Enterprise Job Scheduling: How Your Organization Can Benefit from Automation

By Pat Cameron

Introduction
Today’s companies need automation solutions to attain the high levels of availability, reliability, and productivity required to coordinate complex operations across many different systems. To this end, cross-platform enterprise job schedulers, such as Skybot Scheduler, allow you to better control and automate your job streams, even ones with intricate dependencies. Automation solutions also have the potential to significantly reduce your reliance on manual management of your job flow.
Since the advent of computers, organizations have realized the power of automation. The earliest processes to be automated include voting return analysis, as well as scientific and mathematical calculations. These early automation processes were highly successful. In fact, UNIVAC-1, the world’s second commercial computer, turned heads by using automated voting return analysis to predict the outcome of the 1952 U.S. presidential election, long before any human did. UNIVAC-1’s achievements demonstrated the power of automation, and furthered the innovations of the Harvard Mark I, as well as the Mechanical Turk chess-playing automaton.

Since that time, system automation solutions have only improved and evolved. Over the years, automation solutions have demonstrated that many tasks can be performed with high efficiency and few errors by machines. Realizing this, many companies began focusing on automation. Mainframes such as the IBM 1401 started to replace punch card systems in the 1950s, partially automating the time-keeping process. In the 1960s, IBM introduced the System/360 mainframes and OS/360 operating system, which created additional possibilities for workload automation.

System/360 computers could run batch jobs, however the systems had limited control over sequencing and lacked the ability to create future tasks. Subsequent updates and add-ons, including the Job Entry System 3, expanded the automation functionalities of these pioneering systems. Unfortunately implementation wasn’t consistent from one operating system to the next. This factor heightened the need for dedicated automation solutions that could further streamline operations and reduce manual input across operating systems.

One of the primary achievements of System/360 and OS/360 was the creation of a line of fully compatible computers of differing speeds and capabilities, running the same software, unlike the disparate systems that had been the standard previously. But while a shared operating system simplified system management and better enabled automation, there were still many issues in coordinating the various operating systems, databases, and other software components integral to the enterprise.

Companies often utilized many different systems, and because each component was independent, it had to be manually integrated and controlled by operations staff. To reduce these repetitive, labor-intensive exercises, vendors developed automation solutions that governed backup and recovery, console message management, performance tuning, and job scheduling. These products and services now extend far beyond just the IBM ecosystem, with a presence on most modern platforms.

Use Skybot Scheduler’s dashboard to quickly identify and understand trends in your job schedule, event monitoring, and product setup.
How Companies Benefit From Using an Enterprise Job Scheduler

Ideally, your enterprise job scheduler should be able to do what you are doing now, namely watching the job stream, making sure everything runs in the right order, and notifying someone if a problem arises. You should be able to set up your schedule and not have to worry about it. You should also be confident that if there’s a problem, you’ll be notified so that you can fix it before it gets out of hand.

Many organizations don’t think that they need a job scheduler until they realize that their workday never seems to end. In reality, job scheduling is highly relevant to the day-to-day IT operations of many organizations. Consider the many daily operations of your organization. It is likely that you create a wide range of jobs, including those that:

- Sweep files from employees, such as time sheets
- Trigger processing FTP of files from secure customer facing servers
- Schedule an ERP workflow that orders inventory
- Poll an accounting or inventory file to update sales figures or inventory fulfillment

Whatever your workflow may entail, with the right tools, automating your processes is both practical and beneficial. Creating and managing cross-platform job schedules that automate maintenance and day-to-day tasks will likely lead to noticeable gains over manual operation. Ultimately, a good job scheduler leads to reduced operating costs, along with improvements in productivity, availability, reliability, and performance.

Cost Reduction
With IT budgets continually under pressure, reducing operational costs is key. Job schedulers drive down operational costs by reducing the number of personnel required for particular tasks. At the same time, job scheduling enables enterprises to better utilize infrastructure. For example, most modern servers have a low operating cost and the total cost of ownership has been declining. Still, the cost of operations staff can be as much as 71 percent of the total expense. With a job scheduler, you create the opportunity to get more from these assets while spending less, potentially improving your ROI significantly.

