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Are Legacy Malware Callbacks Clouding Your Security Operations Team

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Foreword

We typically associate these types of malware and compromises as ***commodity****, crimeware and* ***legacy*** *malware which is* ***unsophisticated****, only capable of sending spam, stealing social media logins, performing Bitcoin mining and in general considered,* ***low hanging fruit****, which does not require a lot of* ***attention****.*

Reality is that it is a compromise that must be addressed

Defining Legacy Malware & Beaconing

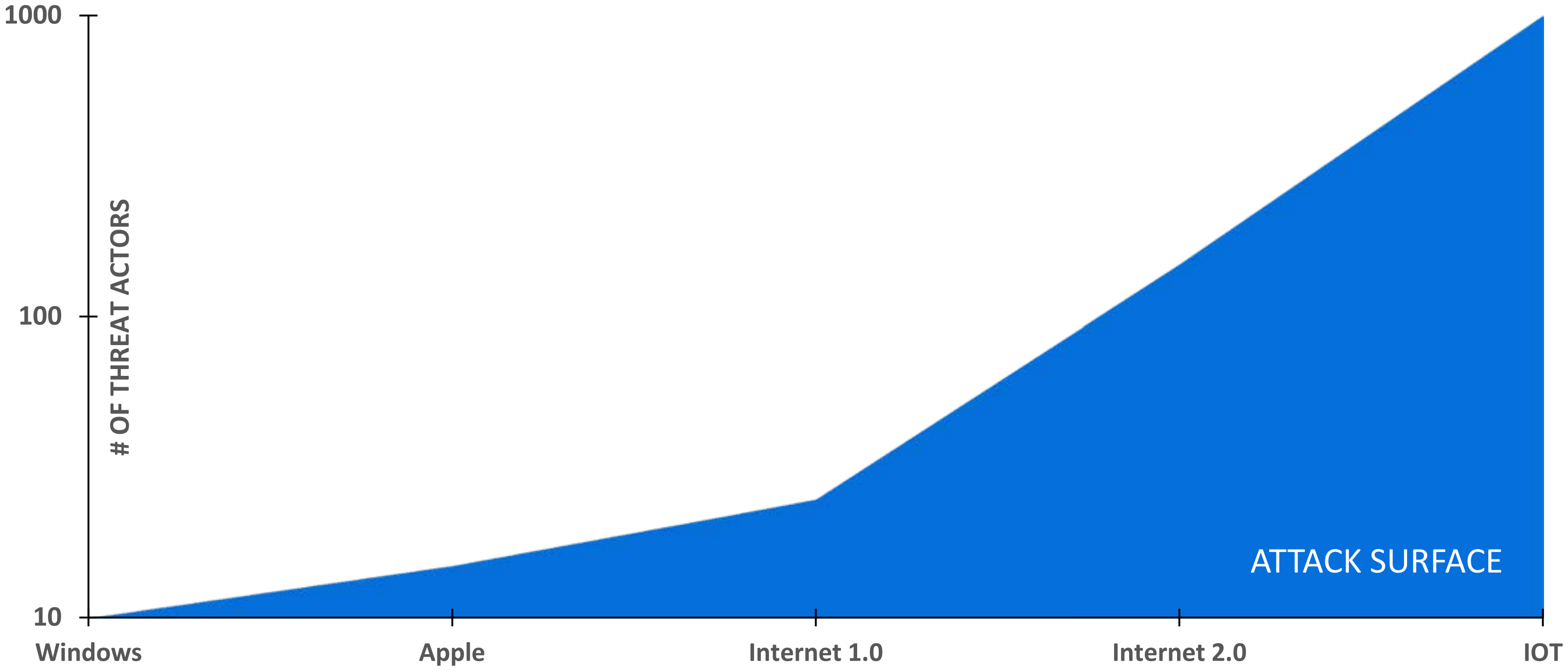
Abandoned Malware or Infrastructure

Arrests of Creator(s) / Operator(s)

