

GETTING STARTED WITH DATA CENTER INFRASTRUCTURE MANAGEMENT (DCIM)

THE IT PROFESSIONAL'S GUIDE TO MOVING BEYOND SPREADSHEETS AND DIAGRAMS

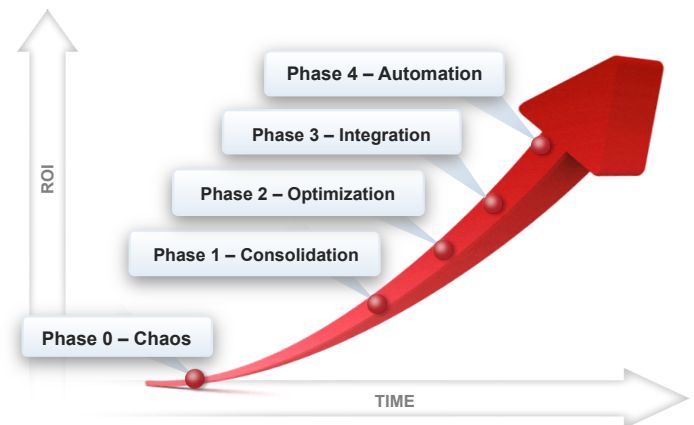
INTRODUCTION:

One of the challenges many companies face getting started with DCIM is that they are concerned that implementing a full scale DCIM solution will require them to rethink and retool the very core of the way their data center is managed and evolved over time. They seem to be concerned that DCIM suites are a relatively new set of technologies with a wide range of interpretations and that they may not have enough of the required experience to implement it to the fullest potential. In some cases, they anticipate that a comprehensive DCIM solution will have lasting and strategic influence on the way in which they operate their structures.

Looking at this problem at a high level over a longer period of time, they would be correct. While many other people initially think of DCIM as merely a tactical management tool, they soon realize that its tactical use is just a stepping stone to the much deeper opportunity at the very core of the way their data centers are operated. Most importantly, they realize that DCIM implementations can start small and grow to quite advanced management tasks. And while a fully mature DCIM implementation can evolve over time and connect to a wide range of other systems, getting started on that journey can begin today.

Like any other software solution, the value realized from your DCIM implementation is directly related to the discipline with which it is used by the entire data center staff and how tightly integrated it is with other IT processes and software. While your end goal might be to reach the upper right of the DCIM Maturity Model (see diagram) you don't need to have a fully mature DCIM deployment, one in which you are performing Strategic Data Center Planning, to get tremendous value out of DCIM. In fact, just taking the first step from managing multiple spreadsheets and floor plan diagrams into a consolidated view with a single version of the truth is a very affordable first step that can return huge benefits.

DCIM MATURITY MODEL



In fact, the benefits of each phase of the DCIM Maturity Model build on the previous ones as described below:

Phase 0 – Managed Chaos and keeping the data center running tactically: This is where most companies are today. Asset management at this stage takes the form of multiple spreadsheets created by multiple groups each with varying types of information. The accuracy of that data is usually highly suspect and grows worse over time. In some cases, copies are created and these spreadsheets are often out of sync with each other and with what's actually on the data center floor.

Phase 1 – Information & Application Consolidation: This is the first step on the road to DCIM where you will consolidate your spreadsheets and diagrams into a single application. A good DCIM tool has the ability to import old spreadsheets and other electronic documents directly into the asset database. From there, the DCIM software allows users to visualize the data center floor in various ways, including space and power availability. Simple reports and dashboards may exist, along with support for basic asset changes. As a result, data center managers make better decisions and reduce the number of human errors.

Making the jump from spreadsheets and diagrams to Phase 1 of the DCIM Maturity Model is a noble starting point which demonstrates commitment to proactive planning rather than reaction.

Phase 2 – Process Optimization: The next phase of DCIM maturity requires a greater commitment to changing examining and prospectively changing the processes you use in managing your data center. This is where optimized data center processes are programmed into the DCIM software and where the DCIM software is used to enable and enforce those workflow processes. This level is also where data centers can begin tracking their utilization rates over time thus allowing for better forecasting based on historical results. Some data centers chose to inject real-time metric information into their DCIM software at this phase, increasing the precision of their DCIM database.

Phase 3 – Strategic Data Center Planning & ITSM Integration: This is where data centers begin performing multiple “what-if” planning scenarios with large numbers of servers, using the DCIM solution to identify potential failure points in the power chain and using predictive analytics to fully optimize the use of power, cooling and space. This is also where physical to logical reconciliation technologies are deployed (such as barcode or RFID) which can be used to continuously audit devices in the data center and identify potential errors either the DCIM or configuration management database. While integration with other IT solutions and processes often happens in Phase 2, at Phase 3 the DCIM solution should be tightly integrated with the other available ITSM systems in place, especially change management systems and CMDBs.

