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GET TECHNOLOGY RIGHT

iSeries'

CHANGING COLORS

From legacy-code crunching to autonomic computing, this technological chameleon can match any IT environment



QUICK! DO YOU know which platform can concurrently run multiple operating systems, including multiple Linux and Windows servers; execute your Web services and J2EE strategy; integrate with .Net; and host Web applications and data warehouses with ease?

The answer might be already sitting in the corner of your datacenter, crunching on code. Michael Williams, vice president of information systems at O'Reilly Auto Parts calls it "IBM's best kept secret": iSeries, the chameleon of server platforms, capable of filling nearly any role in the enterprise including running the entire shop.

Yet iSeries remains an oft-misunderstood platform. "IT executives unfamiliar with the platform can't imagine its incomparable reliability and ease of use," Williams says. "One of the most common

misconceptions about the iSeries is that it is limited to only OS/400 and RPG," which may stem from the iSeries' AS/400 and System 3X legacy roots.

In the past, IBM's AS/400 models provided a solid and reliable mechanism for supporting core business applications, such as those written using RPG, Cobol, and PL/I. The iSeries supports these same core business functions, but adds integrated access to evolving technologies including open source software, Web services, and advanced clustering.

BY MAGGIE BIGGS ILLUSTRATION BY BEN BARBANTE

‘One of the most common misconceptions about the iSeries is that it is limited to only OS/400 and RPG.’

— Michael Williams, O'Reilly Auto Parts

Thanks to its adaptable structure, it's now possible for iSeries to act in one or more of three platform roles: front-end server, to support Web-based graphical user interfaces; middle-tier platform, to execute business logic; and back-end system, to easily manage large data sets.

If you still think of that big black box in the corner as just a platform to execute legacy code, there's a lot you're missing. Knowing a bit more about iSeries' abilities can yield significant cost-savings while deploying advanced technologies.

One to Many

Implementing a consolidated server strategy on the iSeries doesn't change server administration tasks, such as applying security patches or managing user accounts. But it will help enterprises save a significant amount of time and money by better managing hardware and infrastructure tasks, such as performing server upgrades and centralizing backup and recovery measures. Combining multiple servers in a single footprint reduces expenditures, regardless of whether the iSeries is running Windows, Linux, or OS/400.

“It is not about taking away the various servers, but rather leveraging [iSeries] technology to consolidate and reduce the burden of support, increase reliability, reduce the total cost of ownership, and centralize services such as backup and recovery,” explains Nigel Fortlage, vice president of information technology at GHY International.

A recent IDC study shows considerable savings for shops that consolidated Windows and Linux servers on the iSeries. The study found that customers averaged an ROI of 200 percent or better with the iSeries. In addition, these shops found payback in approximately nine months, a 90 percent reduction in

server downtime, and a 22 percent increase in IT productivity.

As Amit Dave, senior technical staff member for iSeries at IBM, puts it, “iSeries is the antithesis of the server farm.” Instead of running 100 different Windows servers using Intel hardware, a site might consolidate 100 servers into one iSeries server. The iSeries supports an identical workload and serves the same applications while reducing hardware costs and increasing uptime.

Jim Horio, director of information technology for the Asian Art Museum in San Francisco, believes that “IT executives don't understand that the iSeries can be used to run Windows and Linux.” Horio says his organization replaced Wintel servers with the iSeries

and now uses only one system platform to run Windows and Linux applications, which “gives us the ability to better manage system resources — disk [and] memory — and helps us reduce operating and manpower costs.”

With more than 700,000 iSeries deployed, no two shops will use the platform in exactly the same manner. Whereas some companies may use Perl on the iSeries to cleanse data in preparation for warehousing, others may use it to fulfill the role of front-end, middle-tier, or back-end server, or all of these, in a distributed Web application environment. Customizing a server to your business instead of vice versa allows you to focus on corporate objectives rather than on

Poised for Autonomic Advantage

ISERIES ALREADY HAS some key pieces of IBM's autonomic computing vision under its hood, including several self-configuring, self-healing, self-protecting, and self-optimizing technologies.