Infrastructure Takedowns

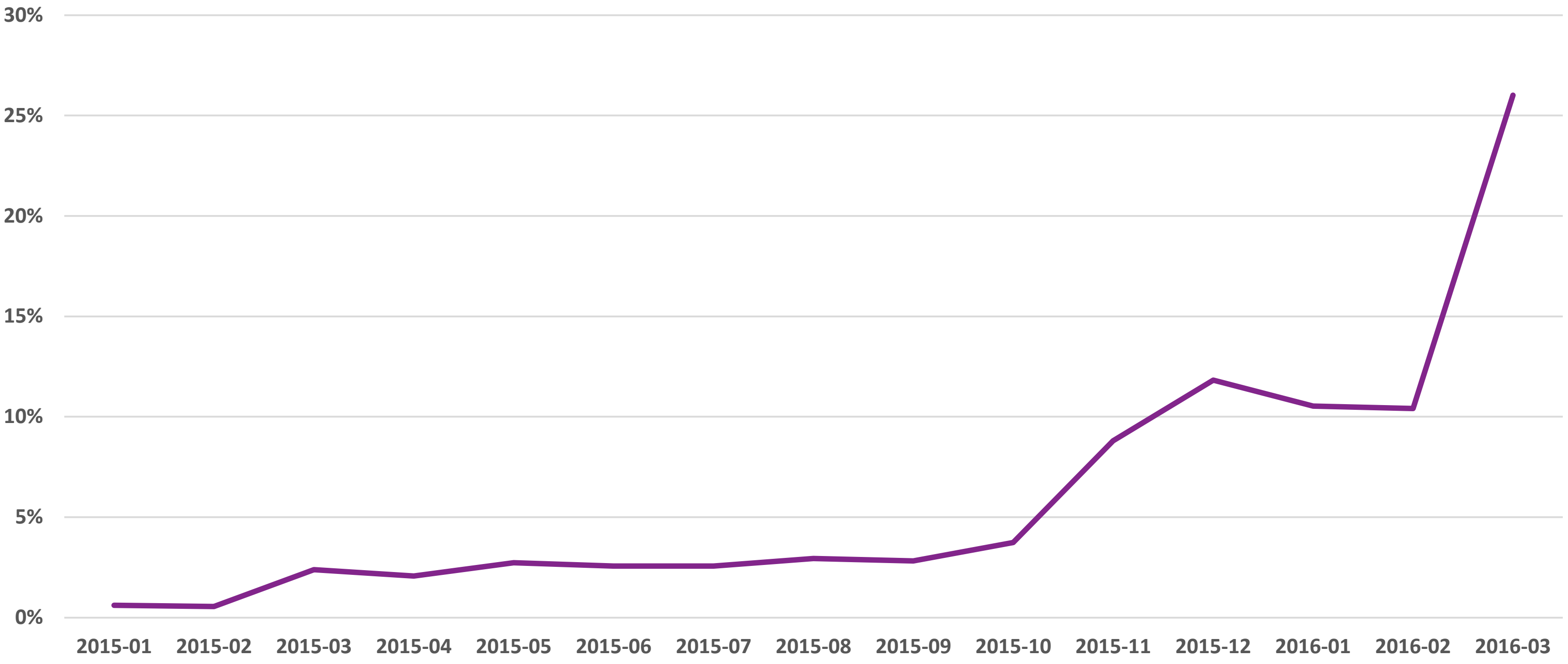
SO WHY TALK ABOUT LEGACY MALWARE?

