

NLYTE ALIGNS YOUR DATA CENTER'S PHYSICAL INFRASTRUCTURE

WHITE PAPER

Your Data Center is one of your organization's biggest investments, costing tens of millions of dollars, with fixed amounts of space, cooling, networking and power capacities. It houses tens of thousands of assets – a third of which should be updated annually – and consumes a third or more of your company's total power, with redundant power needs, plus thousands of virtual machines running all your critical business applications.

That kind of investment is strategic for your business, and it represents much more than computing hardware, networks and data. The Data Center is at the heart of the infrastructure that makes your business possible -- that enables your team to provide value to customers through the services your company was created to provide.

Recognizing this essential nature of IT, companies have sought to incorporate their Data Center infrastructures into a larger management context – not just for IT but for all business services. That larger context, for many organizations, is the IT Infrastructure Library, or ITIL, the framework of best practices which forms the foundation of IT Service Management (ITSM).

The purpose of this white paper is to demonstrate the alignment between **Data Center Infrastructure Management**, the discipline at the core of Nlyte Software's products and services, and the larger framework of ITSM enhances Data Center operations.

NLYTE EXTENDS IT MANAGEMENT TO THE PHYSICAL LAYER

Nlyte Software is the world's leading software company focused on planning, managing and optimizing Data Centers.

Nlyte defines the modern Data Center Infrastructure Management (DCIM) Suite with specific technology including:

- **Intelligent server placement** – Nlyte holds a patent on intelligent server placement to ensure on-going optimization.

- **Workflow** - The industry's most flexible workflow engine to tightly manage all moves, adds and changes.
- **Pre-Built ITSM Connectors** – Off-the-shelf integrations with leading IT Service Management (ITSM) providers such as HP, VMware, BMC and ServiceNow.

Nlyte Software enables enterprises to extend IT management software to include the physical layer with the logical and virtual layers of the Data Center, maximizing the financial benefits from the optimized utilization of assets, power and space. Nlyte's proven platform is used in the Data Centers of some of the largest and most valued companies in the world.

Nlyte is a vital resource for Capacity Planning and Asset Management, essential disciplines in managing the IT infrastructure's physical underpinnings:

- **New Server Deployments** - is there enough power to add more physical (or virtual) devices?
- **Incident management** – what is the potential impact of an asset change to the upstream or downstream power chain?
- **Change management:** How are you managing the who, where, and when of executing work breakdowns across the Data Center?



A close examination of ITIL will show that the framework is not prescriptive about the management of physical assets. It proposes no specific way to manage physical assets, nor means to optimize the management of Data Center hardware. But DCIM supports and clarifies specific ITIL processes from one end of the service lifecycle to the other.

THE ITIL LIFECYCLE

ITIL, whose original development was sponsored by the Government of the UK, which still owns the intellectual property, has undergone three major revisions; the current version, formerly ITIL 3, is now known as ITIL 2007. The “library” referred to in the name consists of five weighty books, each covering a stage of the “Service Lifecycle”:

1. Service Strategy
2. Service Design
3. Service Transition
4. Service Operation
5. Continual Service Improvement

Note that the “Services” referred to here are the services provided by the Business to deliver value to customers; ITSM is concerned with the information systems that enable the Business to provide those services.

ITIL 2007 recognizes in its design that services change, going through evolutionary cycles. This will resonate with any manager who has been responsible for physical assets, which go through regular cycles of obsolescence and replacement.

Let’s look at each of the lifecycle phases, and the underlying ITIL Processes in each phase, to uncover the relevance of the physical assets of a Data Center in each of these processes – and thus how Data Center Infrastructure Management aligns with ITSM.

Each phase of the ITIL lifecycle includes a specific set of concerns about the Data Center’s physical assets. DCIM, while not a named ITIL process, nonetheless has a crucial role.

1. SERVICE STRATEGY

Organizations must set the right objectives and expectations from the outset to avoid setting themselves up for failure. Like any other complex service, IT is about costs and risks. The organization needs to determine what services it will provide, focusing on those in which it can be operationally effective. This is where the service offering is defined, along with metrics for successful value creation and a financial management plan.

ITIL Processes/Critical Concepts:

- **Service Portfolio** – The set of services to be managed by the provider over a defined lifecycle, including a Pipeline of services in development, a **Service Catalog** (live or available services), and residual compliance requirements from retired services.

