NLC NATIONAL LEAGUE OF CITIES

NLC-RISC RISK INFORMATION SHARING CONSORTIUM

YEARS OF LEADERSHIP & CONNECTION

Real-World Cyber Threats and Cyber Hygiene for Cities

Thursday, May 12th | 2:45 PM

SUREFIRE CYBER

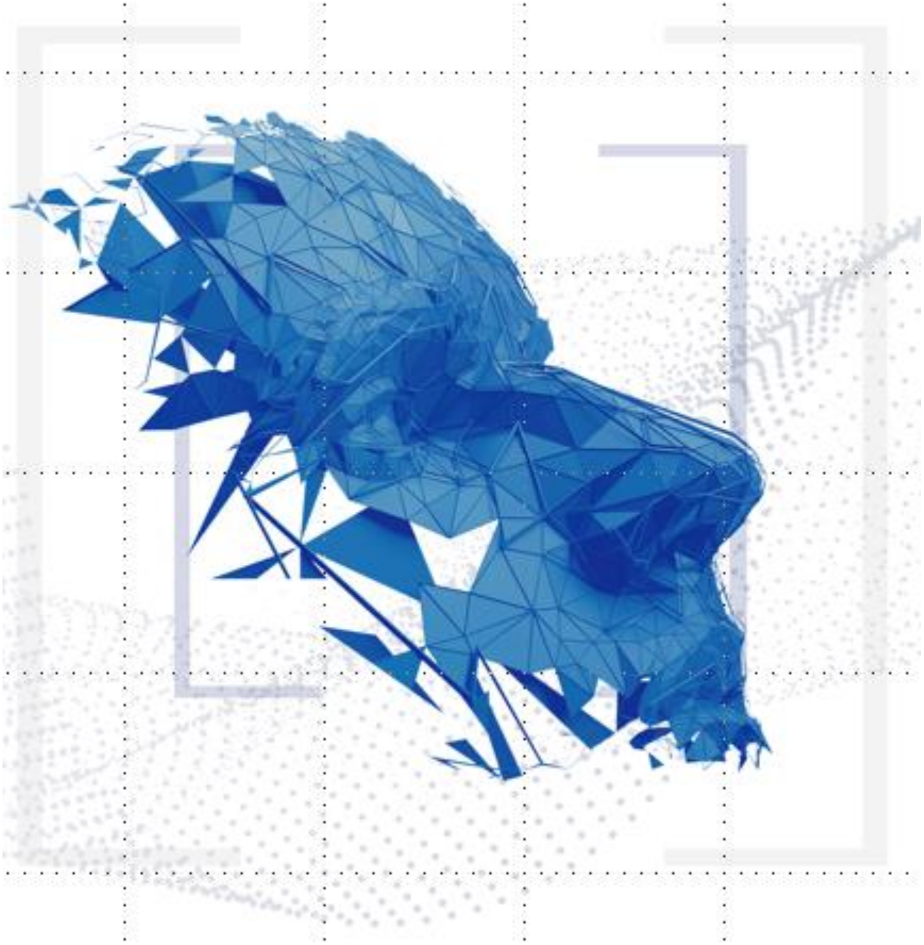
From Response to Resilience

Ransomware…NOT Coming to a City Near You

Marc Bleicher
CTO, Surefire Cyber

Agenda

- **Ransomware Scare-tistics**
  - By the numbers FBI ransomware statistics
  - Where is ransomware impacting cities
  - Trends of ransomware over the last 3 years
- **Part 1—In a Ransomware Situation**
  - Ransomware lifecycle
  - The parts of the attack you don't see
  - Why are municipalities a target
- **Part 2—What You Can Do**
  - Recommendations
  - Things to Consider
  - Steps to become resilient
  - Resources and where to get help

