Accelerating Mission-Critical Oracle Applications Throughout the Distributed Enterprise

Challenge:

Many businesses today rely on Oracle applications to support their ongoing business operations. However, globalization and server centralization create performance problems for remote and branch-office users accessing these applications over the WAN.

Solution:

The WX and WXC application acceleration platforms from Juniper Networks accelerate the performance of Oracle business applications over the WAN. Remote and branch-office users receive LAN-like response times, regardless of their location.

Benefits:

- Compression and caching features reduce WAN traffic levels, increasing effective bandwidth capacity

- Acceleration techniques improve the performance of TCP and other specific applications over the WAN

- Application control technologies prioritize mission-critical and delay-sensitive WAN traffic

- Visibility tools provide insight into, and control over, application performance over the WAN

In today's "paperless office," traditionally resource-intensive administrative tasks – everything from finance to human resources – are fully automated, performed over the corporate network. Oracle, a proven leader in business applications, delivers flexible, easy-to-use, industry-focused automation tools that make the paperless office a reality, lowering total cost of ownership (TCO) and providing real returns on investments.

From Oracle E-Business Suite to PeopleSoft Enterprise, Siebel, JD Edwards EnterpriseOne, and JD Edwards World, Oracle offers a full complement of integrated business solutions that improve functional best practices, integrate Web services, provide predictive analysis and enable more flexible, collaborative business processes. Integrated with other multivendor and homegrown applications, the Oracle solutions are easily configured to meet the most unique financial, project management, customer relationship management, corporate performance management and human capital management requirements.

Application Performance in the Distributed Enterprise

Most Oracle Applications were designed as traditional client-server solutions for local area networks (LANs). However, recent business trends such as globalization, data center consolidation and server centralization have had a dramatic impact on the performance of these applications.

Globalization enables businesses to become more competitive by expanding beyond traditional corporate boundaries, leveraging resources around the clock and around the world. Today, more than 90 percent of employees reside outside corporate headquarters, working in remote, branch or even home offices.

In response to this globalization, businesses have begun consolidating their data centers to reduce the number of sites and amount of equipment they must support. An important element of data center consolidation is server centralization – removing application servers from branch offices and relocating them to one or a small number of sites. Not only does server centralization reduce overhead costs, it also simplifies upgrades, maintenance and management and enables more effective regulatory compliance.

While these efforts have contributed greatly to the bottom line, they have come at a cost to employee productivity. Users accustomed to immediate response times afforded by local servers now must access centralized applications over fixed-capacity wide-area networks (WANs). Performance plummets due to latency and bandwidth contention, leaving users frustrated. Adding more bandwidth provides temporary relief, but it's not a long-term scalable solution since it imposes additional ongoing capital costs and doesn't address the latency problem.

To restore productivity, businesses need solutions that can overcome the limitations of the WAN and deliver more LAN-like performance for branch office users accessing centralized Oracle Applications. The solution must neutralize the impact of latency on application performance and reduce contention for limited bandwidth – without requiring additional investments in the WAN infrastructure.

Juniper Networks, a member of Oracle PartnerNetwork, delivers such a solution: the WX™ and WXC™ WAN application acceleration platforms.

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Juniper Networks: Accelerating Oracle Applications

The WX and the WXC application acceleration platforms optimize WAN resources to accelerate Oracle's CRM, financial management, procurement, compliance and supply-chain management applications over the existing WAN infrastructure. Based on the WX Framework™, which integrates an interdependent set of technologies to accelerate application performance over wide-area links, the WX and WXC platforms deliver the ideal solution for streamlining Oracle business applications.

The WX Framework defines specific attributes that a WAN optimization platform must have to overcome the bandwidth, latency, congestion and manageability issues that impede application performance over the WAN. Those attributes are divided into four specific categories: compression and caching; acceleration; application control; and visibility.

Compression and Caching: Optimizing Bandwidth

The WX Framework defines two technologies – Molecular Sequence Reduction™ (MSR™) compression and Network Sequence Caching – that increase effective bandwidth capacity by reducing the amount of traffic traversing the WAN. The MSR compression technology identifies variable-sized, repeating patterns across multiple packets, applications or sessions and replaces those patterns with a label, reducing traffic flows. Labels and their associated data patterns are stored in memory on both ends of the WAN link. The labels are replaced with the missing data after traversing the WAN, so no information is lost in transmission.

