for energy efficiency management software is bright. This space is exploding with innovation, new entrants, and eager potential customers. The future of the market will be full of further-fractured but vendor-agnostic solutions and attempts at complete but vendor-specific solutions. It will be interesting to see which customers value more — a complete, integrated solution that is specific to one vendor or a less complete solution that can see the entire datacenter, regardless of vendor.

The vendors profiled in this document have strengths and weaknesses in their strategies and products. In the end, IDC believes that the 80:20 rule applies to this market. By that, IDC means that 80% of the market will be happy with a "good enough" solution that can see, analyze, and alert on 80% of a given datacenter environment with a high degree of accuracy. The remaining 20% will need to eventually control, optimize, and dynamically automate 100% of their datacenter environment. Clearly, some vendors are already noticing this and going after the part of the market that fits their offering best.

It is difficult to put a number on this view of the DCIM opportunity, but IDC believes it is safe to say it is growing. This value-based sale is set to grow in the future with more workload-specific hardware offerings, virtual machine sprawl, and cloud computing. All of these dynamics are drivers for abstracting away from the hardware, which makes connecting the energy availability, physical infrastructure, and virtual infrastructure even more important.

ESSENTIAL GUIDANCE

IDC believes that DCIM players in the market are generally moving in the right direction. The terminology and segmentation of the market are still evolving, but it is clear that many are strategically choosing which parts of the market they wish to address. All of the vendors have trade-offs ahead of them and need to keep the following guidance in mind:

- ☒ **Choose which type of environments the DCIM product addresses.** Given the 80:20 rule mentioned previously, choose which environments the DCIM product is geared toward. This segment of the market may or may not be the same as the DCIM vendor's core market. If a product is addressing large, complex, highly virtualized environments, then make sure the product can manage multiple datacenters, in real time, with high accuracy and visibility into the virtual layer. If the product is geared toward small or medium-sized datacenters, then make sure the product is simple to deploy and update without the need for extensive services engagements.
- ☒ **Make the purchase, implementation, and ongoing maintenance easy for that type of environment.** If the DCIM product is geared toward small and medium-sized datacenter environments, then it is vital that DCIM vendors make the purchase, setup, and ongoing maintenance simple. On the other hand, if DCIM will be used to automate and control a complex environment in real time, then be prepared to offer services with the product itself to provide an easy setup for the in-house IT department.

- ☒ **Be prepared to educate as well as compete during the sales process.** Many customers are still discovering the power of DCIM and what its capabilities are. Vendors need to be prepared with education materials as well as competitive positioning. Proof of concepts are still common in this market, and that is an indicator to IDC that DCIM is still in the early-adopter stage.
- ☒ **Know where your company stands among the competition.** The DCIM market is bubbling with activity and new competition is entering the market very often. In addition, IDC is seeing many new partnerships and acquisitions occur. This turbulence is making DCIM vendors' knowledge of their surroundings vital. Customers' first concern will be to learn more about DCIM; their second concern will be why they should go with one vendor versus another.

LEARN MORE

Related Research

- ☒ *Energy Management Software in the Datacenter: The Manager of Managers* (IDC #224890, September 2010)
- ☒ *Considering All of IT: Converged Infrastructure Survey Findings* (IDC #223528, June 2010)
- ☒ *Datacenter Energy Management: How Rising Costs, High Density, and Virtualization are Making Energy Management a Requirement for IT Availability* (IDC #223004, April 2010)

Synopsis

This IDC study examines 15 datacenter infrastructure management (DCIM) vendors. Each vendor is discussed in terms of its products and overall positioning. In addition, key trends in the DCIM space are examined.

"DCIM is still a fractured and evolving space. Choices made today by each vendor will affect how the market grows and, eventually, consolidates," said Katherine Broderick, senior research analyst, IDC's Enterprise Servers and Datacenter Trends. "Trends such as cooperation, vendor exclusivity, and go-to-market choices will remain relevant in the DCIM market for the foreseeable future."

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