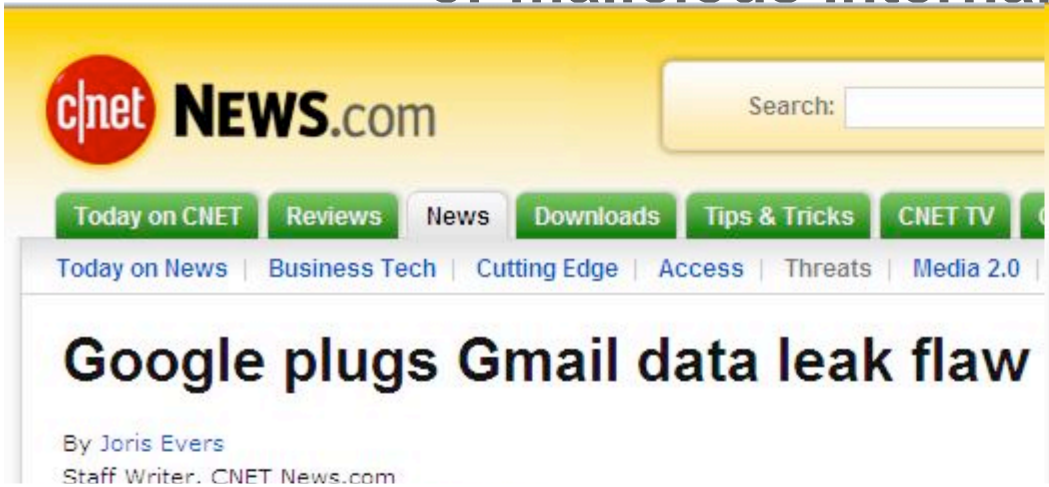
Data Seepage

Robert Graham – Founder & CEO
David Maynor – Founder & CTO

errata security

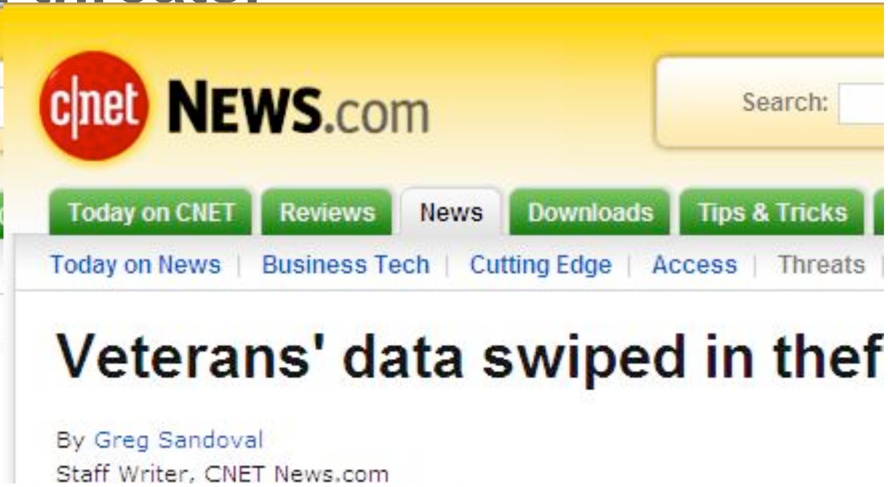
What is Data Seepage?

- Don’t Confuse it with Data Leakage.
- Data Leakage is when information you care about is accidentally revealed.
  - **This can be due to programming errors, improper handling of sensitive information, or malicious internal threats.**



Google plugs Gmail data leak flaw

By Joris Evers
Staff Writer, CNET News.com



Veterans' data swiped in thef

By Greg Sandoval
Staff Writer, CNET News.com

What is Data Seepage?

- What is Data Seepage then?
  - – **Information that is broadcast or available via simple inquiry or spoofing that may not by itself seem critical but become more important as pieces of a larger puzzle.**

errata security

What is Data Seepage?

- Think about what you laptop does when it starts up.
  - **Programs set to autostart**
  - **Looking for certain resources like intranet homepage and shared drives**
  - **Email clients**
  - **Instant messaging clients**

EEFI

- The military is well aware of this.
- A military intelligence term meaning “essential elements of friendly information”
  - **Key questions likely to be asked by adversary officials and intelligence systems about specific friendly intentions, capabilities, and activities, so they can obtain answers critical to their operational effectiveness.**
  - **http://usmilitary.about.com/od/glossarytermse/g/eefi.htm**

EEFI: Example

Him: When can I see you again?

Her: How about next week? My boss, the director of the NSA has a trip he is going on he can’t even tell me about. It makes me so mad, how am I suppose to help coordinate things if I don’t even know where he is going. He did ask me to buy a lot of suntan lotion though…

Him: Excuse me, I have to make a phone call…..to my sister…about…trees.

Her: Ok hurry back, I am going to order another drink.

Him: The director of the NSA is going somewhere that requires a lot of suntan lotion.

Terrorist: We have gotten word that a major US Intelligence officer will be visiting Baghdad soon. Director of NSA == US Intelligence officer, therefore I deduce that the Director of the NSA will be visiting Iraq next week.

Him: Why did you say “equal equal” outloud? lol

Terrorist: It makes me seem creepier.

EEFI doesn't apply to you?

- Think of things the movements of your CEO, sales staff, or even engineers can tell a diligent observer about your business.
  - **Repeated trips to a competitors headquarters?**
  - **Sales guys cancelling dates near end of month or end of quarter.**
  - **Engineers cars in parking lots as a ship date comes and goes.**

Him: When can I see you again?

Her: How about next week? My boss, the CEO, is out all next week on some sort of secret trip. Its his third time going to Redmond this month and he hasn’t even brought me a present, but I have to be on call at all hours to coordinate a conference call with all the C level execs.

Him: Excuse me, I have to make a phone call…..to my brother…about…a playdate for our dogs…

Her: That’s so sweet, Hurry back, I am ordering more drinks.

Him: Hey, something's up with XYZsoft.

Stock Broker: My friend on a project at Microsoft just got reassigned to a different project. He sad the would solve the problem a different way. Microsoft must be buying XYZsoft.

Him: Has anyone told you that for a stock broker you sure look like a terrorist?

Stock Broker: I use to be, taking advantage of your capitalist systems pays better though.

Him: I am strangely comfortable with that.

More EEFI examples

- The Pentagon ordering a lot of delivery food.
- Warehouses of business shipping items like crazy as end of quarter approaches.
- A small company placing an order for 50 new workstations or placing an order to for more VoIP quality circuits to locations they where they don't have offices.

Data Seepage…

- So how does this apply to computers?
- You laptop, PDA, even mobile phone will give up information that may not seem important but combined with other info can paint a picture for malicious intruders.

Data seeps via the network…

- Wifi packets
- DHCP Broadcast
- NetBIOS/SMB Broadcast
- DNS/Bonjour Requests

Wifi Packets

- Probe Requests
  - http://www.theta44.org/software/karma.README
  - http://www.nmrc.org/pub/advise/20060114.txt
  - When a wifi enabled laptop starts up it will look for a list ok “known networks” or networks it has connected to before.
  - This list can be used to determine where the laptop has been used.

DHCP ++

- You can offer up an address and pretend to be what ever server you are looking for.
- Look at the Karma project.
  - **Respond to WiFi “probe”**
  - **Respond with DHCP address**
  - **Respond to ARPs**
  - **Respond to NetBIOS queries**
  - **Respond to SMB/DCE-RPC connections**
  - **Respond to DNS queries**
  - **Respond to SMTP connections**

NetBIOS/SMB Broadcast

- WKSSVC announcements
- AD activity
- Attempting to connect to shared drives
- Printers

DNS Requests

- Almost all internet activity requires a DNS lookup
  - **Connecting to intranet sites**
  - **Connecting to mail servers**
  - **Almost any other application starting up**
    - IM apps
    - VoIP apps
    - Games (yes even poker games)

Other Protocols

- Bonjour
  - **Very chatty about who you are**
- Skype
  - **It always finds a way**
- Security tools
  - **They are always update hungry**
- OS
  - **They love the updates as well**
- AIM will update you to all you buddies status.
  - **This tells an eavesdropper who is on your buddy list.**

What does all this mean?

- Lets look at the information that can be gathered:

A machine with the Mac Address of 00-18-f3-57-24BD belongs to John Smith.

  This laptop has connected to wifi access point at Hartsfield airport, Heathrow, SeaTac, and various T-Mobile spots, and ABCsoft and XYZsoft.

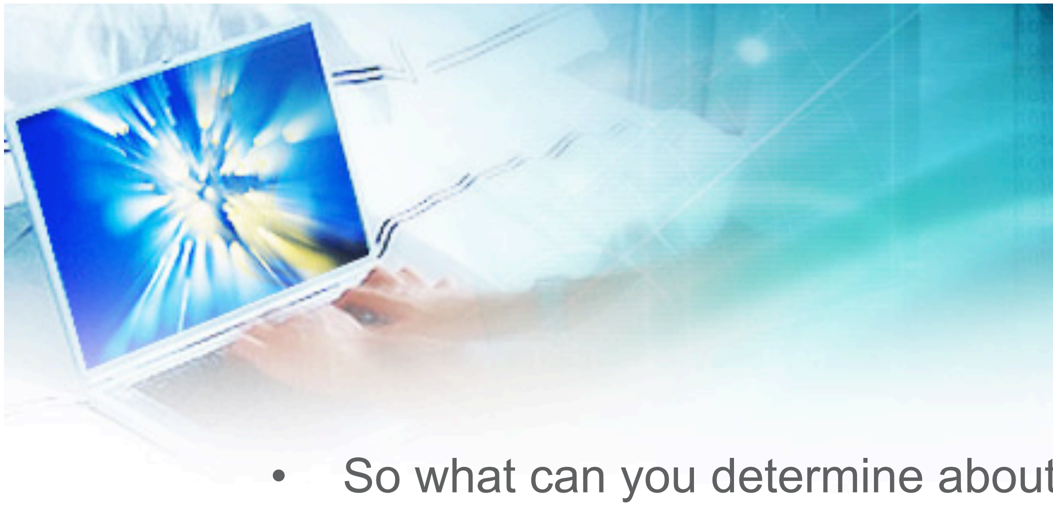
  John has the AIM name “PrschDude9” and has XYZsoft1 on his buddy list.

  He uses a popclient to check his personal email and his passwd is porsche911turbo.

  John works for ABCsoft because his browsers attempts to go to internal.abcsoft.com when it first starts up.

  It also attempts to connect to \\internal.abcsoft.com\sales and \\internal.abcsoft.com\public on start up.

  He has a myspace account where he had pics of the last company party.



