FIREMON

SOLUTION GUIDE

Zero Trust Begins by Conquering Network Complexity

Connect the dots between your current perimeter-based security infrastructure to a zero trust future with agile network security policy management from FireMon

First defined over a decade ago, zero trust has picked up momentum in recent years. President Biden's Executive Order on Improving the Nation's Cybersecurity codified it as the way forward for the Federal Government's security architecture of choice and many other organizations are beginning to follow suit. Zero trust offers many long-term advantages to enterprises looking to secure their assets, protect their users and customers, and harden their defenses. However, the complexity of adopting a true zero trust approach leaves most organizations wondering where to start.

This solution guide outlines the challenges of establishing a zero trust architecture (ZTA) foundation and describes the core FireMon capabilities that can help overcome them. We will discuss approaches to satisfying the National Institute of Standards and Technology (NIST) requirements around aggregating network traffic data and capturing the current state of enterprise assets, which are among FireMon's many NIST- and executive order-compatible capabilities.

Cost, Continuity, and Complexity: The Barriers to Zero-Trust

Zero trust is often described in terms of a journey or a process, as a pure ZTA would be very difficult to implement instantaneously. Cost and operational continuity are the main impediments, as the expense and logistical difficulties of replacing individual systems can be significant, let alone wholesale replacement of entire workflows.

Another difficulty with adopting a ZTA is that that migrating systems to zero trust often introduces significantly more complexity. Security policies can proliferate with increased network segmentation, constant verification, and flexible context-dependent access paths.

The result of these realities is that most large organizations will have combinations of ZTA and perimeter-based architectures for the foreseeable future. As systems are migrated to zero trust workflows, core elements of the security program must be flexible enough to operate within both architectures to support the transition.

Leverage Your Existing Infrastructure Investments for Zero Trust

Network security policy management (NSPM) from FireMon supports the complex network security policy management needs of large organizations today while providing advanced device discovery/identification, workflow automation, and microsegmentation support. This means you don't have to choose between maximizing your existing technology investments or a move toward zero trust: you can organize, manage, and strengthen your existing network infrastructure as the basis of your hybrid zero trust-perimeter hybrid architecture.

