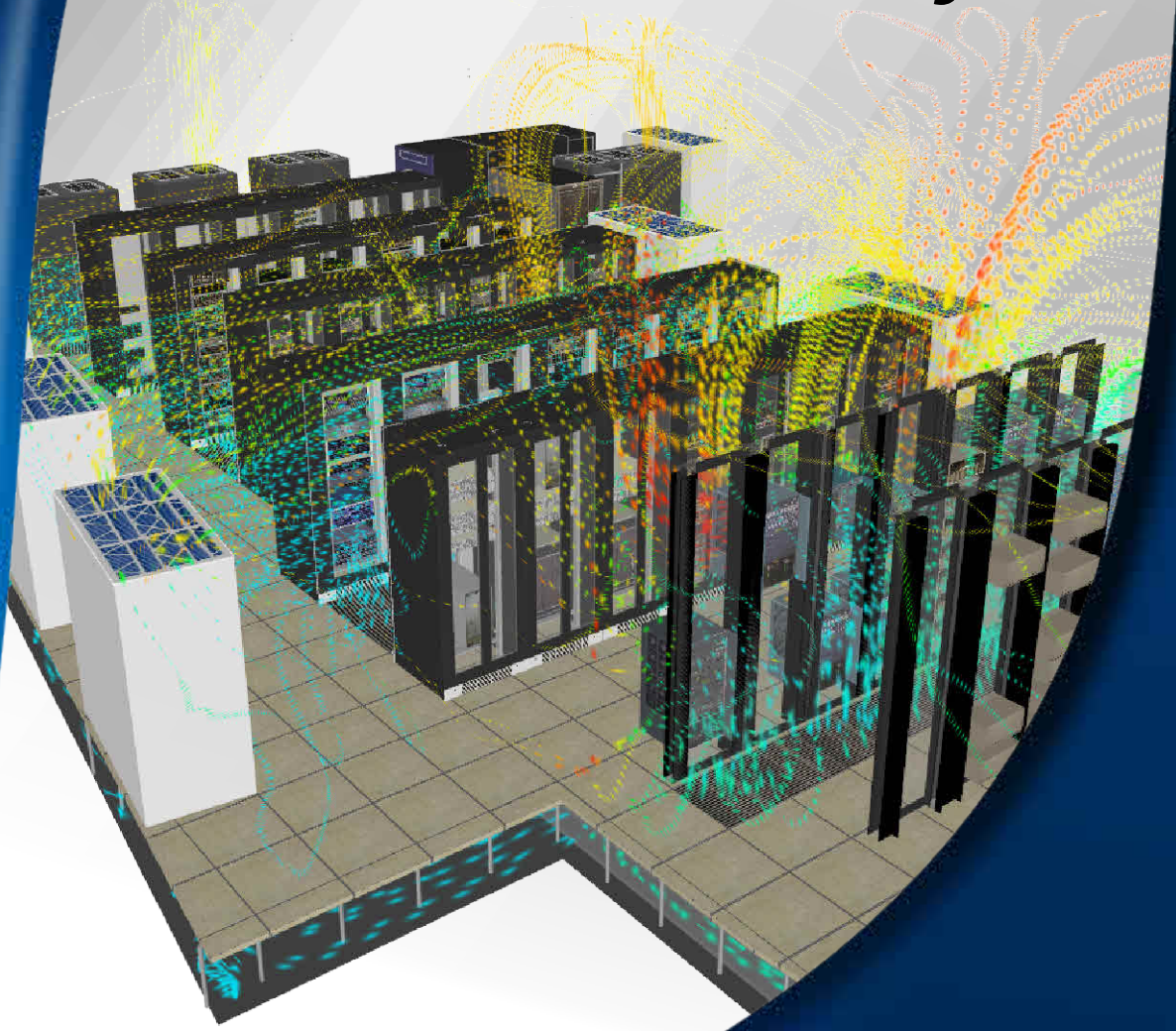
future facilities

Introducing the Virtual Facility



future facilities
6SigmaDC

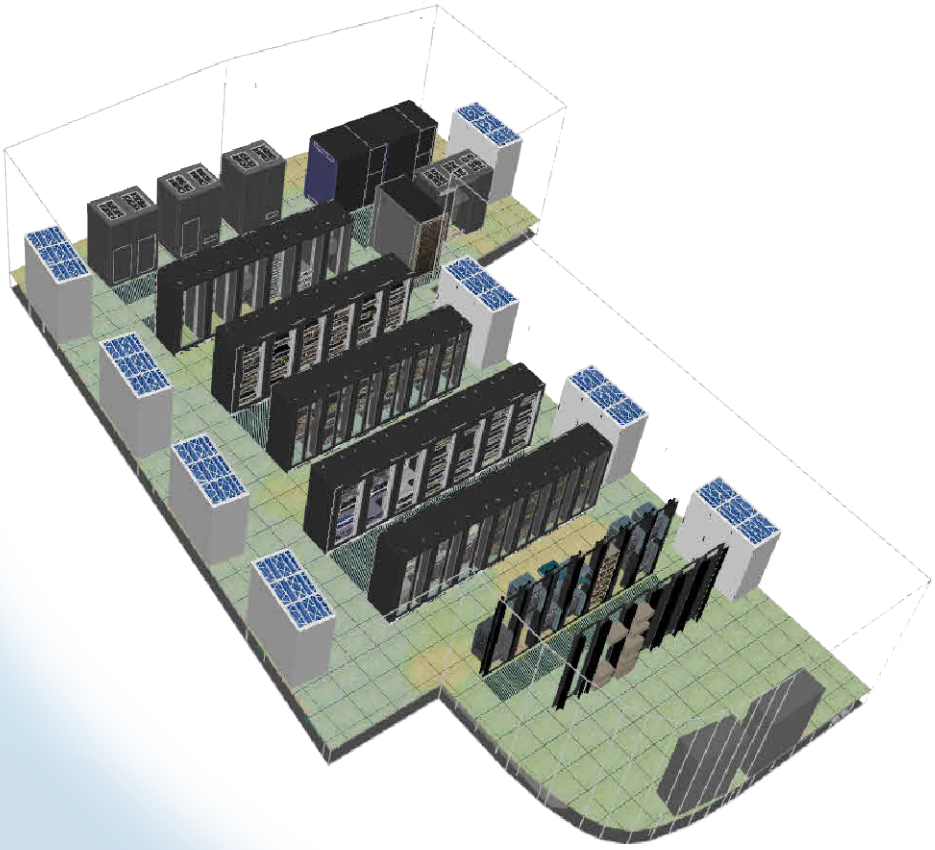
future facilities

At *future facilities*, we have developed a groundbreaking methodology enabling owner/operators to improve the performance of a data centre throughout its entire lifecycle. Our techniques are valid from initial design right through to everyday operational management.

Our aim is to reduce thermally induced equipment downtimes and poor manageability, and improve the performance and operational efficiency of the data centre. We believe the best way to do this is to help owner/operator to understand and control everything within their facilities.

the Virtual Facility
the way forward

The key to the *future facilities* methodology is the Virtual Facility (VF), a full, 3-dimensional, mathematical representation of any data centre at any point in time.



