RaMP Data Center Manager

Data Center Infrastructure Management (DCIM) software

nolimits SOFTWARE

PTS DATA CENTER SOLUTIONS

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One solution for both IT and facilities managers

As data centers become more complex, it becomes increasingly important to have management tools to help you to manage them. RaMP Data Center Manager is a complete data center infrastructure management (DCIM) solution that can manage everything from your IT infrastructure (virtual machines, servers, network, and storage) to the physical facility (power, cooling environmental monitoring, security). RaMP provides the information you need to better manage your data center, whether you are an IT or a facilities manager.

RaMP for IT

IT managers can benefit from RaMP's automated IT asset management and automated change management. RaMP collects detailed information about the assets in your data center, greatly reducing the time and cost to set up the solution while also reducing the 10-15% error rate for manual data collection. When changes occur (software installed, network cables moved, firmware upgraded, etc.) RaMP will log the change automatically and can send you an email to let you know about the change. Your data remains accurate and ready to use. RaMP is the only DCIM solution which automatically tracks end to end network connectivity to the physical network port. RaMP's drag and drop workflow manager is the easiest way for you to manage processes in the data center.

RaMP for Facilities

Facilities managers can benefit from RaMP's real-time monitoring capabilities. RaMP supports SNMP, BACnet, Modbus, IPMI, WMI, SSH, WBEM, and iLO protocols, as well as being able to communicate with external data collectors such as VMware vCenter, which allows RaMP to monitor power all the way down to the IT device. RaMP can manage rack PDUs, PDUs, UPSs, transfer switches, generators, in-row cooling, CRAC, chillers, and can monitor both wired and wireless environmental sensors. RaMP can receive SNMP traps from any device and can automatically acknowledge cleared alarms.

RaMP benefits

- Track energy efficiency metrics (PUE, DCiE, CADE)
- Monitor virtual machine environment
- Software license management
- Advanced search allow you to quickly create custom reports, save custom reports, and schedule reports to be run on a recurring basis
- Auto-discovery Improves data accuracy by 10-15% over manually entered data
- Automated change management tracks ALL changes, not just those manually entered
- Logical groups allow you to create groupings of devices (by customer, department, manufacturer, application, etc.) and manage the group performance
- Reduce the time and expense of annual physical audits
- Reduce mean time to repair and increase availability
- RaMP pricing structure allows you to start small and grow with your needs

Automating IT Asset Management

The Challenge

All asset management systems look great when the vendor shows them to you, but without a lot of work on your part, what have you really purchased? The problem is that most data center management systems require you to manually enter data for all of the assets in your data center. There are some obvious costs associated with this manual data collection, including the time and cost for the initial data collection and the ongoing time and cost to verify the data through physical auditing. Typical cost to collect the data is $15 or more for "readily visible" data and up to $100 for detailed configuration data. For an organization with thousands of servers, the initial data collection alone can cost hundreds of thousands of dollars and take months or even years to complete.

And when you're done with the initial data collection, how accurate is it? According to a survey of the International Association of IT Asset Managers (IAITAM) members, "85% accuracy rate for tracking IT assets is above average and a 90 – 95% rate is exceptional". If your organization has 1,000 servers, a 10% inaccuracy rate means as many as 100 servers will have inaccurate data recorded.

Addressing the Challenge

RaMP eliminates the manual data entry of IT assets by retrieving the detailed configuration data directly from the asset itself. RaMP utilizes multiple communication protocols – including SNMP, IPMI, WMI, WBEM, iLO, SSH, vCenter, and others – to gather and correlate the data. Rather than just collecting name, manufacturer, model, location and serial number, RaMP collects detailed configuration information. For a server, RaMP collects hardware information (processor, memory, physical and logical

drives), network connections, operating system, installed software, virtual machines, and more. You can add your own user fields, attach documents such as user manuals or purchase orders, track costs, and search and report against one asset or a group of assets.

RaMP's information doesn't end there, however. It utilizes a sophisticated analytics engine to determine the relationships between devices. It can automatically determine network and power paths and which virtual machines and services are running on which systems. RaMP is the only DCIM solution which automatically tracks end to end network connectivity to the physical network port.

