White Paper

Achieving Compliance and Managing Risk via Actionable Security Intelligence

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Executive Summary

Today, enterprises around the globe face unprecedented demands to comply with strict security and privacy legislation. At the same time, companies continue to search for the most reliable and efficient means for protecting critical business information in the interest of intelligent business management. To accomplish both, companies should take a comprehensive approach to security management, aligning business security programs with compliance initiatives.

Yet a centralized, integrated approach to security management comes with various challenges—from contending with isolated data and security management processes to addressing the difficulties of measuring overall security performance. Building an effective security decision support solution requires taking a proactive stance that includes threat and vulnerability identification, comprehensive insight into security posture, automated guidance through incident response processes, and continuous improvements to security posture and policies.

According to Paul Stamp, Senior Analyst, Forrester Research, "In order to assess and manage risk effectively, the security team still needs visibility into the overall posture of the security organization, as well as access to data and reports detailing the health and effectiveness of security controls. At the heart of this effort is the security information management system."[1]

Enterprise security information management (SIM) is the backbone to an effective, comprehensive security decision support program. With SIM, companies can rationalize volumes of security data from disparate networks and devices, then rapidly deliver usable information to the right people and technology domains across the enterprise. The nFX Open Security Platform (nFX OSP) transforms security data into *actionable security intelligence*, delivering comprehensive security decision support that provides a strong risk management platform while helping companies manage and maintain compliance.

The Information Security Landscape

The information security landscape has changed dramatically in recent years. While the network hacker continues to pose a threat to application and data integrity, regulatory compliance has shifted the information security focus from external to internal. As noted by Charles Kolodgy, analyst at IDC, "Compliance shifted security management from monitoring external network activity to managing internal user activity at the application and database level."[2] Whether contending with the Sarbanes-Oxley Act (SOX), the Health Insurance Portability and Accountability Act (HIPAA), the Gramm-Leach-Bliley Act (GLBA), the Federal Information Security Management Act (FISMA), or other compliance challenges, companies must prove diligence in managing information security risk.

Maintaining secure, risk-free operations continues to increase in complexity, consuming valuable resources in the process. Service-oriented architectures are increasing the pace of application development and deployment. Networks are comprised of more and more applications and data with greater distribution across the enterprise and beyond, creating more access points to critical data. Though visibility into real-time threats and vulnerabilities is called for, most organizations lack the comprehensive tools and technology needed to leverage information security data for actionable security intelligence for both internal and external information security initiatives.

Security Management Challenges

Developing and implementing an effective security management system comes with many challenges for organizations, particularly with the recent explosion of legislation regarding the privacy and security of information. Executives and information technology groups find themselves more accountable for security requirements and compliance auditing than in the past. Closely examining the details of company security postures is exposing potential vulnerabilities and inefficient processes previously unimportant or even unrecognized, including the following:

- **Disconnect Between Security Programs and Business Processes** – Immature information security programs are often not well integrated into standard business processes, creating an enterprise-wide information disconnect along with enormous process inefficiencies.
- **Fragmented Security Information, Processes, and Operations** – Information security often takes place in organizations within silos. For instance, separate databases and unrelated processes might be utilized for a company's audit assessments, intrusion detection efforts, and antivirus technology. For these organizations, developing an integrated approach to SIM can be a great challenge.
- **Security Performance Measurement Difficulties** – Many organizations struggle with performance measurement and management, and developing a standardized approach to information security accountability can be a daunting task.
- **Broken or Nonexistent Remediation Processes** – Previously, compliance and regulatory requirements called for organizations to simply log and archive security-related information. Now, auditors are requesting in-depth process documentation, showing not only evidence of the threat response, but exactly what was responded to and precisely how. The connection between threat identification and the remediation or mitigation is becoming increasingly important, along with the ability to prove it.
- **Abnormal User Activity and Data Leakage Identification** – With today's security requirements, organizations need to quickly and efficiently add processes that can facilitate incident identification and the detection of anomalous behavior.