The custom-built VF provides an accurate and holistic perspective, allowing the data centre operator to track past events, investigate the present status and predict the impact of future changes, with no risk to the real facility.

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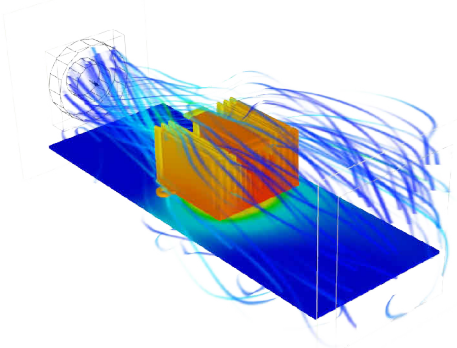
future facilities 6SigmaDC

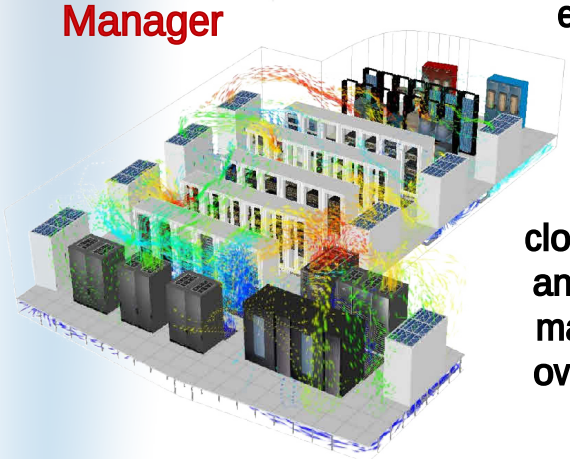
Our simulation techniques replace inadequate estimations and rules of thumb with scientific precision in order to manage the performance of facilities.
To this end we have developed the 6SigmaDC software suite to build and maintain the Virtual Facility, and therefore enhance the physical data centre.
Each module in the software suite is aimed at a specific element of the data centre lifecycle, and all modules integrate perfectly to create a singular, holistic view of the facility.

