The saying “all roads lead to Rome” has its origins in Roman antiquity, where roads were essential to the movement of armies and commerce to and from the center of the Roman Empire. In the case of IT today, the saying “all roads lead to data center infrastructure software” is just as applicable. Successful IT organizations understand the importance of constructing an IT roadway built upon a solid foundation. Without those pieces in place, the IT journey becomes quite arduous, and IT organizations find it difficult, if not impossible, to deliver measurable business value.

Data center infrastructure software solutions range from virtualization to disaster recovery, from storage management to high availability, from backup and recovery to data retention policies. A strong foundation in these different areas often translates into a difference between success and failure. “There are certain requirements, foundational components, that our research shows IT organizations need to have in place,” says Stanley King, principal at The Alchemy Solutions Group, a global management consulting company. “Data center infrastructure software is a critical pillar in the foundation of an IT organization. For example, an inefficient, silo-based backup solution can consume valuable IT resources—both staff and storage space—needed for developing applications that deliver services to customers, partners, and employees.”

The CIO Digest editorial team had an opportunity to speak with three CIOs—Ignacio Vera of HSBC México, Brad Wyckoff of Meredith Corporation, and Norm Fjeldheim of Qualcomm, Inc.—representing enterprises and IT organizations at the forefront of their respective industries. We spoke to each of them about their infrastructure software journeys, and the ways in which they are leveraging data center infrastructure software to chart an IT strategy that achieves tangible business results.
Charting the path of data center infrastructure software

Various issues will shape data center infrastructure software initiatives over the next several years. Despite the fact that 87 percent of IT budgets are either going down or static, the challenges facing IT organizations are not diminishing and include, though not limited to, space and power constraints, complexity in management, and Green IT pressures. In order to meet these challenges, “IT organizations need to have the right management tools and processes in place,” says Clive Longbottom, service director for business processes facilitation at Quocirca Ltd., a research and analysis company specializing in the business impact of information technology and communications.

However, many organizations are lacking in this area according to a study of data center management practices conducted by Quocirca on behalf of GDCM. The research shows that 28 percent of IT organizations do not know the exact number of servers they have and 22 percent indicated it could take up to a day to find a server that had gone down, with another 20 percent noting it would take longer than a day. And the complexity of the data center is not diminishing, with nearly half of IT organizations reporting 50 percent or more annual server growth. “Data center managers need all of the help they can get managing the complex environments that exist today,” Longbottom explains. “They need to have a clear view of their entire server portfolio, storage, networking gear, uninterruptable power supplies, and available floor space in the data center.”

Data center infrastructure software initiatives today typically revolve around several core solution areas: (1) Green IT, (2) server virtualization, and (3) storage management.

1. Green IT: Growing energy efficiency and savings

Despite a significant amount of attention on Green IT, most IT organizations are still struggling to get their arms around the issue. Quocirca found that 11 percent of data centers will run out of space this year, while another 14 percent have already hit their power supply limit. And an astounding 55 percent of data center decision makers are not even aware of their power consumption costs.

While societal and environmental concerns are important factors behind the push for Green IT, business drivers are the ultimate reason for Green IT adoption. Indeed, a recent survey by IDC of IT organizations found that economic grounds—or the need to reduce operational costs—are the number one reason for Green IT initiatives. In particular, power limitations and diminishing data center space creates a virtual mandate for Green IT.

Wyckoff and his team at Meredith understand this reality very well. Not only is Wyckoff responsible for IT operations but digital photography and print services, too. The move to digital photography four or five years ago, which Wyckoff’s team helped to spearhead, caused storage volumes to spiral upwards.

“We simply outgrew our current data center,” Wyckoff says. “We could not expand our footprint any further; power consumption was beyond what could be delivered into our existing infrastructure.” As a result, the Meredith IT team is in the midst of building out a new data center facility—and Green IT standards are in the forefront. “We are addressing a number of Green IT issues as part of our next-generation data center initiative,” Wyckoff explains. “We’re looking at every opportunity possible to take advantage of Green IT, primarily in the area of resource utilization focused on power and footprint requirements.”

