Web Based Attacks

A Symantec White Paper

MSIT 458 – Information Security

The Locals

IN THE RACE TO INFECT USERS WITH MALCODE…

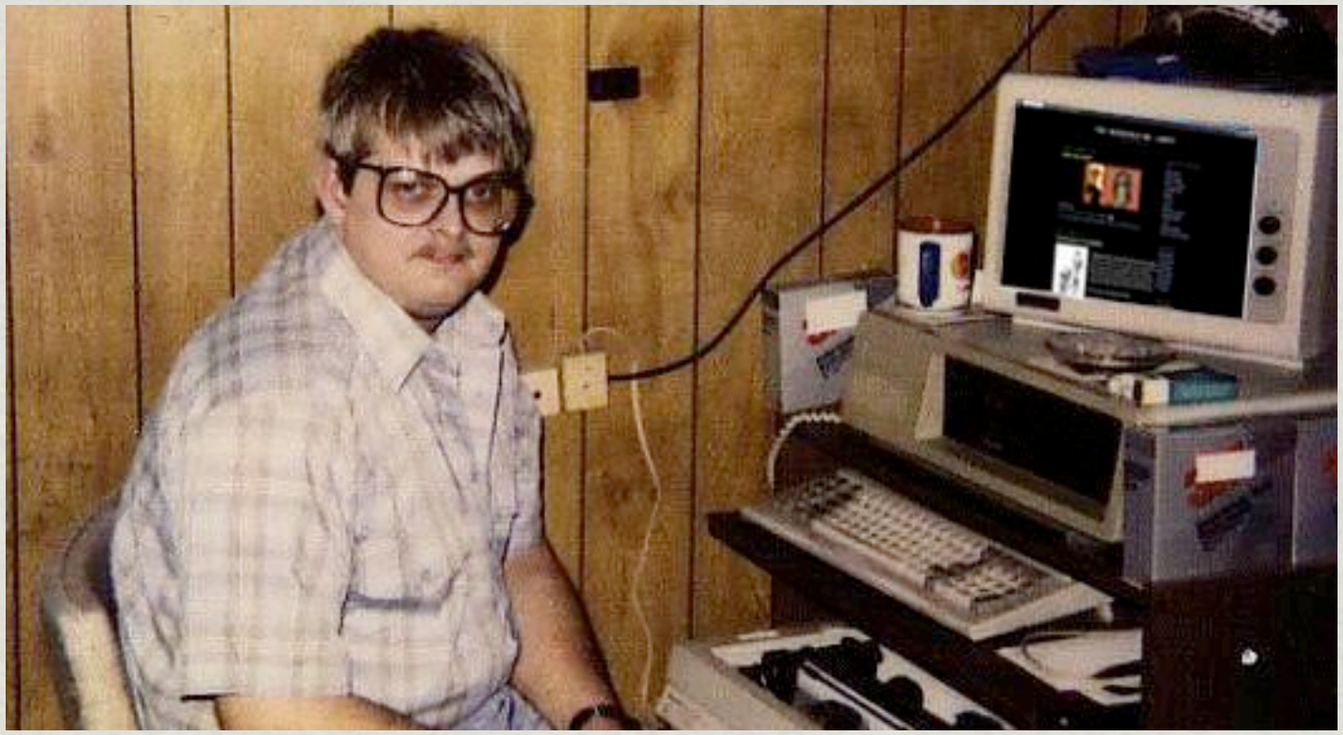
VIRUSES & WORMS

WEB ATTACKS

Why Web Sites?

- Increasing Complexity
  - Content aggregation
  - Database driven
  - Plugins, media, scripting

Why limit your target?



Why limit your target?

- Use mainstream sites
- Targets more users
  - 2008 = web attacks from 808,000 unique domains
- Targets less suspecting users

How do Websites get infected?

- SQL Injection
- Malicious Advertisements
- Search Engine Result Redirection
- Attacks on the backend virtual hosting companies
- Vulnerabilities in the Web server or forum hosting software
- Cross-site scripting (XSS) attacks

What's the big deal?

The Bredolab example

- Bredolab: "a large family of complicated, polymorphic trojans."
- Machines became infected through drive-by-downloads and email. It instructed users to purchase fake anti-virus software (Antivirusplus).
- It grew to become a botnet with 30 million computers and 150 C&C servers.
- Pay-per-install malware: rent a block of 1,000 bots at a time.

The Drive-By Download

- Attacks from mainstream websites occur thousands of times every day
- Leverages vulnerabilities on unpatched computer
- Entire attack is invisible to victim
- It is automatic
- No user interaction required

The Drive-By Download

Through Open Doors

- Drive-by downloads exploit software vulnerabilities on computer
- Count on the user not applying the software updates that close open doors
- Began by exploiting holes in operating systems like Windows (MS-RPC DCOM and LSASS components)
- Progressed to exploiting…
  - Web browsers, browser plug-ins
  - ActiveX controls, multimedia
  - Third-party applications
- All it takes is one open door to breach the fortress

The Usual Suspects?