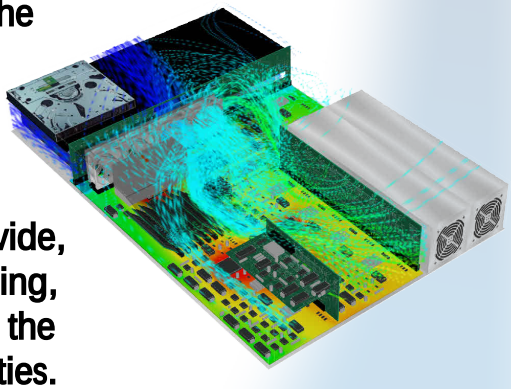


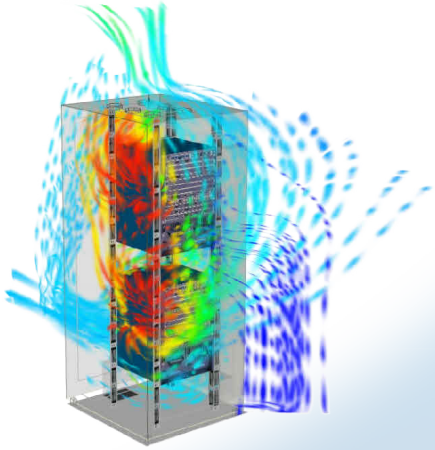
Equipment Manufacturer

Increasing power densities affects the entire supply chain. However, there is a lack of effective communication between IT equipment suppliers, and the Building Services Industry - this produces problems for Facility managers. Our aim is to close the communications divide, and increase the understanding, management, and therefore the overall performance of facilities.

Facilities Manager







No Man's Land - communications breakdown

Introducing the Virtual Facility

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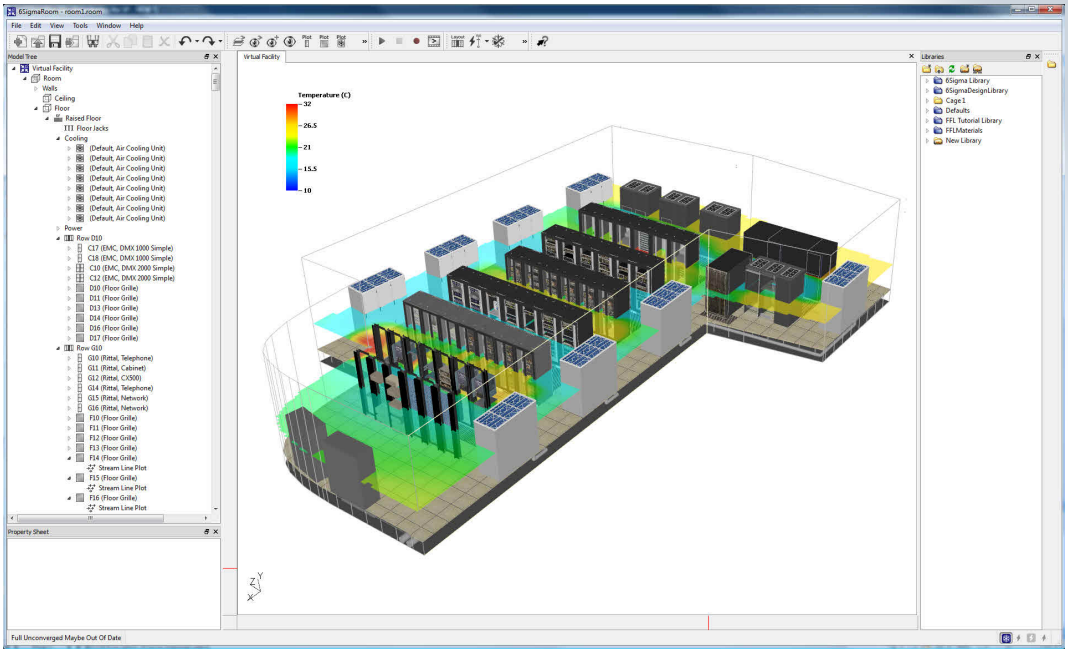
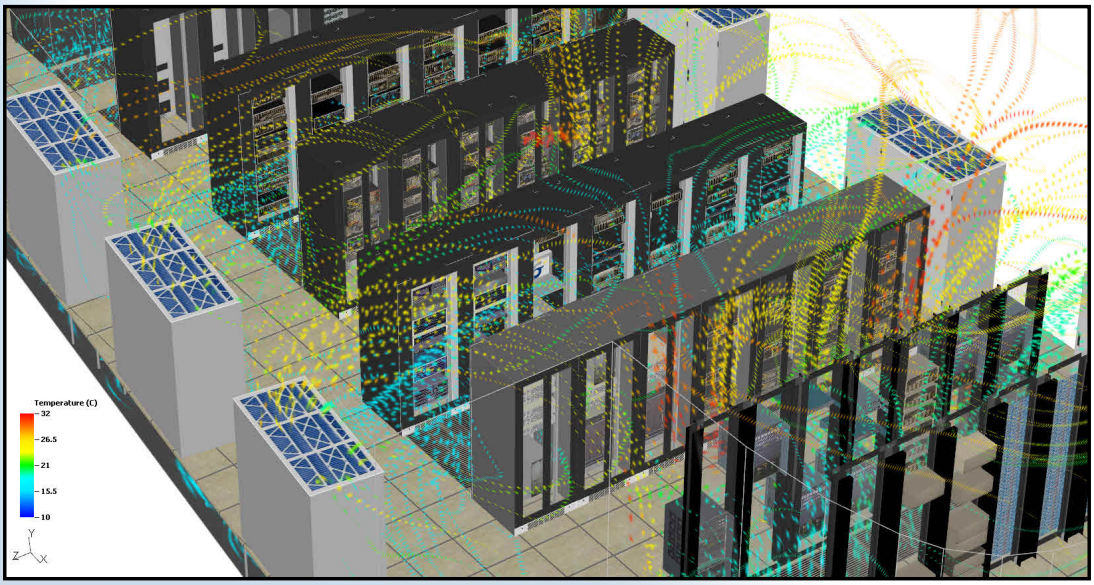
Data Center Design

