

Mastering the Big Three: Optimizing Space, Power, and Cooling in Modern Data Centers

Future-Proofing Your Infrastructure with DCIM

This expert paper provides a strategic guide to maximizing efficiency, reducing costs, and future-proofing your infrastructure and explores how Data Center Infrastructure Management (DCIM) solutions help optimize key resources.

[Read now](#)



DCIM – A strategic asset for IT leaders and decision-makers.

In this Expert Paper

In a landscape where digital infrastructure underpins business success, modernizing data centers is essential to meet future demands. This expert paper explores how Data Center Infrastructure Management (DCIM) solutions help optimize the key resources of space, power, and cooling. As businesses face complex challenges, including higher energy costs and environmental regulations, smart resource management is vital. The paper highlights how FNT's DCIM solution offers real-time insights, predictive analytics, and automation to boost performance, cut costs, and support sustainability – making it a strategic asset for IT leaders and decision-makers.

FNT

// simplify complexity

- 01 In this Expert Paper
- 02 Key Findings at a Glance
- 03 Introduction
- 04 The Role of DCIM in Modern Data Centers
- 05 The Triad of Resource Management
- 06 Common Pitfalls and Challenges Facing Data Center Operators
- 07 Stranded Capacity and Capacity Optimization
- 08 Executive Checklist for Space, Power, and Cooling Efficiency
- 09 Innovation in Action: Transformative DCIM Successes
- 10 ROI and Business Value
- 11 The Time to Act is Now
- 12 Q&A with FNT's Data Center Expert
- 13 Conclusion
- 14 About FNT

Key Findings at a Glance



Accurate asset tracking and planning help maximize available rack space and avoid unplanned expansions.



An integrated DCIM platform eliminates tool silos and enhances operational efficiency.



Real-time power monitoring ensures efficient load distribution and minimizes energy waste.



Optimized resource usage supports sustainability goals and regulatory compliance.



Intelligent cooling strategies reduce hotspots and improve thermal performance.



Data-driven infrastructure management enables scalable, future-ready data center growth.

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT’s Data Center Expert
13	Conclusion
14	About FNT

*Optimize your
infrastructure to
maximize ROI and
minimize risks.*

Introduction

In an era where digital infrastructure drives innovation, data centers must evolve to meet growing demands for efficiency, sustainability, and scalability. This whitepaper examines the strategic role of Data Center Infrastructure Management (DCIM) solutions in optimizing space, power, and cooling – critical factors for ensuring operational resilience and future readiness. As enterprises face increasing complexity and stricter environmental regulations, intelligent resource management has become essential.

This paper explores the current state of the data center industry, highlighting challenges such as rising energy costs, sustainability mandates, and an expanding digital footprint. It then demonstrates how DCIM solutions provide a competitive edge through real-time visibility, predictive analytics, and automation to enhance efficiency and decision-making. Specifically, it highlights the benefits of FNT's DCIM Solution in effectively managing infrastructure resources to improve performance, reduce costs, and support long-term sustainability.

Whether you are an IT leader, facility manager, or decision-maker, this whitepaper delivers key insights into how modern DCIM solutions empower organizations to stay competitive in an increasingly dynamic landscape.

FNT

// simplify complexity

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT's Data Center Expert
13	Conclusion
14	About FNT

The Role of DCIM in Modern Data Centers

What is DCIM?

Data Center Infrastructure Management (DCIM) is an integrated framework for real-time monitoring, analysis, and control of data center resources. It bridges IT and facilities management, ensuring peak operational efficiency. DCIM emerged in response to the growing complexity of data centers, where a lack of coordination led to resource inefficiencies and bottlenecks. Over the past two decades, DCIM platforms have evolved from basic monitoring tools into sophisticated systems that leverage AI, predictive analytics, and automation to optimize capacity planning, energy consumption, and sustainability.



Industry Trends and Driving Forces

Data centers are undergoing rapid transformation, with industry trends emphasizing efficiency, reliability, and sustainability. DCIM solutions have become vital for optimizing capacity planning, managing costs, and ensuring operational resilience in a rapidly scaling environment.

Gartner highlights the strategic role of DCIM in capacity planning, cost control, and sustainability efforts. As data centers expand, seamless coordination between IT infrastructure and facilities management is essential for maintaining uptime and reducing operational costs.

The Uptime Institute emphasizes the industry’s focus on reliability, energy efficiency, and risk mitigation. Robust DCIM solutions offer granular visibility into power distribution, cooling efficiency, and space allocation, enabling organizations to adapt while minimizing risks associated with downtime and inefficiencies.

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT’s Data Center Expert
13	Conclusion
14	About FNT

The Triad of Resource Management

Space Management

Data centers face mounting pressure to optimize physical space as server densities increase and real estate costs rise. Efficient space utilization not only maximizes operational capacity but also enhances accessibility and maintainability. The ability to track assets, manage cabling complexity, and forecast future space requirements is critical to avoiding unplanned infrastructure expansions.

