

Solution Brief

**Accelerating
Web-enabled
SAP Solutions**

In an increasingly online world, most companies conduct the vast majority of their business operations – internal and external – electronically.

SAP business applications take advantage of this trend, empowering companies of all sizes and industry sectors to respond quickly and decisively to dynamic market conditions, helping them achieve and maintain a competitive advantage.

SAP business solutions and applications address a variety of business issues, including customer relationship management, supply chain management, manufacturing, product lifecycle management, business intelligence, finance, and more. Built upon the Netweaver Platform and/or Enterprise Services Architecture, these software solutions link all areas of an enterprise – including legacy systems and third-party products – to ensure that all elements of the business work together as seamlessly as possible. As a result, SAP helps businesses of all sizes and industries develop best practices designed to optimize business processes and ensure success.

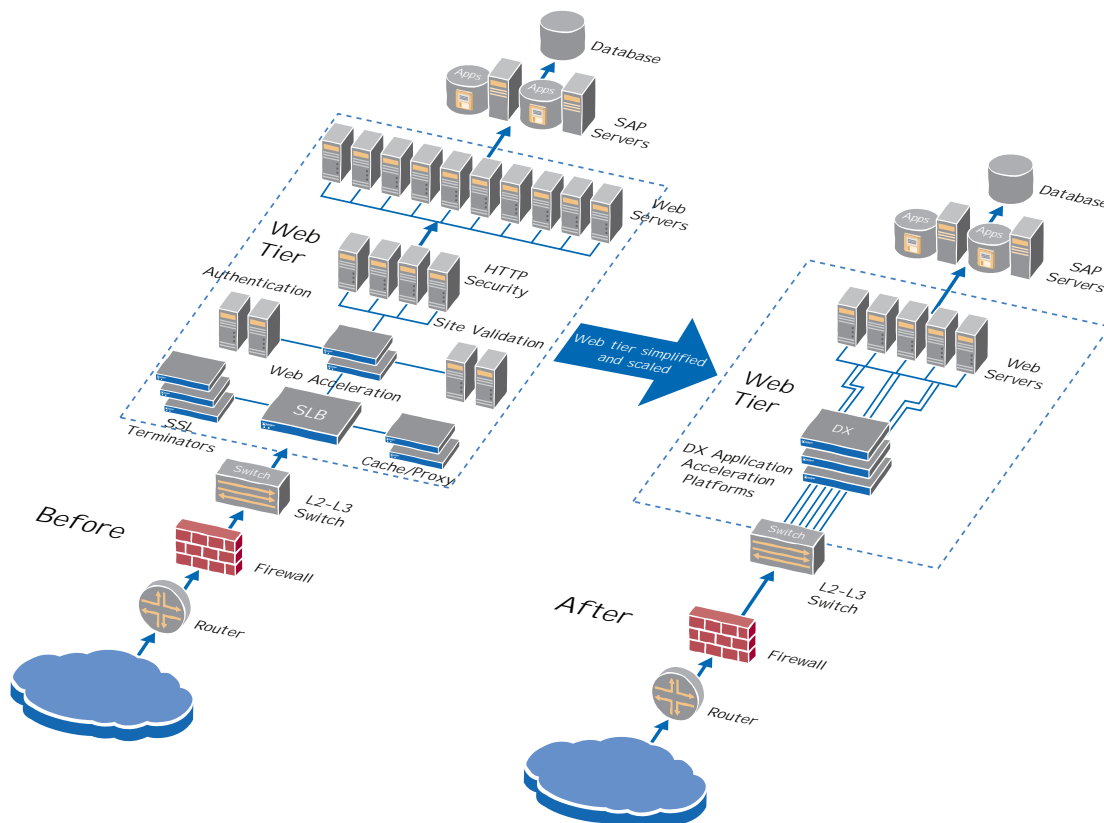
The Expanding Enterprise

Accompanying the move to online operations is a trend toward globalization, with businesses expanding across the globe to establish a more widespread presence in an increasingly competitive market. Existing global enterprises are improving business-process efficiencies by extending applications to more of the global workforce, business partners and customers.

Paradoxically, this expansion has led to a growing desire among IT organizations to consolidate and centralize their information technology operations. Such a move makes perfect sense; after all, it's difficult – and expensive – to maintain a local IT staff in countless locations around the world. By consolidating critical network resources, including application servers, in a single data center, IT can gain centralized control, dramatically simplifying maintenance, management and upgrades, not to mention regulatory compliance.

Data center consolidation, however, presents remote, branch office and mobile users with a challenge: how to access the centralized applications. For SAP, the answer was to deliver a web-based version of the software that provides all users – local, remote and mobile – with universal anytime, anywhere access over the Internet via a standard web browser.

While the web-based architecture solves the access problem, it has drawbacks of its own. For instance, web-enabled applications consume at least 10 times more bandwidth than their client-server counterparts, seriously impacting performance and reliability, particularly on limited capacity wide-area and Internet links. Response times slow to a crawl, completely eroding user productivity.



The DX platform dramatically simplifies the web tier by consolidating multiple functions into a single device.

Operating over the Internet or virtual private networks (VPNs) also poses potentially significant security risks. And scalability becomes a critical issue as more users and more applications are added to the system and the business struggles to accommodate the expanding workforce from a single, central location.

To meet these challenges, many businesses have deployed a multitude of point products in their data center to improve performance, enhance reliability, impose and enforce security policies, and keep pace with the expanding workforce. As a result, the data center has grown increasingly complex, creating a maintenance and management nightmare for IT.

