Survey of Spyware Tools and Counter Measures

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Outline

- Spyware Demonstration
- Spyware: Architecture & Features
- Ethics
- Counter Measures: Standard & Specific
- Future of Spyware & Counter Measures

Demonstration

- One of the Better Spyware Programs

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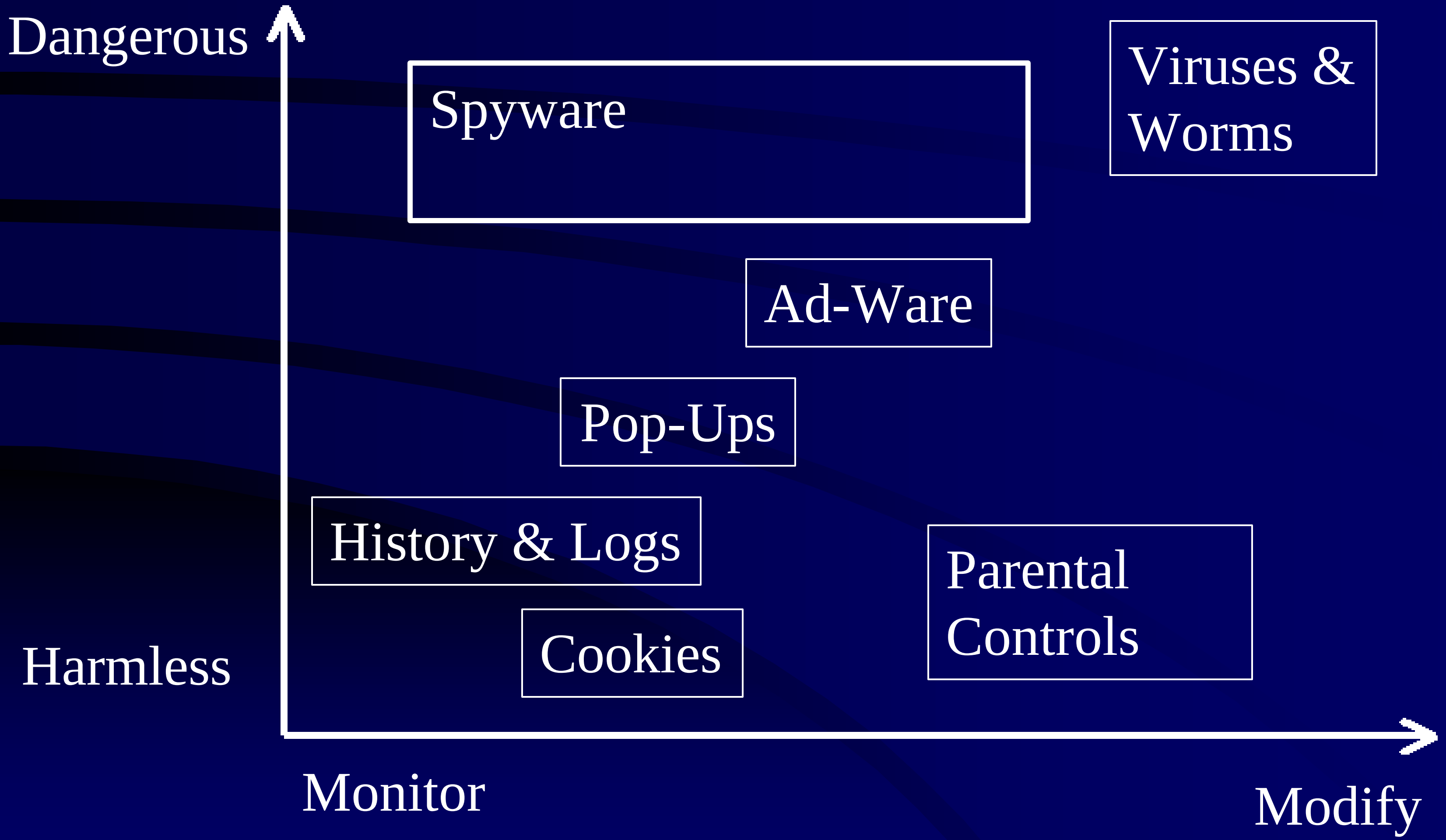
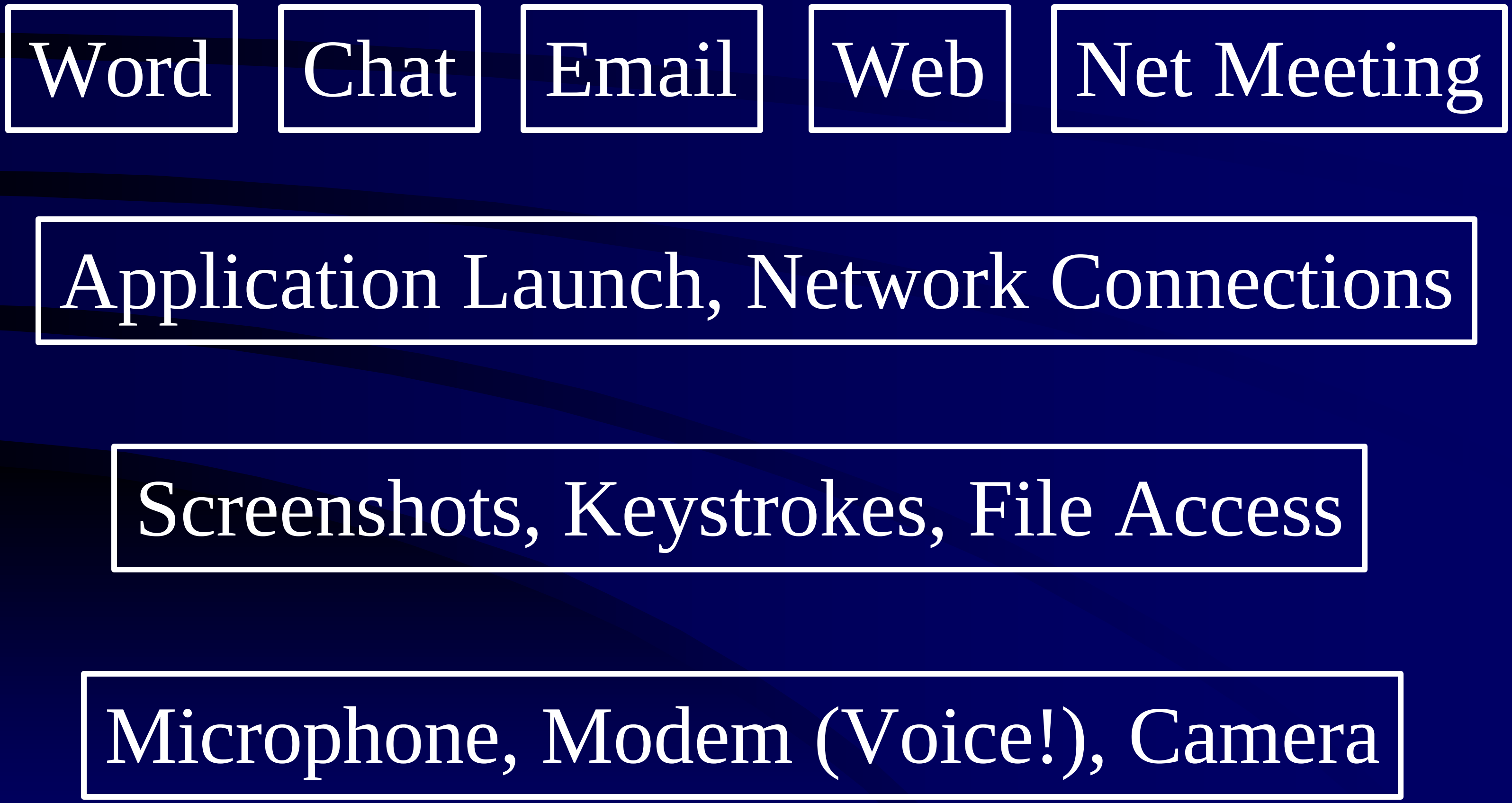
Spyware Feature Discussion