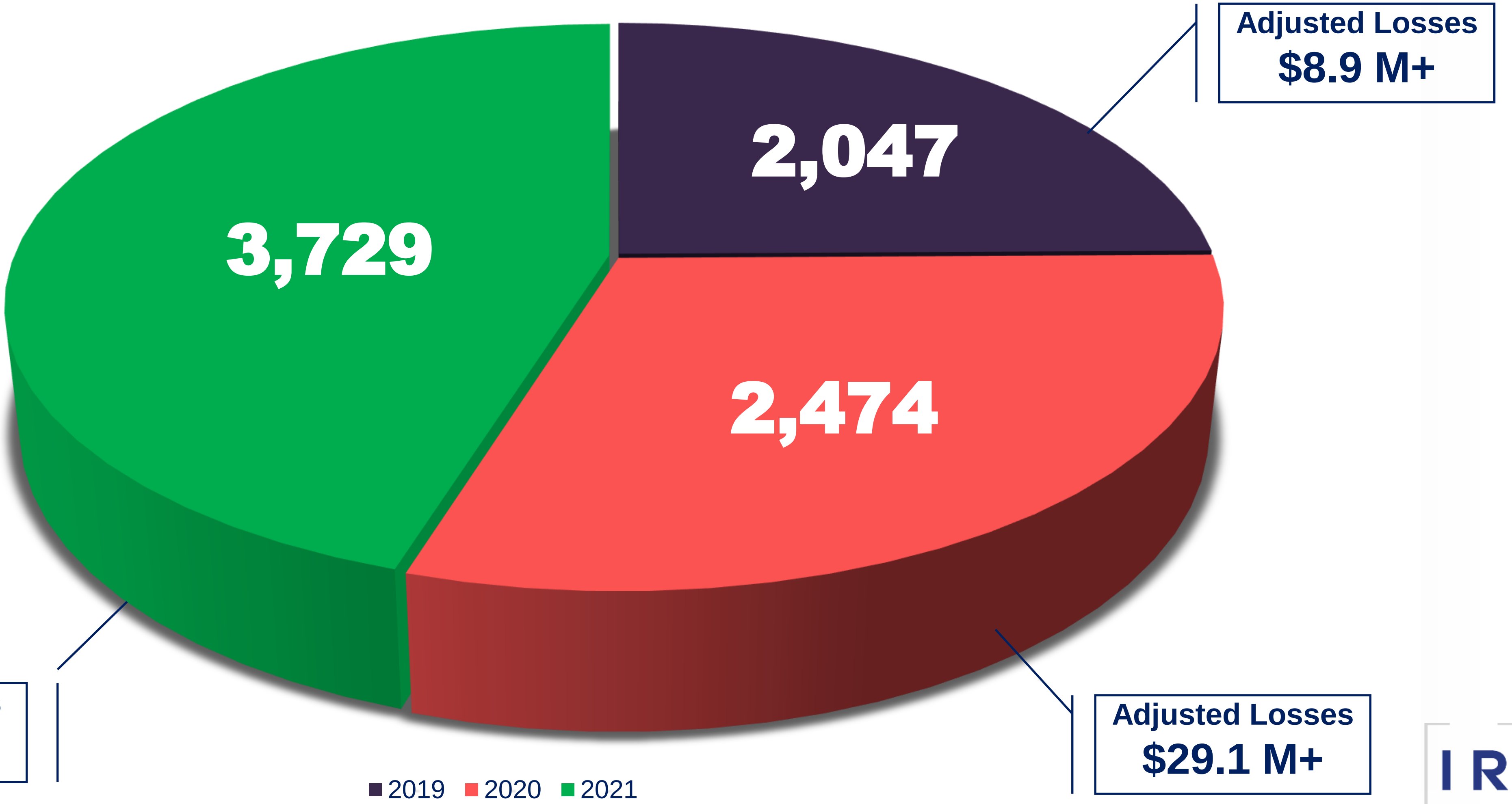


Ransomware FBI Statistics (~Last 3 Years)

*Adjusted Loss **does not** include estimates of:

- Lost business
- Time/Wages
- Data/Files
- Systems/Equipment
- 3rd party services