Productivity
Job scheduling software increases throughput by automating the production batch schedule. Time and money are saved by eliminating lag time between jobs and minimizing operator intervention. By not allowing the computer to remain idle while waiting for the operator to release the next task, hours can be trimmed from your process, letting you process more work and use systems more efficiently.

Availability
In a networked environment, centralized control and automation facilitate greater availability. Remote resources can be applied to business issues, while a single operator at a central console observes critical functions throughout the network. Continuous monitoring, with low CPU and communications overhead, makes it easier to spot vital network performance trends.

Reliability
Automated operations ensure that jobs are not forgotten or run out of sequence, that prerequisite jobs are completed successfully, that the input data is correct, and that any and all special processing is performed. With a network encompassing multiple operating systems, integrated LAN processing, and attached PCs, there’s considerable exposure to risk. The best way to mitigate this risk, increase reliability, and coordinate operations is with a job scheduler.

Meeting Objectives
With a job scheduler, enterprises can meet service requirements for throughput and transaction volumes. Automation of key workflows helps IT become a reliable service provider to business teams.
What Problems Does Enterprise Job Scheduling Solve?

Job schedulers give organizations the power to address weaknesses in their workflow, improve service to users, save money, and make better use of personnel. Take a look at the following problems. If they seem familiar, an "enterprise scheduler"—an automation solution for enterprise-grade tasks—may dramatically improve your business.

Problem: Spending Too Much Time Checking Your System

A comprehensive scheduler does more than just schedule a job to run at a specific time on a given day. Many organizations have jobs that are dependent on other jobs being completed, or on files arriving from a separate process, customer, or vendor. If the previous job doesn't finish, or if files aren't refreshed in time, the next step in the process is run with errors and the whole cycle has to be restarted.

To solve this problem, production control staff is often forced to sign in to the system at night to monitor the job stream. It's easier to take this approach than to be surprised in the morning when something hasn't finished, requiring all daytime users to log off and wait until the nightly processes are rerun—a complete waste of company time, money, and energy.

If any of the following items sound familiar, then you could use an enterprise scheduler:

- You log in to your systems every night to make sure that processes are running
- You put in time each weekend to ensure that there aren't any errors in your weekly job streams
- You work overtime at the end of every month to make sure that all processes on your production servers are running at the correct time and in the right order

Problem: Multiple Schedules in the Same Data Center

Every application has its own schedule, and whether your applications are dependent on each other or not, they need to be monitored. Without a proper enterprise scheduler, monitoring has to be performed manually or be handled by a script.

Consider the challenges faced by an operations manager at a hospital. Many key systems, including systems for patient registration, pharmacy, and accounting all come from separate vendors. Each one runs on a different platform and different set of servers, but they all need to interface well with each other so that staff can retrieve patient information, medical records, and billing histories.

Many of the daily processes that run on one system are dependent on workflows and file transfers that occur on others. The hospital is in a situation where it must run multiple schedulers to keep everything in working order. How can the hospital address the issue of multiple schedulers that need to work in tandem? The answer is a cross-platform enterprise scheduler that can build consistent job streams for different systems and interface with a wide range of company applications.

Problem: Using Cron for Scheduling Jobs

When your network was built several years ago, cron may have worked well for scheduling jobs on individual servers. But your company has grown, and you’ve acquired more infrastructure. Now, no one knows what jobs are being scheduled at what times.

Group multiple jobs and schedule them as one process for improved clarity, more operational control, and less maintenance.
For example, there are multiple cron tabs corresponding to all of the users on each server, while at the same time none of the servers really “talk” to each other. This necessitates the use of scripts to handle dependencies. If a command or script fails or gets stuck in a loop, you won’t know until the next morning. You’d like to pass the scheduling responsibilities to a computer operator, but they’re intimidated by the cron scheduling expressions.

