



# Full-Spectrum Cyber Effects

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JTRIG

name redacted

Head of JTRIG

name 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

- 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

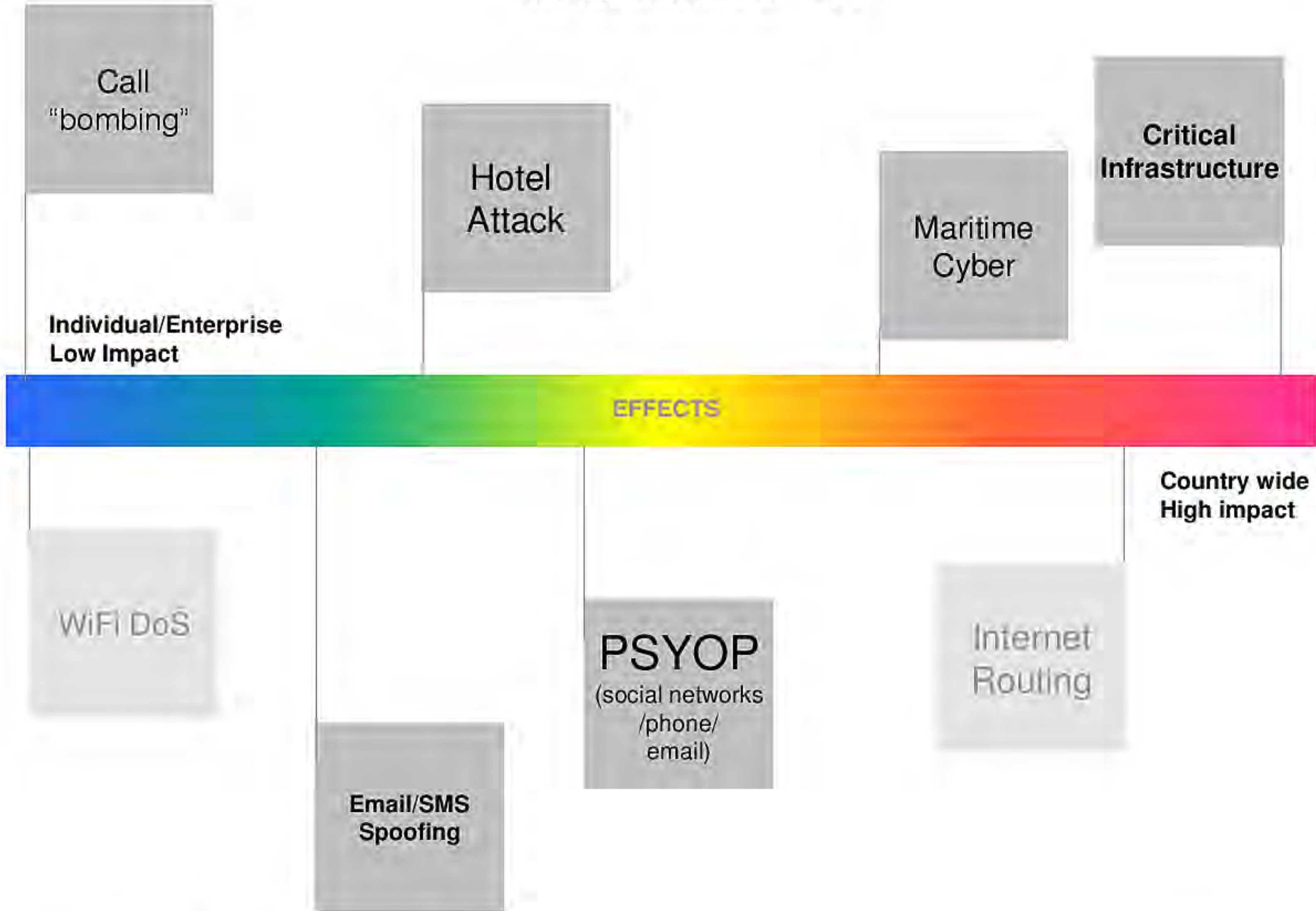
The Twitter logo, consisting of the word "twitter" in a light blue, lowercase, sans-serif font.The Flickr logo, with "flickr" in a blue, lowercase, sans-serif font and a small "TM" trademark symbol.The YouTube logo, with "You" in black and "Tube" in white inside a red rounded rectangle.The Facebook logo, with the word "facebook" in white, lowercase, sans-serif font on a dark blue rectangular background.



