Full-Spectrum Cyber Effects

[redacted]
Head of JTRIG

[redacted]
SD Effects Lead

SIGINT Development as an enabler for GCHQ's "Effects" mission

Effects

Destroy | Deny | Degrade | Disrupt | Deceive | Protect

Computer Network Attack (CNA)
Computer Network Information Operations (CNIO)
Disruption

Effects in GCHQ

- Definition: having an impact in the real world
- Key deliverers: JTRIG and CNE
- Now major part of business – 5% of Operations
- Across all target types
- Continuous innovation of new tools and techniques

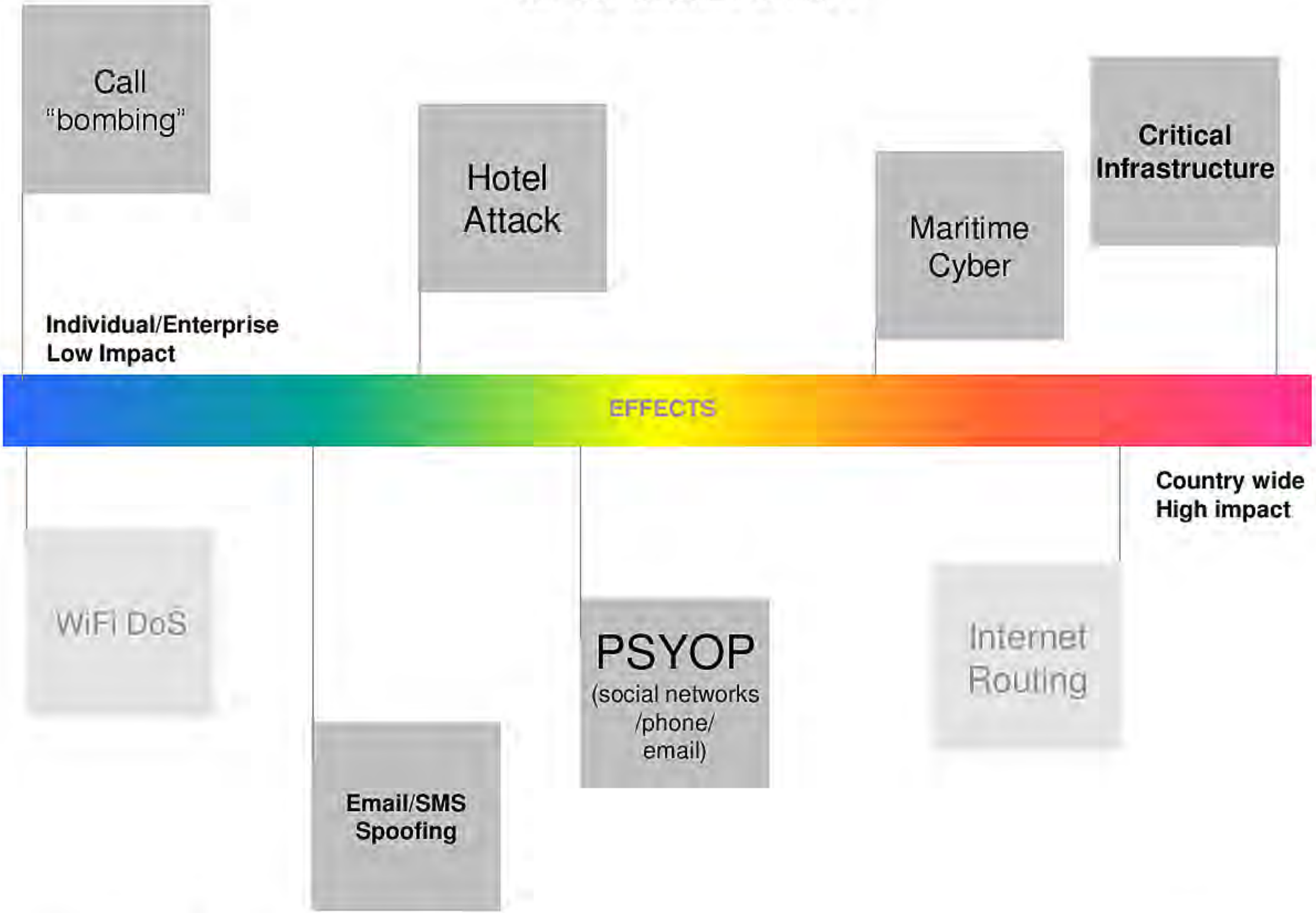
CNIO

Computer Network Information Operations

- Propaganda
- Deception
- Mass messaging
- Pushing stories
- Alias development
- Psychology

Disruption / CNA

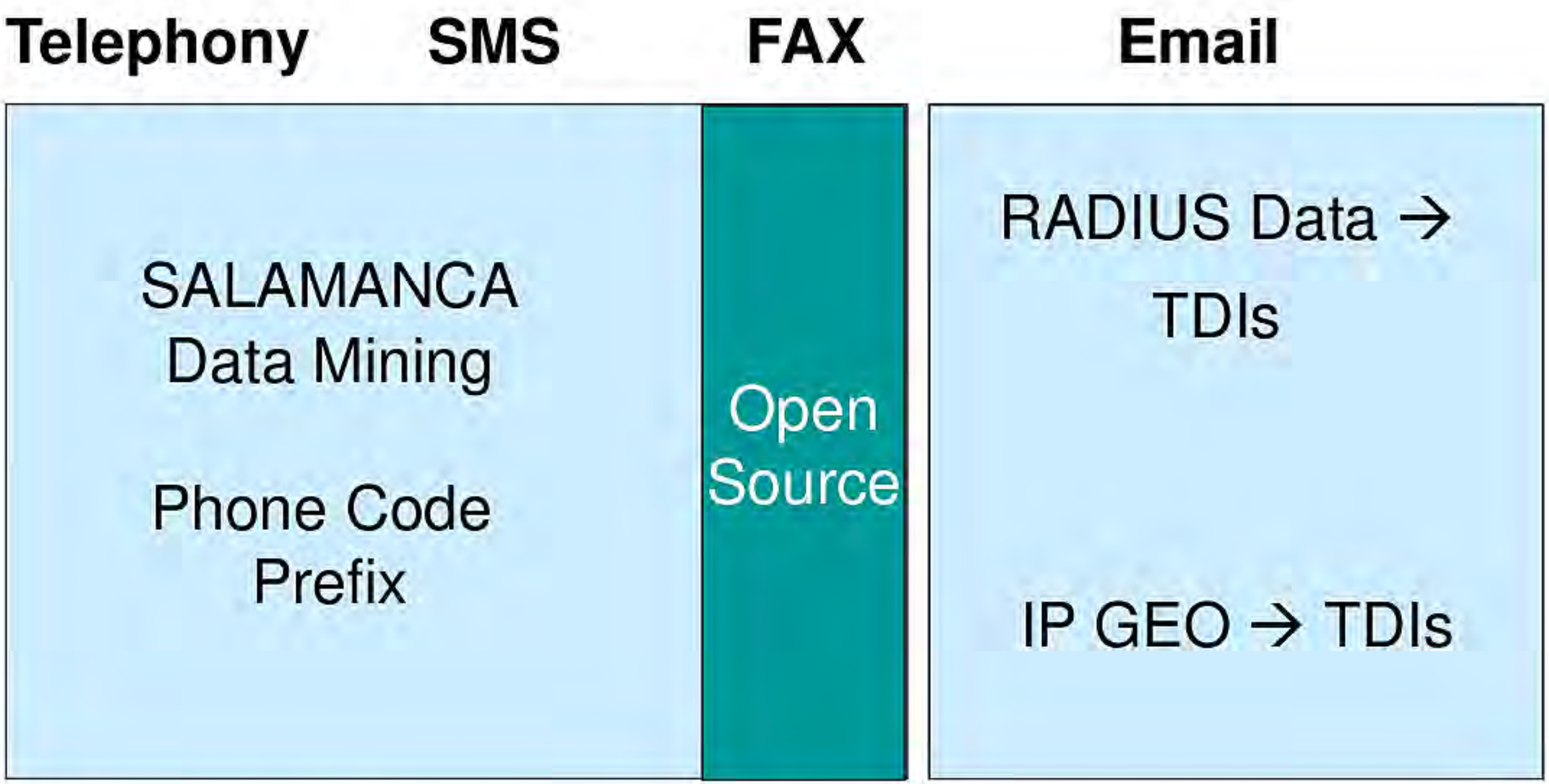
- Masquerades
- Spoofing
- Denial of service
  - Phones
  - Emails
  - Computers
  - Faxes