Best practices in space management involve accurate inventory tracking, real-time location mapping, and proactive capacity planning. A structured approach to move/add/change (MAC) workflows ensures that infrastructure modifications align with long-term strategic objectives. DCIM solutions facilitate intelligent space utilization by integrating automated workflows and real-time visualization tools, allowing operators to make informed decisions before executing changes.

 EXPERT ADVICE

Space Management

Optimizing physical space is essential as server densities increase and real estate costs rise. Efficient space utilization maximizes operational capacity while ensuring accessibility and maintainability.

Optimization Strategies:

- **Accurate asset inventory** tracking to prevent unplanned expansions.
- **Real-time location mapping** for enhanced operational visibility.
- **Proactive capacity planning** to align with strategic objectives.
- **Automated workflows and visualization** tools for intelligent space utilization.



// simplify complexity

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT's Data Center Expert
13	Conclusion
14	About FNT

Power Management

Ensuring a reliable power supply while optimizing consumption is a fundamental challenge for data center operators. The increasing adoption of high-density computing necessitates precise power provisioning to balance loads effectively. Over-provisioning leads to stranded capacity and wasted energy, while under-provisioning results in operational constraints and potential failures.

To optimize power management, continuous circuit monitoring and load balancing must be employed. Scalable power distribution strategies, integration with uninterruptible power supply (UPS) and generator systems, and proactive capacity planning help data centers maintain operational continuity while meeting sustainability targets. DCIM platforms provide advanced analytics to monitor power usage in real-time, forecast future demand, and enhance overall energy efficiency.

 EXPERT ADVICE

Power Management

Managing power consumption efficiently is crucial to balancing availability and preventing inefficiencies. High-density computing requires precise provisioning to avoid stranded capacity and unnecessary energy use.

Optimization Strategies:

- **Real-time power monitoring** to improve load balancing.
- **Seamless integration** with UPS and generator systems to ensure continuity.
- **Predictive analytics** to forecast demand and optimize efficiency.
- **Automated power capping** and dynamic provisioning for adaptive energy management.



// simplify complexity

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT's Data Center Expert
13	Conclusion
14	About FNT

Cooling Management

Effective cooling management is crucial for maintaining equipment longevity and operational reliability. Traditional cooling methods often result in excessive energy consumption, making it imperative to adopt intelligent airflow management strategies and leverage advanced cooling technologies. As rack densities increase, the risk of hotspots and uneven airflow distribution intensifies.

DCIM solutions optimize cooling efficiency through environmental monitoring, intelligent containment strategies, and predictive analytics. Integrating sensors for temperature and humidity monitoring, employing computational fluid dynamics (CFD) analysis, and deploying liquid cooling solutions enable datacenters to achieve energy savings while maintaining optimal thermal conditions.

Improve operational efficiency while keeping sustainability and compliance front and center.

 EXPERT ADVICE

Cooling Management

Effective cooling management is critical for enhancing equipment longevity, maintaining reliability, and reducing energy waste. Optimized cooling strategies improve thermal efficiency and operational stability.

Optimization Strategies:

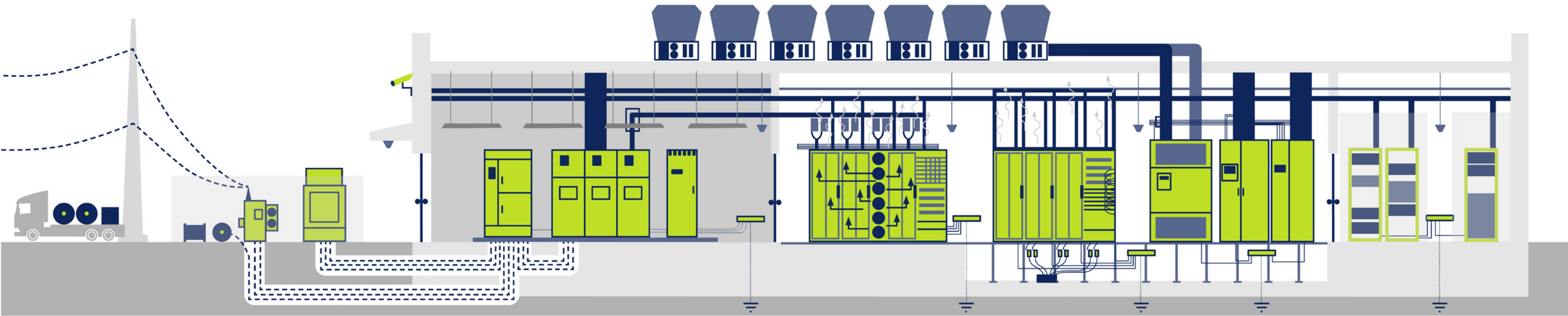
- **Environmental monitoring** using temperature and humidity sensors.
- **Intelligent containment strategies** to enhance airflow efficiency.
- **Predictive analytics** for proactive cooling adjustments.
- **Liquid cooling and CFD analysis** to optimize thermal performance.

