APPLIED INTELLIGENCE: Using information that isn't there

Michael Schrenk
Las Vegas, Nevada

DEF CON XXIII

@mgschrenk
APPLIED INTELLIGENCE: Using information that isn't there

DEFCON XXI

How my Botnet Purchased Millions of Dollars in Cars
and
Defeated the Russian Hackers

Defcon 21 - How my Botnet Purchased Millions of Dollars in Cars and Defeated the Russian Hackers
APPLIED INTELLIGENCE: Using information that isn't there

IN ADDITION TO OTHER EXAMPLES

Retail business my girlfriend & I own

How we CREATE and APPLY intelligence
APPLIED INTELLIGENCE: Using information that isn't there

IN ADDITION TO OTHER EXAMPLES

Retail business
my girlfriend & I own

How we CREATE and APPLY intelligence
You'll hear how we use competitive intelligence to:

1.) Conduct intelligence campaigns on
   a. Our competitors
   b. Our sales channels
2.) Know exactly what inventory to buy
3.) Manipulate markets
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1.) Conduct intelligence campaigns on
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2.) Know **exactly** what inventory to buy
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APPLIED INTELLIGENCE: Using information that isn't there

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Protect Our Investment
APPLIED INTELLIGENCE: Using information that isn't there

INTELLIGENCE

BUSINESS

COMPETITIVE
APPLIED INTELLIGENCE: Using information that isn't there

INTELLIGENCE

BUSINESS
- What's happening within your business?
- Internal data
- Focus on efficiency
  a.) knowing operations
  b.) knowing resources

COMPETITIVE
- What's happening outside of your business?
- External data
- Focus on competitiveness
  a.) knowing competitors
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APPLIED INTELLIGENCE: Using information that isn't there

INTELLIGENCE

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APPLIED INTELLIGENCE: Using information that isn't there

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APPLIED INTELLIGENCE: Using information that isn't there

Applied Intelligence = Actionable Intelligence
APPLIED INTELLIGENCE: Using information that isn't there

MUCH INTELLIGENCE IS USELESS

1.) If it won't change what you're doing it isn't useful

2.) Organizations tend to over collect
   a.) Higher cost
   b.) Increased exposure

3.) Intel is collected for obligatory reasons
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Michael Schrenk @mgschrenk 28m
Still looking for a printable mobile-friendly #DEFCON schedule?
schrenk.com/defcon_23_print

There are no promises of accuracy and done as a convenience. No rights are claimed or implied. Comments? mike@schrenk.com
Last cache Jul 24, 2015 11:42:57AM (US Pacific)

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<tr>
<th>Time</th>
<th>Track 1</th>
<th>Track 2</th>
<th>Track 3</th>
<th>Track 4</th>
<th>DEFCON 101</th>
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<td>Hardware and Trust Security: Explain it like I'm 5</td>
<td>Introduction to SDR and the Wireless Village - Hackers &amp; Attacker</td>
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<td>Empty Room</td>
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<td>Hackers Hiring Hackers - How to Do Things Better - TristenKoh &amp; ShirendHelm</td>
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<td>DEF CON 101: The Panel Panel</td>
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<td>Beyond the Scan: The Value Prop of Vulnerability Assessment - Adam Miller</td>
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<td>Empty Room</td>
<td>Empty Room</td>
<td>Forensic Artifacts From a Pass the Hash Attack - Gary Sapp</td>
<td>Responsible Incident: Covert Keys Against Subverted Technology - Leonid, Especially Pubkey In?</td>
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<td>Empty Room</td>
<td>Empty Room</td>
<td>Sorry, Wrong Number: Mysteries Of The Phone System - Fast and Prevent</td>
<td>Guests F: Goblins: Exploiting Wi-Fi</td>
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</table>
APPLIED INTELLIGENCE:
Using information that isn't there

Collected:
Access time
IP Addresses
Frequency accessed (cookie)
User Agent
Referrer
APPLIED INTELLIGENCE: Using information that isn't there

Applied Intelligence: Using Information That's Not There
Michael Schrenk
### Applied Intelligence: Using information that isn't there

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<tr>
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<th>TRACK 01</th>
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<th>TRACK 03</th>
<th>TRACK 04</th>
<th>DEFCON 101</th>
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<td>✔️</td>
<td></td>
</tr>
<tr>
<td>05:00 PM</td>
<td></td>
<td></td>
<td>✔️</td>
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</tr>
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</table>
Information (in aggregate) could predict talk popularity and affect planning
Information that isn't there = Meta data
Meta data

The public did not know much about meta data before the Snowden disclosures.
"As you know, this is just meta data. There is no content involved."