Information Operations

INFINITE CURVATURE/MOUNTAIN SLOPE

Sending messages across the full spectrum of communications



ROYAL CONCIERGE

A SIGINT driven hotel reservation tip-off service

From: reservations@expensivehotel.com
To: new-target@mod.gov.xx

"Thank you for reserving……"

ROYAL CONCIERGE exploits these messages and sends out daily alerts to analysts working on governmental hard targets

What hotel are they visiting?
Is it SIGINT friendly?

An enabler for effects – can we influence the hotel choice? Can we cancel their visit?

We can use this as an enabler for HUMINT and Close Access Technical Operations

Information Operations: The Social Web

Deliver messages and multimedia content across Web 2.0

Crafting messaging campaigns to go 'viral'

CNIO

Twitter TDI Development

Need SIGINT coverage across protocols,
Not necessarily consistent with *target* SIGDEV priorities

CNIO

Twitter TDI Development

Base64 + double encoded URL

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0000000 004  \b   {  016   :  023   p   a   s   s   w   o   r   d   _   t
0000020   o   k   e   n   "   -   a   a   0   b   7   d   9   4   9   9
0000040   b   5   2   d   9   d   3   3   3   2   a   7   6   9   9   2
0000060   6   3   4   c   f   f   3   f   9   4   3   c   b   d   :  \f