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT's Data Center Expert
13	Conclusion
14	About FNT

Common Pitfalls and Challenges Facing Data Center Operators

The complexity of modern data centers introduces several challenges that hinder efficiency and performance. A primary concern is the reliance on siloed toolsets, which impede unified visibility and result in fragmented decision-making. Without a centralized DCIM solution, organizations struggle to accurately track real-time data related to space occupancy, power consumption, and cooling performance.

Another prevalent issue is the reliance on outdated or inaccurate data, which compromises capacity planning and resource allocation. Reactive management strategies often lead to last-minute infrastructure expansions, increasing costs and disrupting operations. Furthermore, justifying investments in advanced DCIM solutions can be challenging without clear metrics demonstrating ROI and business value.



- 01 In this Expert Paper
- 02 Key Findings at a Glance
- 03 Introduction
- 04 The Role of DCIM in Modern Data Centers
- 05 The Triad of Resource Management
- 06 Common Pitfalls and Challenges Facing Data Center Operators
- 07 Stranded Capacity and Capacity Optimization
- 08 Executive Checklist for Space, Power, and Cooling Efficiency
- 09 Innovation in Action: Transformative DCIM Successes
- 10 ROI and Business Value
- 11 The Time to Act is Now
- 12 Q&A with FNT's Data Center Expert
- 13 Conclusion
- 14 About FNT

Stranded Capacity and Capacity Optimization

Stranded capacity refers to unused but unavailable power, cooling, or space resources that arise due to infrastructure imbalances. Addressing stranded capacity is critical for optimizing efficiency and reducing unnecessary expenditures. Conventional power usage calculations, based on worst-case nameplate values, frequently result in excessive safety margins and underutilization of available capacity.

By leveraging real-time monitoring and analytics, data centers can recalibrate provisioning strategies based on actual consumption patterns. A data-driven approach allows operators to safely increase rack densities without compromising operational stability. The adoption of intelligent load balancing and predictive modeling further enhances resource utilization and mitigates stranded capacity risks.

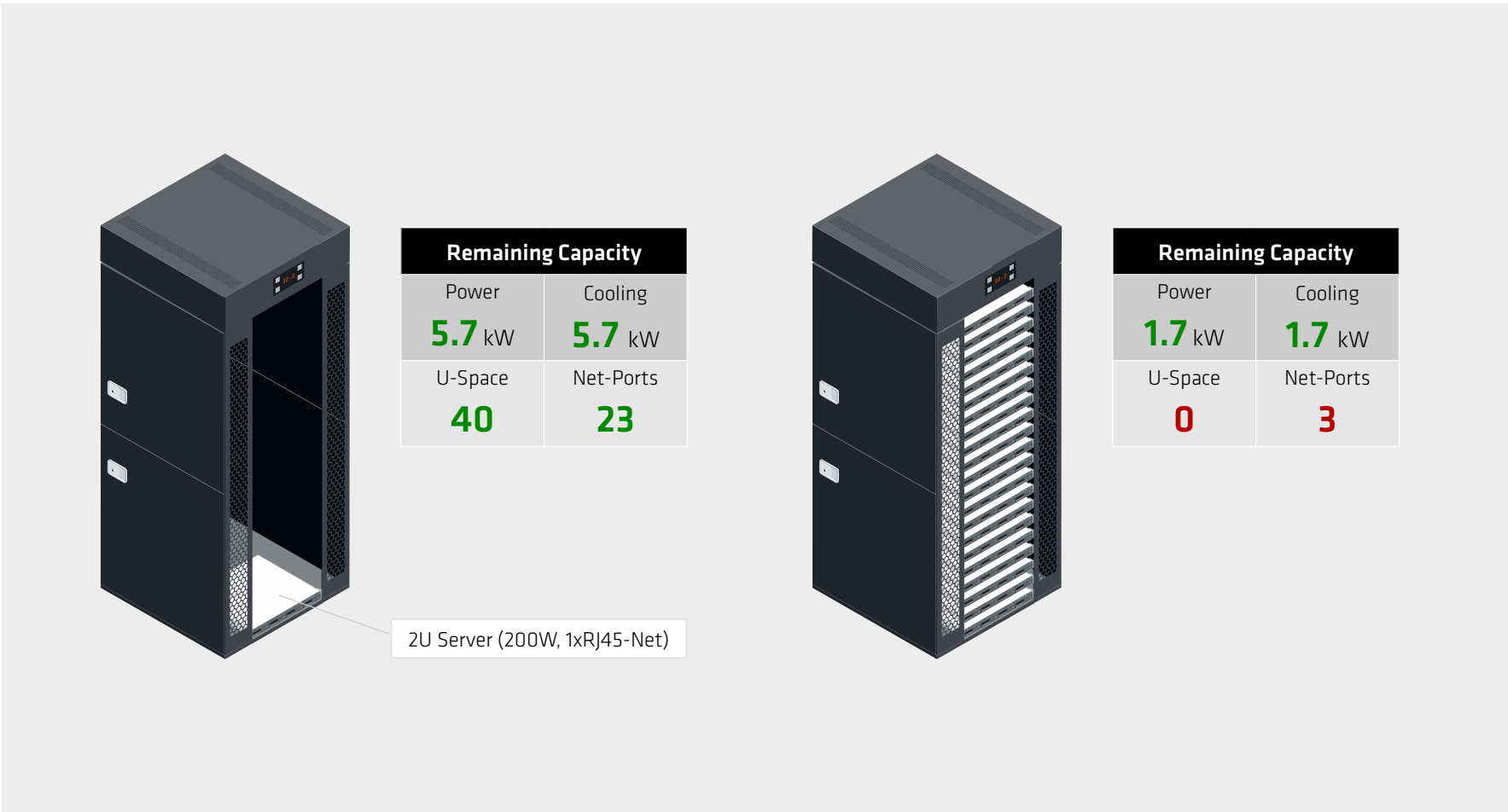
Planning data centers is challenging because the technology inside them changes much faster than the buildings themselves. A facility may be in use for decades, while IT equipment evolves every few years – shifting from traditional “pizza box” servers (1U devices) to blade servers and now to converged systems. Each type of hardware has different requirements for space, power, and networking, making it tricky to maximize efficiency.

