



Extortion Economics

Ransomware's new business model

Cyber Signals

Aug-Sept, 2022



Over 80 percent
of ransomware attacks
can be traced to common
configuration errors in
software and devices.





Introduction

Cybercriminals emboldened by underground ransomware economy

While ransomware continues to be a headline-grabbing topic, there's ultimately a relatively small, connected ecosystem of players driving this sector of the cybercrime economy.

The specialization and consolidation of the cybercrime economy has fueled ransomware-as-a-service (RaaS) becoming a dominant business model, enabling a wider range of criminals, regardless of their technical expertise, to deploy ransomware.

UNBARGOED
DRAFT





Security Snapshot

**Digital Crimes Unit:**

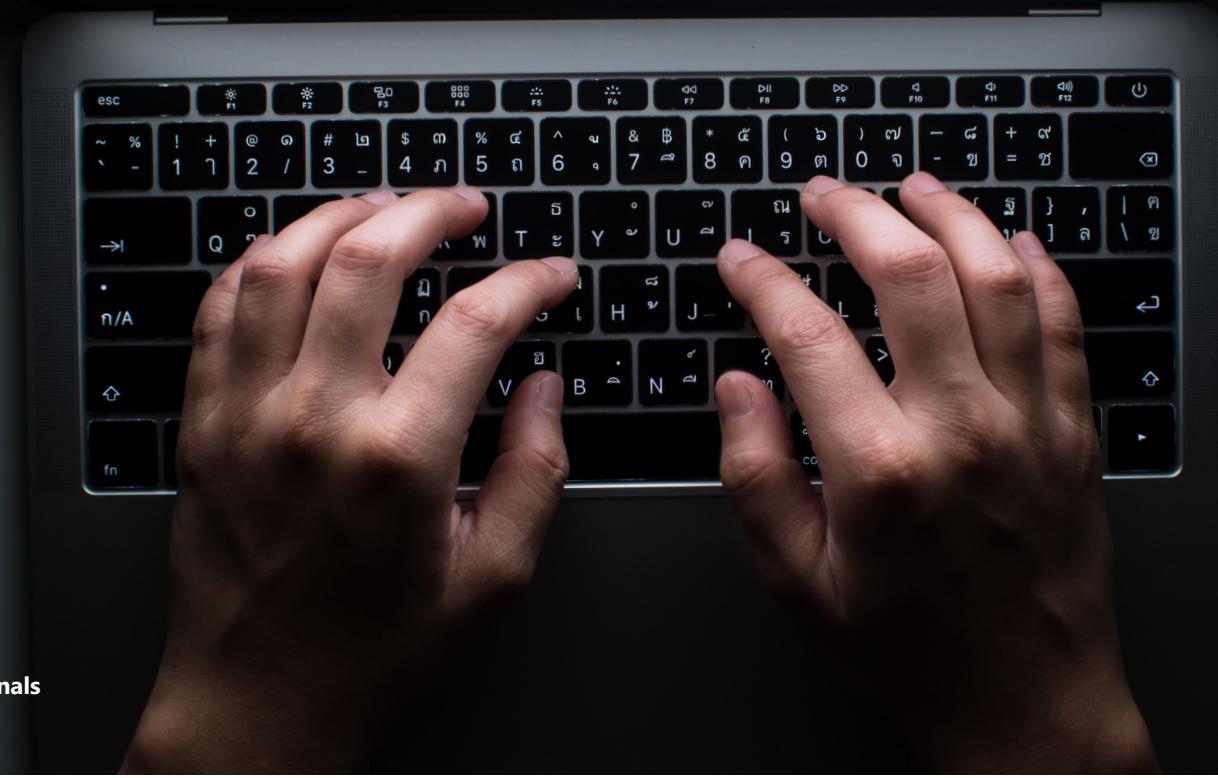
Directed the removal of more than 531,000 unique phishing URLs and 5,400 phish kits between July 2021- June 2022 leading to the identification and closure of over 1,400 malicious email accounts used to collect stolen customer credentials.

**Email Threats:**

Median time for an attacker to access your private data if you fall victim to a phishing email is one hour, 12 minutes.

**Endpoint Threats:**

Median time for an attacker to begin moving laterally within your corporate network if a device is compromised one hour, 42 minutes.



