

TECHTalk

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BUILDING AUTOMATION SYSTEMS & THE DATA CENTER

It's been more than two decades since my career in automation took me into my first data center. At the time, much of the data collection, monitoring and control of the equipment were handled by Critical Facility Staff walking around with clip boards and taking readings and measurements....much has changed.

Today there are as many choices for systems to monitor and control your critical equipment as there are manufacturers of the critical equipment. If you really think about it, the monitoring, control and automation systems ARE critical equipment and the choice of what works best for your particular facility should be taken on with as much careful planning as when you are selecting a UPS manufacturer for your critical load. ***From the outset put non-proprietary, flexible, scalable and modular at the top of your wish list!***

Your perspective will vary greatly depending upon the size of your facility but your goal should be to work toward a single "pane of glass" to see everything in your facility. I've broken this discussion down according to the type of systems I've found in small, medium or large/multi-site facilities. Just because your facility is small now you MUST look to the future.... the headache will only get worse for you or the person that will replace you because you did not plan for the future. Always think BIG or at least BIGGER.

SMALL FACILITIES - SIMPLE MONITORING SYSTEMS:

Let's assume you run a small IT facility embedded in a larger office operation. Further, you don't need any programming and active control. What you need is a simple data collection and display system so you can see issues with temperature and humidity or whatever other metric is important to you. Smaller application specific systems can be fairly inexpensive to deploy and can use a series of wireless sensors to measure environmental. These systems may have issues with integrating to the new generation of UPS and cooling equipment that use protocol communication, so your data collection will be primarily from the field sensors and not have any additional functionality past data collection. Wireless sensors can be less accurate and robust than their wired brethren. They can also have a tendency to be moved by other staff to get a better reading on what might be going on in a particular hot or cold area of the facility.

Since you can't program or actively control, you can't often calculate PUE and change operator views easily. Remote access and remote alarming capability may not be an option so you need to continue to monitor 24 x 7 with your staff. These systems are often proprietary. They don't often scale up well and have difficulty communicating their data back into larger data collection or SCADA systems.

Even the smallest facility should consider future growth. Select a system that allows you the flexibility to add equipment and functionality over time without the up-front investment. If the system you are looking at can't grow with you, it may be a waste of precious capital.

MEDIUM FACILITIES - DISPARATE MONITORING, TRENDING AND ALARMING SYSTEMS:

Now let's assume that you manage something larger than an IT closet. You may have two CRAC units, five or six rows of racks, two PDU's and a 100 kVA UPS coupled with a generator. You've already been through the SIMPLE MONITORING systems and have several of them. You need to "see" all this equipment, trend it, alarm it and allow you and your staff to concentrate on the regular preventative maintenance you need to get done. Let's assume you are in conversations with your IT counterparts and need to accommodate their increasing need for data on your equipment and planning for their information growth

path. Management is pressuring you to run your facility more efficiently (read inexpensively). This could mean fewer hands or more energy efficiency. Either way, five to six separate systems to gather this data is becoming a constant struggle.

This facility may be too small for a full-blown Building Automation System (BAS) but has outgrown the usefulness of several separate application specific data monitoring systems. Money is too tight to be running several systems in parallel. You need to think about system consolidation. Up front cost and disruption is a real concern. Keep in mind growing to the next level. Start your new system with something simple for instance if you are adding a new UPS, get it integrated to the new system and monitoring, add the other equipment over time. Make sure you can add active control of equipment as a feature without scrapping everything you've already done.

LARGE FACILITIES - INTEGRATED SYSTEMS:

At this level you are a Manager of a medium to large facility or perhaps multiple sites. You need power monitoring, PUE measurement and active control of your cooling systems. You monitor your UPS & PDU loads and battery condition. All of this is probably done by separate systems currently and you are dependent upon several vendors to keep these systems in top working condition.

The challenge for this Facility Manager is similar to the medium sized facility manager, just intensified. There's more load, more data, more equipment and more pressure. You need a single "pane of glass" that will let you see everything in your facility and know what's going on. Since you are perhaps even more stretched in terms of personnel than the medium sized facility manager, this integrated system becomes a "must-have".

Start the most problematic of your separate systems and get that migrated over first. Always keep in mind the single "pane of glass" image. Your integrated system needs to be able to speak multiple protocols. You need the ability to be able to create programming to actively control some equipment and monitor only on others. Make sure the system you choose can give you remote access and alarming. Above all, this integrated system should be capable of growing in a modular fashion without a complete overhaul of everything you've done to date. This modularity is the key as to whether or not the system is worth the investment.

CONCLUSION:

The good news is there are plenty of system candidates out there. The bad news is that you have to choose from among them. You want to stay away from anything proprietary that locks you into a sole source contract for future parts, service and system expansions. System migrations of ANY size are difficult enough without making it nearly impossible with a proprietary system that won't work with the rest of your equipment.

As you can tell from the above discussion, I'm not a fan of anything proprietary. I'm also not a fan of anything that can't give the Facility Manager of an IT closet the ability to grow their system to a 10,000+ square foot facility. It doesn't have to break the bank to get these features from the outset, but it does take planning and planning takes time, something in short supply these days. If it isn't non-proprietary, flexible, scalable and modular, don't waste the money. Plan on this being a process that can take more than a year to get the single "pane of glass" that will allow you to concentrate on more important things like running your data center.

That's all for now and always remember, us **SERVICE GUYS** don't care how large or small the job is, we just want to be the call you make!

Regards,
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