- **Demand Management** – Based on patterns of business activity and profiling of users, projection of demand for services and the required capacity level.
- **Financial Management** – Valuation of the services in the Service Portfolio; modeling of demand; costing and budgeting; service investment analysis; and accounting.

Physical Asset Considerations:

- What Data Center assets are required to fulfill the requirements of the Service Portfolio? How does the physical layer aid delivery of services to the business?
- What is the projected Demand for services, and what level of Capacity is required of Data Center assets to meet that Demand?
- What are the costs of having excess/idle capacity? What are the risks of insufficient capacity?

DCIM Implications:

- Capacity planning is no longer just a matter of having enough servers. The plan must account for the complexities of hybrid infrastructures, with virtualization and cloud services.
- Projection of Capacity must include the Power, Space and Cooling for those physical assets.
- DCIM anticipates capacity growth and allows the organization to plan for Data Center consolidation, concentrating resources to realize economies of scale.
- Planning enables the company to defer Data Center build-out until capacity is actually needed, often by years, yielding significant cost savings.

2. SERVICE DESIGN

Once strategic objectives are set, the company must design IT services, best practices, processes and compliance policies to fulfill those objectives. Then the service providers must develop the means to introduce the services into the production environment in a way that ensures customer satisfaction with the delivery of services, in a cost-effective fashion.

ITIL Processes/Critical Concepts:

- **Service Catalog Management** – Active maintenance of the Service Catalog and alignment with IT assets.
- **Service Level Management** – Management of expectations and commitments around service delivery.
- **Availability Management** – Ensure that IT services are available to the business with the consistency targeted in Service Level Agreements.

- **Capacity Management** – Ensure that sufficient Data Center/ infrastructure capacity is in place to deliver the services targeted in Service Level Agreements.
- **IT Service Continuity Management** – Ensure redundant capacity is in place to prevent service interruptions.
- **Information Security Management** – Alignment of IT security with business security.

Physical Asset Considerations:

- How can servers be deployed in the most optimal way to operate at the lowest cost for power and environmental control, while meeting the design objectives for Availability, Capacity and Continuity?
- How can physical infrastructure be secure and resilient?
- How much asset redundancy is feasible within budget?

DCIM Implications:

- Capacity planning must include accounting for growth in power and heat density. This is not a linear function; energy consumption and cooling requirements are related to how servers are deployed, not just how many of them there are. Nlyte ensures flexibility in deployment to manage costs and optimize infrastructure performance.
- “What-if” scenario planning helps to accurately predict future security, power, space and network utilization and avoid overprovisioning of power and cooling.
- Virtualization complicates the relationship between physical inventory and capacity, increasing capacity/ availability risks. E.g., power consumption is harder to trace by location/time of day. DCIM simplifies projection of resource consumption and capacity requirements.
- Risk management, audit and regulatory compliance functions of Nlyte’s technology have reduced unplanned downtime by as much as 50%.
- Nlyte deployment, integration and training services help the Data Center plan to achieve rapid ROI on the Data Center infrastructure and operations.

3. SERVICE TRANSITION

Services must be provisioned, tested and deployed. Services are never static; a model must be put in place for service releases and evaluation in production, and for managing changes to services and to the infrastructure by which those services are provided.

ITIL Processes/Critical Concepts:

- **Change Management** – Record, evaluate, authorize, prioritize, plan, test, implement, document and review all changes according to a repeatable process.

- **Service Asset and Configuration Management** – Define and control all components of services and infrastructure.
- **Release and Deployment Management** – Deploy service releases into production and ensure its integrity.
- **Transition Planning and Support** – Plan resource changes and manage risks.
- **Service Validation and Testing** – Validate the fitness of new services.

Physical Asset Considerations:

- How should physical changes to the infrastructure be planned, executed and documented, and how should the impacts of these changes be measured?
- What is the best way to record physical assets as Configuration Items in a Configuration Management Database?
- How should infrastructure changes be phased into production?
- How should anticipated hardware obsolescence fit into infrastructure planning?

