MDR vs. The Inevitable

Breach Response Timelines from the Rapid7 SOC

Data breaches are so frequent, they've been normalized.

They show up on the nightly news. They're called "inevitable." So the real question is: how well do you respond?

And not just to garden variety compromises, but to lethal More_Eggs malware. Or Solarmarker, which spawns hundreds of decoy files. Or EMOTET, finally disrupted in 2021 by international action coordinated by Europol.

In this eBook you'll find some real life examples of common threats handled by the Rapid7 Managed Detection and Response (MDR) team on behalf of our customers. We invite you to check out the speed and accuracy with which we identify, contain, and respond to malicious actors.

It takes an average of 287 days to identify a breach and about 80 to contain it

IBM, "Cost of a Data Breach" report, 2020

You'll see other differences too. Rapid7 takes detection and response end-to-end. Most do not. You'll also learn about the comprehensive, security-posture boosting Incident Reports we deliver to customers.

If a breach is inevitable, you're smart to imagine it will be a formidable one.

Everybody needs 24x7x365 detection and response

Attacks are sophisticated and relentless, and especially state-backed groups have been having a field day. Hackers don't work 9 to 5 and in your time zone, so neither can your security team: everybody needs a 24x7x365 SOC. Standing one up requires highly skilled, specialized security experts in a cybersecurity market with 0% unemployment. Let's be honest, few could do it even with a blank check.

By 2025, half of all businesses are expected to turn to a MDR service

ESG, "SOC Modernization and the Role of XDR" report, 2022

By 2025, half of all businesses are expected to turn to an MDR service: an end-to-end, turnkey solution, providing threat detection, incident validation, and response.

The best will do threat containment in your environment. Others simply alert you to trouble so you can take care of it. (Think of it as a fire department just that tells you your house is aflame.)

Some providers add features such as threat intelligence, human-led threat hunting, behavior analytics, automation, and more to your capabilities. And some send robust root cause analyses that can drive your security maturity.

Timelines take you inside our always-on MDR SOC

Throughout this eBook, you'll find timelines labeled by industry, threat actor, criticality, and other considerations you may want to know. But don't be fooled, these attacks can happen to any organization, in any vertical, at any time.

You'll see how quickly Rapid7 MDR gets to the who-what-when-where-why with a 3x faster MTTD and MTTR than most teams do on their own. You'll see the work of our Customer Advisors, practitioners with strong technical expertise tasked with knowing your environment and security goals as well as you do. They guide security maturation, and can help with board, executive, and CISO security advisorship.

You'll also see how thoroughly we report out incidents with in-depth remediations and mitigation recommendations. Customers need more than quick notification emails when something happens – they need analysis and answers, not just the highlights and metrics.

What you can't see is just as important

Over a year ago, Rapid7 merged our Digital Forensics and Incident Response (DFIR) team with our MDR SOC to create an integrated team of Detection and Response experts. If an incident investigation appears major, analysts simply (and literally) swivel their chairs and tap Senior IR consultants and DFIR practitioners on the shoulder. They learn from each other daily.

For every single incident, Rapid7's TIDE Team (Threat Intelligence and Detections Engineering) is right there too. They keep a close eye on new and emerging threats, and develop new detections in real time. This allows us to stay on top of the latest tactics, techniques, and procedures threat actors are taking, and find them in all customers' environments as they emerge. The TIDE team allows us to add granularity, reduce noise, and avoid recurrency over time.

Rapid7's sprawling detections library includes threat intelligence from our open-source communities, advanced attack surface mapping, proprietary machine learning, research projects, real-world follow-the-sun SOC experience, and 3.3+ trillion weekly security events observed across our detection and response platform.

3.3+ trillion weekly security events observed across our detection and response platform

Why it's not outsourcing:
the right MDR service is a partner

Technology and transparency

Typical MDR: services stay behind the curtain like the "Wizard of Oz." They won't give you access to their technology or provide you transparency into the SOC's operations. You see high-level metrics only, and few details into investigations, alerts, etc. unless you pay for basic level "data exploration" or "log search" capabilities. (We don't believe in wizards at all and think customers should be able to see everything.)

Rapid7 MDR: full access to InsightIDR, our unified SIEM and XDR. You see what we see. You can run your own investigations, create dashboards, run reports, and more. There's no additional cost.

Digital forensics and incident response

Typical MDR: has a warranty for specific major breach events, such as Ransomware or Business Email Compromise. If you're compromised and you need to access Incident Response experts ASAP, you'll need to jump through hoops to make a claim, ensure you qualify for money, and then invoke your IR Retainer or contact an outside Breach Response firm, and you might still have to pay out of pocket anyways.

Rapid7 MDR: customers get unlimited DFIR for all incidents, regardless of time or complexity, until the work is done. We have expert DFIR teams all over the world: Australia, Ireland, and the United States. You'll get the same treatment as if you had an IR Retainer without paying a cent more.