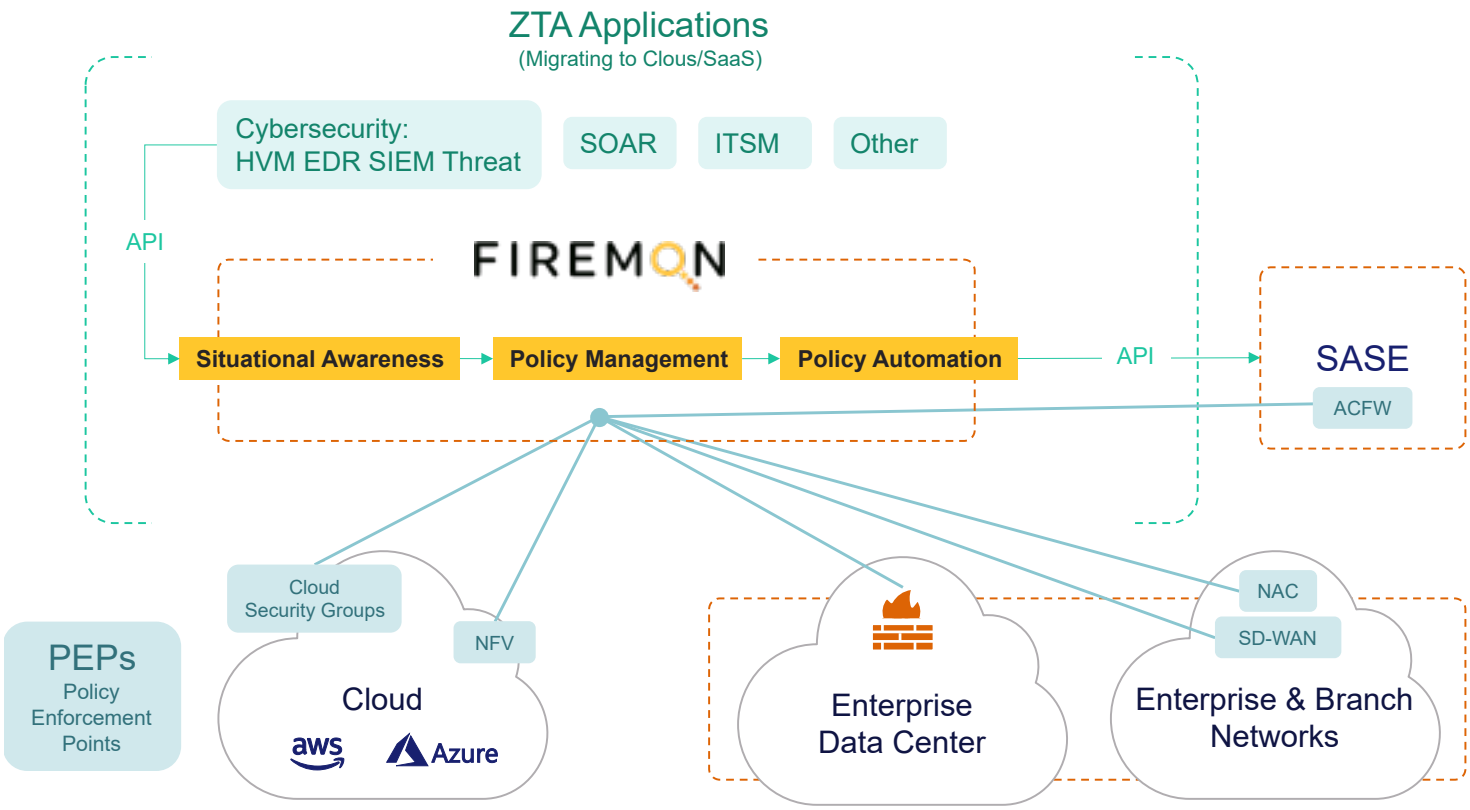
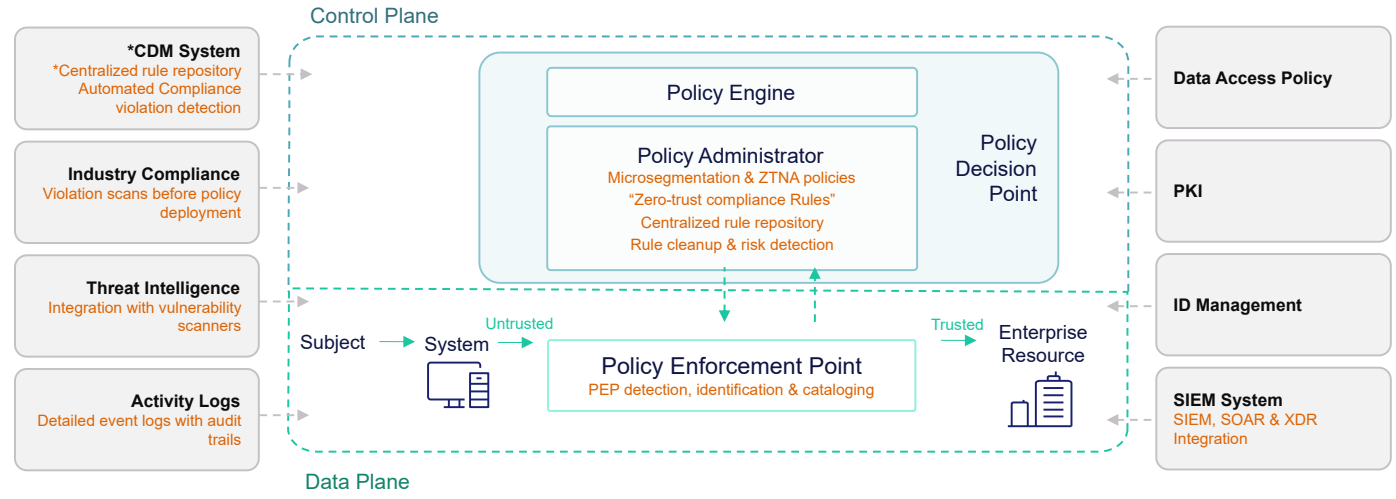


Figure 1: FireMon Zero Trust Reference Architecture



*** NIST Core Compoments**

* How FireMon Supports NIST

Figure 2: Agile NSPM from FireMon supports a broad range of core zero trust logical components

Policy management sits at the heart of zero trust: the ability to visualize, normalize, manage, and monitor rules across the entire network from the datacenter to the cloud. FireMon's NSPM delivers the necessary scalability, flexibility, and real time visibility to support zero trust.

The old cliché "you can't protect what you can't see" goes even farther under a zero trust paradigm. You also can't protect what you can't manage. Agile NSPM from FireMon allows security teams to create and enforce consistent policies across complex networks spanning from the datacenter to the cloud, with the flexibility to adapt to the constantly-evolving nature of a zero trust approach.