# Disruption / CNA

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







# Information Operations

## INFINITE CURVATURE/MOUNTAIN SLOPE

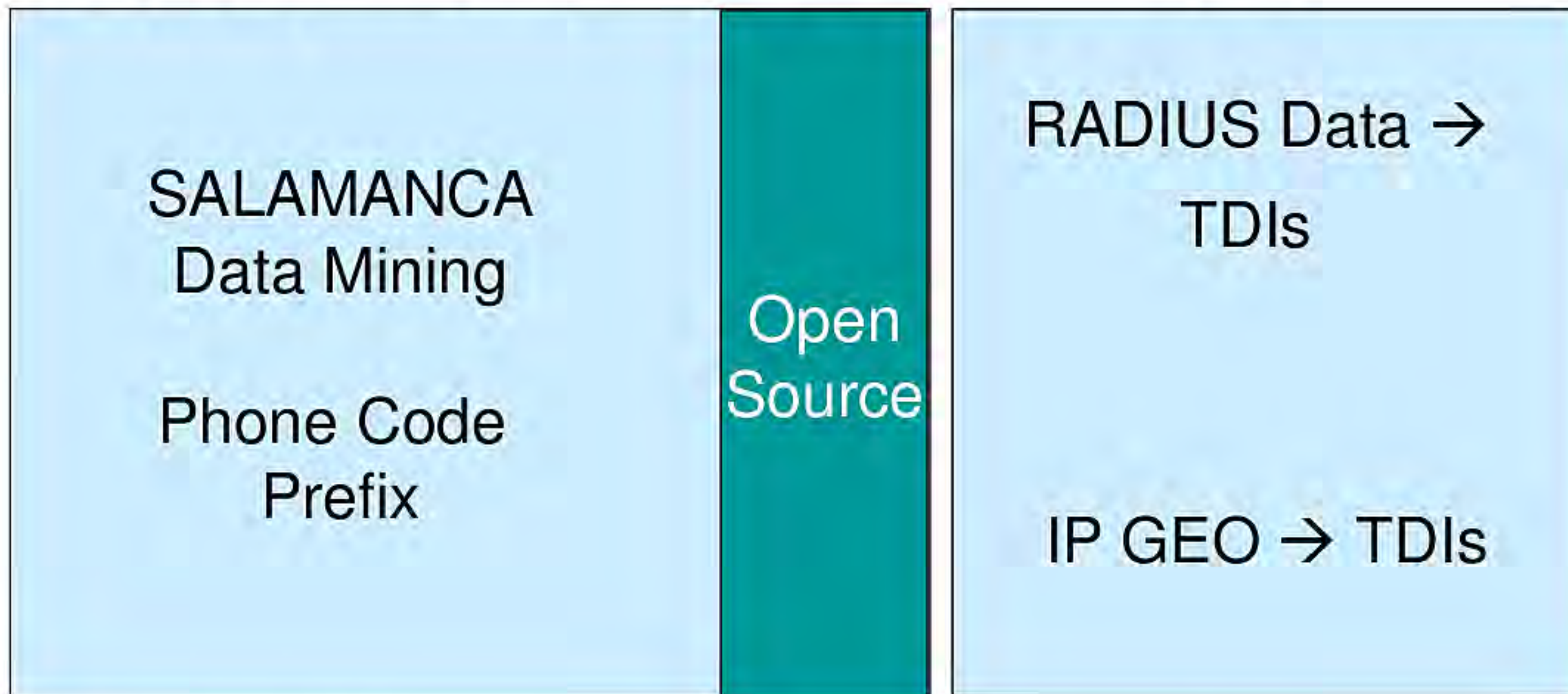
*Sending messages across the full spectrum of communications*

**Telephony**

**SMS**

**FAX**

**Email**





# 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

The Twitter logo, featuring the word "twitter" in a light blue, rounded, lowercase font with a subtle drop shadow.The YouTube logo, consisting of the word "You" in black and "Tube" in white inside a red rounded rectangle.The Facebook logo, featuring the word "facebook" in white lowercase letters on a dark blue rectangular background.The Flickr logo, with "flickr" in blue lowercase letters and "r" in pink lowercase letters.

