Juniper NETWORKS

Solution Brief

Juniper Networks Enhances Retail Banking Networks

Retail banks in the 21st century are struggling to keep pace with evolving customer expectations and rapid technology change. Growing globalization and consolidation, increasing automation, electronic movement of funds, and web-based alternatives are reducing traditional dependence on local branches. Rather than coming into a branch purely to complete a simple transaction, customers these days make the trip to access more sophisticated services. Retail banks must recreate themselves in more of an advisory capacity or face obsolescence.

"Banks today are reinvigorating their business by making the branch a value center that offers a broad range of customer services. It is important to consider the impact these new services may have on IT infrastructure."

Don Free
Financial Industry Analyst
Gartner

The challenge is to focus the high-value and high-rent storefront facilities on services that require human contact and paper handling, while using network infrastructure to exploit the economics of centralization, automation, and location independence on the back end. At the same time, customers who visit branches to meet with investment or mortgage advisors often make basic transactions while on site. Increasingly, they expect real-time performance at the cashier windows.

Overdue branch renewal efforts must reflect these new realities while accommodating international and national banking reforms and meeting the looming deadlines of regulatory compliance. At the same time, competitive forces dictate increasing employee productivity through location-independent call centers and other workforce virtualization strategies.

All these IT initiatives must take into account the constraints of legacy core banking systems that are here to stay and work across an existing network infrastructure that is already hitting technology thresholds. A cost-effective solution that increases the effective performance of existing network resources as much as tenfold can help retail banks in all parts of the world to achieve these goals.

Today's IT Requirements for Retail Banks

Like many industries caught in today's economic squeeze, retail banks must use information technology and networking to deliver more for less. However, they are also managing a lot of small, highly distributed branches, which may span population centers and remote outposts. Retail banks must operate as one cohesive and efficient whole or be crushed by the physical overhead.

Centralized Applications

Retail banks are moving from local client/server computing to a network-centric architecture that integrates all networks and information resources across the entire organization. This migration enables business intelligence that provides a single view of each customer across all bank lines of business and communication channels, fostering deeper customer relationships and creating cross-selling opportunities. Information that used to be kept separate in disparate data silos is being rationalized in data warehouses that are continuously updated in close to real time. Sophisticated data mining and analyses of customer behavior patterns enable smaller and more focused campaigns that replace hit-or-miss mass marketing. With this transformation of retail banking applications, data traffic that used to stay within the branch LAN must now move across entire regions or continents – or even around the globe.

Disaster Recovery

The centralization of key IT resources puts more eggs in one basket and makes disaster recovery capabilities critical. Retail banking operations must be able to survive the loss of a data center to a terrorist attack, natural disaster, or inadvertent human error. The peer-to-peer Internet Protocol (IP) was designed with impressive self-healing capabilities, but retail banks require backup facilities that mirror the primary resources. This architecture requires constant, real-time updates across WAN connections. In the event of a disaster, recovery and restore times must also be optimized to satisfy the real-time expectations of global customers.

Document Imaging

Paper-based processes are being moved online, driven by competitive pressures to streamline loan applications and other business processes. Paper documents that must accompany loan applications and approvals may have to be converted to bandwidth-intensive digital images. Reforms such as the U.S. Check 21 legislation, which requires banks to accept electronic images of checks, are also flooding retail bank networks with document images. Similarly, new European Union guidelines mandated to combat money laundering require banking systems to capture and manage large volumes of customer data. Imaging technology can enable huge time and cost savings by eliminating manual processes and physical shipments of documents. However, sending large image files along the transaction chain creates traffic bursts that can quickly clog network links and hamper voice and other applications that require real-time performance. It's no wonder, then, that retail banks surveyed recently by Datamonitor made networking and telecommunications upgrades their top branch-renewal priority. Such investments can deliver a better return by including bandwidth management technology that mediates among contending applications and maps traffic priorities to business policies.

Regulatory Compliance

Retail banks around the world are in the midst of coping with sweeping and ever-evolving banking reforms and regulations mandated by local and national governments and international authorities. These regulations include the Basel II Capital Accord on risk management, the International Auditing Standards, the U.K.'s FSA guidelines, and the U.S. Sarbanes-Oxley financial reporting requirements. Terrorist activities have given rise to anti-money-laundering edicts such as the Proceeds of Crime Act and the U.S. Patriot Act, which require banks to be very proactive about any suspicious movement of funds. Vast amounts of customer data must be continuously aggregated, mined, and analyzed, with the results run against lists of known criminals and terrorists. In addition, financial institutions are particular targets of broader security and privacy regulations. The compliance challenge increases geometrically as banking operations expand beyond borders and must address multiple sets of regulations. Clearly, the cost of compliance is prohibitive without automated, standardized practices that can be implemented and audited by a central authority. As the American Bankers Association's Compliance magazine puts it, financial organizations "have little choice but to build or buy more comprehensive, consistent, leverageable, and integrated compliance central nervous systems that can be extended worldwide to employees and business partners." These efforts will increase demands on WAN infrastructures considerably.