Sequence Caching, available only with the WXC platform, uses hard disks to store larger patterns for longer periods of time. The MSR and Sequence Caching technologies provides optimum data reduction; since up to 90 percent of network traffic is repetitive, eliminating this redundancy generates up to a 50-fold reduction in WAN transmissions.

The result: More bandwidth is available to accommodate Oracle application traffic, improving overall performance and increasing productivity for branch office users.
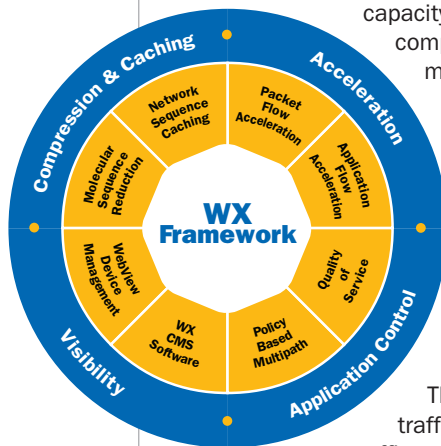
The WX Framework

Acceleration: Overcoming Latency

The WX and WXC platforms improve response times for Oracle Applications by optimizing TCP/IP flows as well as higher-layer protocols for specific applications.

The Packet Flow Acceleration™ (PFA™) techniques minimize the impact of WAN latency, enabling TCP/IP traffic to flow much faster across WAN links. One PFA feature, the Active Flow Pipelining™ technology, substitutes a more efficient transport protocol for TCP over high-latency links to utilize more of the WAN and accelerate response times by eliminating the need to wait for acknowledgements.

Meanwhile, the Application Flow Acceleration™ (AppFlow™) technology accelerates specific applications and protocols – including Microsoft Exchange, Windows file services and, most important for Oracle, Web-based applications and SSL-encrypted applications such as PeopleSoft Enterprise and Oracle Financials – over the WAN.

For Exchange and Windows file services, whose performance is constrained by their underlying protocols, the AppFlow for Exchange and AppFlow for CIFS technologies eliminate the back-and-forth communications required to complete a transaction, significantly speeding application response times.

The AppFlow for HTTP technology accelerates Web-based applications by enabling WX and WXC devices to detect and cache objects associated with URLs. The WX and WXC platforms confirm the freshness of each object or prefetch them when new or updated versions are available, allowing browsers to display Web pages much faster. And for secure traffic, the AppFlow for SSL technology accelerates encrypted applications over the WAN by decrypting traffic at the local WX/WXC device, optimizing the data, sending it across the WAN via IPSec and then re-encrypting the data in the WX/WXC device at the far end. Users maintain the security of SSL while enjoying the benefits of WAN optimization.

Application Control: Ensuring Bandwidth Availability

The WX Framework's bandwidth-management tools, including quality of service (QoS) and bandwidth allocation, enable IT to prioritize mission-critical applications across the WAN and allocate bandwidth among applications.

With these tools, IT can readily define minimum and/or maximum throughput levels for Oracle business applications as well as the other business solutions. "Important" traffic is guaranteed space on the WAN, ensuring transmissions always complete quickly and efficiently, while less important or time-sensitive traffic is temporarily relegated less bandwidth until the critical transaction is complete.

Visibility: Monitoring Oracle Application Performance

Powerful real-time WAN monitoring and reporting capabilities available with the WX and WXC platforms allow IT to observe and track the performance of Oracle and other business applications across the WAN.

