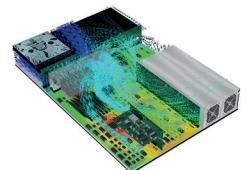
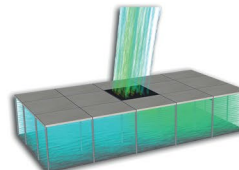
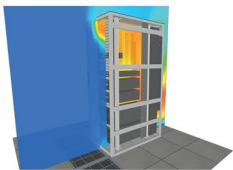
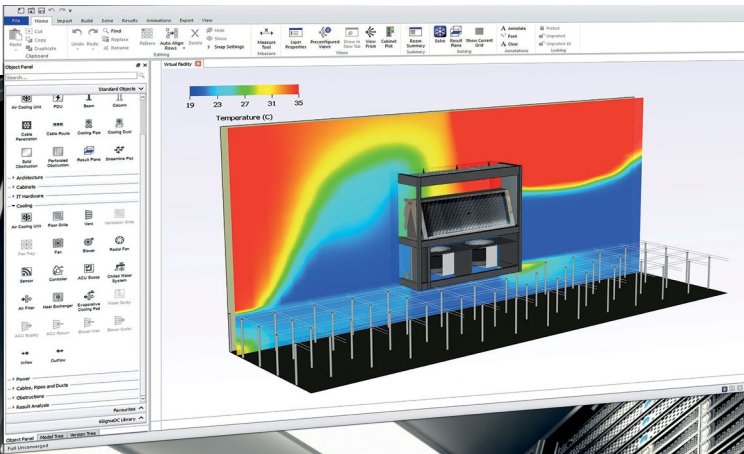


The VIRTUAL FACILITY for Vendors



**Powerful
predictive
simulation for
data center
hardware vendors**

From grilles to complex air cooling units, the Virtual Facility (VF) is designed to give the hardware vendor a competitive edge that is unmatched in the data center supply chain. Whether you are developing new designs and techniques and want to keep time and cost to market to a minimum, or demonstrating to a prospect why your hardware is best for them, the VF offers the science, simplicity, ease of use, and accuracy you need to make it happen.

Designing IT Equipment

How would you go about designing a server that can work in the harshest of environments but still deliver the same throughput, while being as efficient as possible?

Power densities, outflow demand and footprint are all being squeezed, but the time for over-engineering is over. Through knowing the true boundary conditions, an opportunity exists to address and solve thermal issues during the architectural phase of the project; the time when changes are easier and less expensive to make.

The powerful tools of the Virtual Facility allow you to model IT equipment by leveraging existing CAD files and utilizing a large number of intelligent parts - such as components, heat sinks, fans, PCBs, thermoelectric coolers, heat exchangers and heat pipes - when necessary.

The advantage of all products built on the same architecture is that now you can now evaluate the performance of a server in a rack that will eventually be deployed in the data center. This is truly starting with the “end in mind.”

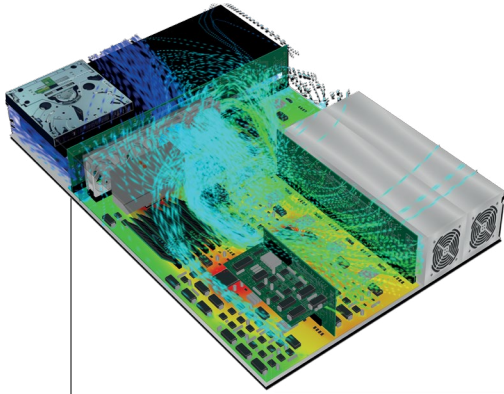
Cabinets

Creating the latest cabinet technology? Dealing with housing and cooling the latest network switch for a customer? Modeling your hardware is the easiest and most risk-free way to minimize physical prototyping in the lab. It also allows you to quickly and easily demonstrate your solution, reduce costs and provide influential sales support.

Minimizing internal recirculation of hot air inside the cabinet is key to providing the “best-in-class” product to your client. Visualizing internal cabinet airflow is most effectively achieved using powerful modeling tools, and today the industry-leading tool is our Virtual Facility. The VF makes smoke testing physical prototypes a thing of the past!

