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Data center infrastructure migration

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Objective

This document aims to present a practical guide demonstrating the effectiveness of Critical Infrastructure Management Technologies in data centers (DCiM) in infrastructure migration processes.

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What is infrastructure migration?

Data center infrastructure migration involves an organization’s strategy to move a set of devices, systems, and cables from one data center to another.

Reasons for infrastructure migration include consolidating to a smaller data center to reduce costs such as power consumption and cooling efficiency, expanding to a larger data center due to business growth, or relocating to a building with more modern technology.

To initiate this process, it is necessary to develop a migration plan to address the critical points of the migration process.

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Legacy environments

One of the main reasons for infrastructure migration is the technological optimization of the infrastructure..

What is it?

A legacy system is outdated technology that remains in use within an organization because it continues to perform the functions for which it was designed.

Due to ongoing changes, systems tend to become obsolete over time. In order to adapt to these changes, IT systems are also continually updated.

Legacy systems are often crucial to the business. That is undoubtedly one of the main reasons why the use of legacy systems remains widespread among companies. In general, legacy environments are critical for daily operations, so their migration or replacement must be carefully evaluated and planned to minimize potential risks.

Risks of retaining legacy environments

Compatibility

By using outdated technologies, the legacy system may become incompatible with new systems or technologies that are also essential for the business.

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Support

If the manufacturer of the system or software does not provide support, it is unlikely to be able to assist in the event of problems.

Security

The lack of support, updates, and maintenance, as well as the use of outdated standards and protocols, leads to the creation of patches that may end up causing security vulnerabilities.

Performance and productivity

Legacy systems become slower over time, which can result in a decrease in performance, efficiency, and productivity.

Maintenance Costs and Competitiveness

Maintaining a legacy system means investing money in an IT resource that will eventually need to be replaced.

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Migration Process - Initiation

To achieve a successful migration, it is necessary to follow a series of steps that ensure a correct migration process. The main steps for developing the migration plan consist of four stages:

Initiation	Preparation	Execution	Completion
Knowledge and experience	Planning	Migration	Post-migration Testing
Project Team	Communication		Migration Audit
Preparation	Consolidation		Project Closure
	Risk Plan		
	Pre-migration Testing		

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Knowledge and experience

The first step is to determine if the organization's resources have the knowledge and experience to proceed with the migration.

Project Team

The second step is to select a project leader. This leader should establish a team with representatives from all departments involved in the migration project. It is important that those in charge of each department are proactive in acquiring knowledge from other departments, as it will aid in communication between departments

Preparation

The results of a migration depend on prior preparation and the implemented planning. To achieve this, a committee with representatives from all departments should be organized, with the goal that each department represents the resources and assignments that correspond to them.

Additionally, it is necessary for the committee to analyze the following points:

- Migration costs
- Supplier contracts
- Equipment inventory
- Business impact analysis

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Migration Process - Preparation

Planning

It is important to establish a migration sequence along with the number of phases that will be necessary to carry out the migration safely and efficiently.

Communication

Establishing a communication plan is crucial because, during the migration phases, there must be direct communication between the departments and individuals involved.

Consolidation

Once the migration planning is prepared and the communication channels are defined, the next step is to consolidate all the processes mentioned earlier and inform all teams involved in the project. The goal of this process is to establish the work procedure and identify any potential errors in the mentioned procedures.

Risk Plan

This process will serve to limit or reduce the potential impacts that the possible errors detected in the consolidation process may cause.

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Pre-migration Testing

Before initiating the execution of the infrastructure migration, it is vital to conduct a series of tests to establish a process flow that ensures the operability and functionality of the infrastructure to be migrated.

Migration Process - Execution

Migration

Initiating the migration process after completing the processes described earlier is important. It involves defining work periods and conducting follow-up meetings with the involved departments to monitor the project's status and milestone deadlines.

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Migration Process - Completion

Post-migration Testing

Applying the same tests conducted during the pre-migration phase and comparing the results obtained in both tests. Different results may reveal new issues that arose during the migration process.

