KeepItSafe®

RANSOMWARE ATTACK:

WHAT'S YOUR DATA RECOVERY PLAN?

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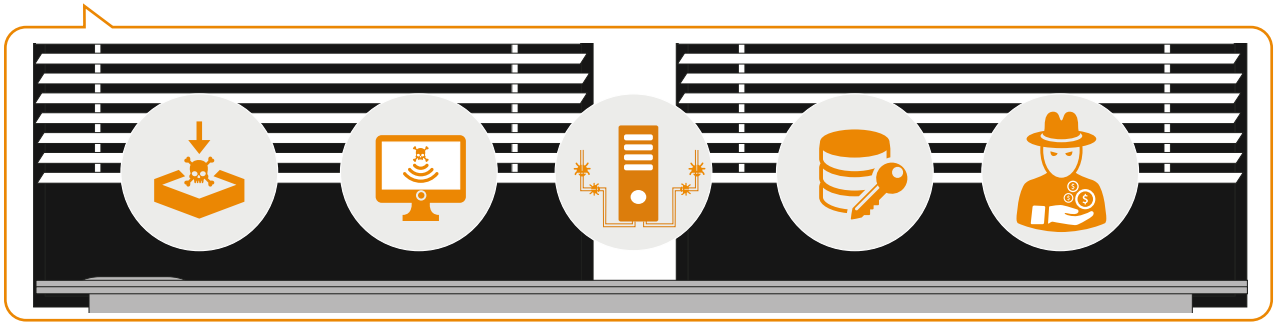
WHAT IS RANSOMWARE AND WHY IS IT ON THE RISE?



Imagine sitting down at your office computer, logging in to your corporate network, and being greeted by the following onscreen message:

"We have locked you out of access to all of your company's systems, files and other data. To have access restored, please deposit $100,000 in the following bitcoin account."

This is "ransomware," one of the most prevalent forms of malicious cyber attacks facing businesses today.

With a ransomware attack, a cyber hacker infects your network or device with malicious software, usually by placing the code into an email you open or into seemingly legitimate software you download from a website. Once the malicious software propagates through your systems, the hacker can then encrypt your data — and contact you with an offer to pay a ransom to get the data back.

If this sounds to you like a rare occurrence, or simply the stuff of thriller movies, we have bad news. Malicious cyber attacks, including ransomware, are sharply on the rise against businesses. In fact, according to a 2016 report by the Financial Times, malicious attacks now represent the leading cause of all corporate data loss — surpassing the previous leader, employee error. [1]

Even more concerning, experts predict that ransomware attacks are about to skyrocket. According to the insurance company Beazley, which tracks and reports on data security vulnerabilities in its Beazley Breach Insights report, estimated that ransomware attacks are on track to increase 250% in 2016. [2]

Why is ransomware becoming so prevalent? One reason is that it has proven effective. A quick story will illustrate why.

The Hollywood Presbyterian Medical Center in Los Angeles had its computer network hacked in early 2016, leaving all of the hospital's data encrypted and inaccessible. Shortly after, hospital administrators received a ransom message from the hackers — reportedly demanding $3.4 million for the decryption key.

For a healthcare company, such an attack can be devastating almost immediately. In this case, it meant that hospital staff were unable to access vital records patient data records and save new information digitally. After a few days with their systems offline, the hospital agreed to pay the attackers $17,000. "The quickest and most efficient way to restore our systems and administrative functions was to pay the ransom and obtain the decryption key," the hospital's president explained in a press release. "In the best interest of restoring normal operations, we did this." [3]

With ransomware repeatedly proving a successful strategy for extorting money from businesses, we can expect this threat to increase with time. So we have prepared this white paper to help educate IT teams on how ransomware works — how to prevent it from happening to their businesses.

THE MOST COMMON TYPES OF RANSOMWARE AND ITS MOST POPULAR TARGETS

Ransomware attacks are broadly broken into two categories: locker and crypto.

Locker ransomware is a simpler form of attack, where the malicious code disables some or all of your computer systems' functionality. For example, you won't be able to access any of the applications or data folders on your desktop but you will still be able to use your keyboard and mouse to communicate with the hackers.