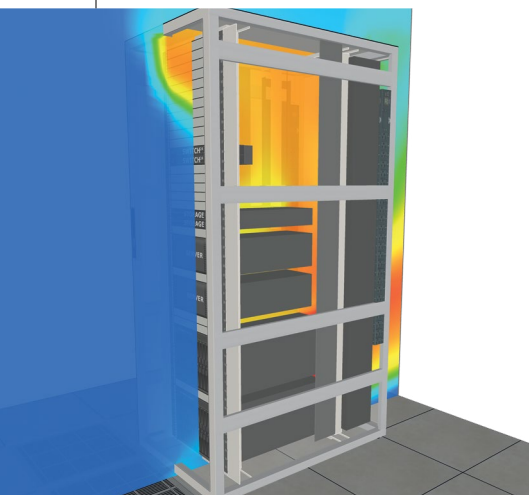
Integrating with 3D CAD tools allows for the quick and easy import of detailed designs directly into the VF – a streamlined process that frees you to spend your time analyzing cabinet performance from an airflow and temperature standpoint.

Additionally, you can model different designs by incorporating chimneys, ducts, heat exchangers and fan trays that can provide the necessary edge required in product design and sales situations.



The design power and scalability of the VF means that you can use it to design electronics whose thermal properties require the strictest of control. Here, streamlines and color coding show the designer the temperature and airflow on and around a PCB.

The possibility for misbehaving airflow in cabinets and racks once demanded significant physical prototyping to detect and correct. Today, as seen here, the VF makes light work of identifying problems and validating fixes.



Floor Grilles & Diffusers

Because floor grilles or diffusers direct air from cooling units to the cabinets where IT is installed, they are critical components in the data center.

How do you optimize the design of the grille or diffuser today? Physical prototyping can be expensive and time consuming. But how else can you study hole sizes, shapes, patterns, damper openings, or anything that affects the overall pressure drop and exit air velocity pattern? Furthermore, how do you empower your sales team with up-to-date product information or, better yet, provide them with a way to show the performance of the floor grille or the ceiling diffuser in a customer environment?

Airflow modeling in the VF offers you a solution to all of the above. The VF's test chamber not only lets you model the grille in various configurations and then analyze its performance, but also allows you to do so within a digital facsimile of your customers' environments. In short, the VF cuts down design time while reducing the duration of the sales cycle: shorter design and sales cycles generate additional profit.

Modeling of Cooling Units

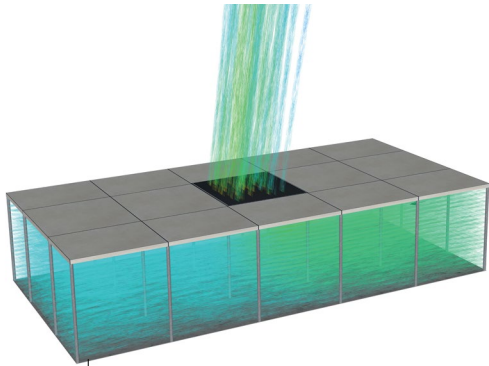
With most DCs pushing the envelope for efficiency, the design performance of important cooling technologies is a major consideration for owner-operators. As a provider of these technologies, you can leverage the VF's modeling tools both in design and in product sales.

During design, you can virtually design customized Air Cooling Units (ACUs), ranging from the standard in-room floor-mounted units, to large walk-in rooftop units that incorporate direct or indirect cooling strategies.

The VF's flexibility enables you to harness the utility of 3D CAD shapes – import them quickly, then incorporate the objects (heat exchangers, filters, fans and piping, etc.) to represent a fully functioning cooling unit.

