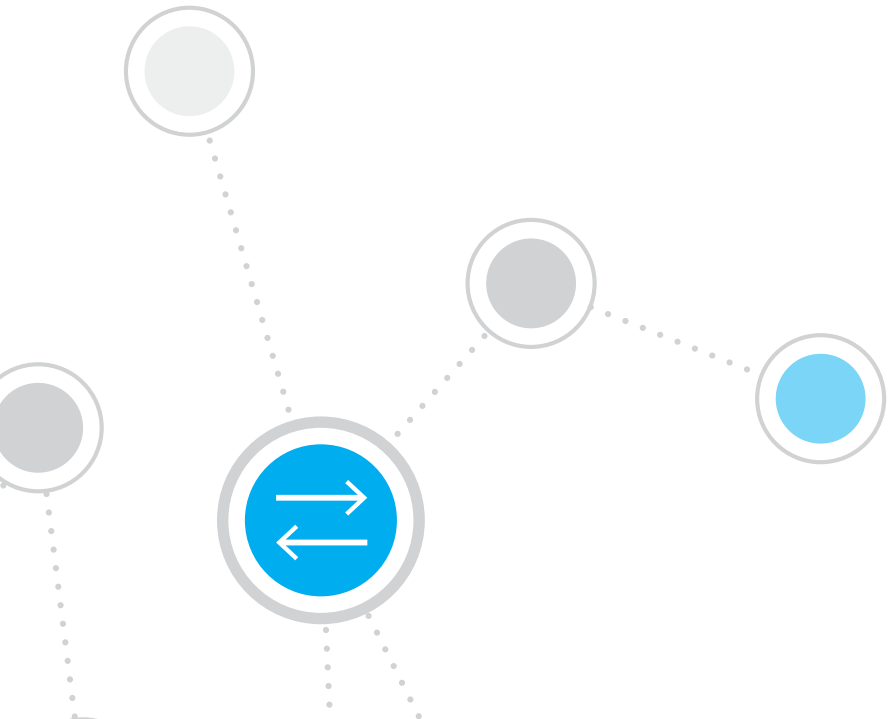
ForeScout

White Paper

Automating System-Wide Security Response through Orchestration



The Situation

Data breach numbers keep going up every year. Costs per incident keep rising too. And corporate networks are struggling under the weight of Bring Your Own Device (BYOD) and Internet of Things (IoT) risks as the number of these devices continues to mushroom. With connected devices anticipated to grow from five billion now to 25 billion by 2020[1], recognizing and securing unknown operating systems will be a herculean challenge. Organizations try to keep pace by investing in more and more security tools, but is anything really changing for the better? Is anybody safer?

If that introduction wasn't enough to make you take notice, consider this: The vast majority of security tools that enterprises are adding to their arsenals require constant human intervention because they are not capable of communicating with each other. In fact, in a recent Frost and Sullivan survey of senior IT officials conducted on behalf of ForeScout, 52 percent of respondents from large enterprises (organizations with more than $1 billion per year annual revenue) said they operate more than 13 different security tools. Yet more than two-thirds of those surveyed reported they had only a couple of tools that could directly share security-related context or control information.[2]

More security tools require more oversight and even bigger security teams. In turn, bigger security teams must plod through and analyze more and more data from all of those new tools, slowing response times when real threats emerge. Enterprise security teams risk turning into perpetual motion machines.

What's the solution? In a word, *orchestration*. Industry analysts are on board. They're preaching the value of orchestrating and automating enterprise security tools not only because they've seen the light—they're hearing from their enterprise customers who have adopted orchestration solutions and are seeing results. Security vendors are getting in on the action as well, in some cases making preposterous claims that they have been orchestration vendors all along. But take that as a good sign, because it is now abundantly clear that orchestration's time has come. Now it's not a matter of whether or not to orchestrate; the real decision involves which security actions to automate and what technology is best for the job.

Orchestrated Security and the Human Body Have a Lot in Common

A good way to think about how to make these decisions is to look at a complex model like the human body, and understand the decision mechanisms that we use to keep us safe.