0000100   c   s   r   f   _   i   d   "   %   6   f   b   4   a   5   9
0000120   9   d   5   d   2   9   d   2   a   a   7   e   8   d   7   3
0000140   9   c   6   e   a   f   4   7   9   "   '   s   h   o   w   _
0000160   d   i   s   c   o   v   e   r   a   b   i   l   i   t   y   _
0000200   f   o   r   _   s   o   l   o   _   o   n   l   y   0   :  025
0000220   i   n   _   n   e   w   _   u   s   e   r   _   f   l   o   w
0000240   0   :  021   t   r   a   n   s   _   p   r   o   m   p   t   0
0000260   :  \t   u   s   e   r   i  004  003  331   0  001   "  \n   f   l
0000300   a   s   h   I   C   :   '   A   c   t   i   o   n   C   o   n
0000320   t   r   o   l   l   e   r   :   :   F   l   a   s   h   :   :
0000340   F   l   a   s   h   H   a   s   h   {  \0  006   :  \n   @   u
0000360   s   e   d   {  \0   :  007   i   d   "   %   a   d   4   e   8
0000400   c   6   6   c   4   f   4   d   3   e   6   4   b   9   d   f
0000420   f   0   b   f   8   e   c   d   8   4   2   :  017   c   r   e
0000440   a   t   e   d   _   a   t   l   +  \b   e  202   %   .   '  001
0000460
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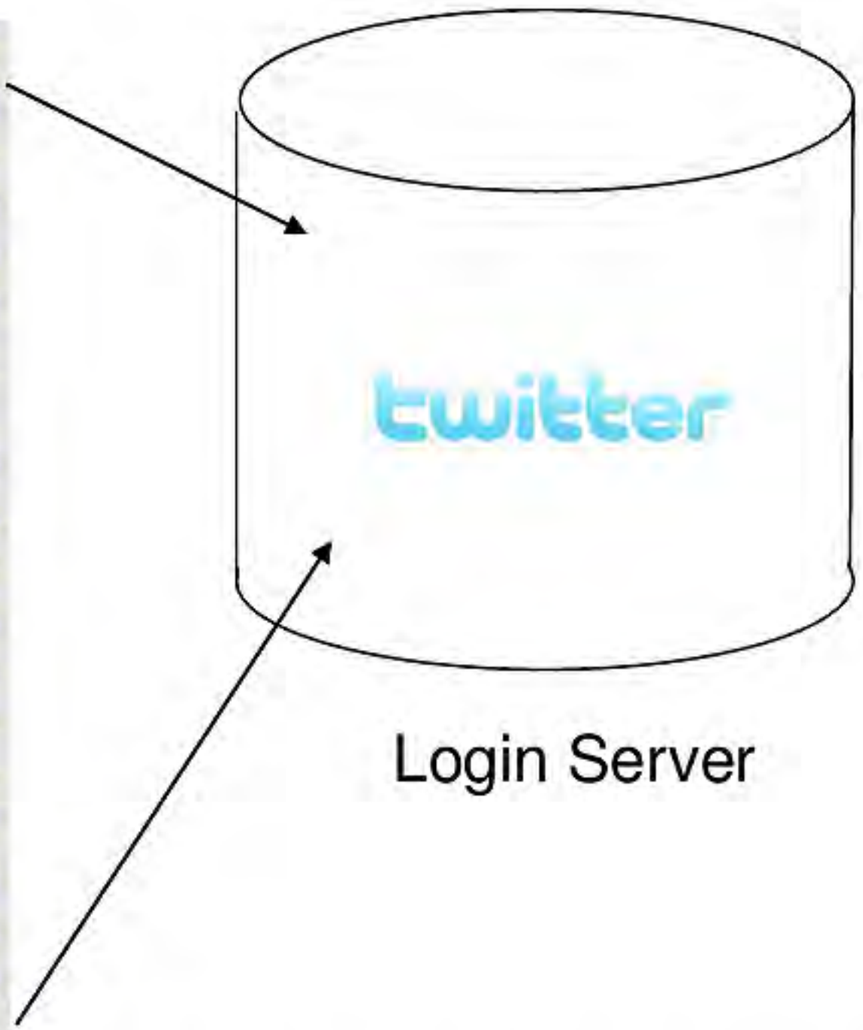
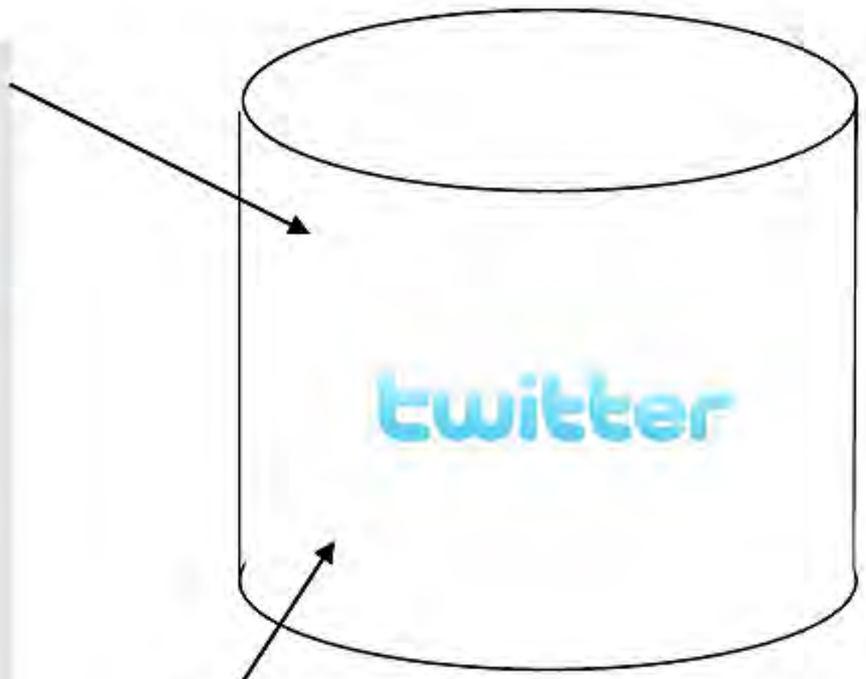