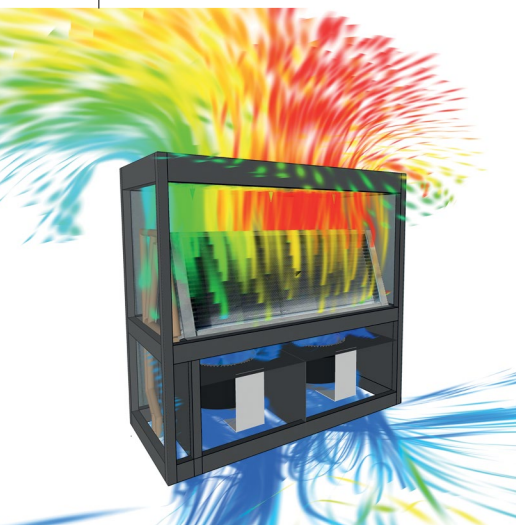
The sophisticated model enables you to then run the “what-if” scenarios required to optimize the unit's performance. This includes control strategies from pressure and/or temperature control.

The VF empowers your sales team to demonstrate the products and enhancements that make you stand out from the crowd. Use the library models of production or development products to demonstrate their performance in the customer's environment.

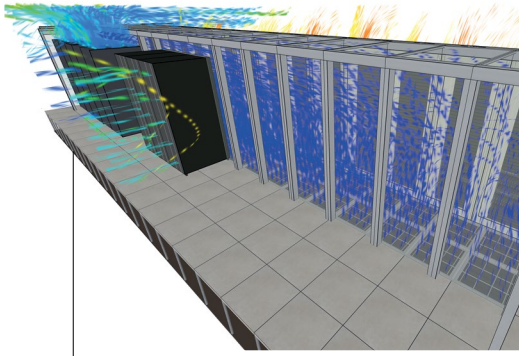


Floor grilles allow cooling air to escape the subfloor and enter the IT equipment. Their simplicity belies the fiendish impact they can have on a data center's performance... but with the VF at hand, taming them will present few challenges.

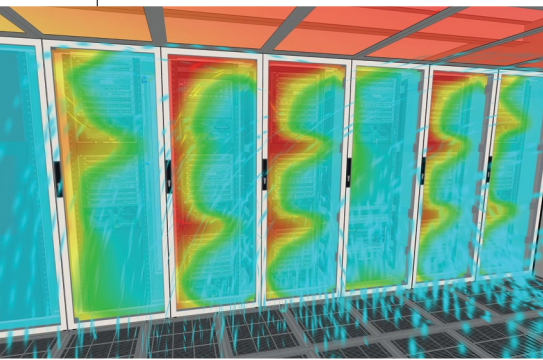
The performance of air cooling technologies can be established quickly and with great cost efficiency in the VF. It allows you to experiment in a virtual sandbox that will keep your costs to market to an absolute minimum. Here, the impact of varying return air temperatures on the heat exchanger performance is investigated.



Containment Solutions



The VF delivers richly textured models that are suitable for presentation to customers and the specialist media. In these images, you can see 6SigmaDCX's containment modeling capabilities.



It is quite well known that incredible efficiency gains can be made when the cold supply airflow and the hot equipment air exhaust are kept separate. However, data center environments are dynamic places in which it is next-to-impossible to test different containment configurations and layouts. Nearly impossible, that is, if you don't have the VF.

By utilizing modeling, you avoid building expensive prototypes. Instead, you test various configurations in a virtual test chamber or in a virtual representation of your customer's environment. Either way, you can set yourself apart by providing your customer with valuable insight into the performance of your containment technology. Once again, the VF provides you with an edge over your competitors.

Benefits of the Virtual Facility

- Reduce time to market and design time
- Develop products economically – don't over engineer
- Leverage existing CAD data and quickly build intelligent models
- Increase sales while simultaneously shortening the sales cycle
- Give customers a reliable window into the future – show them how your equipment will perform in their environment
- Evaluate your equipment in a limitless array of environments and configurations, including those of your customers

Getting Started

Please contact Future Facilities for a software demonstration or a trial license. We'd be happy to get you set up and using the VF yourself.

6SigmaDCX Suite - Product Solutions



6SigmaET



6SigmaRoom^{Lite}



6SigmaRack



Designed for data center owner-operators from the ground up, and refined over a decade to deliver the ease-of-use, speed, reliability and functionality that you want, the 6SigmaDCX suite of tools powers the incredible Virtual Facility.