Expanding Attack Surface Area

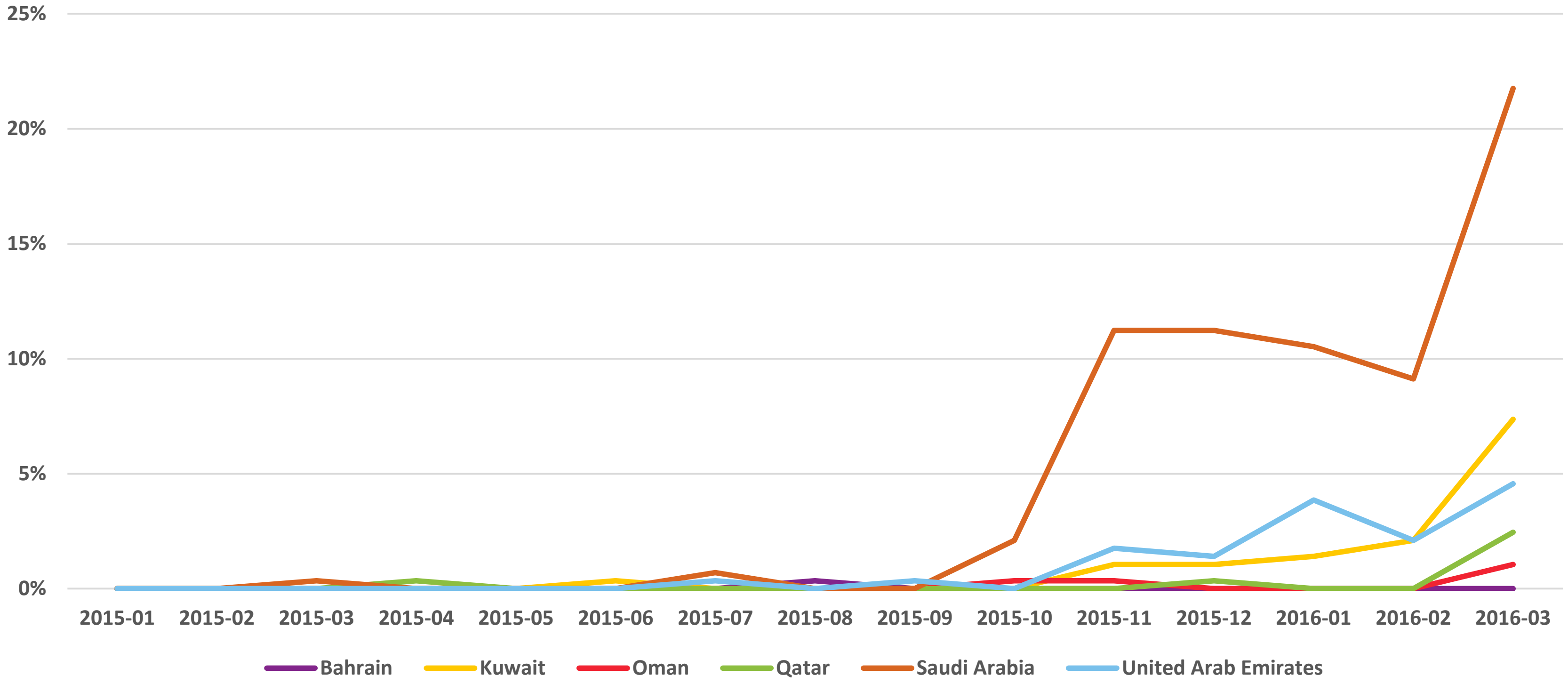


Ransomware Detections in EMEA

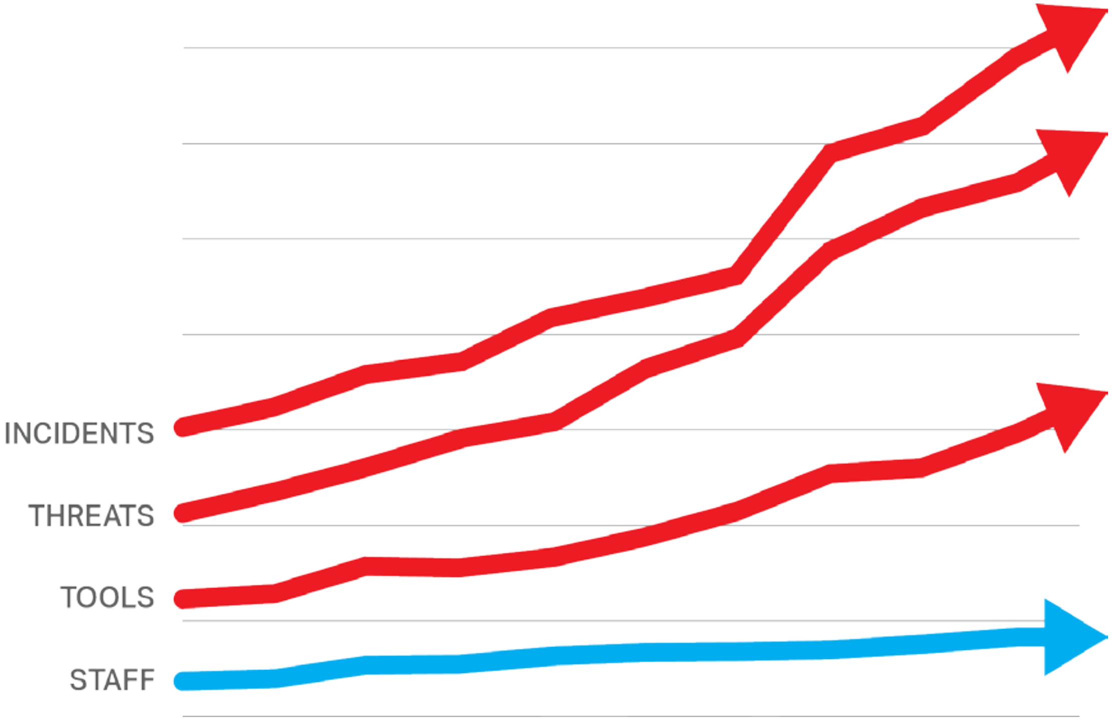
Ransomware detections in FireEye customers across EMEA 2015 till First Quarter of 2016



