nlyte Software
ENLIGHTEN YOUR DATA CENTER

MOVING THE DATA CENTER FROM CHAOS TO CONTROL

BEST PRACTICES IN DATA CENTER INFRASTRUCTURE MANAGEMENT WITH INTEGRATED PROCESSES AND TECHNOLOGIES

Data Center Infrastructure Management (DCIM) represents an entirely new and innovative way of managing data centers.

It's about having the visibility, insight, and integrated processes to drive optimal performance throughout your data centers. DCIM solutions enable you to collect and understand massive amounts of data so you can make informed decisions on a day-to-day basis, as well as stretch your space, power, cooling resources, server, and other resources in a safe, controlled manner.

Given the stunning growth of data centers in recent years—and the growing emphasis on efficiency, cost effectiveness, and mission-critical reliability today—DCIM is the answer to the many conflicting pressures that today's data center managers face. Now you can optimally manage your data center assets and physical and virtual infrastructure to reduce costs, maximize service quality and responsiveness, and manage resources to meet current and future demands.

DCIM FEATURES

- Streamline data center operations processes and implement best practices

- Properly plan and forecast future data center capacities, including space, power, cooling, and network connections

- Intelligently manage power consumption

- Drive energy efficient initiatives and shrink your carbon footprint for a "Green Data Center"

- Optimize critical data center infrastructure

- Extend the data center life span

- Use virtualization effectively to improve overall data center performance

- Reduce total cost of ownership

- Drive down costs through effective utilization of the entire infrastructure

This paper explores the complex web of challenges that data center managers face, explains how DCIM addresses them head on, and discusses how nlyte Software's DCIM Suite provides an integrated, complete solution that helps move companies from data center chaos to data center control, quickly and efficiently.

DATA CENTERS IN CRISIS

In many ways, data centers are the "heart" of today's enterprises. Companies rely on their information systems to run nearly every aspect of daily operations, and they use new software investments to enable innovation and productivity gains for competitive advantage. So when mission-critical computer systems fail—or IT can't meet new demands—it can shut down or seriously impair company operations.

Low utilization of servers and the capacity limitations within the data center, as well as concerns about business continuity, have contributed to the recent growth of virtualization and cloud computing. Rather than running an application on a particular server or set of servers within a certain data center, companies are creating dynamic environments that allow applications to run on multiple, "virtual" machines at any point in time; this optimizes server utilization across the enterprise and enables more reliable services delivery for the business.

But virtualization only helps companies address certain data center challenges. For years, enterprises have struggled to optimize the management of their raised data center floor so they can make the best use of space, power, and cooling resources while meeting strict SLA targets. Look within your own data center and you'll likely find a fragmented set of tools and manual, paper-based processes that make it difficult to keep track of servers and what's running on them; monitor power and cooling demands to prevent failures; and track server utilization. In addition, you may be struggling to:

• Optimize power, cooling, and space resources

• Monitor the utilization of servers in real time to prevent overheating and failure

• Track which applications are running on which servers at any point in time

• Understand which applications are impacted when servers fail or are taken down for scheduled and unscheduled maintenance

• Understand the dependences for application delivery in a virtual environment

THE EFFECTS OF DATA CENTER CHAOS

Without the right processes and tools, how can you make informed data center management decisions that take into account virtualization, heat dissipation, cooling, power consumption, power phase balance, green servers, virtualization opportunities, and space planning? In most cases, you can't, resulting data center chaos marked by:

• High power and cooling costs and limited resources

• Space shortages

• Low server utilization despite virtualization

• Inconsistent service delivery

• Unacceptable levels of business risk and cost

• Lack of agility to support business change

• Inconsistent Service Delivery

Given the strategic importance of enterprise applications today, ensuring service delivery quality and consistency is a top priority for data center managers. But regardless of whether you manage a traditional or a virtualized environment—or a combination of both—if a service goes down, it can be difficult to identify which servers are responsible and fix problems quickly. What's needed is a way to proactively monitor and manage your physical and virtual environments in real time to ensure high service levels.

High Power and Cooling Costs and Limited Resources

If you actually see the monthly bills, it may be easy to track total power and cooling costs. But can you quickly identify opportunities to consolidate servers so you can reduce total energy requirements? Given that around 40% of total data center costs are energy related, reducing power usage via consolidation can result in substantial cost savings. Alternatively, it can allow you to free up power to support new business initiatives; it's not uncommon for IT to put off strategic IT investments due to power limitations. The challenge, then, is how to gain detailed, real-time visibility into your energy costs and utilization rates so you can make informed decisions regarding assets.