with future facilities 6SigmaRoom

Whether you are creating a design concept, or simulating an existing facility, 6SigmaRoom is the starting point in the Virtual Facility design process.



6SigmaRoom combines a user-friendly interface and the freedom of experimentation to provide fluid links between every aspect of the design process. Early design concepts such as room layout and configuration are easily tested, and are later supported by an entire library of generic and specific product models - cabinets, servers, ACUs, and even floor grilles. Every detail within your mission critical facility can be included to create as accurate a representation as possible.



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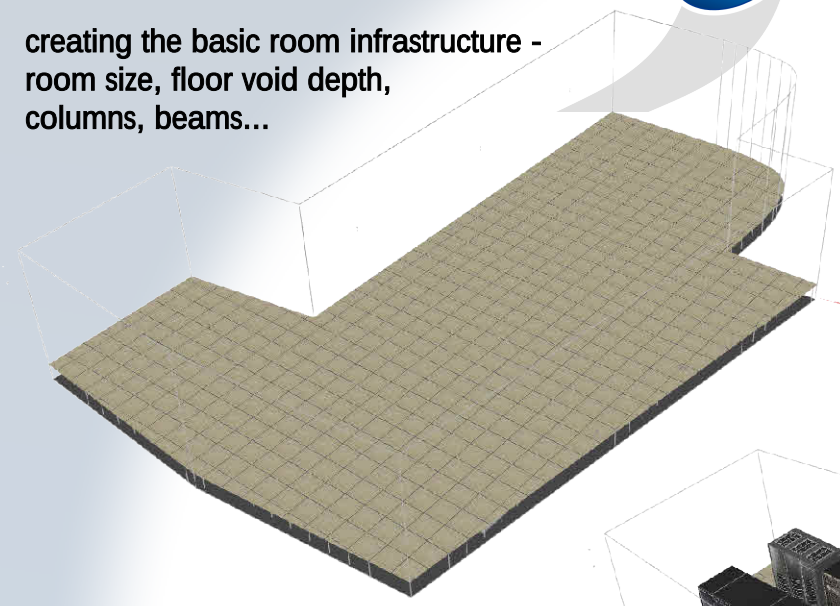
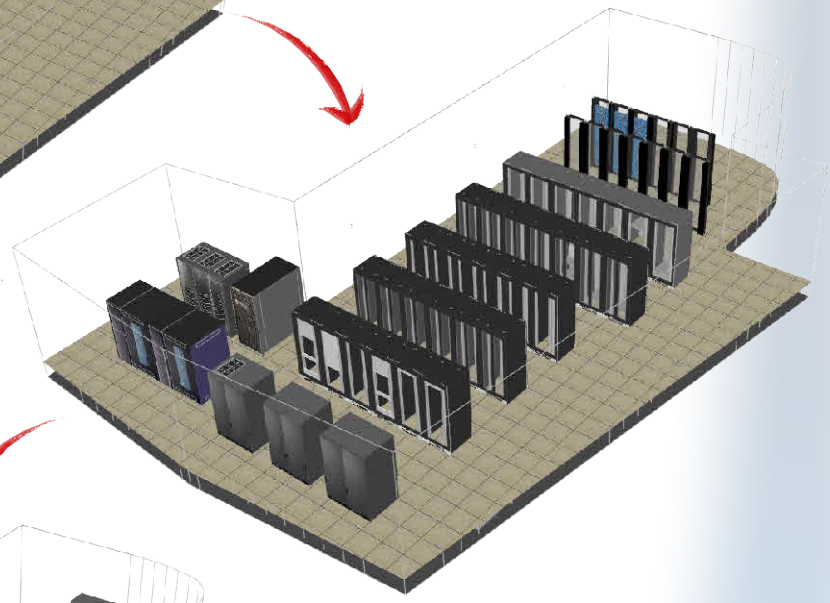
Data Center Design

