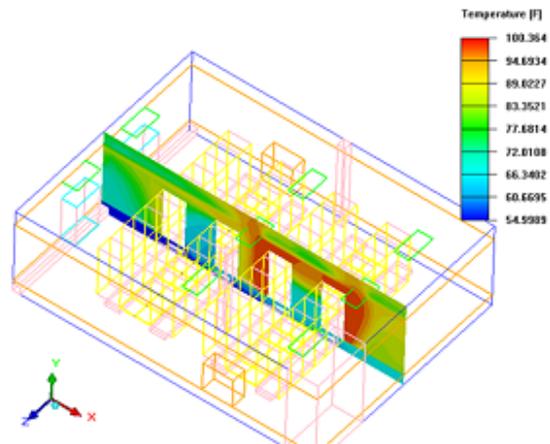


## Reducing Data Center Cooling Costs through CFD simulation

### Introduction

Legacy data centers and their cooling systems have traditionally been designed with an average power density per square foot in mind. In reality, data center loading can vary by rack and row depending on IT equipment and utilization, and this means varying levels of airflow and cooling can be required in different areas of a data center. Therefore an understanding of the airflow within a data center is vital.

ANSYS CFD solution provides companies with a detailed 3-D analysis of how cold air is moving through a data center, identifying potential “hot spots” where equipment is receiving too little airflow. Thermal mapping can also help identify areas that are receiving more cold air than needed. After all cold air does cost money. Retrofits or careful placement of CRAC (Computer Room Air Conditioner) or CRAH (Computer Room Air Handler) units can also be identified. Mechanical failures (eg fans breaking, cooling systems going offline) which inevitably happens can be simulated to see how they affect your facility.



Plane cut temperature contour of a data center using ANSYS

### Objectives

This workshop aims to demonstrate data center thermal management simulation capability using ANSYS CFD solutions. We will present the simulation workflow from geometry creation all the way to result post-processing, and also a case study of a fully operating data center and scenario where CRAC fails momentarily. Attendees will also get to work on sample models for better grasp on the concept and workflow.

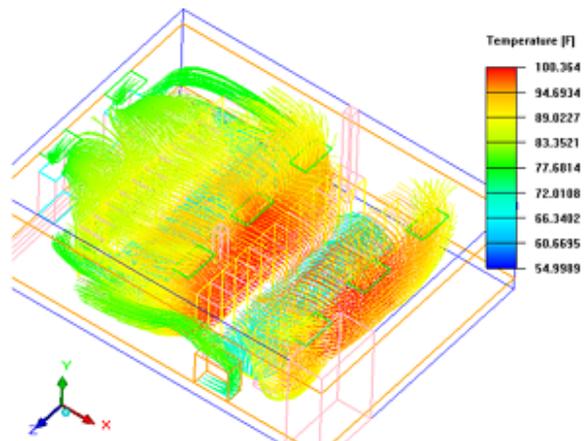
### Benefits

This workshop offers you a chance to see how CFD simulation can help you:-

- Conduct unlimited “what-if” analysis that you wouldn’t try on site.
- Better manage resources to reduce data centre operation and maintenance costs in the most efficient way possible.

### Who Should Attend

Engineers, Managers involved in data center thermal management.



Particle track of airflow in a data center using ANSYS

## What customers say about our solutions

"Without ANSYS, we would go in blind designing new reactors or making modifications to existing equipment. The **confidence level** that we get from using simulation **is very high**. We generally understand **the preferred direction to pursue**, rather than going in all possible directions."

**Matteo Fumagalli, Innovation Engineer, MEMC**

"In developing a **revolutionary** fan concept, the Dyson team **investigated 200 different design iterations** using simulation, which was 10 times the number that would have been possible had physical prototyping been the primary design tool."

**Richard Mason, Research Design and Development Manager, Dyson**

"All our customers want answers to their questions really fast. And it's implicit that they want accurate answers. There are plenty of tools around that give you an answer very quickly, but it's more difficult to find a tool that is **both accurate and quick at the same time**. That's ANSYS."

**Jonas Persson, Technical Manager, ST-Ericsson**

"ANSYS Icepak provides a **quick, accurate and reliable** tool for the thermal management design and analysis of our products."

**Dr Matteo Fabbri, Scientist, Corporate Research ABB Switzerland Ltd**

## Presenter Profile



Dr Lee Yong Jiun is a Technical Applications Engineer with CAD-IT. Graduating from National University of Singapore with a PhD in Mechanical Engineering, his Research Focus was on Thermal management in Electronics, primarily using ANSYS solutions. Yong Jiun was with the Institute of Microelectronics and served as Project Leader to design, fabricate and characterize package level thermal management solution. He has also worked for INTEL Technology as Assembly Technology Development Engineer, where his primary responsibility of the job was to develop a robust flip chip assembly process for Intel next generation chipsets.

## Event Information

**Date** : 31st July 2015 (Friday)  
**Time** : 9:00 am - 12:00 noon  
**Venue** : CAD-IT Consultants (Asia) Pte Ltd  
159 Sin Ming Road, #03-05 Amtech Building, Singapore 575625 ([view map](#))

**Register NOW**

- Register online for this event.
- CAD-IT Consultants reserves the right to cancel or postpone the event due to unforeseen circumstances.

**For enquiries, please call 6508-7575 or email at [caditevents@cadit.com.sg](mailto:caditevents@cadit.com.sg)**

## About CAD-IT Consultants

Founded in 1991, CAD-IT is a leading global ISO 9001:2008 certified Product Life Cycle Management (PLM), manufacturing and education provider. CAD-IT's mission is to provide world-class solutions and services that enable companies and their supply chains to achieve greater product innovation, quality and productivity with drastically reduced time-to-market and costs.

CAD-IT is honored to have received over 80 international and national awards since its inception for marketing and service excellence. Among its most recent accolades are the Singapore Enterprise 50 Award (2014, 2013, 2012), Singapore SME 1000 (2014, 2013, 2012, 2011), Asia Pacific Entrepreneur Award (APEA) - Outstanding Entrepreneur Award (2012, 2010, 2009), the Singapore Prestige Brand Award SPBA - Established Brand Award (2012, 2011, 2010, 2009), SPBA - Regional Brand Award 2012 and SPBA - Hall of Fame 2012.

CAD-IT Consultants' suite of PLM solutions include ANSYS (System-level, Multiphysics Simulation), Goldfire Innovator (Innovation Process Management), Moldflow (Plastics CAE), Stampack (Sheet Metal Forming), Deform (Bulk Metal Forming CAE), SpaceClaim (3D Direct Modeler), Mentor Graphics Valor DFM (Design For Manufacturing), Valor MSS (Complete Manufacturing Execution Suite) and Cortona3D (3D Technical Documentation).

Since February 2010, CAD-IT has partnered the Singapore Workforce Development Agency (WDA) to offer Advanced Certificate courses in PLM and Engineering Simulation, under the Workforce Skills Qualifications (WSQ) framework, with the charter to upgrade the technological capabilities of organizations in Singapore so as to enable them to undertake high value-add design,

engineering, manufacturing and R&D activities.



**CAD-IT Consultants (Asia) Pte Ltd**

HQ: 159 Sin Ming Road #03-05 Amtech Building Singapore 575625

Tel: (65) 6508 7575

Fax: (65) 6454 3766

Email: [sales@cadit.com.sg](mailto:sales@cadit.com.sg)

[www.cadit.com.sg](http://www.cadit.com.sg)

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