Threat briefing

New Business Model Offers Fresh Insights for Defenders

Just as many industries have shifted toward gig workers for efficiency, cybercriminals are renting or selling their ransomware tools for a portion of the profits, rather than performing the attacks themselves.

The Ransomware as a Service economy allows cybercriminals to purchase access to Ransomware payloads and data leakage as well as payment infrastructure. Ransomware "gangs" are in reality RaaS programs like Conti or REvil, used by many different actors who switch between RaaS programs and payloads.

RaaS lowers the barrier to entry and obfuscates the identity of the attackers behind the

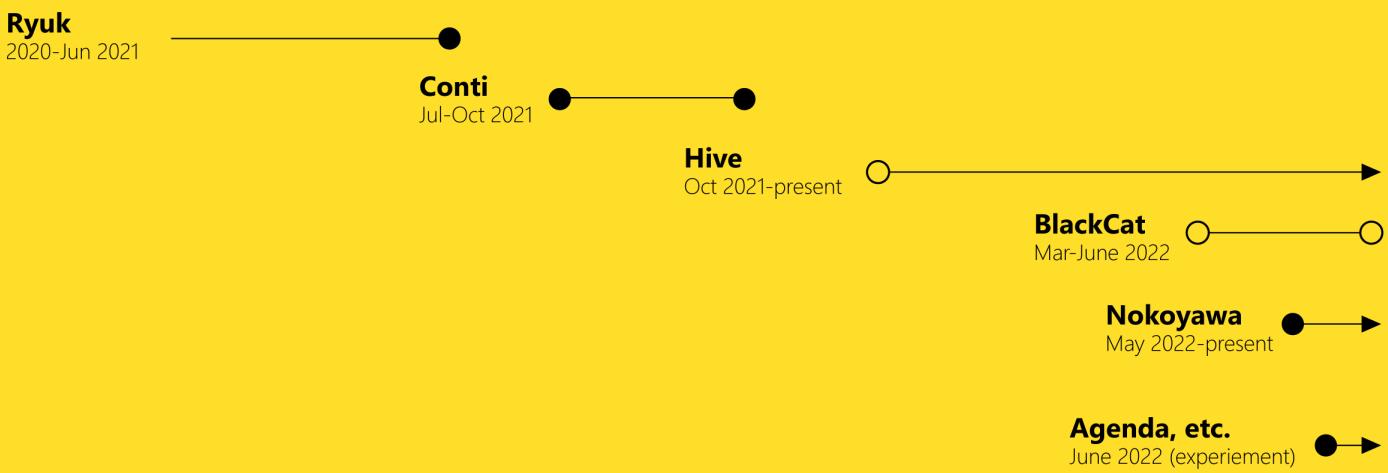
ransoming. Some programs have 50+ "affiliates" as they refer to the users of their service, with varying tools, tradecraft, and objectives. Just as anyone with a car can drive for Lyft or Uber, anyone with a laptop and credit card willing to search the dark web for penetration testing tools or out-of-the-box malware can join this economy.

This industrialization of cybercrime has created specialized roles, like access brokers who sell access to networks. A single compromise often involves multiple cybercriminals in different stages of the intrusion.

RaaS kits are easy to find on the dark web and are advertised in the same way goods are advertised across the internet.

A RaaS kit may include customer service support, bundled offers, user reviews, forums and other features.

DEV-0237 ransomware payloads over time



2021

Jan Feb Mar Apr May Jun

Jul Aug Sep Oct

Nov

2022

Dec Jan Feb Mar Apr May Jun

Threat briefing

Cybercriminals can pay a set price for a RaaS kit while other groups selling RaaS under the affiliate model take a percentage of the profits.

Ransomware attacks involve decisions based on configurations of networks and differ for each victim even if the ransomware payload is the same.

Ransomware culminates an attack which can include data exfiltration and other impact. Because of the interconnected nature of the cybercriminal economy seemingly unrelated intrusions can build upon each other. Infostealer malware that steals passwords and cookies get treated with less severity, but cybercriminals sell these passwords to enable other attacks.

These attacks follow a template of initial access via malware infection or exploitation of a vulnerability then credential theft to elevate privileges and move laterally. Industrialization allows prolific and impactful ransomware attacks

to be performed by attackers without sophistication or advanced skills. Since the shutdown of Conti we've observed shifts in the ransomware landscape. Some affiliates who were deploying Conti moved to payloads from established RaaS ecosystems like LockBit and Hive, while others simultaneously deploy payloads from multiple RaaS ecosystems.