Migration Audit

An audit of the migration project should be conducted. It should include:

- Define the project process
- Design specifications
- Project schedule
- Feedback from the resources involved in the project

This audit provides information identifying critical points, issues encountered, and the solution applied to each of them.

Project Closure

After completing all the steps, the project will be closed, providing documentation that certifies the project closure.

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DCiM in Migration - Initiation

Below, the benefits offered by infrastructure management technologies in the initiation process of infrastructure migration will be presented.

Project Team

Thanks to DCiM tools, we can organize one or multiple work teams by creating users who will be involved in the migration. For independent departments, it allows generating user groups that divide the assignments for each work team.

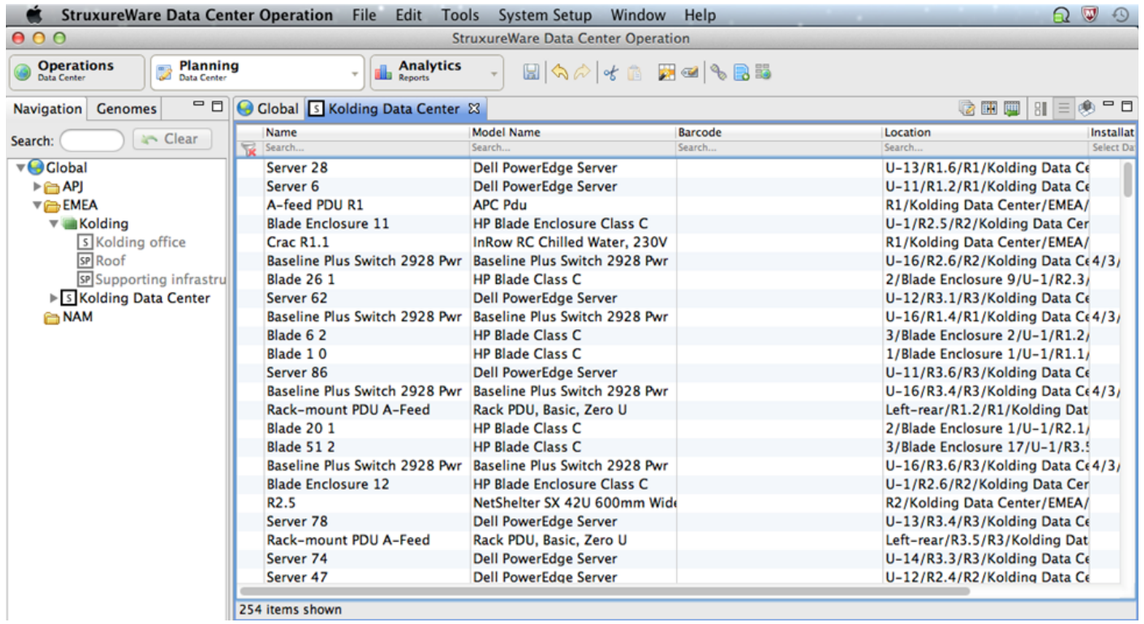
Preparation

DCiM tools achieve a comprehensive view of the data center; therefore, we will obtain the necessary information to prepare for migration:

- Equipment inventory: manufacturer, model, serial number, physical and technical characteristics, services provided, and device owner (Co-Location).

- Migration costs: With the information obtained from DCiM, it will be possible to make migration cost estimates, as the migration volume will be known from the outset.

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Detailed equipment inventory

