

Intermatic Brightens Employees' Workdays by Igniting Application Performance with Juniper Networks Powerful Solution Set



Industry: Manufacturing

Company:
Intermatic, Inc.

Challenge(s):

Intermatic wanted to upgrade its IT infrastructure with best-in-class, high-performance networking and security solutions that could scale to meet its business needs, and could reliably support business-critical applications, including mainframe sessions, email, design/engineering, SQL queries, finance, ecommerce for partners and customers, and video streaming. Intermatic needed to optimize application performance across multiple national and international locations by overcoming WAN latency and bandwidth limitations. And it needed to protect the network from intrusions and mitigate risk from external threats.

Network Solution:

- Juniper Networks J-series Service Routers J2300 and J4350
- Juniper Networks Secure Services Gateway 20 and 140 (SSG 20 and SSG 140) security platforms
- Juniper Networks Secure Access 4000 (SA 4000) SSL VPN Appliance

- Juniper Networks Integrated Security Gateway 1000 with Intrusion Detection Prevention (ISG 1000 with IDP)
- Juniper Networks WX and WXC WAN acceleration platforms

Selection Criteria:

Intermatic evaluated LAN and WAN solutions from five vendors and determined that Juniper Networks delivered the highest performance and best-in-class solutions for routing, switching, firewall, VPN, security and identity management.

Results:

The Juniper solution has increased employee productivity by delivering improved performance for Microsoft® Windows® file services, Microsoft® Outlook®, mainframe sessions, SQL queries and CAD applications by 6X or more. It has significantly accelerated file downloads over the WAN, reducing a typical 90-second operation for opening a file to less than one second. It has stopped applications from freezing on oversubscribed international circuits. And Intermatic has achieved a 180 percent return on its investment in less than one year.

"We have seen a 180 percent total return on investment with the Juniper Networks WX WAN acceleration platform. We were able to realize full payback in a little over a year."

Pete Revel

Senior Lead Networking and Security Engineer/Architect, Intermatic, Inc.

Over the past 116 years, Intermatic has introduced a series of innovative devices like Malibu® landscape lighting, pool and spa controls, wireless home automation products, and electronic timers for everything from poultry feeders to water heaters – all designed to improve the user's everyday life. A strong supporter of quality-of-life employee benefits, Intermatic was one of the first companies to reward employees for kicking the smoking habit and to introduce generous retirement benefits. So when employees complained about long wait times for their "must have" business applications, the employee-friendly company listened and responded.

Intermatic recognized that to consistently deliver applications to employees across its many locations, it needed to reduce WAN latency and eliminate bandwidth limitations. Once it overcame its application performance challenges, Intermatic turned its attention to its aging network infrastructure.

Challenges

Intermatic needed to completely overhaul its network to support its forward-thinking business plans. The company's network simply could not support the improvements that the business demanded, including electronic procurement, business-to-business and

business-to-consumer sales, and a growing population of mobile employees.

Intermatic wanted an integrated, standards-based solution set that could improve overall network performance from the edge to the core, protect the network from security breaches, support multiple network services, and enable a secure extranet for customers and partners. But first it had to solve its application performance challenge. Intermatic employees across the five U.S. sites in California, Florida, Georgia, Virginia and Illinois, as well as international sites in Asia Pacific, Canada, Germany, The Netherlands and Mexico, depend on a diverse set of applications. The company's mainframe is an indispensable workhorse, supporting telnet sessions as well as Application Statement 2 (AS2) sessions for Electronic Data Interchange (EDI). Employees also access financial software, SQL queries, computer-aided design (CAD), Microsoft Outlook email and other business-critical applications that run from the company's data center at its Illinois headquarters.

Unfortunately, application response times were often slow, with many delays. "End users could not access applications at a performance level that was optimal or efficient," says Pete Revel, senior lead networking and security engineer/architect at Intermatic. "The mainframe was not bandwidth-hungry, but it always needed to be finessed because telnet and AS2 are not forgiving of jitter or heavy load increases. The mainframe would lock up and drop sessions, and then the calls would come in to the help desk."

These delays had a huge impact on productivity at Intermatic's distribution center, where the wait to open a remote file could be as long as 90 seconds. At the international sites, the mainframe connections and the Windows NT servers would often lock up, short-circuiting employee productivity. Intermatic's standard response to such application performance issues was to add bandwidth incrementally. Unfortunately, this approach was growing costly, and it did nothing to solve the latency issues, which were especially painful across international connections. Revel wanted a more permanent solution for accelerating application performance.

Selection Criteria

Intermatic began exploring WAN optimization solutions to improve application performance and accelerate traffic across all of its domestic and international sites. Once implemented, more than 900 employees across the globe would benefit from the planned application acceleration and network optimization improvements.

Revel and his team evaluated three vendors to compare and contrast application acceleration solutions, including the Juniper Networks WXC WAN acceleration platforms. "We created a test bed for FTP, telnet and CIFS. The comparison gave us a clear indication that Juniper Networks was the top performer," says Revel. Intermatic's next step was to move the Juniper Networks platform and a competitive product that had also made the cut into a production environment at the distribution center. Revel and his team quickly brought up the Juniper Networks WXC platform without any fuss or hassle; employees testing the applications were ecstatic about the faster response times. Revel describes the performance of the Juniper Networks WXC platform as "phenomenal."