Mapping FireMon to the NIST 800-207 Logical Components

Component	NIST Description (Abridged)	NSPM Offers	Only from FireMon
Policy administrator	Responsible for establishing and/or shutting down the communication path between a subject and a resource. It would generate any session-specific authentication and authentication token or credential used by a client to access an enterprise resource. It is closely tied to the PE and relies on its decision to ultimately allow or deny a session. If the session is authorized and the request authenticated, the PA configures the PEP to allow the session to start. If the session is denied (or a previous approval is countermanded), the PA signals to the PEP to shut down the connection. Some implementations may treat the PE and PA as a single service; here, it is divided into its two logical components. The PA communicates with the PEP when creating the communication path.	NSPM is a central repository for all policy rules across all vendors throughout the entire environment; although NSPM does not directly control PEPs or policy engines, it is a critical element in ensuring policies are consistent and secure.	Highly-scalable policy management across complex, multi-vendor enterprise environments; custom "zero-trust compliance" rules for network security policies; finely-tuned global microsegmentation and ZTNA policies; clean reused, redundant and overly-permissive access policies to close security gaps
Policy enforcement point	Responsible for enabling, monitoring, and eventually terminating connections between a subject and an enterprise resource. The PEP communicates with the PA to forward requests and/or receive policy updates from the PA. This is a single logical component in ZTA but may be broken into two different components: the client (e.g., agent on a laptop) and resource side (e.g., gateway component in front of resource that controls access) or a single portal component that acts as a gatekeeper for communication paths. Beyond the PEP is the trust zone (see Section 2) hosting the enterprise resource.	NSPM provides policy management and distribution across all PEPs.	Detection, identification and cataloging of all PEPs across the entire environment (on-premises, cloud, and hybrid environments including SASE, SDN, NFV, FWaaS, and SD-WAN
Continuous diagnostics and mitigation (CDM) system	This gathers information about the enterprise asset's current state and applies updates to configuration and software components. An enterprise CDM system provides the policy engine with the information about the asset making an access request, such as whether it is running the appropriate patched operating system (OS), the integrity of enterprise-approved software components or presence of non-approved components and whether the asset has any known vulnerabilities. CDM systems are also responsible for identifying and potentially enforcing a subset of polices on non-enterprise devices active on enterprise infrastructure.	Real-time automated detection and response for compliance violations, high-risk events, misconfigurations, and policy changes	Thorough access path analysis to discover and mitigate vulnerabilities/leaks; attack simulations to uncover network security policy weaknesses
Industry compliance system	This ensures that the enterprise remains compliant with any regulatory regime that it may fall under (e.g., FISMA, healthcare or financial industry information security requirements). This includes all the policy rules that an enterprise develops to ensure compliance.	Automatic compliance violation detection and mitigation; compliance violation detection as part of workflows before policies are deployed.	Real-time detection and alerts; continuous compliance
Threat intelligence feed(s)	This provides information from internal or external sources that help the policy engine make access decisions. These could be multiple services that take data from internal and/or multiple external sources and provide information about newly discovered attacks or vulnerabilities. This also includes newly discovered flaws in software, newly identified malware, and reported attacks to other assets that the policy engine will want to deny access to from enterprise assets.	Integrated with threat feeds to detect known policy-related vulnerabilities	Integration with Qualys, Rapid7, and Tenable
Network and system activity logs	This enterprise system aggregates asset logs, network traffic, resource access actions, and other events that provide real-time (or near- real-time) feedback on the security posture of enterprise information systems.	Detailed policy-related event logging with audit trails	Expandable log history based on available storage
SIEM system	This collects security- centric information for later analysis. This data is then used to refine policies and warn of possible attacks against enterprise assets.	Event detection and response integration with SIEM, SOAR, and XDR systems	Open APIs enable custom integrations with SIEM platforms for visibility and control

Find the full NIST descriptions at https://doi.org/10.6028/NIST.SP.800-207

Know the Unknown: Situational Awareness

Knowing your network is critical to zero trust. NIST's ZTA requires an always-up-to-date view of the IP address space in use, layer 3 (L3) forwarders and policy enforcement points, routed path topology, and subnets. But most tradecraft "discovery" falls short of this definition, as it is often focused solely on endpoint assets.

FireMon Lumeta gives your organization a comprehensive view of your network: everything from physical, cloud, virtual, and software-defined network infrastructure and endpoints to operational technology and internet of things (OT/IoT). It starts with an examination of the forwarders and routes in the network and assumes that any target address space provisioned is simply the beginning.

Lumeta provides an accurate view of the infrastructure based on the actual L3 topology and forwarders. This leads to a thorough view of the address space, a complete endpoint census and, crucially, the location (subnet, switch-port, nearest gateway/router, firewall, and potentially geo-location) of those endpoints on the network. These insights into network traffic data and the current state of enterprise assets are important characteristics in any ZTA by NIST standards.

Tame Complexity: Security Policy Management

Policy management and decision-making are essential aspects of a ZTA. Since no access request should be implicitly trusted more than any other, the ability to construct, manage, and maintain compliance with compound policies is critical. Increasingly, policy management and the access-engine are control-plane services handled separately from the PEP functions (including firewalls and cloud security groups) that remain within the data-plane. As most organizations need to maintain these policies across complex, hybrid multi-vendor environments, manual policy management is untenable.