Savings/Benefits

RaMP automated asset management can provide the following savings and benefits:

- Greatly decreases the cost of initial collection and manual recording of the asset data
- Provides much more detailed configuration data for the assets
- Decreases the time for initial data collection from weeks or months to mere hours
- Increases data accuracy rates from as low as 85% to rates approaching 100%

Automating Change Management

The Challenge

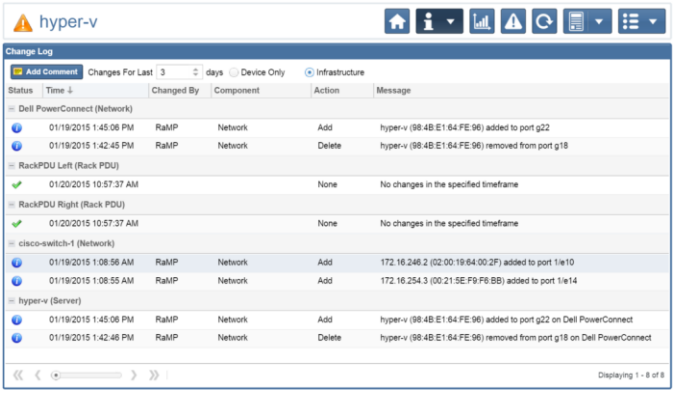
In an ideal world, everyone would follow procedures when changes are to be made to an IT or facilities asset. Unfortunately, this is not always the case. Changes are frequently made without the proper authorization and without following the proper process. An asset management system will be unaware of these changes because they were never entered into the system. The authors of ***The Visible Ops Handbook: Implementing ITIL in 4 Practical and Auditable Steps*** note that "organizations which implement automated change auditing are usually alarmed to see how many changes are being made 'under the radar'."

It is important to understand the importance of change management in reducing mean time to repair (MTTR) and increasing availability. There are three components which make up MTTR:

Reducing any of these three areas – recognition, diagnosis, or resolution – reduces the mean time to repair and increases availability. A manual asset management system can do very little to reduce time spent in any of these areas.

Addressing the Challenge

RaMP's real-time monitoring capabilities can reduce the time required to recognize a problem has occurred. RaMP's automated change management greatly reduces the time required to diagnose the cause of the problem. Studies have found that 80% of outages are due to a change and that 80% of the MTTR is trying to determine what changed. By reviewing a log of changes, problem managers can recommend a fix to the problem over 80% of the time, with a first fix rate of over 90%.



Let's see how this works in practice. The trouble desk is alerted that applications on the hyper-v server are no longer accessible through the network. RaMP's automated change management allows the problem manager to quickly scan the change log for the server. He can see that the server was moved from port g18 to port g22 on the Dell PowerConnect switch earlier that morning. This is likely the cause of the problem. In minutes, the problem is resolved!

Note that RaMP automatically associates IT devices with their supporting infrastructure. You can display the change logs for these devices as well so you have a complete picture of changes which may have potentially caused the issue.

Savings/Benefits

RaMP automated change management can provide the following savings and benefits

- Reduce MTTR and increase system availability
- Problem managers can recommend a fix to the problem over 80% of the time with a first fix rate of over 90%
- View changes to the circle of infrastructure which supports the device to quickly locate other changes which may have caused the outage
- Allows you to find changes being made without authorization

Software and Operating System Management

The Challenge

Chances are your IT environment has unused, lost, or forgotten software assets that are costing your organization money or placing you at risk of license non-compliance. It's estimated that organizations in the United States spend $12.4 billion annually on software that's never utilized (Jon Brodkin, "How much money are you wasting in unused software licenses?" Network World, April 15, 2011).