Pod model and outcome responsibility

Typical MDR: has one giant, shift-scheduling SOC, working all hours of the night, including holidays. The pool of analysts is arranged in tiers. They review pools of alerts. The system misses familiarity with your particular environment, ownership of outcomes, and oversight and advocacy from a lead.

Rapid7 MDR: our analysts take it personally when one of their customers is attacked. Our "follow-the-sun" pod model allows for all analysts to have a 9-5 shift with seamless handoffs, with each pod owning the responsibility for customer outcomes. While the skills gap is very real, Rapid7 MDR is an employer-of-choice with a 95%+ retention rate over 3 years. Seasoned practitioners lead alert triage, investigate on your behalf, help you remediate and mitigate future attacks, and best of all, remove false positives so you're only notified when there's an actual incident.

Rapid7 MDR is an employer-of-choice with a 95%+ retention rate over 3 years

A real extension of your team

Typical MDR: will offer you a contact person who will relay SOC info to you, send additional log info in an excel doc, check health scores, and answer high level questions.

Rapid7 MDR: we expect your named Customer Advisor to act as an extension of your security team. In addition to walking you through the context and details of any attack, you'll get CISO-level leadership and strategic insights tailored to your security program. They're more than a point of contact for your service – their strategic guidance will help you build cyber resilience and strengthen your program.

Reporting

Typical MDR: analysts fill out a reporting template with little context or details, and send it to you with minimal instructions to "respond" to the threat. That's it. That's the report.

Rapid7 MDR: what typical MDR providers send is what we call an "incident notification", and we don't believe that's adequate to do anything other than notify your team of an incident. When there's an incident, customers receive an exhaustive report on the investigation with root cause analysis, raw details, and an array of resilience recommendations. You'll also get monthly service reports, and proprietary Threat Intelligence reports so you're the first to know about emerging threats as they're discovered.

Data and retention

Typical MDR: If you don't want your data purged after 30-90 days, a typical MDR will charge you.

Rapid7 MDR: we offer unlimited data and 13 months storage by default. MDR analysts need this for hypothesis-driven, retro-threat hunting in your environment. And you might need it for compliance.

Attackers linger, and dwell time keeps going up. You can't allow that with the kind of intrusions you see here.

You can check the MDR box, or choose 549% ROI

Rapid7 commissioned Forrester Consulting to study the Total Economic Impact™ (TEI) of our MDR. The assessment?

- 549% ROI over three years
- Three-month payback
- 70% reduction to your cyber risk profile
- 90% reduction in the likelihood of a major breach

The fact is, you can have high expectations when you partner with us:

- You hear about true threats only, and we never ask you to validate them, that's our job
- We take initial countermeasures to paralyze the attacker for you
- You get 24x7x365 SOC coverage and analysts that own your outcomes

A breach may be inevitable, but your success with just any MDR isn't

The following timelines are real and fairly common threats handled by Rapid7 MDR on behalf of our customers.

Compromise, Investigation, and Response Timeline

Healthcare Attack Breakdown

Threat
Solarmarker
Jupyter infoStealer
Yellow Cockatoo

Type
Persistence -
Run Key Added by Reg.exe

Severity
High

Alert Priority:
Medium

Event Source
Process Start Activity

Attacker Activity

- [User1] searches "employee handbook of pharmaceutical employees" on Edge browser, unknowingly downloads document with malicious payload.
- Payload executes on [Host1], creating hundreds of decoy files in the same directory as executable to act as persistence mechanism and hide the malicious file.
- Executable file attempts to communicate with unknown Command and Control (C2) to post information about the asset and exfiltrate more data.

00:01:43

ALERT: ATTACKER ACTIVITY DETECTED

Rapid7 MDR detects run keys being added to the registry on machine in the customer's environment, triggering investigation.

00:06:47

Investigation Begins

Rapid7 SOC analyzes attacker activity (including all decoy files) using available forensic data. Confirms attack contains advanced deception techniques associated with Solarmarker/Jupyter infoStealer/Yellow Cockatoo family of malware.

Active Response and Initial Notification

MDR Analyst kicks off Active Response automation workflows to quarantine [Host1] and disable [User1]'s compromised account. Containment actions initiate after customer's 10:00 acknowledgment grace period.

MDR notifies customer of the incident and suggests additional actions to block the Indicators of Compromise (IOCs).

00:10:00

ATTACKER CONTAINED

Customer Takes Action
Customer takes additional remediation and mitigation recommendations.

Customer Advisor Reaches Out
Rapid7 Customer Advisor calls to follow up, ensure initial remediation actions are taken, and answer questions while Final Incident Report is developed.