Ransomware Detections: GCC



We have to do more with less



* Survey by IDG Research on security automation: info.csgi.com/idg-survey/

3 MALWARE CASE STORIES

Palevo & Mariposa

Believed to have infected 12M+ computers worldwide, including several Fortune 1000 Companies and Major Banks

Managed to steal sensitive data (credentials, financial records, credit cards) from more than 800.000 users worldwide.

On December 2009, a joint operation took down the infrastructure and led to arrests of 3 individuals in Spain.

Ramnit

Infected more than 3 million computers worldwide. Evolved to steal credentials and other sensitive information

5+ Years in operation, being a major criminal enterprise, defrauding a large number of victims

Taken down in late February 2015 in a joint effort between Europol and multiple security and technology companies

Cutwail & Pushdo

Infected more than 2 million computers worldwide. Compromised computers become part of the spam-botnet via infections from the Trojan Pushdo

Spammers can rent an instance of the botnet for a fee and use in their own campaigns (in 2009 it was estimated that the network was responsible for almost 50% of all spam worldwide)

In August 2010 an attempt to take down the botnet was performed and 20 out of the 30 C2 Servers were successfully taken offline

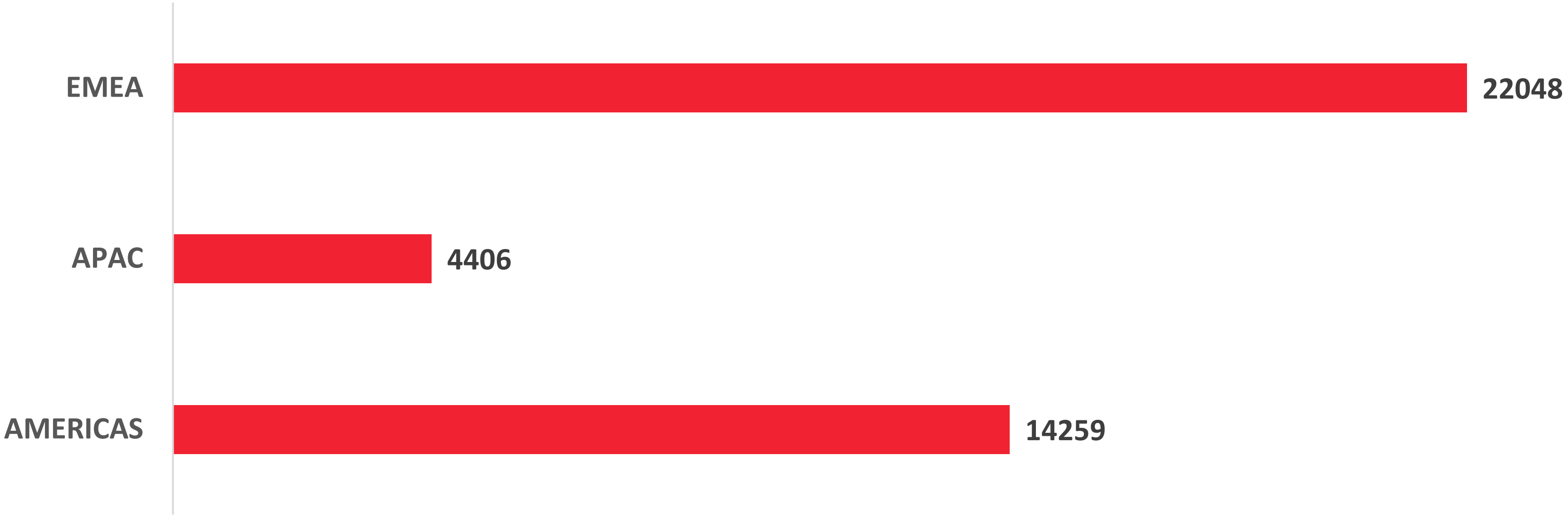
2015 Observations

How Data Was Collected

- Buying expired & unused C2 domains
- Working with registrars on active C2 domains
- Monitor Incoming Connections – write signatures to match C2 strings
- Events stored with metadata (Organization Names, ASN etc.)
- Data sanitized before storing (i.e.. no sensitive data transmitted)