# of Ransomware Complaints received by the FBI Internet cybercrime center (IC3)

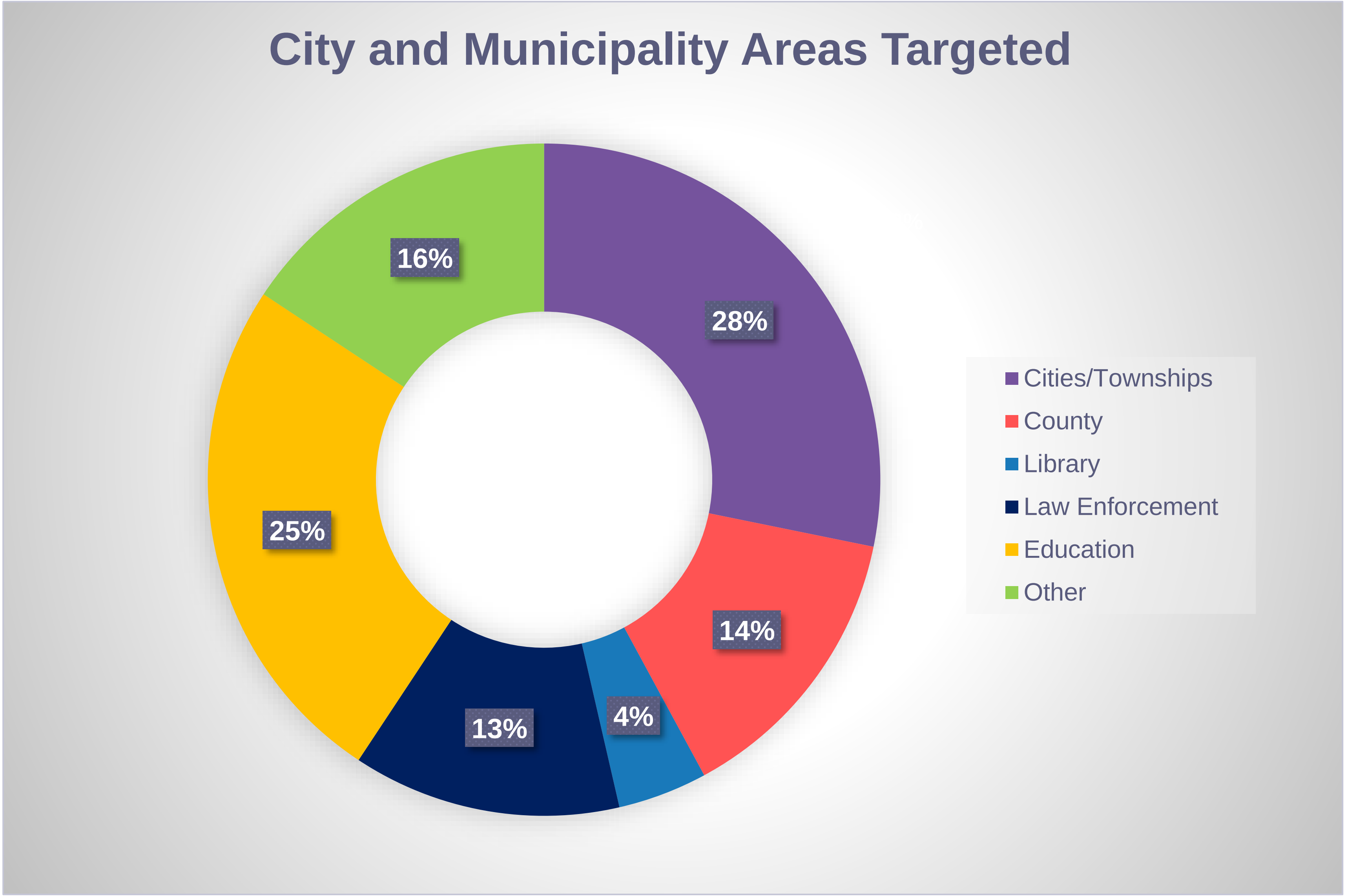


Adjusted Losses
$8.9 M+

Adjusted Losses
$29.1 M+

Adjusted Losses
$49.2 M+

Ransomware Municipality Impact

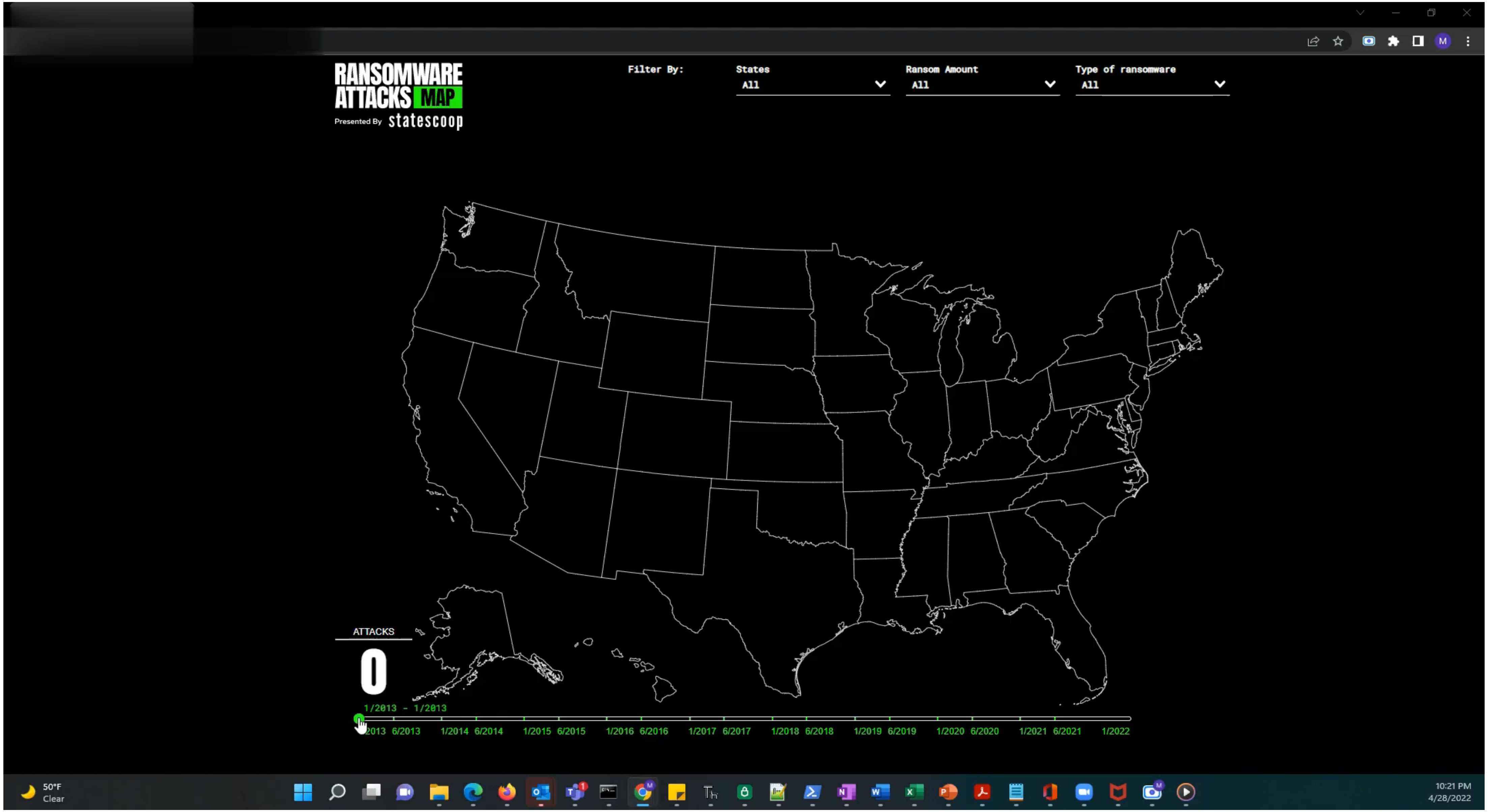


$665,000 to $40.53M — Breach costs

Attacks targeted towards cities & local schools — 53.2%

10 — # of days in downtime

Ransomware Attacks 2013-Present



Filter By:

States: All

Ransom Amount: All

Type of ransomware: All

Ransomware & Extortion Trends

Supply Chain Attacks

Hit one target that provides collateral impact across many

- SolarWinds
- Kaseya
- Colonial Pipeline
- JBS SA

Double Extortion

Monetize the victims' weak spots

- Encrypt data (1)
- Exfiltrate data (2)
- Multiple-ways to profit from the same victim

RaaS

Ransomware as a Service (Raas)

