

CASE STUDY: DATA CENTER

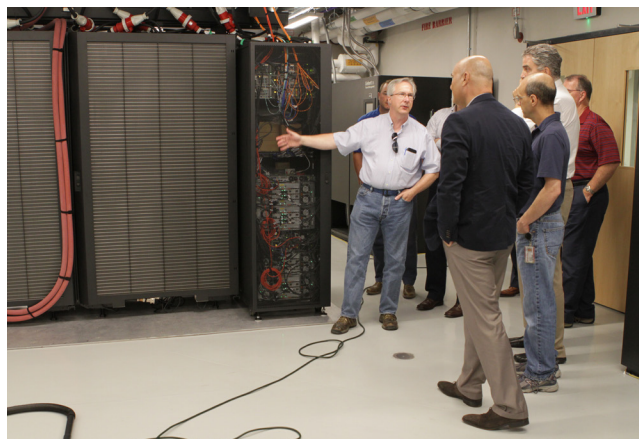
Project Name: Virginia Polytechnic Institute and State University
Location: Blacksburg, VA
Type: Data Center

Founded in 1872, Virginia Polytechnic Institute and State University - "Virginia Tech" has a 2,600-acre main campus in Blacksburg, Virginia and enrolls 28,000 graduate and undergraduate students each year. Steger Hall on campus houses Virginia Tech's Biocomplexity Institute which is home to purely research efforts.

Among the laboratories lies a data center that runs 200+ teraflops, 8600 CPU cores and 45TB RAM of computing power. These servers are cooled by 3 CRAC

units and 9 chilled-doors all which employ Hydromx as the heat transfer fluid to reject the heat from the space. For most of the year, the Hydromx fluid loop is cooled by campus chilled water through a heat exchanger. During the

shut down season for the campus chilled water, the Hydromx fluid loop rejects the heat through a roof mounted dry cooler. Virginia Tech owns and manages the system; and thus, is very involved with the analytics behind optimizing the equipment via their building automation system.

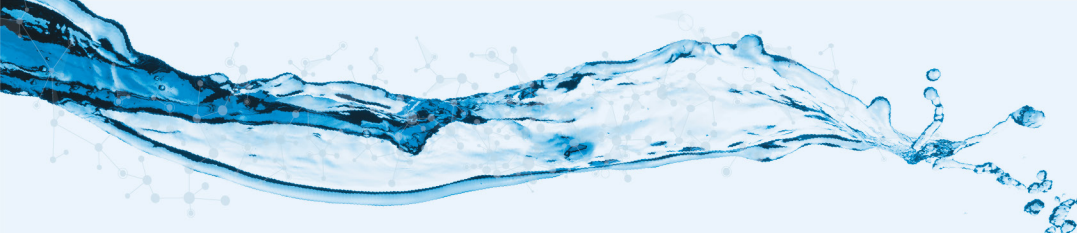


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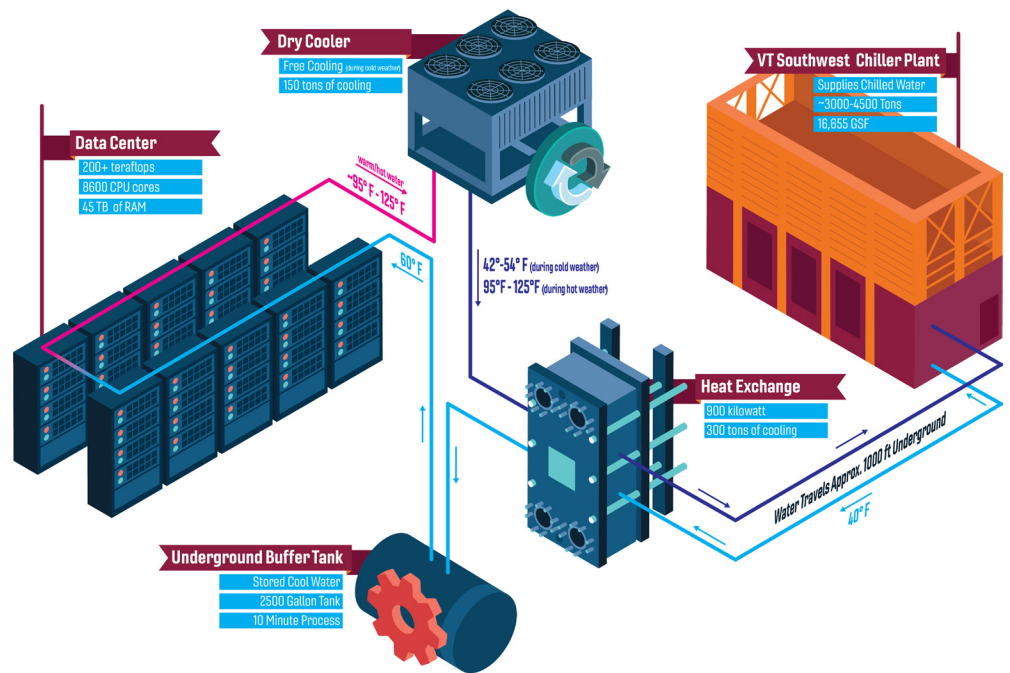
Hydromx's nanotechnology allowed Virginia Tech to come in under budget by allowing them to reuse existing equipment.

Challenge: In 2017, Virginia Tech outgrew their current data center and needed to retrofit a lab space into a data center quickly and within budget. With the need to expand and make the most of the retrofit space, Virginia Tech was challenged to reach a solution that would respond to the added heat load and limited space constraints. After receiving advice from Oak Ridge National Laboratory to use Hydromx, the facility managers selected Hydromx for its efficiency and performance improvement when compared to water and for its glycol freeze protection properties.



Solution: In December 2017, Virginia Tech switched from water to Hydromx for the data center closed loop system. Hydromx’s nanotechnology allowed Virginia Tech to come in under budget by allowing them to reuse existing equipment for the added load.

Results: Virginia Tech’s new data center is a model of progress for efficiency when challenged with high density server loads. Virginia Tech was able to design their new space to handle increased loads, projected growth needs and re-purpose existing cooling equipment for the additional load.



Virginia Tech’s servers are cooled by 3 CRAC units and 9 chilled-doors all which employ Hydromx as the heat transfer fluid to reject the heat from the space.

About Hydromx

Hydromx is a nano-technology heat transfer fluid that saves a significant amount of energy. Hydromx’s propylene glycol outperforms not only other glycols, but it also outperforms water by minimum of 20%.

Hydromx has been proven in multiple installations to save 20-35% energy in heating and cooling systems around the world. The energy savings of the HVAC equipment is thanks to Hydromx’s innovative, nano-thermal-technology that increases its thermal diffusivity (rate at which the fluid absorbs and releases heat) and surface area. Hydromx is 100% safe. It recently received NSF’s incidental food contact “HT-1” category registration. This first installation showed a 25% energy savings and ROI in less than 3 years. Since that time, Hydromx has been used worldwide to save energy in heating and cooling systems.

For more information, visit www.hydromx.com