with future facilities 6SigmaRoom

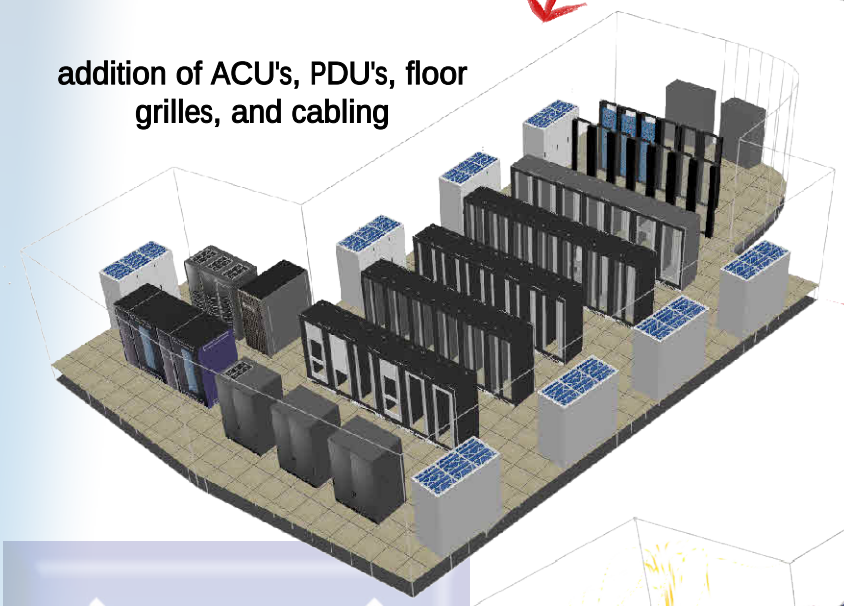
creating the basic room infrastructure - room size, floor void depth, columns, beams...