Clearly, organizations are discovering that being prepared to react to security threats is not enough. A proactive approach is necessary, given the complexities and challenges now inherent in security management.

Security Decision Support Solutions

Today, achieving compliance and managing risk requires a new level and breadth of security awareness and security decision support. Organizations need to better understand the security issues of the Internet, regarding common networks, and even related to their particular industry. They need to know the specific vulnerabilities that exist and how they relate to a given security profile, to various network devices, to host computers, and to desktop computers. Comprehensive insight into security assets and posture must exist within a security decision support solution and is fundamental to risk management itself.

Organizations can leverage security expertise, both internally and through external consultants, to help operationalize security information. The alignment of network operations centers with security operations centers can facilitate the timely identification and remediation or security-related issues. For successful security decision support,

organizations need to automate incident response processes once in place. These automated processes, however, must remain flexible and scalable. The nature of risk management and compliance is very dynamic, with ongoing network modifications, regular and often complex security incidents, and continuous efforts to improve security posture and policies.

A comprehensive security decision support solution involves many components to be successful. Several, though, are key to addressing the critical elements of SIM: compliance, business services continuity, threat and risk management, and security performance measurement.

Compliance

The emergence of compliance as the leading driver for information security projects has forced organizations to refocus their energies on securing underlying data critical to the organization's financial operations, customers, and employees. Yet achieving regulatory compliance is a complex and enormous challenge for organizations today, with massive amounts of data and complex applications to monitor, and increasing numbers of users with access to those applications and data. An effective solution enables real-time identification and mitigation of internal and external threats and vulnerabilities across systems, devices, and applications, that can cause compliance violations. Organizations need accessibility to contextual information and to understand real-time network changes, such as adding assets, and the new vulnerabilities and threats that creates. With the right solution, organizations can demonstrate the effectiveness of controls on compliance assets, and can monitor user activity of applications and databases. They can also implement a standard, repeatable, and auditable incident resolution workflow, particularly important for large organizations with many security regulations requiring compliance.

Business Services Continuity

Continuity of the security management program across an organization and within its strategic business applications is key to risk management and compliance success, and can be accomplished with an effective security decision support solution. Organizations should be able to predict where most threats might occur, and how they might impact the ability to keep business processes moving, to service customers, and to run a profitable business. Yet data is constantly in motion, continually consumed by users and applications across the enterprise. Additionally, the increased deployment of service-oriented applications increases the number of users with potential access to enterprise data. Service-oriented applications have many moving parts, and monitoring security information at the application layer is considerably more difficult than monitoring network activity, given the complexity of the data. A security decision support solution should provide monitoring of applications and their data, in addition to monitoring security devices. Then, when immediate and unexpected threats occur—in networks, applications, and databases—organizations have the capacity to react quickly with a well-tuned, comprehensive incident response plan, so that systems and business processes continue running smoothly.

Threat and Risk Management

As businesses mature and networks grow to vast webs of dynamic information and assets, organizations shift their security regiments from trying to address all security issues to establishing security protocol priorities. The larger, more complex organizations

choose to focus on the most important assets, the most damaging threats, the potential intrusions that will have the greatest financial impact, and those security issues that can cause the most disruption to business processes within the organization. In the post-Internet era, the focus for security organizations has been on stopping threats from outside the enterprise. Yet data leakage and inappropriate user activity from inside the enterprise are often bigger threats, since the potential hacker is so much closer to the data. Organizations today are forced to reconsider their approach to managing risk from insiders.

To successfully mitigate insider threat, a security solution must do more than monitor network activity using network behavior anomaly-detection technology or host-based intrusion-detection systems. Organizations should secure databases, application servers, and ultimately applications themselves through proactive monitoring of logs and user activities from identity management systems and within applications.