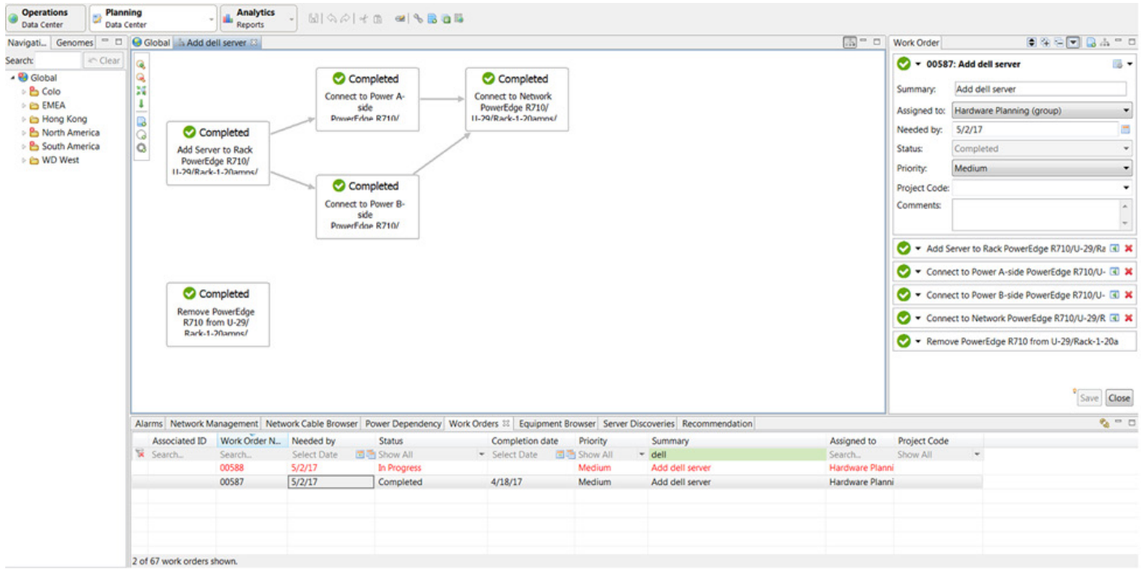
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DCiM in Migration - Preparation

Below, the benefits offered by infrastructure management technologies in the preparation process of infrastructure migration will be presented.

Workflow

This feature of infrastructure management technologies allows for the establishment of work processes that combine advanced workflows with parallel and sequential workflows. Additionally, there is the option to assign the entire workflow or parts of it to specific users or groups.