The locker malware typically does not encrypt your files, but merely locks you out of access to them.

Crypto ransomware is a more sophisticated form of attack, where the hackers encrypt your mission-critical data, and then in many cases include a countdown with their ransom demand — "Deposit this amount in our account by this time, or we will destroy all of your data."

Although a crypto attack is often a signal of a more advanced cyber criminal than the simpler locker attack, both forms of ransomware can pose a significant threat to a business's intellectual property, reputation, regulatory compliance and ability to continue normal business operations. Businesses, therefore, need to be ready to defend against both forms of attack.

Ransomware Attackers' Favorite Targets

Business Server Software

Corporate IT teams need to stay vigilant against malicious attacks such as ransomware because the cyber hackers themselves are always looking for new ways to penetrate corporate systems — and often finding them.

One example of a new favorite approach for ransomware attackers is through business server software. As PCWorld reported in 2016, attackers are now exploiting a vulnerability in server software that allows them to implant ransomware code directly onto business servers, rather than through the more indirect methods of sending spam emails with malicious attachments or by infecting legitimate software downloads with the ransomware code. [4]

The important implication for corporate IT departments is that ransomware attackers are continually growing more sophisticated and creative in their methods, and the IT teams defending corporate data must continually educate themselves on new threats.

Healthcare Data

Among ransomware attackers' favorite target industries is healthcare, primarily for two reasons.

First, these cybercriminals know how vital — life and death in some cases — access to patient data can be for a healthcare organization. Which means medical organizations will be among the most likely to pay a ransom for a fast return of their data.

Second, cyber hackers also know how heavily regulated the medical industry is, and therefore how vulnerable healthcare organizations are to running afoul of regulators if they leave their electronic protected health information — ePHI — exposed to theft or attack. A major data breach could cost a healthcare organization enormous fines for compliance violations, and even lead regulators to shut the company down completely.

Because of the regulatory angle, you can also assume that any business in any industry whose data is subject to strict privacy regulations will also be a tempting target for ransomware attacks — financial services, legal, real estate, business consulting firms, any publicly traded corporation, etc.

Mobile Devices

As BankInfoSecurity.com has reported, mobile devices represent another treasure trove of possible ransomware victims.[5]

With mobile ransomware attacks, cybercriminals are able to exploit two trends: the current security weaknesses among apps on smartphones and other consumer-grade mobile devices, and the increasing use of mobile devices accessing corporate networks.

In other words, malicious actors can infect legitimate apps with ransomware, then wait for users to download those apps to the devices, and bring those devices into their office environments.

HOW RANSOMWARE SPREADS

We've covered what ransomware attackers will do to extort their victims for money after they've successfully taken control of their data — either through a simple locker attack or a more advanced crypto attack. We've also discussed broadly the types of companies most likely to be targeted by a ransomware attack.

Now let's take a step back and explore how the ransomware attacker gains control over a business's data in the first place. What are their methods of getting their malicious code into your corporate systems? What do you and your team need to be on the lookout for?

Spam Email Messages

This is the most common method of infecting a system with ransomware code. The attacker sends an innocent-looking email with the malicious software either embedded in an attachment that the message asks the reader to open or on a site whose link the message asks the reader to click.

Cybercriminals are becoming increasingly sophisticated in disguising these spam messages. Some appear to come from a friend in the recipient's address book, others appear to come from an online service provider the recipient does business with — such as Amazon.com or FedEx — asking for an update to profile information or warning of a breach of their account. (Cyber hackers have a sense of irony.)

As soon as the email reader takes the required step (downloading the attached file, clicking on the link), the ransomware goes to work embedding itself into the computer systems and propagating itself across the network.

Downloads and Botnets

With this method of attack, the cybercriminals will infect your systems with malware first, generally through a piece of malicious code written into software someone in your organization downloads. The hackers' code can sit on your network or severs for, undetected, for some time before the hackers are ready to launch the ransomware attack.