Space Shortages

According to the IDC, over 50% of data centers expect to have space shortages by 2012.[1] What's the source of the problem? Most data center managers don't have a sophisticated space planning solution that helps them track and manage cooling, heat dissipation, air flow, and power. As a result, they have to make extra space between servers rather than conserve space, as well as run the risk of being unable to support future business needs.

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[1] "So You Want to Build a Datacenter," IDC, November 2008

Unacceptable Levels of Business Risk and Cost

Failure to optimize the data center can be fatal for some organizations. With costs ranging from $1,000 to $2,000 per square foot, a raised floor data center is the most expensive piece of real estate for almost any enterprise. Poor planning and management can limit rack capacity, increase failures, and push your company to invest in expensive reconfigurations, expansions, or even replacements that may not be financially feasible; the cost of a five-Megawatt data center build-out can easily exceed $125 million.[2] Poor management also leads to failures of business-critical applications, which can shut down operations and undermine the confidence that employees, partners, customers, and investors have in your organization.

Utilization Challenges

What do you think is your average utilization rate for servers? According to a recent report by McKinsey, most servers are used at just 6% of their capacity, and data center facilities as a whole are used at 56% of their capacity.[3] Why? Because data center managers lack the monitoring tools to visualize and understand what's happening in real time, they cannot optimize utilization. Low utilization drives up costs considerably, as the real cost of a server is its annual operational cost, which typically exceeds the purchase cost in just two or three years.

Virtualization Sprawl

More and more servers are becoming virtualized, and as this happens, data centers often experience uncontrolled growth; because of the apparent ease with which a new server can be deployed, it's easy to overlook the increased management overhead associated with it; this is especially true when data center managers lack the IT systems to understand the overall impact of the addition on their server environment, as well as the infrastructure required to support it. For example, to avoid problems, you need answers to questions such as:

- Are there sufficient power, cooling, and networking available to support the new server?
- What is the impact of a failure of the physical server if it's hosting many virtual machines?
- Is there sufficient capacity on the remaining virtual cluster to support this increased load?

Lack of Agility to Support Business Change

It's no surprise that data center managers cite lack of agility as one of their top concerns. How long does it typically take for your data center team to complete tasks such as deploying a new server, identifying an orphaned server, and finding a failed server? Within many data centers, it takes weeks to months to do these tasks—delays that can harm an organization's competitive position in today's fast-paced marketplace. The root cause is incomplete or inaccurate records regarding the physical location of IT assets and available infrastructure capacity, as well as lack of automation to facilitate timely completion of these tasks.

THE COMMON THREAD: LACK OF VISIBILITY AND CONTROL

The common thread across all of these challenges is lack of visibility and control due to outdated or fragmented systems and manual, spreadsheet-driven processes. The good news is that there is a better way to manage your data center—both traditional and virtual. It's called Data Center Infrastructure Management (DCIM). When supported by the right processes and technologies, DCIM gives you the visibility and insight needed to make informed planning and management decisions regarding data center assets, as well as physical and virtual infrastructure.

AN INNOVATIVE APPROACH: DATA CENTER INFRASTRUCTURE MANAGEMENT

The concept of DCIM was conceived of by the data center professionals who founded nlyte Software to communicate their vision for optimized, end-to-end data center management. DCIM is about having the visibility, insight, and processes to drive performance throughout data centers. It enables you to collect and understand massive amounts of data so you can make informed decisions that make your data center resources as efficient, effective, and functional as possible, as well as plan ahead for future needs. Ideally, solutions supporting DCIM cover both physical and virtual environments.

[2] **"Avoiding the Economic Cliff by Managing the Data Center Floor," Enterprise Management Associates (EMA), October 2008**

[3] **Data Centers Are Becoming Big Polluters, Study Finds. New York Times, Steve Lohr, 2008**

DCIM encompasses all phases of the data center process cycle, so any enabling software needs to support:

Discovery and mapping of all data center assets, relationships, and dependencies.

You can't manage what you can't find. DCIM software needs to give you the ability to automatically search for physical and virtual IT assets, collect important data to speed implementations, and automatically keep your records up to date.

Visualization of all assets and their relationships.

