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*Jorge Rocha  
Network Division Coordinator  
FEUP Computer Center*



## CUSTOMER NAME

Faculty of Engineering of the University of Porto

## INDUSTRY

Education

## CHECK POINT PRODUCTS

- ClusterXL®
- SecureXL™
- CoreXL™
- VPN-1® Power™
- SmartCenter™

## CUSTOMER NEEDS MET

- Ensured business continuity with clustering technology
- Increased deep inspection of network traffic while maintaining high security
- Enabled implementation of complex security policies with easy-to-use GUI



# FEUP Breaks Security-Performance Bottleneck with Check Point Technology

## ABOUT THE FACULDADE DE ENGENHARIA DA UNIVERSIDADE DO PORTO

The Faculdade de Engenharia da Universidade do Porto, or the Faculty of Engineering of the University of Porto, (FEUP) is a Portuguese engineering teaching institution, integrated into the University of Porto, where undergraduate and postgraduate courses are taught in various engineering disciplines. FEUP teaches its students to the highest standards of education, focusing on advanced methodologies with access to the latest technologies. Complying with the strict standards of quality required by the Declaration of Bologna, FEUP compares favorably with the best universities in Europe.

## THE FEUP CHALLENGE

Since 2005, FEUP had been inquiring about what technology to use to increase its Internet access bandwidth, currently rated at 1Gbps, while maintaining or even increasing security. The engineering school requires a lot of bandwidth and needs a solution that supports quick, secure data transfer, a key prerequisite for researchers who have international projects.

Check Point had to find a solution that would provide security and speed without compromising either. The current problem is that if the security level is too high, speed goes down drastically. Therefore, Check Point had to find a solution that would keep the users' need for speed satisfied while maintaining an adequate level of protection. Check Point had to speed up data packet transfer and simultaneously deal with cyber attacks and other security problems. To do this, capacity for packet analysis and processing had to increase to maintain the necessary levels of performance and security.

The biggest challenge that Check Point encountered was finding a solution that could control new dynamic protocols, as they appear on the market, and maintain security with the efficiency needed to ensure business continuity without interruption. In addition, the system had to be secure while being transparent to users.



## THE CHECK POINT SOLUTION

The first solution Check Point deployed for FEUP was ClusterXL®, which distributes traffic between clusters of redundant gateways so that the computing capacity of multiple machines can be combined to accelerate total throughput. If an individual gateway becomes unreachable, all connections are redirected without interruption to a designated backup. “Today, Internet access is vital to every organization — even more so when talking about researchers and teachers,” says Jorge Rocha, network division coordinator for FEUP’s computer center. “With this solution, if we have to update one cluster, the other will work in its place while the upgrade is made, without anyone knowing the difference.”

Next, Check Point deployed SecureXL™, which accelerates the performance of firewall and VPN gateways by offloading simple, though computationally intensive functions, to third-party packet processors. So when a packet arrives at FEUP’s VPN-1® Power firewall, a packet processor inspects it to verify if it is malicious or not. If the packet is allowed and the communication is validated, no more packets have to go to the processor, significantly accelerating throughput.

However, ClusterXL and SecureXL did not solve all of FEUP’s bandwidth problems because there are applications that use specific protocols, which require constant analysis, thus creating administrative overhead and significantly slowing throughput. However, a new technology from Check Point called CoreXL™ can help alleviate this problem. This technology is integrated with VPN-1 Power and is employed on Intel multi-core processors for speeding up network security scanning. CoreXL levels out data traffic across cores, dispersing high-KB packets to other cores on the system, significantly increasing the processing power for examining packets by distributing the load across several processors. As a result, FEUP can turn on a strict protection profile, and VPN-1 Power will perform a deep inspection on nearly every packet that passes through its network devices. For FEUP, this meant that instead of having a single processor working overtime to perform all packet analysis, slowing network traffic to a crawl, it had eight processors on each machine, smoothly sharing deep packet inspection duties, in the continuous search for any possible

malicious data payloads without detrimentally affecting total network throughput. Overall, this solution has dramatically increased FEUP’s security level, according to Rocha.

## THE BENEFITS OF CHECK POINT SECURITY

For an IT security administrator, the biggest benefit of Check Point technology is its simplicity. For example, even though you may work in a complex network environment, you can set comprehensive security policy with a user-friendly graphical user interface (GUI). Early on, Check Point decided to do just that — implement a security system that could be configured with an intuitive GUI — SmartCenter™. Despite many changes over the years, this GUI has remained stable. “One of the greatest benefits of a Check Point security solution is that its SmartCenter GUI is easy to use, enabling the administration of very complex systems, which would otherwise be impossible to manage,” Rocha says.

Also, as a beta test site, FEUP has a very close relationship with Check Point, working with teams of technicians who traveled to Portugal to implement ClusterXL, SecureXL, and CoreXL — both beta and full release versions of the products. “Our relationship with Check Point and those who developed these technologies has been excellent,” Rocha says. “All this interaction with the company has been very rewarding for both teams. By way of this relationship, we had access to technologies that we wouldn’t have had otherwise, but Check Point research and development also benefited because we helped them to improve their products. For example, as beta testers, we were very active in troubleshooting installation procedures, so now when customers buy this Check Point solution, they will save time because the installation process has become very fast.”

## THE FUTURE OF FEUP

With its perimeter protected by the extensible VPN-1 Power, in the coming years FEUP simply has to monitor for updates and upgrade the system twice a year to take advantage of the latest Check Point security developments. “Our aim is to expand the network, not only to control what exists outside to inside, as well what exists inside, such as wireless and VoIP,” Rocha says. “We want to control who has access and how our infrastructure is accessed.”

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