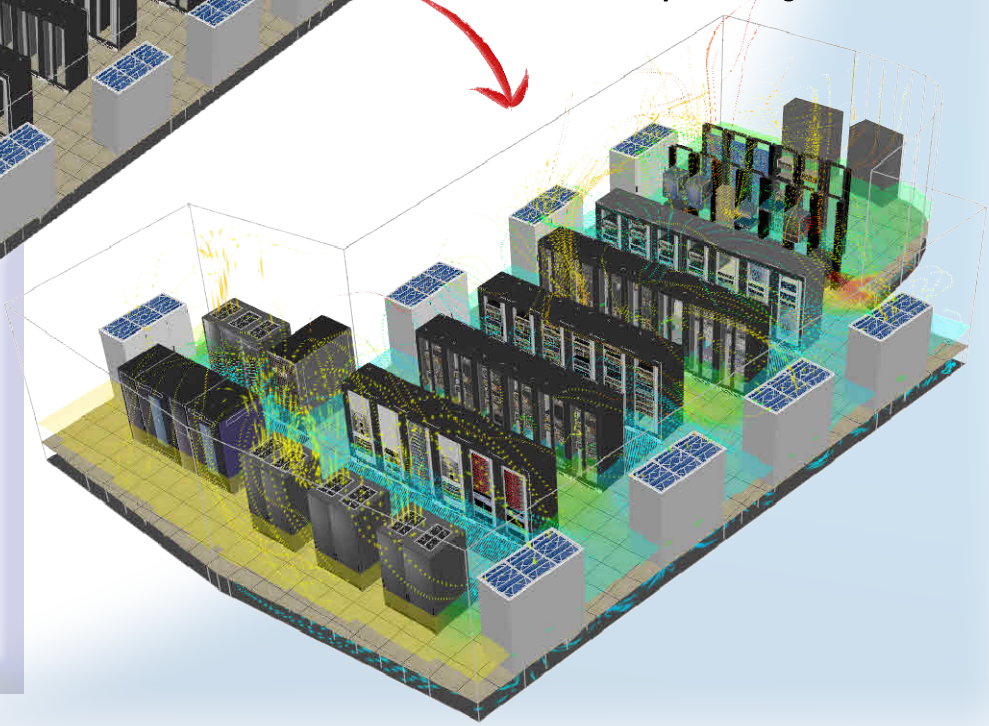
Introducing cabinets and testing layouts



addition of ACU's, PDU's, floor grilles, and cabling



Introducing equipment, and producing results



A summary of the main stages involved in the build of a Virtual Facility

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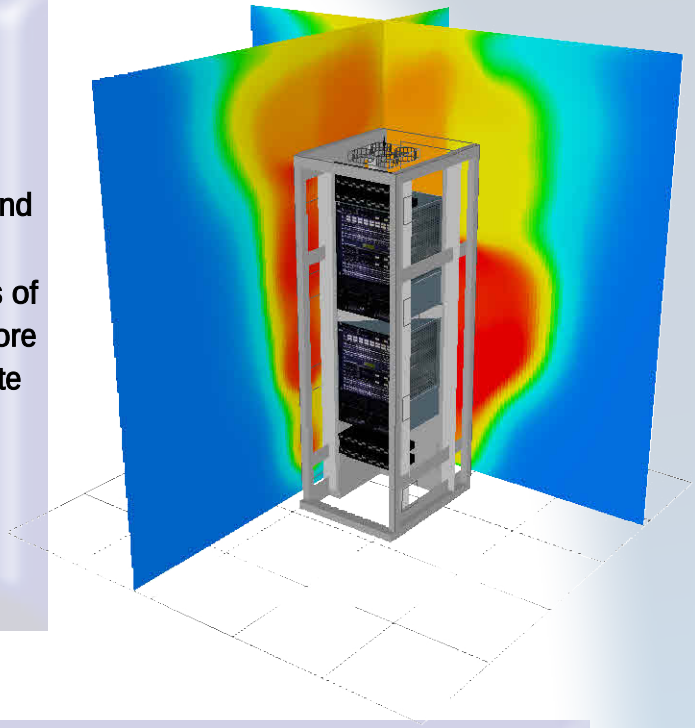
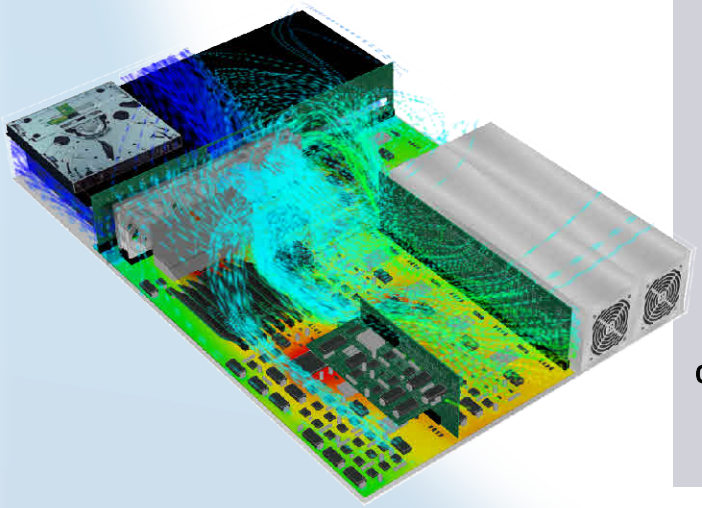
Data Center Design with 6SigmaRack & 6SigmaET

The cabinet in focus

6SigmaRack provides the tools to create and investigate each individual cabinet and its contents in detail. The thermal characteristics of any cabinet can be fully analysed and therefore optimised, and the resulting models integrate seamlessly with the Virtual Facility in 6SigmaRoom.