When they're ready, this malicious code will communicate back, via the malware's botnet, with the hackers. This usually happens through the launching of an "upgrade" command in your systems that hands controls over to the hackers and lets them update the malware, possibly including remotely encrypting all of your data (the crypto method) and delivering your company the ransomware message.

This method of ransomware attack has become so prevalent that in mid-2016 the United States Senate introduced a bill called the Botnet Prevention Act.[6]

Operating Systems or Software Exploits

With this approach, the hackers are able to exploit a security vulnerability in either an application running on your systems or network, or directly in the operating system of one of your computers or servers.

This type of ransomware attack can be even more difficult to defend against than the previous two mentioned —spam emails and malicious downloads — because it does not require any action taken by anyone in your organization. Such an attack can be launched merely by exploiting the presence of a vulnerability you do not know exists.

Executable Files

A variant on the downloadable ransomware attack is by embedding a .exe (executable) file into a computer or server and then commanding that file to launch itself on the system's start or run — then propagating its malicious code across the system and network.

One example of this is the CryptLocker ransomware code, in which hackers were able to send the .exe file disguised as a PDF, and which then launched automatically in its victims' computer systems.

There are many variants of these ransomware approaches, and hackers are testing new and more sophisticated approaches regularly.

For a useful and up-to-date resource to help your team keep up with the ever-evolving ransomware variants, visit the website of the United States Computer Emergency Readiness Team (US-CERT) and search "ransomware variants."[7]

WHAT YOU CAN DO: 10 STEPS TO DEFENDING AGAINST RANSOMWARE

Following are 10 steps, all proven best practices, that your business can take to protect against the ever-present threat of a ransomware attack.

1. **Implement a Comprehensive Data Backup and Recovery Plan**

   Implement a program to whitelist applications that will require active approval from your team or authorized administrators to grant permissions for those apps or programs to run on any networked devices.

   This is a smart way to place one more obstacle, and a trained set of eyes, on any new piece of software to check for malicious code such as ransomware — before allowing it access to your corporate network.

2. **Implement a Plan to Regularly Scan and Test All Networked Devices**

   Another key component to ransomware prevention is ensuring that at all times, all of your company-issued devices as well as any personal devices that interact with your network, are up to date with the latest anti-virus software or other tools to prevent the introduction of malicious code. Also, given the trend of using executable files to launch malware, it's important that your process include scanning all local drives and devices before executing a launch.

   Ideally, your data backup and recovery solution will also include an endpoint protection component, which allows your IT team centralized visibility into and control over all devices that interact with your network or other systems — including mobile devices.

   Deploying such an endpoint protection system will make it far easier to have visibility into any devices that might pose a threat, and to remotely prevent them from gaining access to your network.

3. **Keep Your Operating Systems and Software Up-to-Date With New Patches**

   When it comes to introducing malware into a system, including ransomware, one of the easiest points of entry for cyber hackers is through an application or operating system that is out of date or that has a security vulnerability. Keep up with the latest security patches for all apps and operating systems your company uses.

4. **Isolate Infected Devices Quickly**

   The damage a ransomware attack can do to your data is directly related to how fast, far and wide the malicious code can propagate itself across your network, servers, and systems.

   So part of your process should be that as soon as you identify a device that might be infected with any malware, you will disconnect that device from your network.

5. **Filter for .exe Attachments in Email**

   Here's a way to be proactive in protecting at least against the dreaded CryptoLocker code, which launches itself through an executable file embedded into one of your systems. Include in your process for preventing malware to filter for executable files attached to your company's emails.

   You can then scan .exe or macros email attachments, in an isolated environment, on a case-by-case basis — but filtering for such attachment first will reduce the likelihood of a crypto ransomware attack sneaking onto your network.

6. **Disable Files Running from AppData Folders**

   Another common trick of the CryptoLocker code is to run its executable from the AppData or Local AppData folders. So you can limit the chance of such an attack by creating rules within Windows or with Intrusion Prevention Software to default to disallowing any executable to run from these folders.

   If you have legitimate software that you know is set to run not from the usual Program Files area but the AppData area, you can exclude it from this rule or override it.

