



# Address Books

- Email address books for most major webmail are collected as stand-alone sessions (no content present\*)
- Address books are repetitive, large, and metadata-rich
- Data is stored multiple times (MARINA/MAINWAY, PINWALE, CLOUDs)
- Fewer and fewer address books attributable to users, targets
- Address books account for ~ 22% of SSO's major accesses (up from ~ 12% in August)

| Access (10 Jan 12)  | Total Sessions | Address Books           | Provider     | Collected | Attributed | Attributed% |
|---------------------|----------------|-------------------------|--------------|-----------|------------|-------------|
| US-3171             | 1488453        | 237067 (16% of traffic) | Yahoo        | 444743    | 11009      | 2.48%       |
| DS-200B             | 938378         | 311113 (33% of traffic) | Hotmail      | 105068    | 1115       | 1.06%       |
| US-3261             | 94132          | 2477 (3% of traffic)    | Gmail        | 33697     | 2350       | 6.97%       |
| US-3145             | 177663         | 29336 (16% of traffic)  | Facebook     | 82857     | 79437      | 95.87%      |
| US-3180             | 269794         | 40409 (15% of traffic)  | Other        | 22881     | 1175       | 5.14%       |
| US-3180 (16 Dec 11) | 289318         | 91964 (32% of traffic)  | <b>TOTAL</b> | 689246    | 95086      | 13.80%      |
| <b>TOTAL</b>        | 3257738        | 712366 (22% of traffic) |              |           |            |             |



# Serendipity – New Protocols

```
(. . [9c] . . . . . ö . . .  
]. 0. [32] . . [REDACTED]@hotmMJöi0. What was your first phone numberÜ. [REDACTED] ú.  
]. Èú[92]4. [92] . [34] . [33] . [33] . . [90] . [96]ý[92]4. . . 6[90] . à[39]ÖÁ . . . K[90] . [3E]4EÄ . . . [90] . Ì-æÄ . . . 7[90] . î²Äí . . . [96] . [90] . 4ø, Ö.  
X. . [90] . ííÿ . . «!-4âp . . . 8B° . . 0. 0. . â . . [REDACTED] è . . BDò . . . [9E]ääô°*ô. D[37]íîB°æèîÖ§[31]â&ø.  
I. . X@+áÛ[30]Û[90]±. HÀÉö[90]©íç . . [30].  
  
- - - - - 2 70 - - - - - 470 0 11 2 2 242 4 1 . . . [99] [99] 2 270 2-101-05* 2142 .
```



# Serendipity – HTTP Demux

\*\*eoc2c

GUOXlHdS/4k8YWAc1iiPGd/NvriOvYa1boluzcaFd2cyfpHeg9rFTIytsjXoUyZnngI417JMAJH29M92XYwZU9qxvBwOLK2GBYlsvC43iUBvCrf4e1cP2Pxs35+L  
Cache-Control: no-cache

POST /gateway/gateway.dll?Action=poll&Lifespan=60&SessionID=868216649.1709645966 HTTP/1.1

Host: baymsg1030124.gateway.messenger.live.com

User-Agent: Mozilla/5.0 (Windows NT 5.1; rv:14.0) Gecko/20100101 Firefox/14.0.1

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*;q=0.8

Accept-Language: en-us,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

X-Requested-Session-Content-Type: text/html

Content-Type: text/html; charset=utf-8

Pragma: No-Cache, no-cache

X-MSN-Auth: Use-Cookie

Referer: http://baymsg1030124.gateway.messenger.live.com/xmlProxy.htm?vn=9.090515.0&domain=live.com

Content-Length: 0

Cookie: wlidperf=latency=14338&throughput=0; mkt0=en-AF; wla42=cHJveHktYmF5LnB2dC1jb250YWN0cy5tc24uY29tfGJ5MSoxLDgzNTYzNjI1N

Cache-Control: no-cache

NENE

\*\*eotxt

POST in middle of session

## Evidence of Microsoft's vulnerability

3 Pages - Contributed by Matt DeLong, Washington Post - Nov 25, 2013

These slides suggest, without offering definitive proof, that National Security Agency programs targeting Google and Yahoo for collection also had Microsoft in their sights.

### Hotmail address books collected (p. 1)

| Provider     | Collected     | Attributed   | Attributed%   |
|--------------|---------------|--------------|---------------|
| Yahoo        | 444743        | 11009        | 2.48%         |
| Hotmail      | 105068        | 1115         | 1.06%         |
| Gmail        | 33697         | 2350         | 6.97%         |
| Facebook     | 82857         | 79437        | 95.87%        |
| Other        | 22881         | 1175         | 5.14%         |
| <b>TOTAL</b> | <b>689246</b> | <b>95086</b> | <b>13.80%</b> |

### A reference to a Hotmail message (p. 2)

```
(. . . . .)
0.0.0.0 @hotmail.com. What was your first phone number? . . . . .
0.0.0.0 . . . . .
X. . . . .
t. . . . .
```

### An instant message from Windows Live Messenger (p. 3)

```
POST /gateway/gateway.dll?Action=poll&lifespan=60&SessionID=868216649.1709645966 HTTP/1.1
Host: baymg1030124.gateway.messenger.live.com
User-Agent: Mozilla/5.0 (Windows NT 5.1; rv:14.0) Gecko/20100101 Firefox/14.0.1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
X-Requested-Session-Content-Type: text/html
Content-Type: text/html; charset=utf-8
Pragma: No-Cache, no-cache
X-MSN-Auth: Use-Cookie
Referer: http://baymg1030124.gateway.messenger.live.com/xmlProxy.htm?v=9.090515.0&domain=live.com
Content-Length: 0
```

POST in middle of session