Applying information

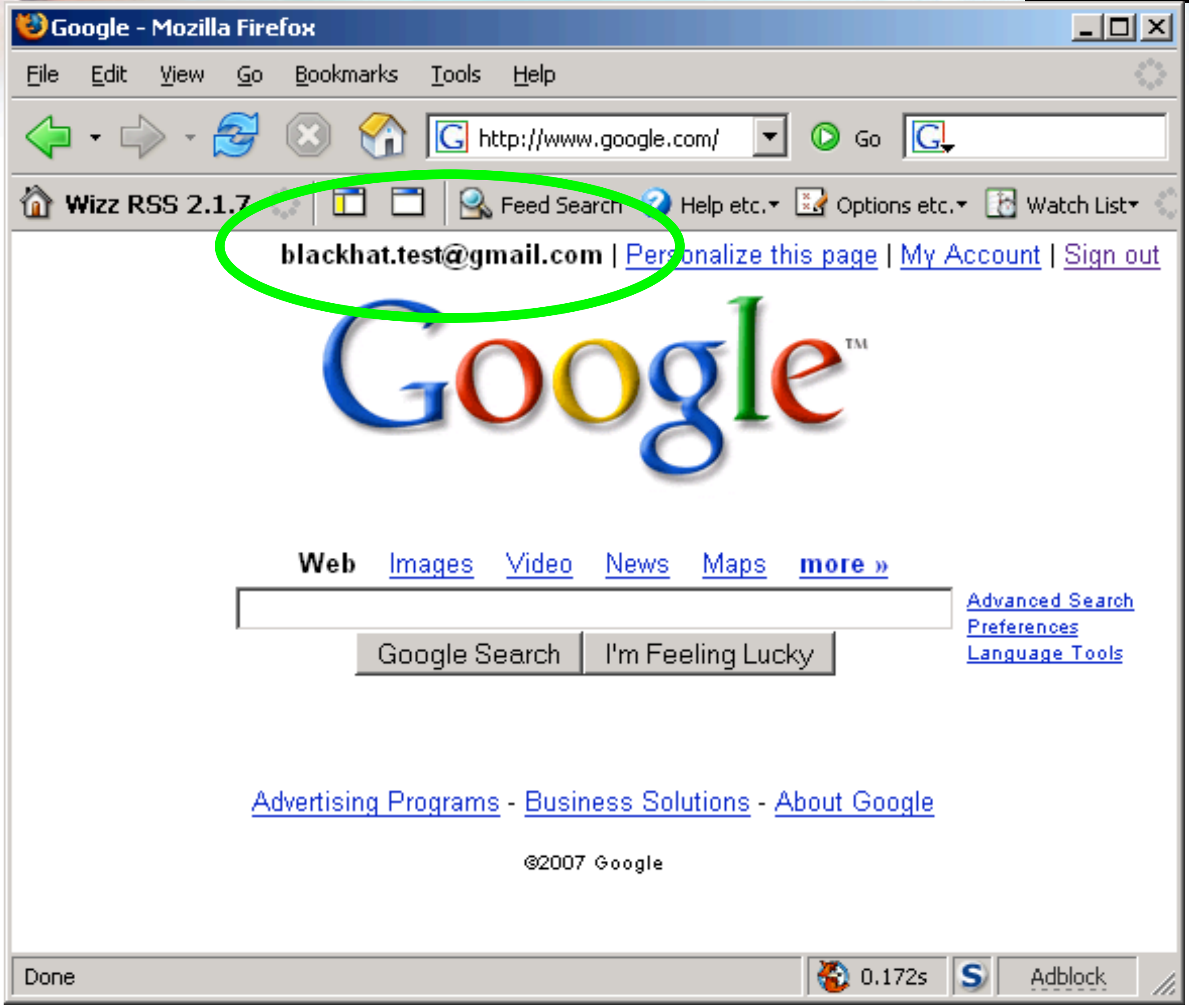
- So what can you determine about this if you know ABCsoft and XYZsoft are bitter rivals?
  - **Sounds like a merger or buyout.**
- Since you know Johns pop password you can try it against ABCsoft’s webmail client, he might use the same password.
- Social Engineering – “Hey wasn’t that a horrible shirt John was wearing at the last company party…run this program to update your accounting software.”
- You know portions of the internal layout of the ABCsoft intranet.
  - **Make trojans and client side exploits more efficient because you have a target to attack.**

THEORY-CRAFT

Process of collecting seaped information

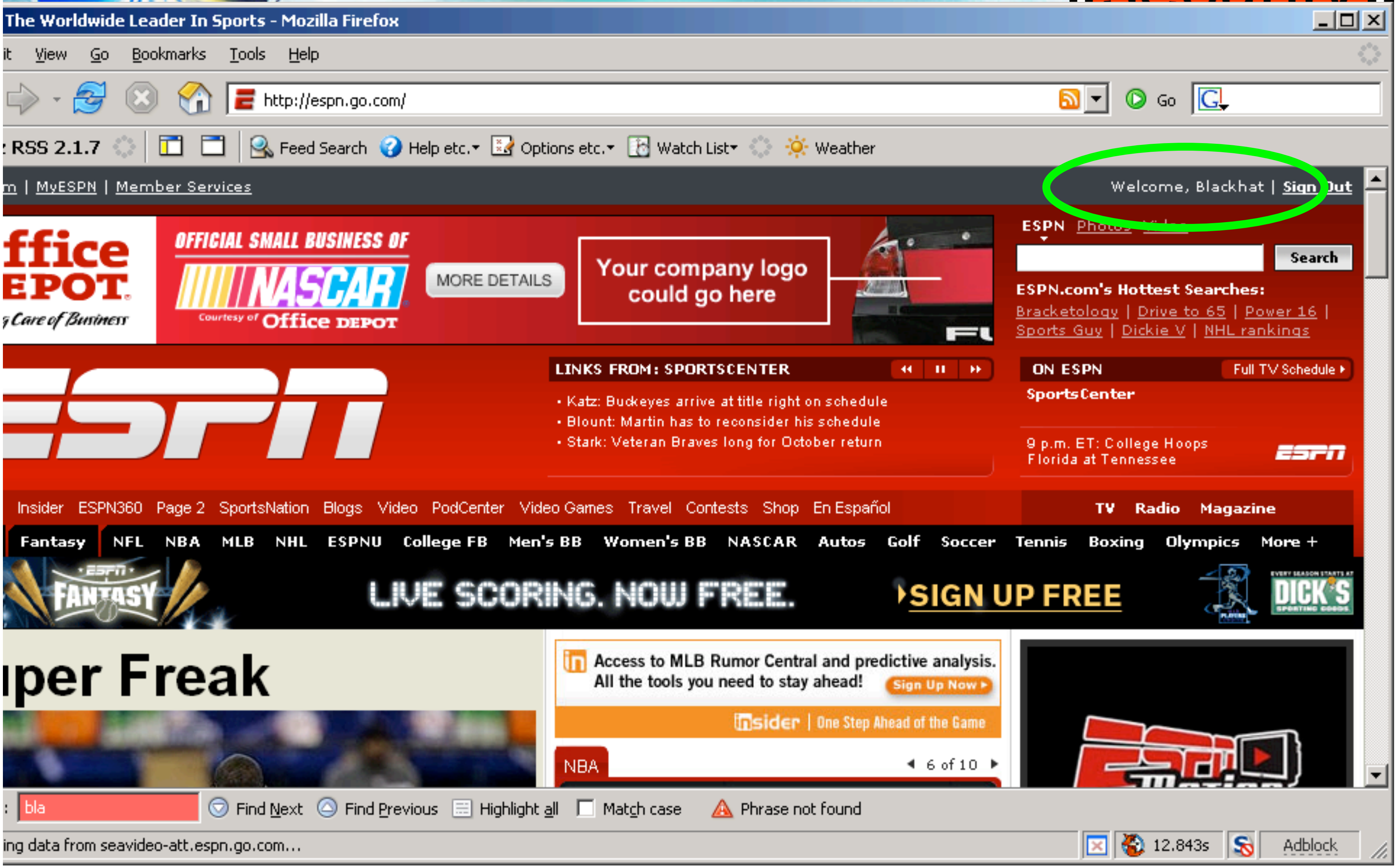
- Identity
  - Tell me everything knowable about the subject
- Opportunity
  - What can I do with the subject
- Baconizing
  - Create a graph of who contacts whom
    - Which servers they connect to
    - Who they have in their buddy lists
    - Who they send e-mail to

WEBSITES



http://www.google.com/

blackhat.test@gmail.com



The Worldwide Leader In Sports - Mozilla Firefox

http://espn.go.com/

Welcome, Blackhat | Sign Out

Your company logo could go here

ESPN.com's Hottest Searches:

Bracketology | Drive to 65 | Power 16 | Sports Guy | Dickie V | NHL rankings

LINKS FROM: SPORTSCENTER

- Katz: Buckeyes arrive at title right on schedule
- Blount: Martin has to reconsider his schedule
- Stark: Veteran Braves long for October return

ON ESPN

SportsCenter

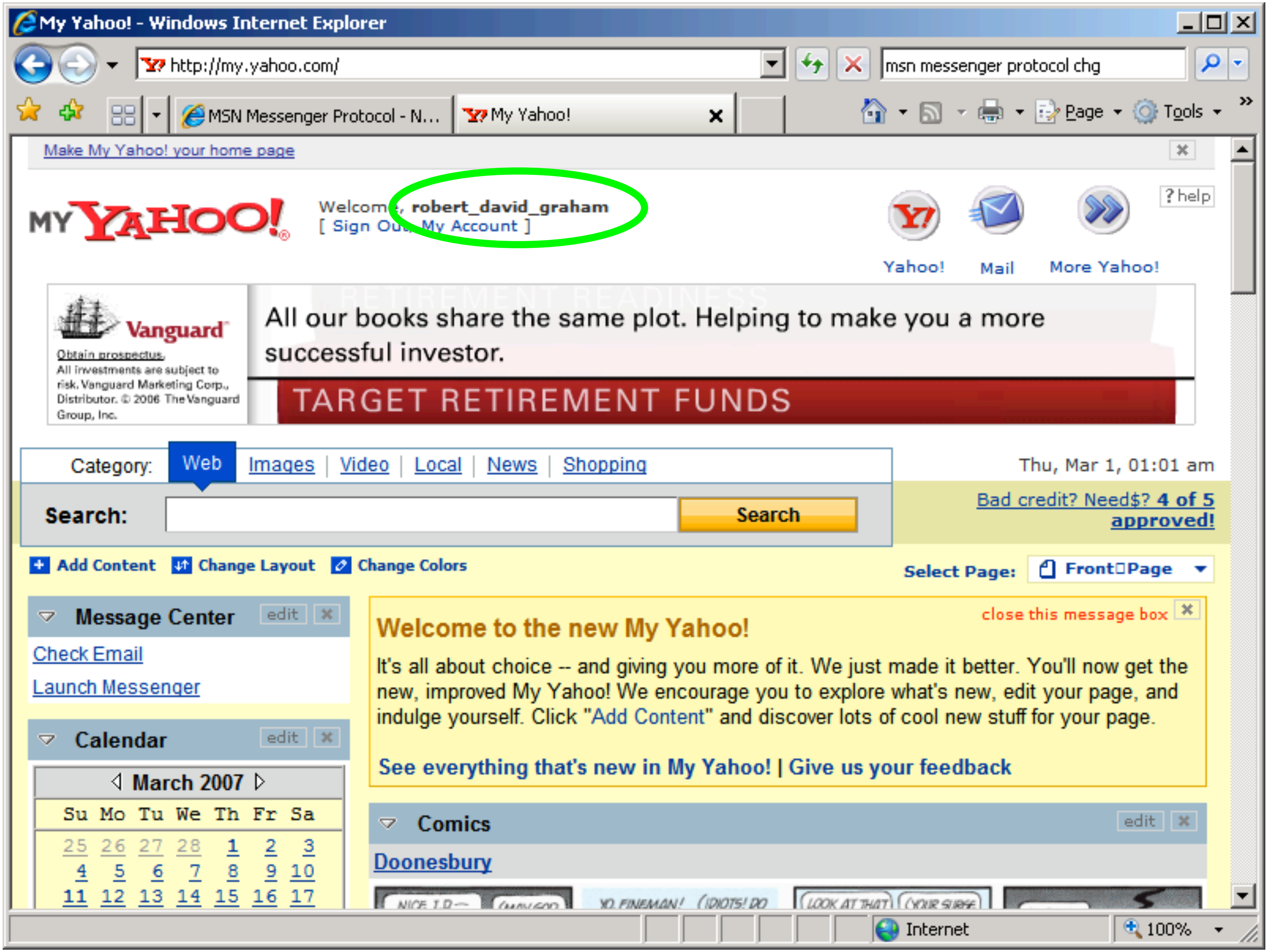
9 p.m. ET: College Hoops Florida at Tennessee

Access to MLB Rumor Central and predictive analysis. All the tools you need to stay ahead!