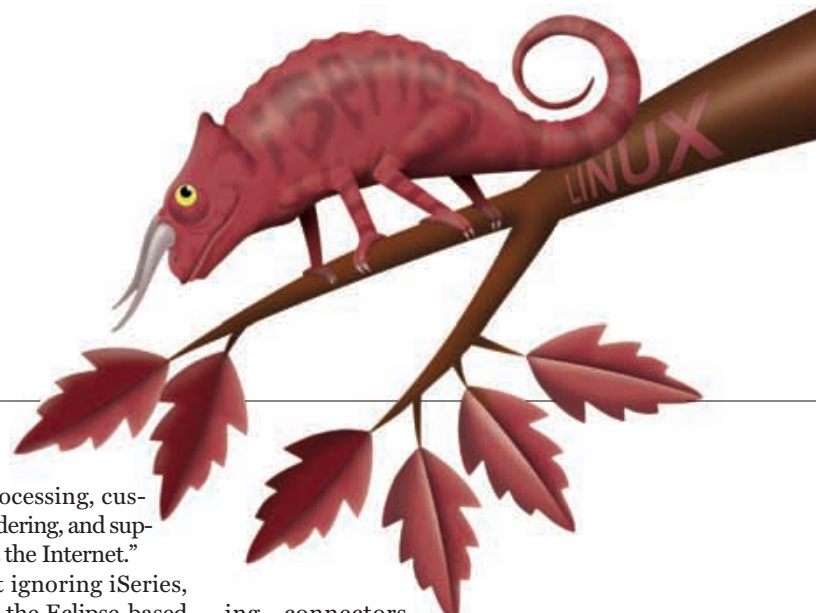
Autonomic computing builds support into systems so a platform can manage itself, reducing administrative requirements. Fully implemented autonomic functionality may still be in the works for many platforms, but iSeries users get some autonomic benefits right away.

Self-configuring technologies allow a server to define itself dynamically based on events, time, or workload. One of iSeries' most visible self-configuring features is its capacity-on-demand capability. For example, an iSeries shop might specify that a certain amount of system resources — such as CPUs — be made available

during times of typical processing. When servers experience peak usage, additional server resources are activated on the fly to process the heavier workload. When completed, additional server resources are moved back into reserve.

iSeries' capacity-on-demand can be specified manually or with a scheduler entry. By next year the server will be able to process these on/off capacity demands dynamically.

Self-healing servers contain technologies that allow a failing component to be taken offline for recovery without interrupting business operations. iSeries' processors and memory are dynamically taken offline when errors are detected; remaining resources continue to execute workload while failing parts are replaced. On the software side, iSeries provides



balancing business needs against the technological constraints introduced by other server platforms.

GHY's Fortlage says that his shop runs 11 Linux servers and a Windows server on the iSeries, and moved RPG applications and Lotus Domino there, too. "We also support our Web sites via Apache on the iSeries and use MySQL and PHP as part of our Web services development," he adds. "Finally, we use the iSeries for network-related services, including for DNS, firewall, proxy servers, anti-virus and spam filtering, and Samba print and file services."

Williams uses the iSeries at O'Reilly Auto Parts as "our Internet, intranet, and mail server. And we use Java and WebSphere technologies. We also use the

iSeries for data warehousing, electronic forms processing, customer inquiry and ordering, and supplier transactions via the Internet."

Developers aren't ignoring iSeries, either. They can use the Eclipse-based WDSC (WebSphere Development Studio Client) for iSeries — a superset of WebSphere Studio Application Developer — to work on everything from Web services projects to J2EE apps to legacy maintenance tasks. Web service development tools and private and public registry support allow developers to publish and consume Web services internally or with business partners.

End-users have a number of tools at their disposal in iSeries Access, includ-

ing connectors and plug-ins for accessing applications, executing queries, and linking desktops to the iSeries' built-in file system.

Fortlage notes, "With iSeries Access, we get not only a great connection tool set, but also file transfer and a plug-in to get iSeries data directly into Microsoft Excel, which is very powerful."

Realizing Potential

Its technical flexibility is valuable in today's slashed-budget world, but

threshold notification of soft errors, giving administrators a chance to implement a fix before it becomes a hard error.

iSeries has built-in support for Kerberos authentication for self-protection, and IBM provides built-in SSL and digital certificate support, VPN capabilities, and LDAP services. iSeries' hardware encryption support allows shops to meet security compliance regulations while also speeding encryption operations.