Dianne Feinstein
June 6, 2013 Intelligence Comm. Briefing
“Nobody is listening to your telephone calls. That’s not what this program is about…”

They’re not looking at names and they’re not looking at content, but *sifting through this so-called meta data*…

*Barack Obama, on NSA Surveillance*  
*June 7, 2014*
"Nobody is listening to your telephone calls. That's not what this program is about..." They're not looking at names and they're not looking at content, but sifting through this so-called meta data...

```sql
$sql = "sift(*)
    from
    phone_records
    where
    person = 'suspect'
";
```
"We kill people based on meta data."

Former NSA Boss, Michael Hayden
May 11, 2014   Johns Hopkins University
Meta data:
1.) Describes other data
2.) Provides context for information
3.) It often *doesn't exist* & it needs to be created.
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APPLIED INTELLIGENCE: Using information that isn't there

Meta data types

1.) Parametric  *must be collected / created*

2.) Embedded  *user created*
Meta data types

1.) Parametric  *must be collected / created*

2.) Embedded  *user created*
Using information that isn't there

Meta Data: Embedded

XIF Geo-Codes leaked that Russian soldiers were in Ukraine
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Meta Data: Embedded

The Tony Blair memo
Justification for invading Iraq

Downing St admits blunder on Iraq dossier

Plagiarism row casts shadow over No 10's case against Saddam
APPLIED INTELLIGENCE: Using information that isn't there

Meta Data: Embedded

1: cic22 : C:\DOCUME~1\phamill\LOCALS~1\Temp\AutoRecovery save of Iraq - security.asd
2: cic22 : C:\DOCUME~1\phamill\LOCALS~1\Temp\AutoRecovery save of Iraq - security.asd
3: cic22 : C:\DOCUME~1\phamill\LOCALS~1\Temp\AutoRecovery save of Iraq - security.asd
4: JPratt : C:\TEMP\Iraq - security.doc
5: JPratt : A:\Iraq - security.doc
6: ablackshaw : C:\ABlackshaw\Iraq - security.doc
7: ablackshaw : C:\ABlackshaw\A;Iraq - security.doc
8: ablackshaw : A:\Iraq - security.doc
9: MKhan : C:\TEMP\Iraq - security.doc
10: MKhan : C:\WINNT\Profiles\mkhan\Desktop\Iraq.doc
Google CEO, Eric Schmidt, leaked the existence of new project “Google Drive”
APPLIED INTELLIGENCE: Using information that isn't there

How the NSA uses Parametric Meta Data
Phone meta data collected by the NSA:

1.) Phone numbers of parties
2.) The time the call was placed
3.) The duration of the call
4.) Who initiated the call

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APPLIED INTELLIGENCE: Using information that isn't there

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The NSA does what any Android app is capable of doing

APPLIED INTELLIGENCE: Using information that isn't there

With this meta data:

1.) Caller relationships are established
2.) These relationships can be profiled
3.) Anomalies and outliers are identified
4.) “Burner phones” are identified
5.) Phone patterns can be tied to other events
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The phone meta data is richer than the actual phone conversations. But the meta data needs to be created.
APPLIED INTELLIGENCE: Using information that isn't there

Practical competitive intelligence
APPLIED INTELLIGENCE: Using information that isn't there

OPSEC

A reviewal of day-to-day operations, to see what intelligence an advisory can collect.
APPLIED INTELLIGENCE: Using information that isn't there

EMPLOYMENT POSTINGS

OPSEC
APPLIED INTELLIGENCE: Using information that isn't there
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OPSEC