BUILDING RESILIENCE

Forensic Investigation

SOC Analyst begins Digital Forensics and Incident Response (DFIR) analysis to determine full attacker timeline and actions for Final Incident Report.

Final Report Delivered

Detailed analysis, investigation synopsis, and evidence with additional recommendations.

REMEDIATION:
- Rebuild affected systems
- Block malicious domains
- Block malicious IP addresses
- Change passwords for affected accounts

MITIGATION:
- Implement least-privilege for all users
- User awareness training
- Review firewall and proxy policies
- Disable ingress access to remote administration solutions from non-VPN addresses

CA FOLLOW UP

Customer Advisor reviews incident, response recommendations, and security posture improvements.

Compromise, Investigation, and Response Timeline

Energy and Utilities Attack Breakdown

Threat
Remnant of malware persistence mechanism / Cryptominer

Type
Suspicious Service - Powershell

Severity
Low

Alert Priority
High

Event Source
Forensic Hunt Data

Attacker Activity

- Newly-installed Insight Agent detects 29 assets affected by remnants of past compromise.
- Randomly named scheduled services attempted to reach a remote command and control server to download, execute files no longer being served there.
- Wannamine used Eternal Blue exploit targeting vulnerability in SMBv1, WMI for remote code execution, and ADMIN$ to move laterally in the customers environment.

00:01:18

ALERT: ATTACKER ACTIVITY DETECTED

Rapid7 detects installed Windows Services utilizing PowerShell in the command line from the Insight Agent's service listing forensic hunt job. MDR processes the forensic hunt data it acquires from hosts against its detections to generate alerts for data at rest.

00:03:43

Investigation Begins

SOC analyzes attacker activity using available forensic data, extracts initial Indicators of Compromise (IOCs).

Confirms remnants of past compromise pre-dating Rapid7, associated with Wannamine Cryptominer malware.

Active Response and Initial Notification

MDR Analyst kicks off Active Response automation workflows to quarantine the 29 assets, take them offline. Customer accepts Active Response notification, triggering quarantine action.

MDR notifies the customer of the incident, and suggests additional actions to block IOCs.

00:04:43

ATTACKER CONTAINED

Customer Takes Action
Customer takes additional initial remediation and mitigation recommendations.

Customer Advisor Reaches Out
Rapid7 Customer Advisor calls to follow up, ensure initial remediation actions are taken, and answer questions while the final Incident Report is developed.

BUILDING RESILIENCE

Forensic Investigation

SOC Analyst begins Digital Forensics and Incident Response (DFIR) analysis to determine full attacker timeline and actions for final Incident Report.

Final Report Delivered

Detailed analysis, investigation synopsis, and evidence with additional recommendations.

REMEDIATION:
- Rebuild affected systems
- Block malicious domains
- Block malicious IP addresses

MITIGATION:
- Implement a vulnerability scanning and patch management solution
- Develop and practice an Incident Response plan

CA Follow Up

Customer Advisor reviews incident, response recommendations, and security posture improvements.

Compromise, Investigation, and Response Timeline

Legal Attack Breakdown

Threat
SocGholish Malware Family

Type
Suspicious Process - WScript Starts File from within Archive

Severity
Medium

Alert Priority
High

Event Source
Process Start Activity

Attacker Activity

- [USER 1] working on legal cases used Chrome browser to visit a legitimate website compromised by malicious embedded JavaScript functions.
- Embedded JavaScript file loaded pop-up, invited user to update browser by downloading ZIP archive containing JavaScript file.
- Once executed, Javascript file communicated with Command and Control (C2) to download and execute a malicious payload, to fingerprint the asset, user, cached password, domains controllers, and trusted domains and output the results to a file at the root of [USER 1]'s %temp% directory to stage the host for subsequent exploitation.

00:00:47

ALERT: ATTACKER ACTIVITY DETECTED

Rapid7 first detects the execution of a JavaScript file from within a ZIP archive file on one hostname within the customer's environment.

00:02:26

Investigation Begins

Rapid7 analyzes available data, determines activity associated with the SocGholish family of malware (aka fake browser update).

Active Response and Initial Notification

MDR Analyst kicks off Active Response automation workflows to quarantine [USER 1], take the asset offline. Customer accepts Active Response notification, triggering quarantine action.

MDR notifies the customer of the incident, suggests additional response and remediation actions to block Indicators of Compromise (IOCs).

00:02:26

ATTACKER CONTAINED

Customer Takes Action

Customer takes additional initial remediation and mitigation recommendations.

Customer Advisor Reaches Out

Rapid7 Customer Advisor calls to follow up, ensure initial remediation actions are taken, and answer questions while the final Incident Report is developed.

BUILDING RESILIENCE

Forensic Investigation

SOC Analyst begins Digital Forensics and Incident Response (DFIR) analysis to determine full attacker timeline and actions for final Incident Report.