“There is significant intersection between our storage management initiatives based on Symantec technologies and our Green IT efforts,” Wyckoff adds. Some of the areas where the Meredith team sees alignment between Symantec technologies and Green IT include: (1) the ability to manage storage volumes to higher utilization rates using Veritas Storage Foundation, (2) data de-duplication using Veritas NetBackup PureDisk for centralized remote office backup, and (3) single-instance archiving of email data with Symantec Enterprise Vault. Wyckoff’s team has future plans to upgrade from Veritas NetBackup 6.0 to NetBackup 6.5, which will allow them to extend de-duplication across the enterprise storage environment, and to implement email retention policy expiry, which will further reduce email storage volumes.

At HSBC Mexico, Vera is overseeing the launch of a green data center for HSBC’s Latin America region. “We built this data center from the ground up,” Vera explains, “and designed it according to our corporate ‘save the planet’ strategy, with Green IT design features and ultra-low power consumption.”

Vera expects significant power savings to result from the building design alone. To bolster these savings and improve the firm’s environmental responsibility as its data volume continues to grow, the HSBC team is implementing Symantec Enterprise Vault for single-instance archiving of email data. The Symantec solution not only will reduce data center space, but also release resources to be used elsewhere in the data center. As a result, the move to Symantec technologies is paying off both financially and in terms of environmental responsibility.

The Data Center “runneth” Over

Question: When will you run out of data center space?

Source: "Data center asset planning: Regaining control of the data centre," GDCM/Quocirca, March 2008 (p. 301)
Making a Quality Software Infrastructure
IT-Business Alignment at Qualcomm Propels the Business Forward

Norm Fjeldheim has been in IT for more than 21 years at Qualcomm, Inc. Among the company’s first 100 employees, Fjeldheim, who has served as CIO and senior vice president for the past eight years, possesses a unique view afforded to very few IT executives. During his tenure at Qualcomm, Fjeldheim has not only watched, but played an important role in helping a small technology startup grow into a global enterprise, with 12,800 employees and $8.87 billion in FY2007 revenue.

Founded by seven industry visionaries who wanted to build “QUALity COMMunications,” Qualcomm develops and delivers innovative digital wireless communications products and services based on CDMA and other advanced technologies. The initial vision of Qualcomm’s founders is still an important part of the company’s fabric. Indeed, the IT organization, under the leadership of Fjeldheim, is focused on designing, implementing, and managing quality IT solutions that enable each of the different business units to provide customers with products and services that meet their business requirements.

With this in mind, Fjeldheim created an organizational structure for IT that mirrors the larger organizational structure of Qualcomm. “We deliberately decentralized large portions of IT,” Fjeldheim comments. “We wanted the business units to have more involvement and ownership in their IT decisions.” Fjeldheim’s team collaborates, as a result, with the business unit leaders when planning new IT initiatives and investments— and it makes sense that the foremost success factor for Fjeldheim and his team is internal customer satisfaction. Hence, discovering new ways to extend the IT budget through cost reduction and avoidance and operational efficiency gains is a critical component to Fjeldheim’s and his team’s drive for customer service.

Managing data growth

An almost mind-boggling number of systems, containing many terabytes of data, are backed up every month at Qualcomm. The rate of data growth is exponential, and managing the growth without throwing additional IT resources at the problem was a challenge. In addition, with varied applications running on a number of server platforms and operating systems, Fjeldheim’s IT infrastructure team, led by Vice President of IT Brian Baker, sought a centralized storage management solution that would increase visibility across the storage environment and thereby help improve storage utilization rates.

Baker’s IT infrastructure team also wanted to consolidate backup-and-restore operations. The company had six different backup solutions, each supporting a different server environment. Some of these were homegrown with no ability to scale, and others required separate license and maintenance agreements.

As a result, with the objective of addressing the above challenges, Baker and his team standardized backup-and-restore operations across all server platforms and operating systems on Veritas NetBackup in 1999 with help from Symantec Consulting Services. They also built upon an existing installation of Veritas Storage Foundation for enhanced storage management. Storage utilization rates rose from 40 percent to 75 percent today, yielding more than $3 million in projected disk savings alone between January 2003 and December 2008. The consolidated backup solution created significant labor efficiency gains, allowing Qualcomm to scale backup volume per administrator from 175 terabytes per month in 2003 to 750 terabytes per month in 2008, translating into incremental labor cost avoidance of more than $1.2 million over the same timeframe.

