The Security Operations Maturity Model Quick Reference Guide for Banking

In 2018, banks and financial service companies experienced a 500 percent year-on-year increase in data breaches.[1] Banks are where the money is, and attackers are keeping the pressure on.

The pressure is also coming from clients, who demand easier, always-on access to funds. Mobile apps and web portals, while fulfilling customer demand, increase risk. A survey of 30 common banking applications found that all had at least one security flaw, and 25 percent had high-risk flaws.[2] Protecting bank systems, funds, and client data is an increasingly complex challenge.

With consolidation, industry innovations, and new tech, cybersecurity challenges are growing. Boston Consulting Group identifies seven key weaknesses in banking:[3]

- Limited insight into key IT assets and the threat landscape
- Failure to prioritise cybersecurity
- Focus on prevention, over detection and response
- Failure to hire talent
- Weak third-party management
- Lack of a security-aware culture
- Operational stress

Meeting these challenges requires a banking institution to first to check its cybersecurity maturity. Once this is determined, the organization can plan for future needs.

[1] Cyber attacks on financial services sector rise fivefold in 2018, Financial Times, Feb. 25, 2019
[2] Cybersecurity and Banking: 3 Trends to Watch in 2019, BitSight, Nov. 26, 2018
[3] Banking's Cybersecurity Blind Spot and How to Fix It, BCG, Aug. 1, 2018

The Security Operations Maturity Model

LogRhythm developed the Security Operations Maturity Model (SOMM) to assess an organization's current maturity and plan for improved maturity across time. Organizations should use this model as a basis to evaluate their current security operations maturity and develop a roadmap to achieve the level that is appropriate in the light of their resources, budget, and risk tolerance.

Figure 1. Reduced time to detect and respond to cyberthreats, and heightened visibility of your cyber environment are directly tied to security operations maturity

LogRhythm's model describes five levels of security operations maturity. Each level builds on the prior, adding additional technology and process improvements that strengthen the capabilities of an organization's security operation toward mean time to detect (MTTD) and mean time to respond (MTTR) reductions. Organizations can achieve lower MTTD and MTTR by using LogRhythm's Threat Lifecycle Management (TLM) framework — a set of critical capabilities that align technology, people, and process to support the principle programs of the security operations center (SOC).

The following table describes each level in further detail, identifying the key TLM technological and workflow/process capabilities that should be realized.

	TLM Capabilities	Organizational Characteristics	Risk Characteristics
LEVEL 0 Blind	• None	• Prevention-oriented (e.g., firewalls, antivirus, etc. in place) • Isolated logging based on technology and functional silos; no central logging visibility • Indicators of threat and compromise exist, they are not visible and threat hunting is not occurring to surface them • No formal incident response process; response due to individual heroic efforts	• Non-compliance • Blind to insider threats • Blind to external threats • Blind to advanced persistent threats (APTs) • Potentially stolen IP (if of interest to nation-states or cybercriminals)
LEVEL 1 Minimally Compliant	• Mandated log data and security event centralization • Mandated compliance-centric server forensics, such as file integrity monitoring and endpoint detection response (EDR) • Minimal compliance-mandated monitoring and response	• Compliance-driven investment or have identified a specific area of environment requiring protection • Compliance risks identified via report review; process to manage violations may or may not exist • Improved visibility into threats targeting the protected domain, but lacks people and process for effective threat evaluation and prioritization • No formal incident response process; response due to individual heroic efforts	• Significantly reduced compliance risk (depending on depth of audit) • Blind to most insider threats • Blind to most external threats • Blind to APTs • Potentially stolen IP (if of interest to nation-states or cybercriminals)
LEVEL 2 Securely Compliant	• Targeted log data and security event centralization • Targeted server and endpoint forensics • Targeted environmental risk characterization • Reactive and manual vulnerability intelligence workflow • Reactive and manual threat intelligence workflow • Basic machine analytics for correlation and alarm prioritization • Basic monitoring and response processes established	• Moving beyond minimal, "check box" compliance, seeking efficiencies and improved assurance • Have recognized organization is effectively blind to most threats; striving toward a material improvement that works to detect and respond to potential high-impact threats, focused on areas of highest risk • Have established formal processes and assigned responsibilities for monitoring and high-risk alarms • Have established basic, yet formal process for incident response	• Extremely resilient and highly effective compliance posture • Good visibility to insider threats, with some blind spots • Good visibility to external threats, with some blind spots • Mostly blind to APTs, but more likely to detect indicators and evidence of APTs • More resilient to cybercriminals, except those leveraging APT-type attacks or targeting blind spots • Highly vulnerable to nation-states