Once your assets are accounted for, you need a way to map the logical data collected during the discovery process and create a visual model of your entire data center estate.

Modeling and planning for migrations, consolidations, and changes, as well as capacity and Power Usage Effectiveness (PUE).

Once you can visualize your assets, you need to model their requirements for power, cooling, space, and connectivity (power and data) to ensure that capacity thresholds are not exceeded. For example, you can use the model to create sophisticated "what if" scenarios that help you plan Move, Add and Change (MAC) initiatives that improve the data center performance. Experimenting with scenarios enables you to work out the kinks before committing your team to implement the changes.

Controlling of data center assets and personnel and monitoring of key indicators

After you model and approve your changes, you need to implement them. DCIM software should support a robust, data center-centric workflow process to insure that your people are working together collaboratively, using best practices to manage your data center, and monitoring all activities and key metrics in real time.

Reporting across all data center metrics

After you have implemented your changes, you need to monitor impacts and measure results. DCIM software should support the real-time collection of data specific to power and environmental metrics and provide the business intelligence tools you need to deliver just the right information to management.

Predictions regarding future data center needs and optimize all capacities

When it comes to data center capacity, predicting the future can be the difference between "open for business" or "out of business." That's why DCIM software enables you to plan for future requirements and understand their impact on overall data center capacity. You need analytical tools that help you leverage historical data to track trends and forecast future requirements for power, cooling, and space.

THE BENEFITS OF DCIM

When all of the processes described above are integrated, you gain an accurate, holistic, real-time overview of your data center so you can make informed decisions regarding the planning and effective management of the data center. For example, you can:

- Deliver the service levels your stakeholders expect
- Streamline data center operations processes and implement best practices
- Properly plan and forecast future data center capacities, including space, power, cooling, and network connections
- Intelligently manage power consumption
- Drive energy efficient initiatives and shrink your carbon footprint for a "Green Data Center"
- Optimize critical data center infrastructure
- Extend the data center life span
- Drive down costs through more effective utilization of the entire infrastructure
- Effectively use virtualization to improve overall data center performance
- Reduce total cost of ownership

THE nlyte SUITE: OPTIMIZING THE DATA CENTER LIFE CYCLE

nlyte Software has developed the world's leading data center infrastructure management (DCIM) solutions for intelligent capacity planning. nlyte Software offers the most complete, performance-based solution for DCIM, combining next generation software, proven best practices, and unsurpassed expertise in data center management. Its performance-based solution enables the world's largest companies to optimally place data center assets to make the most efficient use of power, cooling and space, enabling a reduction in operating expenses by as much as 20% annually.

Designed from the ground up to address real-world data center problems and drive continuous performance improvements, the nlyte Suite delivers sophisticated functionality that supports all best-practice process steps: discover, visualize, model, control, report, and predict.

As illustrated in Figure 1, all of these activities are supported using a single platform, giving you instant access to the information and visibility you need to make informed decisions and plans.

FIGURE 1. nlyte Best Practice Process Cycle
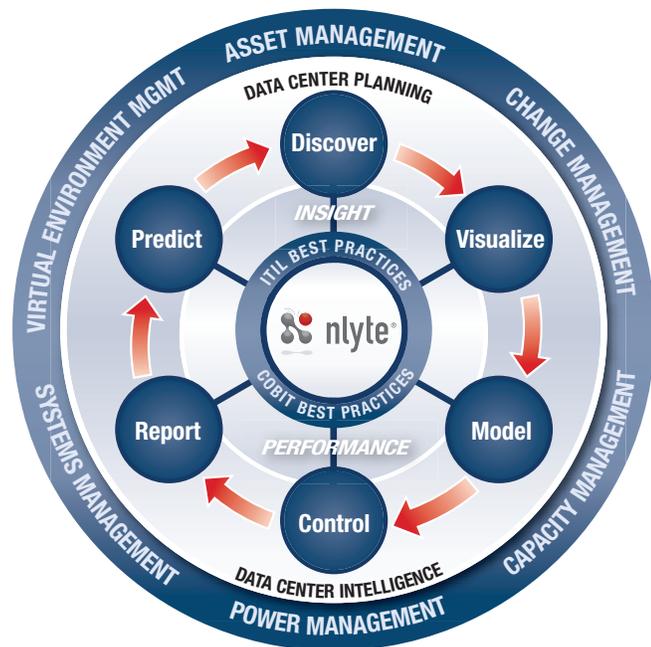
MANAGE PHYSICAL AND VIRTUAL ENVIRONMENTS USING A SINGLE SOLUTION

With nlyte Software, you can find, monitor, and manage all of your physical assets and data center infrastructure using a single solution. You can even include assets such as printers, TV monitors, wall-mounted devices, plugs, outlets, and security devices.