Final Report Delivered

Detailed analysis, investigation synopsis, and evidence with additional recommendations.

REMEDIATION:

- Restore asset
- Reset user credentials, rebuild user's profile
- Ensure communication to malicious infrastructure is blocked

MITIGATION:

- User awareness training
- Review firewall and proxy policies
- Forward all possible event sources into InsightIDR
- Block or warn on uncategorized sites at web proxy
- Change default file association of JavaScript files

CA Follow Up

Customer Advisor reviews incident, response recommendations, and security posture improvements.

Compromise, Investigation, and Response Timeline

Human Resources/ Finance Attack Breakdown

Threat
More_Eggs Malware Family

Type
Suspicious Process - Potential MSXSL Proxy Execution

Severity
High

Alert Priority:
High

Event Source
Process Start Activity

Attacker Activity

- [USER 1], senior corporate recruiter, went to a website that was legitimate, but infected, and unwittingly downloaded a fake resume. The resume opened and looked legitimate while spawning two-stage malicious activity in the background.
- The More_eggs family of malware ultimately bypassed application white-listing controls and established a backdoor to run a javascript loader that attempts to download the final stage payload of the malware and inject it into memory. The goal? Deploy ransomware.
- Rapid7 disrupted before it could successfully run.

00:00:52

ALERT: ATTACKER ACTIVITY DETECTED

Rapid7 detects a Potential MSXSL Proxy Execution running on a host in the customer's environment.

00:22:35

Investigation Begins

Rapid7 analyzes available forensic data, extracts initial Indicators of Compromise (IOCs) for the customer to block, and determines activity is associated with More_eggs family of malware.

Active Response and Initial Notification

MDR Analyst kicks off Active Response automation workflows to quarantine asset, take it offline. Customer accepts Active Response notification, triggering quarantine action.

MDR notifies the customer of the incident, suggests additional response and remediation actions to block the Indicators of Compromise (IOCs).

00:26:45

ATTACKER CONTAINED

Customer Takes Action
Customer takes additional remediation and mitigation recommendations.

Customer Advisor Reaches Out
Rapid7 Customer Advisor calls to follow up, ensure initial remediation actions are taken, and answer questions while the final Incident Report is developed.

BUILDING RESILIENCE

Forensic Investigation

SOC Analyst begins Digital Forensics and Incident Response (DFIR) analysis to determine full attacker timeline and actions for final Incident Report.

Final Report Delivered

Detailed analysis, investigation synopsis, and evidence with additional recommendations.

REMEDIATION:
- Rebuild affected systems
- Block malicious domains
- Change passwords for affected accounts

MITIGATION:
- User awareness training
- Block outgoing connections for regsvr32
- Review firewall and proxy policies
- Forward all possible event sources to InsightIDR

CA Follow Up

Customer Advisor reviews incident, response recommendations, and security posture improvements.

Compromise, Investigation, and Response Timeline

Transportation Attack Breakdown

Threat
RedLine InfoStealer Malware Family

Type
Suspicious Process - WScript Starts File From Within Archive

Severity
Medium

Alert Priority
High

Event Source
Process Start Activity

Attacker Activity

- [User1], a customer Service Specialist, received a phishing email with an attached .zip archive containing a malicious JavaScript file masquerading as a billing invoice.
- When the user opened the "invoice" from the archive, Windows Script Host (wscript.exe), executed the JavaScript file. The JavaScript code reached out to a RedLine InfoStealer Command and Control (C2) to download and execute a second stage payload to fingerprint the host, attempt to harvest credentials from local FTP software clients, and collect information about installed applications. Following the enumeration, the payload attempted to upload it to the C2 for subsequent exploitation.

00:00:09

ALERT: ATTACKER ACTIVITY DETECTED

Rapid7 first detects the execution of a JavaScript file from within a ZIP archive file on one hostname within the customer's environment.

00:08:52

Investigation Begins

Rapid7 SOC analyzes attacker activity using available forensic data. Analyst confirms this attack resulted from a phishing email received by the user, and was associated with the Redline InfoStealer family of malware.

Analyst also identified communication attempts to Command and Control (C2) server within current session data acquired via IDR agent forensic job.

Active Response and Initial Notification

MDR Analyst kicks off Active Response automation workflows to quarantine the asset. Customer accepts Active Response notification, triggering quarantine action.

MDR notifies the customer of the incident, suggests additional response and remediation actions to block Indicators of Compromise (IOCs).

00:29:55

ATTACKER CONTAINED

Customer Takes Action
Customer takes additional remediation and mitigation recommendations.

Customer Advisor Reaches Out
Rapid7 Customer Advisor calls to follow up, ensure initial remediation actions are taken, and answer questions while the final Incident Report is developed.