Branch Renewal

Retail banks are making IT investments that cast branches in the role of primary sales channel for customer interaction and new-business generation. Basic banking transactions and administrative tasks are increasingly being offloaded to electronic channels that can handle them for a much lower cost. At the retail storefront, such simple transactions become secondary as branches evolve into one-stop shops for financial services. Capital expenditures on branch renewal will go further if IT solutions use networks to leverage central resources and achieve greater economies of scale. By increasing the effective bandwidth of existing WAN connections and improving application performance across them, retail banks can delay or eliminate the need for expensive network upgrades.

"The WX application acceleration platform gave us the capacity we needed and the ability to monitor traffic so we can see exactly what kind of throughput we are getting."

Neville Perry
Network Architecture Group
Absa

Employee Productivity

Retail banks can leverage IP-based networks to create a single virtual entity for sharing people across branches. The benefit of location independence increases geometrically when voice and unified messaging are added to the mix.

The typical retail branch cannot justify having an investment advisor or other high-value employee at one site full-time, and keeping track of floating experts can be difficult. In converged Voice over IP (VoIP) environments, phone numbers are associated with people rather than places, and calls get routed to them automatically as they move around. Receptionists and other support staff can be shared across branches and cover for each other. They can even be working from home. As long

Customer Success Story:

Nationwide Retail Bank

Business Benefits:

- 60 % reduction in data traversing WAN
- Batch application completion times slashed from two minutes to 40 seconds
- 250 % increase in effective WAN capacity
- Can roll out e-banking services
- Separate ATM network service eliminated
- New imaging application enabled
- VoIP now a possibility
- Three-month return on investment

This bank provides businesses and consumers with a broad range of offerings that currently include pensions, merchant services, and commercial lending. The bank has close working relationships with clients and a reputation for superior customer support.

WAN links connecting remote offices were already congested, resulting in slow response times that frustrated branch employees and customers. However, the bank needed to introduce even more traffic into this contentious environment, including traffic from the automated teller machines (ATMs) and a bandwidth-intensive Check 21 imaging application. The IT staff considered purchasing additional bandwidth, but such an upgrade would have cost an additional $60,000 per month. Instead, the retail bank deployed Juniper Networks WX application acceleration platforms at each location.

The WX platforms reduced the amount of data traversing the links by 60 percent and slashed batch application completion times from two minutes to 40 seconds. The effective capacity of existing WAN links was increased by a factor of 2.5. The existing links could now accommodate the ATM traffic, with enough bandwidth left over to support the imaging application and allow for the possibility of supporting VoIP. Compared to purchasing additional bandwidth, the WX deployment delivered a three-month return on investment.

as the employees are connected, information can follow them wherever they go. This location flexibility increases employee productivity and helps to ensure business continuity by reducing the concentration of operational resources.

"We needed a way to anticipate and manage growth on our backbone network, and buying larger WAN links just wasn't the answer. The WX application acceleration platform gave us the capacity we needed and the ability to monitor traffic."

Neville Perry
Network Architecture Group
Absa

Location-independent Call Centers

Retail banking can streamline and enhance customer service by implementing remote or distributed call centers that take advantage of expertise pools and lower-cost labor and facilities, wherever they might be located. To improve customer service, banks need to implement skills-based call routing, which allows callers to be connected with a customer-service employee who can solve their problem. The premier customers can be automatically matched to the most experienced advisors. These remote employees need to access up-to-date customer information directly from, or continually in synch with, the bank's central data stores. This convergence of voice and data also enables the digital recording of all voice communication, making any subsequent retrieval of a particular conversation as simple as looking up stored e-mail. WAN and application performance must be increased to a level that makes remote human and information resources seem local to employees and customers in the branches. When poor network performance delays response times or even prevents access to customer data, it has a material impact on the productivity of call center agents. Average call lengths increase while completion and handoff rates as well as product cross selling all decline.

Remote Management

Most retail bank branches cannot begin to justify on-site IT personnel, so centralized management is essential. Software upgrades and other administrative and management tasks must be handled remotely. Similarly, standardized branch configurations simplify replication across multiple sites as a bank adds new locations. This cookie-cutter approach reduces costs and creates a familiar, consistent employee environment and customer experience. Network managers need a web-based console that provides a single view of the bank's distributed operations and enables remote monitoring of link usage and application performance.