DCIM Implications:

- Nlyte’s software tightly integrates with the Change Management, CMDB and other components of full function ITSM platforms like BMC Remedy, HP Service Manager and ServiceNow.
- Nlyte enables the Data Center to predict the cascading effect of simple moves, adds and changes, or complex Data Center consolidations; recover “stranded” capacity; and reduce the risk of outages with precise impact analysis.
- A typical Data Center replaces 15-25% of its assets each year. DCIM supports Asset Lifecycle Management, which can reduce overlaps between old assets and new, more efficient assets, significantly reducing costs.
- Nlyte’s technology reinforces rational processes for server planning, migration and retirement, processes often lacking in Data Centers.
- DCIM allows greater control over servers running obsolete applications, and can prevent the persistence of “ghost” servers taking up resources and space but no longer contributing useful functionality.

4. SERVICE OPERATION

With effective service lifecycle planning in place, Service Operation includes the ongoing execution of services and service management processes, and the management of technology infrastructure and human resources to deliver services.

ITIL Processes/Critical Concepts:

- **IT Operations Management** – Maintenance of the IT infrastructure, including Data Center; diagnosis and resolution of technical failures and outages.
- **Application Management** – Manage applications over their lifecycles.
- **Service Desk** – First point of contact for service interruptions and change requests.

Physical Asset Considerations:

- What is the optimal deployment configuration for specific hardware or virtualized Configuration Items in the Data Center?
- How should moves, adds and changes be approved, scheduled, tracked and administered in production?
- What is best way to decommission a physical asset?

DCIM Implications:

- DCIM improves operational excellence – Nlyte has documented cost reductions of up to 50%. Energy-efficient operations have reduced power expenses in Data Centers using Nlyte software by up to 20%.
- Nlyte simplifies Data Center compliance, avoiding errors via accurate, controlled placement of physical assets.
- Auto-allocation of resources allows the Data Center to optimize space, power and network availability.
- Nlyte provides software connectors to key Service Desk applications, such as BMC Remedy or HP Service Manager, to connect an IT Service Request to the physical infrastructure deployment and management.
- Nlyte’s Workflow Manager prioritizes and helps schedule teams and individuals for tasks that are needed on the Data Center floor.
- Nlyte tracks applications to the physical (or virtual) devices they run on, so that installations, moves, adds or changes do not adversely affect them.
- Visualization of cabling and analysis of cable traces helps identify potential power problems before they happen; identifies the physical location of failures more quickly to execute a fix or workaround.
- Project lifecycle management creates precise project plans, generate work orders and track Data Center projects to on-time, on-budget delivery.

5. CONTINUAL SERVICE IMPROVEMENT

Recognizing the lifecycle aspect of ITSM, Continual Service Improvement seeks to measure service effectiveness and tune IT services in real time, re-aligning IT services to better support business processes.

ITIL Processes/Critical Concepts:

- **Service Level Management** – As in Service Design, management of expectations and commitments around service delivery, re-aligned over the service lifecycle.
- **Service Improvement** – Definition and application of service performance metrics to identify opportunities for enhancement and implement corrective actions to improve service performance.

Physical Asset Considerations:

- What are the most reliable metrics for performance of the IT assets that make service delivery possible?
- How should IT manage the Asset Lifecycle, accounting for the performance impact of obsolescence and efficiently aging out older equipment?

DCIM Implications:

- Nlyte’s software can record and track where assets are, how they are being consumed, where cooling inefficiencies are and where balancing needs to occur.
- Nlyte provides real time key performance metrics such as power and cooling with visual overlays. Dashboards and Reports are powered by the industry’s first and only integrated Business Intelligence Engine.
- DCIM provides Business Intelligence concerning asset consumption, resource consumption, space/ power/cooling/ Power Usage Effectiveness (PUE) and other metrics widely used today.

NLYTE EFFECTIVELY ALIGNS YOUR DATA CENTER ASSETS WITH YOUR ITSM ADOPTION PROGRAM

With Nlyte you can:

- Build Data Center Asset and Capacity Management into your **Service Strategy**, anticipating asset lifecycle issues.
- Incorporate physical layer considerations (e.g., power, cooling and space) directly into your **Service Design**.
- Tightly integrate Nlyte’s software with popular ITSM and Service Desk platforms adopted for **Service Transition**.
- Track and visualize physical assets and applications, and manage Data Center workflows, for effective **Service Operation**.
- Generate powerful metrics for measuring and optimizing physical assets over their lifecycles, to support **Continual Service Improvement**.