**Deliver messages and multimedia content across Web 2.0**

**Crafting messaging campaigns to go 'viral'**



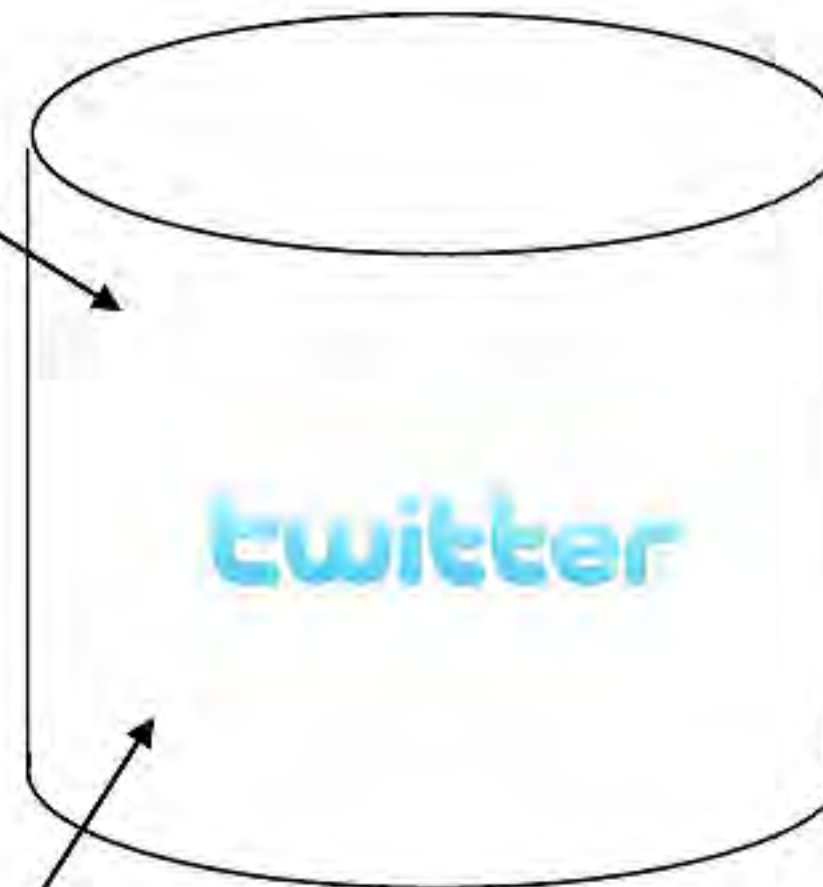
CNIO

# Twitter TDI Development



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

```
_twitter_sess=BAh7DjoTcGFzc3dvcmRfdG9rZW4iLWFhMGI3  
ZDk0OTIiNTJkOWQzMzM5YTc2%250AOTkyNjM0Y2ZmM2Y  
5NDNjYmQ6DGNzcmZfaWQiJTZmYjRhNTk5ZDVkMjlkMmF  
h%250AN2U4ZDczOWM2ZWZmNDc5lidzaG93X2Rpc2Nvd  
mVyYWJpbGl0eV9mb3Jfc29s%250Ab19vbmV5MDoVaW5fb  
mV3X3VzZXJfZmxvdzA6EXRyYW5zX3Byb21wdA6CXVz%  
250AZXJpBAPZMAEiCmZsYXNoSUM6J0FjdGlvbknvbnRyb  
2xsZXI6OkZsYXNoOjpG%250AbGFzaEhhc2h7AAY6CkB1c2  
VkewA6B2IkliVhZDRIOGM2NmM0ZjRkM2U2NGI5%250AZG  
ZmMGJmOGVjZDg0MjoPY3JIYXRIZF9hdGwrCGWCJS4nA  
Q%253D%253D--  
a3894361aa489c2cd51ff326358c92f2e4d39cd8;
```