Enhancing WAN Capacity and Performance with Juniper Networks

The common thread among all these requirements is the need for better application performance across wide-area links. Increasingly, information and applications are not on site with the people who need constant access to them, and packets that once moved only across a LAN now have to traverse the WAN. Those WAN links are a bottleneck that limits application choices and economies of scale as retail banks make technology deployments.

Simply purchasing additional WAN bandwidth can be cost-prohibitive and won't necessarily improve the delivery of business-critical information. Casual but bandwidth-intensive applications such as web surfing and peer-to-peer file sharing can quickly consume any new capacity, leaving the same performance problems as before.

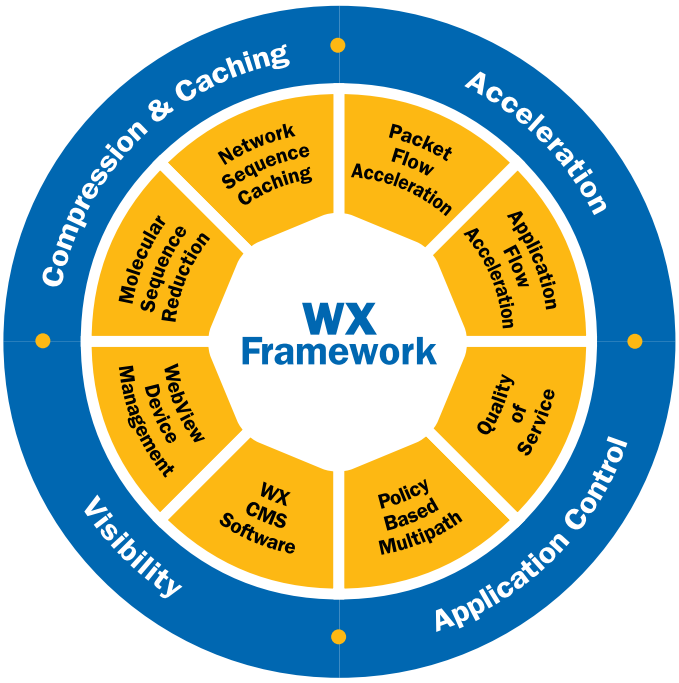
However, close examination of the nature of traffic moving across IP networks reveals that much can be done to condense and optimize it. Advanced compression, sequence caching, packet acceleration, bandwidth management and traffic shaping, path optimization, and visibility tools can be used to increase the effective throughput of existing WAN links several-fold and dramatically improve application performance.

Juniper Networks provides this combination of capabilities through its WX Framework™. Incorporated into each WX™ and WXC™ application acceleration platform – two members of a larger family of solutions designed to improve application response times within central sites, to branch offices, and for remote users – the WX Framework offers a suite of interdependent technologies that, working together, produce a whole considerably more powerful than the sum of the parts.

Rather than make do with a series of incomplete point products that add to management overhead, the WX Framework and the WX and WXC platforms give IT personnel at retail banks a comprehensive solution they can tailor to meet specific infrastructure goals.

Elements of the WX Framework

Molecular Sequence Reduction™ (MSR™) technology is the WX Framework's flagship compression algorithm, a technology that has enabled enterprises to realize as much as a tenfold increase in WAN throughput. Unlike traditional compression techniques, MSR compression has its roots in DNA pattern matching. It recognizes repeated data patterns and replaces them with labels, dramatically reducing WAN transmissions. MSR compression operates in memory, using a dictionary that can store hundreds of megabytes of patterns. With MSR technology, retail banks can move more traffic across the same links, making room for Check 21 document images and other bandwidth-hungry applications.



The WX Framework integrates key technologies that work together and influence each other, providing IT with distributed stateful intelligence about their WAN links and applications.

Network Sequence Caching technology from Juniper Networks looks for repeated data patterns and replaces them with a label to reduce WAN traffic. While MSR compression keeps data patterns in memory, sequence caching stores them on hard drives and so is able to eliminate patterns seen days earlier. Sequence caching technology is highly tuned to accelerate large file transfers, particularly the ones with the highest granularity and largest storage size. With sequence caching, retail banks can run backups, data replication, and virus signature updates across existing WANs. This centralization and aggregation of back-end processes is a prerequisite for exploiting new application architectures and achieving greater economies of scale.

Packet Flow Acceleration™ (PFA™) technology improves application performance across WANs, complementing compression and sequence caching techniques. PFA techniques include Fast Connection Setup™, Active Flow Pipelining™, and Forward Error Correction.

- Fast Connection Setup improves the performance of short-lived connections by eliminating one round-trip time from the TCP connection setup. This process speeds up applications such as HTTP.
- Active Flow Pipelining terminates TCP connections locally, using a more efficient transport protocol between WX and/or WXC devices. This feature significantly benefits application performance on high-bandwidth or high-latency connections.