Phase 4 – Automation: At some point in your future you will begin to leverage all of the instrumentation, control and analytics deployed in the previous phases to enable the self-managing data center. Supply and demand will be more closely aligned, with feedback-based control mechanisms dynamically adjusting the supply of computing based upon the demands being placed upon it over time. Thus, as demands change, so will the required compute capacity, the cooling capacity and even the network and storage configurations. Unfortunately, this highly advanced phase needs to come after a couple-to-a-few years of practical production-level DCIM deployment and usage.

CONSIDER THE AUDIENCE FOR DCIM

A strategic implementation of DCIM affects a great number of processes and existing structures, and thus, a large number of people with a wide range of job roles which have been put in place over the years to manage the data center.

While early evaluations considered DCIM as if it were another tactical toolset for the evaluator’s sole usage, it has been seen time and time again that the maximum value of DCIM will be derived when it is highly integrated to the remainder of the ITSM management frameworks, and utilized on a daily basis by a large population of diverse users.

While some prospective DCIM user profiles will be fairly obvious (for instance the Data Center Manager and the Facilities Manager), there are many more roles within any organization that will have a vested interest in the success of DCIM over the long haul. Some of these include:

- CIO, VP of IT and anyone that is accountable for the cost effective delivery of IT services
- The Executive Team acting as the entrepreneur with ultimate responsibility for production
- Facilities Manager and those who focus on critical infrastructures, buildings, power and cooling
- IT Business Analyst and anyone that considers and presents the economics of the IT function
- Asset Managers who have typically focused on material outside of the data center
- Capacity Planners who consider supply and demand of IT capacity and trends
- Sustainability and social responsibility leaders that prioritize corporate initiatives
- Help Desk Managers who assist with change management processes
- CFO, VP of Finance and anyone who ultimately is held accountable for the budget for IT
- Data Center Manager in the traditional sense, as this team keeps the center running
- Structured Cabling and all others that manage connectivity and structured wiring
- Systems Administrators and those who manage the day-to-day operation of individual devices
- Data Center Technicians and the remedial service providers for the production floor
- Foundation Services and other core designers of facilities and/or IT production capacity
- Infrastructure Architect and those who design the infrastructure needed for applications
- IT Operations management who deal with service-level supply and demand, SLA and KPIs

Something to remember is that while this list is fairly extensive, each of these roles will be involved with DCIM over time and the sooner these groups of people are brought into the fold, the more strategic and impactful DCIM will be.

GETTING STARTED WITH DCIM, A STEP BY STEP GUIDE:

Step 1: Do your research. Read. Talk to your peers at other companies that have invested in DCIM. Conceive a vision for DCIM at your company. And keep reminding yourself what DCIM is at the high level: it includes suites and enhancements, and all of these address data center management at the physical layer. Write your vision down. Think about it. Test it. Refine it. You are the pioneer and are the most informed person regarding DCIM within your company (by virtue of the fact that you are starting down this path, otherwise you'd be joining someone else's journey.) Remember, someone has to start and it's you! Recruit your fellow adventurers and solicit their innovation support. Think about a 3 year plan together, making sure to identify TODAY's scope and needs. Don't try to boil the ocean. Make it realistic. Scoping your plan will yield a rough order-of-magnitude budget, so keep that in mind for the remainder of these steps.

Step 2: Get buy-in from ALL of the stakeholders mentioned above. Spend some time getting them to agree with your concept and how it will help them. If you sense dissention, start again and resolve it. Maybe it's a communication issue. Maybe something else. Like coffee roasting, ONE bad bean REALLY will ruin the whole batch. Not sure who ALL these folks are?? This should be a big concern and a recipe for potential disaster. The people that need to be included that are NOT included on the front end WILL find YOU along your journey. Find them, include them and partner with them.

Step 3: Be realistic with setting YOUR scope and roll-out timing. How much can YOU actually do now? Who are your peers that will help? How much time do you and your peers have? Is this your REAL job, or a hobby? What other resources do you need? How does this impact existing projects, and what is the missed opportunity if you do nothing? Successful DCIM will likely have people dedicated to management of this system, much like any other ERP application or database structure.

Step 4: Take a deep breath and document your existing processes and tools. This will be an eye-opener! Most companies at this point find themselves maintaining many random processes, inconsistencies, and poor process documentation. In today's data center operations, you'll likely find a great deal of individual and surprisingly unique approaches to the same common tasks.