BUILDING RESILIENCE

Forensic Investigation

SOC Analyst begins Digital Forensics and Incident Response (DFIR) analysis to determine full attacker timeline and actions for final Incident Report.

Final Report Delivered

Detailed analysis, investigation synopsis, and evidence with additional recommendations.

REMEDIATION:

- Rebuild affected systems
- Block Malicious domains
- Block malicious ip addresses
- Terminate malicious processes
- Quarantine network traffic from affected endpoints
- Block the affected accounts
- Change passwords for affected accounts
- Identify and remove malicious email from all inboxes
- Block sender's email address

MITIGATION:

- Update frequently targeted applications
- Use an application sandbox to run frequently targeted applications
- User awareness training
- Implement an anti-phishing solution
- Review firewall and proxy policies
- Block executable files at web proxy
- Block or warn on uncategorized sites at the web proxy

CA Follow Up

Customer Advisor reviews incident, response recommendations, and security posture improvements.

Compromise, Investigation, and Response Timeline

Healthcare Attack Breakdown

Threat
Citrix / BazarLoader / CobaltStrike Malware Family

Type
Suspicious Process - Malicious Hash on Asset

Severity
Medium

Alert Priority
High

Event Source
Process Start Activity

Attacker Activity

- While the customer was in onboarding, the attacker initiated a RDP session connecting to the target hostname. Two days later the attacker used a Citrix remote-access tool to remotely connect to a vulnerable host and execute malicious files directly on the asset.

00:00:11

ALERT: ATTACKER ACTIVITY DETECTED

Rapid7 MDR first detects suspicious wuauclt.exe process launching without standard argument. Malicious actors have been observed with this activity associated with Process Injection.

00:31:43

Investigation Begins

Rapid7 SOC analyzes attacker activity using available forensic data, extracting initial IOCs. Analyst confirms the activity was associated with the BazarLoader family of malware. BazarLoader is a malware stager used to download additional payloads for post-exploitation.

Rapid7 acquired the malicious files using the Insight Agent forensic acquisition capability and determined that the malware reached out to the Command and Control (C2) to post information about the asset and exfiltrate more data and were associated with the BazarLoader_ Printnightmare family of malware.

Rapid7 MDR ultimately determined that the threat actor's goal was to load a Cobalt Strike beacon into memory for post-exploitation and likely stage deployment of ransomware.

Active Response and Initial Notification

MDR Analyst kicks off Active Response automation workflows to quarantine the asset. Customer accepts the Active Response notification, triggering quarantine action.

MDR notifies customers of the incident, suggests additional response and remediation actions to block Indicators of Compromise (IOCs).

00:48:32

ATTACKER CONTAINED

Customer Takes Action

Customer takes additional remediation and mitigation recommendations.

Customer Advisor Reaches Out

Rapid7 Customer Advisor calls to follow up, ensure initial remediation actions are taken, and answer questions while the final Incident Report is developed.

BUILDING RESILIENCE

Forensic Investigation

SOC Analyst begins Digital Forensics and Incident Response (DFIR) analysis to determine full attacker timeline and actions for Final Incident Report.

Final Report Delivered

Detailed analysis, investigation synopsis, and evidence with additional recommendations.

REMEDIATION:

- Rebuild affected systems
- Block malicious domains
- Block malicious IP addresses
- Terminate malicious processes
- Change passwords for affected accounts
- Identify and remove malicious email from all inboxes
- Block sender's email address

MITIGATION:

- User awareness training
- Implement an anti-phishing solution
- Block outgoing connections for regsvr32
- Review firewall and proxy policies
- Block executable files at web proxy
- Block or warn on uncategorized sites at the web proxy

CA Follow Up

Customer Advisor reviews incident, response recommendations, and security posture improvements.

Compromise, Investigation, and Response Timeline

Healthcare Attack Breakdown

Threat
Intrusion Attempts

Type
Attacker Technique - CertUtil With URLCache Flag

Severity
High

Alert Priority:
High

Event Source
Process Start Activity

Attacker Activity

- Executed a ping command on an internal IP address
- Downloaded a payload from an external URL
- Executed Base64 PowerShell commands to download additional payload to collect information about the asset and send it to a Command and Control (C2) server
- Executed a suspicious UPX packed binary with a Base64 encoded argument to download additional files
- Attempted and failed lateral movement with authentication attempts to 27 assets as local account `administrator`
- Download and execute a Windows privilege escalation tool.
- Maintained consistent firewall traffic from the asset to the C2.
- Created suspicious files associated with Maze ransomware that dated back to before the Rapid7 Insight Agent was deployed on the asset, suggesting that the asset was previously compromised and not patched accordingly.

00:02:34

ALERT: ATTACKER ACTIVITY DETECTED

Rapid7 MDR first identified the execution of suspicious PowerShell commands on [ASSET 1]. This specific technique is used by malicious actors to retrieve files hosted on a remote web server and write them to disk.