- Windows Has Built-In Logs for Spying
- Spyware Log Files are Very Sensitive
- Spyware Trumps Encryption
  - PGP Password Grabber Reporting Via Piggy-Back Email is Very Hard to Detect
- Smart Card May Not Help
  - Spyware Observes Decrypted Contents of Files
  - Trojan Software Can Query Smart Card (Future)
- Log Analysis Is Time Consuming

Malicious Software Taxonomy



Spyware Logical Scope



Word

Chat

Email

Web

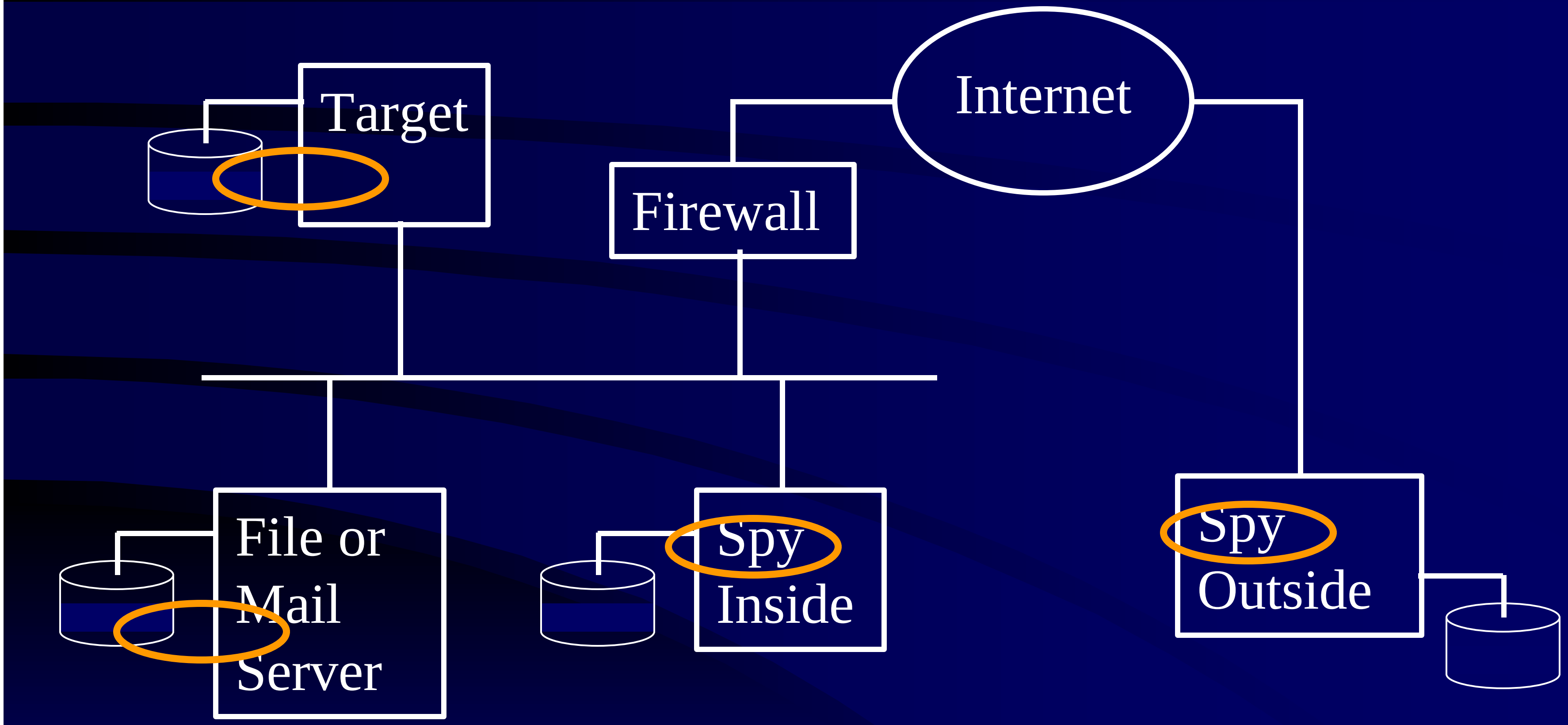
Net Meeting

Application Launch, Network Connections

Screenshots, Keystrokes, File Access

Microphone, Modem (Voice!), Camera

Spyware System Architecture



Spyware Hardware

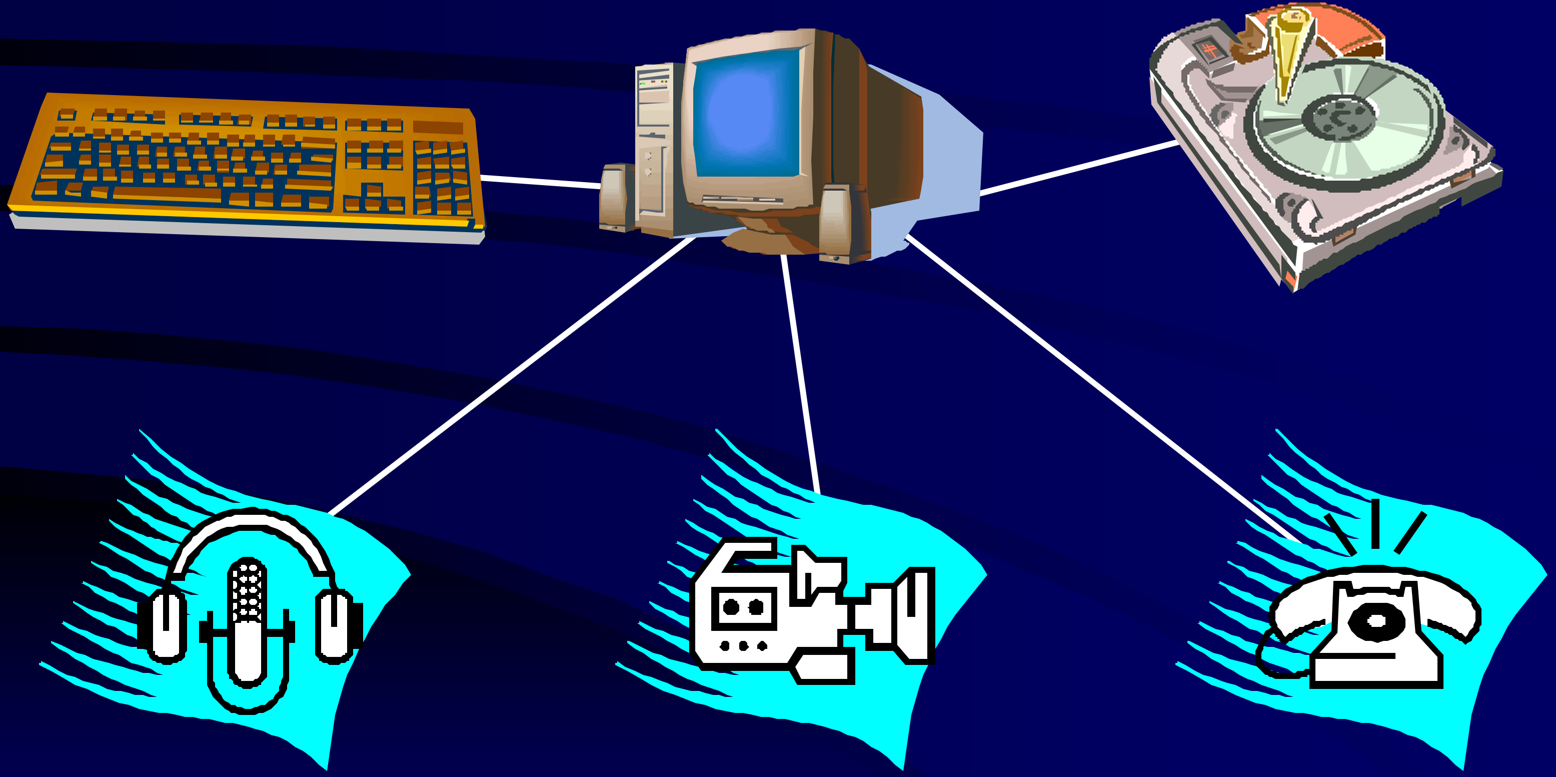
KeyKatcher

- PS/2 Inline
- 64-256 Kbytes
- Password
- TTY Dump
- Limited Search

High-End

Built Into
Brand Name
Keyboards

Spyware Hardware Scope



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Spyware Ethics

Spouses ~ Designed for You.

The ONLY spy software that installs 100% **Invisibly** & Remotely - simply by signing up at this web site !

The Easiest Way to Spy.
And by far, the most Powerful.

You've got Mail !
Hi love,
I hope you have a fantastic
how I could make your
on the net. These are for you.
I can't wait to get home and
kiss. And I hope you have
Love,
-Brian
=>
Passwords
email@

A simple Greeting Card turns into a robust spy tool.

Spyware Ethics

- “Within 36 hours I had enough evidence to approach the police and the man was arrested …”
- “One of the BEST *investments* I EVER made.”
- “I found *all 17* of his girlfriends … Thank you for saving me from marrying … this undeserving person.”
- “Now that I know about my boss’ layoff plans, I’m updating my resume.”