Clustering for high availability

Faced with increased pressure to keep critical applications running, even in the event of a hardware failure, while reducing the infrastructure cost and staff needed to do so, Baker and his IT infrastructure team designed and implemented an active-active and active-passive clustered architecture used for more than 100 different servers today. The clustered environment, which initially was confined to Sun Solaris-based servers but now includes some Linux-based systems, includes a number of N+1 clusters that range from 2:1 to 8:1 configurations. “In addition to sustaining high availability on critical systems,” Baker remarks, “we are achieving some tangible cost avoidance using the N+1 technology.” Indeed, hardware, software, and maintenance costs alone on the clustered configuration from 2003 to 2008 totals more than $2 million.

Centralizing remote office backup

In late 2007, Baker’s IT infrastructure team tackled the challenges associated with remote office backups and the duplication of data residing on those systems. Specifically, Qualcomm’s various remote offices around the world each had different storage and backup technology solutions, and the local staff had varying degrees of proficiency in managing backups. As a consequence, in addition to one employee from each remote office spending an average of eight hours each week managing backups, five IT infrastructure staff members spent 24 hours per week helping each location to execute their backups.

“Deployment of Veritas NetBackup PureDisk created significant operational efficiencies and tape library cost savings,” Baker says. “Rather than the five IT infrastructure staff and remote office staff managing backups, one remote office staff in each location spends 10 minutes per week conducting backups.” This translates
into approximately $340,000 in annual labor cost savings. And with remote office backups centralized, Baker’s team eliminated the need to maintain tape libraries at non-engineering remote offices. This enabled over $390,000 in tape library savings. Finally, data de-duplication technology in NetBackup PureDisk helped the team to reduce data from the remote offices from eight to two terabytes, generating $300,000 in storage savings over the course of slightly more than one year of deployment.

Creating strategic value
The results produced by Fjeldheim and his team communicate value. When asked to explain the reasons for his 21-year successful tenure at Qualcomm, Fjeldheim’s answer is quite succinct: “Always tell the truth, even when people don’t want to hear it. Being transparent and being completely open about the good, the bad, and the ugly is an excellent way to build relationships, as well as an organization focused on customer service.”

At the end of the day, Fjeldheim likens his role to that of a football head coach. “People and teams are not interchangeable parts. Personalities and skill sets need to be aligned with other parts of the team, and certainly with customers. Getting the right resources and technologies in the right spot is critical, and I really enjoy putting individuals and teams in a position to win.”

Symantec at Qualcomm
> Veritas Storage Foundation
> Veritas Cluster Server
> Veritas NetBackup
> Veritas NetBackup PureDisk
> Symantec Managed Security Services
> Symantec Consulting Services
> Symantec Business Critical Services
> Symantec Education Services

skyrocket, Vera’s team plans two important projects after the data center is open. “We are investigating the data de-duplication features of NetBackup 6.5 as part of a tiered-storage strategy that will be launched in the next few months,” Vera states. Once that strategy is implemented, Vera plans to migrate to a virtualized server environment, which will leave floor space available for growth while reducing hardware requirements and power consumption.

“The rest of the HSBC Group is watching our project very closely,” Vera notes. “After we’ve confirmed its environmental and business benefits, I expect large, regional data centers to be built in other parts of the world based on our specifications and processes.”

For the past four or five years Fjeldheim’s team at Qualcomm has been working on a series of different initiatives that comply with Green IT standards. “Our biggest challenges took place three or four years ago when we started pushing engineering to compute from a thin client back into the data center,” Fjeldheim recalls. “This spiked the demand for data center space through the roof. We went from 10 to 20 watts per square foot to 275 watts. The heat generated by the condensed racks for these systems was enormous, and we had to come up with new ways to design the data center.”

As a result, the Qualcomm team developed an innovative approach to cooling their data center: they duct AC into the bottom of a rack and vent the heat directly out of the data center, pumping it into facility cooling and heating systems to generate their own electricity. The results of this initiative are twofold: the migration to thin clients slashed power consumption, generating as much as $6 million in two-year savings, and the direct vent cooling strategy reduced power consumption, helping to achieve an expected full payback in about one and a half years.

2. Server virtualization: Unlocking the data center
Virtualization is the topic de jour nowadays for IT organizations. Sixty-four percent of IT organizations in the Quocirca study indicated they have implemented or are in the process of implementing server virtualization technologies. However, the state of virtualization maturity remains a work in progress for most IT organizations. “Virtualization is not the ‘silver bullet’ everyone is seeking,” Longbottom quips. “If you just go with point-focused solutions, you may end up in a cul-de-sac and need to reverse out of the route you’ve taken. IT organizations need to understand how the different pieces fit together contextually—servers, operating systems, storage devices, and so on.”

