

Protect Your IT Facility... *Don't Wait Until It's Too Late!*

Specific Environmental Conditions Threaten Every Data Center... Including Yours!

It seems obvious or unnecessary to explain why IT or facilities managers should monitor critical issues like temperature, power, humidity, flood, smoke, airflow, room entry and more. After all, AVTECH Software (AVTECH) has pioneered some of the most popular environment monitoring solutions available, and has been developing computer room monitoring products since 1988. These primary environment conditions, typically referred to as the "Big 7" (see pie chart), can easily bring any IT facility to a complete stop in minutes if problems arise and go unaddressed. These environmental concerns are hot topics in many leading industry publications and will remain so as computer rooms and data centers continue to change in design, form and function. Because power consumption is rising significantly as IT devices get smaller and more powerful, allowing users to mount more and more hardware into a single rack, this equipment requires significantly more energy to keep cool. Unplanned computer room and rack layout can also place expensive hardware in hazards way. If a problem does arise, it now impacts IT uptime and integrity in just minutes instead of hours or days like before the year 2000. As power costs continue to rise, reducing power use and cost is key to the bottom line.

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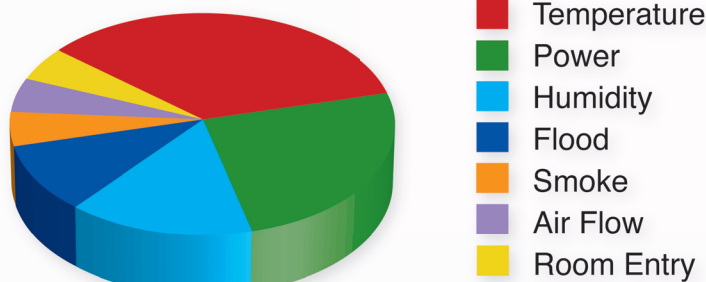
Leading research groups and related vendors estimate that threats from IT environment issues will cost business and industrial organizations somewhere between \$50-\$100 billion next year in downtime and related costs. I know some of you will think that the above seems overstated, especially if you manage a data center with reasonable reliability and have been able to avoid problems in the past. Well perhaps your organization is indeed one of the lucky few that did not experience a problem last year. Hopefully you can dodge the bullet again this year as well. Although why would you take on such risk when solutions are available that cost less per day than a cheap cup of coffee or just pennies an hour (see comparison table on next page).

Last year, 23% of all data centers experienced downtime more than 5 times as a result of IT environment issues and 61% of the remaining data centers experienced downtime 1-4 times. If you're doing the math, that leaves only 16%

of all data centers saying that environment issues did not impact IT uptime or reliability at their facility last year. If you're in that small percentage group, congratulations. However, the danger of statistics shows that you'll likely join the other 84% this year. The key question for you is how often will disaster strike and how much will it cost? No matter what downtime costs for your facility, it's too expensive and impacts more than just money. Perhaps this is a good

- The average data center has 72% of their cooling capacity entirely bypassing computer equipment. *
- Almost every major IT manufacturer you can name (i.e. IBM, HP, Dell, Intel, AMD, Cisco, EMC, Liebert, Emerson, APC, AVTECH, etc.) will tell you to never run your IT equipment in an environment where the temperature is

The 'Big 7' IT Environmental Threat Factors



time to consider implementing a proactive approach to monitoring IT environment issues at your organization.

Recent studies in the area of IT environment concerns and practices have lead *Forester Research*, one of the world's leading independent technology and market research companies, to state that it expects IT environment monitoring to become a \$9 billion industry by next year. According to Forester Research, a reactive approach is not cost effective and incurs too much downtime – *automation is the answer*. The need for this technology is obvious and the benefits become highly apparent to IT managers and staff the first time a problem is experienced.

Consider Some Related Facts:

- Given the average power consumption in a data center, if cooling is lost, temperatures will rise from the industry standard of 68° F to over 85° F in approximately 8.6 minutes.
- For every 18 degree rise in temperature above 68° F, servers lose approximately 50% of their reliability. *
- The power consumption used by the typical data center rose 39% between 1999 and 2005. *

above 85° F. This is the industry agreed 'blue line' where once crossed, you start to damage expensive IT equipment and lower its mean time between failures.

- Human error remains the #1 threat to data center uptime and availability. Primarily, this is because humans react slower and with significantly less consistency than computers.
- Failure of a primary or backup air conditioner is a major threat in any data center. It is the #1 cause of overheating and environment caused downtime.
- Computers simply don't swim.

There are 3 primary functional components managers should expect and demand from an IT environment monitoring solution. These include: **Monitoring, Alerting and Automatic Response**. Just discovering a threatening condition or problem is not enough. Staff and managers need to be notified about issues in real-time by any and all methods that technology allows, regardless of when or where they may be. Then, if appropriate, automatic responses should shut down servers & important hardware, transfer processing, start or stop applications and more within seconds. Anything less is an incomplete solution that will later cost both downtime and money... maybe even the business or your job.

Data centers are each unique in their environment monitoring needs and potential risks. Applying a “one solution fits all” approach obviously is not appropriate. What seems to work best for many managers is an approach of using a combination of different solutions, some larger and some smaller, to meet the current IT monitoring needs that exist within a data center, a facility or throughout an organization. As the data center environment and needs change over time and with the addition of new equipment, managers have the greatest flexibility to move monitoring hardware and sensors around in order to use products most effectively.

