CAPA

2017 AUSTRALIA PACIFIC Aviation & Corporate Travel SUMMIT

# Is your flying CyberSafe?
# Cyber Risks Of Modern Aviation

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# Sampling of Cyber Risk

Radios


Users & Social Media


GPS

#11

---LX PNR---
PURGE PURGE CREATION ORIGINATOR
DATE FLT NO TIME DATE TELETYPE DUTY SIGN CITY
29OCT11 LX4245 1542 19SEP11 MUCRM1A LX
PNR ADDRESS: RJSMRU EDE945A9
NAMES
1HASBROUCK/EDWARDJMR

ITINERARY
AC7687 K 14OCT11 BOSYUL HK 1 1645-5 1752-5 Y-K I D
AC0832 K 14OCT11 YULBRU HK 1 1945-5 0835-6 Y-K I D
LX4245 H 29OCT11 LJUZRH HK 1 0745-6 0900-6 Y-H L 1AT$01
LX0038 H 29OCT11 ZRHSFO HK 1 1315-6 1620-6 Y-H L 1AT$01

PRN Legacy Systems

Drones

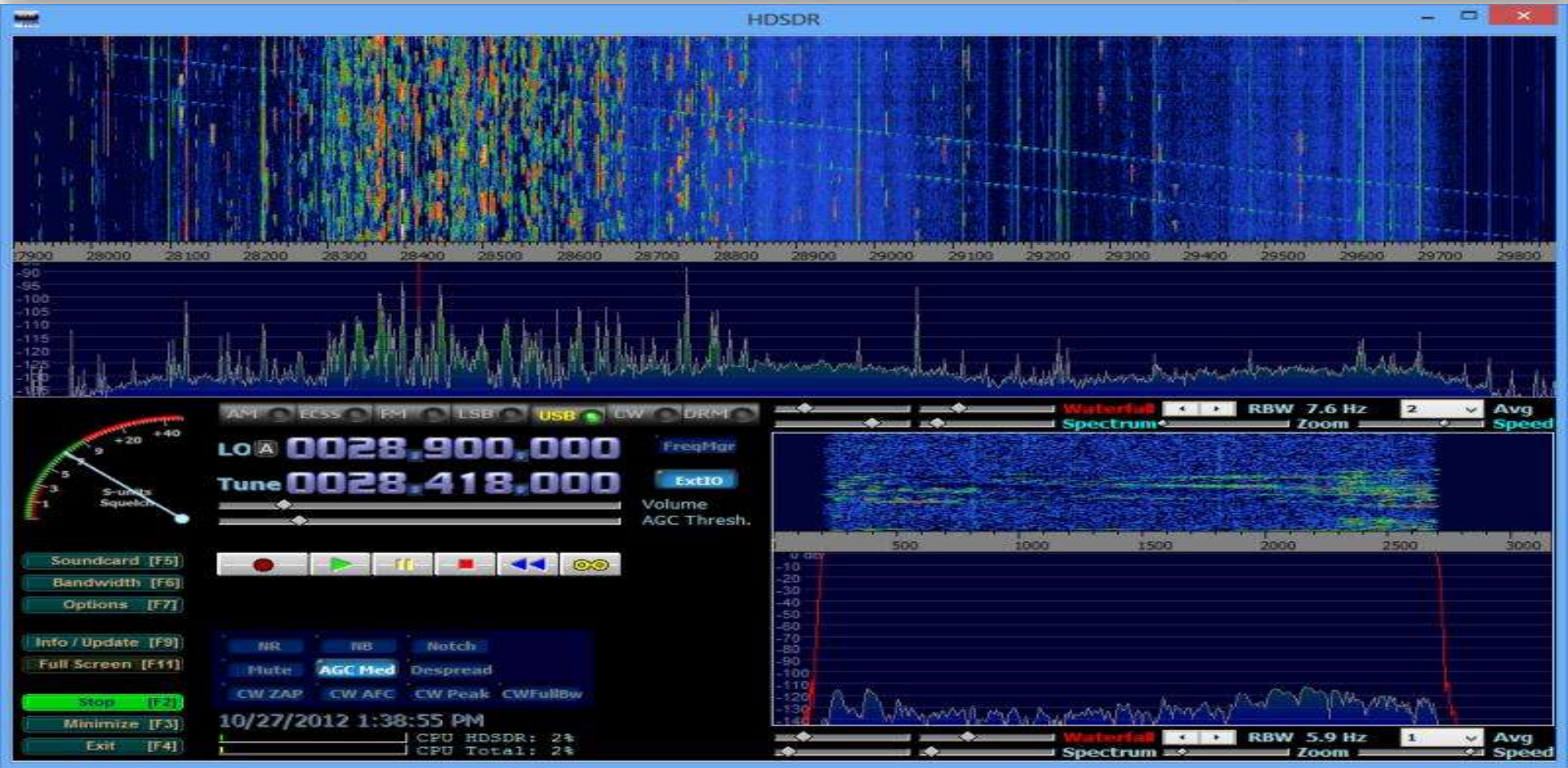
# SDR Radios


FlightAware
1090MHz Mode S Filter
SMA-F — SMA-M


RTL-SDR.COM


