

# Data Center Capacity Management as a Service DCCMaaS

**DCCMaaS = Digital Twin model (CFD) + DCIM software + Support hours**

## Challenges:

Data Center Owner / Operators struggle with the following issues: Capacity Management vs Energy efficiency? Is stranded capacity limiting the planned capacity of our racks? Is there more capacity available? Are we fully utilizing our Data Center? Which energy conservation measure(s) should I deploy next? Do we have a roadmap? Who can we look to for independent advice?

## Description:

Capacity Management is a technique that enables a Data Center Manager to measure the consumption of resources and forecast future infrastructure requirements while lowering costs and managing risk. There are four steps necessary to achieve good Capacity Management: (determine the business's requirements, analyze current capacity, maximize the design potential and plan for the future). Leveraging information that can be provided by your site personnel and Data Center management tool(s), combined with CFD modeling data, will baseline of the existing conditions.

Understanding the inter-dependencies between space, power, cooling and air flow in the Data Center environment.

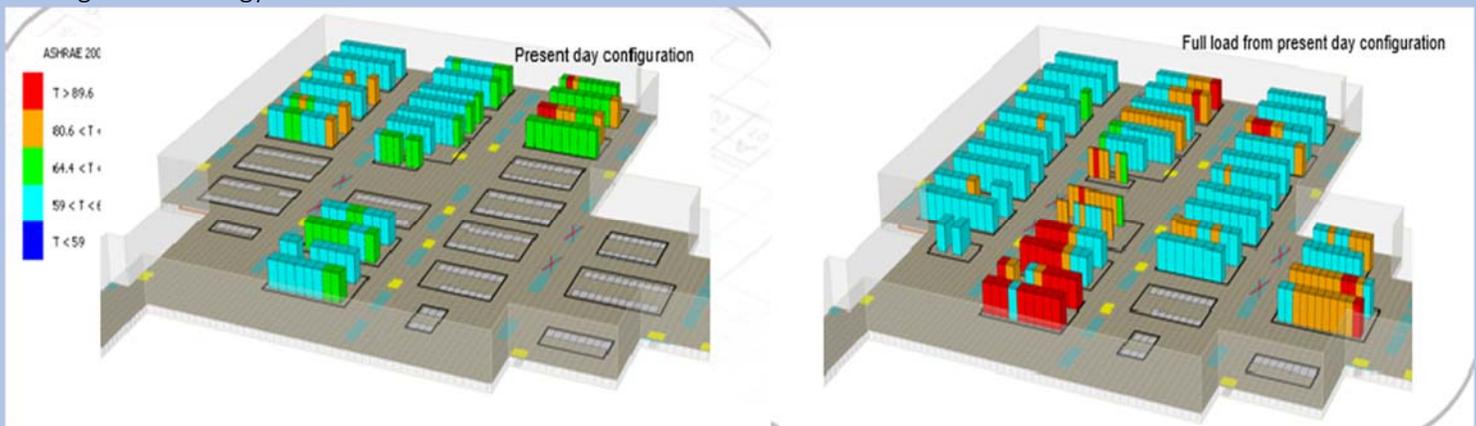
Armed with this data, improvement scenarios can be run to determine impact to capacity and utilization, as well as energy costs.

## Solution:

A Digital Twin (3D Computational Fluid Dynamics) based model of existing IT Equipment, power and cooling devices are unlikely to be aligned with specific racks, and more likely to be associated with blocks of racks or the entire room itself. It is important to not only understand the specific rack demand and capability, but also the aggregate demand placed on existing power/cooling infrastructure by multiple racks. A status of excess supply is essential at rack or room level to ensure maximum efficiency, and no failure or down time.

Excess supply can be achieved in five specific ways: (Spare capacity, Idle capacity, Projected capacity, Capacity safety margins, Stranded capacity). Data Centers have often been built with surplus capability "just in case", on the assumption that the business will need more IT services eventually. Surveys suggest that this design approach has resulted in 80% of Data Centers failing to reach 60% of the original proposed design specification. There are several surveys and reports that suggest many Data Centers will hit a "capacity bottleneck" through reaching the maximum capability of one or more of the "Four Key Constraints (4C's)" of: Power, Cooling, Space or Connectivity.