Equipment in detail



6SigmaET, a new product from *future facilities*, closes the communications divide between IT equipment manufacturers and data center owner/operators.

IT equipment manufacturers can now design internal cooling methods right down to chip level,using detailed, scientifically accurate simulation software. The resulting equipment models are compatible with 6SigmaRack and 6SigmaRoom.

Every detail of IT equipment cooling designs can now be developed and investigated using 6SigmaDC CFD and thermal analysis tools, providing visual results as well as hard data.

6SigmaET - Developing the future facilities methodology to provide even greater control of the data centre.

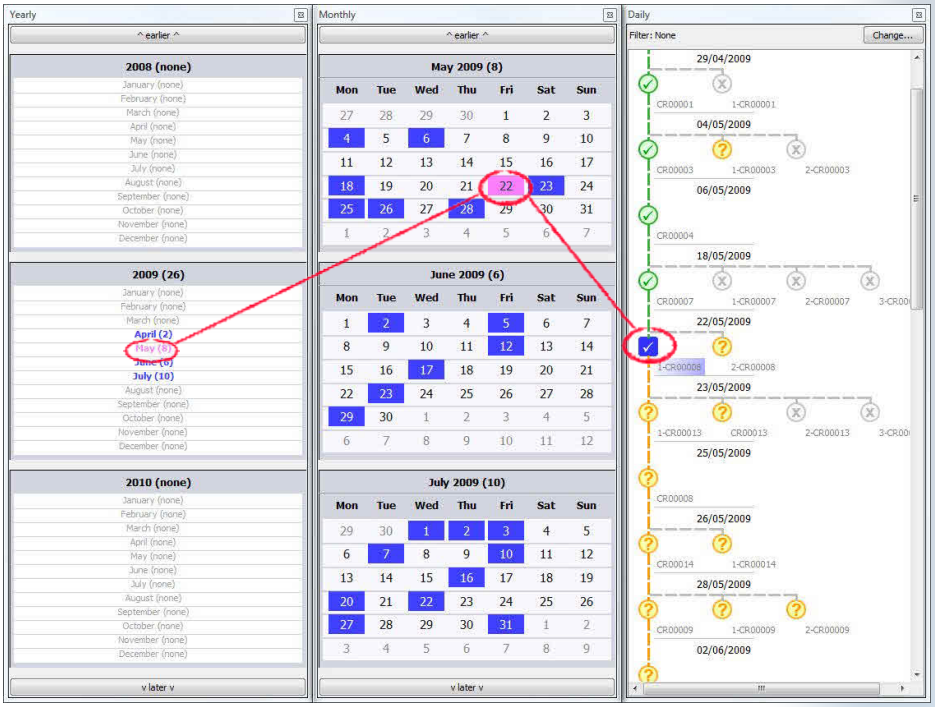
Introducing the Virtual Facility

Data Center Management

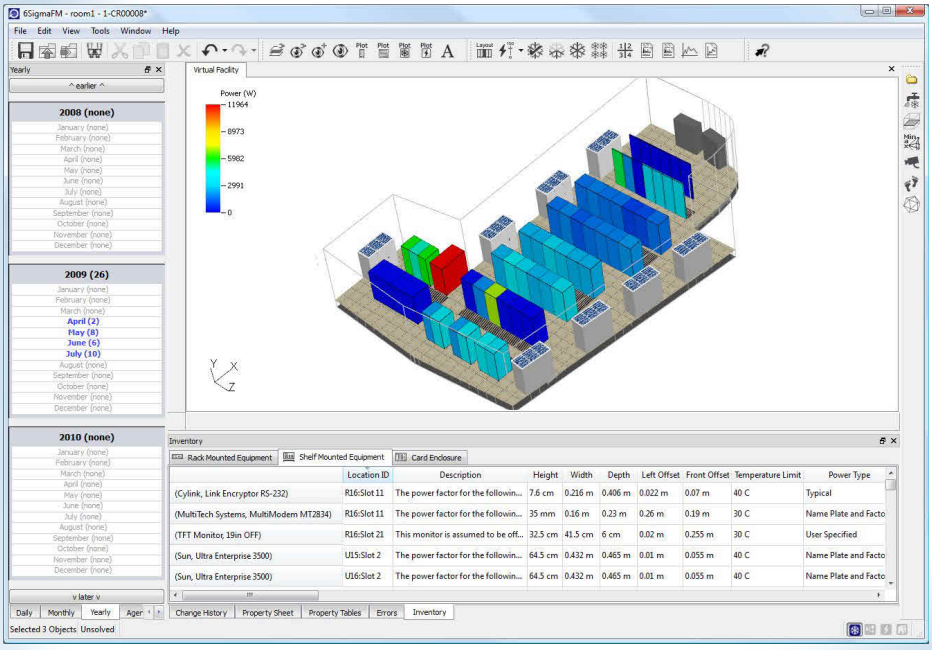
with future facilities 6SigmaFM

6SigmaFM presents the information in the Virtual Facility from a management perspective, allowing data centre changes (or iterations) and their results to be tracked through time - past, present and future.

The 6SigmaFM user interface provides the user with a number of extra views which show the progress of the Virtual Facility at each design iteration. The development process can be viewed in a 'tree' format, showing a critical path of successful VF iterations, as well as other related designs. This critical path (shown in the daily view, far right) reflects the lifeline and progress of the Virtual Facility and the data center it represents.



Despite the focus on overall management, 6SigmaFM still facilitates full investigation of the room, and allows planning changes to the VF at a room and cabinet level.



Load capacity planning is easily managed; changes to equipment configurations can be scheduled, tested and developed prior to deployment.

The user can react to highlighted problems by dragging and dropping equipment, and viewing pictorial representations of the resulting thermal changes.

6SigmaFM makes it easy to evaluate, track and schedule different states of the Virtual Facility. As a result, the owner/operator has increased control over the data centre development process, and can manage with a greater deal of precision and efficiency.

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Data Center Operation -

future facilities site surveys

At the design stage, services are provided by the team of *future facilities* consultant engineers, who will undertake surveying, data collection and modelling in order to ensure your personal VF matches your requirements as accurately as possible.

Once a data center is in operation, the smaller details within it will vary over time. For example, poor tile cuts, relocated floor grilles, and miscellaneous obstructions in the raised floor occur often, but are rarely documented. Therefore the Virtual and physical facilities are likely to gradually diverge.