Leveraging integration with VMware's vCenter, nlyte allows you to seamlessly manage virtualized environments the same way you do other data center assets and physical infrastructure.

USE INTERNAL OR EXTERNAL RESOURCES TO INVENTORY DATA CENTERS

Unlike other solutions, nlyte is designed to enable independence through intuitive, self-service functionality. For example, the software makes it easy for you to inventory assets gradually using your internal resources and as time and resources permit. Or if you would rather outsource this task to experts, you can get from chaos to control even faster. You get to decide the best approach for your business and budget.

START WHEREVER YOU HAVE THE GREATEST NEED

We've designed our solution so you can start at any point in the Process Cycle (see Figure 1). You simply leverage the software module that addresses your most immediate data center infrastructure management needs (for example, discover and inventory all assets so you know what you need to manage), and then take advantage of other nlyte modules as your needs change.

> **The nlyte Suite provides a complete solution that supports the entire nlyte Process Cycle, enabling you to:**
>
> • Discover your IT assets automatically
>
> • Visualize your physical infrastructure
>
> • Model the MAC initiatives across your data center estate
>
> • Control your data center processes and personnel
>
> • Report on your progress using advanced, integrated analytic capabilities
>
> • Predict capacity resources well into the future

STEP 1: DISCOVER YOUR ASSETS

The first step in nlyte's iterative Process Cycle is to collect and centralize all relevant data about your data center—both physical and virtual—within the nlyte Performance Management Database (PMDB). This database is the foundation for gaining control over your data center, as it's used to deliver the visibility and insight you need to make informed, day-to-day management decisions and effective, long-range plans. Unlike other software providers in this space, nlyte enables you to automate most of the data collection process and unify your data with detailed catalog information about servers and other systems in your data center.

GATHER DATA ABOUT PHYSICAL ASSETS USING AN AUTOMATED, AGENT-LESS DISCOVERY TOOL

To simplify and accelerate the data collection process, nlyte provides you with an automated, agent-less discovery tool that goes into your network, finds all of your IT assets within the data center, and instantly records them in a central database. Server information collected includes the serial number, manufacturer, and model number, as well as the operating system running on each server. The tool can also be used to collect data about other types of digital devices (such as printers and monitors) used within the data center.

This automated process saves months—and in some cases even years—of manual data collection work. It also eliminates the need for you to hire costly, third-party professionals to assist you—which is what's usually required to implement other data center management solutions. At the same time, you benefit from a rapid return on your investment, as you can have a large data center fully documented and under control in less than two months (compared to over a year with other solutions).

ENRICH AND MAP DATA WITH THE nlyte MATERIALS CATALOG

nlyte allows you to take data collection one step further by matching records with the nlyte Materials Catalog so that all relevant attributes for each asset are added to the database. Examples of valuable data center-centric attributes include:

• Physical dimensions

• Weight

• Power consumption (at start-up and once under operation)

• Power requirements

• The number of slots in the front and back of a blade chassis

• The number of connector slots on the front of the system

• The number of power outlet slots required to hook it up

These types of data give you a far more complete picture of what's in your data center. You can also analyze it for more accurate capacity planning, physical space planning, and power planning.

The nlyte Materials Catalog contains many thousands of asset definitions. Each asset definition includes the physical dimensions, power requirements, an image of the asset, and much more. When you create a specific instance of an asset, you can associate this instance with the relevant library definitions. As a result, you no longer need to repeatedly create the same object or record over and over for each asset—you just link your data center assets to the appropriate definitions already in the Materials Catalog. This approach helps you understand specific details about your data center assets and the relationships between them, as well as reduce the time required to perform other management activities.

LEVERAGE EXISTING SPREADSHEET DATA USING A BULK DATA MANAGER

Most data centers have massive amounts of data about their managed assets tracked in spreadsheets—information such as the physical location of assets, what applications are running on each server, and which departments are using those applications. To ensure the nlyte PMDB encompasses all known information about data center assets, you can use nlyte's Bulk Data Manager to normalize this data, load it directly into the nlyte PMDB, marry it with the data collected automatically, link it to the catalog data, and use it to fill out the missing pieces of information within the nlyte PMDB. This process reduces manual data entry, enables a faster implementation, and minimizes the need for costly professional services.