Phrase not found

ing data from seavideo-att.espn.go.com...

it View Go Bookmarks Tools Help
Go
RSS 2.1.7
Feed Search
Help etc.
Options etc.
Watch List
Weather
m | MyESPN | Member Services
ESPN Photos Video
Search
ffice EPOT
Care of Business
OFFICIAL SMALL BUSINESS OF NASCAR
Courtesy of Office DEPOT
MORE DETAILS
Full TV Schedule
ESPN
Insider ESPN360 Page 2 SportsNation Blogs Video PodCenter Video Games Travel Contests Shop En Español
TV Radio Magazine
Fantasy NFL NBA MLB NHL ESPNU College FB Men's BB Women's BB NASCAR Autos Golf Soccer Tennis Boxing Olympics More +
ESPN FANTASY
LIVE SCORING. NOW FREE.
SIGN UP FREE
DICK'S SPORTING GOODS
per Freak
Sign Up Now
Insider | One Step Ahead of the Game
NBA
6 of 10
bla
Find Next
Find Previous
Highlight all
Match case
12.843s
Adblock



My Yahoo! - Windows Internet Explorer

http://my.yahoo.com/

msn messenger protocol chg

MSN Messenger Protocol - N... | My Yahoo!

Page | Tools

Make My Yahoo! your home page

MY YAHOO!

Welcome, robert_david_graham
[Sign Out, My Account]

Yahoo! | Mail | More Yahoo! | ? help

Vanguard
Obtain prospectus.
All investments are subject to risk. Vanguard Marketing Corp., Distributor. © 2006 The Vanguard Group, Inc.

All our books share the same plot. Helping to make you a more successful investor.

TARGET RETIREMENT FUNDS

Category: Web | Images | Video | Local | News | Shopping

Thu, Mar 1, 01:01 am

Search: Search

Bad credit? Need$? 4 of 5 approved!

Add Content | Change Layout | Change Colors

Select Page: Front Page

Message Center edit
Check Email
Launch Messenger

Calendar edit
March 2007

Su	Mo	Tu	We	Th	Fr	Sa
25	26	27	28	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17

close this message box

Welcome to the new My Yahoo!

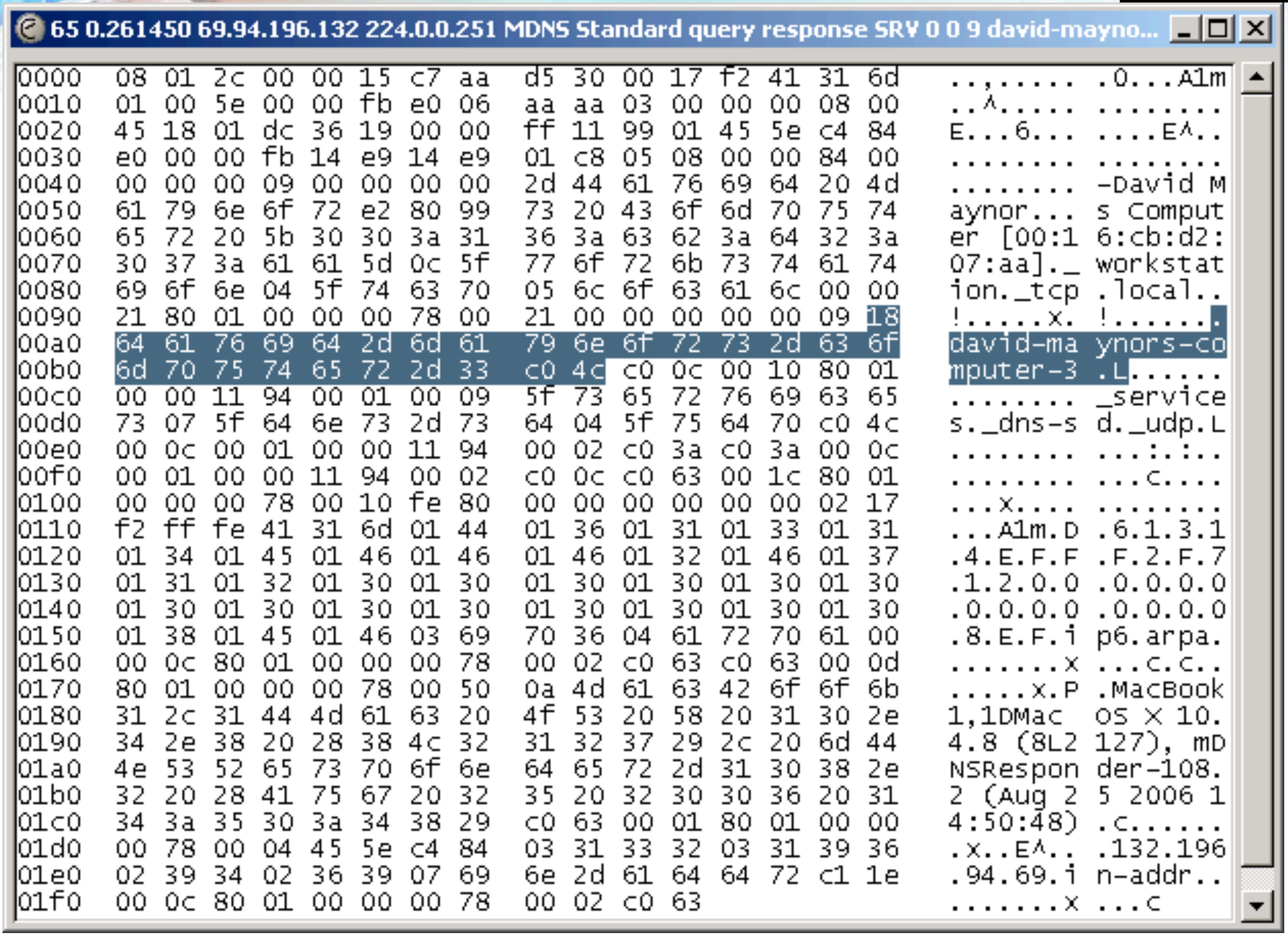
It's all about choice -- and giving you more of it. We just made it better. You'll now get the new, improved My Yahoo! We encourage you to explore what's new, edit your page, and indulge yourself. Click "Add Content" and discover lots of cool new stuff for your page.