If cron no is no longer up to the task of handling your scheduling needs, it may be time to consider an enterprise scheduling solution.

**Implementing an Enterprise Job Scheduler**

Thousands of companies have automated their enterprise schedules. Looking at their projects, you can understand why they were successful, as those companies likely implemented a job scheduler before addressing other automation areas.

Joining these organizations in the automation world can be accomplished in just a few key steps.

**Getting Support from Management**

Automation projects need proper support from management in order to succeed. Develop this support by planning projects carefully and presenting them in the context of how automated enterprise scheduling benefits your company.

Portray the scope of what can be accomplished and include a high-level description to clarify benefits such as increased reliability and availability, higher productivity, and better performance. At this stage, your objective is not to justify the entire project in terms of cost, but to inform management of the overarching need to automate.

Once management understands the need for automation, discuss the cost and benefit details of the specific project. Here, you have three main goals:

1. Officially establish the project in the eyes of management
2. Obtain funding approval
3. Appoint the project leader and team members

With management on board, your focus should turn to the logistics of implementing an enterprise scheduler.

**Implementing a Job Scheduler**

The size and knowledge of your staff, the extent of your enterprise, and the scope of your project dictates the number of personnel needed during implementation; the automation solution you choose can affect these numbers, as well. Sometimes a single person can implement the solution, but for larger organizations, multiple workers may be required.

Use programmers on an as-needed basis throughout the project. For example, you may need application programming to modify jobs for batch submission using Skybot Scheduler.

Designate an operations analyst to configure and oversee the automation software installation. Include the operations administrators responsible for monitoring and maintaining day-to-day tasks during implementation. They can contribute useful information about the daily functions that need to be performed.

Once the initial implementation process is completed, operations administrators usually take over maintenance of automated systems. This entails analyzing operational tasks and finding areas in which to apply automation, plus refining existing procedures.
Choose Skybot Scheduler
There are a wide range of job scheduling solutions available on the market today. Ranging from free to highly expensive; each solution offers benefits and drawbacks. Comparing the available options is important to selecting the solution that best meets your organization's unique needs.

One solution, Skybot Scheduler, offers the feature set of very expensive schedulers, at a much more affordable cost.

With Skybot Scheduler, you can administer the schedules of every server in the enterprise from one place, on a single system. Skybot works seamlessly across operating systems, allowing you to set up event-driven schedules for your particular environment regardless of what operating systems are in place.

Skybot Scheduler installs on a Windows, AIX, or Linux server with a self-contained HTTP server and database. After the initial installation process, simply install agent software for each server to be managed with Skybot Scheduler.

Once everything is connected, your IT staff can easily view and manage the entire job schedule from your web browser. It's that easy. Installation and setup takes a matter of minutes, not weeks, and it opens up enterprise scheduling and workload automation features that help you meet your business requirements, including:

- Creating automatic notifications for critical jobs that tell you if one of them is delayed or fails
- Creating job dependencies in the schedule so that a job won't process until a prerequisite job finishes or a file change occurs
- Documenting your job flow efficiently and automatically
- Importing all of your cron tab files into one schedule
- Auditing any job changes that occur
- Using point-and-click scheduling—no programming skills needed
- Scheduling jobs across multiple systems and apps

You can even run custom jobs and scripts as part of an event-driven schedule across all platforms, so you do not have to worry about keeping tabs on timed jobs.

In short, Skybot Scheduler eliminates all obstacles to efficient automated operations.

Conclusion
Cross-platform job scheduling solutions such as Skybot Scheduler give organizations the tools they need to automate and manage complex job streams. Functions can be handled through event-driven schedules that ultimately boost productivity, free up IT personnel for other tasks, streamline costs and ensure better reliability and availability in networked environments.

Let’s Get Started
While the benefits of automation are clear, determining the right automation software for your organization can be challenging.

Visit www.skybotsoftware.com or call 1 877-506-4768 for more information or to schedule a live product demonstration.