When it came time to test the competitive product, says Revel, it went "haywire" and took down the network. Intermatic named Juniper Networks the clear winner based on overall application performance improvements and the platform's reliability and ease of use. "Juniper is plug-and-play," says Revel. "We liked its stability and reliability. We can't have someone constantly tweaking the box."

The incredible success of the Juniper Networks WXC platform left a positive and lasting impression on Revel. So when he and his team began researching equipment providers for the network upgrade, Juniper Networks easily made the cut. Revel pitted Juniper against four other network providers and, following a rigorous evaluation period in which the team assessed a variety of routers, firewalls and integrated security gateways, Juniper Networks was once again the clear choice.

"We wanted to upgrade our LAN and WAN with best-in-class solutions that could deliver top performance. Juniper Networks gave the best value for our dollar," says Revel.

Solution

With Juniper Networks, Intermatic was able to deploy a high-performance network with security at scale, including multiservice routers, firewall/IPSec VPNs, intrusion detection/prevention, SSL VPNs and application acceleration.

Intermatic deployed Juniper Networks J-series routers in its global network. The J-series routers provide a rich set of IPv4/IPv6 features and routing protocols and MPLS features. They deliver unmatched performance and support a wide range of interfaces and Layer 2 access protocols, which makes them ideal for Intermatic's wide area network which is composed of MPLS, ATM and Frame Relay. The J-series routers also offer granular quality of service (QoS) for prioritizing mission-critical traffic, making them ideal to support voice and video. Intermatic uses J4350 Services Routers for DS3 connections to its Internet service provider. It uses J2300 Services Routers to support its different branch office locations.

Intermatic also uses Juniper Networks SSG Firewall/IPSec VPNs to deliver high-performance security and modular LAN/WAN connectivity in regional offices. As a consolidated firewall and LAN/WAN routing device, the SSG platforms help Intermatic consolidate devices at the branch office and thus reduce IT expenditures. The SSG platforms also protect the network with unified threat management (UTM), as well as stateful firewall, Intrusion Prevention System (IPS), antivirus, anti-spam and Web filtering.

Intermatic uses the Juniper Networks ISG 1000 with Intrusion Detection Prevention to combine ATM and MPLS services and support streaming media while protecting itself from network- and application-level attacks. The high-performance ISG 1000 with IDP integrates full intrusion prevention capability with proven stateful firewall and IPSec VPN features.

Intermatic uses the Secure Access 4000 (SA 4000) SSL VPN to provide employees, customers and partners with secure remote access from any Web browser. Employees have access to their key applications from anywhere using the clientless SSL VPN. Channel partners and large retail and distributor customers can access the Intermatic extranet and ecommerce site with equal ease. Intermatic has found the extranet capabilities of the SA 4000 to be

essential when they acquire companies and integrate them into the Intermatic processes.

With the Juniper Networks SSL VPN, users are granted access to resources by their specified user group or role as well as by network, device and session attributes. The Secure Access platform provides end-to-end security, access-privilege management for authentication and authorization policies, and tight controls over client, device, data and server security. The SA 4000 also helps Intermatic control and track user activity with its fine-grained auditing and logging. Administrators can monitor peer-to-peer traffic and file sharing, and they can control network access and check hosts. And as Intermatic migrates to Microsoft Vista®, the SA 4000 is ready to support the new software and additional users.

Application acceleration played a key role in Intermatic's ability to deliver highly responsive applications and optimize its WAN infrastructure investments. Intermatic uses Juniper Networks WXC and WX application acceleration platforms to accelerate the performance of Microsoft® Outlook®, Microsoft® Office®, Windows® NT Server, mainframe applications, SQL queries, CAD and finance applications, providing users with a more LAN-like experience. The WXC and WX platforms optimize existing bandwidth and accelerate application performance over the WAN, delivering faster application response times while reducing bandwidth consumption and prioritizing mission-critical traffic.

Results

With Juniper Networks, Intermatic was able to deploy a best-in-class LAN and WAN infrastructure that supports its migration from ATM and Frame Relay to MPLS. With best-in-class elements for critical aspects of the network, Intermatic can be sure of its network's proven performance and scale, allowing the company to meet business needs today and into the future. The company must also protect itself against internal and external threats as well as information loss, and Intermatic can be confident in its no-compromise solutions from Juniper.

Since adding Juniper Networks WXC and WX platforms into the network mix, end users at all sites – domestic and international – have seen significant improvements in application performance. "All our application lock-up problems went away when we added Juniper application acceleration," Revel says. Intermatic has enjoyed a consistent improvement in WAN capacity, with peaks of 4X to 7X traffic reduction.