The goal: a perfectly balanced infrastructure where no capacity goes to waste.

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT's Data Center Expert
13	Conclusion
14	About FNT

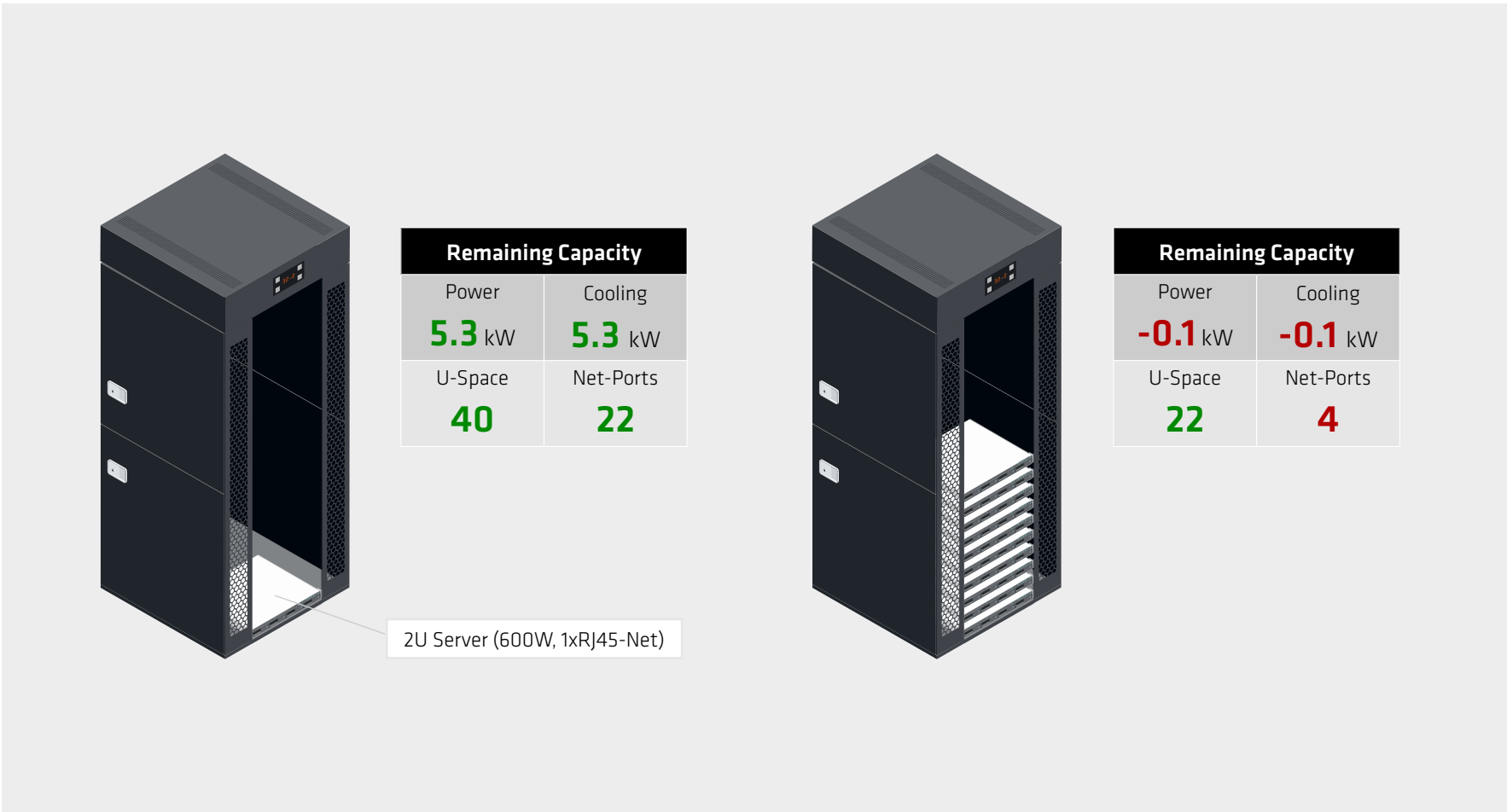
Example 1

Consider a standard rack with 42 U of space, 5.9 kW of power capacity, and 24 network ports:



Stranded Capacity (200 W Server, 1 Network Port)

If you install **21 servers, each 2U in size and consuming 200 W**, you will use up most of the rack space. However, you will have 1.7 kW of unused power, and 3 network ports left.



