

Shanghai Tobacco Recovery Data Center Designed as Showcase for Sustainability

Shanghai Tobacco, China's largest manufacturer of tobacco products, set out to build its new disaster recovery data center with one goal in mind— plan for the future. Not only did that mean deploying data storage cabinets that helped reduce power usage through green technologies like CPI Passive Cooling®, it meant avoiding downtime that carries a potential price tag of ¥190 million (\$30 million) a minute.



Known throughout the globe as pioneers of passive cooling, Chatsworth Products (CPI) was called upon by Shanghai Tobacco to help create a data center that balanced green initiatives with the assurance of zero points of failure. Utilizing the TeraFrame® Cabinet System with Vertical Exhaust Duct and CPI Passive Cooling®, CPI met that need through a solution that optimized Shanghai Tobacco's IT infrastructure for the limitations on power availability and equipment demands that may lie ahead.

Finding the Perfect Balance

With an annual revenue of ¥100 billion (\$15.8 billion) and an estimated cost of ¥200 million for every minute of downtime, Shanghai Tobacco's IT infrastructure needs are critical to say the least. Already operating a primary data center and a backup in Beijing, Shanghai Tobacco's needs grew in 2010 to include a disaster recovery center in Shanghai.

Shanghai Tobacco decided early into the process that the highly critical nature of its new data center would be a showcase for sustainability and reliability. Introduced to the project by one of its partners in fiber and cabling technology, CPI was the only company that could support Shanghai Tobacco's cabinet and cable runway needs with a solution that was also the most energy efficient.



From left to right Lu You Wei, Wang Hua and Mr. Zhu Jie.

"Shanghai Tobacco evaluated a lot of different solutions for this data center," said Todd Heany, Area Sales Director-APAC for CPI. "They looked at the offers available and given the energy savings and green aspect, it was a pretty easy choice."

Isolating the Problem

As servers and switches continue to push the thermal envelope, data centers must be prepared for a future of rising heat and energy loads. This is especially important in China, where power availability is a nationwide problem that often results in some factories having to temporarily shut down operations. To reduce energy usage and stay below their rationed limit, more and more data center designers are turning to greener solutions like air isolation and "free cooling."

"The whole world is talking about green solutions," said Mr. Zhu Jie, data center manager for Shanghai Tobacco. "And green solutions are the No. 1 reason we chose CPI."

Because the separation of hot air from cold air is the most effective way for data centers to reduce cooling costs, CPI Passive Cooling Solutions were a

perfect fit for Shanghai Tobacco's green initiative. Using the server cabinet and a Vertical Exhaust Duct to create a one-way path for airflow, this cabinet-level approach to air isolation has allowed many data centers a thermal seal quality of 95 percent and above, and a greater thermal ride-through mass since hot air is exhausted and isolated in the ceiling plenum. This increase in thermal seal not only maximizes cooling efficiency, it decreases the need for additional CRAC units and row-based air conditioners.

Combining a CPI Passive Cooling Solution with the room dimensions and potential power needs, CPI's Technical Support Specialist Michael Zhang used Computational Fluid Dynamics (CFD) modeling to illustrate a solution that was optimized for airflow and energy savings.