Virtualization for Qualcomm has been a “phenomenal success,” according to Fjeldheim. It started about five years ago as a seed project, which returned significant business value, and it took off from there. “About two-thirds of our [Microsoft] Windows environment is now virtual and about 30 percent of our Linux-based systems,” he says. “Our estimate on just hardware and power savings over the past five years is $20 million—and this doesn’t include data center footprint reductions. Our ratio of servers to administrators went from 75 to 1 to 250 to 1, nearly tripling the number of servers per administrator. And we’re now running thousands of virtual servers on fewer physical servers than we had five years ago!” Based on the results in the Windows and Linux environments, Fjeldheim’s team is now extending virtualization to their UNIX infrastructure using Solaris 10 Containers.

Meredith began migrating to a virtualized server infrastructure...
Having deployed server virtualization?

The Current State of Virtualization

**Question:** Have you deployed server virtualization?

13% No plans

64% Implemented/Implementing

23% Considering


--  

about two years ago. “Physical footprint and power consumption issues were the primary drivers,” Wyckoff says. About two-thirds of the company’s more than 330 Microsoft Windows-based servers are virtual. “If you simply look at footprint dynamics,” notes Wyckoff, “we’ve been able to maximize some of our server capabilities while driving power savings and delivering services faster to our customers.” He goes on to explain that support for VMware Consolidated Backup technology in Veritas NetBackup for VMware and NetBackup PureDisk for VMware is a critical part of the virtualization strategy for Meredith, particularly as operations are migrated over to the new data center environment.

3. **Storage management: Optimizing asset utilization**

Storage systems are bursting at the seams for many IT organizations as a result of the dizzying growth of data volumes. Research by CMP Media Research shows that data volumes for most IT organizations doubles every two years. However, storage utilization rates hover around 40 percent, and data is duplicated by as much as 50 and 500 times for many organizations.5 IT organizations are discovering that storage is cheap but storage management is expensive,” Longbottom states. “Getting hold of all of your storage assets is the starting point. And once an organization has done so, then implementing the right management tools are key.”

Virtualization is for much more than just servers at Qualcomm; it extends to the storage infrastructure as well. And while storage virtualization started at about the same time as the server virtualization efforts, they have progressed faster and further. “We took storage utilization from under 40 percent to over 75 percent,” Fjeldheim reports, “while reducing the cost of managing storage from about $300 per delivered terabyte to $100.” Energy savings alone over the past five years on the improved storage utilization rates comes to about $8 million. At the same time, Fjeldheim and his team have been able to reduce annual storage growth from 100 percent to 50 percent by working with internal customers on storage planning and management strategies.

Seeking to drive storage management efficiencies beyond the data center, the team decided to tackle backups for its remote locations by centralizing backups to disk rather than tape using Veritas NetBackup PureDisk late last year. Now, rather than five IT staff spending 24 hours per week executing remote office backups and one employee at each remote site spending eight hours supporting the backups, one IT employee spends 10 minutes each week overseeing remote backups. Leveraging data deduplication technology, Fjeldheim’s team reduced the size of data backups from eight to two terabytes, equating to an annual storage saving of $180,000.

Centralized storage management is a critical driver for Meredith as well. “The evolution of our storage management environment revolves around the consolidation of tool sets,” Wyckoff explains. “Further maturation of our storage environment leveraging these standard tool sets will be a significant push for us over the next couple years.”

Despite an aging SAN storage infrastructure, the Meredith team maintains storage utilization rates in excess of 60 percent. The business value of doing so adds up quickly when you consider Meredith has more than 460 terabytes of data.

“The combination of Veritas Storage Foundation and NetBackup has allowed us to squeeze as much as possible out of our storage environment,” Wyckoff says.

Like Qualcomm, the Meredith team pinpointed remote office backups as an important issue. Centralized backups for 20 remote offices using NetBackup PureDisk shrank data residing on local tape libraries and drives from more than four and a half terabytes to two terabytes, producing tape and labor savings of nearly $500,000 annually.

Storage management initiatives also extend to the email environment for Meredith. Wanting to streamline the legal discovery process and reduce email storage volume, Wyckoff’s team implemented Symantec Enterprise Vault across the company’s approximately 3,300 Microsoft Exchange seats. The deployment slashed the Exchange data store from two terabytes to a little less than one terabyte through single-instance archiving, generating nearly $110,000 in three-year storage savings.