Stranded Capacity (600 W Server, 2 Network Ports)

If you install **10 servers, each 2U in size but drawing 600 W**, you will run out of power before filling the rack. Despite having 4 unused network ports, you will not be able to add more servers due to power limitations.

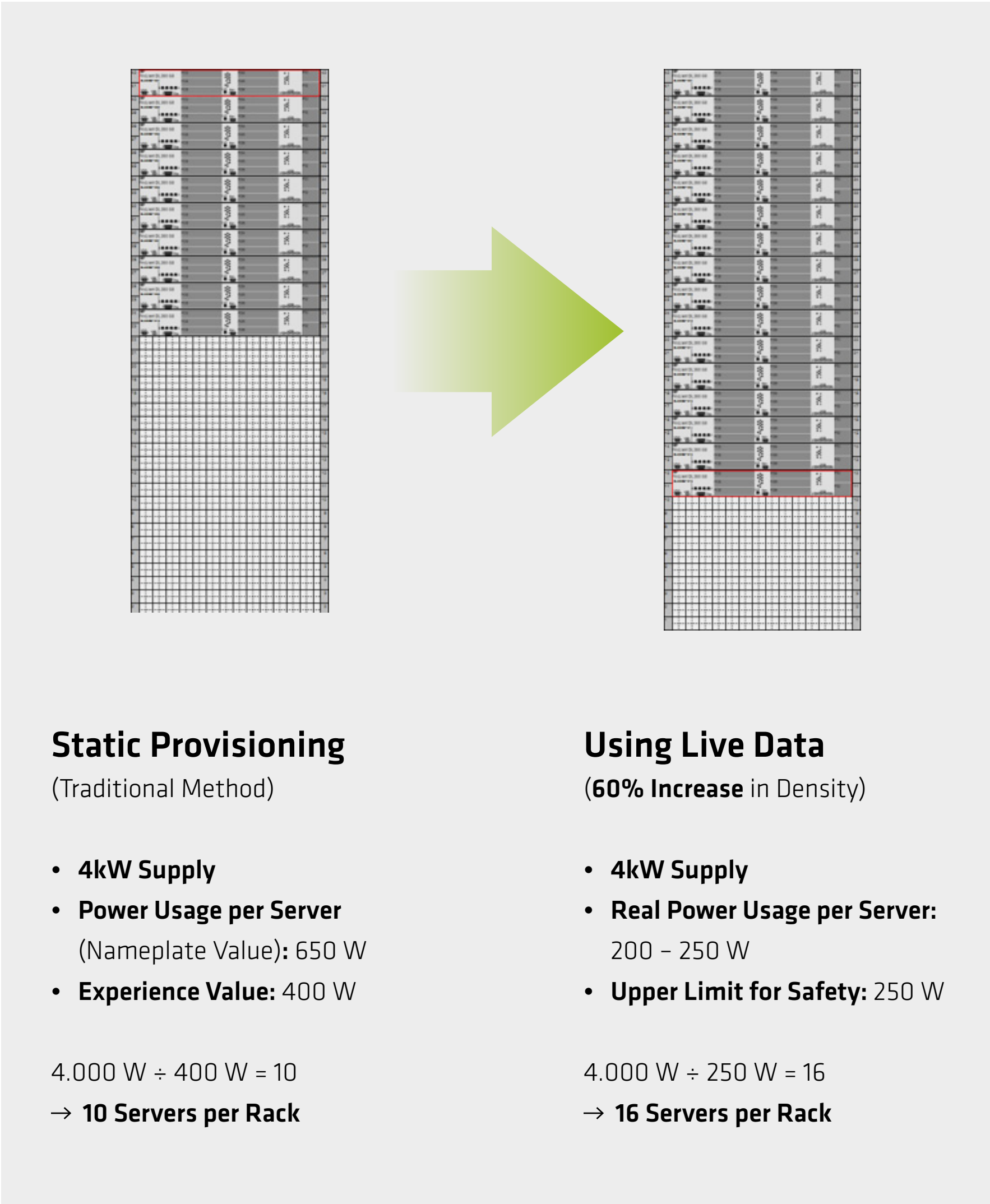
01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT's Data Center Expert
13	Conclusion
14	About FNT

Example 2

One common reason for wasted capacity in data centers is the outdated method of calculating power usage based on the nameplate rating – the maximum power a device could theoretically draw, typically at startup. Traditionally, data centers planned for the worst-case scenario to ensure safe operations. However, modern servers have optimized startup procedures and advanced power-saving features, making these conservative estimates unnecessary and often leading to underutilized power resources. For example, take a 42 U rack with a 4kW power supply:

- Using the nameplate rating (650 W per server), the rack can support only 6 servers before reaching its power limit.
- Based on real-world power usage data, these servers typically consume 400 W each, meaning the rack could support 10 servers – a significant increase in capacity.
- If live power monitoring shows that actual usage ranges between 200-250 W per server, and the upper limit of 250 W is used for safety, the rack’s capacity increases further to 16 servers – a 60% improvement in density.