Login Server



# CNIO

## Twitter TDI Development

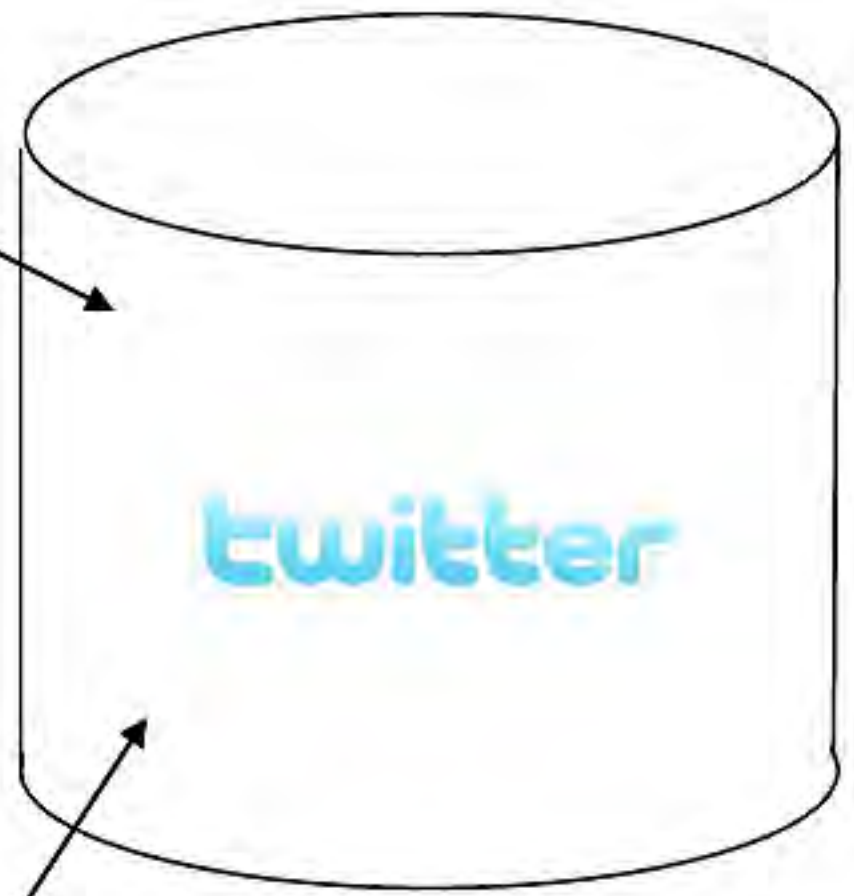


### Base64 + double encoded URL

```

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

```



Login Server



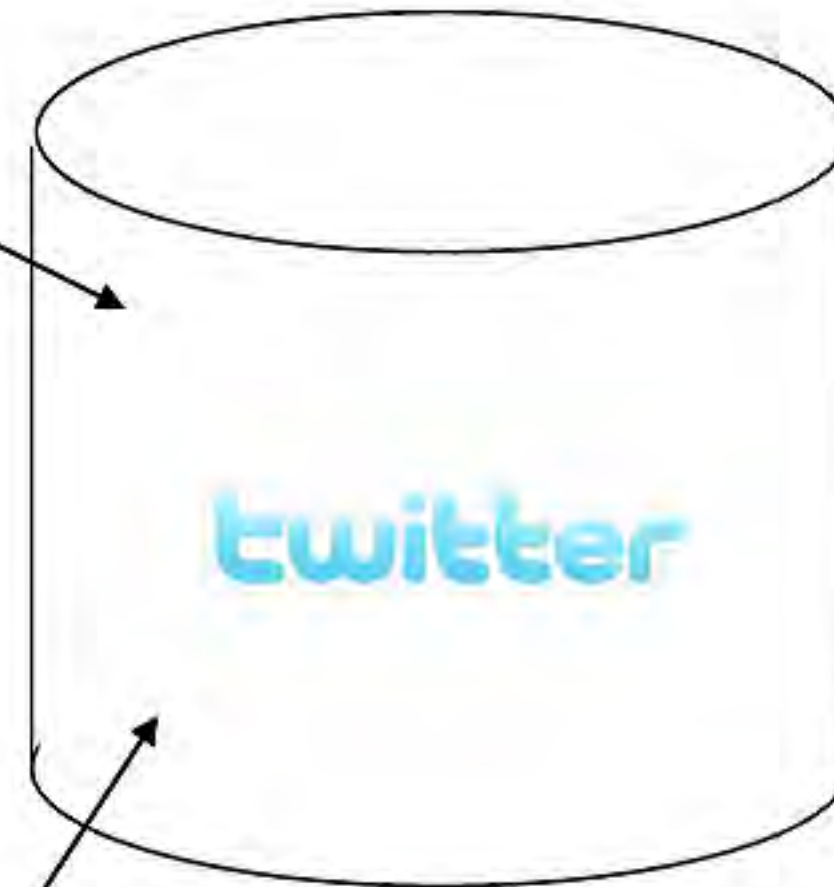