RTL-SDR.COM

# SDR Intercept - Disrupt



# Radios


بریکنگ نیوز : پاکستانی ہیکروں نے بھارتی ائیرلائن کا سسٹم ہیک کر
کے جہاز میں دل دل پاکستان کے گانے چلا دئے، پائلٹ پاگل ہوگئے

# Taking control Drone GPS


# Taking control ADS-B


```
*02C18C90FDBC7000000000000000;
*028102B6FB4C87000000000000000;
*028102B6FB4CA7000000000000000;
*028102B6FB4C87000000000000000;
```

| Nr. | ICAO24 | Regist. | Ident | Alt |
|---|---|---|---|---|
| 18 | A4ECA6 | USA | | 4250 |
| 17 | AC3068 | USA | N885A | 7875 |
| 16 | A3F0BC | USA | | 30000 |
| 15 | C01E10 | C-FLJZ | | 12000 |
| 14 | A284B5 | N261WN | | 35000 |
| 13 | AB7B8C | N839UA | | 950 |
| 12 | A3A086 | N33266 | | |
| 11 | ABAC48 | N951NN | | 6700 |
| 10 | AC5110 | N893GA | | 31975 |
| 9 | A708DA | N552WN | | 15875 |
| 8 | A03816 | N113HQ | | 29000 |