By relying on real-time power monitoring instead of outdated worst-case assumptions, data centers can significantly increase efficiency and maximize their available resources.



Nameplate vs. Derated Power

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT’s Data Center Expert
13	Conclusion
14	About FNT

Executive Checklist for Space, Power, & Cooling Efficiency



Space Optimization

- Asset inventory and location tracking
- Dynamic floor plan visualizations for easy capacity planning
- Integration with third-party systems
- Data import/export



Power Management Capabilities

- Manufacturer (nameplate) and derated values
- (Real-time) power monitoring at device or rack level
- Predictive analytics to forecast power demand including planned changes
- Load balancing and capacity warnings



Analytics and Reporting

- Customizable reports for capacity planning and SLA compliance
- Integration with enterprise BI tools



Cooling and Environmental Controls

- Sensor integration for temperature, humidity, and airflow monitoring
- Threshold warnings for cooling issues in racks and rooms
- CFD-Integration option



Workflow Automation and Process Management

- Move/add/change workflows for smooth provisioning
- Role-based access and approval processes

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT's Data Center Expert
13	Conclusion
14	About FNT

Innovation in Action: Transformative DCIM Successes

Success Story 1: Public Sector

A government department responsible for a vast network of regional offices sought a way to coordinate the space, power, and cooling requirements of its main data center. Facing the challenge of reliably supporting thousands of physical and virtual servers, as well as additional equipment such as self-service workstations and network components, the department recognized that fragmented documentation was slowing its capacity planning efforts. By adopting FNT’s solution, all infrastructure data was integrated into a single repository. This allowed for precise floor-loading calculations, a unified view of critical equipment such as racks and UPS units, and transparent monitoring of power usage, all of which significantly improved the department’s ability to plan and operate its central facility.

Success Story 2: Automotive Industry

A leading car manufacturer with production sites across multiple countries struggled to harmonize the infrastructure management of its distributed data centers. With varying local processes, ensuring adequate floor space, verifying cooling needs, and balancing power consumption for thousands of servers created numerous inefficiencies. Implementing FNT’s comprehensive platform provided a clear and consistent model of all equipment and physical resources, enabling streamlined data center capacity planning and more accurate environmental control. By uniting space, power, and cooling considerations into a single, integrated tool, the organization was able to optimize data center operations across geographically dispersed locations, resulting in a higher degree of operational agility.

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT’s Data Center Expert
13	Conclusion
14	About FNT

Success Story 3:

Financial Institution

A large financial institution overseeing an extensive network of offices needed to bring order to its data center operations as it handled tens of thousands of IT assets. The principal obstacles included scattered documentation and the absence of an integrated overview of space utilization, power distribution, and cooling requirements in its various data centers. Turning to FNT, the institution embraced a unified environment for capturing all aspects of data center infrastructure, from power sources and racks to carrier lines. This new level of transparency enabled better forecasting of resource consumption, more efficient use of existing capacity, and improved alignment between IT services and the physical requirements they demand. The resulting clarity also facilitated smoother service provisioning and maintenance, all supported by a reliable foundation of up-to-date asset data.

Success Story 4:

Data Center as a Business

A multitenant data center operator sought an effective way to manage its rapidly expanding colocation and cloud environments without compromising security or operational integrity. With thousands of square meters of colocation space, redundant high-voltage connections, and stringent uptime demands, optimizing capacity became vital for meeting growth objectives. By implementing FNT’s DCIM solution, the operator gained comprehensive visibility into its infrastructure, including power distribution and cooling systems, allowing for more precise resource allocation and improved energy efficiency. Automated asset tracking further streamlined operations, while real-time data helped maintain strict security standards and ensure compliance for each tenant environment. As a result, the operator has been able to scale seamlessly, differentiate itself in a competitive marketplace, and continue to innovate as it extends its data center footprint.

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT’s Data Center Expert
13	Conclusion
14	About FNT



ROI and Business Value

The adoption of DCIM solutions has led to significant improvements in cost efficiency, operational performance, and sustainability for data centers worldwide. By providing real-time visibility and proactive resource management, organizations have reported operating expense reductions of up to 20%, highlighting the tangible benefits of an integrated approach. These solutions help prevent over-provisioning and optimize resource allocation, leading to substantial cost savings. At the same time, improved energy management reduces overall consumption and lowers the carbon footprint, supporting sustainability goals. Beyond immediate efficiencies, a well-implemented DCIM platform also ensures that data centers are prepared for future demands, enabling seamless adaptation to emerging technologies such as IoT, Edge computing, and High-Performance Computing (HPC). By embracing DCIM, operators can achieve a more sustainable, cost-effective, and future-ready data center environment.

