



Case Study: In Place Upgrade to Support High Density

42U Helps One of California's Largest TV Stations as it Moves to High Density Equipment

Driving Force

To cope with exponentially increasing demands to deliver news and entertainment to the densely populated San Francisco Bay area, one of California's top TV stations and leading news provider turned to 42U for help when it needed to transition its current data center to accommodate high density server equipment. Being one of the nation's most respected broadcasting facilities with a rich history that spans over five decades, the station was faced with upgrading to new high density equipment while maintaining their existing environment.

Discovery Process

After a walk-through of the facility, 42U's team of data center experts identified several cooling challenges within the data center. The existing cooling infrastructure was dated and not designed to support planned densities. Shallow raised floor depth, minimum airflow cabinets, no hot/cold aisle enforcement and low cooling capacity would have proved problematic supporting high density IT gear. Some older equipment was being retired but a significant portion was still in operation. Major structural changes would have been required to implement the cooling capacity necessary using existing perimeter air handler placement. A significant bright spot was the chiller plant which had recently been upgraded, providing more than enough capacity to handle the load from the new IT equipment. The challenge was to get the heat from that to the chiller without disrupting the existing environment.

Project Driver:

- Migrate from older low density equipment to high density equipment without disrupting broadcast activities

Data Center At-a-Glance:

- Sub-optimal layout and airflow management
- Old air handlers
- Shallow floor
- Non-ideal floor tile placement
- Infrastructure designed to support low density

Recommendations:

- Enclose high density servers isolating comfort cooling from equipment cooling
- Consolidate IT equipment to create room for expansion and upgrades

42U Solution

One option was to undertake the construction of additional raised floor space with perimeter cooling. With containment, this solution could have easily supported the near-term density. The down side was, of course, the cost of such a project. Contrary to this traditional approach, 42U chose to isolate the high density equipment from the general room environment by using a totally enclosed cooling solution. By completely enclosing the equipment racks along with the cooling units, no additional heat was introduced into the already taxed perimeter cooling units. In addition, the extremely low noise level of this solution made it possible to locate the equipment in a populated area without disrupting broadcast communications.

42U recommended a Rittal solution allowing loads up to 40kW per 12" wide Liquid Cooling Package (LCP). The combination of LCPs and racks can be adjusted to provide support not only for today's dense loads, but for the future needs of the broadcast industry using easy-to-implement modular upgrades. With a simple browser-based interface, the system can be monitored and adjusted from anywhere the site engineering staff has access to their internal network.

Results:

- Temperature in control room remains conducive for working personnel
- Minimum floor space and high cooling capacity allows for future growth
- Totally enclosed solution minimizes airflow and maximizes chiller plant efficiency resulting in significant savings over perimeter air handlers
- Redundant cooling capacity ensures maximum availability
- All work completed with no interruption to broadcast activities

About 42U:

Whether you are building a new data center or providing for the ever increasing power and cooling demands in a current facility, your project will require a mix of data center specific talent and expertise including: engineering, mechanical and electrical contracting, business analysis, and project management. Since 1995, 42U has been a leader in providing data center solutions. We understand the special requirements of mission critical facilities and will create the most cost effective solution that meets the demanding availability needs of your business.

Contact 42U:

Toll Free: 1-800-638-2638

Headquarters: 1-303-604-0727