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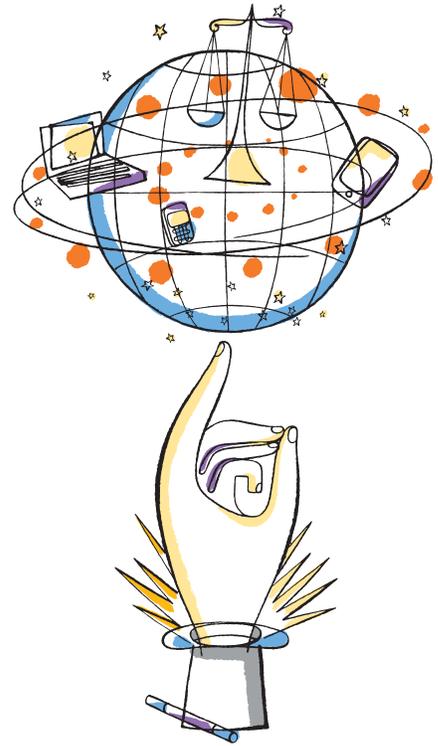
Thomson Reuters Unleashes New Products with a Shared IT Infrastructure Built on NetApp

"NetApp helped us put in place a rock-solid infrastructure that allowed us to dream big… and to deliver a service that is changing the way law firms do business."

Cary Felbab
Vice President, Technology, Thomson Reuters Professional Division

THOMSON REUTERS

KEY HIGHLIGHTS

Industry
Media/business services

The Challenge
Shrink IT spend while building agile, efficient infrastructure to deliver industry-changing legal research solutions.

The Solution
Implement a shared IT infrastructure and cloud foundation on NetApp® for game-changing innovation.

Benefits
- Launch WestlawNext you-centric legal research system
- Enable non-literal searches of 5 billion documents
- Search 50x more data with 2x faster results
- Speed time to market with automated cloud testing
- Deliver 24/7/365 service availability
- Avoid $65M in new data center costs
- Use 25% less power

Customer Profile

Thomson Reuters is the world's leading source of intelligent information for businesses and professionals. The company combines industry expertise with innovative technology to deliver critical information to leading decision makers in the financial, legal, tax and accounting, scientific, healthcare, science, and media markets, powered by the world's most trusted news organization. Headquartered in New York, with major operations in London, England, and Eagan, Minnesota, Thomson Reuters employs some 55,000 people in more than 100 countries and reports revenues of US$13.1 billion (2010). (Source: *www.thomsonreuters.com*)

The Challenge

At Thomson Reuters, it's all about the "Knowledge Effect"—that is, putting the right information into the right hands to help clients produce amazing results. And just what does it take to deliver the Knowledge Effect? Rick King, chief technology officer for the company's Professional Division, says a lot of data and the ability to access it intelligently, quickly, and affordably: "We use a lot of storage—in fact, 16 petabytes of information is stored worldwide. But the data on that storage gains value only when our customers can find what they need, when they need it, and have confidence in the results. So the second half of the equation is sophisticated applications and search tools. To design and deliver those, we require a robust shared IT infrastructure, one that's flexible, scalable, and available to our product developers every day, hour, and minute of the year. NetApp is one of the companies that we've come to rely on for our storage needs and to enable the dynamic IT infrastructure that is vital to game-changing innovation."

Across the organization today, Thomson Reuters uses NetApp storage to support a wide array of business systems and research platforms. The Thomson Reuters shared IT infrastructure and cloud are built

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Chief Technology Officer, Thomson Reuters Professional Division

on NetApp storage, the VMware® vSphere™ virtualization platform, and Cisco® networking switches. This infrastructure provides a scalable and multi-use foundation for Oracle®-based content and metadata systems for Thomson Reuters' Westlaw legal research service that is used by 98% of the largest firms in the United States.