CNIO

# 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

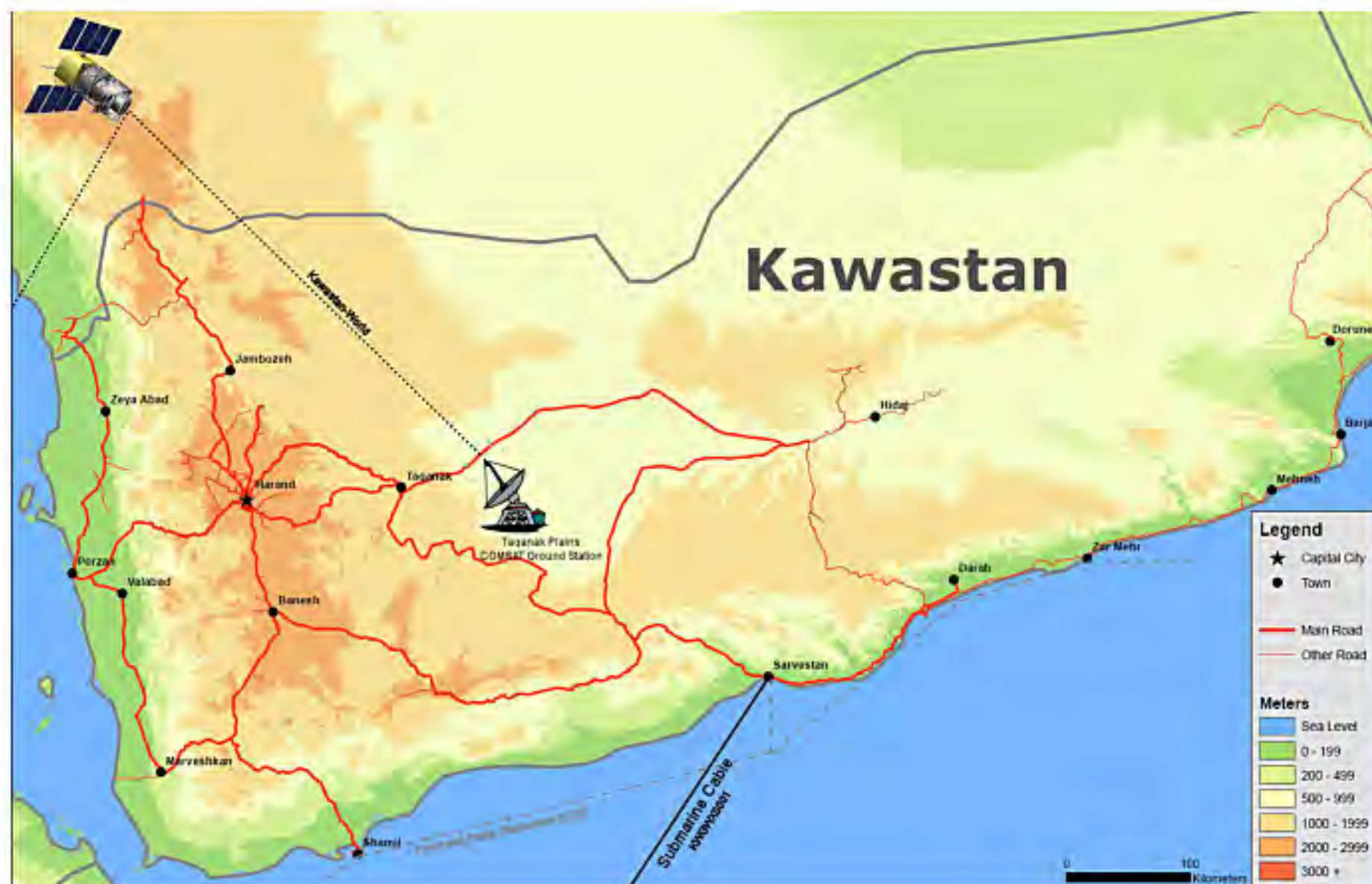


**Millions** of events per day feeding  
**BLACKHOLE**



CNIO

Twitter TDI Development



**Given a country:**

*Who are the top Twitter Users?*