CNIO

Twitter TDI Development

PPF application across 10G Environment

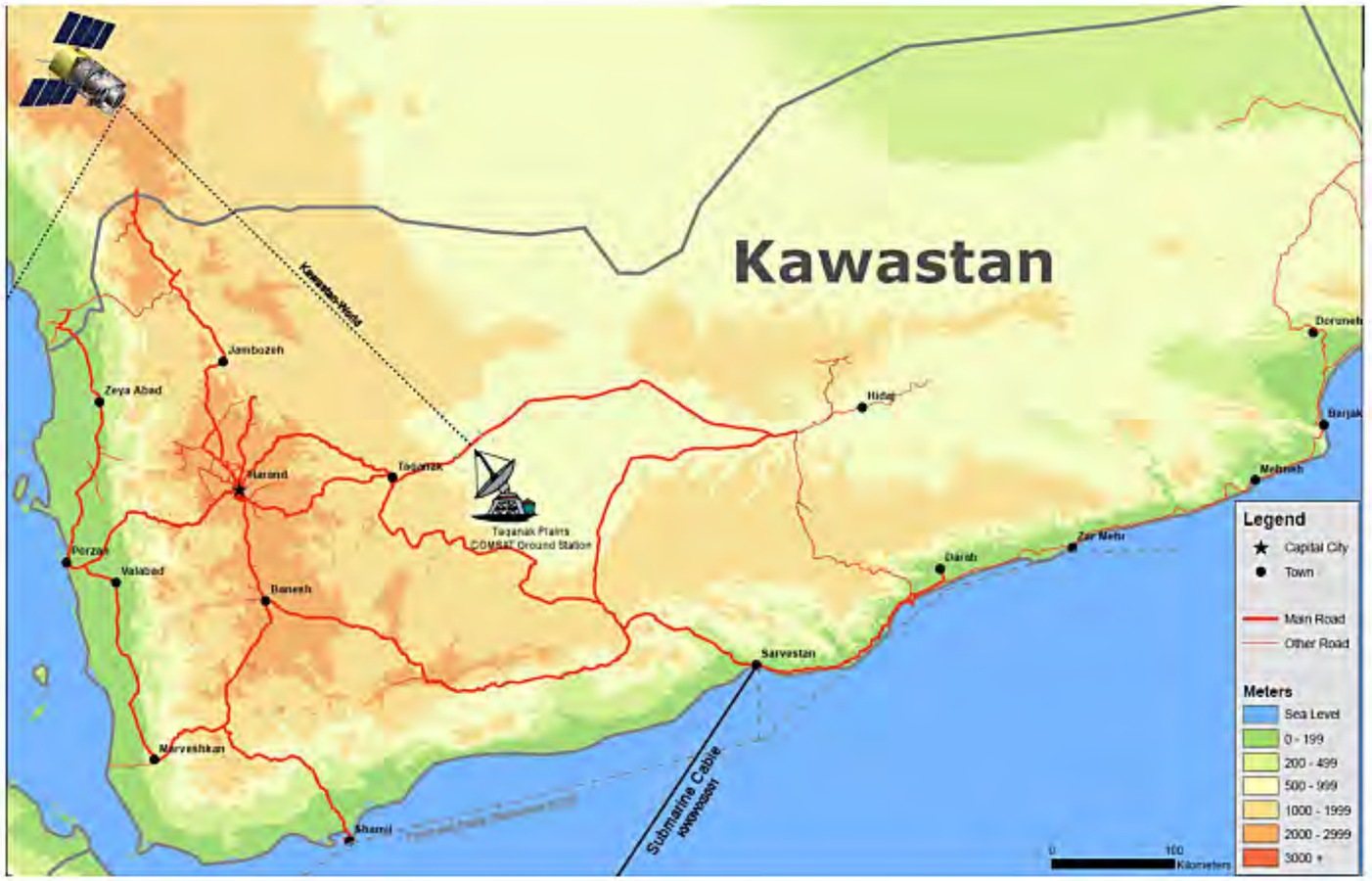
1272671024 **81.169.145.25** 128.242.240.20 6 55489 80 Login-twitter.com 31 **solo_only@twitter.com** TDI-Scope 4 User Route 13 81.169.145.25 HHFP-Hash 8 38 4646d4 User-Agent 52 Twitter Tools Geo-IP-Src 28 49.00;8.39;**KARLSRUHE;DE**;5MVV Geo-IP-Dst 33 39.0062;-77.4288;STERLING;U S;7LLM Event-security-label 6 10007F Stream-security-label 10 400023E0FF