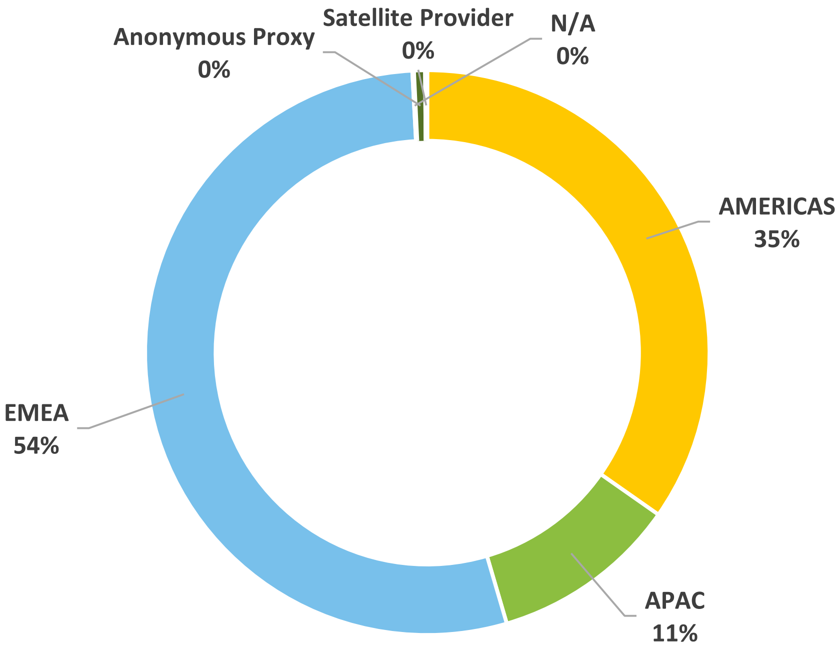
Beaconing Observations: By Region

- Number of Organizations Observed in 2015



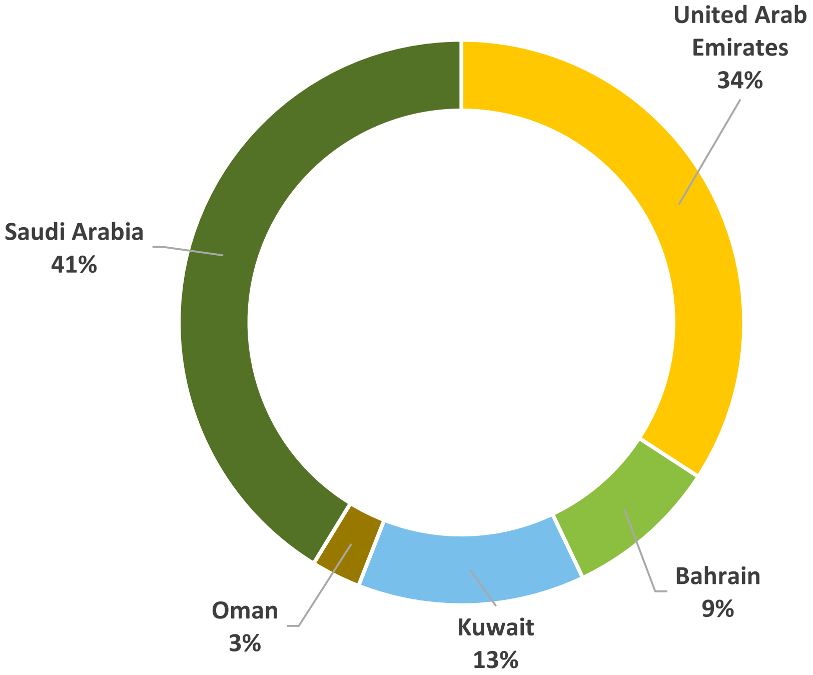
Beaconing Observations: Total

- Number of Organizations Observed in 2015

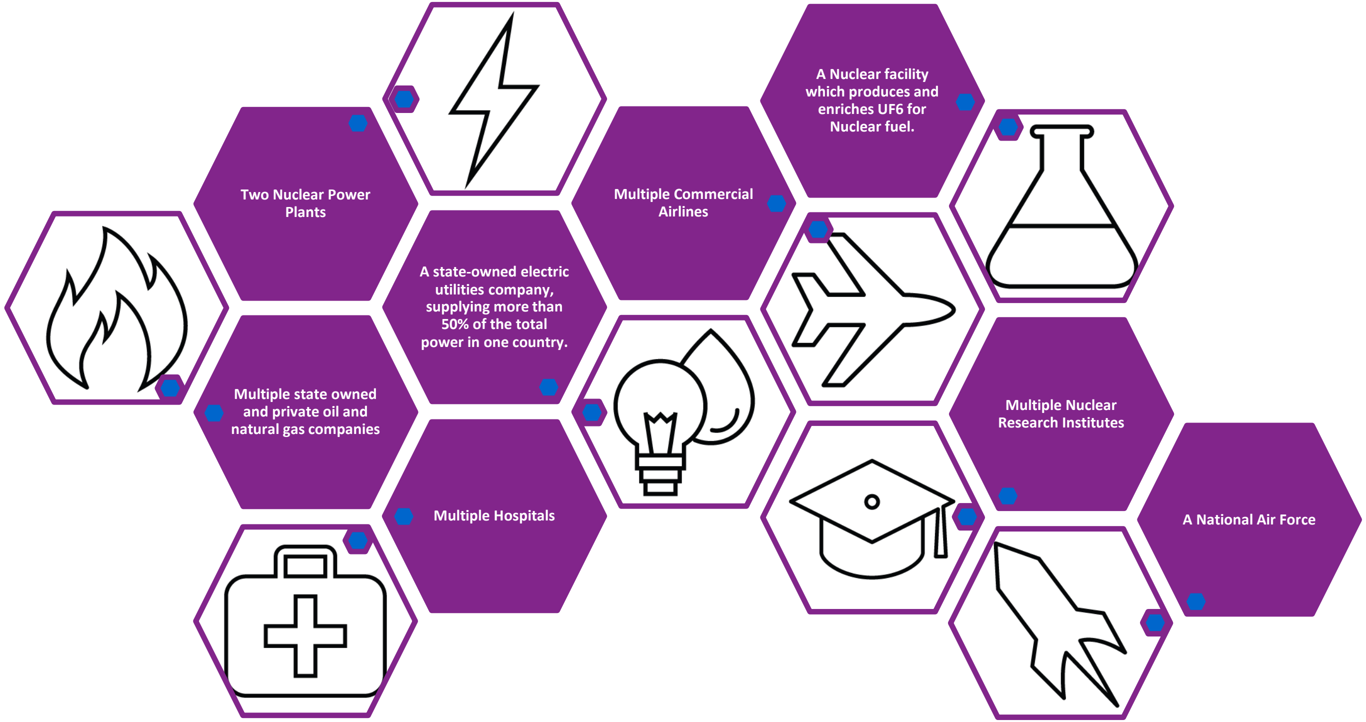


Beaconing Observations: GCC

- Number of Organizations Observed in 2015



Beaconing Observations: Industries



A Nuclear facility which produces and enriches UF6 for Nuclear fuel.

Two Nuclear Power Plants

Multiple Commercial Airlines

A state-owned electric utilities company, supplying more than 50% of the total power in one country.