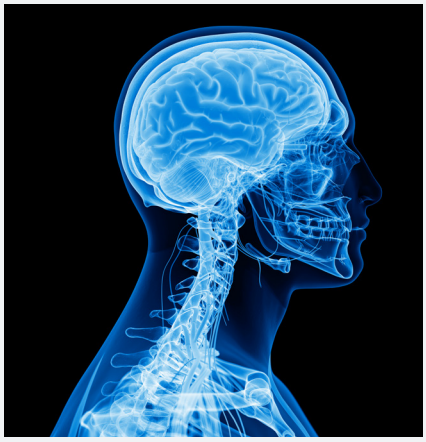
The human body is an extremely complex amalgamation of systems that somehow manage to work together year after year. Of all of the body's systems, one—security—is especially ingenious in that it features two key decision-making mechanisms: the nervous system and the brain. Discrete components, they each have a unique role to play. But they also complement each other.

The nervous system's job is to keep us safe. It is fully aware of its surroundings and can react in real-time and in a very instinctive, fight-or-flight way. Relying on its own network of sensors, the nervous system doesn't consult the brain in many of the thousands of decisions it makes every day because things happen too fast. Picking up a cup of coffee, for example. The nervous system tells the hand to put it down instantly if the cup feels hotter than it should be. It does so to give the brain the opportunity to do what it does best: pondering unknowns (aka thinking).

The brain focuses on higher-functioning decision-making to keep us safe. It is constantly looking for and perceiving patterns related to situations and things it has never seen before. It makes deductions based on experience and surroundings. It asks questions and does calculations all in the service of decision-making. But it's slow and can't keep you safe when there's a threat that requires split-second action. However, because the brain is higher functioning, it can override your nervous system. That hot cup of coffee? The brain can "tell" the nervous system that, yes, it's hot, but not hot enough to burn. So pick it up!

1 Gartner, "Predicts 2016: Security for the Internet of Things," December 2015

2 Frost & Sullivan: Continuous Monitoring and Threat Mitigation with Next-generation NAC, http://resources.forescout.com/Frost-Sullivan_NAC_White-Paper.html

	**Nervous System** Instinctive reactions for keeping one safe	• Full awareness: sensors everywhere • Real time and instantaneous: no time to think; immediate response • Rules learned over time based on evolution and what makes you safe • Does not involve the brain: protects the brain for higher-function decisions • But informs the brain so it can make a conscious decision as to what is the appropriate response
	**Brain** Higher-functioning Decision-making	• Recognizes patterns based on multiple inputs • Capable of making decisions when faced with new situations • Can override the nervous system instinct • Slower to respond

A real-world analogy: *the human body features a bi-lateral security system that functions in a manner similar to effective network security solutions.*

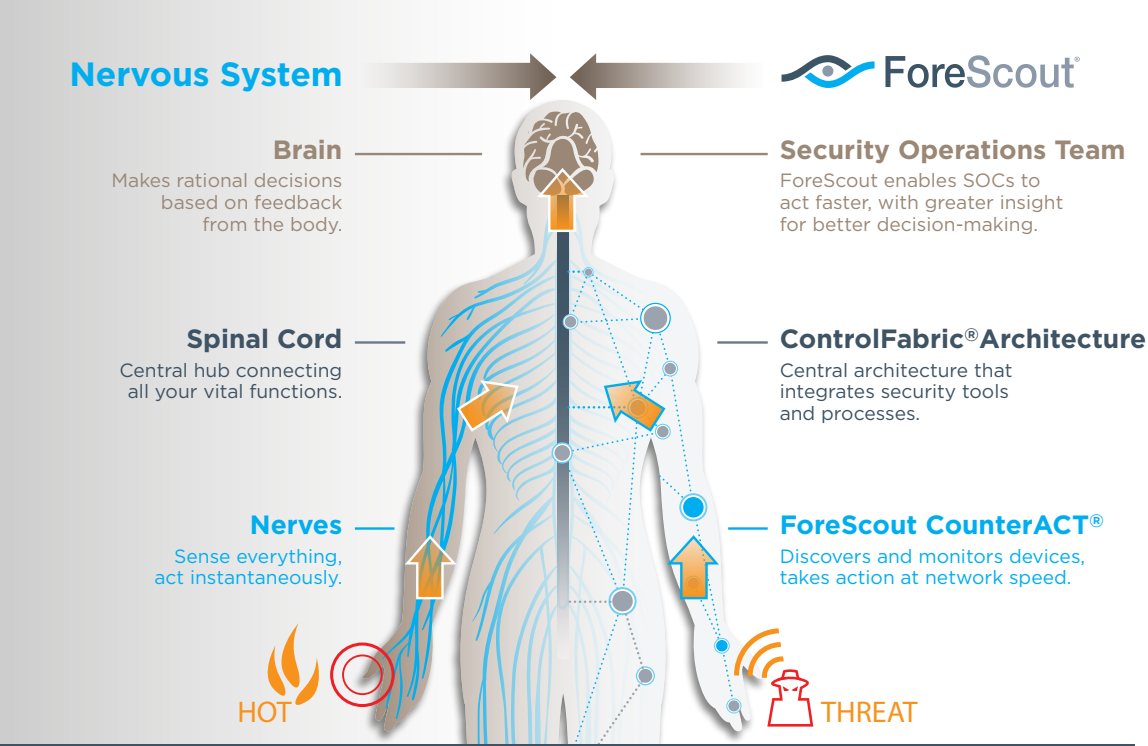
How does enterprise security relate to this? It's simple. For safety's sake, security architecture must have a lightning-fast cyber nervous system, plus a smart, resourceful "brain," which is typically an incident response team that analyzes threats and decides whether they are real or not. Above all, the enterprise security brain needs a safe interim in which to make decisions—an interim provided by the cyber nervous system.