Millions of events per day feeding BLACKHOLE

CNIO

Twitter TDI Development



Given a country:

Who are the top Twitter Users?

Or given a user:

Are they really in Kawestan?

SIGDEV augments the IO process to aid targeting and takeup of message

Information Ops

Spheres of Influence

Mobile Information Ops

50 new mobile TDIs being Developed by end of 2010

Also - Target Geographical Identifiers (TGI)

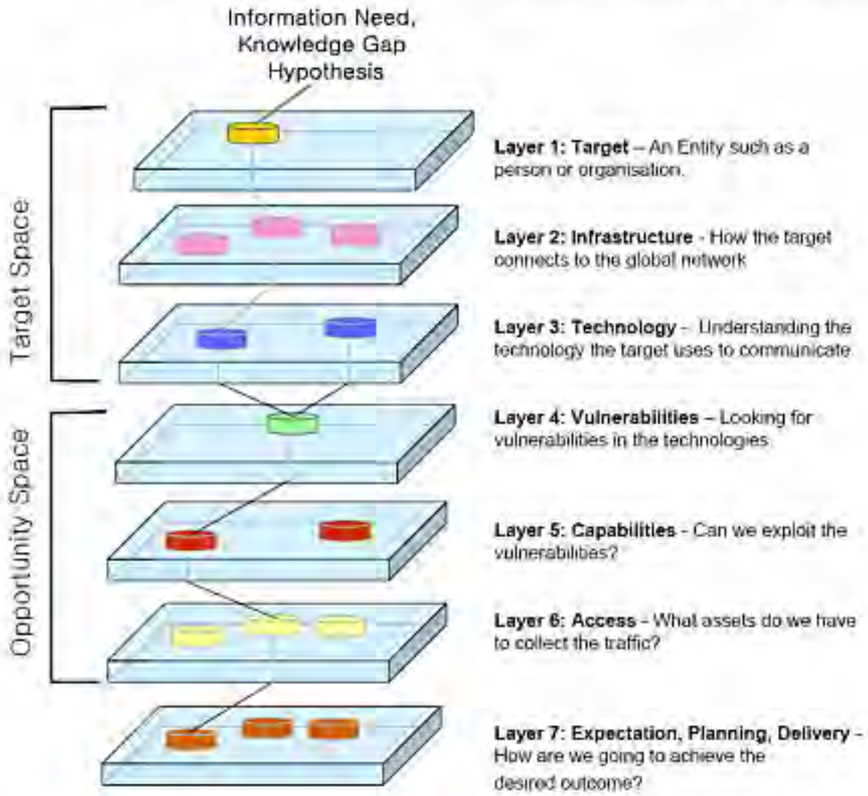
We can shape CNIO against specific locations, users with a high degree of cognition