BENEFITS

- **Lower Operating Costs:** Reducing over-provisioning and optimizing asset utilization.
- **Improved Energy Efficiency:** Lower power consumption and reduced carbon footprint.
- **Scalability & Future-Readiness:** Seamless adaptation to IoT, Edge Computing, and High-Performance Computing (HPC).
- **Enhanced Decision-Making:** Real-time insights enable proactive adjustments rather than reactive fixes.

Operators that deploy robust DCIM solutions can realize up to a 20% reduction in operating expenditures.



// simplify complexity

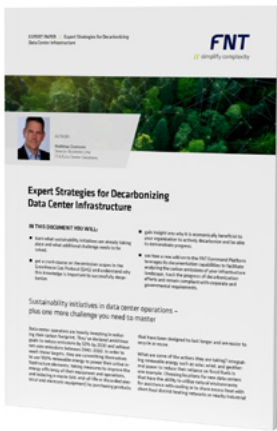
01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT's Data Center Expert
13	Conclusion
14	About FNT

Sustainability: The Quiet Catalyst of Infrastructure Transformation

Sustainability in data center management is less about noble intentions and more about efficiency. Where traditional infrastructure management views space, power, and cooling as isolated operational parameters, forward-thinking organizations understand these domains as interconnected vectors of performance and environmental responsibility. Each kilowatt reduced, each square meter optimized, and each thermal joule recaptured represents a dual victory: economic precision and planetary stewardship.

The granular mechanics of sustainable data center design transcend conventional green rhetoric. By embedding efficiency into infrastructure DNA, organizations can simultaneously reduce operational costs, minimize carbon footprint, and create resilient technological ecosystems that adapt to increasingly complex environmental and regulatory landscapes.

IMPORTANT INFORMATION



Expert Paper: Expert Strategies for Decarbonizing Data Center Infrastructure

Our expert paper details how companies can tackle decarbonization through better infrastructure management.

 [DOWNLOAD](#)



// simplify complexity

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT's Data Center Expert
13	Conclusion
14	About FNT

The Time to Act is Now

Investing in comprehensive documentation is a strategic decision that delivers long-term value by enhancing efficiency, reducing errors, and accelerating critical processes. Well-structured documentation ensures that data center operations run smoothly by providing clear guidelines for resource allocation, capacity planning, and infrastructure management. This leads to better processes, minimizing costly misconfigurations and reducing downtime. Additionally, accurate records streamline commissioning and troubleshooting, enabling faster deployments and quicker issue resolution. By having a single source of truth, teams can work more collaboratively and make informed decisions, reducing reliance on tribal knowledge. Ultimately, robust documentation improves operational transparency, boosts productivity, and lays the foundation for scalable, future-proof data center management.

A robust DCIM solution is never static – it evolves with the needs of the data center, continuously improving through updates, optimizations, and new features. The key to success is getting started rather than waiting for the “perfect” solution. Standing still in

a fast-moving industry can be damaging, as delays only lead to inefficiencies and missed opportunities. Acting now ensures you evolve with the technology, not behind it. While market conditions and technology will always change, implementing DCIM early allows organizations to adapt proactively rather than reactively. A well-chosen platform grows alongside the infrastructure, ensuring that data center operations remain efficient, scalable, and resilient. Investing in DCIM today means laying the foundation for continuous improvement, enabling smarter decision-making and better resource management over time.



01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT’s Data Center Expert
13	Conclusion
14	About FNT

DCIM solutions ensure that resources are properly allocated, performance is optimized, and operational risks are minimized.

Data centers are far from obsolete. Even with the rise of colocation and cloud services, on-premises infrastructure remains a critical component of IT ecosystems. Whether managing a hybrid environment or a private data center, effective documentation and infrastructure management are essential to maintaining efficiency, security, and scalability. DCIM solutions provide the necessary visibility and control, ensuring that resources are properly allocated, performance is optimized, and operational risks are minimized. No matter where workloads are hosted, a well-managed data center – supported by accurate documentation and intelligent management tools – remains the backbone of reliable and efficient IT operations.



// simplify complexity

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT's Data Center Expert
13	Conclusion
14	About FNT