See everything that's new in My Yahoo! | Give us your feedback

Comics edit
Doonesbury

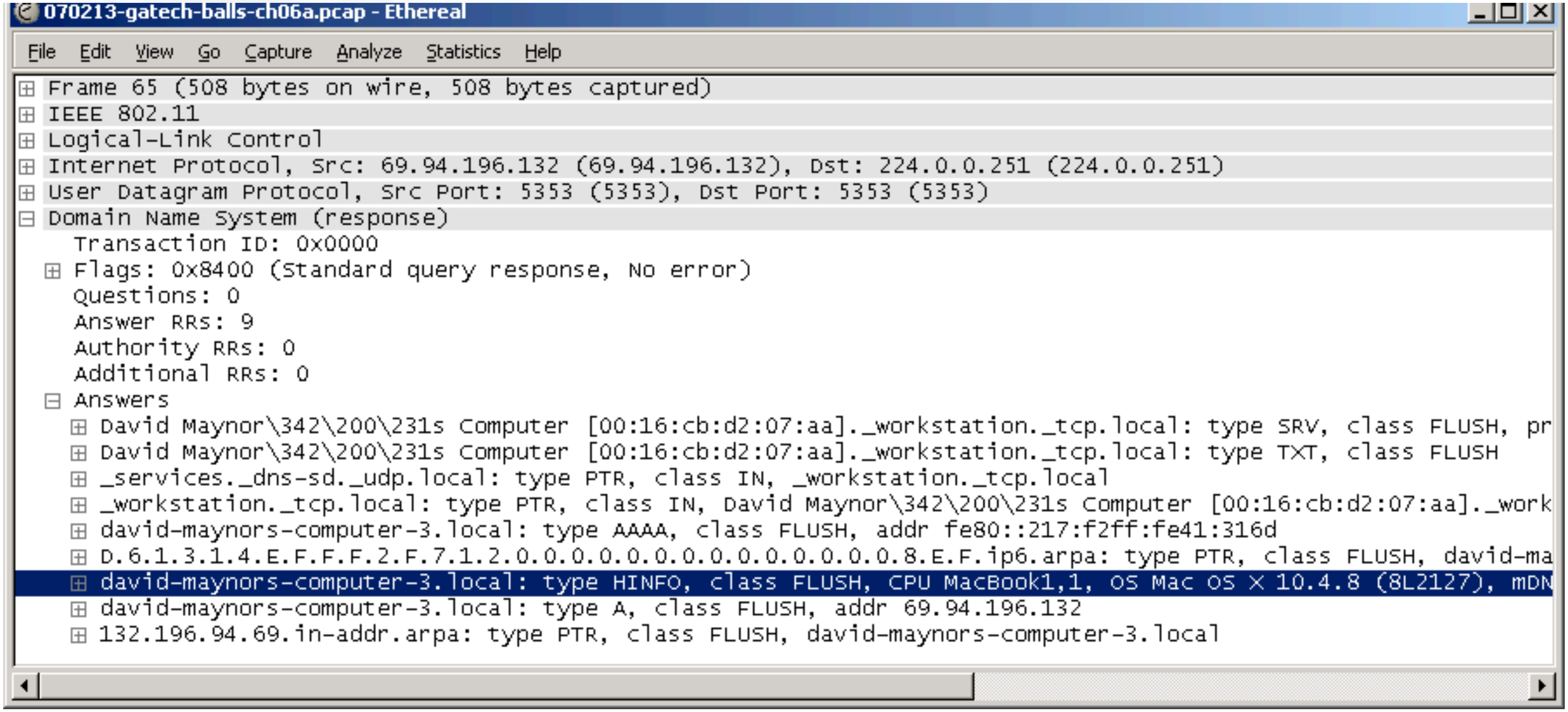
Internet | 100%

PACKETS



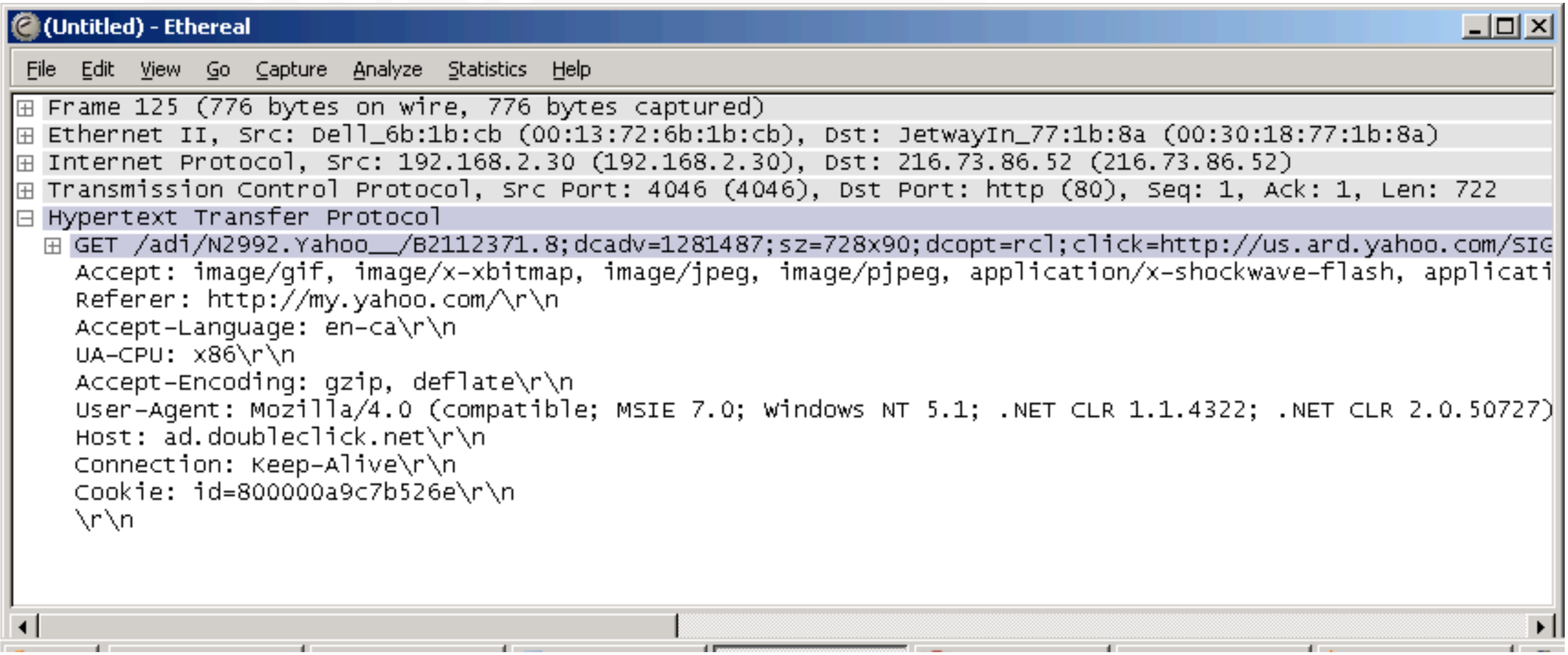
65 0.261450 69.94.196.132 224.0.0.251 MDNS Standard query response SRV 0 0 9 david-mayno...

```
0000   08 01 2c 00 00 15 c7 aa  d5 30 00 17 f2 41 31 6d   ..,..... .0...A1m
0010   01 00 5e 00 00 fb e0 06  aa aa 03 00 00 00 08 00   ..^..... ........
0020   45 18 01 dc 36 19 00 00  ff 11 99 01 45 5e c4 84   E...6... ....E^..
0030   e0 00 00 fb 14 e9 14 e9  01 c8 05 08 00 00 84 00   ........ ........
0040   00 00 00 09 00 00 00 00  2d 44 61 76 69 64 20 4d   ........ -David M
0050   61 79 6e 6f 72 e2 80 99  73 20 43 6f 6d 70 75 74   aynor... s Comput
0060   65 72 20 5b 30 30 3a 31  36 3a 63 62 3a 64 32 3a   er [00:1 6:cb:d2:
0070   30 37 3a 61 61 5d 0c 5f  77 6f 72 6b 73 74 61 74   07:aa]._ workstat
0080   69 6f 6e 04 5f 74 63 70  05 6c 6f 63 61 6c 00 00   ion._tcp .local..
0090   21 80 01 00 00 00 78 00  21 00 00 00 00 00 09 18   !.....x. !.......
00a0   64 61 76 69 64 2d 6d 61  79 6e 6f 72 73 2d 63 6f   david-ma ynors-co
00b0   6d 70 75 74 65 72 2d 33  c0 4c c0 0c 00 10 80 01   mputer-3 .L......
00c0   00 00 11 94 00 01 00 09  5f 73 65 72 76 69 63 65   ........ _service
00d0   73 07 5f 64 6e 73 2d 73  64 04 5f 75 64 70 c0 4c   s._dns-s d._udp.L
00e0   00 0c 00 01 00 00 11 94  00 02 c0 3a c0 3a 00 0c   ........ ...:.:..
00f0   00 01 00 00 11 94 00 02  c0 0c c0 63 00 1c 80 01   ........ ...c....
0100   00 00 00 78 00 10 fe 80  00 00 00 00 00 00 02 17   ...x.... ........
0110   f2 ff fe 41 31 6d 01 44  01 36 01 31 01 33 01 31   ...A1m.D .6.1.3.1
0120   01 34 01 45 01 46 01 46  01 46 01 32 01 46 01 37   .4.E.F.F .F.2.F.7
0130   01 31 01 32 01 30 01 30  01 30 01 30 01 30 01 30   .1.2.0.0 .0.0.0.0
0140   01 30 01 30 01 30 01 30  01 30 01 30 01 30 01 30   .0.0.0.0 .0.0.0.0
0150   01 38 01 45 01 46 03 69  70 36 04 61 72 70 61 00   .8.E.F.i p6.arpa.
0160   00 0c 80 01 00 00 00 78  00 02 c0 63 c0 63 00 0d   .......x ...c.c..
0170   80 01 00 00 00 78 00 50  0a 4d 61 63 42 6f 6f 6b   .....x.P .MacBook
0180   31 2c 31 44 4d 61 63 20  4f 53 20 58 20 31 30 2e   1,1DMac  OS X 10.
0190   34 2e 38 20 28 38 4c 32  31 32 37 29 2c 20 6d 44   4.8 (8L2 127), mD
01a0   4e 53 52 65 73 70 6f 6e  64 65 72 2d 31 30 38 2e   NSRespon der-108.
01b0   32 20 28 41 75 67 20 32  35 20 32 30 30 36 20 31   2 (Aug 2 5 2006 1
01c0   34 3a 35 30 3a 34 38 29  c0 63 00 01 80 01 00 00   4:50:48) .c......
01d0   00 78 00 04 45 5e c4 84  03 31 33 32 03 31 39 36   .x..E^.. .132.196
01e0   02 39 34 02 36 39 07 69  6e 2d 61 64 64 72 c1 1e   .94.69.i n-addr..
01f0   00 0c 80 01 00 00 00 78  00 02 c0 63               .......x ...c
```



070213-gatech-balls-ch06a.pcap - Ethereal
File Edit View Go Capture Analyze Statistics Help

```
⊞ Frame 65 (508 bytes on wire, 508 bytes captured)
⊞ IEEE 802.11
⊞ Logical-Link Control
⊞ Internet Protocol, Src: 69.94.196.132 (69.94.196.132), Dst: 224.0.0.251 (224.0.0.251)
⊞ User Datagram Protocol, Src Port: 5353 (5353), Dst Port: 5353 (5353)
⊟ Domain Name System (response)
    Transaction ID: 0x0000
  ⊞ Flags: 0x8400 (Standard query response, No error)
    Questions: 0
    Answer RRs: 9
    Authority RRs: 0
    Additional RRs: 0
  ⊟ Answers
    ⊞ David Maynor\342\200\231s Computer [00:16:cb:d2:07:aa]._workstation._tcp.local: type SRV, class FLUSH, pr
    ⊞ David Maynor\342\200\231s Computer [00:16:cb:d2:07:aa]._workstation._tcp.local: type TXT, class FLUSH
    ⊞ _services._dns-sd._udp.local: type PTR, class IN, _workstation._tcp.local
    ⊞ _workstation._tcp.local: type PTR, class IN, David Maynor\342\200\231s Computer [00:16:cb:d2:07:aa]._work
    ⊞ david-maynors-computer-3.local: type AAAA, class FLUSH, addr fe80::217:f2ff:fe41:316d
    ⊞ D.6.1.3.1.4.E.F.F.F.2.F.7.1.2.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.8.E.F.ip6.arpa: type PTR, class FLUSH, david-ma
    ⊞ david-maynors-computer-3.local: type HINFO, class FLUSH, CPU MacBook1,1, OS Mac OS X 10.4.8 (8L2127), mDN
    ⊞ david-maynors-computer-3.local: type A, class FLUSH, addr 69.94.196.132
    ⊞ 132.196.94.69.in-addr.arpa: type PTR, class FLUSH, david-maynors-computer-3.local
```



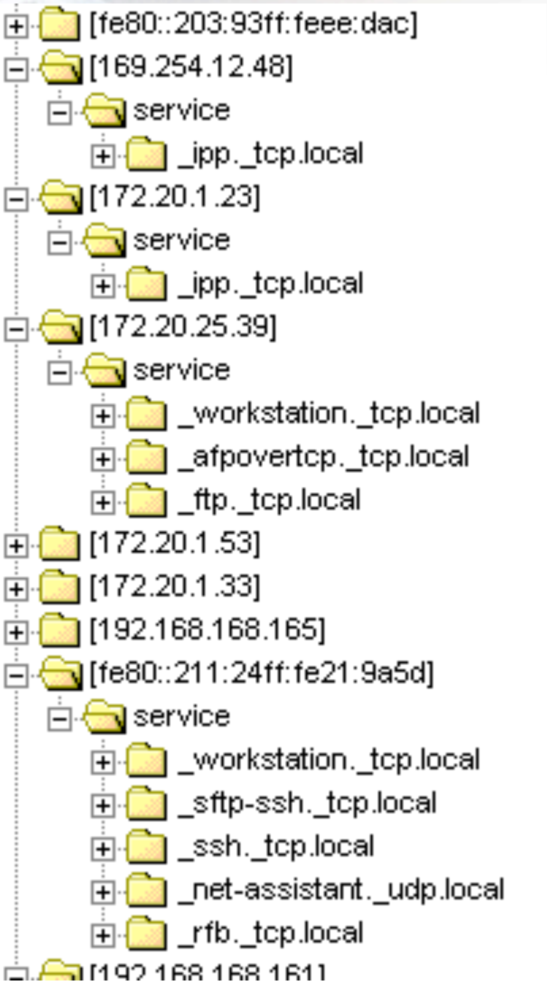
```
⊞ Frame 125 (776 bytes on wire, 776 bytes captured)
⊞ Ethernet II, Src: Dell_6b:1b:cb (00:13:72:6b:1b:cb), Dst: JetwayIn_77:1b:8a (00:30:18:77:1b:8a)
⊞ Internet Protocol, Src: 192.168.2.30 (192.168.2.30), Dst: 216.73.86.52 (216.73.86.52)
⊞ Transmission Control Protocol, Src Port: 4046 (4046), Dst Port: http (80), Seq: 1, Ack: 1, Len: 722
⊟ Hypertext Transfer Protocol
  ⊞ GET /adi/N2992.Yahoo__/B2112371.8;dcadv=1281487;sz=728x90;dcopt=rcl;click=http://us.ard.yahoo.com/SIG
    Accept: image/gif, image/x-xbitmap, image/jpeg, image/pjpeg, application/x-shockwave-flash, applicati
    Referer: http://my.yahoo.com/\r\n
    Accept-Language: en-ca\r\n
    UA-CPU: x86\r\n
    Accept-Encoding: gzip, deflate\r\n
    User-Agent: Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 5.1; .NET CLR 1.1.4322; .NET CLR 2.0.50727)
    Host: ad.doubleclick.net\r\n
    Connection: Keep-Alive\r\n
    Cookie: id=800000a9c7b526e\r\n
    \r\n
```

DEMOS

FERRET – Data seapage monitor

- Like password sniffer, but sniffs more than just passwords
- Like intrusion-detection, but sniffs legitimate operations rather than intrusions
- Protocols: DHCP, SNMP, DNS, HTTP, AIM, MSN-MSGR, Yahoo IM, …
- Ferret Viewer: allows you to browse the data easier