CNA

Vulnerability Assessment Process Development

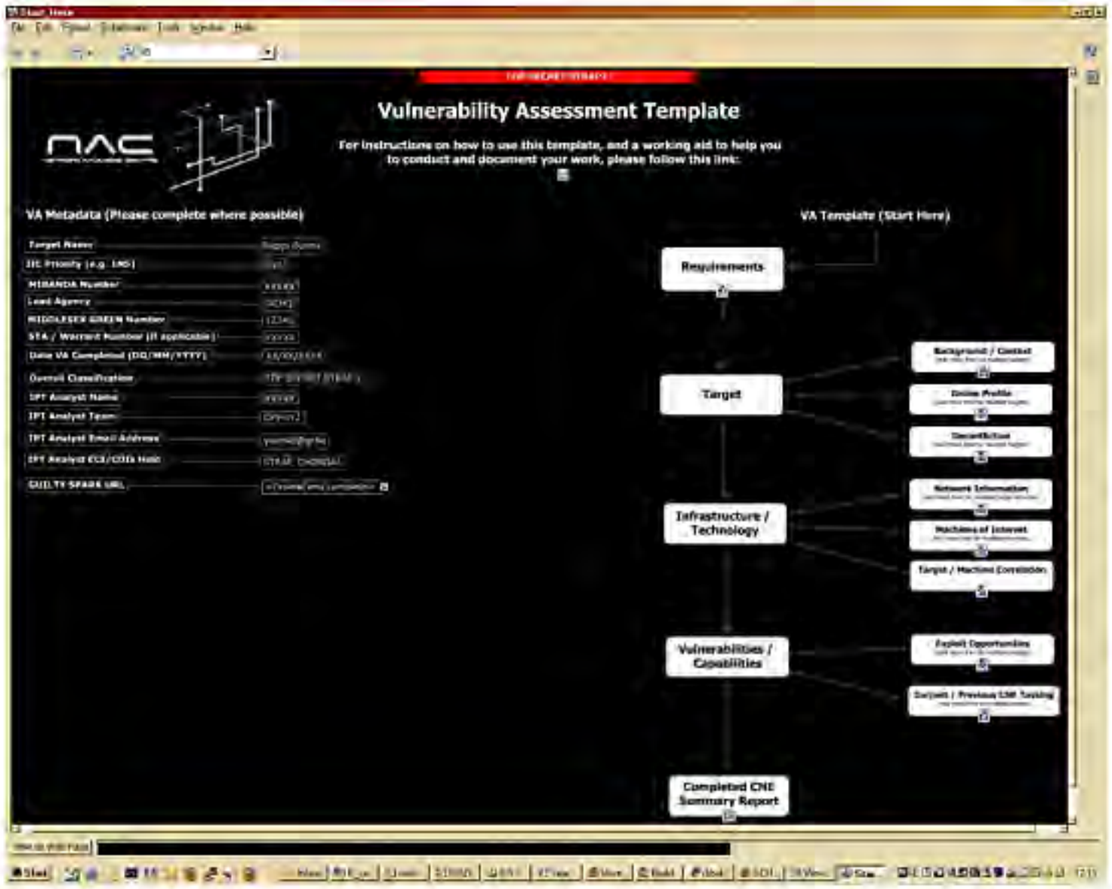
Enabling CNO For intelligence production teams, based on Target Templating methodology

Target Templating is a hypothesis-based, collaborative methodology for doing network analysis. By constructing a logical hypothesis from your knowledge gaps, a target thread is produced. The thread is based on the understanding of 6 "Layers" understanding the target domain and how it connects to the global network, and then understanding what opportunities can be exploited to gain access. Layer 7 captures the work flow, and what needs to be done to achieve the outcome. Target Templating provides that framework in order to break down a problem into the essential parts necessary to develop access and network knowledge. Visualisation of this knowledge at all layers is essential to spotting linkages both horizontally across the layers and vertically through them, so the use of a visualisation package during the NADP will be encouraged.