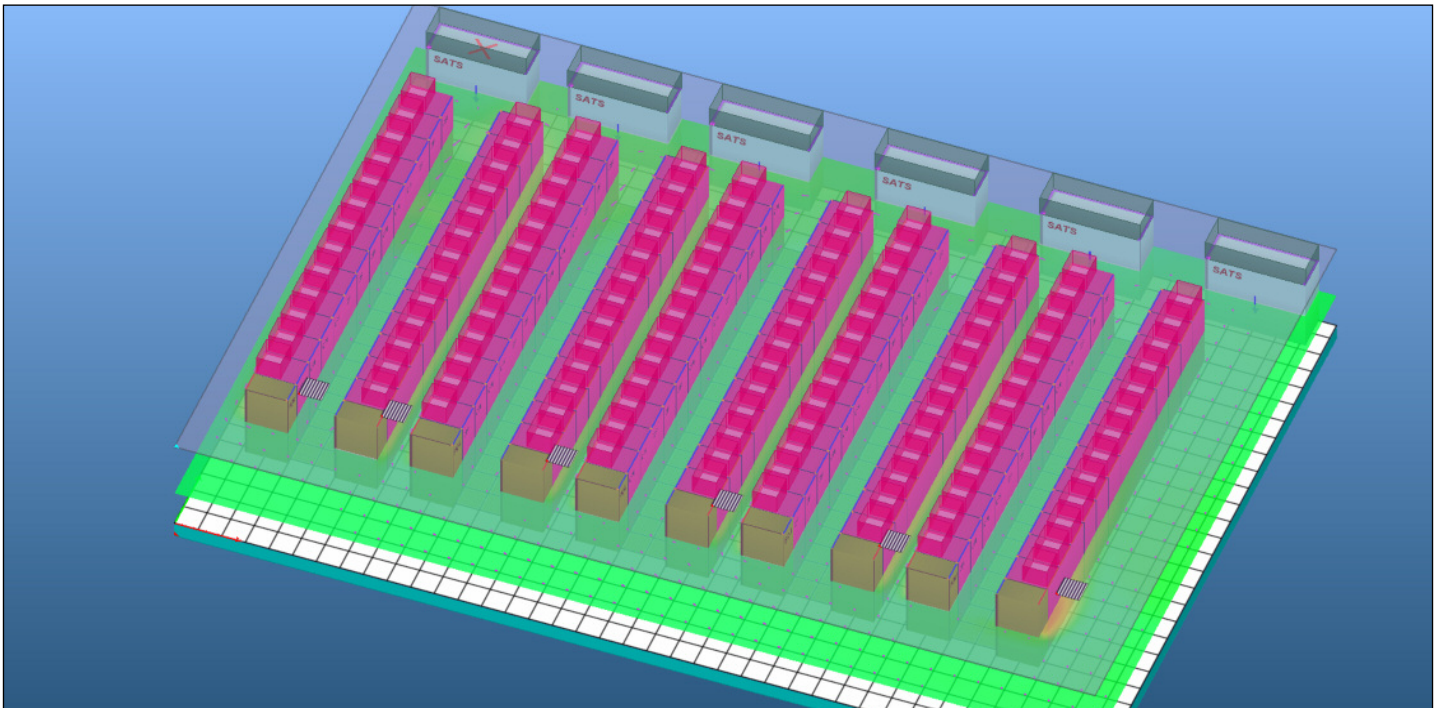
"The CFD modeling we did for them early on was really instrumental in helping them build the data center and lay out the cabinets," said Heany. "Technical support was a big factor in making this project happen."

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Mr. Zhu Jie, Data Center Manager
Shanghai Tobacco

A Sustainable Solution

Shanghai Tobacco's final solution was a 360-square-meter room that deployed CPI Passive Cooling through a hot/cold aisle layout of 78 F-Series TeraFrame Cabinets, each fitted with a Vertical Exhaust Duct. Accomplished without the added energy consumption of exhaust fans in the cabinet, which often work against IT equipment fans, this approach to airflow containment would drastically reduce the amount of power needed by the room's cooling units. Because the CRAC units do not need to cool air that has mixed with heated




CFD modeling for Shanghai Tobacco's disaster recover data center was based on the maximum capacity of the room and available power. By utilizing the TeraFrame Cabinet System with Vertical Exhaust Duct, the Shanghai Tobacco data center would be able to drastically reduce energy usage for cooling equipment and support higher densities.

exhaust air, the chilled water temperatures can be increased to provide more hours of economization under high IT loads. This also resulted in a temperature set point in the data center of approximately 74° F (23° C).

“Although Shanghai Tobacco does not have many cabinets with high heat loads, they dramatically saved their power consumption from day one,” said Zhang. “CPI Passive Cooling allowed them to raise the supply air temperature and the Delta T across the cooling coil.”

Today, Shanghai Tobacco’s cabinet loads are running at approximately 8 kW, but that may not last forever as more and more equipment manufacturers continue to raise the heat threshold. However, by choosing a solution that can save energy today and handle potential heat densities of up to 30 kW in the future, Shanghai Tobacco made a clear statement about its long-term commitment to conservative energy policies.

“They’ve got a data center now that they can use for the next 20 years,” said Heany. “They didn’t plan for their needs today . . . they planned for years from now.” 

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Todd Heany, Area Sales Director, APAC
Chatsworth Products



Shanghai Tobacco, China’s largest manufacturer of tobacco products, designed its disaster recovery data center as a model for efficiency. This need is especially critical in China, where a growing number of companies are having to overcome power availability issues on a daily basis.

About Chatsworth Products

Chatsworth Products (CPI) is a global manufacturer providing voice, data and security products and service solutions that optimize, store and secure technology equipment. CPI Products offer innovation, configurability, quality and value with a breadth of integrated system components, covering virtually all physical layer needs. Unequaled customer service and technical support, as well as a global network of industry-leading distributors, assures customers that CPI is dedicated to delivering products and services designed to meet their needs. Headquartered in the US, CPI operates global offices within the US, Mexico, Canada, China, the Middle East and the United Kingdom. CPI’s manufacturing facilities are located in the US, Asia and Europe. (www.chatsworth.com)