**Or given a user:**

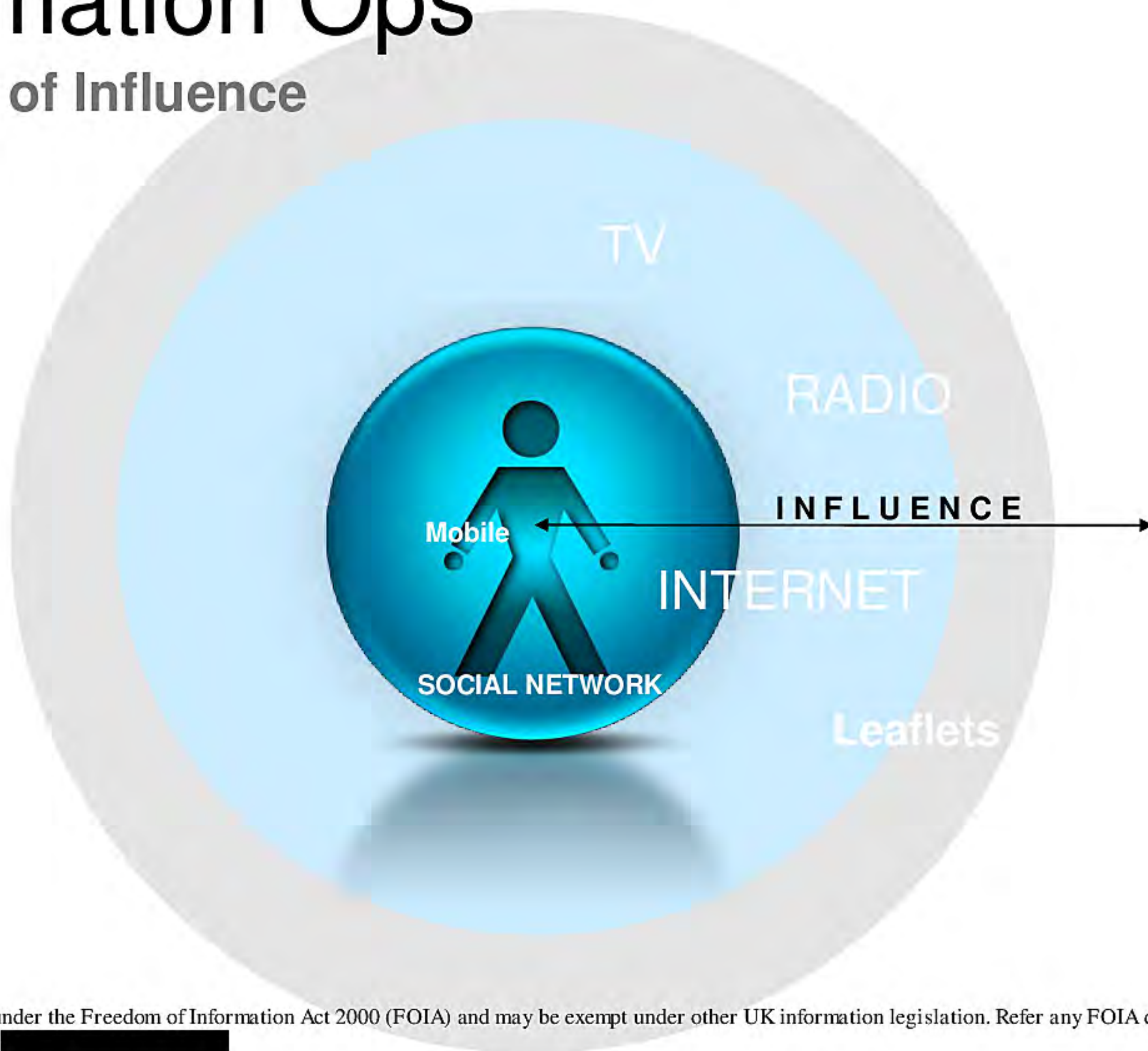
*Are they really in Kawestan?*

**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***



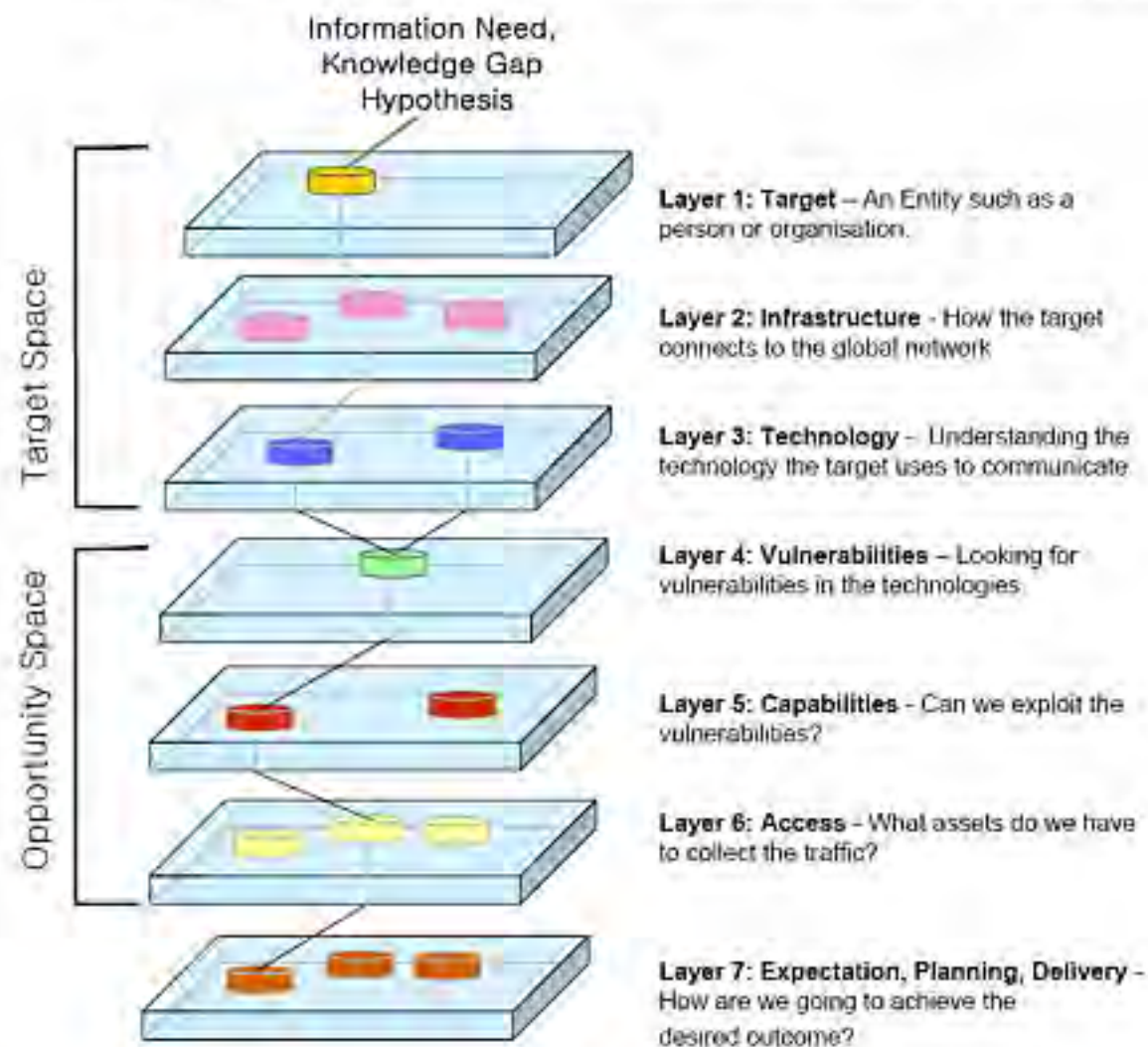
# CNA

## 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.