	TLM Capabilities	Organizational Characteristics	Risk Characteristics
LEVEL 3 Vigilant	• Holistic log data and security event centralization • Holistic server and endpoint forensics • Targeted network forensics • IOC-based threat intelligence integrated into analytics and workflow • Holistic vulnerability integration with basic correlation and workflow integration • Advanced machine analytics for IOC- and TTP-based scenario analytics for known threat detection • Targeted machine analytics for anomaly detection (e.g., via behavioral analytics) • Formal and mature monitoring and response process with standard playbooks for most common threats • Functional physical or virtual SOC • Case management for threat investigation workflow • Targeted automation of investigation and mitigation workflowv • Basic MTTD/MTTR operational metrics	• Have recognized organization is blind to many high-impact threats • Have invested in the organizational processes and headcount to significantly improve ability to detect and respond to all classes of threats • Have invested in and established a formal security operations and incident response center (SOC) that is running effectively with trained staff • Are effectively monitoring alarms and have progressed into proactive threat hunting • Are leveraging automation to improve the efficiency and speed of threat investigation and incident response processes	• Extremely resilient and highly effective compliance posture • Great visibility into, and quickly responding to insider threats • Great visibility into, and quickly responding to external threats • Good visibility to APTs, but have blind spots • Very resilient to cybercriminals, except those leveraging APT-type attacks that target blind spots • Still vulnerable to nation-states, but much more likely to detect early and respond quickly
LEVEL 4 Resilient	• Holistic log data and security event centralization • Holistic server and endpoint forensics • Holistic network forensics • Industry specific IOC- and TTP-based threat intelligence integrated into analytics and workflows • Holistic vulnerability intelligence with advanced correlation and automation workflow integration • Advanced IOC- and TTP-based scenario machine analytics for known threat detection • Advanced machine analytics for holistic anomaly detection (e.g., via multi-vector AI/ML-based behavioral analytics) • Established, documented, and mature response processes with standard playbooks for advanced threats (e.g., APTs) • Established, functional 24/7 physical or virtual SOC • Cross-organizational case management collaboration and automation • Extensive automation of investigation and mitigation workflow • Fully autonomous automation, from qualification to mitigation, for common threats • Advanced MTTD/MTTR operational metrics and historical trending	• Are a high-value target for nation-states, cyber terrorists, and organized crime • Are continuously being attacked across all potential vectors: physical, logical, social • A disruption of service or breach is intolerable and represents organizational failure at the highest level • Takes a proactive stance toward threat management and security in general • Invests in best-in-class people, technology, and processes • Have 24/7 alarm monitoring with organizational and operational redundancies in place • Have extensive proactive capabilities for threat prediction and threat hunting • Have automated threat qualification, investigation, and response processes wherever possible	• Extremely resilient and highly efficient compliance posture • Seeing and quickly responding to all classes of threats • Seeing evidence of APTs early in the Cyberattack Lifecycle and are able to strategically manage their activities • Extremely resilient to all class of cybercriminals • Can withstand and defend against the most extreme nation-state-level adversary

7 Significant Metrics to Measure in Your SOC

To determine TLM operational effectiveness, financial services organizations should measure the following:

Alarm Time to Triage (TTT): Measures latency in your team's ability to inspect an alarm

Alarm Time to Qualify (TTQ): Measures the amount of time it takes your team to fully inspect and qualify an alarm

Threat Time to Investigate (TTI): Measures the amount of time it takes your team to investigate a qualified threat

Time to Mitigate (TTM): Measures the amount of time it takes your team to mitigate an incident and eliminate immediate risk to your business

Time to Recover (TTV): Measures the amount of time it takes your team to complete full recovery of an incident

Incident Time to Detect (TTD): Measures the amount of time it takes your team to confirm and qualify an incident

Incident Time to Response (TTR): Measures the amount of time it took a confirmed incident to have been investigated and mitigated