Storage management is a critical component for HSBC México’s Vera, whose new data center will house data from across the region. “Among the 14 countries we support, we have a little bit of everything,” Vera says, “from Oracle RAC to IBM DB2, from PeopleSoft to Sybase. This diversity made compatibility one of our most important criteria in storage management.”

The new data center will use Veritas Storage Foundation software for data volume and file system management of this very diverse infrastructure. “We have used Storage Foundation for our
Bringing a Region Together

HSBC México CONSOLIDATES Remote, Disparate Systems Under One Roof

Across the street from Mexico’s best-known monument, the Column of Independence on Mexico City’s Paseo de la Reforma, the new corporate headquarters of HSBC México stands as a monument to innovation. Winner of a LEED Gold Award for its environmental design, construction, and operation, the building is flooded with natural light and teeming with an energy befitting a firm that’s comfortable with growth and transition.

Adapting to changing conditions is a part of the DNA of the HSBC Group, going back to 1865 when the Hongkong and Shanghai Banking Company was founded to take advantage of expanding trade between Europe, India, and China. More recently, big changes came to Latin America, when the number of countries served by HSBC increased from 3 to 14 with acquisitions in 2006 and 2007.

Building a new data center

Few were surprised when Mexico took center stage in the effort to integrate and consolidate the data generated across the region. “The team here has always been known for its innovation,” says CIO Ignacio Vera. “Many of the technologies that HSBC has adopted as global standards were first tested in Mexico.”

Vera was appointed CIO of HSBC México in January 2008, after serving in a number of high-profile roles within the HSBC Group. Since joining HSBC in his native Argentina in 1992, Vera has worked in a number of locations in North and South America, Asia, and the Middle East. Most recently, he led the 6,000 professionals at HSBC’s Global Technology Center in India.

“Mexico presents a new and unique challenge for me,” says Vera. “We are one of the largest banks in the HSBC Group, and we have great potential to increase our market share here with the innovative use of technology and continued commitment to customer service. We can grow our business by growing the way we do business.”

Vera arrived just in time to oversee the completion of one of the largest IT projects ever to be undertaken in the HSBC Group—a new Latin America data center in Toluca, the burgeoning high-tech corridor west of Mexico City. It was built from scratch using cutting-edge green design features.

Protecting and managing data

Backup and recovery and storage management functions in the new data center will be centralized on Veritas NetBackup and Storage Foundation software, which are already used for local operations in Mexico. “It was critical for us to have a solution that works across multiple platforms,” Vera says.

“The legacy systems in our 14 countries are very diverse, and I must manage data generated across this infrastructure.” Indeed, almost every operating system, database, and application can be found somewhere in the Latin America region.

Another reason that Vera’s team chose Symantec solutions was their compatibility with two upcoming initiatives at HSBC México: the move to a virtualized server environment, and a tiered storage strategy that may include data deduplication.

Vera’s team also depends on Veritas Cluster Server software for disaster recovery and high availability for their local operations in Mexico, with an active-passive clustering architecture between the primary and secondary data centers.

Making the audit

Vera’s team has also selected Symantec Control Compliance Suite software for the automation of reporting for compliance and security management. “Control Compliance Suite was another technology that began in Mexico,” Vera notes. “While the software was being tested,” he continues, “our auditors requested a detailed report from every member of the HSBC Group. Our team was able to produce the report in an hour, while other group members took as long as two weeks. Needless to say, Control Compliance Suite is now being adopted as a global standard.”

Measuring business value

Overall, Vera expects significant business value resulting from his team’s standardization on Symantec solutions. For local operations, Vera estimates that Storage Foundation saves the firm $300,000 USD per year versus manual storage management—a figure that will increase with the opening of the new data center.

Counting Up

HSBC México

Founded: 1992
Joined HSBC Group: 2002
Branch Offices: 1,359
ATMs: 5,855
Client Base: 7.9 million
Employees: 22,600
Web Site: www.hsbc.com.mx

Ignacio Vera, CIO, HSBC México, S.A.

The tiered storage initiative, partially enabled by NetBackup, is expected to save the company $800,000 USD annually in hardware costs. And Symantec’s Control Compliance Suite has reduced the time and resources required for compliance reporting by about 70 percent.