EMPLOYMENT POSTINGS

SOCIAL MEDIA

ORDER FULFILLMENT
APPLIED INTELLIGENCE: Using information that isn't there

- Employment Postings
- Social Media
- Order Fulfillment
- Online Store

OPSEC
APPLIED INTELLIGENCE:
Using information that isn't there

OPSEC

PROCUREMENT

EMPLOYMENT POSTINGS

SOCIAL MEDIA

ORDER FULFILLMENT

ONLINE STORE
APPLIED INTELLIGENCE: Using information that isn't there

- REGULATORY
- EMPLOYMENT POSTINGS
- SOCIAL MEDIA
- ORDER FULFILLMENT
- ONLINE STORE
- PROCUREMENT
- OPSEC
APPLIED INTELLIGENCE:
Using information that isn't there

OPSEC

COMPETITIVE INTELLIGENCE

REGULATORY
EMPLOYMENT POSTINGS
SOCIAL MEDIA
ORDER FULFILLMENT
ONLINE STORE
PROCUREMENT
Sequential numbers are a major privacy threat.
Sequential Numbers

Sequential Numbers are everywhere
Vehicle Identification Numbers
Social Security Numbers
Ticket Numbers

In most cases, what's needed are unique numbers, not sequential numbers.

Often caused by exposing DB table indexes
To show the power of sequential numbers...

I'm going to tell you how the Social Security Administration nearly exposed an entire generation to identity fraud.
SSN coding 1935 through 1972

XXX – XX – XXXX

AREA          GROUP          SERIAL

Area          State, Territory or US possession (*range*)
Group         Used for administration purposes
Serial        Sequential (*with a few exceptions*)
These people have **sequential** SSNs.
These people have sequential SSNs.

Applying for cards, 1932 - 1972

This process changed in 1972.

The last four digits were no longer sequential.

[Image of two Social Security cards with non-sequential numbers]
Parents needed SSNs for all dependents
These children would have **sequential** Social Security Numbers.
How we use sequential numbers in our business

Did we start our business at the height of a bubble?
APPLIED INTELLIGENCE: Using information that isn't there

Channel Sales
Bubble or just a bad month?

APPLIED INTELLIGENCE:
Using information that isn't there
We noticed that order numbers were incremental.

We found two orders, placed closely together, had sequential order numbers.

Bubble or just a bad month?

1.) We noticed that order numbers were incremental.

2.) We found two orders, placed closely together, had sequential order numbers.
1.) We noticed that order numbers were incremental

2.) We found two orders, placed closely together, had SEQUENTIAL order numbers

Bubble or just a bad month?
Last Order# Oct: 763736
Last Order# Sep: -757225
Qty Oct orders (est) 6511

1.) Our average order was $12.48
2.) Determined our orders were typical

Average Sale: $12.48
Estimated July orders x 6511
Gross Channel Sales $81,257.28
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APPLIED INTELLIGENCE:
Using information that isn't there
## Total Channel Sales

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<tr>
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<th>QTY ORDERS</th>
<th>GROSS $</th>
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<tbody>
<tr>
<td>April</td>
<td>725434</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>May</td>
<td>731757</td>
<td>6323</td>
<td>$78,911.04</td>
</tr>
<tr>
<td>June</td>
<td>738154</td>
<td>6397</td>
<td>$79,834.56</td>
</tr>
<tr>
<td>July</td>
<td>744573</td>
<td>6419</td>
<td>$80,109.12</td>
</tr>
<tr>
<td>August</td>
<td>750822</td>
<td>6249</td>
<td>$77,987.52</td>
</tr>
<tr>
<td>September</td>
<td>757225</td>
<td>6403</td>
<td>$79,909.44</td>
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- **April**:
  - Last Order #: 725434
  - Quantity Orders: 
  - Gross: 
- **May**:
- **June**:
- **July**:
- **August**:
- **September**:
- **October**:

- **October**: High sales compared to other months.
What else can we learn?

1.) What else do we know?
2.) Channel commission is ~ 20%
3.) They keep $1.25 of the postage they collect.
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Here is how much the website earns in commissions each month:

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<thead>
<tr>
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<th>QTY ORDERS</th>
<th>GROSS $</th>
<th>COMMISSION</th>
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<tbody>
<tr>
<td>April</td>
<td>725434</td>
<td>-</td>
<td>$78,911.04</td>
<td>$15,782.21</td>
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<td>May</td>
<td>731757</td>
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</tr>
</tbody>
</table>

Avg Monthly profit: $23913.22
Est Annual profit: $286958.58
APPLIED INTELLIGENCE: Using information that isn't there

What else can we learn?