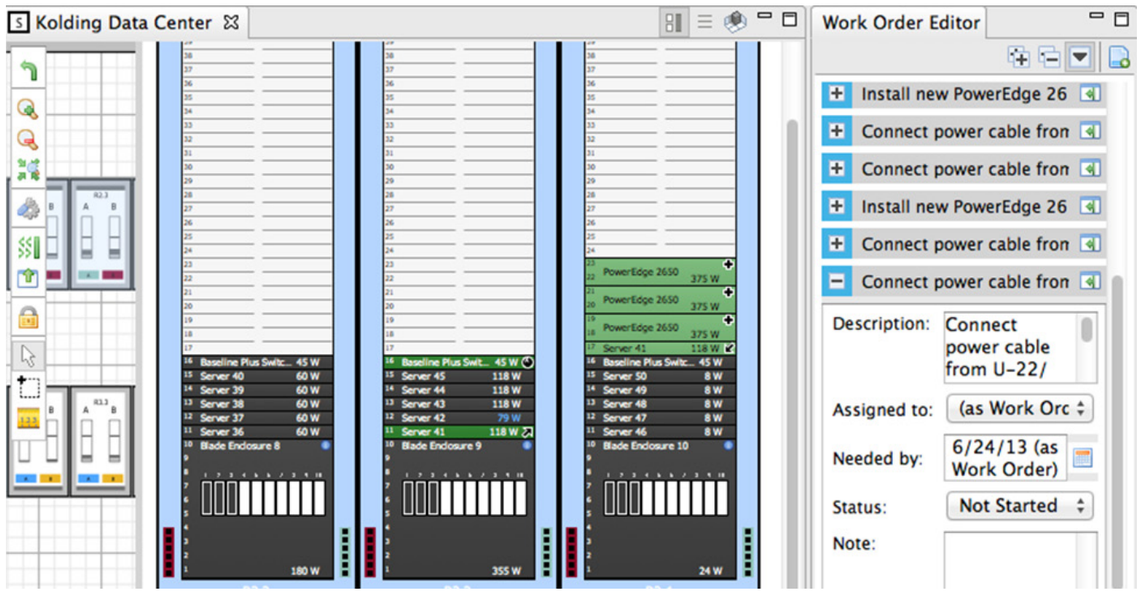


Work process

Planning

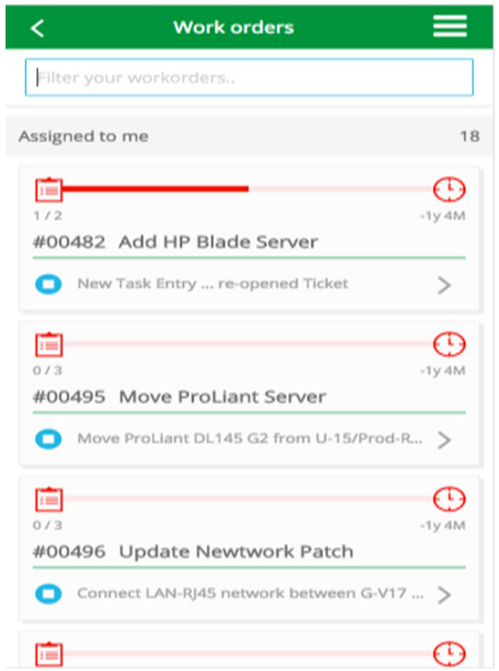
After defining the workflows, infrastructure management technologies allow planning future equipment locations to be migrated through work orders. With this solution, we can achieve the following results:

- Work order for equipment, either individually or collectively.
- Capacity analysis, both in physical space and electrical consumption capacity.
- Commissioning requirements, as planning tools have functions that allow specifying a series of conditions, such as port availability, type of redundancy, etc.



Planning

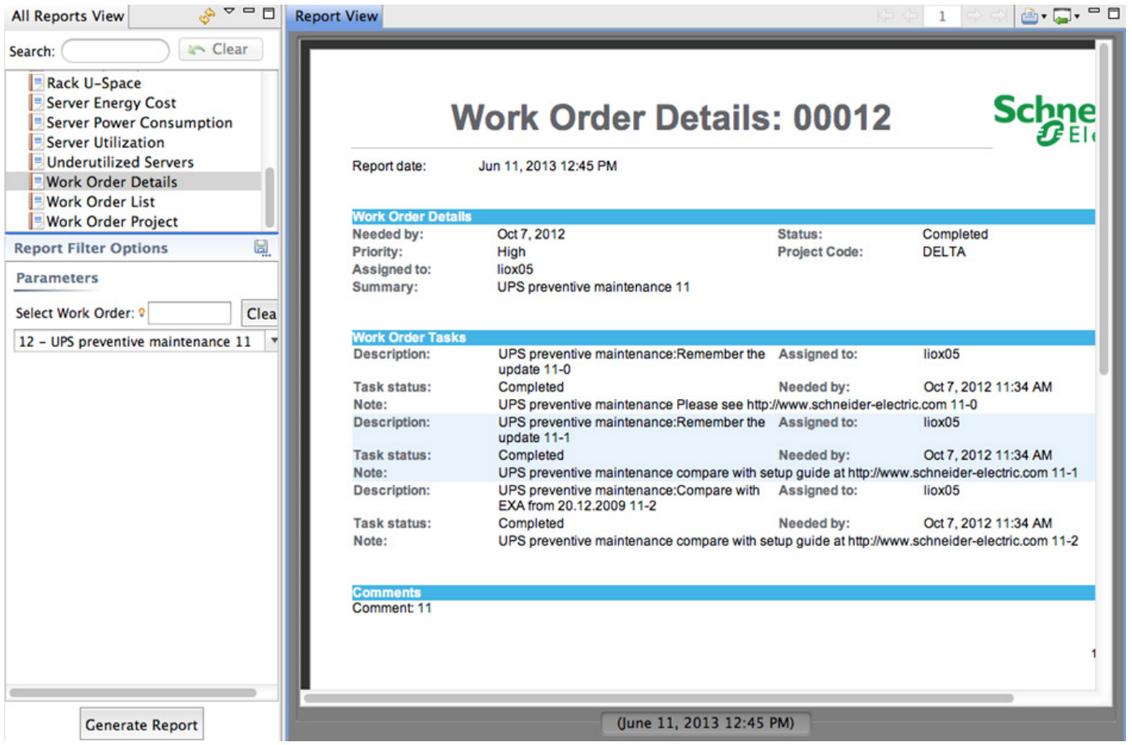
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Work orders by user

Migration

Thanks to management technologies, we can manage work orders in real-time, including those in progress, processed, and pending processing. This way, we will have a perspective on the progress made during the execution process.