00:06:22

Investigation Begins

Rapid7 SOC reviewed all available forensic evidence from [ASSET 1] and determined that a malicious actor likely exploited a four year old remote code execution vulnerability (CVE-2017-9841) within the PHPUnit framework, commonly used by content management system (CMS) software.

Active Response and Initial Notification

MDR Analyst kicks off Active Response automation workflows to quarantine the asset. Customer accepts Active Response notification, triggering quarantine action.

MDR notifies the customer of the incident and suggests additional response and remediation actions to block the Indicators of Compromise (IOCs).

00:11:22

ATTACKER CONTAINED

Customer Takes Action

Customer takes additional remediation and mitigation recommendations.

Customer Advisor Reaches Out

Rapid7 Customer Advisor calls to follow up, ensure initial remediation actions are taken, and answer questions while Final Incident Report is developed.

BUILDING RESILIENCE

Forensic Investigation

SOC Analyst begins Digital Forensics and Incident Response (DFIR) analysis to determine full attacker timeline and actions for Final Incident Report.

Final Report Delivered

Detailed analysis, investigation synopsis, and evidence with additional recommendations.

REMEDIATION:

- Rebuild affected systems
- Block malicious domains
- Block malicious IP addresses

MITIGATION:

- Update frequently targeted applications
- Implement vulnerability scanning and patch management solution
- Implement application allowlisting for critical systems
- Disable credential caching on servers, workstations
- Restrict server internet access
- Segment the network based on data sensitivity, type
- Review firewall, proxy policies
- Patch vulnerable web servers
- Implement web application firewall
- Enable powershell script block logging on all systems
- Block executable files at web proxy
- Block or warn on uncategorized sites at web proxy
- Enable account audit logging on all systems

CA Follow Up

Customer Advisor reviews incident, response recommendations, and security posture improvements.

Compromise, Investigation, and Response Timeline

Engineering Attack Breakdown

Threat
Intrusion Attempts

Type
Account Compromise/Phishing/ Malicious Inbox Rules (Attacker Technique - Suspicious Inbox MoveToFolder Rule Created)

Severity
High

Alert Priority:
High

Event Source
Microsoft Office 365 (Cloud Service Activity)

Attacker Activity

- [USER 1] received two phishing emails two days earlier - the first email contained a link to a credential harvesting page, second email contained a malicious PDF attachment.
- Once the attacker attained credentials to [User1]'s compromised user's email account, they created three inbox rules in an attempt to maintain access to other accounts associated with the victim email address. The rule moved all emails containing "payroll" or "paycheck" or "direct deposit" to the "RSS Subscriptions'' folder and marked the emails in question as read.

00:01:32

ALERT: ATTACKER ACTIVITY DETECTED

Rapid7 MDR first detects the creation of new inbox rules that move emails upon receipt to folder names used by attackers. This technique is used by malicious actors to hide specific email messages received by the victim even after the password has been changed.

00:17:43

Investigation Begins

Rapid7 SOC reviewed available forensic evidence and determined this activity was the result of a phishing incident. Multiple phishing emails were sent to users in the customers environment, resulting in an account compromise.

Rapid7 reviewed network logs and observed this was a company-wide attack – 29 additional users and source IP addresses with corresponding DNS queries to the malicious domain in the phishing email.

Active Response and Initial Notification

MDR Analyst kicks off Active Response automation workflows to disable the user. Customer accepts the Active Response notification, triggering quarantine action.

MDR notifies the customer of the incident, suggests additional response and remediation actions to block Indicators of Compromise (IOCs).

00:49:34

ATTACKER CONTAINED

Customer Takes Action
Customer takes additional remediation and mitigation recommendations.

Customer Advisor Reaches Out
Rapid7 Customer Advisor calls to follow up, ensure initial remediation actions are taken, and answer questions while Final Incident Report is developed.

BUILDING RESILIENCE

Forensic Investigation
SOC Analyst begins Digital Forensics and Incident Response (DFIR) analysis to determine full attacker timeline and actions for Final Incident Report.

Final Report Delivered
Detailed analysis, investigation synopsis, and evidence with additional recommendations.

REMEDIATION:
- Block malicious domains
- Block malicious ip addresses
- Change passwords for affected accounts
- Identify and remove malicious email from all inboxes
- Block senders email address

MITIGATION:
- Use a credential management solution for password storage
- User awareness training
- Implement an anti-phishing solution
- Review email rules

CA Follow Up
Customer Advisor reviews incident, response recommendations, and security posture improvements.

