USE CASE
P4 Enhancing Network Security

APS Networks

Add Flexibility and Adaptibility to your Network

A P4 firewall, leveraging the Programmable Protocol-independent Packet Processors (P4), represents a significant advancement in network security infrastructure. Unlike traditional firewalls that rely on fixed rule sets, a P4 firewall offers unprecedented flexibility and adaptability in defining packet processing behavior at runtime.

At its core, P4 enables the specification of how network packets are processed at the data plane level. This programmability allows network engineers to define custom packet processing pipelines tailored to their specific security requirements. With a P4 firewall, security policies can be dynamically adjusted in response to evolving threats, ensuring robust protection against malicious activities.

A P4 firewall using the APS Networks P4 programmable Ethernet switch represents a paradigm shift in network security, offering unparalleled flexibility, scalability, and adaptability. By harnessing the power of P4's programmability, organizations can bolster their defences against evolving network security threats and safeguard their critical assets with confidence.

Key features of a P4 firewall include:

- Dynamic Rule Updates: P4 enables real-time modification of firewall rules based on changing network conditions and security policies. This dynamic rule management enhances agility and responsiveness in mitigating emerging threats.
- Fine-grained Packet Inspection: P4's flexibility allows for granular packet inspection, enabling precise filtering and analysis of network traffic. This capability is essential for detecting and thwarting sophisticated cyber attacks.
- Protocol Independence: Traditional firewalls are often limited by predefined protocol support. In contrast, a P4 firewall can be programmed to handle any network protocol, offering unparalleled versatility in safeguarding diverse network environments.
- Scalability: P4's programmability facilitates the efficient utilization of network resources, ensuring scalable firewall deployments that can adapt to growing network demands without sacrificing performance.
- Custom Security Policies: With P4, organizations can implement custom security policies tailored to their unique requirements, empowering them to enforce stringent access controls and mitigate security risks effectively.

Use Case

Why APS Networks?

Security by Design
Our switches are designed based on the security by design principles. We have full control of our hardware supply chains and have Software Bill of Materials (SBoMs) in place for all software used. Further security features all for use of our products in Critical National Infrastructure (CNI).

Programmability with P4
The innovative technology of the Intel Tofino chipset offers unlimited open networking possibilities by the use of P4 programming language, featuring in-band telemetry and mega scale data center switching. P4 is easy to access, it enables hardware offloading of protocols, arbitrary tagging of packets, and controlling behavior based on individual data pattern matches. The switch has a non-blocking switching capacity of 2.0 Tb/s and is capable of complex protocol processing at wire speed.

Innovative Designs
Our technologies provide the ultimate, stable and supported platform for open network innovation. And our dedicated hardware solutions are built around enabling the latest open technologies to serve vertical industry needs. Open technology enables hardware and software diversity: reducing risk and lock-in to tardy vendor roadmaps.

Made in Europe
Our switches are produced in Europe, as the final manufacturing will be done in Belgium, and most of the components are provided by European suppliers. The printed circuit boards (PCBs) come from Austria and most of the design is done in The Netherlands.

We Deliver!

Modularity
All our new models can be upgraded with a daughter board, supporting a full range of Precision Timing Protocol (PTP) profiles. For the CPU you have the choice of AC or DC power supplies with front to back (port to power) and back to frond (power to port) airflow. The PSUs are of Titanium-grade, to provide the highest possible power efficiency levels.

PTP Timing & Synchronization
Our advanced programmable switches are the first to deploy the Tofino chipset with a time synchronization function, which is an essential capacity in the field of telecommunications as well as in media and entertainment. This feature enables

Efficient Power Consumption
The switches are equipped with low-consumption CPUs and energy-efficient PSUs and Fans. The intelligent automatic control system recognizes and manages the operating mode to reduce the power consumption to an optimized minimum, in particular when not in use.

Certification/Traceability
APS Networks and its design partners have invested in simulation tools to augment our capabilities and our engineers have a high level of expertise in designing products that not only meet but exceed requirements in these areas and most importantly we have a track record of largely passing the first time. That saves time, avoids rework and ultimately cuts costs.

Contact our Design Experts to help you choose your switch: +31 35 689 1689