- SaaS model for ransomware
- Like a franchise or subscription for cyber criminals

Access Brokers

Step 1 in ransomware attacks

- Cybercriminals who specialize in breaching companies
- Selling the access to ransomware groups

DDoS

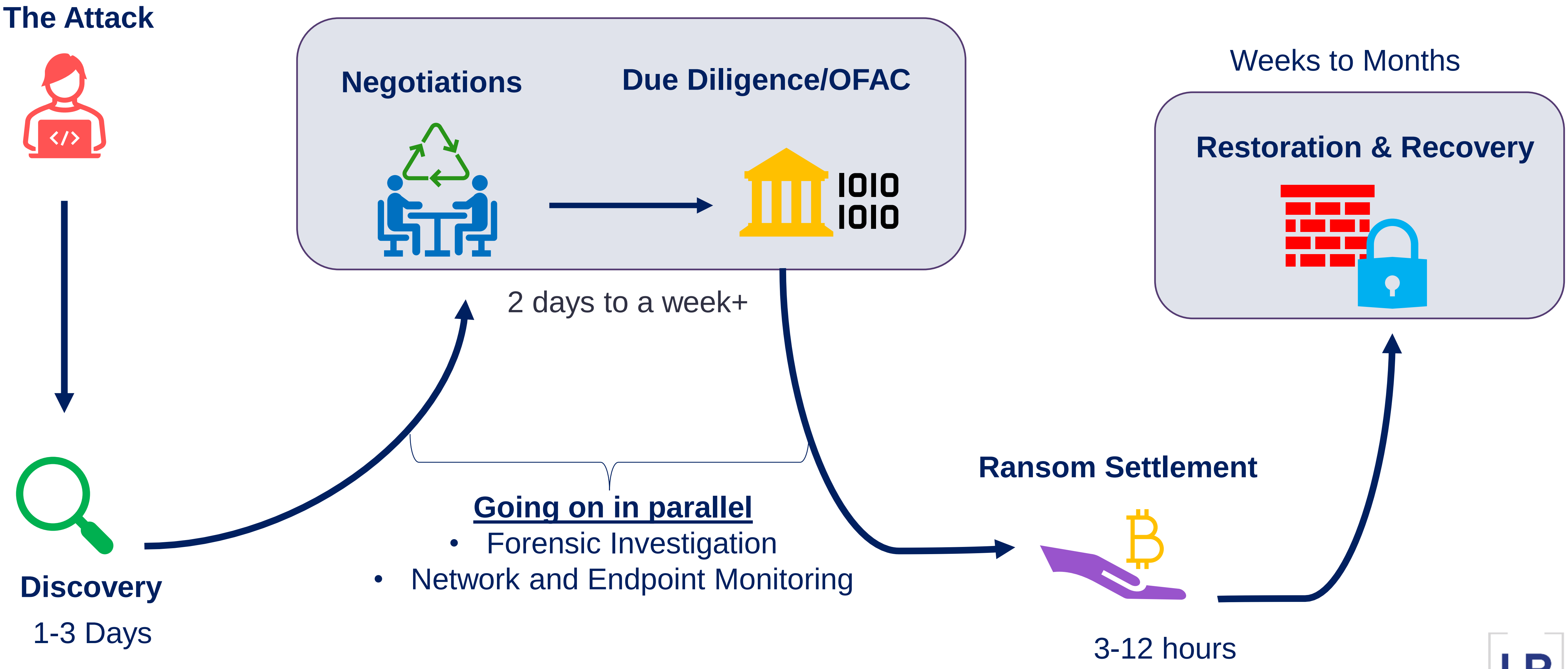
Denial of Service

- Adds another level of extortion to the attack
- Increases pressure on the victim to pay