Spyware Ethics

Legitimate	Dubious	Criminal
Protect & Educate Children	Spy on Spouse	Steal Credit Card Numbers
Mitigate Corporate Liability	Spy on Boss	Steal Trade Secrets
Gather Evidence for Police	Spy on Dissidents, Fish for Criminals	Steal National Secrets

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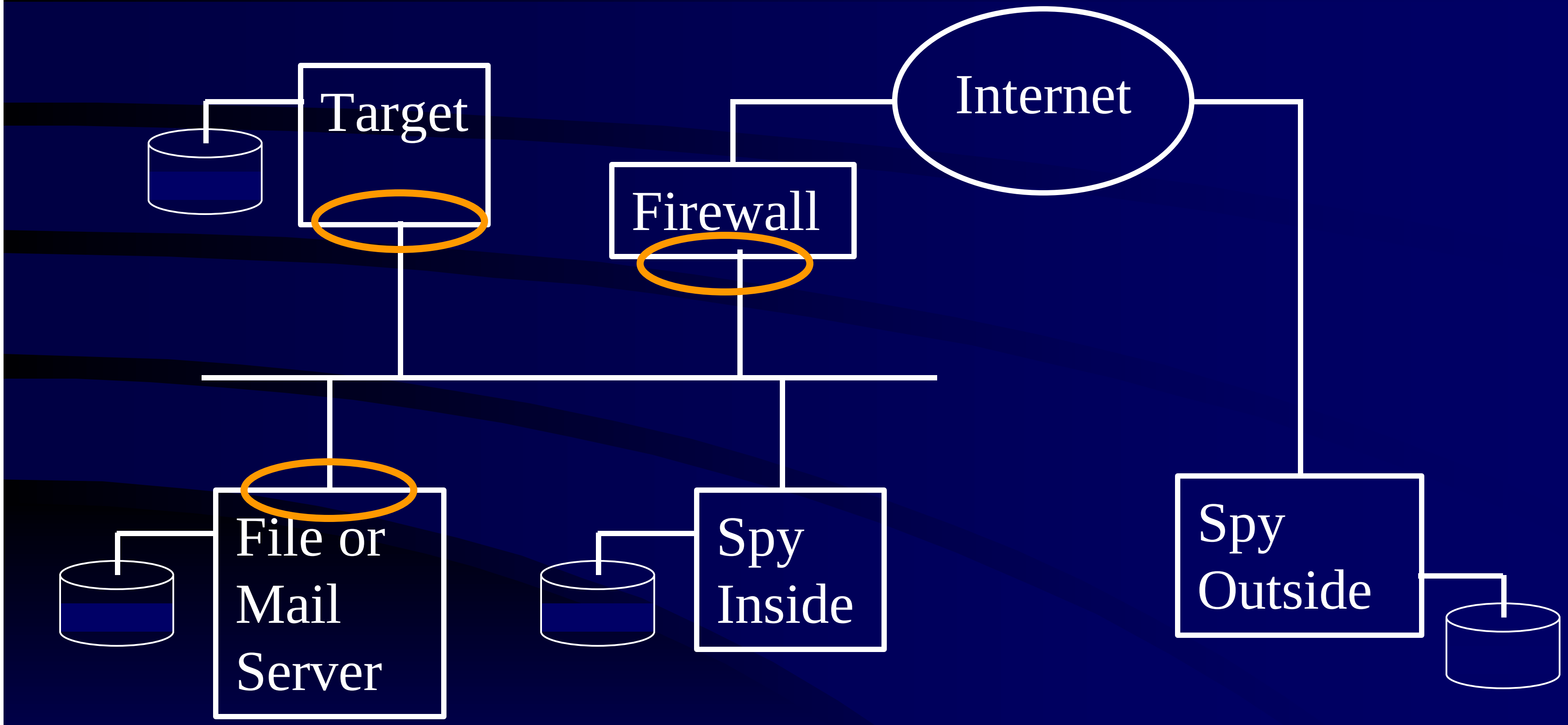
Counter Measures Architecture



CM: Existing Windows Features

- Scan for Unsigned System Files
- Scan for Newly Created Files
- Task Manager Reports Some Spyware
- MS Configuration Manager Reports Some Spyware Startup Items
- Disk & Network I/O Performance Monitors or LEDs Reflect Some Spyware Activity