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

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

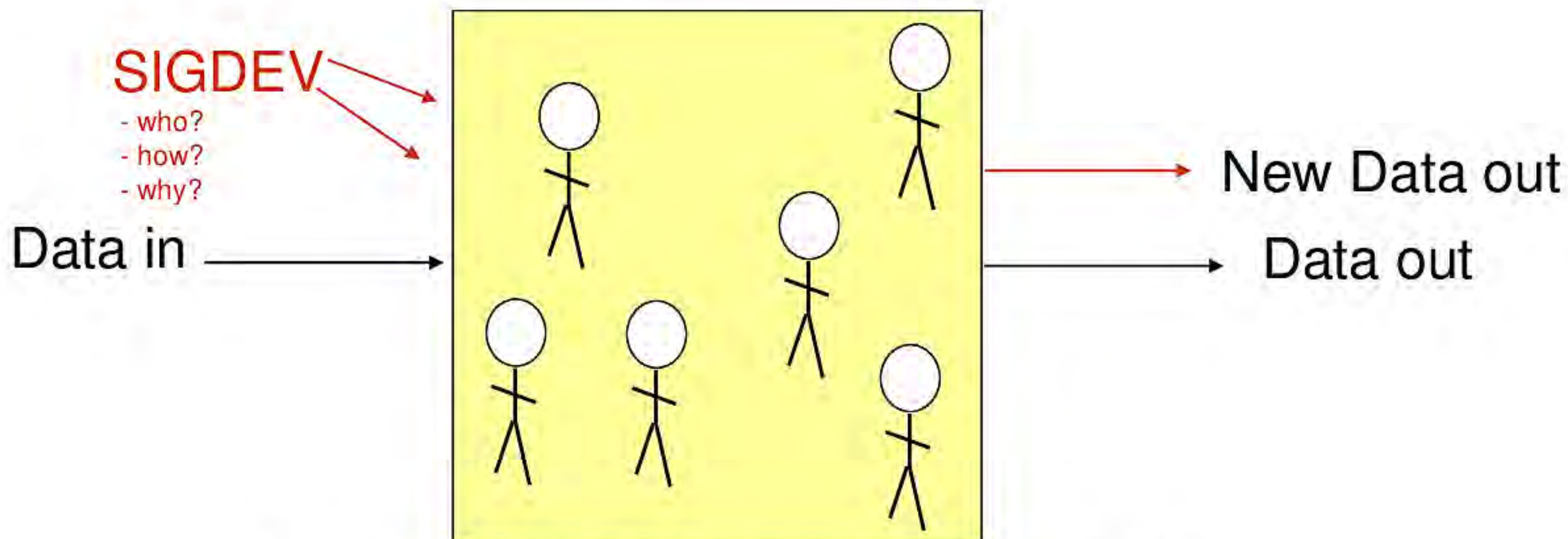




# Human Systems Analysis

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**

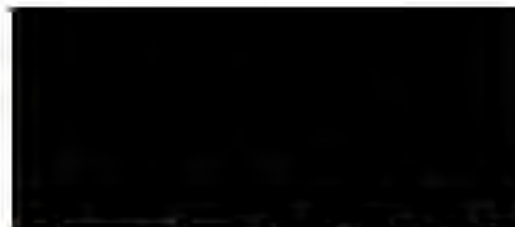


# Questions?

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**JTRIG**



Head of JTRIG

NSTS: 



SD Effects Lead

NSTS: 



Intelligence, Defence, Effects

Find me on TAPIOCA

**names and phone numbers redacted**