Step 5: Audit and inventory the capital assets that you already have installed. With the cost of a typical rack of modern IT gear approaching \$100,000 USD, you've likely spent much more than anyone imagines on IT over the past 3 years. Most concerning, there is limited documentation for all of this capex, and the documentation that does exist is often significantly inaccurate. Like the vast majority of Fortune 500 companies, you will find yourself gathering spreadsheets, CAD drawings, even composition notebooks and perhaps even post-it notes to find it all.

Step 6: Determine YOUR Integration requirements. What will the new DCIM system actually do when plumbed into your world? Forget the trade show demo you saw, this is about defining how your selected DCIM tool will interact with YOUR other systems, your accounting systems, your building systems, your ticketing systems, etc.

Step 7: Establish a roster of users and associated security policies. Who can use the system and what is the span of their access and control? Probably more than you think if done right. As a general rule of thumb, the more users of the DCIM there are, the more strategic the adoption will be.

Step 8: Determine EACH stakeholder's required outputs (Dashboards, reports, etc.) This is the Business Intelligence that aligns IT physical structures with the needs of the business. It is this critical requirement that transforms raw DATA into actionable information. Knowing the temperature of any given point in space is DATA, knowing what the thermal trends are across a data center for the purposes of balancing cooling chillers more efficiently is INFORMATION. Knowing that the supply of computing resources meets the needs of the transactions which are being generated throughout each day is YOUR BUSINESS.

Step 9: Select a DCIM Vendor. You have probably just spent 3-6 months working on the preceding steps, so it is the culmination of that work that must be used to select a vendor. You will be holding the chosen vendor accountable to deliver exactly what you have articulated. Be more objective versus subjective in this process. The selected vendor will be your DCIM provider for years to come, so take this selection process seriously and do not minimize how much of your needs are shared with each vendor candidate. The more they know about your needs, the more likely they will be in determining their ability to satisfy those requirements.

Step 10: Implement. In your DCIM journey, this is where change begins to happen. There will be prerequisites that need to be accommodated, there will be installation of various components, you'll be migrating the existing structure detail to the new DCIM repository, and there will be acceptance testing. This could be weeks or months in larger cases, so plan accordingly. Implementation of DCIM should be treated as any other mission-critical enterprise application. The platform for DCIM should be intentional. Once deployed, validate the deployment. Is the data all there? Are the integrations working? Does the model match the reality?

Step 11: Train your users. Show them how to make the system work FOR THEM. How many people have been given a login to any other ERP style applications, only to have skipped the recommended user training and then find themselves not really understanding how to use the system to its fullest value? That happens every day. The DCIM application will NEVER be strategic if your users don't understand it or even worse if they feel compelled to work around it. Train them to make it fit and ENHANCE their world.

Step 12: Celebrate your success! Make sure the company and all stakeholders are aware of the new business value realized through DCIM. That said, continue to test your growing needs and then go back to step #1 annually when budgeting occurs. DCIM will grow. No matter what you baked-in up front, it will grow over time if you are doing it right. There is simply too much opportunity to use this new source of knowledge to streamline your data centers. Keep testing and challenging the processes and the system to do MORE.

Are there other steps? Sure, even the order may be slightly different in each case, but these are the critically important steps seen in the most successful DCIM implementations. In general, the more 'STRATEGIC' people feel the DCIM system is, the more likely they will work the system into their daily routine. The more likely they will not only replace older processes, but begin to enhance and streamline those processes - which in turn saves tremendous time and money while ensuring adoption and subsequent benefits.

CONCLUSION AND PARTING ADVICE:

The key to success in beginning a DCIM journey is to set goals in terms of capabilities, timing, investment and business value. Your goals will be unique to your organization, so the burden will be on you and your peers to identify what is important to your data center operations. That said; make sure your efforts are well publicized internally to allow all those people with a vested interest to participate in the DCIM selection and deployment processes as early as possible.

Complement your critical facilities management capabilities by leveraging them. Critical systems such as power and cooling are a tremendous source of operational metrics which can be utilized by the IT professional. These metric help identify capacity problems and misalignments. Stranded capacity can be identified and redistributed as needed.

Most importantly, don't try and to do everything at once and boil the ocean. By carefully considering timing and complexity, you'll be able to start the process and then grow into a fully mature solution over time. Your selected vendor should be able to scale with you over time, in both scope and capability. Like most IT projects, you want to take DCIM step by step. This will increase your likelihood of a successful implementation, and prove the value of what a well-run data center can provide to the entire IT organization and enterprise overall.