

# STANFORD UNIVERSITY IMPROVES SECURITY, REDUCES RISK WITH HIGH-PERFORMANCE FIREWALL FOR 10 GIGABIT ETHERNET CAMPUS NETWORK

## Summary

Industry: Education

Challenges:

- Mitigate risk of data loss and security breaches to meet university security goals and regulatory compliance requirements
- Replace patchwork of security measures maintained by the academic, administrative and residential departments with an organization-wide firewall service to protect campus network

**Network Solution:** Juniper Networks NetScreen Series Security System with virtual systems

Results:

- Protected intellectual capital, student information, academic content and other valuable data on all academic, administrative and residential networks against attacks, Denial-of-Service attacks and intrusions
- Offered a high-performance firewall service that can be easily customized
- Created a decentralized self-service model where firewall policies could be implemented hourly using Stanford's NetDB
- Enabled easy deployment and straightforward operation of complex virtualized firewall service

As part of its mission as a world-class educational and research institution, Stanford University wants to ensure that its wealth of information resources is widely available to students, faculty and researchers. Yet at the same time, the university must keep private matters private. In today's climate of regulatory oversight, frequent security audits and e-discovery laws, Stanford University must protect its intellectual capital, private student information, financial information and other valuable data in an IT environment that has become increasingly hostile. It must also ensure that its IT resources are available in the event of a campus emergency.

## Challenges

As core business processes and academic collaboration increasingly take place over the Web, Stanford University realized it needed to take steps to mitigate the risks that confidential information could be lost, either because of intentional acts or accidental exposure. Academic departments and schools were responsible for their own network security measures, leaving this vital layer of protection an incomplete patchwork. Stanford sought to improve the university's overall security posture by offering an organization-wide firewall service.

## Solution

Stanford IT Services (ITS) deployed more than 20 Juniper Networks® NetScreen-5000 Security Systems at the network perimeter and data center to protect the academic, administrative and residential networks against malicious attacks and intrusions. Stanford offers a baseline firewall service at no cost to all departments and additional firewall services are available by request. Having positive word of mouth spread in this highly decentralized environment is critical to getting the many departments to opt-in, which will ultimately result in a more secure campus network.

The need to accommodate a highly decentralized environment was paramount. Stanford divides its campus network into eight operational zones, with each operational zone partitioned into multiple virtual firewall or security zones. Each security zone can have a unique set of security policies, VPN access controls and administrators. This ensures that the individual security needs of groups within each department are met. Stanford can ensure that public information remains open and accessible, while confidential information is secured. Virtualized security also now lowers security policy creation costs and simplifies IT operations.

The Juniper Networks firewalls are deployed in redundant pairs to maximize resiliency and uptime. Full-mesh configurations allow for redundant physical paths, which also maximizes resiliency and helps the university to protect its IT resources in the event of a campus emergency.

Stanford delivered and manages a complex security service that meets the needs of a highly decentralized and diverse environment.

## The Results

Stanford University reduced its risk exposure and improved compliance by offering a consistent level of firewall protection that meets the individual security needs of its departments. With the flexibility of NetScreen-5000 line of firewalls, ITS deployed the virtualized security service quickly and without disruption to IT operations to meet the needs of a highly decentralized and diverse environment.

ITS created automation around the NetScreen Series platform that makes it easier to turn up new customers. Stanford developed the open source network and node configuration database software called NetDB, which allows departments to determine which applications, ports and other resources need to be protected. With NetDB, Stanford has automated the labor-intensive process of implementing firewall policies.

The NetScreen-5000 line has a flexible architecture that is easy to administer. ITS took that ease of administration a step further and integrated it with Stanford's NetDB to create a decentralized self-service model where firewall policies could be implemented hourly. The university also gained operational efficiencies by standardizing on Juniper Networks firewalls, as the IT staff no longer has to manage and maintain firewalls from multiple vendors.

## Next Steps and Lessons Learned

Moving forward, Stanford University plans to extend the use of security solutions to further enhance network security on campus, including using access control for remote users.

## About Juniper Networks

Juniper Networks, Inc. is the leader in high-performance networking. Juniper offers a high-performance network infrastructure that creates a responsive and trusted environment for accelerating the deployment of services and applications over a single network. This fuels high-performance businesses. Additional information can be found at [www.juniper.net](http://www.juniper.net).

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