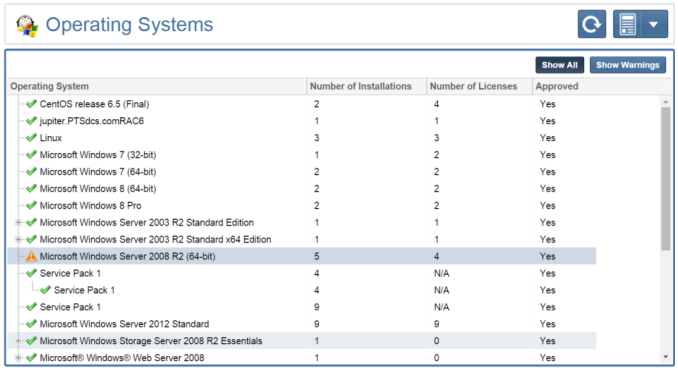
There are two primary issues with license use in the data center:

1. Under-subscription – you have purchased more licenses than you are currently using

2. Over-subscription – you have not purchased enough licenses for the software you are currently using

While under-subscription results in paying for more licenses than you need, over-subscription can be even more expensive. The Business Software Alliance (BSE), the software industry's vendor-backed licensing-enforcement organization, can be very non-forgiving during a software audit. "One of the things that we make clear right from the start is that this is a serious matter," says Jenny Blank, the BSA's North American enforcement programs manager. "The penalties allowed by law are up to $150,000 per title infringed."

Most companies rely on manual processes to track the current status of installed software and operating systems, but it is a daunting task to manually manage thousands of software applications running on thousands of servers.



Addressing the Challenge

The software and operating system management capabilities found in RaMP equip you to monitor software licenses for all products as well as manage multiple product versions and reduce license costs. You can track software down to the system and virtual machine. This allows you to reclaim and reallocate unused licenses, maintain compliance with license agreements, and reduce costs by purchasing only the licenses you need.

Savings/Benefits

- Get a list of all systems which have an installed software application with a single mouse click
- Determine which software is over-subscribed, saving you money on unneeded license costs
- Determine software which doesn't have enough purchased licenses, keeping your company in compliance and helping to avoid software audits
- Quickly get a list of systems running "unapproved" software

Task and Workflow Management

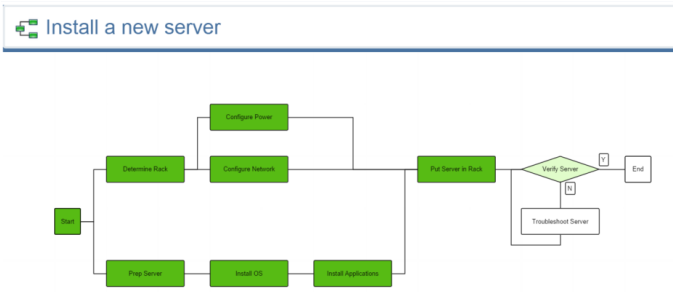
The Challenge

Running a data center requires a lot of work. As many as one third of the servers in the data center will be replaced every year. Maintenance on the facilities infrastructure must be done on a regular basis. Network cables are moved, software is installed, and VMs are created and removed. Change in the data center presents a number of challenges and it is essential to follow established best practices and verify that we are documenting all of the changes.

Addressing the Challenge

Uncontrolled changes create much of the work in the data center. RaMP allows you to create tasks and workflows (sets of tasks) to ensure that defined processes are followed, significantly reducing the risk of changes leading to downtime. RaMP allows you to create custom workflows for tasks such as adding a server, performing maintenance, and so on.

By simply dragging and dropping tasks onto the workflow editor and making connections between tasks, detailed processes can be quickly defined. Users must complete prerequisite tasks before later tasks can be started, ensuring the workflow is completed in a systematic way. A workflow can define information which the data center technician must enter before completing the task, ensuring the workflow contains the detailed information needed in later tasks. The workflow engine will automatically notify the workflow and task owners when they have work to do. A complete log of all activity is kept for review.



In addition, RaMP also automates much of the change logging process, ensuring that the data in the system remains accurate. If the hardware configuration changes, new software or firmware is installed, or a network cable is moved to another port, for example, RaMP can auto-detect this change and store the change in the change log. By maintaining the accuracy of the data, you can feel confident that RaMP has the most accurate and up to date information.