Customer Success Story:

Amalgamated Banks of South Africa (Absa)

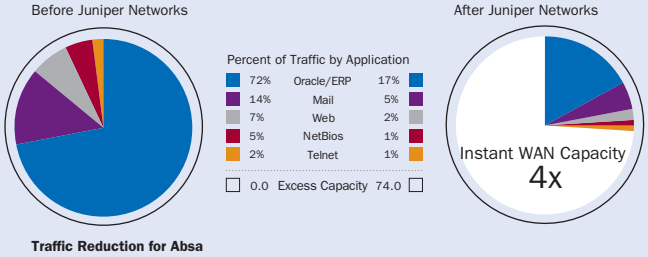
Business Benefits:

- 300 % increase in throughput of existing WAN links
- Able to migrate from 3270 to distributed applications
- Enabled e-banking services
- Infrastructure now supports future traffic growth
- $2 million in WAN upgrades avoided by deploying Juniper Networks WX application acceleration platforms
- 11 month return on investment

Absa offers banking, finance, and insurance services to consumers, merchants, and enterprises in South Africa, Tanzania, and Mozambique. It ranks as one of the most popular banking brands in the region.

Absa wanted to migrate from a 3270 environment to a more web-based architecture, with applications running locally. The mainframe would become a central data store and backup platform. However, Absa was severely hampered by WAN constraints. Some sites had only 64 Kbps satellite connections, and one such link between Mozambique and South Africa can cost as much as $1,700 per month. At many sites, faster WAN links were simply unavailable. In other locations, the faster links were prohibitively expensive, with the IT staff projecting an additional $2 million in upgrade costs.

Absa deployed Juniper Networks WX application acceleration platforms at 45 key locations to speed up the transfer of financial data across the WAN and support future traffic growth. The WX platforms effectively tripled the capacity of Absa's existing WAN links without increasing monthly connection costs. This increased throughput, combined with WX CMS software's global visibility, enabled the bank to implement distributed applications and roll out e-banking services.



Traffic Reduction for Absa

- Forward Error Correction limits the need for retransmissions on high-loss networks, such as international IP VPNs or satellite links. Forward Error Correction sends recovery packets alongside data packets, indexing them to allow for reconstruction of lost packets, thus reducing the need for retransmissions.

Bandwidth management includes QoS and bandwidth-allocation capabilities for prioritizing business-critical and delay-sensitive applications. Juniper Networks' intuitive, wizard-based approach to QoS for WAN acceleration and optimization lets IT personnel categorize traffic into as many as 16 levels and easily enforce business policies. The WX and WXC platforms take classification beyond IP header and TOS/DiffServ data, enabling IT to look at the Layer 7 application information inside the data payload. It also preserves and can view QoS markings applied by other devices in the retail bank network or beyond.

Equipped with Juniper Networks' bandwidth-management capabilities, retail banks can deploy real-time applications with confidence. Some applications – notably voice – cannot tolerate perceivable delays, and QoS ensures that they get the necessary priority. With VoIP in branches and remote call centers, retail banks can start reaping the many benefits of convergence.

The Policy-Based Multipath™ (Multipath™) path optimization feature matches applications to WAN links when parallel connections are available between sites. Using business policies and performance parameters defined by IT, the WX and WXC platforms will dynamically direct applications to specific transports, which can include the public Internet. This architecture enables retail banks to maximize valuable leased-line resources and to exploit alternative connection technologies as they become available. For example, application traffic that will tolerate delay and packet loss can be offloaded from a high-performance link to a slower and less expensive DSL line, as needed.

The WX Central Management System™ (CMS™) software provides a unified view of the entire extended enterprise, simplifies software upgrades and other administrative tasks, and integrates with existing management systems. The WX CMS software generates reports that help IT pinpoint problems with dropped sessions, poorly performing applications, or contention. Such all-encompassing visibility tools, as well as troubleshooting techniques such as packet capture, are particularly important for the distributed deployments that characterize retail banking infrastructures. Hundreds or thousands of branches can be monitored and managed from an intuitive and secure web-based console, which also provides a single control point for regulatory compliance.

"What an eye opener! I can now keep my network traffic well below link capacity even during peak hours, and I also have the freedom to deploy new applications. Juniper Networks really did the trick."

Network Administrator
National Retail Bank

WAN Infrastructures You Can Bank On

Retail banks provide customers with an essential physical interface to an increasingly virtual world. To be effective in this role, branches must optimize available WAN links to enable a broader range of applications, leverage existing core systems, and share people and other resources. The pioneering WX Framework integrates WAN application performance technologies to address bandwidth, latency, and contention issues, ensuring optimal application flows. Benefits include reduced transactional expenses, smaller branch IT investments, improved customer service, and increased sales.

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