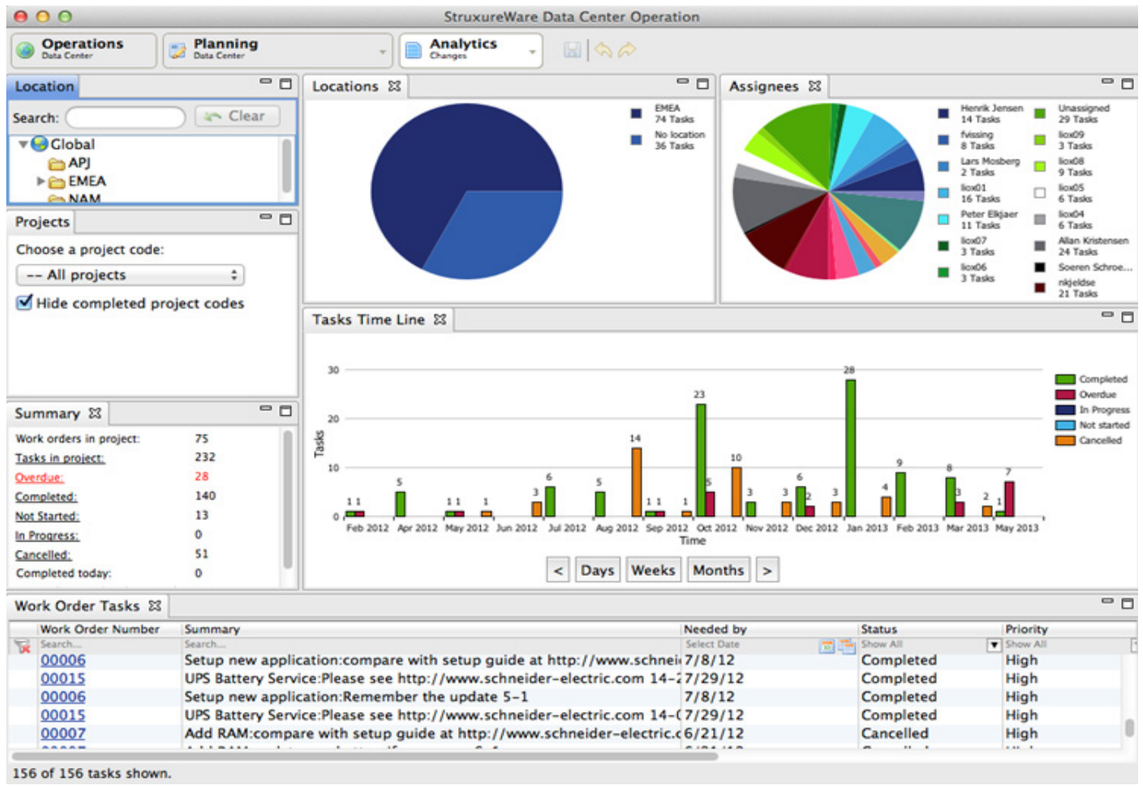
Detailed work order report

Audit

After concluding the execution of the migration, the functions provided by DCiM will help us obtain reports certifying the following:

- Report certifying the total completion of infrastructure migration.
- Report on tasks executed, indicating the number of people and work teams involved in the project, task distribution among personnel and departments, and imputed work hours to aid in cost analysis caused by migration.
- Report certifying the correct migration of services provided by IT equipment.

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Ordenes de trabajo por usuario

Conclusions

The capabilities provided by critical infrastructure management technologies make it easier and faster to handle the entire process of infrastructure migration, optimizing the process from the initial phase to the project's closure.