Multiple state owned and private oil and natural gas companies

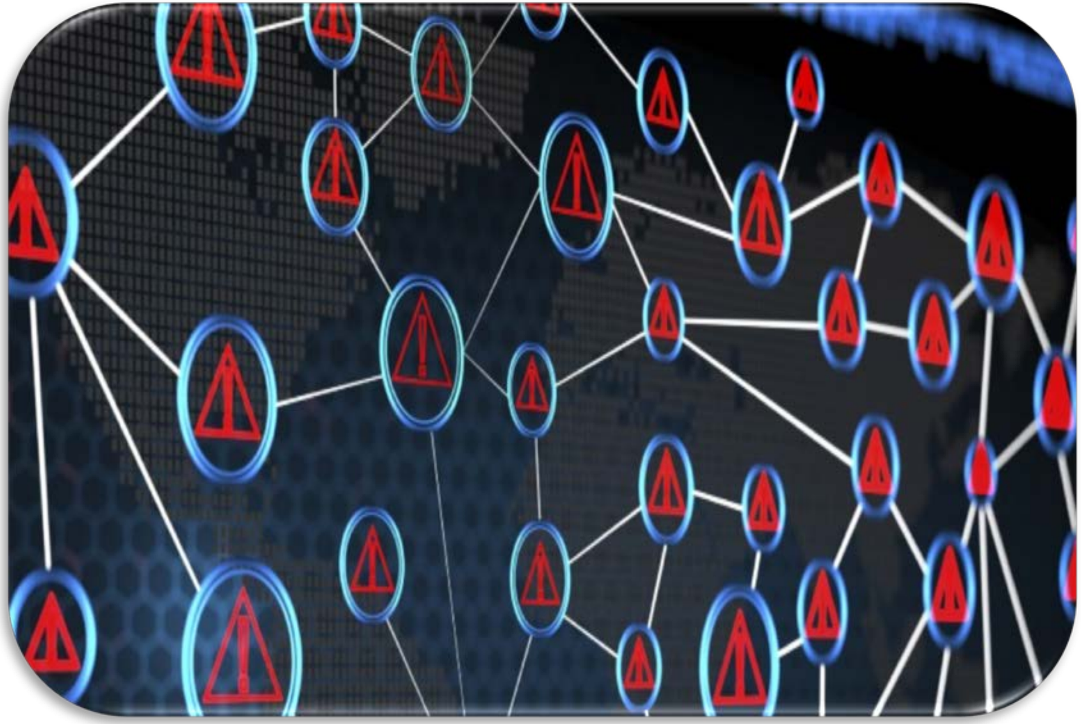
Multiple Nuclear Research Institutes

Multiple Hospitals

A National Air Force

Risk Scenarios

Risk Scenario #1 – Prioritization of Alerts

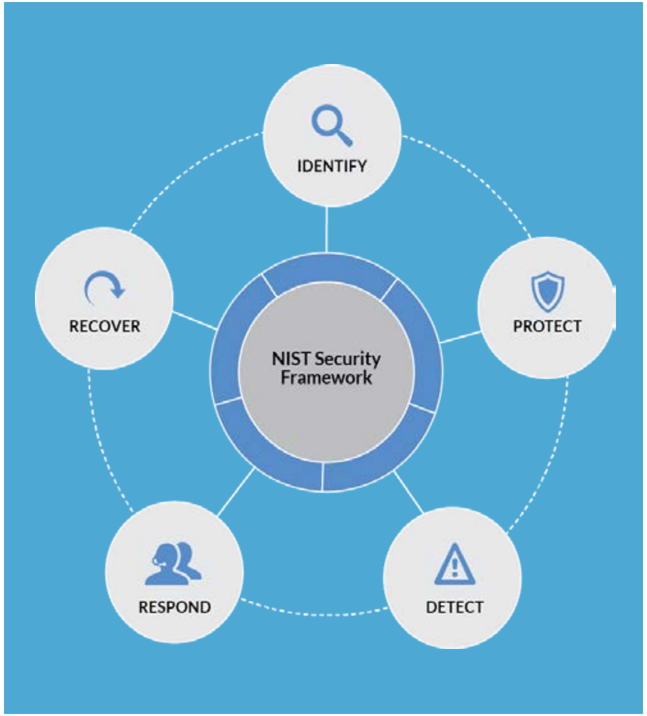


Risk Scenario #2 – Disruption in ICS

Risk Scenario #3 – Attackers Regaining Control

Why Focus On Legacy Malware Callbacks?