“The HSBC Group serves the unique local needs of every country it serves, while maintaining a single global brand,” Vera notes. “Such a strategy is only possible with a robust IT infrastructure, and Symantec has been an important partner in the foundation of ‘the world’s local bank’.”

Symantec at HSBC México

> Veritas Storage Foundation for Oracle RAC
> Veritas Storage Foundation for PeopleSoft
> Veritas Storage Foundation HA/DR for Sybase
> Veritas Cluster Server
> Veritas NetBackup
> Symantec Control Compliance Suite

www.hsbc.com.mx
Making the Deadline
IT at Meredith Corporation Instills Passion, Broadcasts Business Value

Founded by Edwin Thomas Meredith, who began publishing Successful Farming in 1902 with a fistful of $20 gold pieces from his grandfather as a nuptial gift, Meredith Corporation is one of the leading media and marketing companies in the United States. The vast portfolio of the company extends from 26 subscription magazines to 12 television stations, from 200 special interest publications to approximately 450 books, from a consumer marketing database with 85 million records to 32 different web sites. And IT plays a critical role in helping to execute all of these different business activities. It also is an important business lever, providing Meredith with the ability to acquire strategic assets and explore new business opportunities.

Measuring the ultimate success of IT is described by CIO Brad Wyckoff as “a fine art of juggling chainsaws.” He explains that “at the end of the day, operational stability is probably our foremost requirement—opportunity and success in everything else begins here. This encompasses everything from day-to-day IT utilities, to M&A activities, to the flexibility to support new initiatives across the many different business units.”

Wyckoff oversees three core components of operations for Meredith: information technology infrastructure, print services, and digital photography. Since his arrival in 2002, he has directed a series of different IT initiatives that have delivered tangible results for Meredith. For example, his team was one of the first companies to deploy Veritas Storage Foundation Cluster File System, used to power the company’s digital asset management system.

Laying the initial foundation
The Meredith IT team has relied upon Veritas Storage Foundation for managing file systems and storage volumes on their UNIX-based systems since the late 1990s. As Microsoft Windows-based servers were introduced to the environment and then Linux-based systems, the complexity, resulting from the heterogeneity of the server architecture and growth in the storage environment, has only expanded.

With the growth and maturation in the data center environment, Wyckoff’s team extended Storage Foundation, including Storage Foundation for Oracle RAC and Storage Foundation for Windows, for centralized and standardized storage management across all server platforms and operating systems. “We are in the process of upgrading to our SAN environment,” Wyckoff notes. “Our focus for the past couple years has been on extending the life of our aging SAN infrastructure, which we acquired five or six years ago, and we have relied heavily on Storage Foundation to help us do so.”

The results are impressive. By centralizing storage management across the entire data center infrastructure, Wyckoff’s team improved server management 25 percent, generating over $300,000 in projected three-year labor productivity improvements. And despite the aging SAN environment, the team has increased storage utilization rates to nearly 60 percent, reclaiming approximately $130,000 in storage over a projected three-year period.

Standardizing backup and restore
Wyckoff discovered a highly decentralized, silo-based backup-and-restore strategy when he arrived at Meredith. Seeking to improve backup success rates, enhance IT staff productivity, and accommodate growing volumes of data, he and his team standardized backup-and-restore operations on Veritas NetBackup. “We had, at minimum, two full-time employees who were dedicated to managing backups for about 150 servers,” Wyckoff remembers. “The number of servers has grown to more than 400 today, and we’ve added a number of Linux-based servers.” However, instead of the two IT staff, one IT staff member spends about 50 percent of his time managing backups, a volume that is approximately 400 percent greater than it was when the NetBackup solution was first deployed.

About two years ago, Wyckoff’s team began moving their Microsoft Windows-based servers to a virtualized infrastructure using VMware in order to minimize power consumption and reduce their data center footprint. “VMware Consolidated Backup technology in NetBackup is a huge benefit to us,” Wyckoff explains. “We were able to move to a virtualized server infrastructure without making changes to our backup-and-restore environment, and we do not worry about overloading the network with backups or having 200 virtual machines contending for disk I/O.”

Centralizing remote office backups
Backup operations for Meredith’s 20 remote offices required significant staff resources and storage. Wanting to reduce...
Where do we go from here?
As the Roman Empire expanded into the far reaches of Africa, northern Europe, and Asia in the second century C.E., it also extended its sophisticated network of roads into those areas. The same will likely be true of the transformation that is taking place in IT today: data center infrastructure software will remain the road from which innovation and advancement occurs. Those with solid foundations will succeed, while those with foundations lacking standardization and the appropriate tool sets will struggle—or even fail.