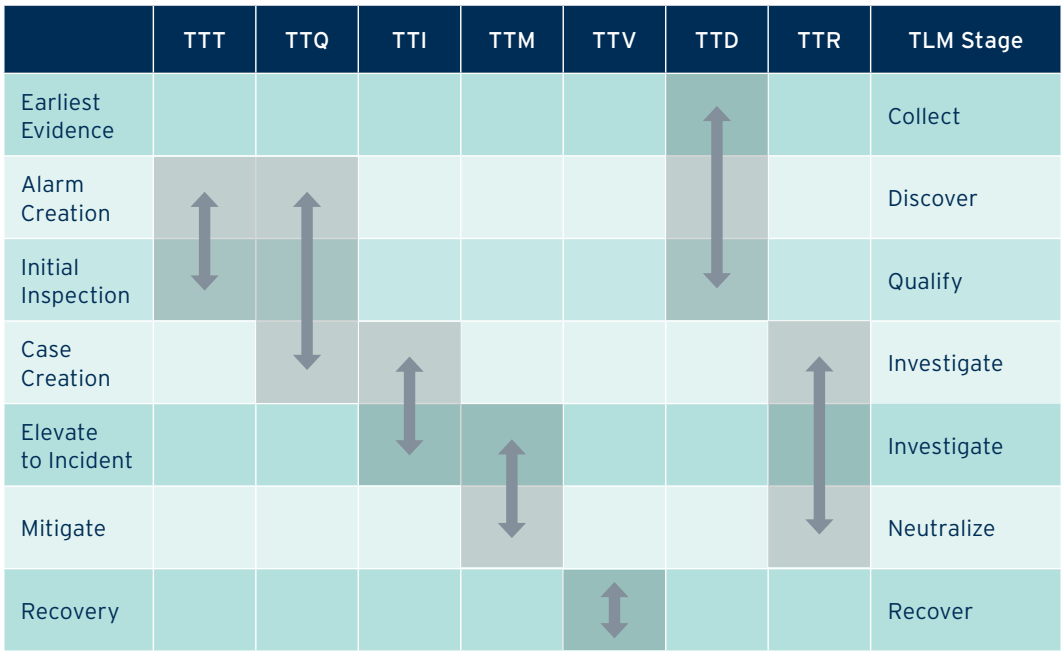
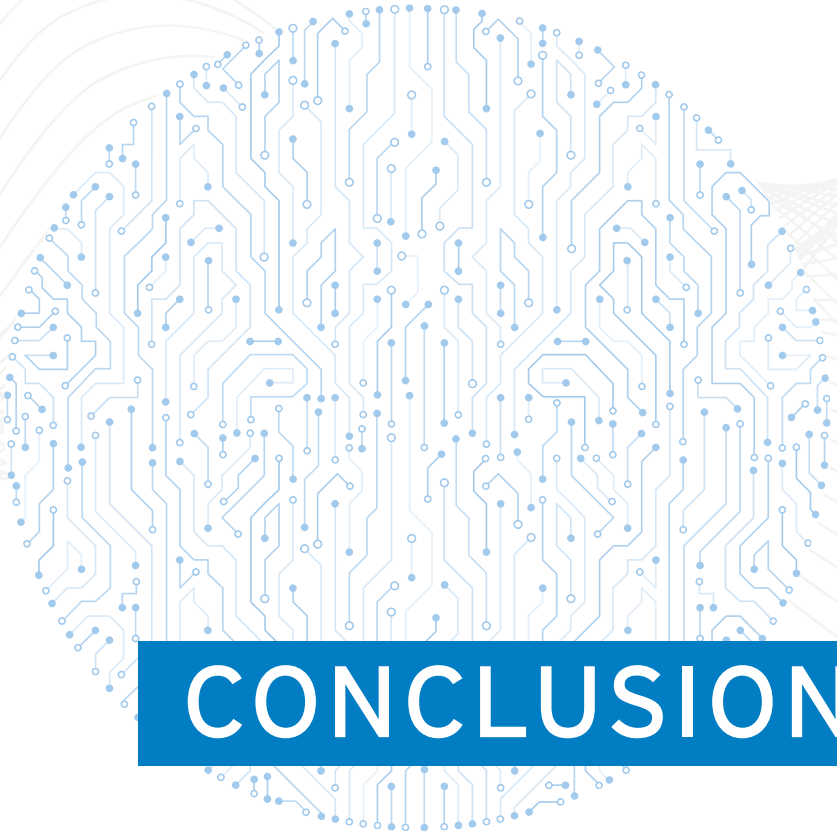


Figure 2. Seven key metrics for measuring the effectiveness of TLM



CONCLUSION

To reduce cyber risk and improve security resilience, banking organizations must invest in attaining more advanced levels of Threat Lifecyle Management — across the holistic IT and operating environments.

Banks operate in a world of risk. Deloitte found that financial institutions spend an average of $2,300 per full-time employee on cybersecurity.[4] However, the consultancy cautions that cybersecurity maturity is not simply a matter of money spent. Proper planning, execution and governance are key to success.[5] It's not an IT issue. It's a core business issue.

The LogRhythm Security Operations Maturity Model provides a roadmap for success by helping organizations make material reductions in detection and response times to profoundly decrease the risk of experiencing high-impact cybersecurity incidents. You can bank on it.

[4] Just How Much Are Financial Institutions Spending on Cybersecurity? An Average of About $2,300 Per Employee, Deloitte Survey Finds, PR Newswire, May 1, 2019
[5] IBID

LogRhythm®

The Security Intelligence Company

LogRhythm is a world leader in NextGen SIEM, empowering thousands of enterprises on six continents to successfully reduce cyber and operational risk by rapidly detecting, responding to and neutralizing damaging cyberthreats. The LogRhythm NextGen SIEM Platform combines advanced security analytics; user and entity behavior analytics (UEBA); network detection and response (NDR); and security orchestration, automation, and response (SOAR) in a single end-to-end solution. LogRhythm's technology serves as the foundation for the world's most modern enterprise security operations centers (SOCs), helping customers measurably secure their cloud, physical, and virtual infrastructures for both IT and OT environments. Built for security professionals by security professionals, the LogRhythm NextGen SIEM Platform has won countless customer and industry accolades. For more information, visit logrhythm.com.

To learn more about evaluating your organization's security operations maturity – and to create a plan to achieve your target – talk with one of our experts.

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