CM: Standard Security Products

- Network and Personal Firewalls
  - Block Installation and Reporting
  - Can Detect Spyware Activity
- Central Email Virus & Executable Blocker
  - Helps Thwart Remote Installation
- Personal Email Scanner
  - Helps Block Installation and Reporting

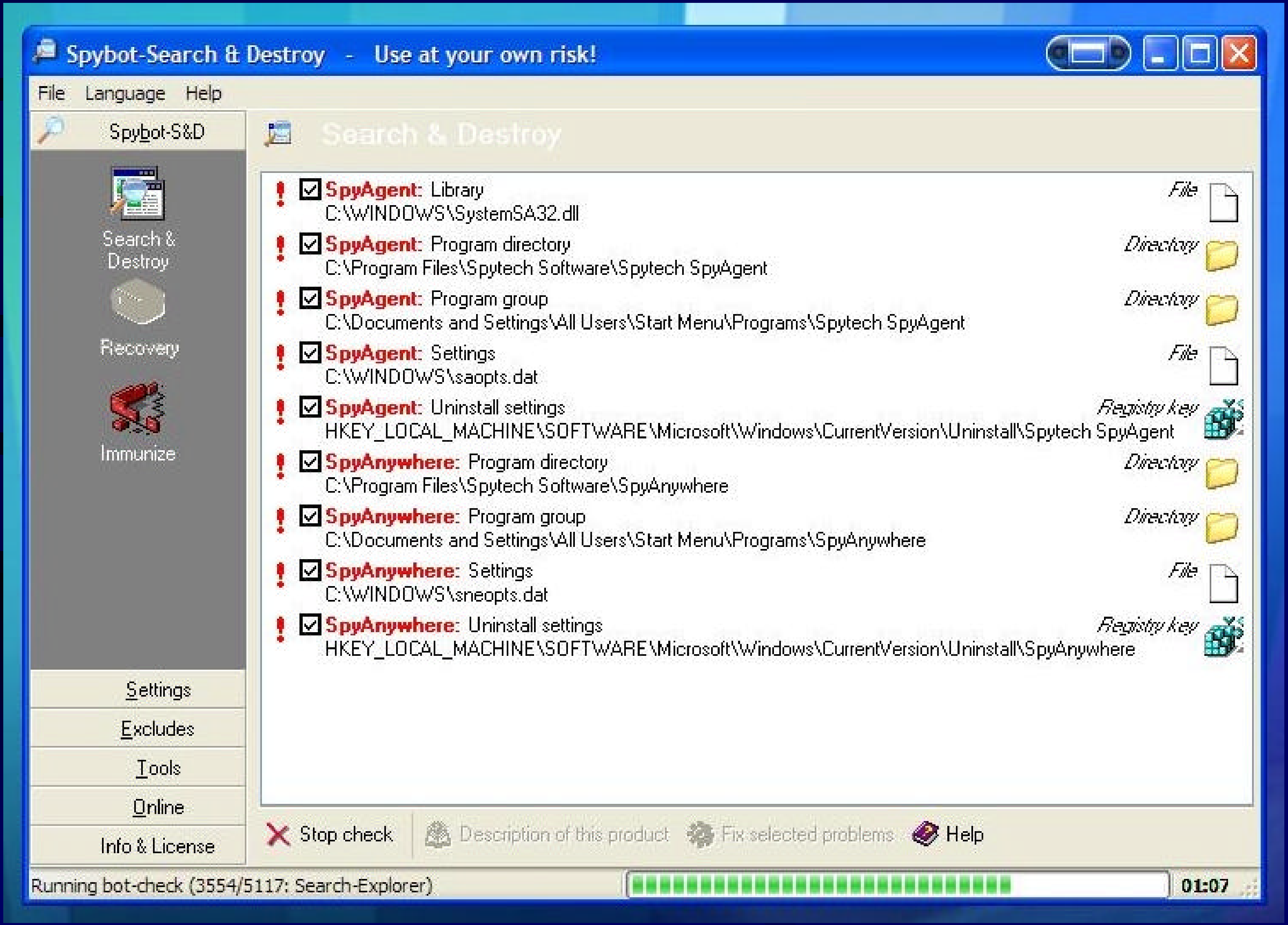
CM: Ineffective Products

- Anti Virus Scanners
  - Norton, McAfee, Trend Micro Websites State: They Will *Not* Detect Spyware; “Monitoring Software Is Not Malicious”
- Ad-Ware Scanners
  - Don’t Target Keystroke Loggers, Etc.
- Ad-Ware and Pop-Up Blockers
  - Only Examine Browser-Related Activity