7. **Disable Remote Desktop Protocol (RDP)**

   The CryptoLocker/Filecoder malware often accesses target machines using Remote Desktop Protocol (RDP), a Windows utility that allows others to access your desktop remotely.

   If you do not require the use of RDP, you can disable RDP to protect your machine from Filecoder and other RDP exploits.

8. **Protect Your Operating Systems and Apps**

   It's important to understand that even a simple, unsophisticated ransomware attack can include the locking and encrypting everything across your network — including your applications and operating systems — not merely your files.

   This means your system protection process should also include steps to secure your apps and systems as well as your files and folders.

9. **Train Your Staff and Test Readiness for an Attack**

   Another necessary component in any cybersecurity process is to make sure your staff across the organization is trained in preventing cyber hacks, and knows what to do if one occurs.

   So document cybersecurity processes — one for your IT team, and another for the employees across your company. Train staff on the malware-prevention steps outline above, such as not opening suspicious emails or downloading apps or files from websites unless they are certain of their legitimacy.

   Train your staff also to isolate a device should they discover it has been infected with malware, to ensure they minimize the damage and do not let the malicious code replicate itself across your network.

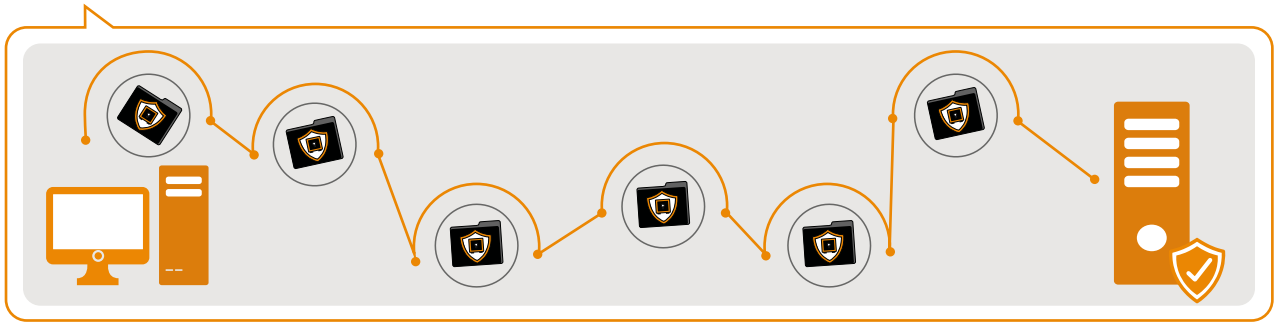
   And run drills, perform regular tests to help your employees learn how to react to a cyber attack.

10. **Implement a Comprehensive Data Backup and Recovery Plan**

    Finally, roll out a company-wide solution for backing up all corporate data, on all systems and devices, as well as a disaster recovery and business continuity program. Your backup solution will ideally be cloud-based, with a trusted provider that maintains all of your data securely in the cloud and across multiple, geographically distinct locations — with immediate failover, should one of these locations suffer an outage or natural disaster.

    A cloud backup solution is preferable to limiting your business to onsite backup for several reasons — such as the risks of human error (e.g., forgetting to replace a backup tape), employee theft or natural disasters. But another reason to consider outsourcing backup and recovery to the cloud is that with the right provider, you can ensure your critical backups stand isolated from your onsite systems, so an infected machine on your premises cannot also propagate its malicious code across your other networked devices onsite.

HOW KEEPITSAFE HELPS COMBAT RANSOMWARE



For the data backup and recovery component of your organization's cybersecurity process, the most proven and comprehensive solution comes from KeepItSafe®.

KeepItSafe's suite of offsite data backup, disaster recovery and business continuity solutions include:

- ✓ Fully managed and monitored global data backup in the cloud
- ✓ Protection of your company's data at rest with AES 256-bit encryption
- ✓ 24/7 support by phone or email from a trained team of data-protection support engineers
- ✓ Backup and recovery solutions are certified to ISO-27001 and SSAE-16

To obtain a free data assessment for your organization: visit **www.keepitsafe.com** or call us at **888 965 9988**.

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