In order to rectify this, the *future facilities* specialist consultants will carry out site surveys at set intervals, and verify the room against the Virtual Facility. This ensures the continued accuracy of the data on which future design decisions will be made.

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The future facilities 6SigmaDC software suite

6SigmaRoom and 6SigmaRack clearly represent the physical data centre and the thermal impact of change within it, therefore enabling predictions to be made regarding equipment temperatures. 6SigmaET allows the same level of design and investigation for IT equipment, and 6SigmaFM provides the means to manage any changes an owner/operator may make.

As well as 6SigmaRoom, 6SigmaRack, 6SigmaET and 6SigmaFM, other modules in the 6SigmaDC software suite also serve to aid and improve data center performance and management. These modules provide tools to gather and examine the maximum amount of information about the data center environment, and use it to optimise the physical and Virtual Facility.

6SigmaITM - Primarily for IT managers, 6SigmaITM allows monitoring of all rooms being managed with 6SigmaFM.

6SigmaDatAq - Acquire measured data from your facility and integrate it with your Virtual Facility. 6SigmaDatAq allows the programming of sensors, graphical display of results, and integration of measured data with objects in the VF.

6SigmaViewer - Communicate your designs and results effectively using 6SigmaViewer. The data centre space created with the 6SigmaDC suite can be viewed and investigated fully with an easy to use graphical user interface.

6SigmaCAD - Use CAD drawings to aid creation of your Virtual Facility. 6SigmaCAD, compatible with AutoCAD, allows the import of drawings into 6SigmaRoom and 6SigmaFM as 'virtual tracing images'. The Virtual Facility can also be exported to provide the basis of a CAD model.

6SigmaPower - Monitor, predict and examine power requirements, and calculate efficiencies with the 6SigmaPower plug-in.

6SigmaWeight - Use this plug-in module with your 6SigmaRoom model to monitor cabinet weight limits, and assess the load that your raised floor can carry.

6SigmaSolver - The brains behind the operation, 6SigmaSolver is an integral part of the 6SigmaDC suite. Advanced CFD analysis is employed to allow prediction and investigation of airflows and temperatures within the data center.

The *future facilities* 6SigmaDC software acts as a powerful communication tool between facility manager, IT manager, and business teams. The Virtual Facility makes the operations of a data centre intuitive and clear to anyone involved.

For more information on future facilities' comprehensive package of software and services, contact us:

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