CM: Specific Tools

- Anti-Spyware Websites & Newsletters
  - www.keylogger.org, www.spywareinfo.com
- Window Washer, SpyBot & Others
  - Remove Information Examined by Spyware
- SpyBot, SpyCop, and Many More
  - Like Early Virus Scanners: Signature Based
  - Scan for Active Program Files & Installer Files
  - Scan for Registry Entries, Directories

CM: Specific Tools: SpyBot



☑ **SpyAgent:** Library — *File*
C:\WINDOWS\SystemSA32.dll

☑ **SpyAgent:** Program directory — *Directory*
C:\Program Files\Spytech Software\Spytech SpyAgent

☑ **SpyAgent:** Program group — *Directory*
C:\Documents and Settings\All Users\Start Menu\Programs\Spytech SpyAgent

☑ **SpyAgent:** Settings — *File*
C:\WINDOWS\saopts.dat

☑ **SpyAgent:** Uninstall settings — *Registry key*
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\Spytech SpyAgent

☑ **SpyAnywhere:** Program directory — *Directory*
C:\Program Files\Spytech Software\SpyAnywhere

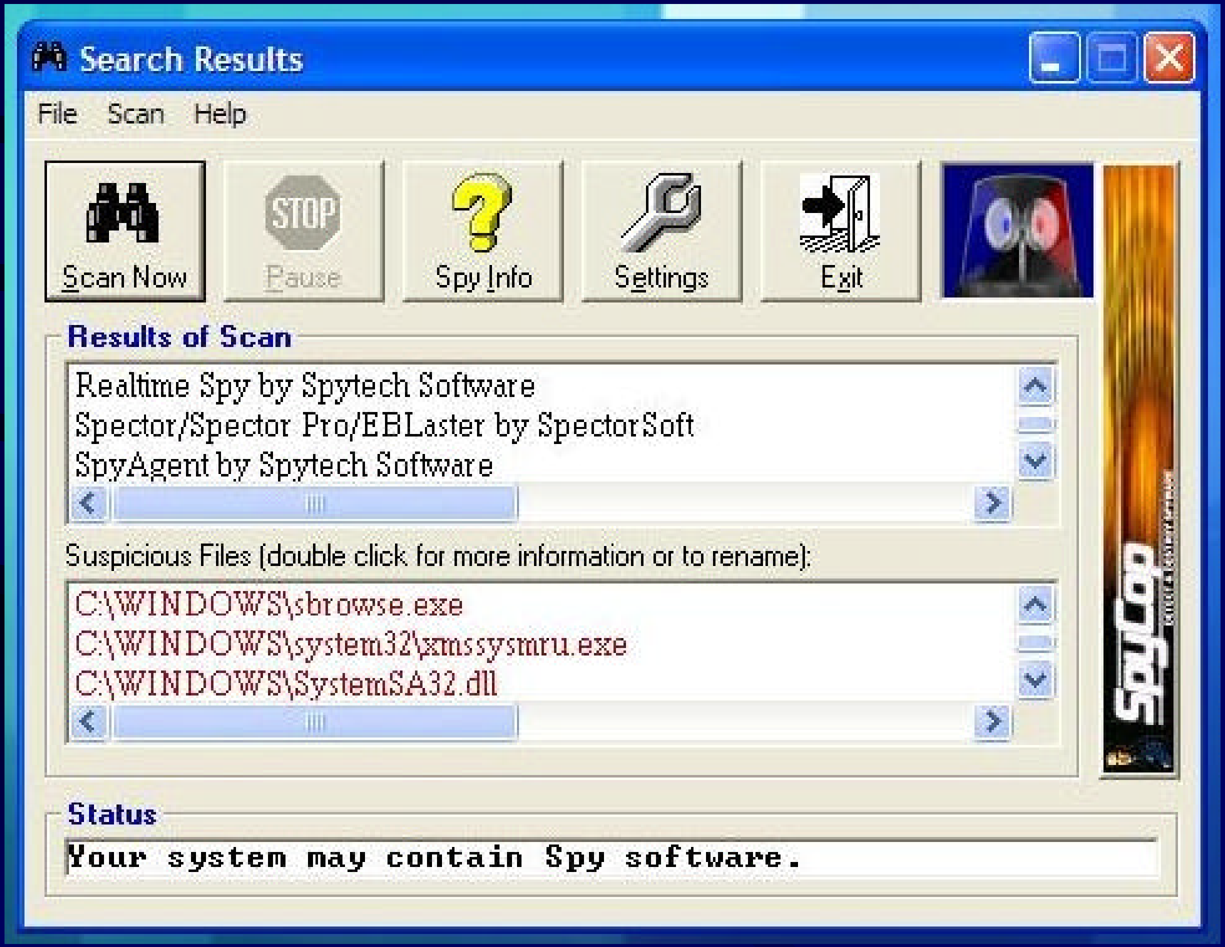
☑ **SpyAnywhere:** Program group — *Directory*
C:\Documents and Settings\All Users\Start Menu\Programs\SpyAnywhere