A Glimpse into Ransomware

What you see and What you don’t see

Ransomware Lifecycle



The Attack

Discovery

1-3 Days

Negotiations

Due Diligence/OFAC

2 days to a week+

Going on in parallel

- Forensic Investigation
- Network and Endpoint Monitoring

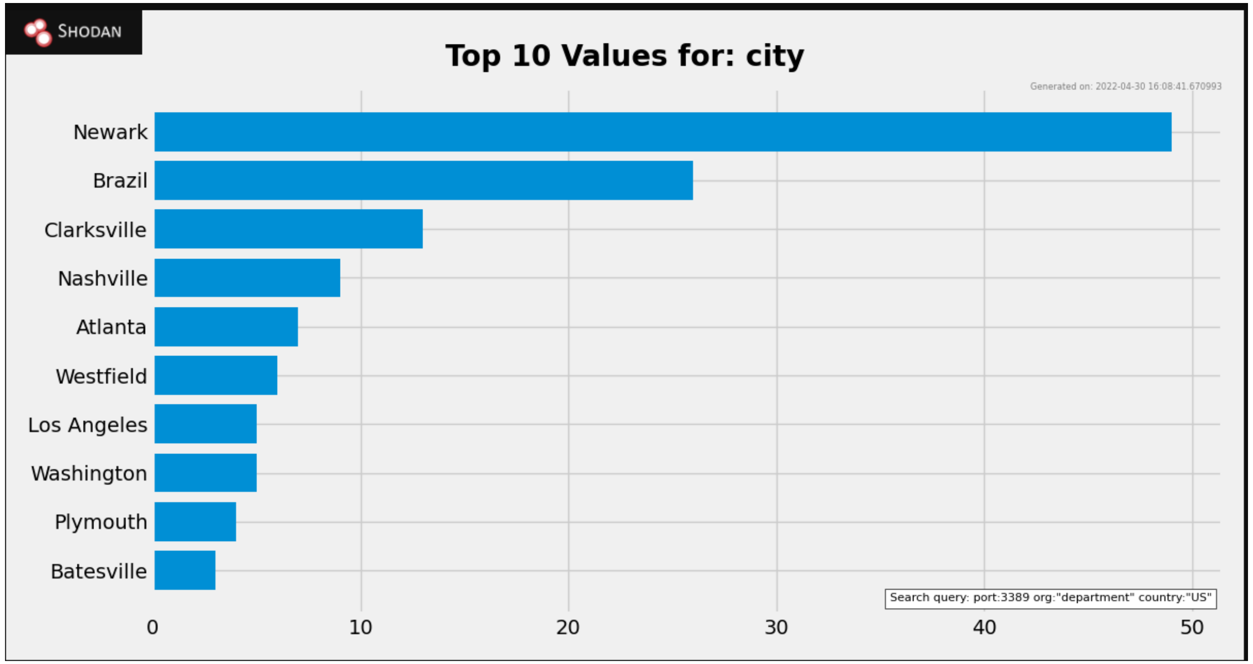
Ransom Settlement

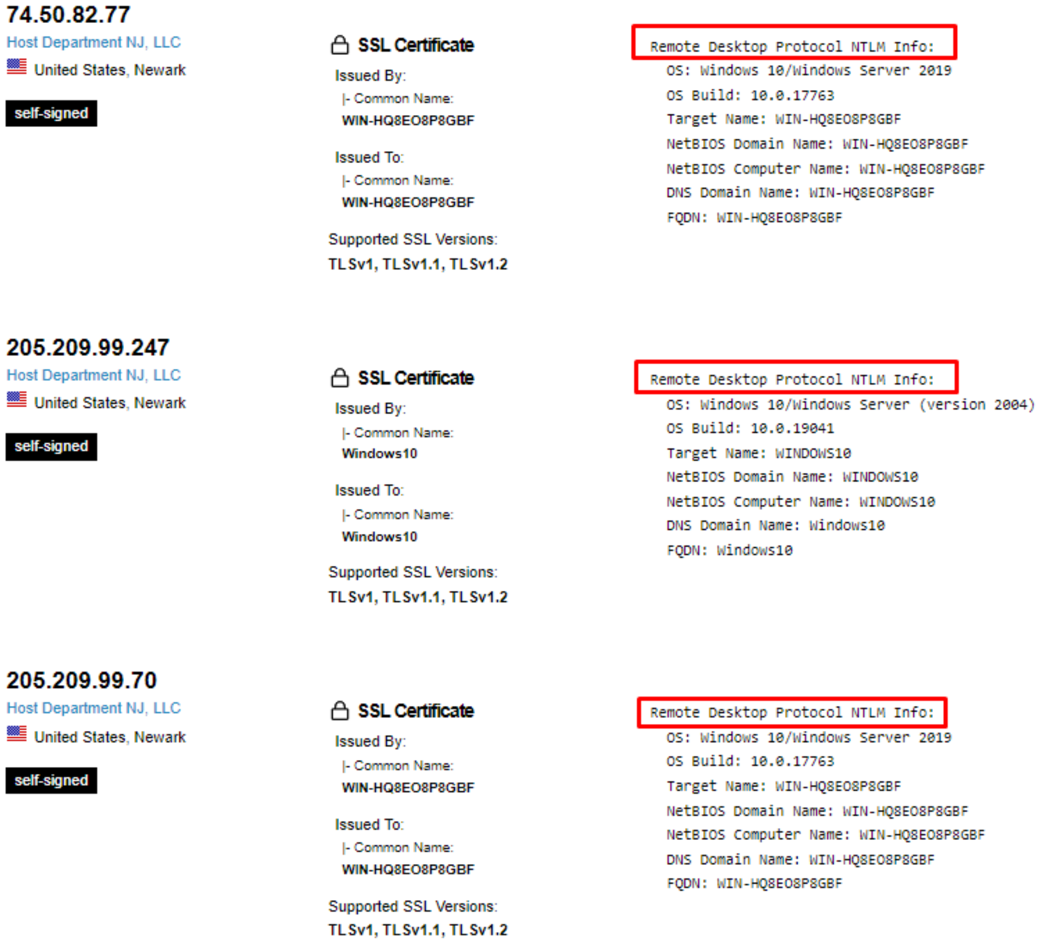
3-12 hours

Weeks to Months

Restoration & Recovery

Reconnaissance for Ransomware





74.50.82.77
Host Department NJ, LLC
United States, Newark
self-signed

SSL Certificate
Issued By:
|- Common Name:
WIN-HQ8EO8P8GBF
Issued To:
|- Common Name:
WIN-HQ8EO8P8GBF
Supported SSL Versions:
TLSv1, TLSv1.1, TLSv1.2

```
Remote Desktop Protocol NTLM Info:
  OS: Windows 10/Windows Server 2019
  OS Build: 10.0.17763
  Target Name: WIN-HQ8EO8P8GBF
  NetBIOS Domain Name: WIN-HQ8EO8P8GBF
  NetBIOS Computer Name: WIN-HQ8EO8P8GBF
  DNS Domain Name: WIN-HQ8EO8P8GBF
  FQDN: WIN-HQ8EO8P8GBF
```