Compromise, Investigation, and Response Timeline

Non-profit Attack Breakdown

Threat
Cloud/AWS Compromise

Type
Account Compromise

Severity
High

Alert Priority
High

Event Source
AWS Cloudtrail

Attacker Activity

A malicious actor compromised a customer's AWS environment when an AWS [Account 1] was enumerated and then compromised. The compromise of the original account led to a total four additional accounts compromised and the creation of eight new attacker accounts. Using the compromised and created accounts, the malicious actor was able to perform enumeration, create a new AWS instance, and harvest session tokens for nine domains.

00:05:22

ALERT: ATTACKER ACTIVITY DETECTED

Rapid7 MDR first detected a cloud/AWS compromise in the customer's environment.

00:32:04

Investigation Begins
Rapid7 SOC analyzed available forensic data and quickly determined the threat actor created their own AWS instance and recommended the customer disable it immediately.

Confirms large scope and impact of the threat actor's activity within the customer's AWS environment and pivots investigation to the DFIR team to collaborate on in-depth analysis.

Active Response and Initial Notification
MDR Analyst kicks off Active Response automation workflows to quarantine the asset. Customer accepts Active Response notification, triggering quarantine action.

MDR notifies the customer of the incident and suggests additional response and remediation actions to block IOCs.

00:52:16

ATTACKER CONTAINED

Customer Takes Action
Customer takes additional remediation and mitigation recommendations.

Customer Advisor Reaches Out
Rapid7 Customer Advisor calls to follow up, ensure initial remediation actions are taken and conducts a warm handoff of the investigation to the Incident Manager (IM) with the customer's security team. The IM maintains steady cadence of communications with the customer until the incident is concluded.

BUILDING RESILIENCE

Forensic Investigation
The Incident Manager delegates Digital Forensics and Incident Response (DFIR) analysis to Incident Handlers made up of veteran SOC Analysts and IR consultants to comprehensively timeline attacker activity, determine root cause, and provide final recommendations and actions for final Incident Report.

Final Report Delivered
Detailed analysis, investigation synopsis, and evidence with additional recommendations.

REMEDIATION:

- Block malicious IP addresses
- Reset credentials for compromised user accounts
- Rotate access keys
- Remove AWS accounts created by malicious actor
- Terminate all active sessions for compromised AWS accounts
- Implement MFA for all compromised and root accounts
- Terminate all session tokens for user accounts in affected domains
- Delete AWS instance created by the malicious actor

MITIGATION:

- Restrict AWS console access to authorized VPN IP addresses
- Rotate AWS access keys every 15 days
- Remove dormant accounts
- Implement principle of least privilege for all accounts
- Prevent the sharing of AWS access keys
- Implement conditional access policies
- Implement attribute-based access control

CA Follow Up
Customer Advisor reviews incident, response recommendations, and security posture improvements.

Compromise, Investigation, and Response Timeline

Food and Hospitality Attack Breakdown

Threat
Malicious document - Emotet malware family

Type
Malicious Code (Malicious Document - Regsvr32 Spawned By Word, MSPub or Excel)

Severity
High

Alert Priority:
High

Event Source
Process Start Activity

Attacker Activity

- [User 1] received a phishing email containing a zip archive which contained a malicious Excel document.
- [User1] then interacted with the excel document which resulted in the execution of a malicious vb script. Web traffic evidence indicated attempted communication with four Command and Control (C2) servers to download multiple second stage DLL payloads and save them with an `.ocx` file extension. The script downloaded one .dll file successfully and attempted to execute it with regsvr32.exe. Forensic analysis of the .dll file and host based evidence indicated the attack chain was unsuccessful past this point.

00:03.12

ALERT: ATTACKER ACTIVITY DETECTED

Rapid7 MDR first detects the execution of excel.exe followed by regsvr32.exe, indicating the execution of an excel document that contains malicious macros to execute malware.

00:38.59

Investigation Begins

Rapid7 SOC analyzes available forensic data, extracts initial Indicators of Compromise (IOCs) for the customer to block immediately. Analyst confirms activity associated with Emotet family of malware.

Active Response and Initial Notification

MDR Analyst kicks off Active Response automation workflows to quarantine asset. Customer accepts Active Response notification, triggering quarantine action.

MDR notifies customer of incident, suggests additional response and remediation actions to block IOCs.

00:59.02

ATTACKER CONTAINED

Customer Takes Action
Customer takes additional remediation and mitigation recommendations.

Customer Advisor Reaches Out
Rapid7 Customer Advisor calls to follow up, ensure initial remediation actions are taken, and answer questions while the final Incident Report is developed.

BUILDING RESILIENCE

Forensic Investigation

SOC Analyst begins Digital Forensics and Incident Response (DFIR) analysis to determine full attacker timeline and actions for final Incident Report.

Final Report Delivered

Detailed analysis, investigation synopsis, and evidence with additional recommendations.