Q&A with FNT’s Data Center Expert

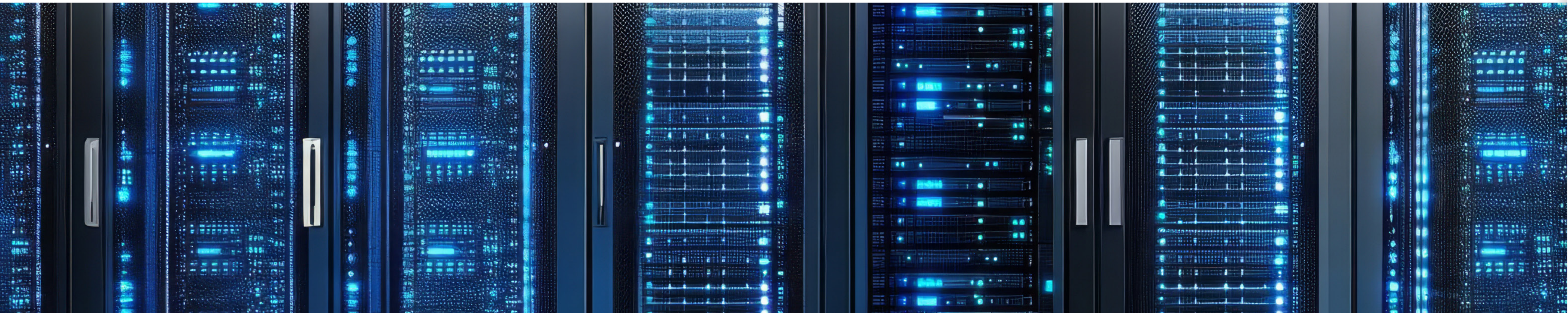


Oliver Lindner
Director of Product Management

How can I optimize space usage in my data center without risking operational disruption?

Oliver Lindner: “You really can’t optimize what you can’t see. So the first step is getting a real-time, accurate picture of all your assets – their location, their dependencies, and how they’re used. With a good DCIM system in place, you’re not just guessing. You can simulate moves, expansions, or decommissions before anything physically changes. That means you can confidently make use of every inch of rack space without risking downtime. It’s about shifting from reactive to proactive planning – and that’s a game changer.”

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT’s Data Center Expert
13	Conclusion
14	About FNT



How can DCIM help prepare for future growth and technological change?

Oliver Lindner: “Data centers aren’t static – they’re evolving constantly. Whether it’s onboarding high-density gear or planning for edge deployments, you need infrastructure that can flex with the business. DCIM gives you that agility. It helps you model “what if” scenarios, assess impact before rollout, and integrate new tech without surprises. More importantly, it provides end-to-end visibility, so your planning isn’t just about today – it’s about being ready for what’s next.”

What’s the best way to avoid stranded power and cooling capacity?

Oliver Lindner: “One of the biggest mistakes I see is relying on static nameplate values for power and cooling estimates. Those numbers are almost always overkill. The real insight comes from monitoring actual usage in real time. When you’ve got DCIM tools that show you live power draw and thermal conditions, you start to see where the imbalances are. You can reallocate, right-size, and often reclaim a surprising amount of hidden capacity. It’s one of the quickest wins in improving efficiency and reducing waste.”

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT’s data center expert
13	Conclusion
14	About FNT



Conclusion

Effectively managing space, power, and cooling is essential for maximizing data center performance and aligning operations with business objectives. A comprehensive DCIM platform provides the real-time insights necessary to optimize capacity utilization, reduce costs, and enhance sustainability efforts.

How to Get Started?

Investing in a DCIM solution like FNT Command ensures long-term infrastructure resilience and adaptability. Organizations can explore a demo, initiate a proof-of-value assessment, or engage with industry experts to tailor a DCIM strategy that aligns with their operational goals and future growth ambitions.

📞 **Contact us** today to start a conversation about how we can help you gain full control over your data center resources. Let's work together to build a future where your space, power, and cooling are managed efficiently – driving performance, reducing costs, and supporting your sustainability goals.



By choosing a comprehensive DCIM solution like FNT Command, organizations can gain control over their data center ecosystem, ensuring optimal use of their most vital resources – space, power, and cooling.

01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT's Data Center Expert
13	Conclusion
14	About FNT

About FNT

FNT GmbH, headquartered in Ellwangen (Jagst), Germany, simplifies the management of highly complex digital infrastructures in companies and public authorities with its FNT Command Platform. With the cloud-enabled “software made in Germany”, IT, telecommunications and data center infrastructures can be efficiently recorded as digital twins and documented across all levels from buildings to digital services. The software also offers open interfaces and numerous functions for planning, implementing and automating transformations and changes in an integrated manner. FNT’s customers include more than 500 companies and government agencies worldwide, including more than half of the DAX-40 listed corporations. FNT operates offices in several locations in Germany as well as in New York, Singapore and Timisoara and has an international partner system with market-leading IT service providers and system integrators.



01	In this Expert Paper
02	Key Findings at a Glance
03	Introduction
04	The Role of DCIM in Modern Data Centers
05	The Triad of Resource Management
06	Common Pitfalls and Challenges Facing Data Center Operators
07	Stranded Capacity and Capacity Optimization
08	Executive Checklist for Space, Power, and Cooling Efficiency
09	Innovation in Action: Transformative DCIM Successes
10	ROI and Business Value
11	The Time to Act is Now
12	Q&A with FNT’s Data Center Expert
13	Conclusion
14	About FNT

FNT Solutions Inc.

5 Penn Plaza, 23rd Floor,
New York, NY 10001

Phone: +1 973 590 2627
E-Mail: info@fntsoftware.com

fntsoftware.com

© 2025 FNT GmbH. All rights reserved. Trademarks and product names are the property of FNT GmbH and may be protected by law. The content of this document is subject to copyright law. Changes, abridgments, and additions require the prior written consent of FNT GmbH, Ellwangen, Germany. Reproduction is only permitted provided that this copyright notice is retained on the reproduced document. Any publication or translation requires the prior written consent of FNT GmbH, Ellwangen, Germany.