Example: Bonjour

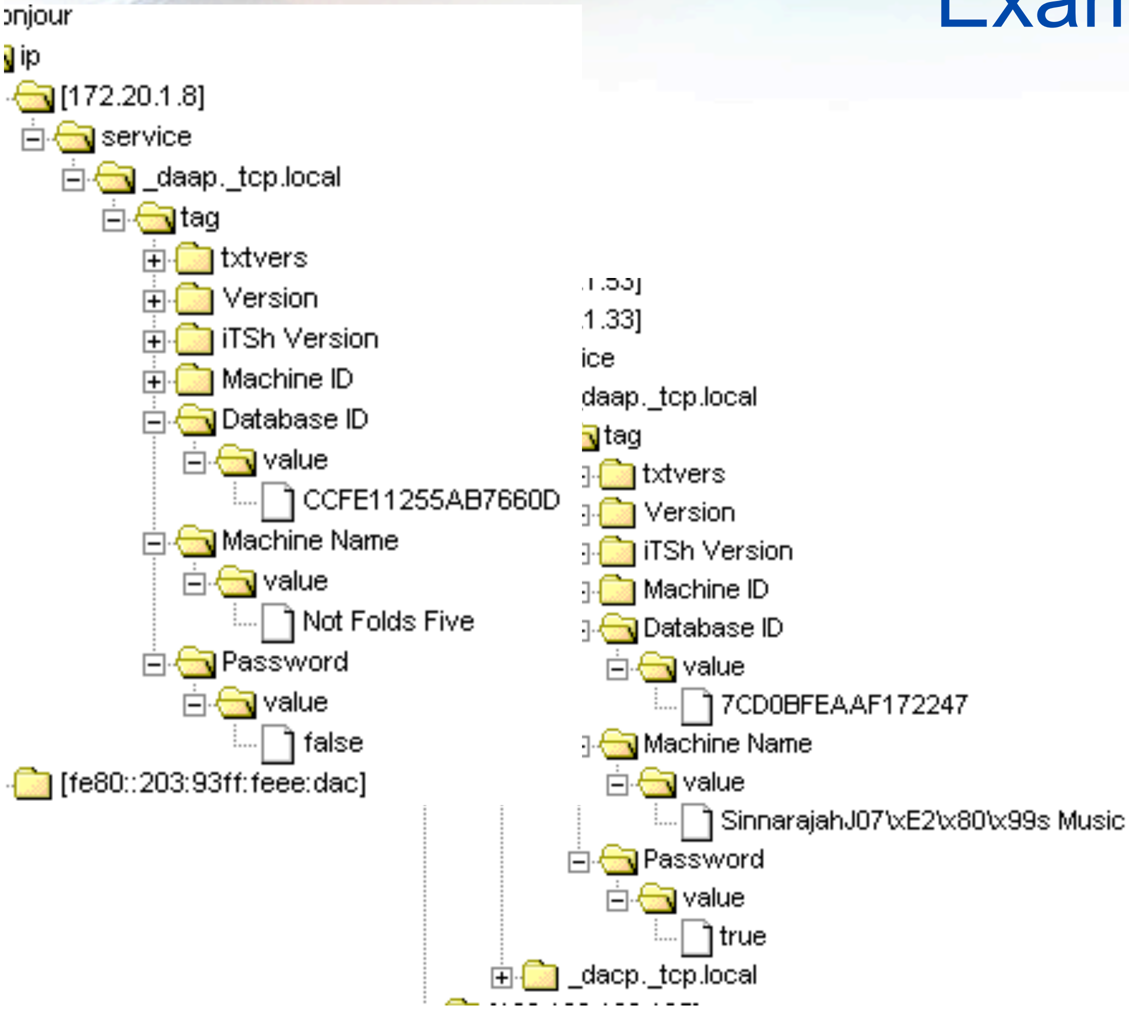


```
[fe80::203:93ff:feee:dac]
[169.254.12.48]
    service
        _ipp._tcp.local
[172.20.1.23]
    service
        _ipp._tcp.local
[172.20.25.39]
    service
        _workstation._tcp.local
        _afpovertcp._tcp.local
        _ftp._tcp.local
[172.20.1.53]
[172.20.1.33]
[192.168.168.165]
[fe80::211:24ff:fe21:9a5d]
    service
        _workstation._tcp.local
        _sftp-ssh._tcp.local
        _ssh._tcp.local
        _net-assistant._udp.local
        _rfb._tcp.local
[192.168.168.161]
```

- Lists services on a machine
- Tells you which ones you can attack

errata security

Example: iTunes server

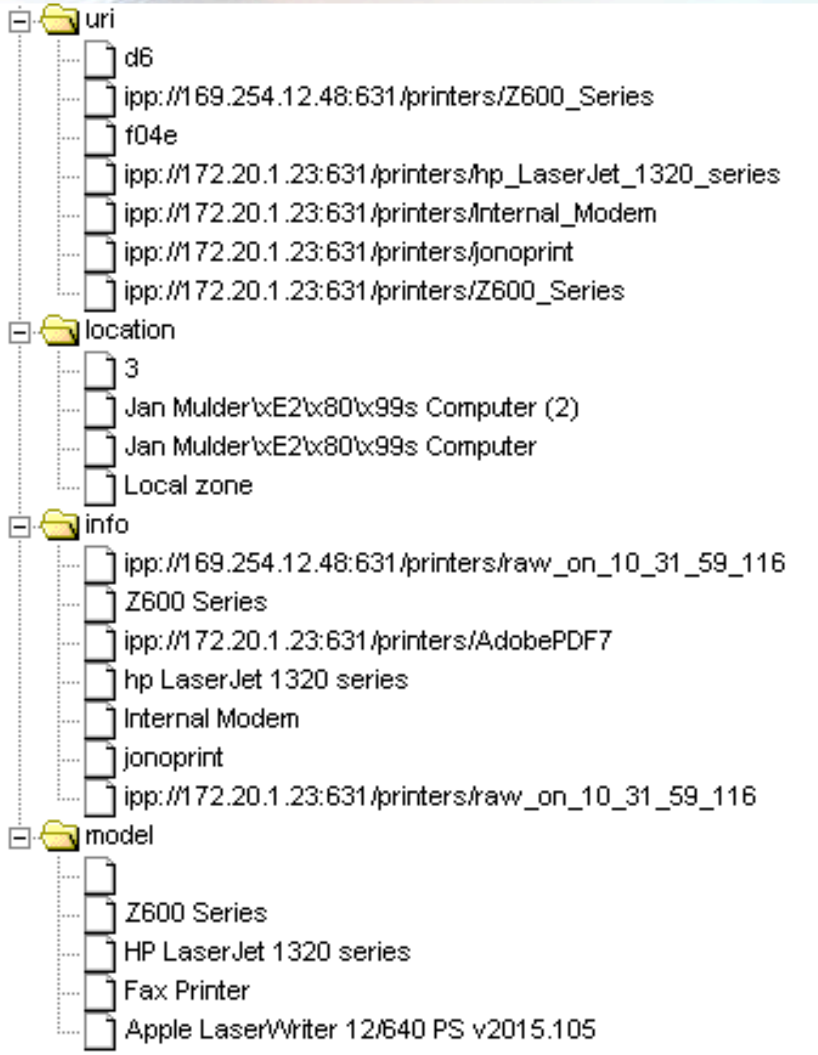


```
onjour
 ip
  [172.20.1.8]
   service
    _daap._tcp.local
     tag
      txtvers
      Version
      iTSh Version
      Machine ID
      Database ID
       value
        CCFE11255AB7660D
      Machine Name
       value
        Not Folds Five
      Password
       value
        false
  [fe80::203:93ff:feee:dac]
```

```
1.33]
ice
daap._tcp.local
 tag
  txtvers
  Version
  iTSh Version
  Machine ID
  Database ID
   value
    7CD0BFEAAF172247
  Machine Name
   value
    SinnarajahJ07\xE2\x80\x99s Music
  Password
   value
    true
_dacp._tcp.local
```

- iTunes uses Bonjour to advertise it’s existence
- This tells you that you can connect to that iTunes server and download all the music with no password

Example: CUPS



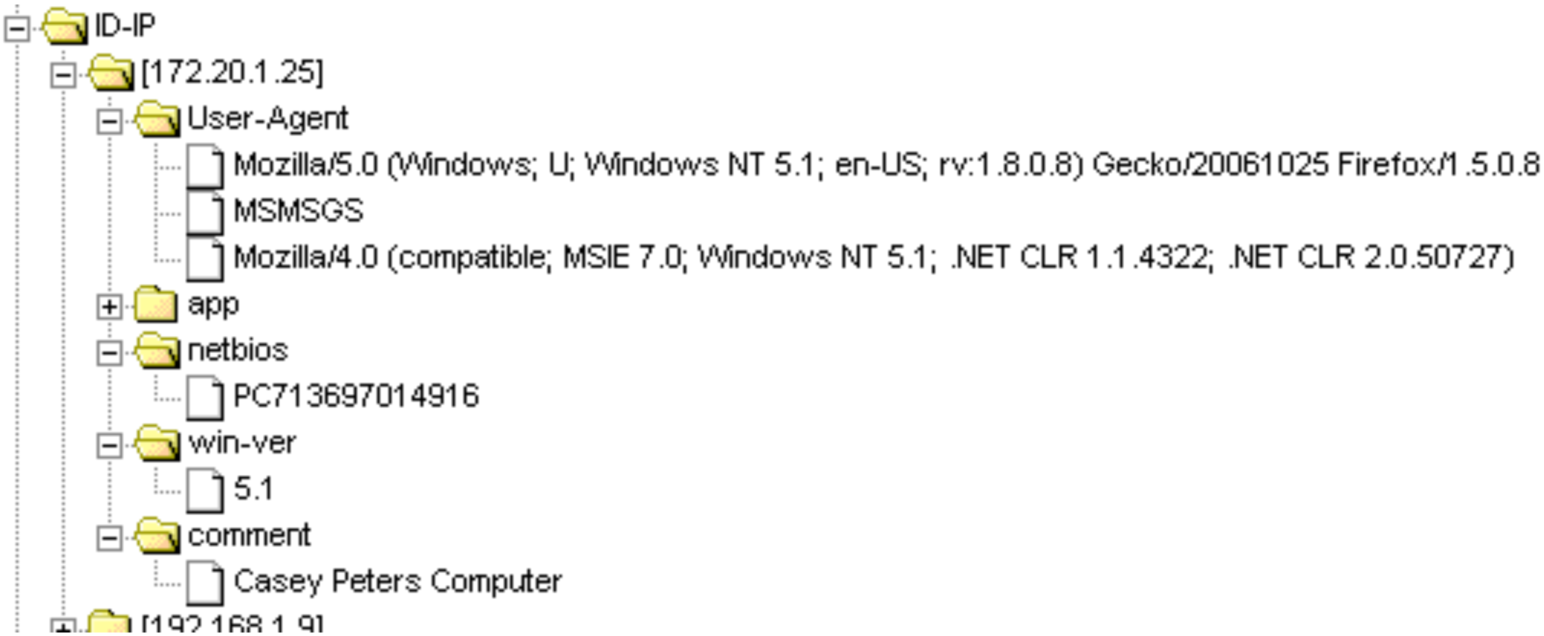
```
uri
    d6
    ipp://169.254.12.48:631/printers/Z600_Series
    f04e
    ipp://172.20.1.23:631/printers/hp_LaserJet_1320_series
    ipp://172.20.1.23:631/printers/Internal_Modem
    ipp://172.20.1.23:631/printers/jonoprint
    ipp://172.20.1.23:631/printers/Z600_Series
location
    3
    Jan Mulder\xE2\x80\x99s Computer (2)
    Jan Mulder\xE2\x80\x99s Computer
    Local zone
info
    ipp://169.254.12.48:631/printers/raw_on_10_31_59_116
    Z600 Series
    ipp://172.20.1.23:631/printers/AdobePDF7
    hp LaserJet 1320 series
    Internal Modem
    jonoprint
    ipp://172.20.1.23:631/printers/raw_on_10_31_59_116
model

    Z600 Series
    HP LaserJet 1320 series
    Fax Printer
    Apple LaserWriter 12/640 PS v2015.105
```