GAIN A SINGLE, TRUSTED SOURCE OF DATA

Once your spreadsheet-based data is married with the auto-collected data and catalog details, you have a single, complete source of data for gaining visibility into—and control over—your data center. As regular audits are conducted using the automated discovery tool, you can instantly detect any changes to this baseline data, flag and investigate them, and keep the database up to date with minimal effort. This level of data accuracy and currency is simply impossible to maintain using the traditional "management by spreadsheet" approach, whereby members of siloed departments, such as networking specialists, power specialists, and data center managers, all update different versions of a spreadsheet and attempt to reconcile them periodically.

The Importance of Iterative Data Loads

When evaluating data center management solutions, it's important to consider the ease with which you can load new data into the database. If the software you choose only allows you to load data once, you will likely be managing with outdated data right from day one. As you know, data center resources are in a constant state of flux, and it can take some time to collect all of the relevant data. In fact, if it doesn't support automated data collection, it can take over a year for a single large data center. Imagine the hundreds and even thousands of changes your data center will undergo during that time period—and how inaccurate your baseline data will be going forward.

That's why nlyte Software recommends allowing customers to load discovery data iteratively—even one cabinet at a time. This gives you the freedom to perform data collection as your budget, schedule, and resources permit (even without external resources). As you perform automated audits on the assets already managed using the software, you can detect changes and ensure data is always up to date—even as you add new data to the system.

STEP 2: VISUALIZE YOUR ASSETS

The next step in the nlyte Process Cycle is to visualize the assets under management in a way that helps you plan and manage those assets more effectively. Spreadsheets alone don't support multi-dimensional visualizations—and most data center management software products that support

visualizations use Visio-style diagrams; for a large data center with millions of assets, this can add up to many gigabytes of data, which can bog down system performance during the rendering of floor plans and other visualizations.

In contrast, with nlyte's solution, all information is stored in a centralized database that enables you to instantly and virtually walk through your entire data center—right from your management console—down to any level of detail. It uses a data-driven model for images, which means that the software can instantly model the entire data center, as well as any layer of the data center. These images are created in Flash based on assets that are attached to relevant data records. Data-driven models scale far better for large data centers with millions of assets, as there's no need to move actual images around, and you can generate more granular views of certain parts of your data center.

VISUALIZE CABINETS IN THREE DIMENSIONS

Visualizations are accessed through the nlyte DataCenter Cabinet Planner, which maps the logical data collected during the discovery process and creates a virtual model of your entire data center estate that you can "walk" through—right from your PC. The nlyte DataCenter Cabinet Planner provides multi-dimensional front, rear, and side views of assets in the cabinet. This multi-perspective view is particularly valuable if you use racks that are densely packed with front-and-back mounted devices (with both fronts accessible).

Armed with these cabinet visualizations, you can fully optimize the capacity available within a rack. For example, you can perform space planning, quickly check to see if you have space for a new device, avoid asset collisions (front and back), and optimally place servers, every time—right from your desktop. You can even model your simple-to-complex Move, Add, and Change (MAC) initiatives before you start moving equipment as a way to ensure you'll have enough power, cooling, space, and network connections to support the project. Once you are happy with your plan, the nlyte Control Module will help you execute it quickly and efficiently, ensuring that your organization provides responsive service while enforcing ITIL® and COBIT™ best practices and procedures.

GAIN A REAL-TIME VIEW OF POWER CONSUMPTION BY DEVICE

The nlyte DataCenter Cabinet Planner also enables you to identify how much energy is used and heat is produced by each device and each cabinet. For example, leveraging the catalog data associated with each device in the nlyte PMDB, you can instantly see the plate value—or peak load—that the manufacturer indicates a fully dressed unit will demand from a power perspective. You can also see the Mean Power Adjustment Factor (MPAF) impact value—the typical power consumption after each device has booted up and is being used under normal conditions.

The nlyte solution complements these manufacturer figures with data on real-time power usage so you can better manage the power needs for your equipment. While the de-rated MPAF manufacturer data is valuable for planning the deployment of new devices or moves, it does not let you know when you are approaching critical limits—insight that's essential to avoiding failures. For example, you may have servers that can handle a certain power load, but be limited in terms of how much power you can actually bring into your facility from your energy provider. The only way to manage to these limits is to have a real-time view of your power usage—not just vendor-provided impact values that indicate server limits.