This is probably information they'd prefer not to share

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<td>$81,257.28</td>
<td>$16,251.48</td>
<td>$8,138.75</td>
<td>$24,390.21</td>
</tr>
<tr>
<td>October</td>
<td>783736</td>
<td>6511</td>
<td>$81,257.28</td>
<td>$16,251.48</td>
<td>$8,138.75</td>
<td>$24,390.21</td>
</tr>
</tbody>
</table>

Avg Monthly profit: $23913.22
Est Annual profit: $286958.58
How do we buy inventory

There are websites where we buy
How do we buy inventory

There are websites where we buy

We sell on multiple websites, but only one is “a true market”
How do we buy inventory

We look for items
And prices here
How do we buy inventory

We look for items
And prices here
And compare those prices to the market value
How do we buy inventory

<table>
<thead>
<tr>
<th>#</th>
<th>AVAILABLE ITEM</th>
<th>MARKET</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>1.</td>
<td>Source_8</td>
<td>6.74</td>
<td>ignore</td>
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<tr>
<td>2.</td>
<td>Source_1</td>
<td>3.22</td>
<td>BUY</td>
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<tr>
<td>3.</td>
<td>Source_8</td>
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<td>4.</td>
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<td>3.23</td>
<td>ignore</td>
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<tr>
<td>5.</td>
<td>Source_8</td>
<td>8.81</td>
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<tr>
<td>6.</td>
<td>Source_2</td>
<td>1.39</td>
<td>BUY</td>
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<td>8.</td>
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<tr>
<td>9.</td>
<td>Source_2</td>
<td>1.36</td>
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<tr>
<td>10.</td>
<td>Source_7</td>
<td>1.33</td>
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</tbody>
</table>
There are major privacy issues for resellers that sell unique items.
There are major privacy issues for resellers that sell unique items. Truly unique items: Real estate - Vehicles - Original art. Likely unique items: First edition books - Autographed items - Most used items.
There are major privacy issues for resellers that sell unique items.

**Truly unique items:**
- Real estate
- Vehicles
- Original art

**Likely unique items:**
- First edition books
- Autographed items
- Most used items
APPLIED INTELLIGENCE: Using information that isn't there

What makes the best competitor the best?

INVENTORY

Automatically collect the inventory of our top competitor
What makes the best competitor the best?

Meta data describing:

- What sold?
- How much?
- What didn't sell?
APPLIED INTELLIGENCE: Using information that isn't there

What makes the best competitor the best?

Meta data describing:

What sold? How much? How long? What didn't sell?
How do we protect our investments?

<table>
<thead>
<tr>
<th>ACME ITEM #1</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 seller “A” $1.25</td>
</tr>
<tr>
<td>#2 seller “B” $1.25</td>
</tr>
<tr>
<td>#3 seller “C” $19.50</td>
</tr>
<tr>
<td>#4 seller “D” $20.05</td>
</tr>
<tr>
<td>#5 seller “E” $21.95</td>
</tr>
</tbody>
</table>

Search results for an item we sell
How do we protect our investments?

Search results for an item we sell

**ACME ITEM #1**

- #1 seller “A” $1.25
- #2 seller “B” $1.25
- #3 seller “C” $19.50
- #4 seller “D” $20.05
- #5 seller “E” $21.95

Our price

We immediately buy the under-priced items
APPLIED INTELLIGENCE: Using information that isn't there

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Heure d'ici & Heure d'ailleurs

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Virginia Robinson Gardens:
Arguably the city’s most serene
address, visitable by appointment
only, with a personal tour of
Robinson Gardens ambassador
guide.

French Riviera

Crafting personal fragrances:
Create and take your own fragrance
in a private atelier session with a
master of G. Galimard, one of France’s
coldest perfumers.

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Using information that isn't there

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I'm doing a book signing @ No Starch booth in vendor area