We Were Born to Orchestrate

ForeScout is uniquely qualified to fill the position of the enterprise cyber nervous system.

A comprehensive, highly intelligent network security solution, ForeScout CounterACT® offers the data aggregations to provide in-depth awareness of what's in your environment. It has the ability to instantly recognize devices, "touch" them and share detailed sensory insights it gains with third-party security tools. Its rules engine and workflow engine are able to act at line speed and in real time, so they can make decisions instantly. And, working with ForeScout Extended Modules, which are enabled by ForeScout ControlFabric® Architecture, information is exchanged with a wide range of third-party security products, allowing CounterACT to take action against threats, either automatically or when the brain— your team—says to do so.

The Vision of Orchestration



Neural Network vs. Corporate Network:
How ForeScout operates like the human nervous system.

Think about your security strategy in terms of a brain and cyber nervous system. Your vendors are all vying to supplement your brain—your incident response team. This is all well and good because ForeScout can partner with them to make their solutions and ours smarter and more effective. The various "brainy," siloed security solutions have specialties. They're good at something, whether it is correlating data and events, pinpointing vulnerabilities, detecting malware, issuing alerts, or whatever the case may be. In general, however, they aren't real-time solutions, are lousy communicators, and in most cases are incapable of taking action.

That's where ForeScout ControlFabric Architecture and ForeScout Extended Modules come in. Together, they act as a central hub, connecting your vital security functions in the same way your spinal cord transmits data from nerve endings to the brain. ForeScout Extended Modules use the ControlFabric Architecture's open integration technologies to provide the data and uncover the contextual information these third-party security solutions need to make decisions. They enable CounterACT to share insights about devices—both managed and unmanaged, agent-enabled and agentless—and automate workflows and security processes across leading enterprise mobility management and endpoint protection platforms.

This is true integration—elevating and unifying enterprise security management at a system-wide level that has not existed before. The resulting newfound capabilities are a vast improvement over the previous status quo, enabling:

Greater operational efficiencies – When formerly disparate security tools are integrated and sharing information, they share insights—enhancing security across the board while reducing the need for manual oversight and intervention.

Accelerated threat response – Integration enables automation of basic tasks and threat mitigation while providing your incident response team with real-time information on threats that must be analyzed, prioritized and neutralized.

Higher-security ROI – The whole is much greater than the sum of its parts. By taking security tools out of silos and plugging them in to a highly intelligent and unified central nervous system that can automate threat mitigation and policy compliance to a large extent, you get much more value out of your security tools and a rapid return on investment (ROI). What's more, your incident response team is kept highly informed in real time.

A much-improved network security and compliance posture – Integration provides the ability to automate and enforce policies and help ensure that the right users and systems are appropriately accessing the right resources. By unifying security management, you can automatically identify policy violations, remediate endpoint deficiencies and measure adherence to compliance mandates.