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71C254 Short-air-sourv. Korea          AC:
A86E6C Short-air-sourv. USA            AC:
AC9731 Short-air-sourv. USA            AC:
71C254 Short-air-sourv. Korea          AC:
A86E6C Short-air-sourv. USA            AC:
A86E6C Short-air-sourv. USA            AC:
```

# Drones Risks

# Instagram Boarding Passes



# PNR


[redacted] 6a
*** ELECTRONIC TICKET ***
F 1.1HASBROUCK/EDWARDMR
HW1ACWW 29AUG PMIME5
1 AC 761 A SA 9SEP YULSFO HK1 0830 1130 CABY
FONE-
1.WW1-H 1 415 824-0562
2.WW1-P 1 415 824-0214
3.WW1-A 1130 TREAT AVE./**/SAN FRANCISCO CA/94110 US
4.WW1-A AIRCANADA//HASBROUCK.ORG/MEMBER EMAIL
TKT-
1.1 K29AUGWW1WW 01421380664S3
AP FAX-
1.1 SSRFQTVYYPN1 /UA00168716753
RMKS-
1.1 C/H IS EDWARD HASBROUCK/CA USER ENTERED CREDIT CARD/USD 248
.78/ALL PSGRWEB BOOKING/EMAIL TO C/H
2. MOP: CHARGE MY CREDIT CARD