To realize the full benefits of a web-based SAP deployment, businesses need to find a way to restore performance to former client-server levels without requiring a substantial infrastructure upgrade. Not only must the solution treat all users – local, remote and mobile – equally, it must also be secure and scalable while eliminating the complexity and expense of the point products currently cluttering the data center.

Juniper Networks: Restoring SAP Performance

Juniper Networks, an SAP Software Partner, delivers the solution SAP users are looking for.

The Juniper data center (DX) application acceleration platform improves response times of web-based SAP business applications, driving performance and productivity gains for local, remote and mobile users. Deployed in the data center in front of web and application servers, the DX platform accelerates SAP performance by offloading web servers from repetitive, CPU-intensive tasks, allowing servers to perform more efficiently by focusing on what they do best: serve content and fulfill client requests as part of a business process.

To reduce complexity in the data center, the DX platform also collapses multiple services and functions – including server load balancing, SSL encryption and termination, TCP connection multiplexing, object caching, and web-object compression – onto a single device. Such consolidation not only reduces overhead by

Case Study: Dow Corning

Business Benefits:

- Reduced network traffic by 70 percent and end-user download times by 50 percent
- Offloaded SSL encryption and object compression overhead from servers
- Enabled secure access from the Internet to portals for business partners and employees
- Reduced cost of ownership and improved manageability

Dow Corning, a global leader in silicon-based technology and innovation, was rolling out a new mySAP NetWeaver Portal to provide web-based access to 8,500 employees at 110 sites spread over 32 countries. The company consolidated more than 20 regional SAP systems to create a global view of its business; the resulting database, which houses the customer data used by the different SAP applications, is more than a terabyte in size.

The challenge: how to provide remote, mobile and branch-office users with the same level of performance enjoyed by local users. “When we went with the portal, we knew it wasn’t going to perform to our satisfaction across the WAN,” says Jeff Duly, IT architect at Dow Corning. “So we needed to find ways to improve the performance.”

The answer was the DX application acceleration platform from Juniper Networks, which delivers a complete data center acceleration solution for web-enabled business applications. “The Juniper DX was easy to use and administer,” says Duly. “We don’t want hassles. We want to bring in a turnkey solution and not have to wrestle with it.”

Dow Corning deployed two Juniper DX 3200 platforms at its primary data center in Midland, MI and one DX 3200 platform at a remote processing site, with immediate – and impressive – results. The DX platform reduced traffic on Dow Corning’s WAN by 70 percent and user download times by 50 percent, all while securing and simplifying the servers by offloading SSL connection setup and encryption, and compression.

“We couldn’t have rolled out the portal without the Juniper DX,” says Duly.

The DX platform is bringing some additional benefits beyond improved performance and security. Duly expects the Juniper DX to help improve Dow Corning’s caching methodology and has embarked on a project to develop company-wide rules for content caching. So far with the DX platform, caching times for a web page have gone from 1 minute to 15 seconds, and with the addition of consistent rules for content expiration and file naming conventions, Duly expects to decrease that time to 5 seconds. The bottom line, says Duly: “We think caching will accelerate performance.”

eliminating the need for multiple point products in the data center, it also represents a highly scalable solution that grows with the enterprise without requiring additional infrastructure investments. For remote and mobile users accessing SAP over a wide-area link, the DX platform's compression features optimize available bandwidth, accelerating page downloads up to 50 percent.

The DX platform also provides complete application and data center security by serving as a full request/response-fluent bi-directional HTTP proxy that processes and rewrites all incoming requests and outgoing responses, providing a protective buffer that shields back-end resources from external threats.

Easing Server Pain

The DX platform relieves the connection-management burden on back-end servers, multiplexing thousands of incoming TCP connections down to just a few by taking over resource-intensive tasks such as session setup, session teardown and SSL termination. As a result, processing power can be devoted to filling requests, enabling servers to process up to four times the normal number of transactions and deliver much faster response times for all users, whether they are local or dialing in over a 56k line.

The DX platform also provides a highly scalable solution that grows and evolves with the business, dramatically reducing data center overhead. Users can initially deploy a single DX platform to provide simple server load balancing (SLB) and SSL termination. As demands increase, additional functionality such as HTTP acceleration, compression, protocol scrubbing, 3G

caching and the AppRules™ adaptive content processing feature can be implemented via simple license upgrades. Businesses eliminate multiple point products (and their associated management and administrative costs), reducing data center infrastructure and bandwidth costs by up to 60 percent – a significant contribution to the bottom line.

To improve overall availability and performance for particularly large enterprise networks, the DX platform's ActiveN™ scaling feature allows new DX devices to be added incrementally, as needed, to meet escalating demands. The entire DX cluster acts as a single device, linearly scaling performance. Up to 64 units can be combined in a mesh topology, delivering a new level of performance and availability.

Delivering Performance Value for SAP

Recognizing the value that the DX platform delivers to web-based application performance, SAP has independently certified the product for SAP NetWeaver. The DX platform has also earned "Certified for SAP NetWeaver" status for NetWeaver and SAP Enterprise Portal 6.0.

As an alliance partner supporting the annual Americas SAP User Group (ASUG) conference and other SAP portal events, Juniper Networks is committed to an ongoing relationship with SAP. Working together, the companies will continue to develop powerful joint solutions that advance their common objectives of improving business operations on a global basis.



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