Content Acquisition Optimization
Yahoo Webmessenger

- Update data sent to individuals logged into Yahoo’s Instant Messenger service online
  - Online contact status, unread emails in Yahoo inbox
  - Usually small sessions (2-4kB)

- Sporadic collection (30,000 – 60,000 sessions per day)

- Intermittent bursts of collection against contacts of targets
  - Large numbers of sessions (20,000+) against a single targeted selector
  - Not collected against the target (online presence/unread email from target)
  - No owner attribution (metadata value limited to fact-of comms for emails, online presence events for buddies)

- Over a dozen selectors detasked in two weeks
  - Because a target’s contact was using/idling on Yahoo Webmessenger
  - Several very timely selectors (Libyan transition, Greek financial related)
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)

<table>
<thead>
<tr>
<th>Access (10 Jan 12)</th>
<th>Total Sessions</th>
<th>Address Books</th>
</tr>
</thead>
<tbody>
<tr>
<td>US-3171</td>
<td>1488453</td>
<td>237067 (16% of traffic)</td>
</tr>
<tr>
<td>DS-200B</td>
<td>938378</td>
<td>311113 (33% of traffic)</td>
</tr>
<tr>
<td>US-3261</td>
<td>94132</td>
<td>2477 (3% of traffic)</td>
</tr>
<tr>
<td>US-3145</td>
<td>177663</td>
<td>29336 (16% of traffic)</td>
</tr>
<tr>
<td>US-3180</td>
<td>269794</td>
<td>40409 (15% of traffic)</td>
</tr>
<tr>
<td>US-3180 (16 Dec 11)</td>
<td>289318</td>
<td>91964 (32% of traffic)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3257738</td>
<td>712366 (22% of traffic)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provider</th>
<th>Collected</th>
<th>Attributed</th>
<th>Attributed%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yahoo</td>
<td>444743</td>
<td>11009</td>
<td>2.48%</td>
</tr>
<tr>
<td>Hotmail</td>
<td>105068</td>
<td>1115</td>
<td>1.06%</td>
</tr>
<tr>
<td>Gmail</td>
<td>33697</td>
<td>2350</td>
<td>6.97%</td>
</tr>
<tr>
<td>Facebook</td>
<td>82857</td>
<td>79437</td>
<td>95.87%</td>
</tr>
<tr>
<td>Other</td>
<td>22881</td>
<td>1175</td>
<td>5.14%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>689246</td>
<td>95086</td>
<td>13.80%</td>
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Unlike address books, frequently contain content data
- Offline messages, buddy icon updates, other data included
- Webmail inboxes increasingly include email content
- Most collection is due to the presence of a target on a buddy list where the communication is not to, from, or about that target

NSA collects, on a representative day, ~ 500,000 buddylists and inboxes
- More than 90% collected because tasked selectors identified only as contacts (not communicant, content, or owner)

Identifying buddylists and inboxes without content (or without useful content) an ongoing challenge
Scenario: [email redacted]@yahoo.com (tasked S2E, asw Iran Quds Force) has his/her Yahoo account hacked by an unknown actor, sends out spam email to his/her contact list:

- Sep 2011 [email redacted]@yahoo.com has his/her Yahoo account hacked by an unknown actor, sends out spam email to his/her contact list:

  DNI Parser Webmail Display

  **Date**: 2011-09-02
  **Subject**: [email redacted]!!! (New)
  **From**: [email redacted]@yahoo.com
  **To**: [email redacted]@yahoo@gmail.com
Scenario: @yahoo

- @yahoo.com has a number of Yahoo groups in his/her contact list, some with many hundreds or thousands of members.

- At DS-200B in particular, collection spiked as:
  - The initial spam messages were sent (and collected)
  - Inboxes of email recipients were viewed by contact list
  - Messages were sometimes viewed, but more often sent as precached views on Google and Yahoo (along with inboxes)
  - Inboxes where the recipient did not delete the spam message continued to be collected every time they were viewed
  - Some recipients added @yahoo.com to their address books (possibly as a spam defeat?) – address books were collected every time
Scenario: @yahoo

DS-200B Collection By Day - 11 Sep - 24 Sep (in MB)

DS-200B Collection By Hour – 18 Sep – 23 Sep (in MB)
Scenario: @yahoo

- **@yahoo.com** emergency detasked from DS-200B and US-3171 at 13:04Z on 20 Oct
- Numerous first-order address books and inboxes collected meant tasked selectors on address books or buddy lists of contacts of **@yahoo.com** also affected:
  - **@yahoo.com** and **@gmail.com** emergency detasked off US-3171 at 13:10Z on 20 Sep
- Memorializing to PINWALE only address books and inboxes owned by target selectors would have reduced PINWALE volumes 90%+
  - Site XKEYSCOREs would buffer data for SIGDEV purposes
  - Metadata from known owner address books and inboxes stored regardless
Mobile IMAP

- IMAP protocol used by email clients to fetch mail from server(s)
- Not designed for devices with intermittent connections (i.e. mobile phones)
- Android implementation in particular uses a lot of bandwidth
The NSA's overcollection problem

The NSA's Special Source Operations branch manages "partnerships" in which U.S. and foreign telecommunications companies allow the NSA to use their facilities to intercept phone calls, emails and other data. This briefing describes problems with overcollection and NSA efforts to filter out what it does not need.

What is a "session"? (p. 2)

- Sporadic collection (30,000 – 60,000 sessions per day)

"Selectors detasked" (p. 2)

- Over a dozen selectors detasked in two weeks
  - Because a target's contact was using/idling on Yahoo Webmessenger
  - Several very timely selectors (Libyan transition, Greek financial related)

MARINA/MAINWAY/PINWALE (p. 3)

- Data is stored multiple times (MARINA/MAINWAY, PINWALE, CLOUDs)

Attributable (p. 3)

- Fewer and fewer address books attributable to users, targets

How many address books are collected? (p. 3)

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Why collect "buddy lists"? (p. 4)

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Most collection is due to the presence of a target on a buddy list where the communication is not to, from, or about that target.

~500,000 buddy lists and inboxes collected on a representative day (p. 4)

- NSA collects, on a representative day, ~500,000 buddylists and inboxes
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A targeted account gets hacked (p. 5)

TOP SECRET//SI//NOFORN

Scenario: [Redacted]@yahoo

- Sep 2011, [Redacted]@yahoo.com (tasked S2E, asw Iran Quds Force) has his/her Yahoo account hacked by an unknown actor, sends out spam email to his/her contact list:
Spanners complicate collection (p. 6)

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Targeted account detasked (p. 8)

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