Similarly, power draw on servers typically goes up as you increase utilization. Because virtualization creates such a dynamic environment, it's difficult to manage to critical limits without real-time visibility and control. Changes can happen unexpectedly; for example, if one of the servers that an application is running on goes down, more utilization goes to the remaining virtual servers that the application is still running on. Unless you have real-time visibility, unexpected events like these can quickly lead to server overload and failure. The nlyte solution provides real-time views into power usage by server, cabinet, and entire facility—so you can instantly see if a planned or actual change will exceed limits and avoid these types of risks altogether.

PROACTIVELY PLAN AND MANAGE THE PHYSICAL LAYOUT

Visualizations also help you plan and manage the physical layout of your data center. The nlyte Floor Planner Module provides a CAD style, multi-dimensional, graphical interface that enables you to plan and manage the physical layout of the floors, rooms, racks, walls, and other areas of your data center—while simultaneously taking into consideration

heating, cooling, and power requirements. It's the only data center management product that supports a three-dimensional model rather than a two-dimensional model, so you can look at and model walls, space under the floor, cable runs, overhead cable trays, environmental sensors, and more. The data-driven models also allow you to select and view your data center in layers (for example, the ceiling layer, under the floor, all cabinets but no tiles, the space between top of ceiling and top of racks, etc.), right down to specific details within each level. And should you choose to look at a specific cabinet, the product allows you to drill into the cabinet to see even more detail.

Color-Code Cabinets for Quick Views Into Capacity

The nlyte Floor Planner also supports color coding of individual cabinets based on capacity or usage—for example, so you can instantly see how much heat they are generating, how much power they are drawing, and what percentage of a particular cabinet is available. You can click to view many different color-coded views regarding the state of your capacity. These layered views enable you to quickly identify problem areas, such as hot spots so you know to place new assets in cooler areas of the data center. By optimally placing new assets the first time, you can reduce implementation costs and time frames, as well as ensure higher uptime for all customers.

Create Data Center Zones and Cages

With the nlyte Floor Planner, you can create virtual data center zones, as well as map the location of physical cages—for example, by department, by customer, by division, or other category. Zones and cages allow you to manage different cabinets or areas of your data center as separate entities. Once they are defined, you can instantly run reports on each one (for example, how much capacity and power are used each month, uptime levels, and more) and even set up auto-generated emails to appropriate individuals. Zone- and cage-specific data can also be generated for fast, accurate bill-backs to individual departments and customers.

STEP 3: MODEL YOUR DATA CENTER

Once you have a three-dimensional visualization of your data center, the nlyte Floor Planner enables you to manipulate, plan, and manage the physical layout of the floors and rooms within your data center. For example, you can drag and drop assets onto the floor plan and position them to create the precise room layout you need; zoom and measuring tools allow you to position assets with a high level of accuracy.

Modeling is enabled through a CAD-style graphical interface, which presents a layered representation of all the assets on your data center floor. You can view individual layers for each asset category, such as cabinets, floor standing servers, cage representations, power infrastructure, air conditioning, and networks. These assets can be displayed together or separately to simplify data center planning activities and accelerate issue resolution.

SEE THE IMPACT OF DECISIONS BEFORE YOU IMPLEMENT THEM

Through detailed modeling and built-in life cycle management, you can better manage operational issues within your data center. For instance, you can create sophisticated "what if" scenarios to plan future MAC initiatives and see the impact of these initiatives on day-to-day decisions on heating, cooling, power, and space – all before you commit your team to implement changes. You can even map out an entire data center consolidation virtually and see how it will work—all without having a single person step out onto the floor.

PLACE ASSETS IN THE RIGHT PLACE THE FIRST TIME

The nlyte DataCenter Cabinet Planner's auto-allocation function tells you exactly where within the data center to add your new assets so they have the lowest overall impact from a space, cooling and power perspective. Auto allocation saves you a great deal of time and effort and mitigates risk, as it prevents staff from setting up a server in a location that's already running hot, or where there's insufficient power or cooling. These kinds of "accidents" can cause you to exceed power capacity for the cabinet and cause everything in it to shut down.