According to Amrit T. Williams, Research Director, Gartner, Inc., "Application-level security logging is increasingly important because of regulations, increased incidents of data theft, and changes in the threat landscape that lead to more targeted attacks and attacks focusing on the application layer…Organizations should implement centralized application security logging to address a changing threat environment and to support regulatory compliance."[3]

Effective management of insider threats begins with obtaining complete visibility into all technologies and assets. Security decision support solutions can help businesses factor into their security programs the likelihood of a compromise happening—from both external as well as internal sources—and the severity of potential threats. With a solid decision support solution, organizations can continuously monitor risk levels on a day-to-day basis, where assets could at any moment come under attack, and measure deviations against an established baseline of acceptable security risk.

Security Performance Measurement

Given that organizations cannot manage what they cannot measure, the ability to perform security assessments and benchmarking are key aspects of an effective security decision support solution. Organizations need to understand their security posture at any point in time, and then have the ability to use that as a security baseline to measure against. Also, executive management needs a fast, straightforward, and credible way to have visibility into the organization's security posture. Rather than pore through a lengthy vulnerability assessment report, with the right security solution executives can view key security information through dashboards that might for instance summarize via graphs or pie charts vulnerabilities within a specific time period.

An effective security decision support solution is founded on a variety of actionable security intelligence solutions that connect people, processes, and technology across the enterprise. Together, these solutions comprise the SIM technology known today as the next generation in compliance and risk management.

Unified Network and Security Management

Too often, identifying, managing and eliminating threats across the enterprise is a fragmented and ineffective process for businesses and can lead to damaging outcomes. Taking an ad-hoc, trial-and-error approach to identifying, containing, and mitigating threats can result in prolonged network and application outages, lost data, lost revenue, potential compliance violations, and frustrated users. To meet compliance needs and

"Information security managers around the globe are frustrated. They are struggling to make sense of the reams of data being churned out in today's enterprise environment."[4]

— Khalid Kark, Senior Analyst, Forrester Research

maintain business services continuity, organizations need the capacity for a coordinated response across a unified network and security management infrastructure.

Paul Stamp, Senior Analyst for Forrester Research, states, "When security incidents like a worm outbreak or a system compromise occur, information risk management needs to coordinate the response, providing timely advice regarding the appropriate response actions. Moreover, they need to make sure that the different teams involved in IT security that need to plug the security holes communicate effectively and get the job done as efficiently as possible."

An effective security decision support solution enables a comprehensive, unified view of the impact of security events on key business services, and an effective response mechanism. With coordinated incident response, companies can rapidly detect, contain, and respond to threats, preventing loss, downtime, and compliance violations. With improved collaboration between network and security teams, systems are quickly returned to operational standards following an attack. Organizations can be more proactive, correlating vulnerabilities against high-value assets. SIM capabilities and security intelligence are incorporated into the network management environment in the interest of maintaining business continuity and meeting service-level agreements. With a security decision support solution that supports a unified network and security management practice, organizations can derive more value from existing investments in network management and security technology.

"Combining systems information with security management means better visibility, cost savings, and higher efficiency when protecting and managing enterprisewide IT systems."[5]

— Thomas Raschke, Senior Analyst, Forrester Research

Security Information Management: The Backbone of Security Decision Support

Security decision support can provide a flexible yet comprehensive solution for addressing risk management and compliance challenges. Enterprise SIM technology is positioned at the heart of the security infrastructure and inherent in the most effective security decision support solutions. An enterprise-class SIM platform can transform all information security-related data into actionable security intelligence that can facilitate decisions regarding appropriate mitigation and remediation. Security metrics enable management to take decisive action. SIM also accelerates incident response via a consistent workflow that is repeatable from business unit to business unit.

SIM technology enables organizations to aggregate and rationalize security information from strategic applications and critical compliance-related assets, as well as from the perimeter devices that protect them. Security information is made available to the security organization and beyond, to individuals and technology domains across the enterprise, while supporting IT governance, enterprise compliance, and risk management initiatives.