- Tells you about printers available
- Tells you about drivers that may have bugs
  - **Printer driver bugs are common, which is why Microsoft moved them to user-mode drivers**
- Tells you about vulnerable printers
- Maps out the network

errata security

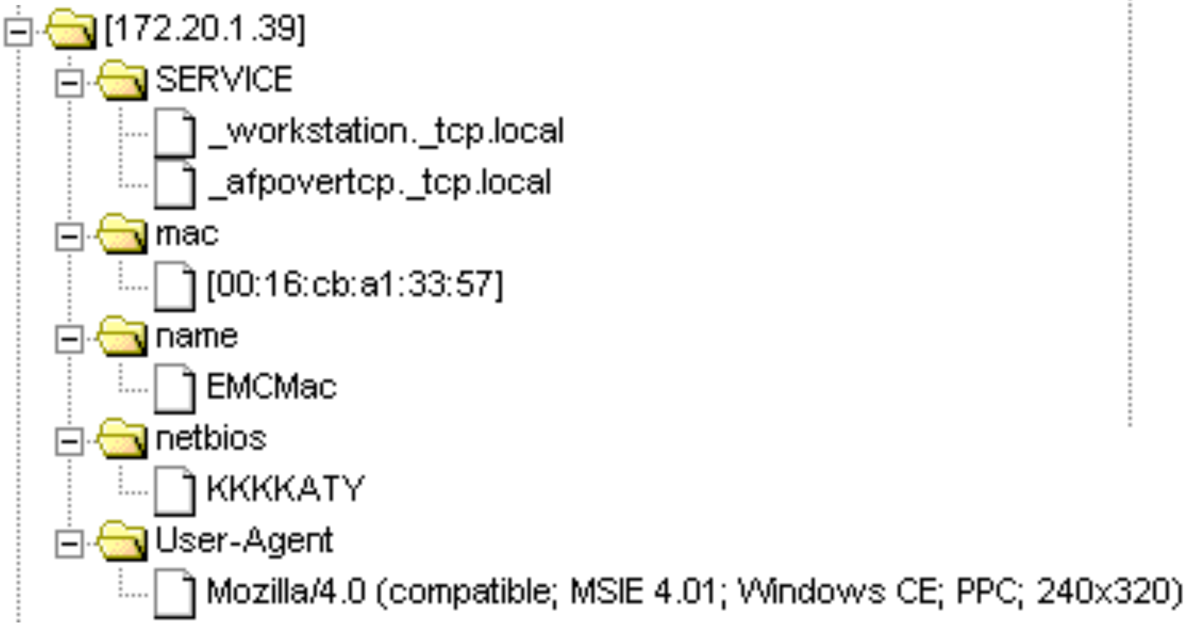
Example: ID

- Tells you about the system, pulling interesting identification info from various protocols

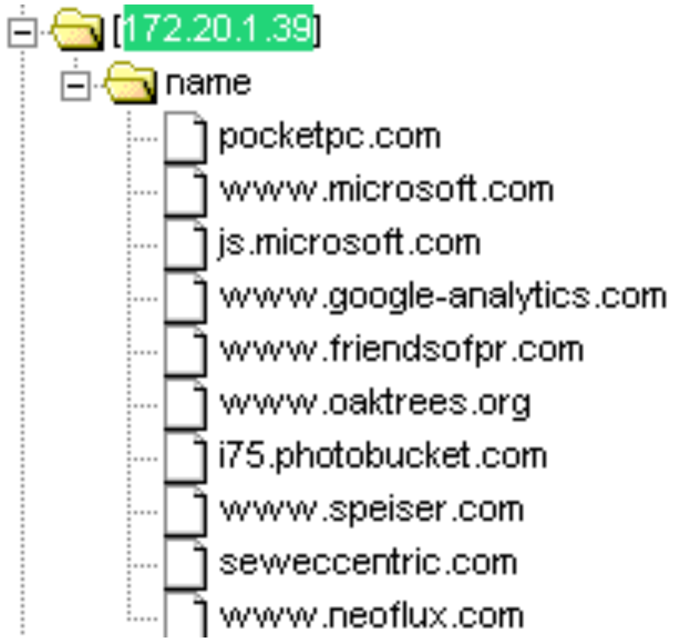


```
ID-IP
  [172.20.1.25]
    User-Agent
      Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.8.0.8) Gecko/20061025 Firefox/1.5.0.8
      MSMSGS
      Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 5.1; .NET CLR 1.1.4322; .NET CLR 2.0.50727)
    app
    netbios
      PC713697014916
    win-ver
      5.1
    comment
      Casey Peters Computer
  [192.168.1.9]
```

Example: ID (more)

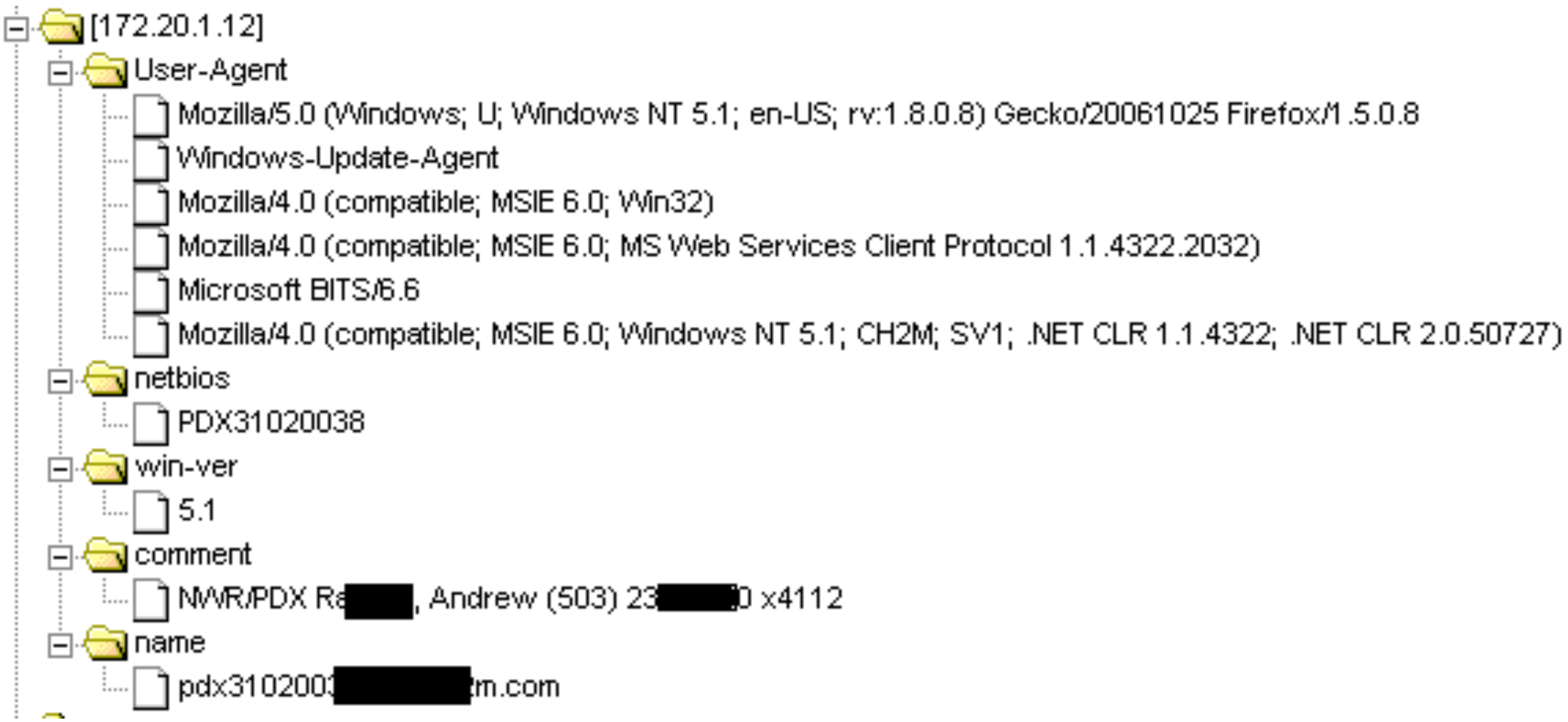


```
[172.20.1.39]
  SERVICE
    _workstation._tcp.local
    _afpovertcp._tcp.local
  mac
    [00:16:cb:a1:33:57]
  name
    EMCMac
  netbios
    KKKKATY
  User-Agent
    Mozilla/4.0 (compatible; MSIE 4.01; Windows CE; PPC; 240x320)
```



```
[172.20.1.39]
  name
    pocketpc.com
    www.microsoft.com
    js.microsoft.com
    www.google-analytics.com
    www.friendsofpr.com
    www.oaktrees.org
    i75.photobucket.com
    www.speiser.com
    seweccentric.com
    www.neoflux.com
```

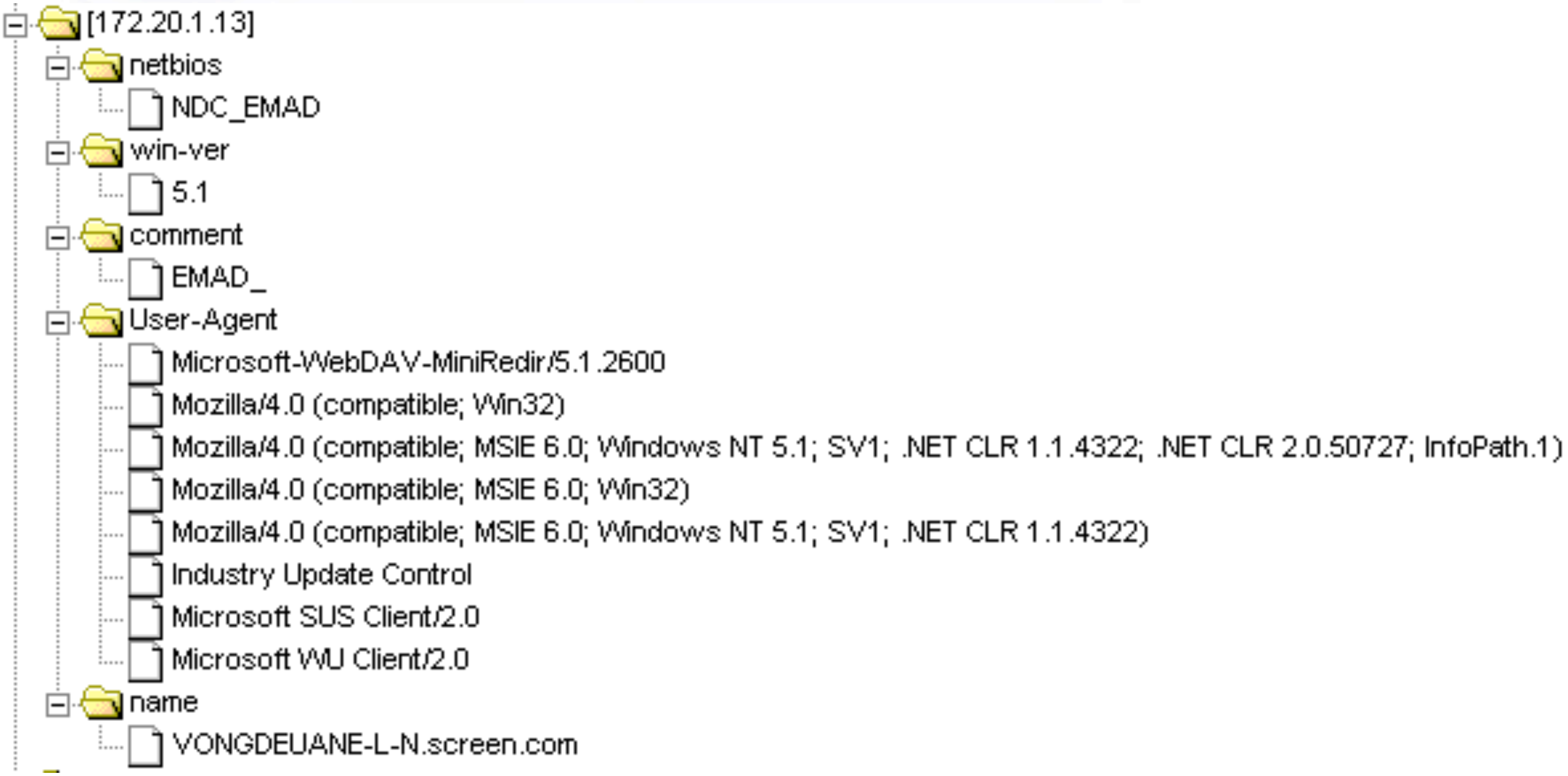
Example: ID (more)



```
[172.20.1.12]
  User-Agent
    Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.8.0.8) Gecko/20061025 Firefox/1.5.0.8
    Windows-Update-Agent
    Mozilla/4.0 (compatible; MSIE 6.0; Win32)
    Mozilla/4.0 (compatible; MSIE 6.0; MS Web Services Client Protocol 1.1.4322.2032)
    Microsoft BITS/6.6
    Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; CH2M; SV1; .NET CLR 1.1.4322; .NET CLR 2.0.50727)
  netbios
    PDX31020038
  win-ver
    5.1
  comment
    NWR/PDX R[redacted], Andrew (503) 23[redacted]0 x4112
  name
    pdx310200[redacted]m.com
```

errata security

Example: ID (more)