- Exploit creation no longer limited to techies
- Off-the-shelf Web toolkits
  - Bring a DIY dimension to malware creation
  - Little expertise required
  - Comes with simple user interface
  - Anyone can create an exploit

TOTALLY DIY

Measures of a successful exploit

- Remaining Undetected
  - Timing the Attack
  - Playing the Odds
  - Obfuscating Attacks
  - Dynamically changing URL and Malware Variants
- Being Efficient
  - Profiling the Victim
  - Using Brute Force
- Increasing Sophistication
  - Clickjacking

WHO'S THIS GUY?

HINT: 1994 WORLD CUP

Andre Escobar

- Famous for: unintentionally helping the opposing team by scoring an own goal at the 1994 World Cup.
- The Goal = your computer
- The Ball = malware
- The Kick = hitting **Enter** on your keyboard or mouse

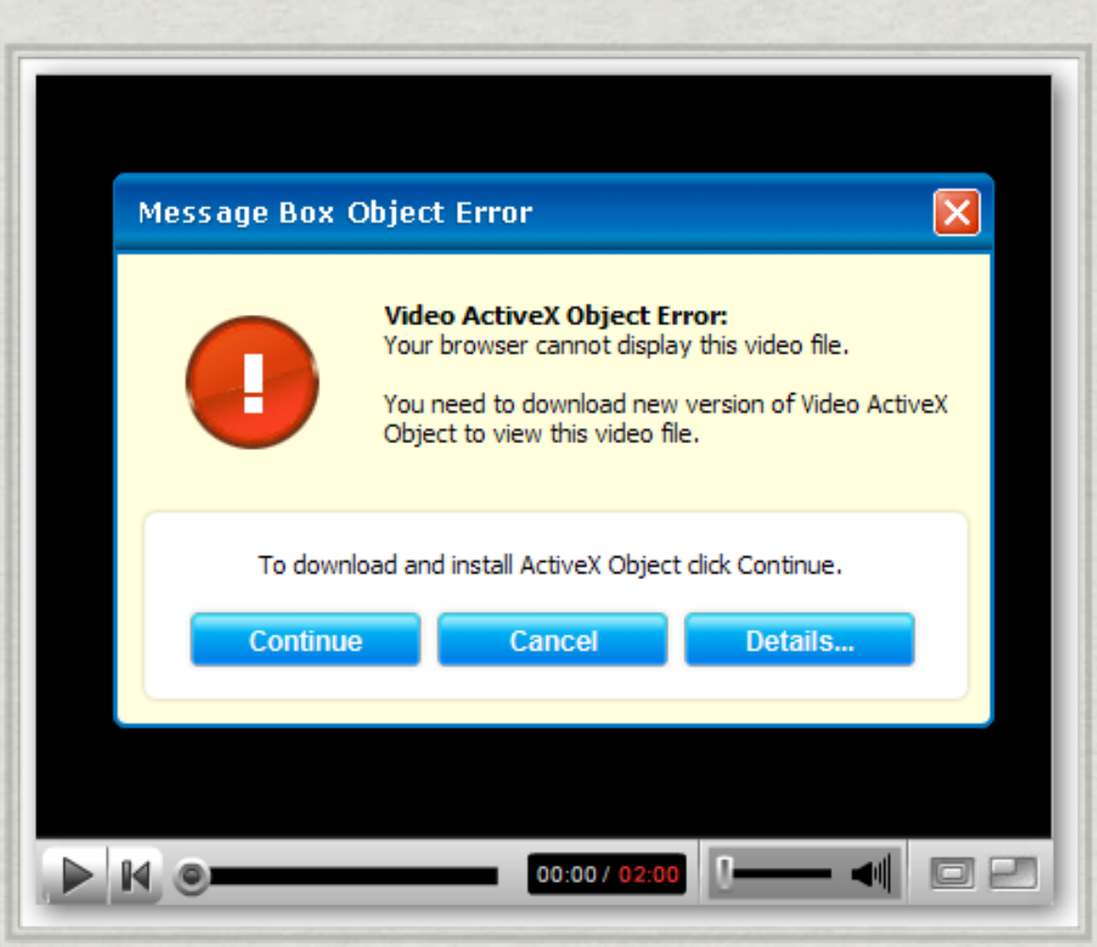
DON'T BE THIS GUY!