A bevy of built-in self-optimizing capabilities helps shops get the most out of iSeries. For example, the iSeries Performance Advisor monitors performance metrics and provides tuning proposals to increase server run-time efficiency. Available-capacity planning tools analyze performance data with estimations of workload growth. iSeries automatically spreads data across disk storage to better performance while supporting dynamic archival and retrieval of objects based on their usage to improve throughput.

— M.B.

Shades of On-Demand Computing

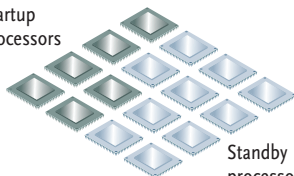
Flexibility gives iSeries a leg up in the quest for demand-based computing. Its dynamic configuration capabilities mean processing power can be delegated based on schedules.

1 On an ordinary day, a set number of processors handles the normal workload.

Ordinary workload

OCTOBER 2003						
SUN	MON	TUE	WED	THUR	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Startup processors



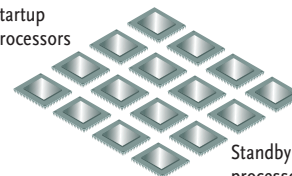
Standby processors

2 The iSeries can be scheduled to activate extra processors for heavier workload times, such as billing updates. After the scheduled time is complete, processor numbers drop back down to normal.

Heavy workload

OCTOBER 2003						
SUN	MON	TUE	WED	THUR	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Startup processors



Standby processors activated



iSeries' reliability and scalability — two traits that defined the AS/400 — remain its foundation. "The reliability and scalability of the iSeries is unsurpassed," Williams says. "We can spend time worrying about business operations instead of our computer systems."

That scalability will play an important role in iSeries' future, too; its architecture contains core autonomic computing capabilities that give the iSeries a leg up with IBM's on-demand computing strategy (see "Poised for Autonomic Advantage," page 2). Early next year, IBM will add two more key features: the capability of running AIX in LPARs (logical partitions) on the iSeries and more dynamic allocation of resources, including memory and processors, across LPARs.

With AIX support, IBM's Dave says, "Customers will be able to take advantage of the ability to execute additional Unix applications on the iSeries." This will also allow users to consolidate additional server resources onto the iSeries, which will then be capable of running Windows, Linux, OS/400, and AIX concurrently.

IBM also provides a Web-based sizing tool called iSeries Workload

Estimator to assist companies with determining how to best structure system resources. The iSeries' LPAR support, in particular, can be useful for segregating workloads and maximizing disk, memory, and processors for each type of workload. Giving each type of application its needed resources speeds processing and maximizes available hardware.

"We've been able to leverage our code investment on the iSeries since the early '90s," says Williams, adding that this has reduced costs compared to other hardware and OS platforms and set O'Reilly up for more cutting-edge plans. "People are now talking about 64-bit architecture on other platforms, and we've been running [64-bit] architecture on the iSeries for several years."

Next year, iSeries LPAR support will enable dynamic movement of system resources, part of IBM's autonomic strategy, based on workloads as they are executing. These dynamic features will bring iSeries from a legacy-code cruncher to a dynamic worker that can quickly rearrange resources based on a constant stream of incoming data.

Although many shops already have iSeries in house and others are considering it, not all of them fully understand everything the platform can do. As the platform evolves to include a greater number of technologies, IBM must balance the changes with the need to inform existing and potential customers of the iSeries' additions.

"The iSeries is like my first Swiss army knife," Fortlage says. "The knife seems kind of odd at first, lots of tools. Some tools you just don't get at first. However, just go camping with that knife and you'll find you cannot live without it. Put an iSeries in to address your business needs, and you'll find it is capable of addressing much more than you first ask of it. Push it to do more and it continues to deliver value and leverage the original investment."

The iSeries' hybrid nature continues to make this platform an attractive solution. Pulling the system out of the corner and into the spotlight allows enterprises to directly tailor the technologies they implement with the business needs at hand. The forthcoming capabilities, including AIX LPARs and dynamic LPAR adjustments, show that the chameleonlike iSeries will continue changing technology colors to match enterprises' evolving demands. ❧



For additional information go to:
<http://www.ibm.com/servers/eserver/iseries>