“We’re at an interesting crossroads with the state of data center infrastructure software,” King notes. “Everything is becoming intertwined, from virtualization and security, to compliance and server management, to storage management and email archiving and e-discovery. Those who have built their IT environments on a robust infrastructure software foundation have a unique advantage to help their businesses to outpace the competition by driving down costs, increasing operational efficiencies, and creating an IT architecture that enables rapid changes in direction.”

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1 “Data centre asset planning: Regaining control of the data centre,” Quocirca, March 2008 (n. 301).
2 Quocirca, “Data centre asset planning.”
3 Quocirca, “Data centre asset planning.”
4 U.S. Green IT Survey,” IDC, October 2007

Symantec at Meredith
- Veritas NetBackup
- Veritas NetBackup PureDisk
- Veritas Storage Foundation
- Veritas Cluster Server
- Symantec Enterprise Vault
- Symantec Consulting Services
- Symantec Essential Support Services
- Symantec Education Services

Meredith published the earliest issues of Successful Farming. For a company with such a rich history, it’s a fitting tie with Symantec to help us achieve some of our strategies around data management and to ensure that the data center design and operations comply with Green IT standards.”

storage costs while improving IT staff productivity, Wyckoff’s team implemented a centralized remote office backup solution using Veritas NetBackup PureDisk late last year. The more than four and a half terabytes of data residing on local tape libraries and tape drives was shrunk to less than two terabytes with PureDisk data deduplication technology.

More importantly, the data no longer resides on the local tape libraries and tape drives, but rather is backed up to a centralized data store using NetBackup once it has been transferred from the remote offices to the central data center environment. Tape and labor savings equate to nearly $500,000 annually. In addition, “the reduction in power consumption and smaller overall data center footprint through centralization of data and deduplication of data directly feeds into our Green IT initiatives,” Wyckoff reports.

Clustering for reliability, business results ensue
To sustain high availability for certain business-critical IT systems and applications, Wyckoff’s team began leveraging Veritas Cluster Server shortly after standardizing backup and restore on NetBackup. Centralized cluster management and downtime avoidance is generating an estimated $350,000 in annual labor and cost savings. “We primarily cluster our applications and systems for the purpose of reliability,” Wyckoff explains. The N+1 clustering capabilities of Veritas Cluster Server provides secondary value to Meredith. In particular, by clustering multiple active nodes to one passive node, Wyckoff’s team is saving approximately $800,000 in server hardware, maintenance, power, cooling, labor, and operating system costs (a total of eight Sun Solaris-based systems).

Getting control of email
Rapid growth of email data volumes, coupled with expanding regulatory compliance, prompted Wyckoff’s team to look for a more efficient means of archiving and searching email. “Prior to the deployment of Symantec Enterprise Vault, we wrote our PST files to tapes, and when we received discovery requests from legal to search these, we had to spend valuable resource time restoring PST files and then searching through them,” Wyckoff notes. “It was a very, very labor-intensive task.”

The team implemented Symantec Enterprise Vault in September 2005, with the help of Symantec Consulting Services, archiving about two terabytes of Microsoft Exchange data and moving it from tier-one storage (EMC CLARiON) to tier-two storage (EMC Centera). “Our Enterprise Vault deployment has given us value in a number of different areas,” Wyckoff explains. First, Microsoft Exchange data was slashed from two terabytes to a little more than one terabyte as a result of single-instance archiving, generating nearly $70,000 in initial savings with ongoing incremental cost avoidance. Second, the IT Help Desk realized a significant decrease in end-user support calls. “Email-related support calls often comprised the majority of all calls fielded by the IT Service Center,” Wyckoff recalls. “We have significantly reduced these inquiries, which has minimized the ‘noise’ going into the IT Service Center.”

Third, the team reallocated one IT staff member tasked with performing manual searches of email archives to fulfill discovery requests. Now, rather than days or even weeks, the legal staff can complete e-discovery searches in a matter of several minutes. Finally, end users no longer need to spend up to 30 minutes each week managing their mailboxes to satisfy email quotas, translating into almost 80,000 hours saved annually or $2 million in labor productivity gains.

Keeping the past alive
Wyckoff’s team is in the midst of building their next-generation data center, which will reside in the building from which Edwin Thomas