The Value of Applied Orchestration

In most organizations today, enterprise security management breaks down (in every sense of the term) into several rigidly defined product areas. These product areas can be combined and benefit from an integration architecture that unifies them into a singular platform in which information is shared and incident responses are coordinated, automated and accelerated.

Consider the possibilities:

Firewall

As defense perimeters, firewalls are effective at keeping large segments of the cybercriminal community out. However, they are completely ineffective when it comes to endpoint compliance. Orchestration can provide real-time intelligence about the devices and users on your network, including BYOD, guest and unmanaged endpoints, without the need for agents. This is the basis for enforcing firewall policies and eliminating risks on a much more comprehensive level.

Security Information and Event Management (SIEM)

SIEM solutions are only as good as the information that is fed into them, and the timeliness of that information. Orchestration can enable real-time discovery of network endpoint data, which can then be sent to the SIEM in real time, closing visibility gaps and broadening situational awareness. With orchestration, leading SIEM systems can also gain enforcement capabilities. Depending on the severity of the threat, actions can range from a gentle reminder to a device user to update a device, to quarantining the endpoint or even direct, mandatory remediation.

Advanced Threat Detection (ATD)

ATD systems within a unified security management platform can assess the extent of infection on your network and contain the threat. When an integrated ATD system detects malware, it shares data about the affected system(s) and Indicators of Compromise (IOCs). Then, based on your policy, it can scan other endpoints for presence of infection and collaborate with other security tools to take policy-based actions to contain and respond to the threat. Infected devices can be quarantined or lesser actions can be taken depending on the level of risk that the threat poses. Either way, malware propagation is stopped and the cyber kill chain is broken.

Enterprise Mobility Management (EMM)

Integration of EMM systems can provide companies with automated security policy management for devices on the network regardless of the type (PC, Mac, Linux®, tablet, smartphone), the type of connection (wired, wireless, VPN) or the ownership of the device (corporate or personal). Forget manual monitoring, installing, updating and reactivating security agents on managed systems, and all of the lost time that it implies. In a unified security management system, EMM gains comprehensive information about devices and works within the system to take appropriate action when a device doesn't have a functional EMM agent—reducing the network's attack surface and closing windows that cybercriminals might otherwise use to propagate within the network and exfiltrate data.

Vulnerability Assessment (VA)

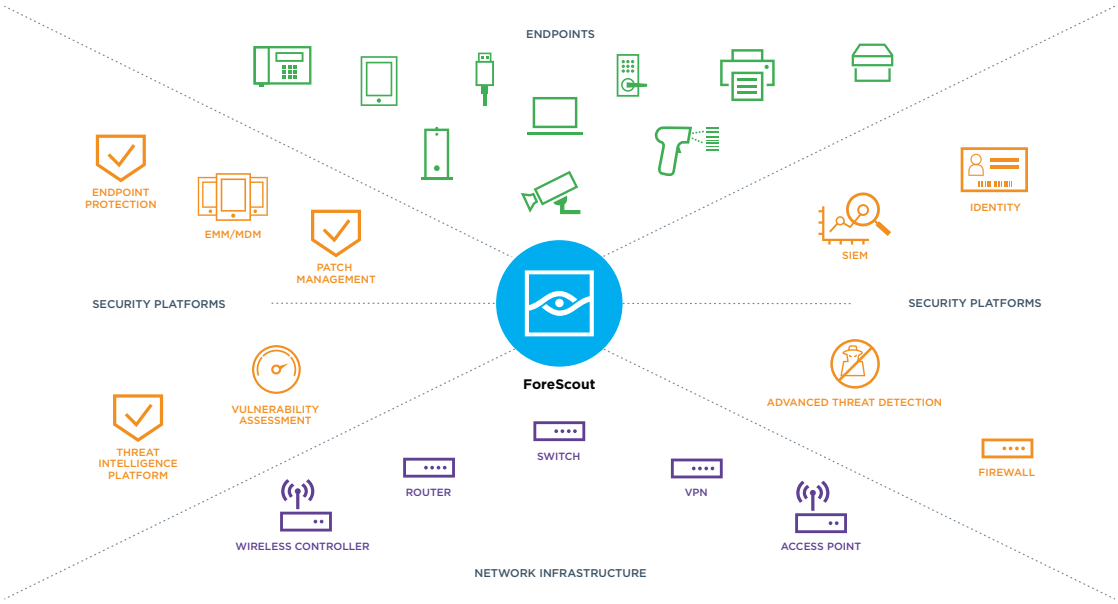
It's ironic, but Vulnerability Assessment systems typically have a built-in vulnerability: they scan the network periodically instead of continuously, which leaves organizations blind to risks that emerge between scans. However, through orchestration, VA systems can take advantage of other security tools' capabilities—sharing real-time information and initiating VA scanning of devices as necessary. Automated scanning can be triggered by endpoints that meet certain policy conditions, such as when they contain specific applications, or when endpoint configuration changes are detected. Then risk mitigation actions can be taken automatically if vulnerabilities are detected. In this way, through integration, VA becomes a much more valuable and much less vulnerable tool.