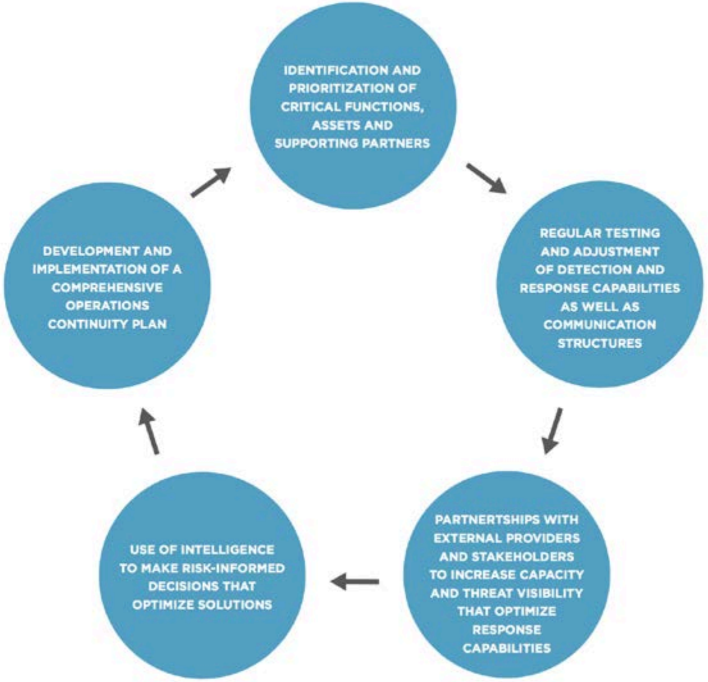
- **Identify** - Develop the understanding to manage cyber security risk to systems, assets, data and capabilities
- **Protect** - Develop and implement safeguards to ensure delivery of services
- **Detect** - Develop and implement systems to identify the occurrence of a cyber security event
- **Respond** - Carry out actions to take once a cyber security event is underway
- **Recover** - Carry out activities to restore any capabilities or services impaired due to a cyber security event



COORDINATION STRATEGY FRAMEWORK

ADAPTIVE DEFENSE – A CAPABILITY MATURITY MODEL FRAMEWORK BY FIREEYE & EUROPOL

- IDENTIFY
- DETECT & RESPONSE
- THREAT VISIBILITY
- STRATEGIC INTELLIGENCE
- PLAN DEVELOPMENT


IDENTIFICATION AND PRIORITIZATION OF CRITICAL FUNCTIONS, ASSETS AND SUPPORTING PARTNERS

REGULAR TESTING AND ADJUSTMENT OF DETECTION AND RESPONSE CAPABILITIES AS WELL AS COMMUNICATION STRUCTURES

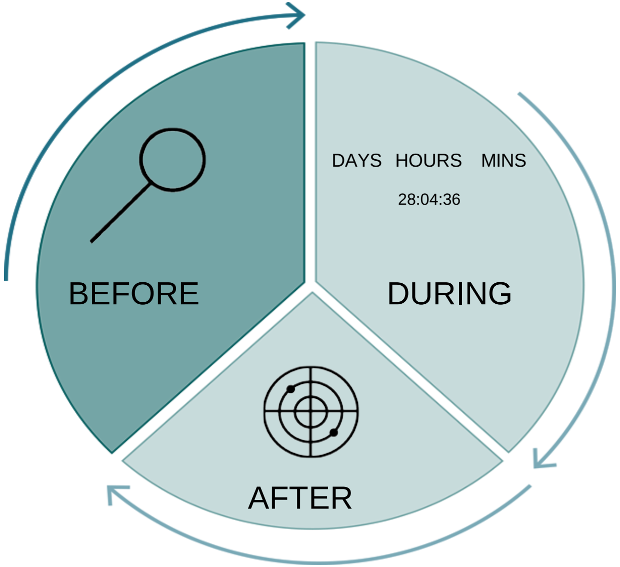
PARTNERTSHIPS WITH EXTERNAL PROVIDERS AND STAKEHOLDERS TO INCREASE CAPACITY AND THREAT VISIBILITY THAT OPTIMIZE RESPONSE CAPABILITIES

USE OF INTELLIGENCE TO MAKE RISK-INFORMED DECISIONS THAT OPTIMIZE SOLUTIONS

DEVELOPMENT AND IMPLEMENTATION OF A COMPREHENSIVE OPERATIONS CONTINUITY PLAN

Cybersecurity is an Enterprise-wide Risk Management Issue

- What is acceptable risk?
- Where are your most important assets?
- How are they protected?
- What is the potential business impact of a breach?



- Time to detect if permeated?
- Time to contain once identified?
- What do your know about the attackers?
- What are the most effective actions?

- What is your remediation plan?
- What can you learn from this experience?
- What steps will improve your overall risk posture?

Apply What You Have Learned Today

- Next week you should:
  - Start defining a plan, containing “Before, During and After” Scenarios
- In the first three months following this presentation you should:
  - Identify and Remediate Legacy Malware Compromises
- Within six months you should:
  - Have a measureable Security Operations Team, who focus on what is most critical for the business

Thank You