REMEDIATION:

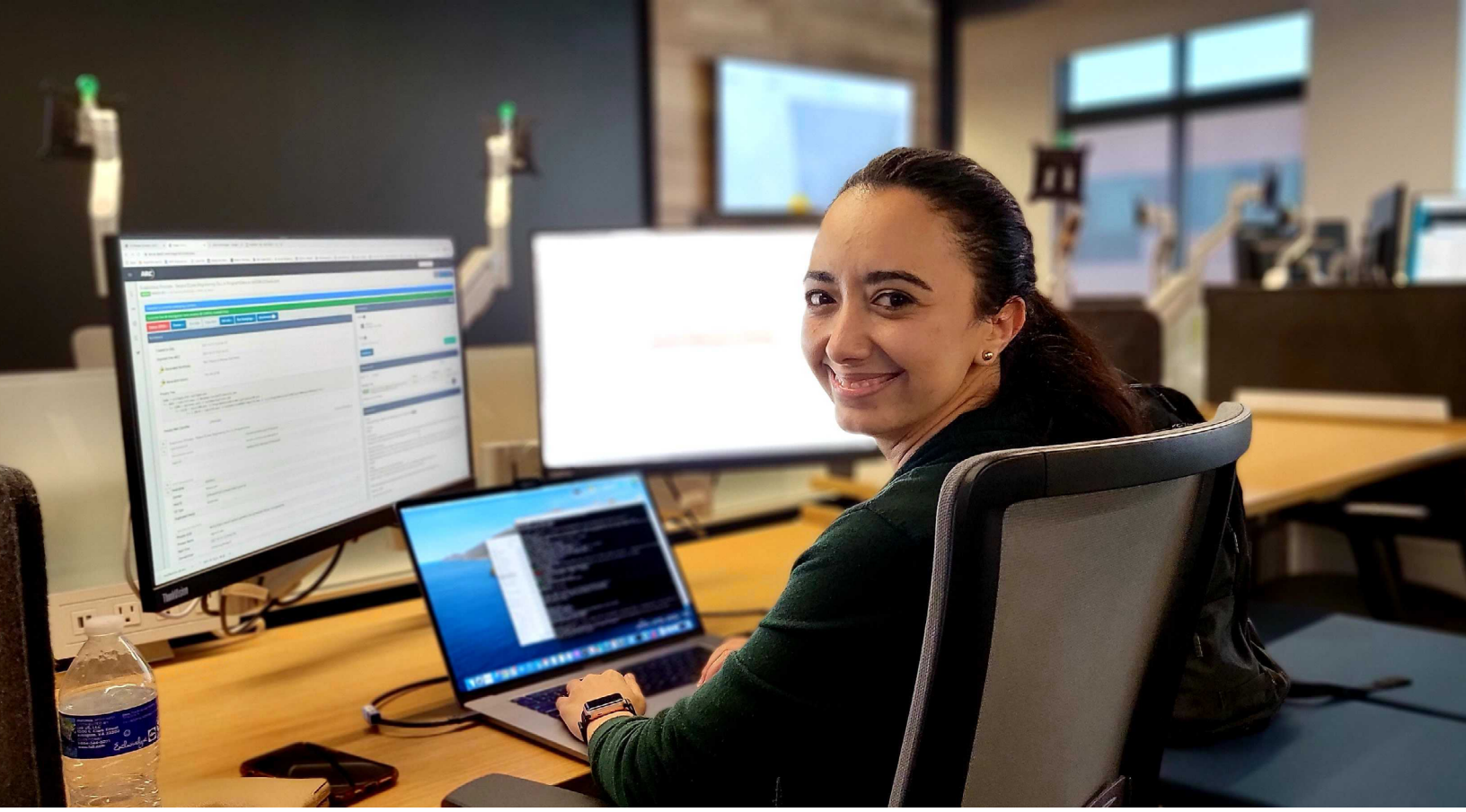
- Rebuild affected systems
- Block malicious domains
- Change passwords for affected accounts

MITIGATION:

- User awareness training
- Implement an anti-phishing solution
- Prevent execution of office macros via group policy
- Block outgoing connections for regsvr32
- Review firewall and proxy policies
- Block executable files at web proxy
- Block or warn on uncategorized sites at the web proxy

CA Follow Up

Customer Advisor reviews incident, response recommendations, and security posture improvements.



About Rapid7

Rapid7 is creating a more secure digital future for all by helping organizations strengthen their security programs in the face of accelerating digital transformation. Our portfolio of best-in-class solutions empowers security professionals to manage risk and eliminate threats across the entire threat landscape from apps to the cloud to traditional infrastructure to the dark web. We foster open source communities and cutting-edge research–using these insights to optimize our products and arm the global security community with the latest in attackers methods. Trusted by more than 10,000 customers worldwide, our industry-leading solutions and services help businesses stay ahead of attackers, ahead of the competition, and future-ready for what's next.

RAPID7

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