

**A flexible, modular and adaptable
containment for heterogeneous IT
environment**



Patent & Registered Design for ODC : FR 09/55844

Migrate a 45 000 Sq feet of traditional building to a Total Air Free Cooling

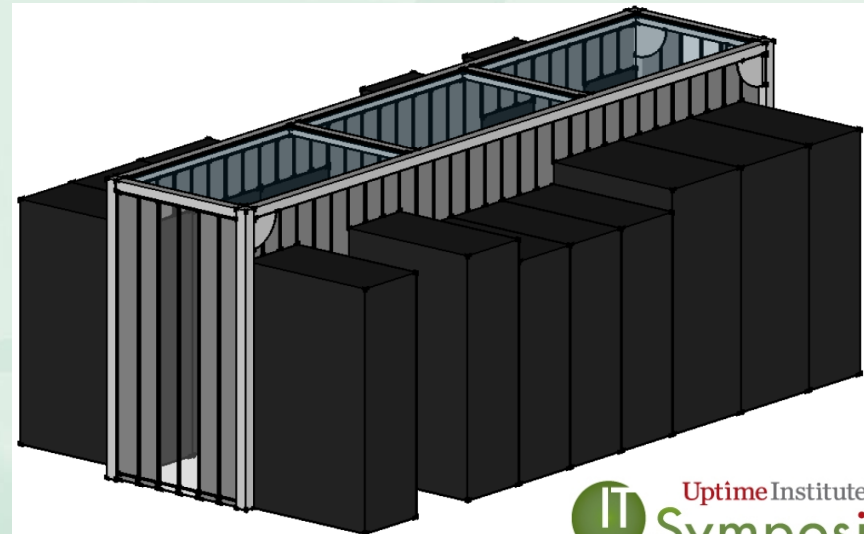
Context :

- ❑ building built in 1974
- ❑ Currently Cooled by traditional mechanical and ACU systems
- ❑ Fully equipped with heterogeneous IT systems

Step 1: Implement closed cold corridors while keeping the IT production up and running

Step 2 : Complement current mechanical Cooling system with a Total Air Roof top systems

Thus, a containment solution has been studied and deployed on rows made of heterogeneous racks and IT systems, without any constraints towards the racks and the IT systems in place, without risks during the installation (and removal), with a very quick financial return.



Many technical challenges

- ☐ Had to be installed in a very dense IT environment (means no room)
- ☐ Had to be installed in a critical IT production environment
- ☐ Had to cover rows exceeding 27 Feet without any mechanical support
- ☐ Had to fulfill fire resistance requirements with non flammable materials
- ☐ Had to have minimum impact in gas extinguishing systems
- ☐ Had to be compatible with sprinkler system for FM approval
- ☐ Had not to modify the current lighting
- ☐ Had to give access to the many above cable raceway
- ☐ Had to easily and quickly reconfigure has IT systems moves in and out
- ☐ Had to be less expansive than classic stiff solutions to improve R.O.I.

Design for simplicity and a risk free installation



Custom made materials totally fire resistant, easy to cut, to set up, remove and replace.

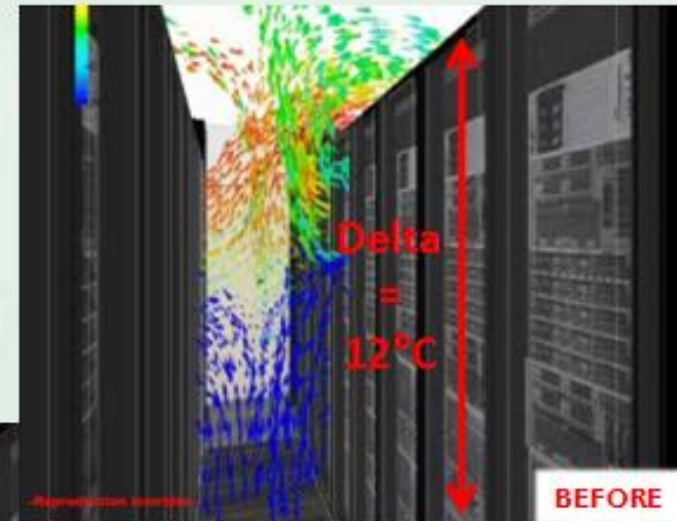
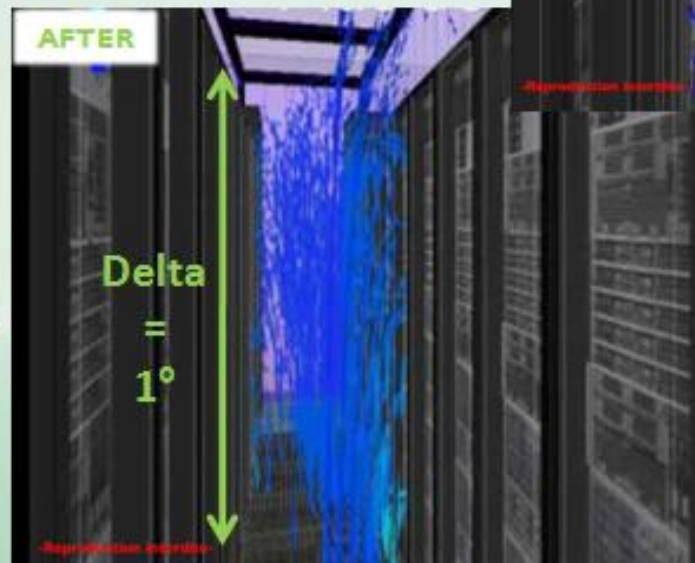
Has to be locally customized but with no dust, no drilling, etc. in the IT room



Special tools and a secure assembly process performed by a dedicated trained team



For a fast installation and significant air flow improvements



First installations started July 2009

Adapt to many forms to conform to any specific customer cases ...



Wide cold aisle with 2
rows of racks



Wide cold aisle with a
single row



Mixed cold/hot aisle

Other views ...



A true fast Return on Investment In this real study case

Costs

- Implementation cost for 32 rows = 250.000 € / 335,000 \$
- Implementation for free cooling = 224.000 € / 300,000 \$
- Total investments = 474.000 € / 635,000 \$

Savings

- 323 CO² Tons / Year
- 124 K€ (166,000 \$) / Year power energy
(even with a very cheap electricity cost in France being at 0,05 \$- kW)
- 200 K€ (268,000 \$) / Year Chilled Water System
- **Return On Investment = 18 months**