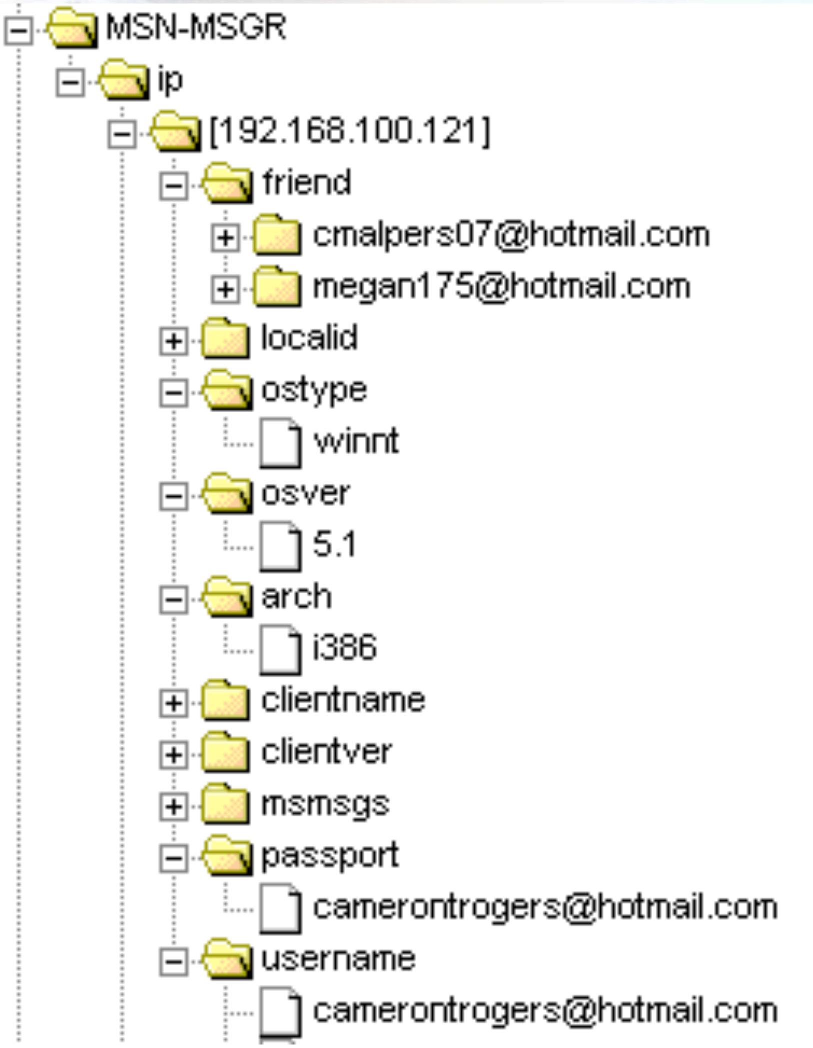


```
[172.20.1.13]
    netbios
        NDC_EMAD
    win-ver
        5.1
    comment
        EMAD_
    User-Agent
        Microsoft-WebDAV-MiniRedir/5.1.2600
        Mozilla/4.0 (compatible; Win32)
        Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1; .NET CLR 1.1.4322; .NET CLR 2.0.50727; InfoPath.1)
        Mozilla/4.0 (compatible; MSIE 6.0; Win32)
        Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1; .NET CLR 1.1.4322)
        Industry Update Control
        Microsoft SUS Client/2.0
        Microsoft WU Client/2.0
    name
        VONGDEUANE-L-N.screen.com
```

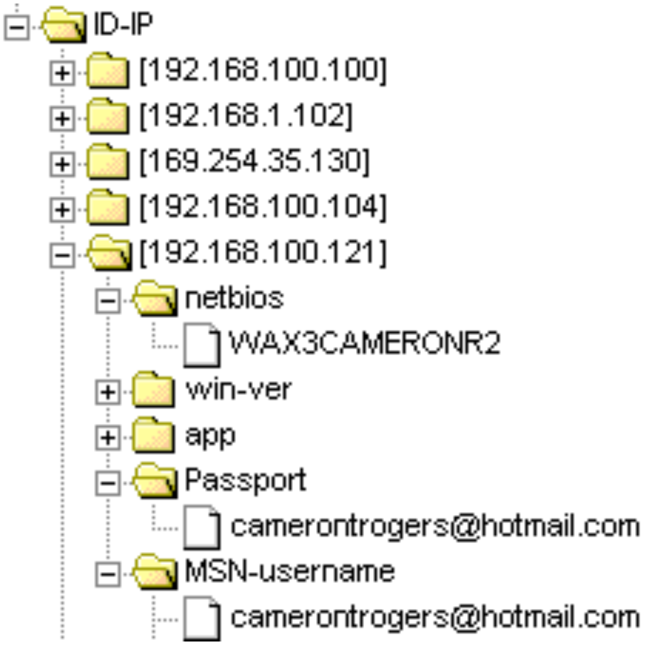
errata security

Example: MSN-MSGR

- Builds ‘friends’ list
- Grabs user of machine



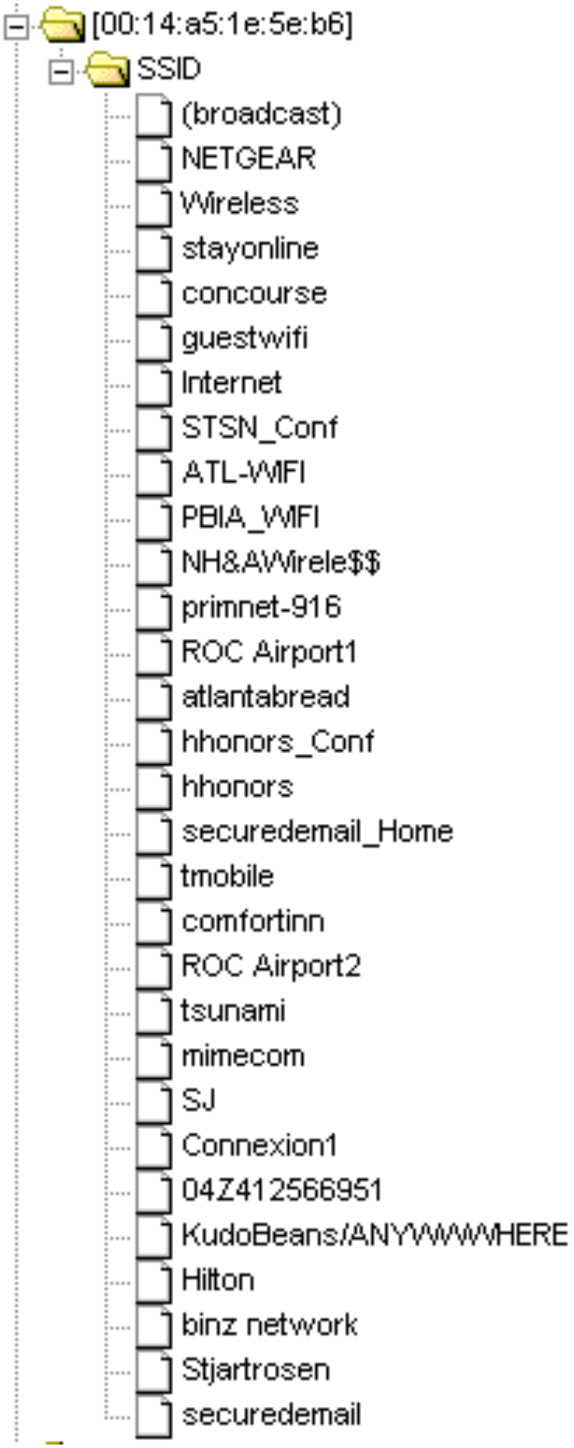
```
MSN-MSGR
  ip
    [192.168.100.121]
      friend
        cmalpers07@hotmail.com
        megan175@hotmail.com
      localid
      ostype
        winnt
      osver
        5.1
      arch
        i386
      clientname
      clientver
      msmsgs
      passport
        camerontrogers@hotmail.com
      username
        camerontrogers@hotmail.com
```



```
ID-IP
  [192.168.100.100]
  [192.168.1.102]
  [169.254.35.130]
  [192.168.100.104]
  [192.168.100.121]
    netbios
      WAX3CAMERONR2
    win-ver
    app
    Passport
      camerontrogers@hotmail.com
    MSN-username
      camerontrogers@hotmail.com
```

errata security

Example: WiFi probes

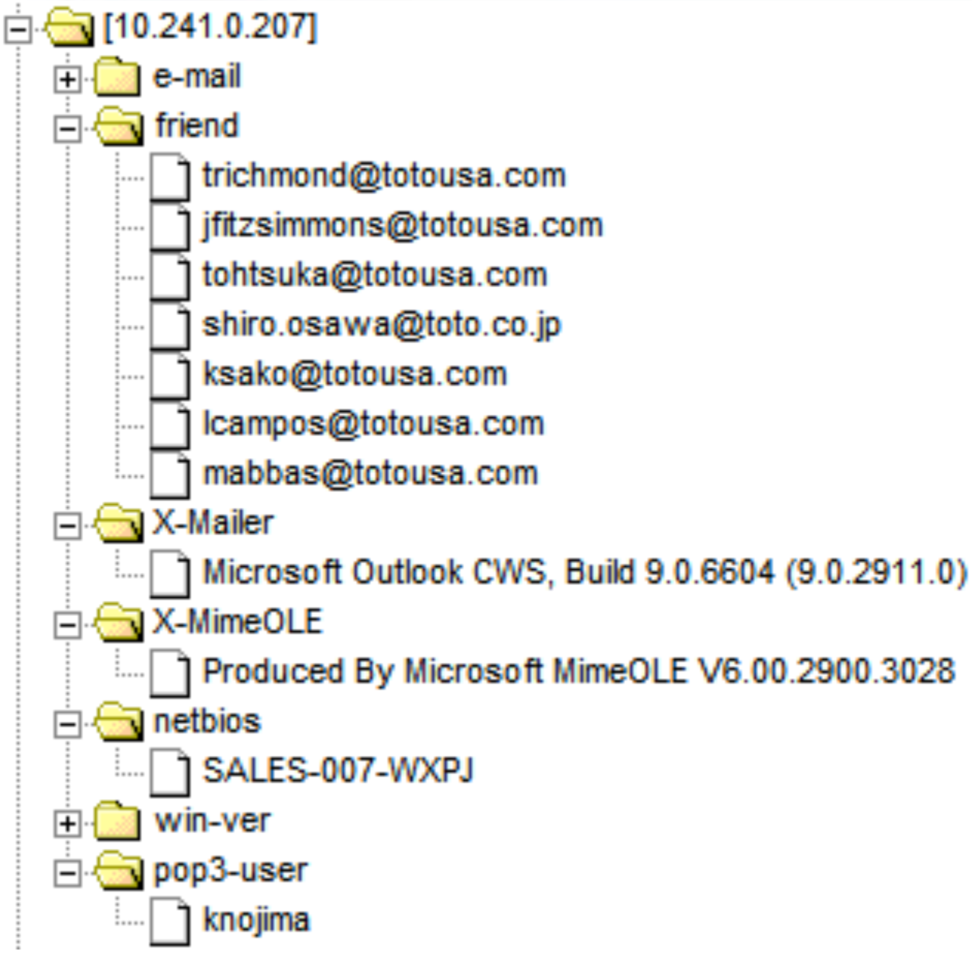


```
[00:14:a5:1e:5e:b6]
  SSID
    (broadcast)
    NETGEAR
    Wireless
    stayonline
    concourse
    guestwifi
    Internet
    STSN_Conf
    ATL-WIFI
    PBIA_WIFI
    NH&AWirele$$
    primnet-916
    ROC Airport1
    atlantabread
    hhonors_Conf
    hhonors
    securedemail_Home
    tmobile
    comfortinn
    ROC Airport2
    tsunami
    mimecom
    SJ
    Connexion1
    04Z412566951
    KudoBeans/ANYWWWHERE
    Hilton
    binz network
    Stjartrosen
    securedemail
```