Endpoint Protection Platform (EPP)

In a unified security management system, EPPs such as McAfee ePolicy Orchestrator® (McAfee ePO™) software can be much more intelligent—managing endpoint security not only on corporate-owned (managed) devices but on BYOD and IoT (unmanaged, agentless) devices as well. In fact, integration can help close visibility gaps and facilitate automated compliance with antivirus, patch management, encryption and other endpoint management policies. Integration can assist in eliminating threats from non-compliant or infected endpoints. All told, it can greatly improve the orchestration capabilities of EPO and other orchestrators.

Orchestration, ForeScout and the Ties that Bind

While still common, enterprise security tools working in silos is a legacy scenario. Today, with the integration between products and the orchestration that ForeScout Extended Modules provide, unified enterprise security architecture is a reality for many organizations. These forward-thinking organizations are experiencing the synergies and added functionality that come with information sharing. By establishing once and for all that formerly disparate security tools can work together as one, ForeScout and its integration partners are proving that cooperation trumps proprietary concerns when it comes to providing customers with superior solutions—solutions that offer decision-makers freedom to pick and choose the security components that work best in their particular environments.



CounterACT integrates with popular security and infrastructure solutions, offering bi-directional contextual exchange and intelligent, automated responses. New partners continue to join the ecosystem and Extended Modules are constantly under development to expand CounterACT's capabilities to third-party security management tools.

See Multivendor Orchestration In Action

At ForeScout Technologies, expanding security tool orchestration is a no-holds-barred initiative. We're all in. We are dedicated to integrating leading network, security, mobility and IT management products with our solutions—to help our customers overcome security silos, automate workflows and obtain significant cost savings.

ForeScout has released more than 70 integration modules so far*, mostly due to customer requests, and we plan to roll out new ones rapidly going forward. In addition, custom integrations can be developed via the ForeScout Open Integration Module, which allows customers, systems integrators and technology vendors to integrate key security and management systems with ForeScout CounterACT.

Today, more than 2,000 customers in over 60 countries* improve their network security and compliance postures with ForeScout solutions. And we expect those numbers to grow dramatically as word gets out about what we're accomplishing with orchestration.

Please get in touch, or check back with us from time to time to learn how much progress we've made in bringing key enterprise technologies together into a more intelligent, unified enterprise security apparatus.

ForeScout Extended Modules are separately licensed and available for a free, 30-day, evaluation. To learn more, visit our Orchestration page or Extended Modules page at www.forescout.com for the latest integration information. Or chat with a ForeScout representative at 1-408-213-3191.

Learn more at
www.ForeScout.com

ForeScout Technologies, Inc.
190 West Tasman Drive
San Jose, CA 95134 USA

Toll-Free (US) 1-866-377-8771
Tel (Intl) +1-408-213-3191
Support +1-708-237-6591
Fax +1-408-371-2284

About ForeScout

ForeScout Technologies, Inc. is transforming security through visibility. ForeScout offers Global 2000 enterprises and government organizations the unique ability to see devices, including non-traditional devices, the instant they connect to the network. Equally important, ForeScout lets you control these devices and orchestrate information sharing and operation among disparate security tools to accelerate incident response. Unlike traditional security alternatives, ForeScout achieves this without requiring software agents or previous device knowledge. The company's solutions integrate with leading network, security, mobility and IT management products to overcome security silos, automate workflows and enable significant cost savings. As of January 2016, more than 2,000 customers in over 60 countries improve their network security and compliance posture with ForeScout solutions.

*As of January 2016