AT&T Internet Data Centers (IDCs): Efficient by Design

Meeting a Need
As business continues to go virtual, companies are revisiting their assumptions about how to manage their application and storage environments. Some are recognizing that moving to a utility model for computing services will let them spend more time focusing on the core principles of their own business and less on the infrastructure that supports it. Recognizing this need, a number of technology providers have built out networks of dedicated hosting centers to support managed services delivery, and one of the most sophisticated global platforms is owned and operated by AT&T. It’s a platform that can support tape backup and recovery utilities, server load balancing, content mirroring, off-site data storage, intelligent content distribution and business continuity.

AT&T has been in the commercial hosting business since 2000, and through a program of continuous investment, it has now established a network of 38 Internet Data Centers (IDCs) around the world. AT&T can deliver a “local” experience from New York to Hong Kong, a capability that appeals to companies which are themselves global. AT&T also recognizes that consistency and reliability are the keys to success in the hosting business and has set a very high standard for the design, efficiency and operation of its IDC network.

Performance by Design
The AT&T IDCs have been designed to meet the highest industry standards for a Tier IV data center. The Tier IV standard is only earned by facilities with multiple active power and cooling distribution paths, redundant components and proven fault-tolerance. Tier IV centers can deliver availability of 99.995%. Plus, the AT&T IDCs are supported by experienced network engineers who monitor advanced AT&T systems for routing, filtering and intrusion detection.

AT&T’s engineers represent a large body of accumulated knowledge and are always on the lookout for new efficiencies. They monitor manufacturer specs and industry white papers, participate in industry design groups and work with government standards-setting bodies. They share best practices with each other, with AT&T’s enterprise data centers and with data centers run by business associates.

Variable Frequency Drives
When it comes to efficiency, the use of Variable Frequency Drives (VFDs) is a case in point. VFDs were initially deployed as an energy-saving measure at data centers in Europe, and AT&T was the first company to install them in the US.

In most data centers, air conditioning units are traditionally run at 100% of capacity, so they’re either on or off. VFDs allow the units to be throttled back to lower levels when appropriate. AT&T’s initial pilot tests suggested that VFDs could reduce air handling power requirements by up to 60%. Given that result, VFDs are now being rolled out beyond the test site, and are also being considered for use in other pumping and air handling applications.

The IDCs are efficient by design, from the floor up. Some have sub-metering options for monitoring power flows and component requirements. Others have undertaken Computational Fluid Dynamics (CFD) studies to develop an advanced understanding of cooling efficiency. They use separate hot and cold aisles, with blanking panels on the racks and hoods on the Computer Room Air Conditioning (CRAC) units.

Proof of IDC design efficiency can be seen in their Power Usage Efficiency (PUE) metrics. PUE is calculated as the Total Facility Power divided by the IT Equipment Power. It’s a measure of how much power is used by the facility, in relation to the power used by the computing hardware. The UpTime Institute target PUE is 2.0 and the UpTime member average is 2.5. The IDCs outperform both these measures, with an average PUE of only 1.8.

In terms of building automation, the IDCs are state of the art. Some IDCs use motion-sensitive lighting controls; others are controlled by automated time-of-day routines so they are darkened whenever...
possible. Direct Digital Controls are generally used instead of clocks or manual procedures. In terms of customer-managed equipment, IDC engineers array the IDC equipment in the most efficient configurations, especially for cooling. Sub-floor airflow is not disrupted by cables or other obstacles, and strict hot/cold aisles are maintained. Plus, customers benefit from the application of AT&T “remote hands” for patch management and software upgrades.

Efficiency in Operations
AT&T understands that no hosting facility can be better than the people who support and maintain it. With that in mind, every facet of IDC operations is fully documented. Tasks are associated with well-defined roles, and job aids and reference materials are distributed throughout the facility, close to the equipment involved. IDC personnel maintain high levels of performance through regular operational readiness testing, hardware and software certifications, and Disaster Recovery exercises. The entire staff goes through manual fail-over practice sessions at regular intervals, making operational fall-back procedures second nature.

In Conclusion
Data centers will always be energy-intensive facilities; it’s an unavoidable outcome of what they do. The key is to use energy wisely. It makes sense to be as efficient as possible, from a financial as well as an environmental perspective.

With dozens of locations around the world, the IDCs help deliver on AT&T’s world-class promise for performance, control and security. Thanks to these facilities, AT&T can help ensure the continued operation of its clients’ business applications while protecting their critical information resources.

AT&T IDCs get the job done.

For more information contact your AT&T Representative or visit us at www.att.com/business.