IDENTIFY THREATS EARLY

To help identify potential threats and issues, the nlyte Floor Planner also includes real-time ad hoc capacity reports. As work continues within your data center, nlyte monitors the different performance thresholds that apply to each device. If your operations result in these thresholds being approached or exceeded, nlyte color codes the affected device on the appropriate layer of the report's graphical output. From the color coded results of each report, you can quickly identify any jeopardized asset and click on it to drill down into the detail.

STEP 4: CONTROL DATA CENTER ASSETS

Optimal data center management requires far more than effective planning and modeling—it also requires that data center staff work together and consistently leverage best practices to manage day-to-day operations. But for most data center managers, this is easier said than done—especially across different geographic locations and in virtual environments. Without a single source of data, best practices, and management oversight of all assets, you can't look at heating, cooling, and power costs holistically; identify problem areas driving up costs, and ensure that all data center professionals are consistently implementing corrective actions that prevent problems and minimize costs.

The nlyte solution helps you control data center assets by enabling complete visibility across data centers and supporting ITIL-based best practices.

DEFINE AND ENFORCE BEST PRACTICES

The nlyte Control Module facilitates optimal data center management by providing a set of robust, data center-centric workflows. These workflows, which have been pre-defined by nlyte for standard data center processes (such as how to set up a new server), guide personnel through best practices and facilitate team collaboration. Using intuitive, graphical workflows and a drag-and-drop interface, you can also:

- Define workflows to customize the step-by-step execution of tasks
- Drive an nlyte-enabled process from an enterprise workflow (for example, as defined in BMC's Action Request System)
- Define entirely new workflows unique to your company

These workflows help you enforce ITIL and COBIT best practices so you can manage day-to-day operations more effectively, boost service delivery quality, and deploy servers faster and with less risk.

Beyond IT Service Management

The IT Service Management (ITSM) discipline has helped many companies improve their IT service management through strategic adoption of standards and best practices. But they tend to neglect implementing the necessary process changes within the physical domain of their data center.

The nlyte Process Cycle broadens the ITSM discipline to the data center by enabling companies to integrate a set of processes to manage it—including the overall physical infrastructure. This approach allows companies to reach a higher level of data center process maturity and deliver IT services that are aligned with business objectives.

DOCUMENT AND ALIGN THE RELATIONSHIPS BETWEEN ASSETS AND OWNERS

You can use the nlyte Organizer Module to map and document the relationships between data center assets and the business groups within your organization (or external customers); this helps you align ownership, responsibilities, and costs to the appropriate groups or clients. Specifically, for any asset on the floor, you can instantly see who is responsible for servicing it, what applications are running on it, and if there are any dependences with other applications. These relationship maps are rendered in visualizations that make it easy for you to, for example, walk through a power chain and see what's affected if a server goes down or is moved. Armed with this insight, you can proactively prevent outages.

You can also use nlyte to identify orphaned assets (including servers and other assets) that may be scattered across your data center. Most organizations have a surprising number of servers that are no longer being used by the business—but are still running, using power, and driving up data center costs. With nlyte, you can quickly run reports, identify orphaned servers, and either redeploy them or bring them down to save power and create space for future business needs.

STEP 5: RUN REPORTS AND DASHBOARDS

In the absence of a data center management solution, you're likely creating reports manually using spreadsheets. But given the complexities of managing today's large data centers, you need fast access to ad hoc reports; powerful visualizations; sophisticated what-if analysis; and daily, weekly, and monthly management reports based on trusted data. Too often, reports

are based on inaccurate data, which can lead to poor plans and management decisions. For example, executives may end up investing in costly data center expansions because reports regarding server utilization far over-estimate usage.

The nlyte solution transforms the reporting process through the nlyte Report Module—a built-in BI reporting engine that gathers operational data from the nlyte PMDB (which is always up to date) to track key metrics. Leveraging nlyte's extensible data model, this data can be combined with other data sources, such as price tables for energy and amortization and depreciation tables, to address your unique reporting needs. You can then extract this data and populate a library of standard, predefined reports, including: trending and forecasting reports, capacity planning reports, contingency planning reports, chargeback reports, equipment breakdown and analysis reports, cascading failure reports and power usage effectiveness (PUE) reports.

The nlyte Report Module also supports custom and ad-hoc queries. Anything in the nlyte PMDB is accessible as an attribute, including power and environmental metrics, so you can report on exactly what you are interested in. Once generated, you can use tools built into the nlyte Suite to automate report generation and automatically deliver reports to individuals using workflows.

