Ethical Phishing Case Study

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Agenda – Phishing Intro

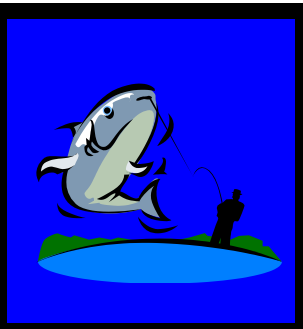
slide 2

- ***phishing (v.)***
  - *pronounced "fishing"*
  - *fake web site that impersonates a legitimate site*
  - *site captures personal data entered by victim (e.g. password)*
  - *(optional) spoofed email directs user to fake site*
  - *Full definition: http://www.wordspy.com/words/phishing.asp*

Ethical Phishing – Maven Security Case Study

"Ethical Phishing' – where you throw the fish back.

- Maven Security



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- ***Situation***
  - *Insurance company*
  - *1300 small remote offices for agents*
  - *remote locations using DSL, dial-up, satellite, ISDN, for Internet*
  - *agents access Insurance mainframe through HTTPS via Internet*
- ***Objective***
  - *Get access to policy holder data on mainframe*
- ***Defenses***
  - *Dynamic IP (i.e. moving targets)*
  - *ISP IP Ranges (not identifiable as Insurance company employees)*
  - *NAT router/firewall (no way to initiate connection from outside)*
- ***Results***
  - *It took **15 minutes** to get access to the main frame*

Case Study – A Closer Look (3-in-1)

- ***Actually three separate attacks***
  - *Web bug in HTML email*
    - Result: revealed dynamic IP addresses in real time
  - *Classic phishing attack*
    - Result: User credentials stolen for web portal and main frame access
  - *Phishing + IE holes*
    - Result: Remote access gained to user's desktop computer behind firewall

Case Study – Attack 1: Web Bug

- ***Send agents an HTML email with web bug***
  - *<img src="http://www.mavensecurity.com/webbug.php" width=1 height=1>*
- ***Web bug pointed to script***
- ***Script returned 1 pixel GIF image***
- ***Script emailed the source IP address of the request to me (i.e. agent's router/firewall address)***

- ***Result: 2 of the 5 routers were compromised***
  - *one had trivial password on Cisco*
  - *one was Linksys with firmware vulnerability*
- ***Created NAT pass-thru for my source IP address***
  - *Scanned the "non"-routable internal addresses behind the router/firewall*

Case Study – Attack 2: Classic Phishing

- ***Sent "spoofed" email***
  - *Outlook & Outlook Express makes this easy (pseudo email spoof, or spoofing email for dummies)*
    - Outlook: "Have replies sent to…bill@microsoft.com"
    - Outlook Expres: "Display name: bill@microsoft.com"

- ***Email contained misleading HTML link which pointed to spoofed web site that collected login data***

Case Study – Misleading HTML Links

- ***HTML hypertext links can say one thing but mean another***

<A href="http://evil.site">http://friendly.site</A>

- ***Above HTML gets rendered as:***
  - *http://friendly.site*

- ***This is a fundamental feature of HTML and will not go away.***

Case Study – Attack 2: Classic Phishing

- ***Email had misleading URL pointing to spoofed site***

A recent security test by a third-party vendor has caused your Agent Resources Login account to become locked.
The link below contains a security token required to reactivate access to your account. Click the link below and login as normal to re-enabled your account.
https://biginsurance.dom/server1/AgentLogin?TOKEN=83jwk8Ne5AQ28l93kdDud98gK49
We're sorry for any inconvenience.
John Doe
Supervisor, Information Services
Big Insurance Company
555-KL5-1234
jdoe@biginsurance.dom

Misleading hyperlink pointing to a web site different from the one displayed to user.