☑ **SpyAnywhere:** Settings — *File*
C:\WINDOWS\sneopts.dat

☑ **SpyAnywhere:** Uninstall settings — *Registry key*
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\SpyAnywhere

Running bot-check (3554/5117: Search-Explorer) 01:07

CM: Specific Tool: SpyCop



Results of Scan

Realtime Spy by Spytech Software
Spector/Spector Pro/EBLaster by SpectorSoft
SpyAgent by Spytech Software

Suspicious Files (double click for more information or to rename):

C:\WINDOWS\sbrowse.exe
C:\WINDOWS\system32\xmssysmru.exe
C:\WINDOWS\SystemSA32.dll

Status

Your system may contain Spy software.

Counter Measures Discussion

- Free & Commercial Tools Very Effective Against Commercial Spyware
  - Program Quality & Usability Varies
  - Keeping Up With Spyware Signatures
- No Toolkits for Making Spyware (So Far!)
- Manual Scanning is the Norm
  - Future: Real Time Scanning with Automatic Removal or Quarantine

CM: Discussion

- Software Countermeasures Do NOT Work Against Spy Hardware
  - When Boss Spills Coffee on Your Keyboard …
- The Paranoid Need Both!
  - Spyware as Intrusion Detection Tool
  - Spyware to Detect Spyware Installation

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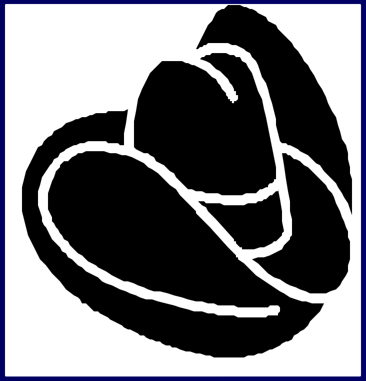
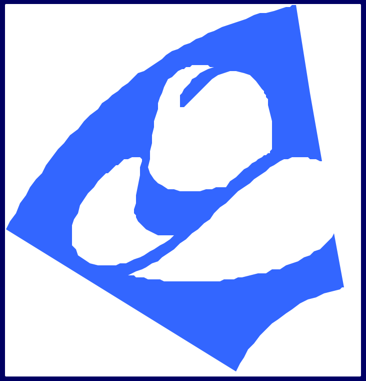
Future of Black Hat Spyware



- Spyware as Stepping Stone For Big Attack
  - Place Backdoor in MS Office Source Code
- Virus Writers Building Black Hat Spyware
  - Spyware Building Kits
  - Harder to Detect & Remove
  - Windows is Big Attractive Target
- Anti-Anti Spyware (That Works)
  - There Are Viruses That Disable ZoneAlarm
- More Recording of Phone, Fax, Copier, Printouts, Microphone & WebCam

Future of White Hat Spyware



- Private & Government Investigators
- Enterprise Features
  - Central Installation, Control, Upgrade
  - Eliminate Black Hat Features
- Better Analysis Tools
  - Adaptive Logging And Reporting Details
- Merge With Network Monitoring

Future of Counter Measures

- Fear of Lawsuits Keep Anti-Virus Vendors Out
- Spyware Detection Based on Behavior
  - Not Just Name & Content Signatures
  - Running All The Time; Check Downloads
- IT Approved Signed Executables
- Need Foundation For Better Anti-Spyware
  - Palladium & Phoenix StrongROM
- Rediscover the “Trusted Systems” Technologies from 1980s

Questions?

- More Information At:
- www.PlusFive.com
- www.Intellitrove.com