A major enhancement to the Westlaw service was one of the most recent—and "infrastructure-challenging"—projects to leverage the Thomson Reuters and NetApp partnership. King comments, "Our strategy for WestlawNext was to engineer a premium product that would make doing a legal search as easy as doing an Internet search. For that, we needed to store and search even more data, return results faster, and develop a human-centric interface."

The Solution
Scaling out its existing shared IT infrastructure gave Thomson Reuters a jumpstart on the project, enabling rapid deployment of resources to engineering teams developing the WestlawNext back-end search dynamic, as well as front-end applications for enhanced accessibility and usability. "Our infrastructure strategy for WestlawNext required dramatically scaling shared storage," says Mick Atton, vice president and chief architect, Thomson Reuters

Professional Division. "NetApp worked with us throughout the product development process to profile environments, identify capabilities and constraints, and recommend best practices to help us achieve product strategies."

Blair Linville, head, Shared Infrastructure and Operations, Thomson Reuters Professional Division, adds, "NetApp storage gives us tremendous flexibility for scaling and provisioning resources to pursue new ideas. If a concept doesn't pan out, we can just as easily redeploy capacity to support alternative efforts."

Rapid resource deployment, agile software development principles, and automated cloud-based testing contributed to an on-time and on-budget project launch. Cary Felbab, vice president, Technology, Thomson Reuters Professional Division, remarks, "At times it seemed like we were bending the laws of physics to meet project schedules and accelerate time to market. One key to our success was setting up automated scale testing using our private cloud infrastructure—the same one our business users access during the day—to simulate real clients hitting the system from the Internet. Every night we ran multi-thousand-user tests to measure performance. Leveraging cloud-based services let us do more testing faster and with fewer IT resources."

The Thomson Reuters team emphasizes that NetApp storage is an important element in a highly innovative technology stack. Inherent reliability and replication technologies help achieve availability targets and efficiencies from deduplication and compression enable expansion of content sets without requiring budget-crippling upfront capital investments. Shared storage improves both resource utilization and economic viability.

Business Benefits
Functionality indistinguishable from magic
The WestlawNext you-centric legal research system, launched in 2010 and named by the American Association of Law Libraries as its New Product of the Year for 2011, delivers breakthrough research capabilities. Highlights include:

- **Enhanced search**. WestlawNext enables non-literal searches on some 5 billion documents from heterogeneous sources. Advanced search algorithms deliver responses in an average time of 2.5 seconds—twice as fast as product developers' original target—with consistently on-point information, typically within the first 10 documents returned on a search request.

> "With good technology and good collaborators, we're better able to develop premium products and deliver on our promise of the Knowledge Effect. At this level of innovation, it seems an understatement to say we introduce new products. More appropriate would be 'We unleash them.'"

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- **Organization tools**—Clients can easily create and share folders, add notes and highlights to documents, and take advantage of other time-saving features to better organize legal research.

- **Simplicity**. Thomson Reuters experts in artificial intelligence, data mining, machine learning, and natural language processing helped design the simple yet powerful interface. With its human-centric focus and single-box search field, WestlawNext offers a clean, uncluttered dashboard from which to work.

"The original Westlaw was hands down the dominant product in the market," maintains Felbab. "But good companies don't sit still, so with WestlawNext we set out to search 50 times more data and return results twice as fast. We've achieved those objectives and more, solving problems that were not possible to tackle just 5 years ago. And we're making it easier than ever for users to find information. But that simplicity belies the magic going on behind the scenes. For every customer search, the WestlawNext engine does 15 in the background. We're delivering in seconds or minutes what manual research processes could only produce in 2 or 3 hours."

Felbab points out that the Thomson Reuters infrastructure directly contributes to the magic: "NetApp NFS performance and on-the-fly scalability allow us, for example, to search on a significantly larger body of content, as well as to seamlessly handle the unpredictable workloads of a new launch. In just the first year, we scaled to bring on some 6,000 new users, exceeding our first-year adoption forecast by 50%."

Dial-tone availability

"This system has worked flawlessly," states Felbab. "In many cases our clients are working to court deadlines, so they rely on 24/7 access to WestlawNext services. The replication processes NetApp helped us architect enable us to meet or exceed our 99.99% uptime target to deliver dial-tone availability."