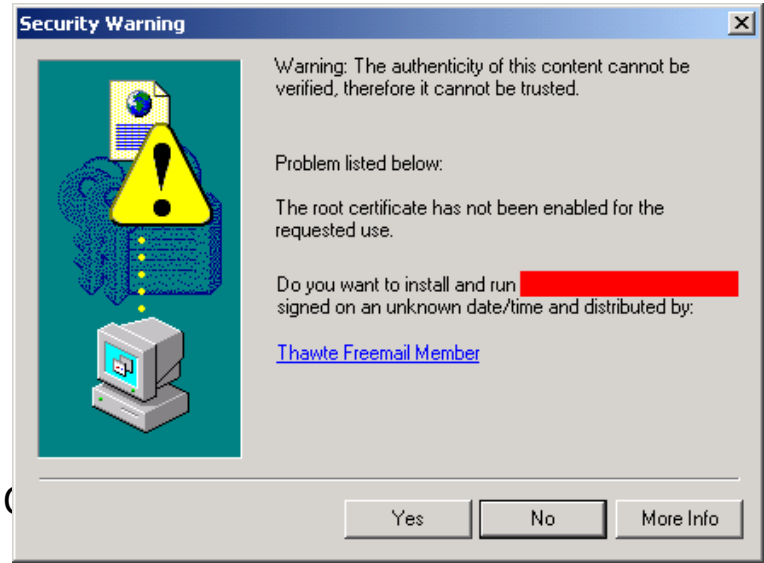
The Final Word on HTML Email

- ***Impact***
  - *More spam: web bugs validate your email address*
  - *Hacker GPS: They will get your IP address from the web bug*
  - *Worms & exploits: Potential for browser bugs being exploited via email*

- ***HTML + Email = wrong!***
  - *"Two great tastes that taste bad together"*
  - *"A combination mother nature never intended"*
  - *"Friends don't let friends use HTML email"*
  - *Just say no!*

Case Study – Attack 3: Phishing + IE Hole

- ***Spoofed HTML email with misleading URL***
- ***Spoofed web site initiated software install***
- ***But software was not digitally signed by a trusted party***
  - *Browser generates warning*



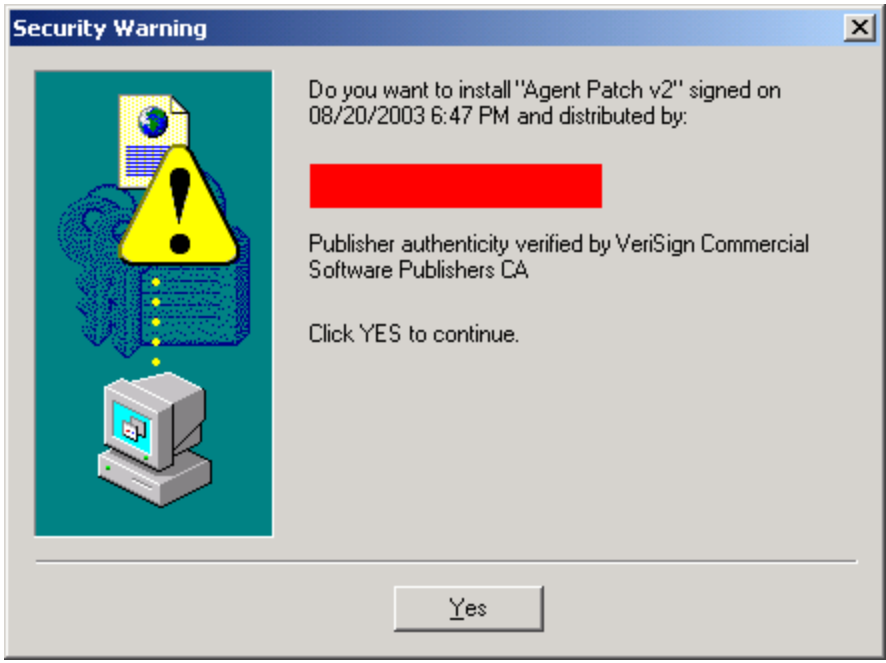
Case Study – Chromeless Windows

- ***Microsoft's Internet Explorer (IE) web browser has a "feature" called "chromeless windows".***
- ***This allows a borderless window to open in front of other windows.***
- ***Result***
  - *Security warning boxes now look safe!*

Chromeless Windows – You won't know who to trust!

- ***Before chromeless windows***

- ***After chromeless windows***



Case Study – Attack 3: Spoofed HTML Email

It has come to our attention that the recent Blaster worm patch we deployed may not have been completely effective on a few agent desktops. Your PC may be one of the system's not fully patched.