Organizations should have processes in place that automatically identify not only external security threats, but especially internal threats, since most vulnerabilities lie within an organization's perimeter. Though businesses rely on perimeter defenses to ward off viruses and worms, unintentional internal data leakage is common. Both the perimeter and internal security information can be managed together to uncover security threat patterns. Information from all deployed devices, such as routers and hosts, is integrated with application and database information, then tied to network information, offering a clear, concise, and relevant view of security information and current security posture. Through an integrated, comprehensive approach to security management, companies can gauge whether they are improving their overall risk posture.

Actionable Security Intelligence and the nFX Open Security Platform

netForensics offers organizations a comprehensive set of security solutions driven by the ready availability of more timely and relevant information. These security decision support solutions, based on the proven netForensics SIM architecture, provide greater visibility, better intelligence, and more effective response. nFX OSP features a variety of tools and technologies to help organizations address even the most complex compliance and risk management objectives. Capabilities of nFX OSP include the following:

Actionable Security Intelligence

nFX OSP transforms security data into actionable security intelligence. With broad security intelligence, organizations have a foundation from which to maintain compliant operations. Organizations can better respond to security threats and ensure business continuity. When empowered with actionable security intelligence, organizations can maintain a continuous process of threat collection, identification, and remediation.

Enterprise-Class Security Decision Support

With enterprise-class security decision support, businesses can meet compliance requirements through automated threat identification, by reporting against controls, and via incident resolution management. Organizations can maintain business process continuity by leveraging the netForensics robust, scalable architecture, application monitoring, and unified security and network management. Additionally, they can resolve incidents as they occur. Performance measurement is enabled, with metrics to provide baselines for security and performance gauges at the analytical and executive dashboard levels.

Scalable, Robust SIM Architecture

The extensive scalability of the netForensics SIM architecture cost-effectively supports growth and reduces total cost of ownership in mid-size to large environments. The SIM architecture incorporates data from security and network devices, applications, scanners, and databases to deliver global visibility into all security-related activities, regardless of numbers. Plus, the netForensics solution offers the only multi-tier SIM architecture with full failover to ensure business services continuity and compliance.

Correlation Technology and Processing Power

The industry's most comprehensive correlation technologies go beyond simply logging security information, and instead speed threat identification and provide an accurate picture of risk. These technologies are architected to handle the massive volume of security information from network-related sources as well as server logs, applications, databases, and identity management systems, and pinpoint attacks from the inside and beyond based on a thorough understanding of network and user activity. The correlation technologies process large volumes of data from the perimeter down to the core to identify real-time threats and historical patterns. Organizations can leverage their broad security knowledge base and correlate the information to uncover threats that would otherwise go undetected, facilitating proactive security management.

Visualization, Reporting, and Analytics

With the netForensics solution, organizations can visualize threats as well as the security information underlying the threats. Security teams can assimilate information faster and

"Through 2006 and 2007, the ability for SIEM [security information and event management] vendors to support application-level logging and correlate that information with multiple data sources will increase to a level that their value will outweigh other options significantly."[3]

— Amrit T. Williams, Research Director, Gartner, Inc.

then focus on the real security threats, mitigating vulnerabilities before threats proliferate. The deep level of analytics enables companies to measure compliance, risk, and operational performance so that security analysts, operators, and executives can determine the security posture and take any necessary steps to improve it. Through the in-depth reporting functionality, key stakeholders and especially auditors have ready access to comprehensive compliance data.

"Most information security managers realize that they can no longer keep asking for increasing budgets or using the excuses that they don't have time to measure security or that measuring security is simply impossible."[4]