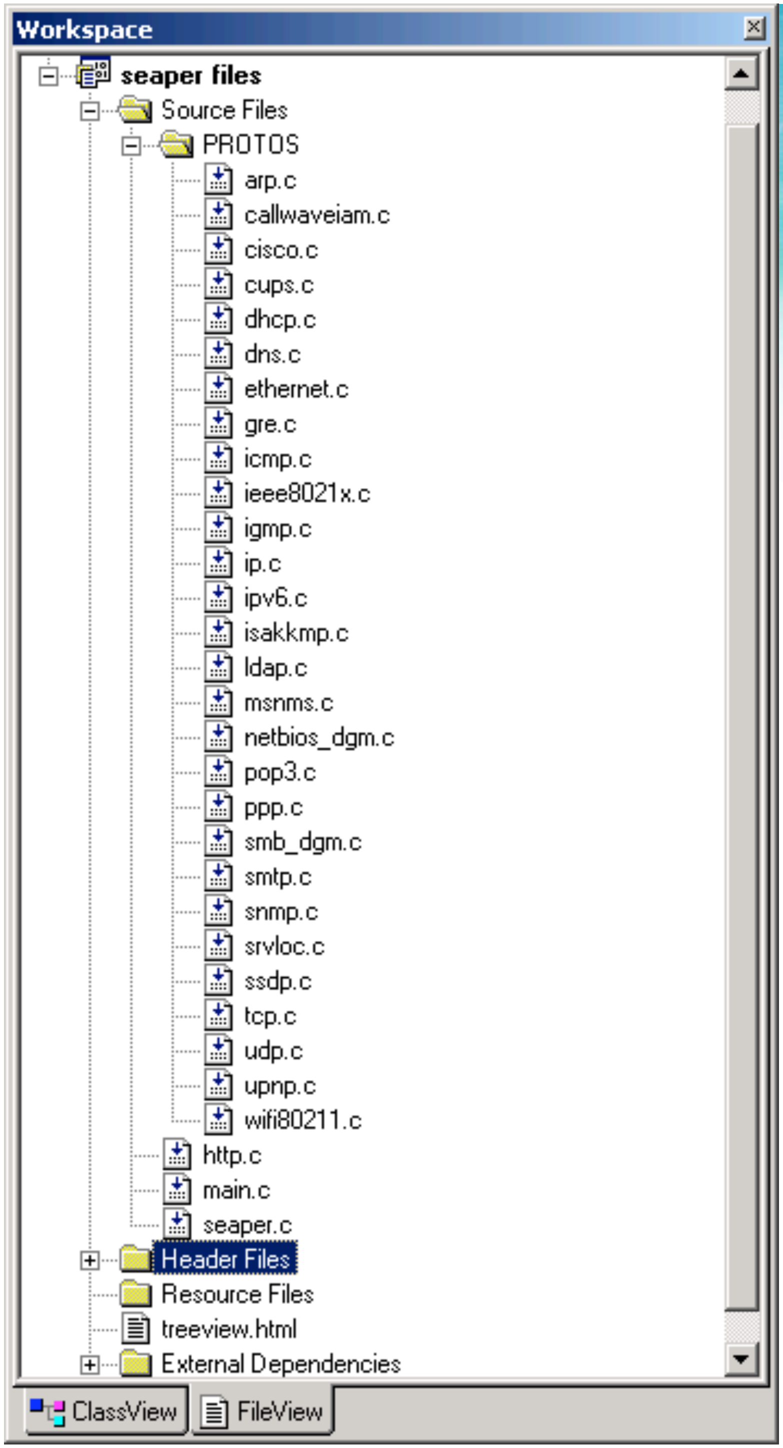
- A list of every place the person has been

Example: e-mail

- Finding the 6-degrees of Kevin Bacon

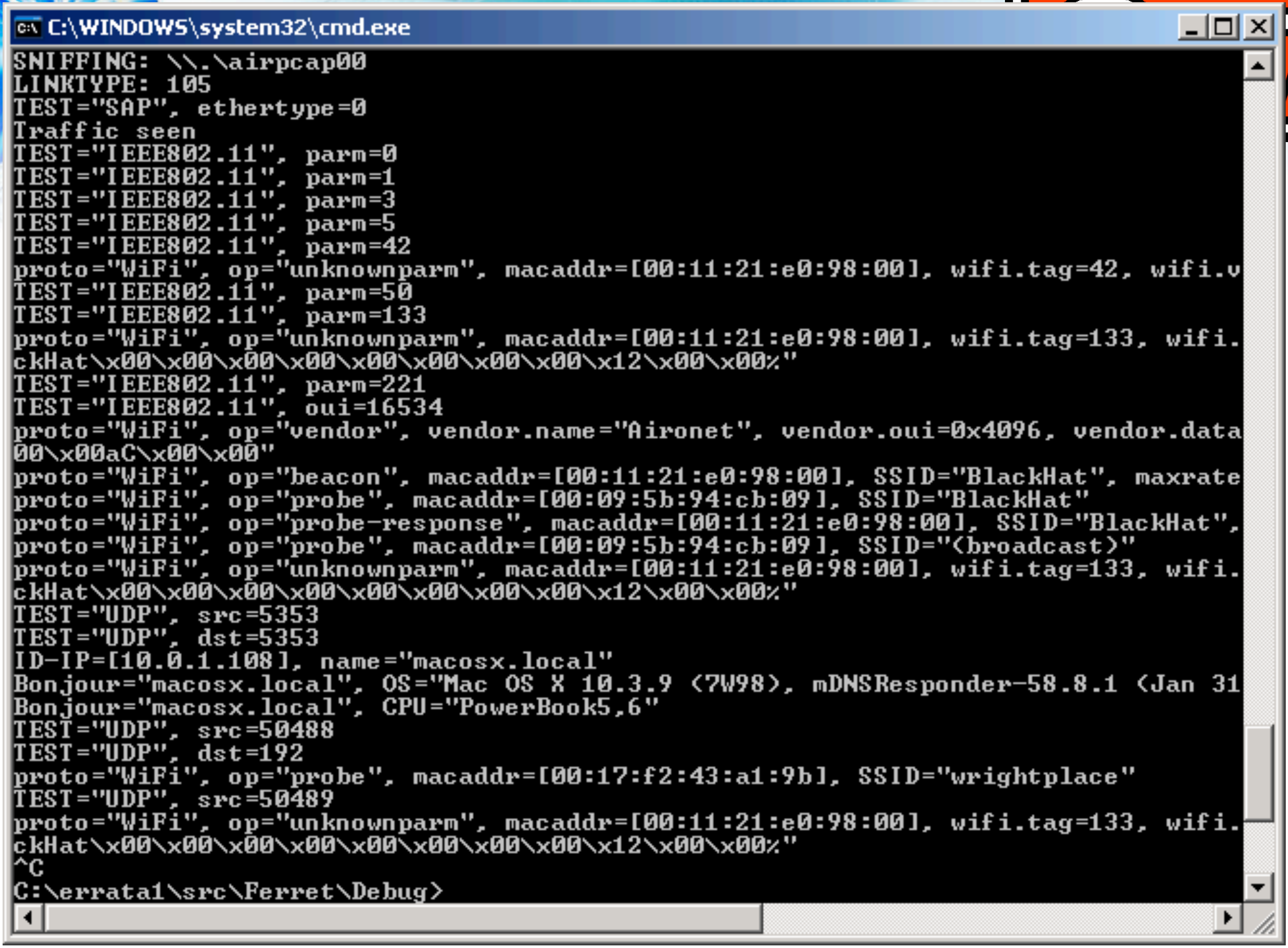


```
[10.241.0.207]
    e-mail
    friend
        trichmond@totousa.com
        jfitzsimmons@totousa.com
        tohtsuka@totousa.com
        shiro.osawa@toto.co.jp
        ksako@totousa.com
        lcampos@totousa.com
        mabbas@totousa.com
    X-Mailer
        Microsoft Outlook CWS, Build 9.0.6604 (9.0.2911.0)
    X-MimeOLE
        Produced By Microsoft MimeOLE V6.00.2900.3028
    netbios
        SALES-007-WXPJ
    win-ver
    pop3-user
        knojima
```



```
Workspace
seaper files
  Source Files
    PROTOS
      arp.c
      callwaveiam.c
      cisco.c
      cups.c
      dhcp.c
      dns.c
      ethernet.c
      gre.c
      icmp.c
      ieee8021x.c
      igmp.c
      ip.c
      ipv6.c
      isakkmp.c
      ldap.c
      msnms.c
      netbios_dgm.c
      pop3.c
      ppp.c
      smb_dgm.c
      smtp.c
      snmp.c
      srvloc.c
      ssdp.c
      tcp.c
      udp.c
      upnp.c
      wifi80211.c
    http.c
    main.c
    seaper.c
  Header Files
  Resource Files
  treeview.html
  External Dependencies
```

- Current build of the software



```
SNIFFING: \\.\airpcap00
LINKTYPE: 105
TEST="SAP", ethertype=0
Traffic seen
TEST="IEEE802.11", parm=0
TEST="IEEE802.11", parm=1
TEST="IEEE802.11", parm=3
TEST="IEEE802.11", parm=5
TEST="IEEE802.11", parm=42
proto="WiFi", op="unknownparm", macaddr=[00:11:21:e0:98:00], wifi.tag=42, wifi.v
TEST="IEEE802.11", parm=50
TEST="IEEE802.11", parm=133
proto="WiFi", op="unknownparm", macaddr=[00:11:21:e0:98:00], wifi.tag=133, wifi.
ckHat\x00\x00\x00\x00\x00\x00\x00\x00\x12\x00\x00%"
TEST="IEEE802.11", parm=221
TEST="IEEE802.11", oui=16534
proto="WiFi", op="vendor", vendor.name="Aironet", vendor.oui=0x4096, vendor.data
00\x00aC\x00\x00"
proto="WiFi", op="beacon", macaddr=[00:11:21:e0:98:00], SSID="BlackHat", maxrate
proto="WiFi", op="probe", macaddr=[00:09:5b:94:cb:09], SSID="BlackHat"
proto="WiFi", op="probe-response", macaddr=[00:11:21:e0:98:00], SSID="BlackHat",
proto="WiFi", op="probe", macaddr=[00:09:5b:94:cb:09], SSID="<broadcast>"
proto="WiFi", op="unknownparm", macaddr=[00:11:21:e0:98:00], wifi.tag=133, wifi.
ckHat\x00\x00\x00\x00\x00\x00\x00\x00\x12\x00\x00%"
TEST="UDP", src=5353
TEST="UDP", dst=5353
ID-IP=[10.0.1.108], name="macosx.local"
Bonjour="macosx.local", OS="Mac OS X 10.3.9 (7W98), mDNSResponder-58.8.1 (Jan 31
Bonjour="macosx.local", CPU="PowerBook5,6"
TEST="UDP", src=50488
TEST="UDP", dst=192
proto="WiFi", op="probe", macaddr=[00:17:f2:43:a1:9b], SSID="wrightplace"
TEST="UDP", src=50489
proto="WiFi", op="unknownparm", macaddr=[00:11:21:e0:98:00], wifi.tag=133, wifi.
ckHat\x00\x00\x00\x00\x00\x00\x00\x00\x12\x00\x00%"
^C
C:\errata1\src\Ferret\Debug>
```

CONCLUSION

How to protect?

- Personal firewalls?
  - Don’t allow any traffic unless you are on a trusted network.
  - Users will just blindly click through them
- Corporate Polices…
  - Do these ever really work?
- The best solution for this is to be aware of the danger.
  - Everyone really doesn’t need to work from a coffee shop.