…

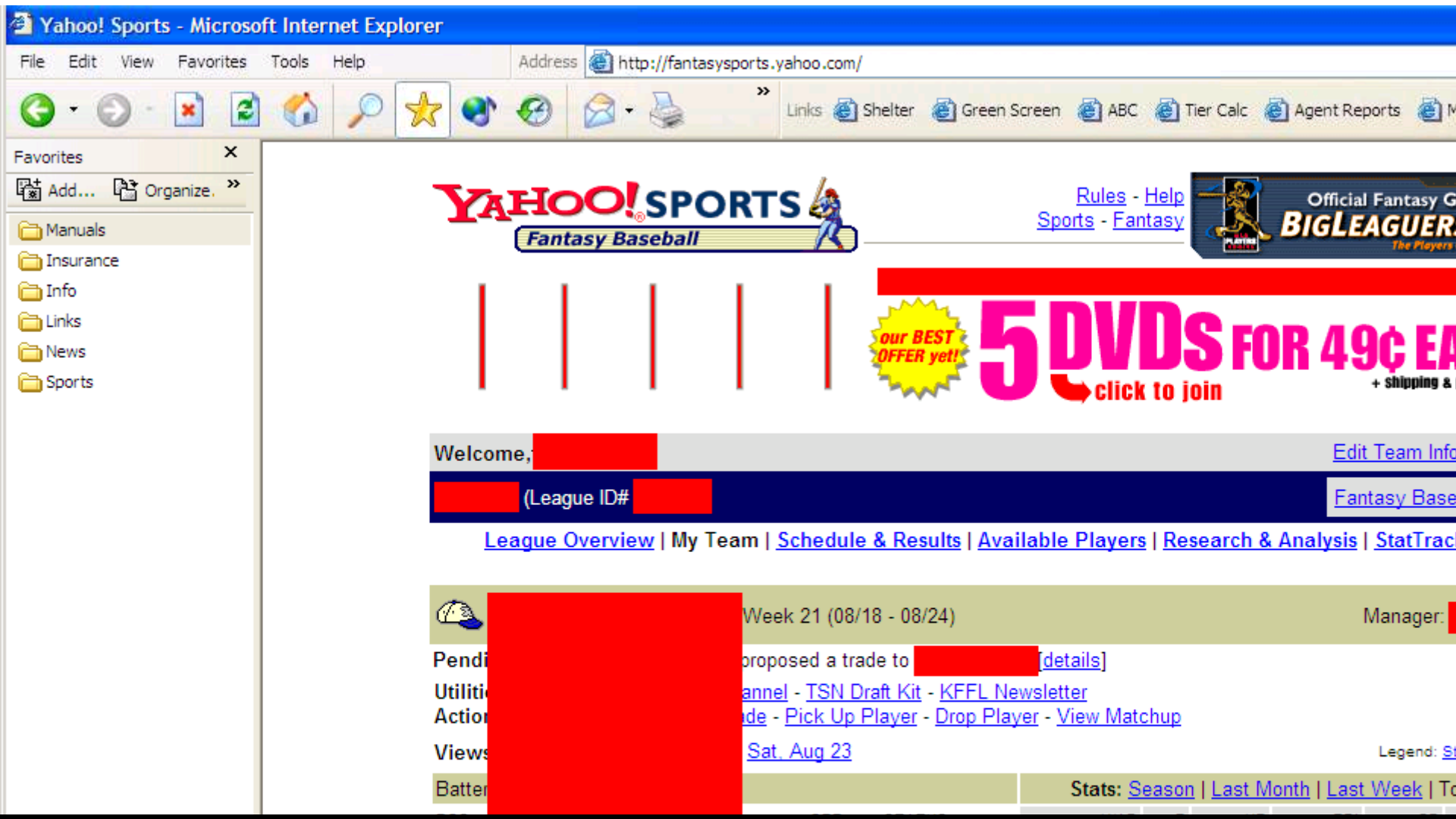
Please use the link below to begin the new patch installation process.

http://biginsurance.dom/server1/agent-patch2/K9s7jUjw7eud26cIjWu73mS/

We're sorry for any inconvenience.

John Doe
Supervisor, Information Services
Big Insurance Company
555-KL5-1234
jdoe@biginsurance.dom

Misleading hyperlink pointing to a web site different from the one displayed to user.



Result: Instant remote access to user's desktop. We can see everything they are doing in real time.

Phishing Defenses

slide 15

- ***Keep your browser up-to-date***
  - *Microsoft Security Bulletin MS04-004*
  - *http://www.microsoft.com/technet/security/bulletin/MS04-004.mspx*
- ***IE is now fixed…sort of.***
  - *Chromeless windows still work!*
- ***Use a non-IE browser***
  - *Free: Mozilla, Firefox, Camino (Mac) http://mozilla.org*
  - *Opera http://www.opera.com/*
  - *Google for more*
    - http://directory.google.com/Top/Computers/Software/Internet/Clients/WWW/Browsers/?tc=1
- ***Disable HTML email***
- ***FTC Consumer Alert Tips***
  - *http://www.ftc.gov/bcp/conline/pubs/alerts/phishingalrt.htm*
- ***When in doubt, type the URL***