Tools include packet capture, top talker reports, and visibility into other WAN and application statistics critical for maximizing wide-area resources. An intuitive GUI provides IT managers with instant visibility into network performance, and an export feature enables statistics to be exported to a NetFlow collector, freeing IT to use any NetFlow platform, such as those from Concord or Micromuse, to perform traffic analysis.
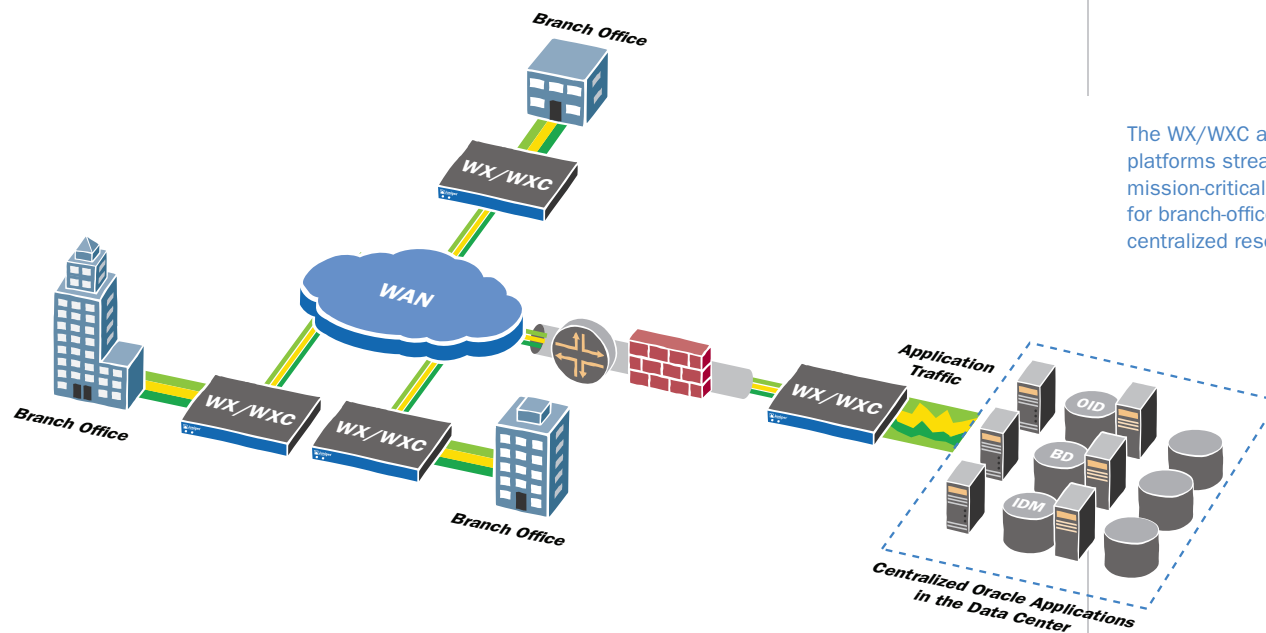
The WX/WXC application acceleration platforms streamline the delivery of mission-critical Oracle applications for branch-office users accessing centralized resources.

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Oracle and Juniper: The Power of Partnering

Juniper and Oracle have a long-standing relationship and a history of delivering joint solutions to enterprise customers. In addition to Oracle PartnerNetwork, Juniper is also a member of several Oracle-related user groups including the Oracle Applications User Group (OAUG), the Oracle International Users Group (OIUG), the Quest Alliance, the Financial Services Industry User Group (FSIUG), the Healthcare Industry User Group (HIUG), the Higher Education User Group (HEUG) and the Distributors' and Manufacturers' User Group (DMUG). Working together, Juniper and Oracle will continue to expand their partnership and develop joint enterprise solutions that benefit their joint customers.

CASE STUDY: Absa Group, Ltd.

Business Benefits:
- Tripled available bandwidth on existing WAN links
- Reduced Oracle ERP from 72 percent to 17 percent of total WAN traffic
- Avoided $2 million in annual bandwidth expenses

Absa (Amalgamated Banks of South Africa) Group was faced with a dilemma. The bank wanted to centralize its distributed corporate applications in a single data center, but was constrained by limited WAN links – some as small as 64 Kbps – at many locations. Since telecommunications costs are very high in Africa, and faster WAN links were simply not available at many locations, adding bandwidth was not a viable option.

Instead, Absa turned to Juniper Networks and the WX application acceleration platform. The bank deployed 45 WX platforms at key locations throughout the distributed enterprise and waited for the results. The results were not disappointing.

The WX platforms effectively tripled available WAN bandwidth between Absa's key banking and data centers by eliminating redundant data patterns. Overall, the WX platforms reduced WAN traffic 68 percent, providing sufficient overhead to accommodate existing traffic, as well as future rollouts.

Prior to the WX deployment, Oracle ERP traffic represented 72 percent of all WAN traffic. The Juniper solutions dropped that number to just 17 percent, a 400 percent reduction. E-mail, Web and telnet traffic enjoyed similar reductions, resulting in a return-on-investment window of less than one year.

To purchase Juniper Networks solutions, please contact your Juniper Networks sales representative at 1-866-298-6428 or authorized reseller.