3. PASSENGER REQUESTED I/R DELIVERY BY EMAIL TO AIRCANADA//HASBR
OUCK.ORG
4. TIDGERGJK1J4
5. BKIP 172.24.96.31 29AUG06 17:22
---HISTORY---
RCVD-INTERNET PNR GUEST
WW1 AC WW 17233/29AUG
WW1 GS WW IOIBMC1 17233/29AUG
NO FLOWN SEGS
Home and Mobile
Telephone Numbers
Home Address
Email Address
Frequent Flyer Number
Credit Card Number (redacted)
Timestamped IP Address

# Hack Airplanes though Entertainment system

# 0 Day Exploits - Guaranteed

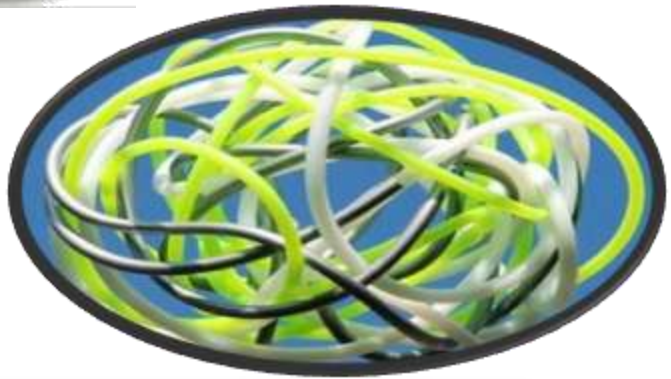
# Cyberspace Characteristics

Asymmetric

Attribution Problems


No Borders

Complex Interconnected Systems



# Our security enemy is?

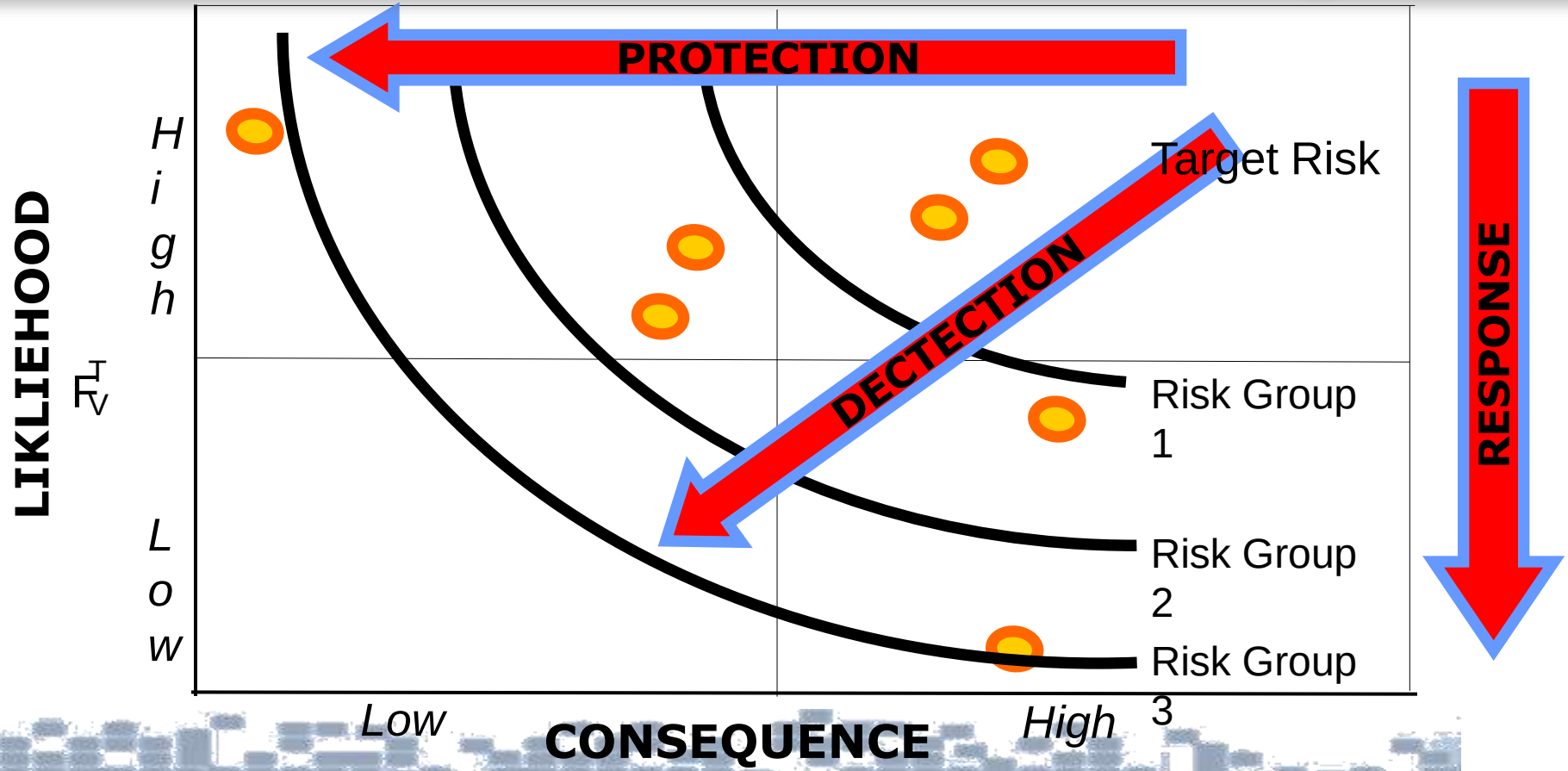
# Security Nightmare

# Outdated Assumptions?

# Effective Countermeasures

# Wrong Skills?

# Risk Reduction Strategies!



# Build Airport Cyber Security Intelligence

## Multiple Sources Intel

Internal Security Research

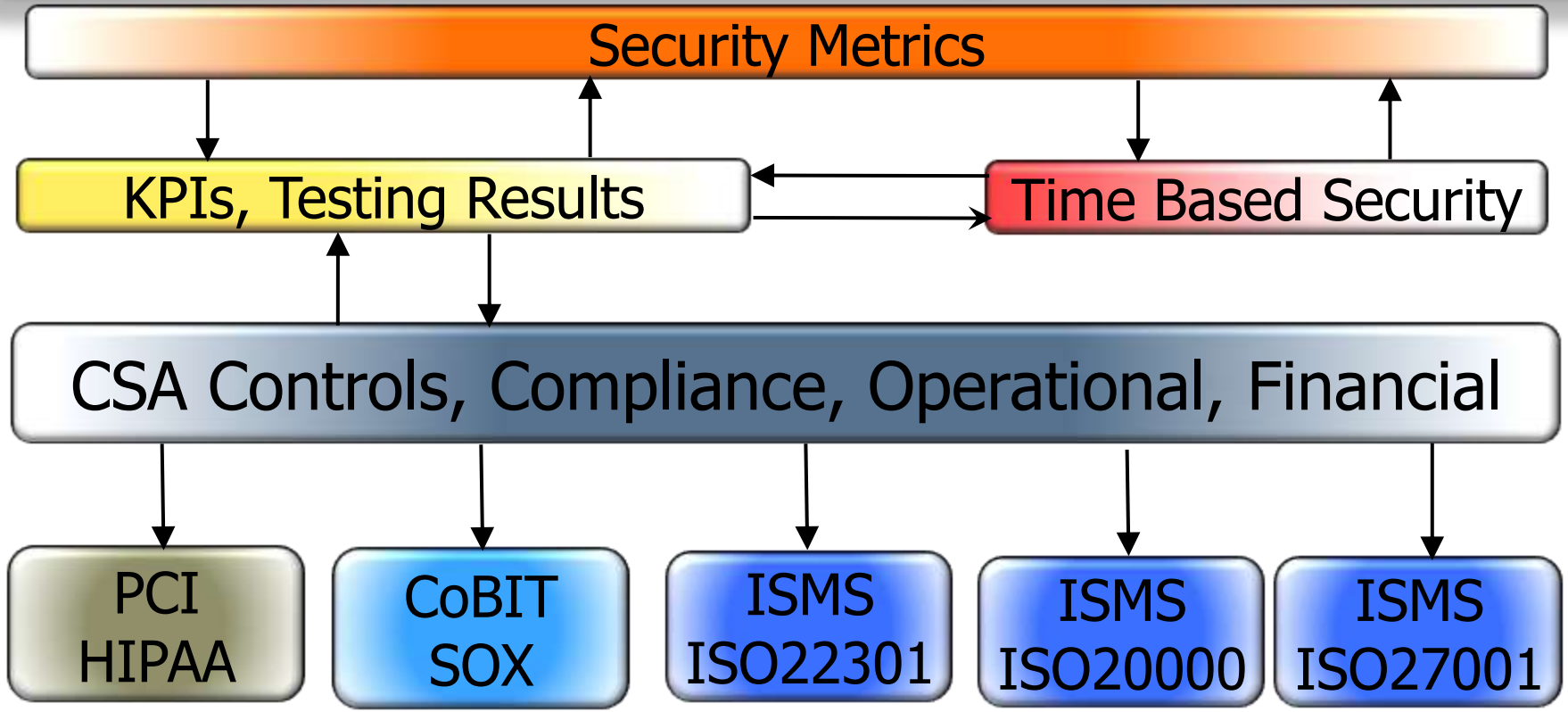