205.209.99.247
Host Department NJ, LLC
United States, Newark
self-signed

SSL Certificate
Issued By:
|- Common Name:
Windows10
Issued To:
|- Common Name:
Windows10
Supported SSL Versions:
TLSv1, TLSv1.1, TLSv1.2

```
Remote Desktop Protocol NTLM Info:
  OS: Windows 10/Windows Server (version 2004)
  OS Build: 10.0.19041
  Target Name: WINDOWS10
  NetBIOS Domain Name: WINDOWS10
  NetBIOS Computer Name: WINDOWS10
  DNS Domain Name: Windows10
  FQDN: Windows10
```

205.209.99.70
Host Department NJ, LLC
United States, Newark
self-signed

SSL Certificate
Issued By:
|- Common Name:
WIN-HQ8EO8P8GBF
Issued To:
|- Common Name:
WIN-HQ8EO8P8GBF
Supported SSL Versions:
TLSv1, TLSv1.1, TLSv1.2

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  FQDN: WIN-HQ8EO8P8GBF
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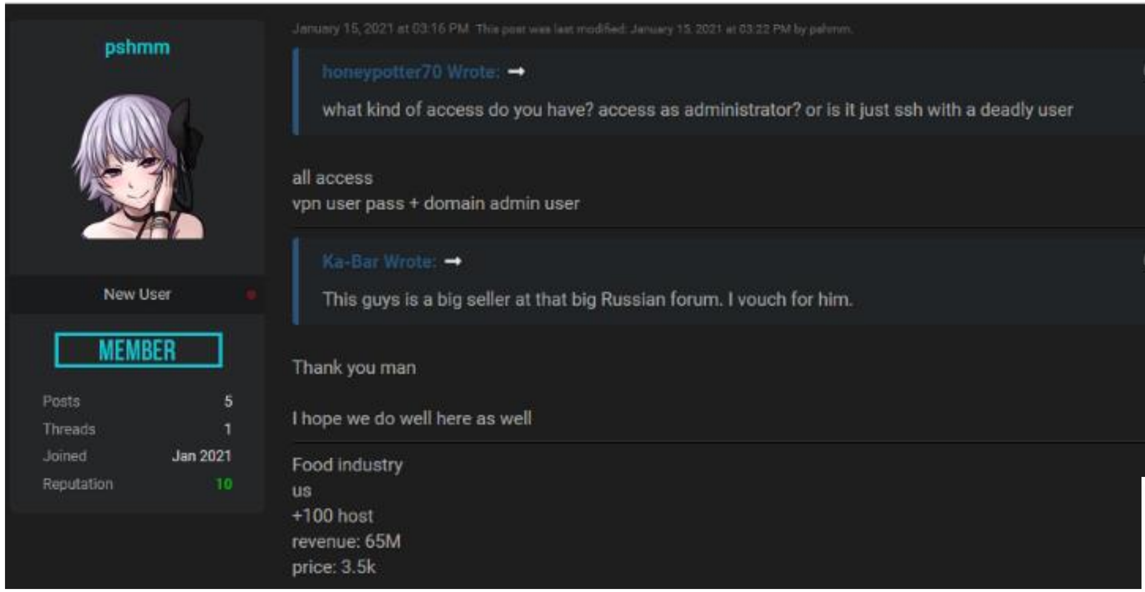
Ransomware Reconnaissance

1. Identify a vulnerable target(s)
2. Determine profitability of a successful attack
3. Determine how to exploit the vulnerability

Initial Access Brokers



pshmm

New User

MEMBER

Posts	5
Threads	1
Joined	Jan 2021
Reputation	10

January 15, 2021 at 03:16 PM This post was last modified: January 15, 2021 at 03:22 PM by pshmm. #6

> honeypotter70 Wrote: ➡ (January 13, 2021 at 02:05 AM)
>
> what kind of access do you have? access as administrator? or is it just ssh with a deadly user

all access
vpn user pass + domain admin user

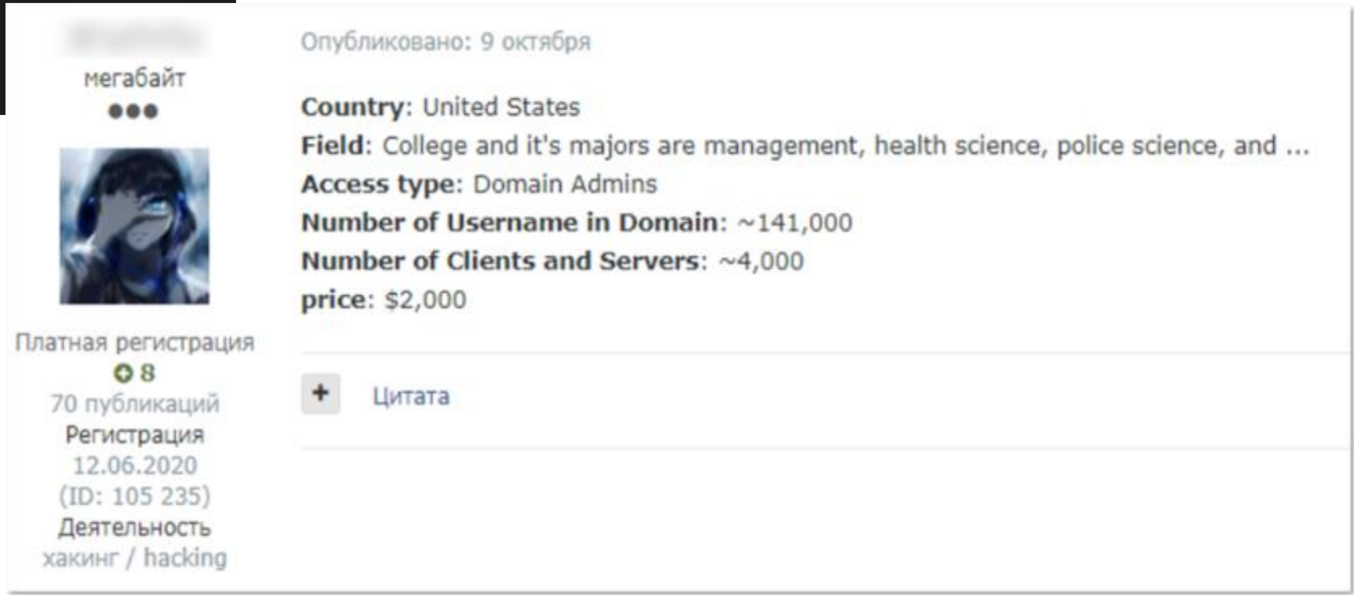
> Ka-Bar Wrote: ➡ (January 13, 2021 at 12:28 AM)
>
> This guys is a big seller at that big Russian forum. I vouch for him.