Savings/Benefits

RaMP workflow and task management can provide the following savings and benefits:

- Increases availability by ensuring processes are followed in the data center
- Provides accurate and up to data information through auto-discovery and automated change management
- Allows you to create customized workflow
- Provides an audit trail of all workflows and tasks

Power Management

The Challenge

Asset management systems often use either nameplate values (the manufacturer's value to indicate the equipment's maximum power draw) or an arbitrary percentage of the nameplate value to represent a device's power usage. This information, in turn, becomes critical input for capacity planning purposes and to determine optimum placement of new equipment in a rack. There are big drawbacks to this common methodology: the data is static and is often very inaccurate.

Inaccurate rack power data can result in stranded power or system downtime. If you use nameplate values, your estimate for rack power usage will most likely be far more than the power actually used, resulting in stranded resources (space, power and cooling). If your power estimates are high, you will opt to not add additional equipment to the rack because it appears to be at its capacity. In actuality, there may be plenty of available power. The lack of accurate data results in a waste of valuable rack space, PDU breaker capability and overall PDU power.

Estimating rack power usage on the low side has the even more serious potential consequence of system downtime. The data center manager, believing there to be available power, continues to add equipment to the rack. When the power usage exceeds available capacity, breakers trip, servers go down, and system availability is impacted. Again, the lack of accurate data results in very undesirable consequences.

Addressing the Challenge

RaMP solves the issue of inaccurate capacity planning data by monitoring power to determine the actual power usage at the device, rack and data center levels. Using multiple protocols to retrieve real-time power and environmental readings, RaMP calculates the actual

power at the rack level. When power readings aren't available at the device level, RaMP's power algorithms provide accurate power estimations. RaMP allows you to choose between real-time, measured, or modeled data.

RaMP will calculate Power Usage Effectiveness (PUE) and Data Center Infrastructure Efficiency (DCiE) to allow you to track the energy efficiency of your data center. In addition, since RaMP also collects server CPU usage, it will calculate and track Corporate Average Datacenter Efficiency (CADE), which extends energy efficiency parameters to include the efficiency of the IT equipment.

Savings/Benefits

- Monitors rack power devices to determine actual power usage at both the device and rack levels
- Proprietary algorithms provide accurate power estimations for devices which don't report power
- View power and energy efficiency over time
- Performs real-time failover checking to reduce shutdown risks due to rack PDU overload
- Track power usage across locations, departments, customers, device types, or other logical groups

Alerts and Notifications

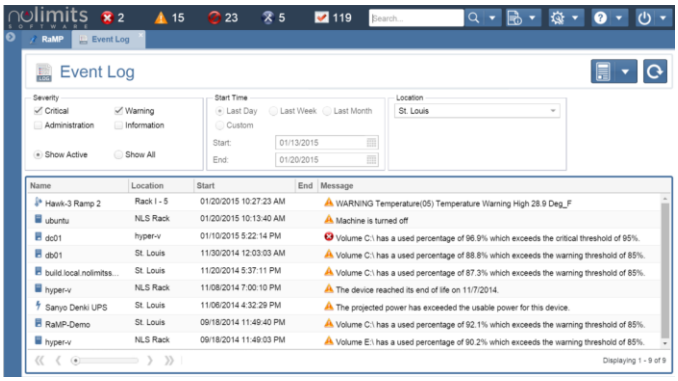
The Challenge

Many data center management solutions provide alarm notification at the device level. You might be alerted when power usage on a rack PDU exceeds 80% of its capacity, for example. A data center is not just a collection of individual components, however. One of the most common issues in a data center is the failover of a power device having a cascading effect on other downstream devices. In a rack, for example, the failure of one PDU might inadvertently cause the failure of the second when the loads fail over. Without knowing the complex relationship between devices, it is sometimes difficult to know the impact of a device failure.

Another problem is that a single failure on one device may cause alarm conditions on all of its connected devices. If a router were to lose upstream connectivity, for example, all of its downstream devices will also lose their upstream connectivity. Unfortunately, situations like this typically cause a storm of alarms to be generated, making it difficult to determine the actual cause of the problem.

Addressing the Challenge

RaMP can receive SNMP traps from any IT or facilities devices in the data center. Unlike many DCIM solutions which can only process traps from their own hardware devices, RaMP supports traps from any device or application, including the automatic clearing of alarms which are no longer active. While all alarms will be logged through RaMP, the automatic clearing of alarms allows the data center manager to focus on active alarms rather than sorting through a lengthy list and trying to determine which alarms are still meaningful. Users can modify the criticality of the event and also change the event text, to include specific site instructions, for example.