Getting onto a user's computer with help from the user

- **Fake codec**
- Malicious peer-to-peer files
- **Malicious advertisements**
- **Fake scanner Web page**
- Blog spam
- Other attack vectors

Fake Codec

- Takes advantage of users understanding that downloads are needed for new media or browser plug-in
- Malware authors establish sites that hosts tempting content and prompts users to install a new codec, but really authorizing users to install malware into their computers
- Icons and logos from trusted video and multimedia players may be used



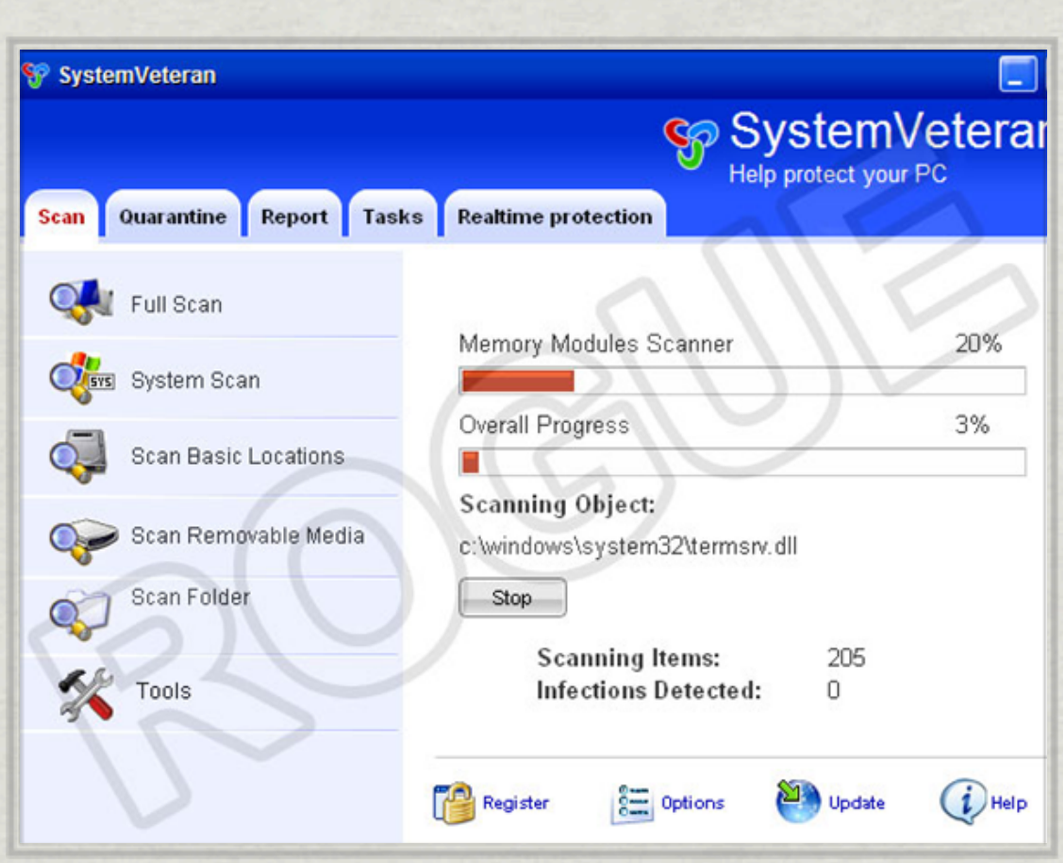
Malicious Advertisements

- Mimics the techniques of legitimate businesses by turning on ads
- Ads may lead uses to a fake scanner page
- Plays off of “free” copies of coveted games and software
- Interesting 2010 study* results:
  - 1.3 million malicious ads are viewed per day
  - The probability of getting infected is 2x as likely on a weekend

*“Q1'10 web-based malware data and trends,” blog.dasient.com, 5/10/10.

Fake Scanner Webpage

- Creates a pop up with a legitimate-looking operation system alert notification
- Uses scare tactics to convince users that their computers are infected, often in conjunction with malicious advertisements
- Prompts users to download a fake removal tool to remove infections
- Interesting study* results:
  - Forums and blogs are common areas to place fake scanners
  - Some are even advertised on TV, like FinallyFast.com.au



*"Beware of Rogue Programs: Fake Malware Scanners and Registry Cleaners," brighthub,com, 5/4/10.

What happens on the user's computer?

What happens on the user's computer?

- Fake antivirus software convinces the user to pay to remove fictitious viruses.
- Steal your personal information
- Use your computer to attack other computers

What can you do to protect yourself?

- Keep software up to date
- Deploy a comprehensive end point security product
  - Heuristic file protection
  - Intrusion Prevention System (IPS)
  - Behavioral Monitoring
- Keep your security protection subscription current
- Be suspicious
- Adopt a password policy
- Prevention is the best cure!

Be vigilant. (Buy a Symantec product.)