Thank you man

I hope we do well here as well

Food industry
us
+100 host
revenue: 65M
price: 3.5k

Initial Access Brokers (IABs) specialize in breaching organizations then selling access to ransomware threat actors



[redacted]
мегабайт
●●●

Платная регистрация
⊕ 8
70 публикаций
Регистрация
12.06.2020
(ID: 105 235)
Деятельность
хакинг / hacking

Опубликовано: 9 октября

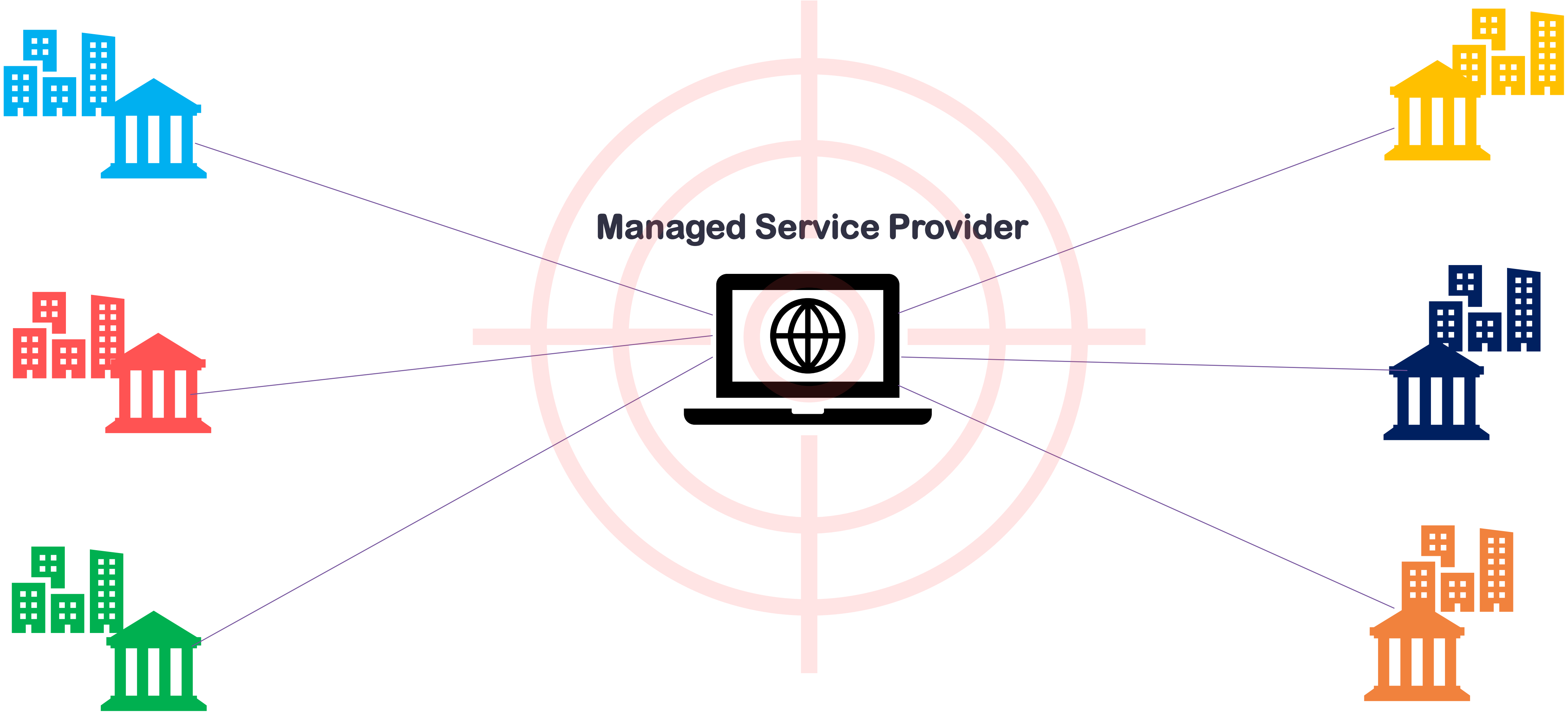
Country: United States
Field: College and it's majors are management, health science, police science, and ...
Access type: Domain Admins
Number of Username in Domain: ~141,000
Number of Clients and Servers: ~4,000
price: $2,000

+ Цитата

What's for Sale?

