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Automation: Better but not yet automatic

By [Denise Dubie](#), *Network World*, 12/05/05

Automation has come a long way since the days of running batch jobs on mainframes, but given the complexity of today's distributed networks, the technology still has plenty of growing up to do, experts say.

Network managers today can use automation in innovative ways to reduce costs and labor, and to speed problem resolution when performance degrades or failures occur. Systems management heavyweights IBM and HP have been adding automation to their product suites in an effort to entice customers into supporting their utility computing product road maps.

For example, [IBM](#) this week is scheduled to introduce several products within its Tivoli software division designed to lessen the need for manual intervention when monitoring cross-platform systems, applications and service-oriented architectures. The company also plans to ship later this month the second generation of a virtualization package that includes software to automatically provision systems and manage workloads across pools of network, server and storage resources. Separately, [HP](#) is set to release software that automatically collects, correlates and delivers data from multiple systems into one Web-based dashboard for analysis and reporting ([see related story](#)).

The automation push isn't limited to big management vendors. Companies such as Enigmatec, Opsware and Opalis, which recently landed another \$8.5 million in venture funding, promise to bring more intelligence to automation with cross-platform software designed to take the work out of such tasks as provisioning resources and collecting asset information.

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Bill Homa, senior vice president and CIO for Hannaford supermarkets in Scarborough, Maine, uses automation to balance workloads among virtualized server pools and allocate bandwidth to higher-priority traffic on the company's corporate WAN. Homa, who uses products from IBM, Cisco and other vendors, says the process of automating data center operations started some five years ago and significantly eased the more-recent initiative to virtualize servers in two corporate data centers.

"You can't decide you are going to be automated and virtualized tomorrow and have it happen just like that," Homa says. "You need to have a foundation in place, such as an enterprise scheduler, a way to coordinate jobs and a way to move data between systems."

For others, automation is focused on a specific area of data center operations. Lenny Monsour says SunGard's project to automate asset and change management about two years ago enabled the company to become ISO 9001 compliant. SunGard, a provider of software and processing solutions in Durham, N.C., had already been working to document and then align its asset- and change-management processes with the Information Technology Infrastructure Library (ITIL), but by being able to automate the processes with Opsware software, the company also achieved ISO compliance.

"By automating our change-management processes, the demand on our time and resources has dropped significantly," Monsour, product management director at SunGard, says. "But the unexpected benefit was around access controls and security, compliance and data quality. In the past, manually collecting this data, we really couldn't trust its accuracy."

Despite advances in the technology, automation initiatives can stall when tasks require software to understand and act on more than a static set of criteria.

"At this point, there isn't a clear concept of what applications are doing in the production environment so that cannot be represented as a workflow model, which could be incorporated into automation software," Forrester's Garbani says. "In many cases, to really be able to take automated action with application performance requires you to incorporate automation into the entire life cycle of the application."

Garbani points to Microsoft's Dynamic Systems Initiative (DSI) and IBM's Rational software division as two product areas in which vendors could potentially break down the barriers between automating simple tasks and tackling complex data center applications. He explains DSI builds state models within its applications during the development stage. The state models - which can show network managers what an application is doing and set performance expectations - can be incorporated into automation software, he says.

Start-up Zenprise, which markets a Microsoft Exchange management product, incorporated into its software volumes of common scenarios, performance expectations, potential problems and known fixes. Zenprise 1.0 identifies the Exchange infrastructure components, collects critical parameters and monitors them to determine if performance is meeting expectations. The software uses information on Exchange gathered from Microsoft and matches the symptoms it spots in performance against known problems, Garbani says.

Look Ma, no hands!

More companies are reaping the rewards of automation capabilities, but the technology still needs to evolve to reach the nirvana of utility computing. For instance, today:

- Most management software needs network managers to customize known "if, then" scenarios in which to enable the software to take automated action.
- Vendors have yet to build the software with enough intelligence to respond to changing, unknown conditions that occur in data centers.
- Network managers in some cases have to manually update the infrastructure and application components in an inventory within the software to maintain accurate data.
- Business processes need to be sorted to automate tasks across IT silos, such as storage, applications and networks.
- There are still some areas of network management, such as security and troubleshooting, in which automation cannot replace human expertise.

"This type of automation would work well with any packaged application such as SAP, Siebel or Oracle," he says.

But given that most enterprise IT shops have a mix of homegrown proprietary applications and packaged applications that have been customized to run on their systems, pre-packaged automation tools fall short, says George Hamilton, a senior analyst with The Yankee Group.

Today's automation cannot learn on its own how to respond to myriad situations in a data center. The most-advanced tools still require managers to input

their knowledge of the network, its applications and known fixes to known problems, Hamilton says.

"Automation is great to reduce manual labor, but this type of operational automation isn't the same as what IBM and HP are promising. The Holy Grail of these vendors' plans is intelligent software taking action without human intervention," he says. "Automation is hindered by two things: not enough intelligence in the technology and a still skeptical user community."

Robert Green, senior systems programmer at Fidelity Information Services in Little Rock, Ark., uses IBM Tivoli Monitoring software to perform such tasks as system health monitoring, capacity and performance trending, and application monitoring. He uses automated capabilities in the software to take recovery steps, such as restarting processes on a server or clearing files. He admits he hasn't explored all the automation options within the Tivoli software, partly because there isn't a demand from other IT divisions in his company.

"I have to make sure the server support staff is comfortable with the automation I enable the software to take," Green says. "I would automate everything if I could, and they are coming to me more to turn the automation on, but some worry the envelope could be pushed open too soon."