Partners, Vendors, CERT ,…

Internet, Mailing list and other sources

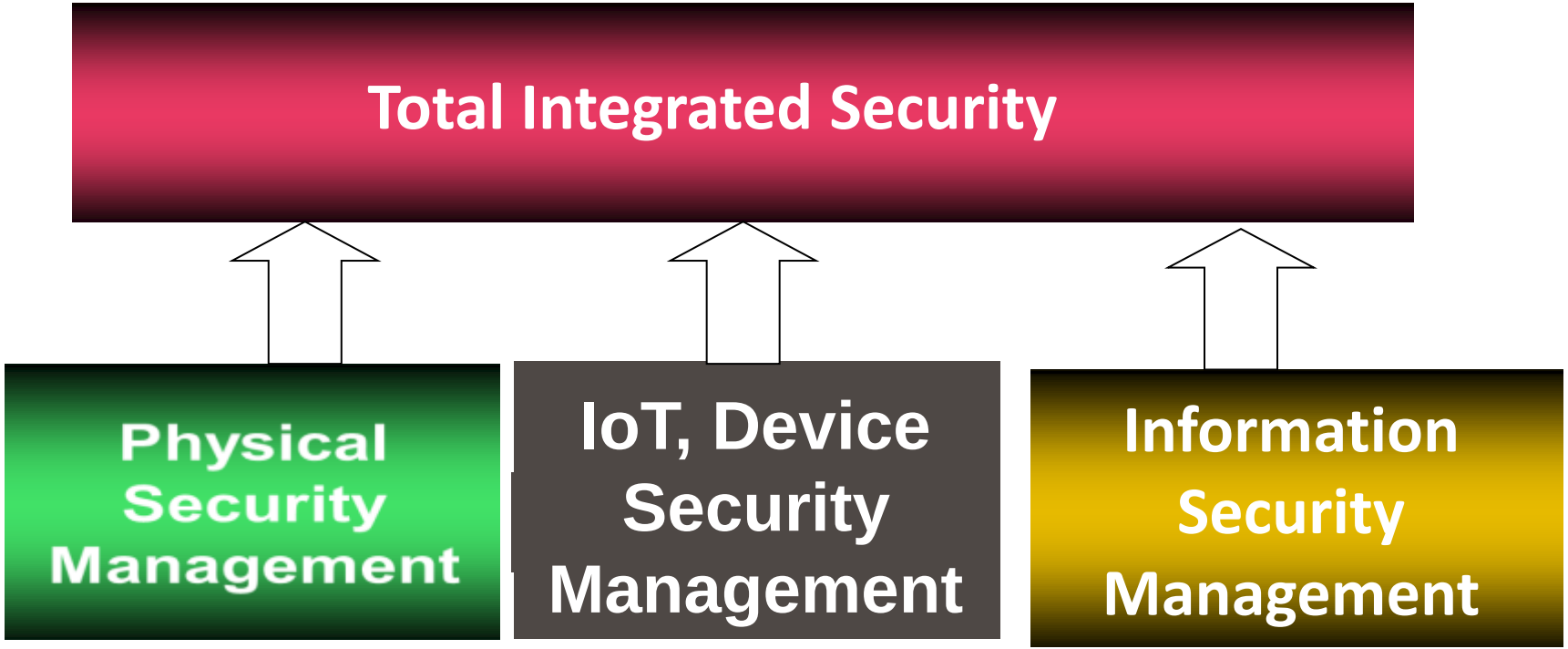
Infosec Knowledge Base Response

Incidence Response

# Road to Security Metrics



# Final Goal Is



# Winning the War

| Red Teaming | Solve Attribution |
| --- | --- |
| Continuous Vulnerability Mgmt | Crowd Sourcing/Bug Bounty |
| Fusing | Crisis Management |
| Vertical CERT Integration | Encryption |
| Exchange Knowledge | Data Leak Prevention |
| Threat Management | Reputation Management |
| Big Data | Honeynets |
| Machine Learning | Sandbox |
| Security Metrics | Empower end users |
| Continuous Training | Attack / Take down |

# Don’t bring a knife to gun fight

RULES FOR A GUNFIGHT

1. Bring a gun. Preferably, bring at least two guns. Bring all of your friends who have guns.

# Questions

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