For further information on Target Templating visit the GUILTY SPARK portal on GCWiki [redacted]

guiltyspark

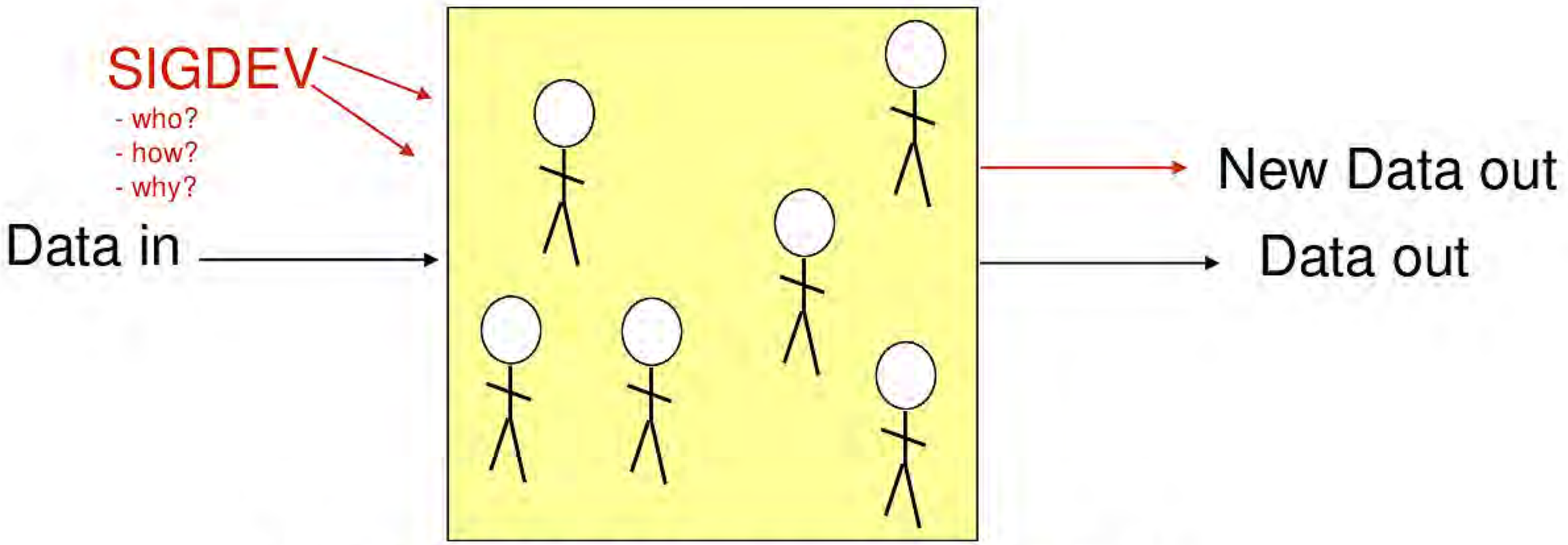


VA process delivered through NADP trained network analysts within each production team

Human Systems Analysis

Foreign News Agencies:

- Credential Harvesting
- Employee Analysis



***Social* not technological solution**

Future?

Formalising Tradecraft for Analysts:

"What SIGDEV needs to be done prior to starting an Effects operation?"

Joining up with 5 EYES where possible (cyber development)

BGP / MPLS network effects (HOTWIRE)

SIP and VoIP Effects – Denial of Service, Psychological Operations

Provide the defensive advice from the offensive perspective

Questions?

[redacted]
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SD Effects Lead
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Find me on TAPIOCA

names and phone numbers redacted