

Systems Management

By Garth Tucker

How much time do you spend managing your AS400/iSeries/i5? If you're a small business, it's probably not a lot because they don't require too much interaction once configured properly. However, as we add more and more varied workload to our systems, the system management requirements increase at the same rate or faster in some cases. There are many phrases currently in use within our industry, such as Service Management, Performance Management, Asset Management, Change Management, Problem Management, Operations Management and High Availability that allow simple system management to be eclipsed. Don't be overwhelmed by the buzzwords. It all comes down to running the machine and its environment.



What Constitutes Poor Management?

Poor system management can be a result of not knowing, not caring or procrastination. Budget or lack thereof is not a justifiable reason for poor system management.

Not knowing comes from lack of education which will be resolved by reading this article... Just kidding... It takes time to learn how to manage a system or a group of systems. Make the time. It will result in a better operating environment, happier users and world peace. Okay, so maybe not world peace, but if the iSeries ruled the earth we would never have wars in the office over lost data. There are a lot of sessions at various conferences such as the TUG TEC Conference and COMMON that can help us to learn how to manage our systems more effectively and efficiently. TUG and IBM both offer sessions from time to time that Wende lets us know about and many of them are free. Not to mention the TUG Meeting of Members sessions that you should attend even if you don't feel the topics are suited to you, you never

know what you'll pick up and besides, us geek types need a little social interaction from time to time.

There isn't much that can be done about not caring. Perhaps you should consider a career change if you don't get excited about making your system as reliable and efficient as it can be.

Procrastination is a state of being that can be changed by learning how to manage your time better. There are lots of on-line resources to help you learn how to accomplish everything that you have on your calendar without having to put things off forever. It's all about prioritization and defining tasks. Don't try and boil the ocean, do things a kettle full at a time.

What Constitutes Good Management?

Good systems management is a combination of knowledge, experience, dedication, and teamwork. Just because you're the only iSeries/i5 technical resource in your environment doesn't mean you're all alone. Learn to work with the other platforms and create a harmonious machine room. If you're the ONLY person for all platforms, learn to depend on IBM and your IBM Business Partner to get help with managing your system. They have tools that can help you ensure your system is running as it should.

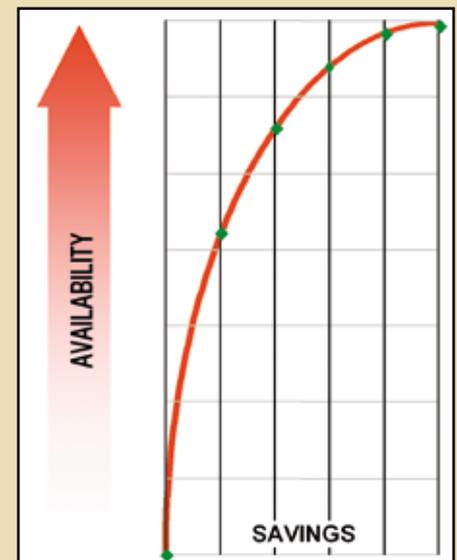
A big part of systems management is automation and how we can lessen our workload and increase the system's workload without negatively affecting the end users. Most automation on systems I deal with is in the form of CL programs written by programmers or system administrators/operators and performs specific functions such as backups, batch processes, etc. These are okay if designed and written correctly, but for the most part don't alleviate all the workload from manual input. i.e. someone still has to check the messages and if something fails overnight we are not made aware of it until the following morning when it's too late.



Systems management doesn't just include the programming however, let's explore some of what management of a system entails.

Software Development & Change Management

Best practices. This term is kicked around a lot by consultants and IT managers as a catch-all term for the things we know we should be doing, but unless stringent management is applied, very few shops do. It can prove to be a moving target. The goal of standards and practices should be to speed up the process, simplify program



Poor system management can cost us significant bottom line dollars, for example a manufacturing company that is unable to ship their products may be faced with financial penalties by their customers. Financial organizations should they be unable to process credit card orders or provide real-time trading to their customers can lose thousands of dollars PER SECOND!!! Companies who have been unfortunate enough to experience these examples in many cases have been able to trace the root cause back to unexpected outages and system downtime.

maintenance and reduce errors. This is accomplished by programming with code reuse and standards as a primary objective. A lot of shops have moved from strictly RPG development into other languages to take advantage of technology or available skill sets, but these ideals can be translated into any coding paradigm.

Change management is a key to managing your code and there are several products available to help keep source secure and production applications from getting knocked over by a cowboy programmer. These tools are only as good as the people who control them however, so make sure you understand what they can do for you and keep a tight reign on your development.

Picking "Best of Breed" software

When we purchase software, we are not just buying a product, we are buying a relationship. What that means is that once we make the investment and implement, we can't change our minds the next year and re-tool with a different product. As IBM develops new OS, we will upgrade our systems. We need to feel secure that our third party software vendor will ensure that their product has been tested and changes made, if required, to work with the new release. If the vendor is new, we may be running the risk of them not being around in a year or two. Keep in mind that this may not necessarily be a show stopper, but

you must pay extra attention to the owner's history and the software's strengths. When purchasing software, I generally start by reading all I can find about the software that meets all of the requirements. Ask around at the TUG Meeting of Members to see if anyone is running the software and their experience with it (that's part of the reason we have a user group).

Hardware and power

Hardware is any piece of equipment that we use to process our data. Have you been managing it correctly by giving it proper care, feeding and regular baths? We need to ensure that our systems are kept up to date with microcode fixes or BIOS fixes. This can help us to avoid nasty downtime from a failed component. Get on the update list from IBM and read about the PTFs that affect your OS and hardware. They are issued weekly and will keep you informed of potential issues.