Unlike Internet searches, a WestlawNext search must be absolutely accurate. If a system fails, Thomson Reuters can't temporarily substitute older or alternative content. So to ensure complete accuracy, a reliable, redundant infrastructure and NetApp shared storage were deployed that allow Thomson Reuters to quickly repoint a replacement server to content stores in the

event of a server failure. NetApp NFS performance is also essential to being able to rapidly retrieve search indexes if a refresh of cached data is required.

NetApp Snapshot® and the replication software that builds on it—including NetApp SnapRestore® technology—are other tools that are heavily leveraged. These technologies allow Thomson Reuters to quickly—in seconds, not minutes—roll back to a consistent state when needed.

Innovation made affordable

Building WestlawNext on the shared IT infrastructure and cloud has helped Thomson Reuters achieve efficiencies essential to the economic viability of the new service. King highlights savings in:

- **Administration**. By standardizing on server, storage, and other infrastructure technologies, IT staff spends less time becoming experts on a myriad of platforms. Instead, they're able to focus on most effectively applying well-understood functionality to meet technical and business needs.

- **Data center costs**. "The virtualization process has cut 20–25% off our power consumption," states King. "Last year, negative power growth actually allowed us to return significant savings to the company. By eliminating older, inefficient technologies of existing resources via the shared IT infrastructure with NetApp storage, we avoided building a new two-megawatt data center at an estimated cost of $65 million. Most importantly, we're spending our money on expanding the business rather than growing a technology footprint. With a traditional infrastructure, we simply would not have been able to deliver on WestlawNext performance and capacity objectives at an affordable price point."

Will you marry me, WestlawNext?

To date, some 20,000 law firms, corporate law departments, and government law departments have upgraded to WestlawNext. Current clients include 36% of Am Law 100 law firms, the corporate law departments of 36% of Fortune 100 companies, and 97% of ABA-accredited law schools.

Customer response has been overwhelmingly positive. From praise for the "search anything" box to reports of dramatically simplified research and even a marriage proposal, legal researchers' feedback suggests unprecedented appreciation for the game-changing functionality.

Felbab comments, "For the first time ever, we're seeing emotional reactions to a product. NetApp helped us put in place a rock-solid infrastructure that allowed us to dream big, to tackle ambitious goals, and to deliver a service that is changing the way law firms do business."

Partnering to unleash new products

King concludes by describing the critical role technology partners play in delivering differentiating innovation: "We use a lot of vendors, but consider only two providers to be strategic technology partners. NetApp is one. If we encounter a problem, it's fixed. If we tell them there is going to be a key launch like WestlawNext, they are engaged. From the first day we started working with the company, the NetApp team has demonstrated both business curiosity and understanding. They've worked with us to optimize and tune performance, to quickly leverage new storage functionality. We've consistently found NetApp teams to be smart, creative, hard working, and entrepreneurial—those characteristics make them map well to our own project teams.

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SOLUTION COMPONENTS

NetApp Products
NetApp FAS6000, FAS3000, and FAS2000 platforms

NetApp Flash Cache modules

NetApp OnCommand™ software, including NetApp Operations Manager, Protection Manager, SnapManager® for Microsoft® SQL Server®, SnapManager for Microsoft SharePoint Server®, SnapManager for Exchange, SnapManager for Oracle, and SnapManager for Virtual Infrastructure software

NetApp FlexClone®, SnapDrive®, SnapVault®, NearStore® on FAS, SnapMirror®, SnapRestore, and SANscreen® software

NetApp deduplication and thin provisioning technologies

Protocols
NetApp NAS (CIFS/NFS)

Environment
VMware

SUSE Linux®

Oracle Database 10g™ and higher

Oracle Real Application Clusters (RAC)

Cisco Catalyst 6500 Series switches

Cisco Nexus 7000 Series switches

NetApp Global Services
Design and Implementation

Managed Services Onsite