FireMon Security Manager is the industry-defining NSPM solution. It normalizes policy content across environments containing multiple firewall vendors, cloud security groups, and SD-WAN and SASE offerings. This capability allows the tenets of zero trust to be actualized in the organization among policy engine, policy administrator, and policy enforcement point components.

Normalization of policies across a complex environment allows security architects to have a unified view, enabling near real-time audits and assurance that the policy infrastructure is secure and compliant. As the number and variety of PEPs increase within ZTA microsegmentation zones, the ability of the policy administrator to automatically establish and shut down communication sessions is essential.

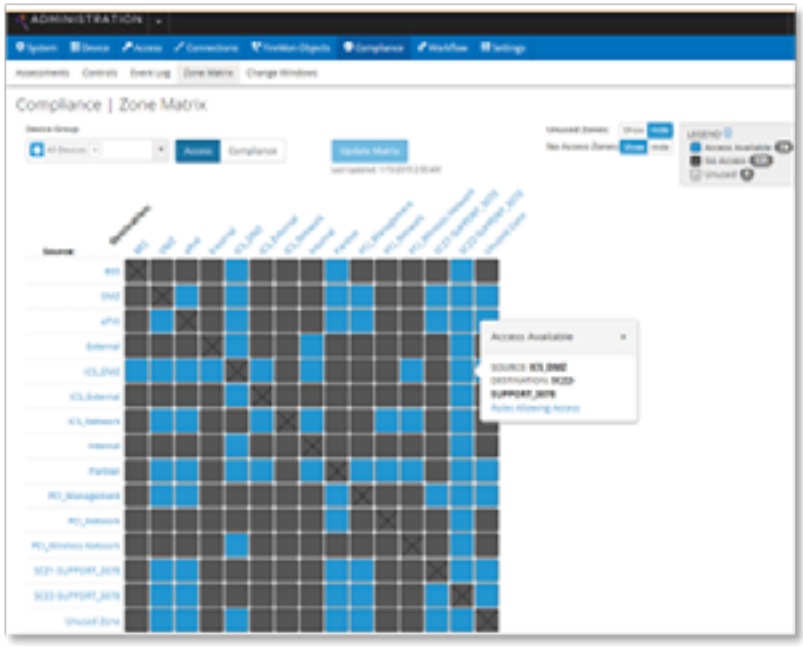


Figure 3: The unified view of policy in FireMon Security Manager facilitates elimination of overly-permissive, redundant, or unused policies across a complex multi-vendor ZTA environment without resorting to "swivel-chair" management–accessing each vendor management console to implement changes.

Simplify Processes: Workflow and Policy Automation

The journey to a ZTA requires automating the policy design, planning, and change approval process. Proliferation and scaling of policy decisions within enforcement points contained in various vendor offerings drive the need for automation to be deployed within the context of a ZTA.

This workflow is often facilitated via API integration into an IT Service Management (ITSM) process such as ServiceNow. As the number of security controls increases within a micro-segmented network, FireMon Automation pushes security policy into all policy enforcement points. The capability to automate ZTA security policies from design to decommissioning frees up security teams for more intensive, mission-critical tasks. Change management across the entire environment is orchestrated from a single FireMon user experience.

A next step along the ZTA journey with FireMon automation may be to improve security team efficiency through integrated threat and vulnerability management. Using a rich set of RESTful APIs, FireMon Automation integrates with SOAR and XDR solutions to provide another layer of security against malicious activity.

Conclusion

Moving toward a zero trust architecture is not as daunting as it may first appear. There are concrete steps that organizations may take with existing infrastructure that can help both harden security and fulfil core zero trust tenets. While building a pure zero trust architecture from the ground up overnight is often unrealistic, organizations can quickly improve their visibility, manage their policies, and automate their policy workflows with NSPM from FireMon as they migrate their perimeter-based workflows to ZTA.

The road to zero trust is long, but the journey is worth the effort in the long run. With each step along the path, security is hardened, visibility is improved, and compliance is streamlined. And the first step to zero trust is with foundational security technologies like agile NSPM from FireMon.

FIREMON

FireMon is the only real-time agile network security policy management (NSPM) solution built for today's complex multi-vendor, enterprise environments. Supporting the latest firewall and policy enforcement technologies spanning on-premises networks to the cloud, only FireMon delivers complete visibility and control across the entire IT landscape to automate policy changes, compliance, and minimize policy-related risk. Since creating the first-ever NSPM solution in 2003, FireMon has helped more than 1,700 customers in nearly 70 countries secure their networks. FireMon continues to lead the way with solutions that extend policy management to the latest technologies including SASE, SDN, NFV, FWaaS, and SD-WAN. www.firemon.com

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