One of the most popular environment monitoring products ever is the **Room Alert™ 24E**. This is a 1U 19” rack mount device with built-in and attached sensors to monitor real-time temperature, humidity and power while offering 22 external sensor ports for connecting additional digital or switch sensors. Room Alert 24E is considered one of the most reliable products available and has a list price of just \$655, helping it to offer one of the best overall value ratios in the industry.

Room Alert 24E plugs directly into the network via Ethernet for immediate use and draws only 5V of power via a 110-240V power adapter that works anywhere in the world. International destinations automatically receive the appropriate international power adapter based on the delivery location when an order is received. Room Alert 24E has a built-in web server that displays real-time temperature and humidity, high and low watermarks, sensor status, custom labels and more. Alerts can be sent out directly and automatically from the Room Alert 24E hardware via email, SMS and SNMP.

Although Room Alert 24E does not require any external software for use, AVTECH offers two very powerful software products to monitor Room Alert. A software product bundled with all Room Alert units is AVTECH’s **Device ManageR™**, this application allows users to monitor and manage an unlimited number of Room Alert and/or TemPageR units from a single window of your favorite web browser. It finds AVTECH monitoring devices automatically across your network in seconds, allows firmware updates to one or more units simultaneously, automatically logs all sensor data to an unmodifiable file that meets regulatory concerns and preserve data integrity, allows data export and alerting. Device ManageR also shows live real-time sensor data and status, allows graphing of one or more sensors simultaneously, discovers units across multiple subnets, will ping other devices, will monitor and display unlimited Axis cameras, alert and take automatic corrective actions. Best of all... it’s free with AVTECH’s hardware and covered under the support for the hardware.

If you are not already using this, download it today as it is the easiest and most beneficial way to monitor Room Alert and TemPageR products. Again, it’s free to customers with current support services.

The first year of **Maintenance, Support & Update Service (MSUS)** is also included at no charge and provides unlimited technical support, 3-4 firmware and software updates each year, periodic CD distributions a year, printed documentation and the only 100% guarantee for complete hardware replacement in the industry. No worries though as Room Alert products are reliable and used by over 80% of the Fortune 1000, every branch of the U.S. government and military, 37 of 50 state governments, at the White House and many other locations in over 104 countries worldwide.

“...a reactive approach is not cost effective and incurs too much downtime - automation is the answer.”

Another software product is AVTECH’s **PageR Enterprise™ (PageR™)**. PageR allows unlimited alerting by any method, alert hierarchies, scheduling, dependencies, automatic corrective actions and monitoring of any server, device or event across the network.

PageR provides a single and central interface to monitor and manage an unlimited number of Room Alert and TemPageR

units, as well as competitive products. PageR has the power to monitor any server, device or event worldwide across your network and it does this with “no rules” and “no agents”. If your organization prefers to use another software monitoring package like *Tivoli™, OpenView™, Unicenter™, Nagios™, What’s Up™, Big Brother™* or something else, you can immediately monitor any Room Alert or TemPageR via SNMP traps or queries.

There are multiple vendors offering IT environment monitoring products today although only two vendors offer worldwide distribution and service. These leading vendors are AVTECH and American Power Conversion (APC). APC instantly became a player when they acquired NetBotz several years ago and placed these units into their distribution channel. Regardless of your preference for vendors, be sure to investigate all the differences before you purchase because there is a lot to consider and many features are only apparent after a product is delivered and installed. Look at the up front and long term costs; what sensors are included and which cost extra; how much do additional sensors cost; what alerting options are available; can you log and graph data; how mobile is the hardware; is it easy to setup and use; what support services are provided; is the company website informative and easy to find the answers you need; is there a hardware replacement guarantee; and more. The best solution will meet your unique needs and offer the greatest benefits at the lowest cost, both today and over the long term.

Current AVTECH Monitoring Products - Cost Amortization Table

Product	List Price	DAC Year 1	MSUS Price	DAC Year 2+	HAC Year 2+
TMP3E	\$195	\$0.53	\$35	\$0.09	0.4¢
TMP3ER	\$225	\$0.62	\$35	\$0.09	0.4¢
RA4E	\$325	\$0.89	\$50	\$0.13	0.5¢
RA4ER	\$355	\$0.97	\$50	\$0.13	0.5¢
RA11E	\$455	\$1.24	\$50	\$0.13	0.5¢
RA11ER	\$485	\$1.32	\$50	\$0.13	0.5¢
RA24E	\$655	\$1.79	\$80	\$0.21	0.8¢
RA26WO	\$795	\$2.17	\$80	\$0.21	0.8¢
RA26W	\$995	\$2.72	\$80	\$0.21	0.8¢

Product - The monitoring hardware product code or short name, Signal Towers use RA4E/ER.
List Price - The listed purchase price for a single unit of that model. Multi-unit discounts are available.
DAC Year 1 - The daily amortized cost of the purchase over the first year.
MSUS Price - The single unit renewal price for an extended year of Maintenance Support & Update Service (MSUS). The average price goes down significantly as more units are added to the MSUS service.
DAC Year 2+ - The Daily Amortized Cost of MSUS over the extended year.
HAC Year 2+ - The Hourly Amortized Cost, rounded up, of MSUS over the extended year.

* The Uptime Institute was the data source for these statements and facts.