The nlyte Dashboard module makes available a number of pre-defined dashboards including a main operational dashboard, capacity dashboards, asset dashboards, and workflow dashboards. These dashboards, through state-of-the-art data visualization, provide senior management the critical operational metrics required to manage today's sophisticated data center facilities. Users can, for example, see a high level roll-up of capacity data for power, cooling, space and network connections across an entire data center estate, incorporating full drill-down and time-series analysis. Users also retain full flexibility to create, deploy and maintain their own dashboards using the nlyte Dashboard Manager, which provides the ability to create customized management dashboards using an easy to understand wizard-driven, drag-and-drop interface and an extensive array of data visualization components such as gauges, charts and maps.

Sophisticated Reporting Anyone Can Learn to Use

The nlyte Report Module is designed for ease of use—so even business users can quickly learn to set up reports and deliver just the right information for management review. This saves time and money, accelerates report delivery, and facilitates better decision making and service levels.

STEP 6: PREDICT FUTURE NEEDS

Before you start a new data center build, plan out a data center migration or consolidation project, or think about swapping out old equipment for new, you need to know if your facility's capacity is up to the task. For example, you need to be able to answer questions such as:

- How much power do I really have left to accommodate new growth?
- Do I have enough cooling available to support this growth?
- What is the impact if I need to roll out these new servers simultaneously, or should they be staggered to allow additional capacity to be installed locally or even in a different location?
- Can we accurately determine when we will run out of physical space on the floor and rack?
- Will we have enough power from our utility company to meet our growing needs? Or do we need to move to a new location?

With the nlyte Predict module, you can quickly answer these questions. It allows you to precisely forecast your data center's capacity and analyze the impact of changes so you can plan ahead—not just react. The nlyte Predict module takes into consideration all of the free-standing and cabinet-mounted assets on the data center floor and uses these devices to establish a baseline for space and power consumption. Once this baseline is established, the Predict module allows you to build forecast scenarios that predict the impact of moving equipment in and out of the data center over multiple months or years. The resulting reports provide a rolling forecast of data center capacity over time and can be compared to the real-time capacity reports available from the nlyte Report Module.

DCIM AT WORK: REALIZING THE BENEFITS

The nlyte Suite offers a host of benefits that companies around the world are realizing today.

Faster rollouts

Most nlyte customers reduce the time to roll out a new business service from 60 days to 10 days.

Shorter reporting cycles

One of the world's leading law firms reduced monthly reporting from three days to a half of a day.

Reduced costs

The global market leader of international express and logistics used the nlyte Suite to:

- Avoid new server purchases (~500) for nine months by planning and modeling the physical dependencies of over 500 virtual servers in a new, overseas data center and freeing up servers to meet new demands
- Considerably reduce their energy usage

Extended data center life

One of the world's largest financial services companies extended data center life by five years.

Faster implementations

One of the world's largest financial institutions deployed the nlyte solution for a large data center in two weeks. The implementation, which included data conversion, implementation, data validation, and training for over 30 users, spanned three phases:

- **PHASE ONE:** One data center, 6,800 servers, 10,000 assets
- **PHASE TWO:** New data center deployment (two rooms), 1,000 servers, 800 racks
- **PHASE THREE:** 38 rooms in 8 data centers, 4,968 racks, 23,169 servers, 53,200 assets

Proactive capacity management

When the largest wireless voice and data network in the U.S. was out of control and running out of capacity, they deployed the nlyte Suite to manage their four data centers with 1500 racks, giving management the visibility and control required to avoid future capacity limits.

Predictive insight

Using the nlyte Suite, Europe's leading independent provider of IT infrastructure services can monitor and analyze current and historical capacity trends across three data centers with 390 racks and manage their resources more proactively.

Greater visibility and control

The largest pharmacy chain in the U.S. used the nlyte Suite to replace their spreadsheet-based process for tracking, managing, and locating their 400 racks of assets; now they can instantly find and monitor their data center assets and successfully manage their power and network connections to improve productivity and optimize capacity.

LEARN MORE

Are you ready to move from chaos to control? nlyte Software gives you everything you need to optimize management of both your physical and virtual environments so you can lower costs, increase efficiency, and deliver more reliable, higher-quality services.

For more information about how nlyte Software can help you manage your data center more effectively, please visit our website at **www.nlyte.com.**

nlyte Software

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