CORPORATE HEADQUARTERS
AND SALES HEADQUARTERS
FOR NORTH AND SOUTH AMERICA
Juniper Networks, Inc.
1194 North Mathilda Avenue
Sunnyvale, CA 94089 USA
Phone: 888.JUNIPER (888.586.4737)
or 408.745.2000
Fax: 408.745.2100
www.juniper.net

EAST COAST OFFICE
Juniper Networks, Inc.
10 Technology Park Drive
Westford, MA 01886-3146 USA
Phone: 978.589.5800
Fax: 978.589.0800

ASIA PACIFIC REGIONAL
SALES HEADQUARTERS
Juniper Networks (Hong Kong) Ltd.
Suite 2507-11, 25/F
ICBC Tower
Citibank Plaza, 3 Garden Road
Central, Hong Kong
Phone: 852.2332.3636
Fax: 852.2574.7803

EUROPE, MIDDLE EAST, AFRICA
REGIONAL SALES HEADQUARTERS
Juniper Networks (UK) Limited
Building 1
Aviator Park
Station Road
Addlestone
Surrey, KT15 2PG, U.K.
Phone: 44.(0).1372.385500
Fax: 44.(0).1372.385501

Copyright 2007 Juniper Networks, Inc. All rights reserved. Juniper Networks, the Juniper Networks logo, NetScreen, and ScreenOS are registered trademarks of Juniper Networks, Inc. in the United States and other countries. JUNOS and JUNOSe are trademarks of Juniper Networks, Inc. All other trademarks, service marks, registered trademarks, or registered service marks are the property of their respective owners. Juniper Networks assumes no responsibility for any inaccuracies in this document. Juniper Networks reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

This impressive reduction in lock-ups can be attributed in large part to two specific Juniper technologies: Molecular Sequence Reduction (MSR) and, with the WXC platforms, Network Sequence Caching. The MSR technology is the flagship compression algorithm used by the WX and WXC platforms. MSR compression, based on DNA pattern matching techniques, recognizes repeated data sequences in traffic flows destined for the WAN and replaces them with small labels, dramatically reducing WAN traffic volumes. The labels are replaced by the missing data at the far end of the WAN link, so no information is lost during transmission.

Network Sequence Caching is similar to the MSR technology in that it also reduces WAN transmissions by replacing redundant data patterns with a small label before sending across wide-area links. However, while the MSR technology operates entirely in memory, Sequence Caching utilizes onboard hard drives installed on WXC platforms to record and store larger data patterns for a longer period of time, enabling the detection of redundant traffic last seen days or even weeks earlier.

The WXC and WX platforms have dramatically improved the performance of Windows file services, which uses the Common Internet File Services (CIFS) protocol, as well as Microsoft Outlook, which uses the Messaging Application Programming Interface (MAPI) protocol. "We have had phenomenal results," says Revel. "Performance improved 6X with CIFS traffic. Employees were able to open up a file in subseconds rather than waiting 30 to 90 seconds. Everybody was ecstatic."

A key reason for the improved Windows file services and Outlook performance is the Application Flow Acceleration (AppFlow™) technology, which speeds the performance of "chatty" applications such as Exchange, Windows file services and Web-based applications by streamlining their underlying protocols: MAPI, CIFS and HTTP, respectively. To reduce the impact of latency on these applications, AppFlow pipelines data blocks and Web objects across the WAN, sending as many in quick succession as needed to fill the available bandwidth, eliminating the need for multiple, time consuming round trips to complete the transaction.

Intermatic also benefits from the WX and WXC platforms' Packet Flow Acceleration (PFA) technologies, which accelerate TCP-based applications across the WAN, as well as from

integrated QoS capabilities that allow the company to prioritize mission-critical or delay-sensitive traffic.

The integration of QoS with compression and caching technologies on a single device is a distinct advantage for Intermatic. When using standalone QoS solutions with WAN acceleration, applications can sometimes be prevented from using the newly created bandwidth or, conversely, WAN congestion and packet loss can result from a lack of constraints or restrictions. For QoS policies to work properly, they must know at all times the effective size of the WAN pipe, which can literally change from packet to packet depending on the impact that compression and caching is having on traffic flows.

On the WX and WXC platforms, the QoS engine is tightly integrated with the MSR compression and Sequence Caching technologies, allowing QoS policies to immediately detect changes in the effective WAN size and adjust allocation and prioritization schemes accordingly. As the effective capacity of a WX/WXC-optimized WAN link changes, the QoS policies dynamically react to these changes.

The improved application performance is contributing to greater employee productivity at Intermatic. "Employees have gone on record saying that the application acceleration from Juniper has increased their productivity," says Revel. This productivity boost may also contribute to a faster time to market, according to Revel. The engineering team, for example, relies on AutoCAD, SolidWorks and design tools that create hefty files. Revel says that the performance improvements help engineers edit, modify and exchange files more quickly, accelerating the development and production cycle. "We don't have a baseline for detailed numbers, but it will help us bring new products to market more quickly," he says.

Where Revel does have verified numbers is in the all-important return on investment. "We have seen a 180 percent total return on investment," he says. "We were able to realize full payback in a little over a year."

"Our experience with Juniper Networks has been overwhelmingly positive," says Revel. "Everyone we work with is knowledgeable and responsive. Juniper understands our environment and gives us personalized service. Our LAN and WAN is now best-in-class due to our integrated Juniper solutions."