When the opportunity arises, take a peek inside your system and see if there is dust trapped in the fans or around the disk units. If there is, schedule some down time to clean the dust and accumulation out. Most systems that I install parts in are generally pretty scary if they haven't been opened in a year or two. This can lead to premature fan or power supply failure.

This leads us to our computing environment. How clean and debris free is your machine room? We cannot all afford \$50K investments into our machine room infrastructure, but we can take the time to design or redesign our systems home to ensure that it is free of contaminants, does not have a heavy traffic flow, no food or drink is EVER allowed in and is monitored for heat and humidity. Volumes can be written on building the ultimate machine room, but most of know what needs to be done and with a little research can design or redesign our environments to be safe for our hardware.

Now, let's talk a little about power. Do you clean your power before it hits the box? Are you sure? You tell me you have a UPS and it cleans the power before it gets to the system and who am I to call you a liar. However, have you checked the specs on your UPS to ensure it can handle the fluctuations in power on your grid? If you have, I take my hat off to you as you have displayed the due diligence required to ensure as much risk has been managed as possible. Most of us are not schooled enough in electricity to determine if our source of power is clean or dirty. It's worth the time and money to task your electrical contractor with creating a report that tells us if we're within operating specs. The batteries in our UPS' do not have an infinite lifespan; they have very clearly defined duty cycles that we should respect. One of the easiest ways to ensure our UPS is always in the correct state is to have a maintenance agreement with the manufacturer. For a nominal fee, they will come onsite periodically and give it the "once over" and repair or replace any parts that are below grade.

Security

I have stopped doing security evaluations without a software tool. There are a couple of reasons for this:

1. Security has gotten so complicated that trying to analyze a system can turn into a project of such magnitude that the cost becomes a prohibitive factor.
2. Errors and omissions insurance is not cheap... If I miss something that comes back to burn a client, I am liable financially. Sorry, but I work too hard for my money to give it away.

My preferred (and now only) offering, is SkyView's Risk Assessor – www.skyviewpartners.com. This tool takes all of the guesswork out of security evaluations and does it in less time than I can gather the data using the security tools in OS400/i5 OS. A piece of software doesn't have an off day or get distracted; it catches any and all flaws in your iSeries/i5 security implementation.

Once you go through the remediation of the flaws that Risk Assessor finds, there is an add-on product called Policy Minder that will apprise you of any changes to your security. What more could we ask



How many of us think that our iSeries is secure, hazing a guess I would say that 70% of us believe this to be true. It's been my experience that this attitude is not well founded. In doing security evaluations, I have found that EVERY system I have evaluated has had at least 10 security flaws. Scary isn't it. This is not to say that you should go running for your shotgun to ward off the evil hackers, most of these issues have been related to poor user profile management.

for? These tools will allow us to automate management our systems security which is what we are after to reduce overheads.

Backup and recovery

In short, BRMS is the answer. Backup, Recovery and Media Services from IBM – www-03.ibm.com/servers/eserver/iseries/service/brms/ gives us the tools to create our saves (control groups), manage our media (move policies, media policies and storage locations) and monitor our saves. It creates all the required reports that allow a conscientious system manager to determine if the saves are working as designed. I could go on and on about BRMS (and have in a previous article), but to get the definitive overview of the product, sign up for the TUG TEC conference and attend the sessions by Debbie Saugen from IBM. She's the BRMS guru and will provide you with insights into BRMS straight from the lab.

Performance

To achieve perfect performance on an iSeries is not unattainable. It's a balance of CPU, memory and disk that results in good response times and jobs processing on time. To attain this requires that we work with IBM or our IBM Business Partner to ensure we have properly sized the system and allowed for growth.

To maintain this requires management on our part by monitoring our performance and adjusting as needed. How can we monitor these metrics? There are several tools available to us for keeping an eye on how our system is performing. These include Performance Tools, Management Central and PM400 from IBM – www-03.ibm.com/systems/i/, Performance Navigator from the Midrange Performance Group – www.mpginc.com and QSystem Monitor from CCSS – www.ccssltd.com.

All of these tools provide performance metrics and you need to determine what your requirements are to establish which one will work best for you. i.e. Do you require:

- Real-time online system monitoring that separates environment, application and business monitoring capabilities
- Management reporting that allows you to track data for Service Level Agreements for system, application or business reporting
- Disk analysis and reporting that tracks usage including the IFS
- Accounting reports to use for cross charging
- A report generator to view all of these metrics?

These are all functions that you should look for in your performance reporting software and if they are not included you should consider continuing your search.

How can we remediate our current issues?

Remediation can be defined as a process of correcting a deficiency. The biggest issues associated with remediation are determining what is considered a deficiency. This means that you have to have a service level agreement with the business function and clearly defined targets and objectives for application availability and security. They need to define which key processes need to be available. It is not realistic for an organization to manage information in such a way that employees can't do their jobs, having said that, this leaves every

organization in the position of accepting some risks in order to conduct business in an efficient manner.

No improvements will be achieved without some financial investments, and this requires business management commitment. Like most problems it needs to be solved one step at time. Define the requirements, Audit the current environment, define the gaps, prioritize the most serious gaps and re audit the system. As my good friend Gary says "you can't manage those things that you don't measure". You only make best efforts or emotional judgments. In short I am saying produce the information the business needs in order to make right decisions.

While this article only scratches the surface of managing a complex environment, we hope it gives you some ideas and prompts you to move forward on projects that will allow you to make the most of your system and take full advantage of the AS400/iSeries/i5's tremendous potential and ease the burden of managing your systems. 

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[Garth will be speaking at the next TUG MoM. See page 8 for details.]