Maximizing the capability of each of the "4C's" is a fundamental Energy Efficiency action sponsored by an effective Capacity Management strategy.



# Data Center Capacity Management as a Service

## DCCMaaS

**A different approach.** This three-step service is designed to minimize costs by using information that you can supply as well as provide you with a better experience.

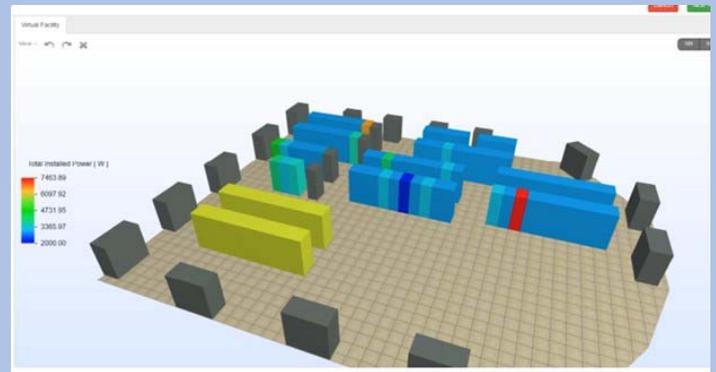
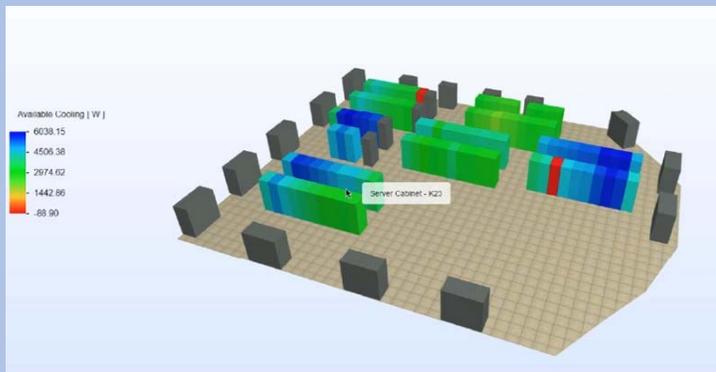
First step: Create a Digital Twin CFD model to create a Baseline that includes IT equipment, assessment of the Electrical and Mechanical infrastructure.

Second Step: Data Center optimization by performing a detail level assessment of the IT equipment, assessment of the Electrical and Mechanical infrastructure. Identify all recommendations and develop a strategic roadmap.

Third Step: Data Center Capacity Management as a Service (DCCMaaS) by contracting services to take a pro-active approach on IT Equipment installs, moves, adds and changes.

DCCMaaS Consulting Services include:

- Fast turnaround once site data is submitted
- A Digital Twin baseline model with accurate set of environmental measures
- Take a pro-active approach to Add, Move and Changes
- If the add/move or change is outside the limit set – we get involved and offer a recommendation (simple adjustment in the model or complex engineering design)
- Monthly Virtual Facility model(s) and Performance Assessment Report(s)
- Monthly Mechanical and electrical capacity reporting.
- A copy of the delivered report that is narrated by a Creative Facility Design SME enabling you to show it to others without having to be the expert
- Routine audits – customer choice (monthly, quarterly, semi-annually, or annually)
- Virtual Facility model re-calibration service and Performance Assessment Updates
- You own the data and can use it for future simulations reducing future analysis investment.
- All resulting simulation output data and input models are provided for your future use.
- Install and Manage an industry leading virtual capacity planning platform tool (DCIM software license sold separately).
- Software installation and Train customer on DCIM Software



<https://www.futurefacilities.com/products/6sigmaAccess/>

**Creative Facility Design Inc.** was formed in December of 2009 with over 25 years' experience serving data center customers throughout the US. CFDesign focuses on data center strategies and consults regularly with data center and executive teams. The unit advises clients on Business Centric strategy issues such as consolidation, colocation selection, build vs. buy, cost modeling and Facility Centric strategy issues such as risk assessment, maximizing utilization, new data center programming, owner's representation, and energy improvement. The primary mission of the company is to create application specific CFD modeling for target design and analysis markets using new and creative models of delivery and support.