New RaaS like QuantumLocker and Black Basta are filling the vacuum left by Conti's shutdown. Since most Ransomware coverage focuses on payloads instead of actors, this payload switching is likely to confuse governments, law enforcement, media, security researchers, and defenders about who is behind the attacks.

Reporting on ransomware may seem like an endless scaling problem, however, the reality is a finite set of actors using the set of techniques.

Recommendations:

Reduce the attack surface:

Establish attack surface reduction rules to prevent common attack techniques used in ransomware attacks. In observed attacks from several ransomware-associated activity groups, organizations with clearly defined rules have been able to mitigate attacks in their initial stages while preventing hands-on-keyboard activity.

Build credential hygiene:

Develop a logical network segmentation based on privileges that can be implemented alongside network segmentation to limit lateral movement.

Audit credential exposure:

Auditing credential exposure is critical in preventing ransomware attacks and cybercrime in general. IT security teams and SOCs can work together to reduce administrative privileges and understand the level at which their credentials are exposed



Defending attacks

Cybercriminals add double extortion to attack strategy

Ransomware exists to extort payment from a victim. Most current RaaS programs also leak stolen data, known as double extortion. As outages cause backlash and government disruption of ransomware operators increases, some groups forgo ransomware and pursue data extortion.

Two extortion-focused groups are DEV-0537 (aka LAPSUS\$) and DEV-0390 (a former Conti affiliate). DEV-0390's intrusions initiate from malware but use legitimate tools to exfiltrate data and extort payment. They deploy penetration testing tools like Cobalt Strike, Brute Ratel C4, and the legitimate Atera remote

management utility to maintain access to a victim. DEV-0390 will escalate privileges by stealing credentials, locate sensitive data (often on corporate backup and file servers), and send the data to a cloud file sharing site using a file backup utility.

DEV-0537 uses a very different strategy and tradecraft. Initial access is obtained by purchasing credentials on the criminal underground or from employees at targeted organizations. Understanding the interconnected nature of identities and trust relationships in modern technology ecosystems, they target telecommunications, technology, IT services and support companies to leverage access from one organization to gain entry into partner or supplier networks. Extortion only attacks demonstrate that network defenders must look beyond end-stage ransomware and keep a close eye on data exfiltration and lateral movement.

Problems

1 Stolen passwords and unprotected identities

More than malware, attackers need credentials to succeed in their attacks. In almost all attacks where ransomware deployment was successful, attackers gained access to privileged, administrator-level accounts granting wide access to victims' organizations

2 Missing or disabled security products

In almost every observed ransomware incident, at least one system exploited in the attack had security products missing – or set up in a way that allowed tampering, like letting an intruder actually turn off certain protections.

3 Misconfigured or abused applications

You might use a popular app for one purpose, but that doesn't mean criminals can't weaponize it for another goal. Too often, "legacy" configurations mean an app is set up in its default state, often giving any user wide access to where it reaches across entire organizations. Users often overlook this risk, or hesitate to change app settings for fear of disruption.

4 Slow patching

It's a cliché, like "Eat your vegetables!" – but also a critical fact: The best way to harden software is to keep it updated. While some cloud-based apps update with no user action necessary, it still falls on companies to apply other vendors' patches ASAP, because there are entire underground services for sale detecting unpatched, Internet-facing systems. In 2022 Microsoft observes older vulnerabilities still figuring prominently in attacks because victims simply could not install patches consistently across their environments.

Action

1 Title for the solutions 1

Enforce multifactor authentication (MFA) on all accounts, prioritizing administrators and other sensitive roles. Given the hybrid work world, require MFA from all devices, in all locations, at all times. Enable passwordless authentication methods (for example FIDO keys, or Microsoft Authenticator) for apps that support it. Criminals can't steal passwords if you don't use them.

2 Title for the solutions 2

Like smoke alarms, security products need to be installed in the right spaces and tested frequently. Verify that security tools are running in their most secure configuration, and that no parts of a network are going unprotected.

3 Title for the solutions 3

Consider deleting duplicative or unused apps you may not need, to eliminate risky, unused services. Be extremely careful with where you permit remote helpdesk type apps like TeamViewer, because these are notoriously targeted by external actors to gain an express lane to your laptops.