- Administrator Credentials
- Web Shell Access
- Remote Desktop Access
- VPN Access
- Remote Management Tool Access
- Admin Panel Access
- By Request on-demand access

3rd Parties | Vendors | MSPs



Negotiations & Recovery Strategy

- ☑ Determine if you have backups
- ☑ Test and Validate backups are viable
- ☑ Assess overall damage & level of effort to restore basic operations
- ☑ Threat actor communications to stall or gain additional information
- ☑ Obtain as much proof-of-life to determine & validate value of data
- ☑ Who else is exposed and at risk with staying down or having data leaked?
- ☑ What's the impact if your data gets leaked
- ☑ What are there regulatory and compliance impacts?
- ☑ Are there other means to recover the data. Think outside the box…(email attachments)
- ☑ Who is paying, how much, who is responsible for what?
- ☑ How long would you be able to continue as BAU without paying?
- ☑ What are the consequences of an extended outage?

Restoration and Recovery

- Business Interruption
- Notification Requirements
- Forensic Investigation
- Expertise/Consultants
- Legal Fees
- Lost Revenue

Baltimore

Original Ransom Demand

$76,000

Total Cost to Recover

$18 Million

Atlanta

Original Ransom Demand

$51,000

Total Cost to Recover

$17 Million

How is ransomware run like a business?

- Ransomware-as-a-Service
- Internal policies and Hierarchies
- HR and Recruitment
- Ecosystem of with funding and full-service vendors
  - Providers
  - Product Creators
  - Financiers
- Re-investment to scale the business
- Innovation is rewarded

What Makes You a Target?

- Attacks at certain times of the year on critical services and systems increase pressure
- Increase in attacks starting in late summer. Before and over the holiday season

- Type and volume of data
- Gateway to critical infrastructure
- Access to public records also gives access to cyber criminals to exploit
- Contractual, billing, and financial information for the municipality and citizens

- Lack of funding
- Lack of Cybersecurity staff
- Lack of dedicated budget
- Limited ability to acquire and implement technology, policies and training

- Municipalities are ideal targets because of the essential services provided to citizens
- For profit businesses can go under, but governments cannot

- Smart cities expand the attack surface
- More connected devices means more opportunity for attack
- Internet of Things (IoT) used across different city services
- Web of linked systems with that are connected through a variety of platforms

What You Can Do Now

Don’t Become a Victim

Top 5 Tech Recommendations

1

Backups

- Offsite/Offline or Off network backups
- If feasible consider leverage cloud capabilities
- Ability to restore your critical data is the most significant factor in determining whether to pay a ransom or not

2

Multi-factor Authentication

- Require MFA for as many services as possible prioritizing mail, remote access and accounts with access to critical data
- Prioritize MFA for remote employees and users who have elevated privileges based on their role

3

Endpoint Security

- Anti-virus software won’t cut it anymore
- Advanced endpoint detection and response software should be installed on as many critical systems as standard practice
- Ideally every device should have advanced endpoint security

4

Patching & Updates

- Timely patching is one of the most efficient and cost-effective steps your organization can take
- A lot of organizations outsource this responsibility

5

Insurance & Planning

- Verify you have cyber insurance and what it includes
- Create an Incident Response plan with communication protocols and a list of key stakeholders to call in when there is an incident
- Test your IR Plan at least twice a year

Do’s and Do Nots of Ransomware

Do

- Take Systems off the network
- Preserve all data and systems
- Engage cyber insurance and legal counsel
- Engage with an external response firm
- Exercise your BCP and IR Plan

Do Not

- Power systems off
- Wipe/re-build data and systems
- Attempt anything without legal advice from counsel & carrier
- Attempt to communicate with the threat actor
- Discuss anything outside the communication protocols

5 Things to consider Now

1. What does your insurance policy cover in terms of BI, EO, etc. and does it have extortion and ransomware clauses?
2. Does your municipality have a practical and easy to follow IR Plan with response & communication protocols
3. Who else is at risk if we get attacked? (citizens, services, partners, etc.)
4. Who makes the decision on whether to negotiate with the criminals and approve a ransom?
5. What is the absolute worst-case scenario we could be in?

State & Federal Resources

CISA

Resources for State, Local, Tribal, and Territorial (SLTT) Governments

- https://www.cisa.gov/uscert/resources/sltt
- https://www.cisa.gov/node/107 (National Infrastructure Protection Plan)
- https://www.cisa.gov/uscert/search?g=state%20resources

NGA (National Governors Association)

- https://www.nga.org/wp-content/uploads/2020/01/NASCIO_NGAStatesLocalCollaboration.pdf
- https://www.nga.org/center/publications/cyber-liability-insurance-for-states/
- https://www.nga.org/wp-content/uploads/2019/09/Memo-on-State-Cybersecurity-Response-Plans.pdf

Multi-State Information Sharing and Analysis (MS-ISAC)

- https://www.cisecurity.org/ms-isac
- https://learn.cisecurity.org/ms-isac-registration
- https://learn.cisecurity.org/ei-isac-registration (Election Information Sharing & Analysis)

Private Sector Resources

- **NetDiligence**
  - Breach Plan Connect (Build a practical and custom Incident Response Plan)
    - https://netdiligence.com/solutions/breach-plan-connect/
  - eRisk Hub a go-to resource for all things relevant to insurance, cybersecurity, and planning
    - https://eriskhub.com/
- **Information Sharing and Analysis (ISAO)**
  - List of all 50 states Cyber Information Sharing Groups
    - https://www.isao.org/information-sharing-groups/
- **Security Vendors & Cyber Insurance Resources Programs**
  - No shameless plugs please reach out to marc@surefirecyber.com for a full list and recommendations

Q&A