In addition, RaMP's data analysis engine regularly evaluates failover scenarios and will warn you in the event it recognizes that any of the potential failovers could result in the loss of system availability.

Savings/Benefits

- Real-time monitoring of power and environmental conditions
- Sends email alerts
- Sends SNMP traps
- Alerts you to unauthorized changes in the data center
- Performs real-time fail-over checking to reduce shutdown risks due to rack PDU overload
- Integrates with LANDesk to automatically create tickets
- Web-services API allows integration with other service desk systems

Why is RaMP different than other DCIM products?

Auto-Discovery

One of the issues that customers have with DCIM products is the time and expense to set up the product, in particular the capturing of detailed data for thousands of assets. In addition, manually entered data typically has a 10 – 15% error rate associated with it. RaMP's ability to auto-discover detailed data at the device level greatly reduces setup time, cost and significantly improves the data accuracy.

Besides gathering detailed information for each device, RaMP can also map relationships between devices. A blade server can be automatically placed into the slot on the blade chassis. A server network connection can be mapped all the way to the physical port on a switch or router.

Real-Time Monitoring

RaMP can also monitor the IT and Facility infrastructures. RaMP monitors from the device level up, so it can monitor server CPU, disk drive usage and server sensors such as power, temperature and fan speed. It can monitor power at the device, rack PDU, PDU, UPS, transfer switch and generator levels and send alerts on abnormal conditions. It can monitor cooling devices such as chillers, CRAC, CRAH and in-row cooling. It can monitor environmental sensors, both wired and wireless. The monitored data is reviewed in our data analytics engine and alarms can be triggered based on combinations of factors. This allows RaMP to detect potential failover issues before they occur.

Change Management

RaMP can recognize changes such as hardware configuration (memory added or a new version of firmware installed), software (installed or removed), virtual machine (added, removed, moved), network cables moved to another location, and so on. RaMP will catch changes which aren't logged and can also verify the accuracy of a change. If a network cable was to be moved from physical port E8 to port E12, for example, RaMP can verify that the change was properly made. RaMP manages change for both physical and virtual devices.

Flexible Price Models

RaMP is priced to allow you to start small and then grow as your needs grow. When you purchase RaMP, you get all of the functionality, so there's no need to sort through module after module to see what you need to buy. The pricing is based on the number of managed devices or racks. If you just want to manage your rack power, that's all you'll pay for. If you want to add management of your servers, virtual machines, and other equipment, RaMP makes it easy to upgrade your license to support more equipment. If you want to manage multiple data centers, talk to us about an Enterprise license which will cover all of your data centers with a single license.

Need some more information?

White papers

You can learn more about DCIM from our white papers and articles (www.nolimitssoftware/support):

- *DCIM – Lather, Rinse, Repeat*
- *DCIM – What Problem Are You Trying To Solve?*
- *Data Center Knowledge Executive Guide to DCIM*
- *IT Asset Management: The Foundation of DCIM (Data Center Management Magazine)*
- *Facilitating a Data Center Move with DCIM (Data Center Management Magazine)*
- *Pros and Cons of DCIM (Data Center Management Magazine)*
- *Automated Change Management in the Data Center*
- *Data Center Energy Efficiency – Looking Beyond PUE*
- *The Real Cost of Manual Asset Management*
- *Data Center Management: Searching for the Optimum Solution*

Read our blog

You can read our blog to get our thoughts on data center management topics (and DCIM in particular):

http://www.nolimitssoftware.com/blog/

View a recorded demo

Below are links a recorded version of the RaMP demo:

Streaming recording of the RaMP demo:
https://nolimitssoftware.webex.com/nolimitssoftware/ldr.php?RCID=8f417e19d2d210f6d9461ef94ef518ce

To download the recording link:
https://nolimitssoftware.webex.com/nolimitssoftware/lsr.php?RCID=91aac3e3595707d935c565e8a0d051a9

Would you like a live demo?

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