4 Title for the solutions 4

Make software inventory a continuous process to keep track of what you are running, so you can prioritize support for these products. Use your ability to patch quickly and conclusively as a gauge for where you could benefit by transitioning to cloud-based services.



Defending attacks

If a threat actor is planning to extort an organization to keep their data private, a ransomware payload is the least significant and least valuable part of the attack strategy. Ultimately, it's an operator's choice what they choose to deploy, and ransomware is not always the big-ticket payout every threat actor is after.

While ransomware or double extortion can seem an inevitable outcome from an attack by a sophisticated attacker, ransomware is an avoidable disaster. Reliance on security weaknesses by the attackers means that investments in cyberhygiene go a long way to block attackers.

Microsoft's unique visibility gives us a lens into threat actor activity. Rather than rely on forum posts or chat leaks. Our team of security experts, study new ransomware tactics and develop threat intelligence that informs our security solutions.

Integrated threat protection across devices, identities, apps, email, data and the cloud help us identify attacks that would have been labeled as multiple actors, when they're in fact a single set of cybercriminals. Our Digital Crimes Unit comprised of technical, legal, and business experts continues to work with law enforcement to disrupt cybercrime.

Recommendations:

Prevent initial access: Prevent code execution by managing macros and scripts, and enabling Attack Surface Reduction Rules.

Close security blind spots: Organizations should verify that their security tools are running in optimum configuration and perform regular network scans to ensure a security product protects all systems.

Harden the cloud: As attackers move towards cloud resources, it's important to secure cloud resources and identities as well as on-premises accounts. Security teams should focus on hardening security identity infrastructure, enforcing multifactor authentication (MFA) on all accounts, and treating cloud admins/tenant admins with the same level of security and credential hygiene as Domain Admins.

Microsoft has in depth recommendations at <https://aka.ms/ransomware-as-a-service>

DRAFT





Expert Profile

Emily Hacker:

Threat Intelligence Analyst

Emily Hacker did not expect to become a threat intelligence analyst at Microsoft after studying journalism in college. Her first job in cybersecurity was as a technical writer at an oil and gas firm. "I was editing intelligence reports, intelligence presentations, and helping with incident metrics. Over the course of that first year, I became absolutely enthralled with the work that intelligence analysts do."

Emily's work at Microsoft began in 2020 as an analyst for Microsoft Defender for Endpoint and Microsoft Defender for Office. One of the focus areas for these teams is to protect customers from threats associated with ransomware. Emily is directly involved in many of the investigations that built Microsoft's knowledge of the RaaS economy and the access broker/operator/affiliate relationship, actively hunting for evidence of pre-ransomware signals.

"Following trends and techniques used by RaaS operators and their affiliates in the pre-ransom phase of an incident is critical to protecting customers from these types of threats" she said. "My job is to spot these pre-ransomware actors as early as possible. If you are only looking for the ransomware payload, itself – you're too late."

To stay on top of the changing RaaS landscape, Emily and her team use a combination of automated systems and human analysis to analyze, escalate and act on logs, alerts, and other activity in real-time. Emily's team helps anticipate, pre-empt,

and respond to different incidents on the front lines of customers' networks, while also contributing to MSTIC's ever-growing assessment of ransomware-linked actor tools, motives, and strategies.

When it comes to a ransomware incident, the stakes can be incredibly high. Ransomware operators are known to target critically important networks related to education, transportation, healthcare, or telecommunications systems. When these networks are affected, the results can be catastrophic.

"The work we do at Microsoft to track and prevent ransomware incidents is important because we're protecting not just our customers, but their customers as well," Hacker said. "Identifying the tools and techniques associated with ransomware and pre-ransomware incidents as early as possible is critical when these incidents have potentially wide-reaching consequences on companies, their employees, and their customers."

"My job is to spot these pre-ransomware acts as early as possible. If you are only looking for the ransomware payload, itself – you're too late."

*Threat Intelligence Analyst
Emily Hacker*



© 2022 Microsoft Corporation. All rights reserved. Cyber Signals is for informational purposes only. MICROSOFT MAKES NO WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AS TO THE INFORMATION IN THIS DOCUMENT. This document is provided "as is." Information and views expressed in this document, including URL and other Internet website references, may change without notice. You bear the risk of using it. This document does not provide you with any legal rights to any intellectual property in any Microsoft product.