— Khalid Kark, Senior Analyst, Forrester Research

Incident Resolution Management Workflow and Embedded Security Knowledge

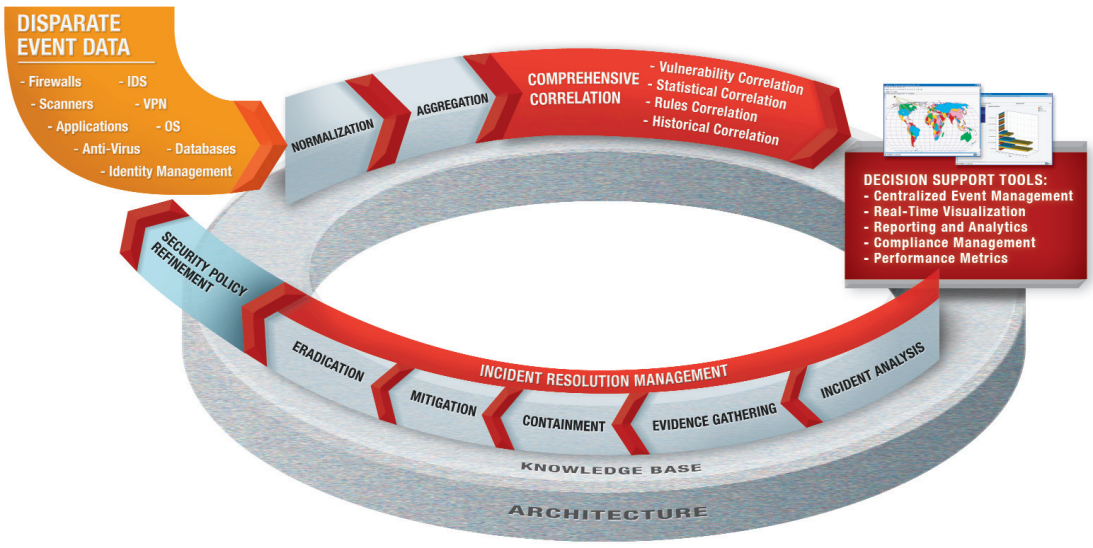
Compliance success relies more than anything on an organization's ability to show proof of a repeatable process for effectively responding to threats. nFX OSP offers guidance through a repeatable incident response workflow, allowing companies to effectively eradicate threats and prevent reoccurrences. Business continuity is achieved with the capacity to follow incidents from identification through resolution. Through actionable security intelligence, the incident remediation process is documented for security policy management and improvement purposes, as well as for regulatory audits. The embedded knowledge base integrates third-party security information that includes a pre-populated database of incidents and how to resolve them.

Application Security Monitoring

nFX OSP is uniquely positioned among SIM systems to provide monitoring of applications in addition to security devices. nFX OSP, designed with monitoring at the application layer, provides comprehensive application security monitoring. The multi-tier architecture can be distributed to where enterprise applications and databases reside. Flexible deployment options allow nFX OSP to be configured optimally to handle application events, while failover and redundancy guarantee the availability of events from identity management systems, server logs, and traditional network security devices. Dashboards and reports allow everyone involved in the process of enterprise security, including the security team, network operations group, compliance, audit, and line of business managers, and the CIO and CISO, to understand the impact of an application-level incident on business continuity.

The nFX Open Security Platform

The various nFX OSP tools, technologies, and processes described—from collecting disparate security event data for actionable intelligence to improving security posture—can be visualized through Figure 1 below:



Conclusions

Maintaining secure business operations continues to increase in complexity for organizations—from compliance requirements to distributed networks to an increase in applications and data across those networks. To address these complex security challenges, successfully manage risk, and meet today's compliance demands, organizations require comprehensive insight into security posture. Security decision support solutions provide a foundation for delivering the right information, to the right people, at the right time. nFX OSP, with its inherent SIM technology, provides actionable security intelligence to address compliance, meet risk management needs, and provide business services continuity.

About netForensics

netForensics transforms all security-related information into actionable intelligence, enabling more than 450 enterprises and government agencies to better respond to security threats, maintain compliant operations, and ensure the continuity of key business processes.

By harnessing the power of our award-winning Security Information Management platform that manages more security events at more organizations than any other product in the marketplace, we help customers deliver security management solutions that rely on the availability of timely and relevant information security information.

We facilitate these actionable security intelligence (ASI) solutions by rationalizing security information from strategic applications and critical compliance-related assets, as well as the perimeter devices that protect them. ASI solutions make this information available to technology domains and users within the security organization and beyond — by unifying network and security organizations, while supporting IT governance, enterprise compliance, and risk management initiatives.

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