A day in the life of a GDPR breach

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26th September 2017 | Washington, DC

Forward-Looking Statements

During the course of this presentation, we may make forward-looking statements regarding future events or the expected performance of the company. We caution you that such statements reflect our current expectations and estimates based on factors currently known to us and that actual events or results could differ materially. For important factors that may cause actual results to differ from those contained in our forward-looking statements, please review our filings with the SEC.

The forward-looking statements made in this presentation are being made as of the time and date of its live presentation. If reviewed after its live presentation, this presentation may not contain current or accurate information. We do not assume any obligation to update any forward looking statements we may make. In addition, any information about our roadmap outlines our general product direction and is subject to change at any time without notice. It is for informational purposes only and shall not be incorporated into any contract or other commitment. Splunk undertakes no obligation either to develop the features or functionality described or to include any such feature or functionality in a future release.

Who we are

Freddy Dezeure

Former Head of the European Computer Emergency and Response Team (CERT-EU)

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Product Marketing Director, Splunk EMEA

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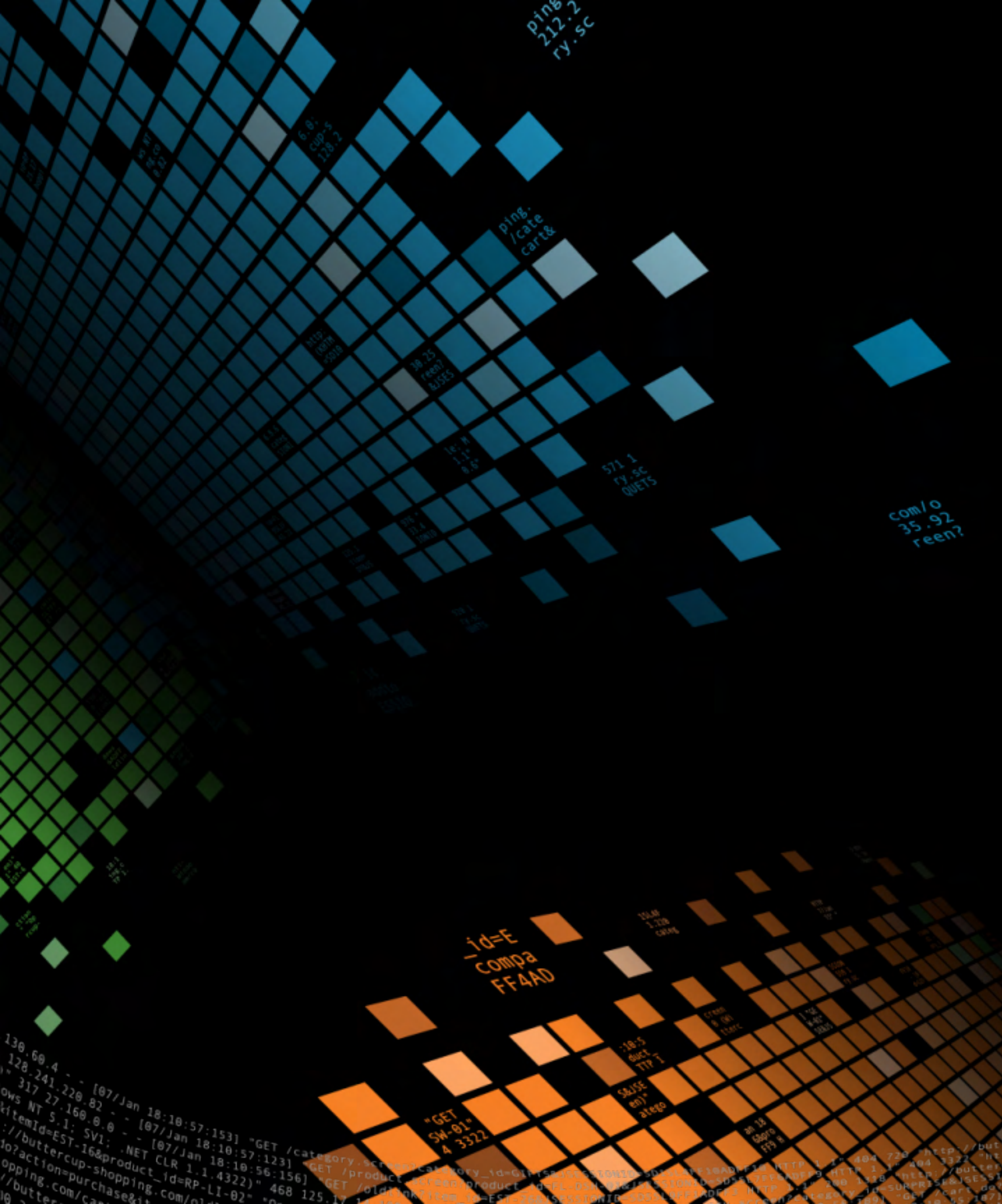
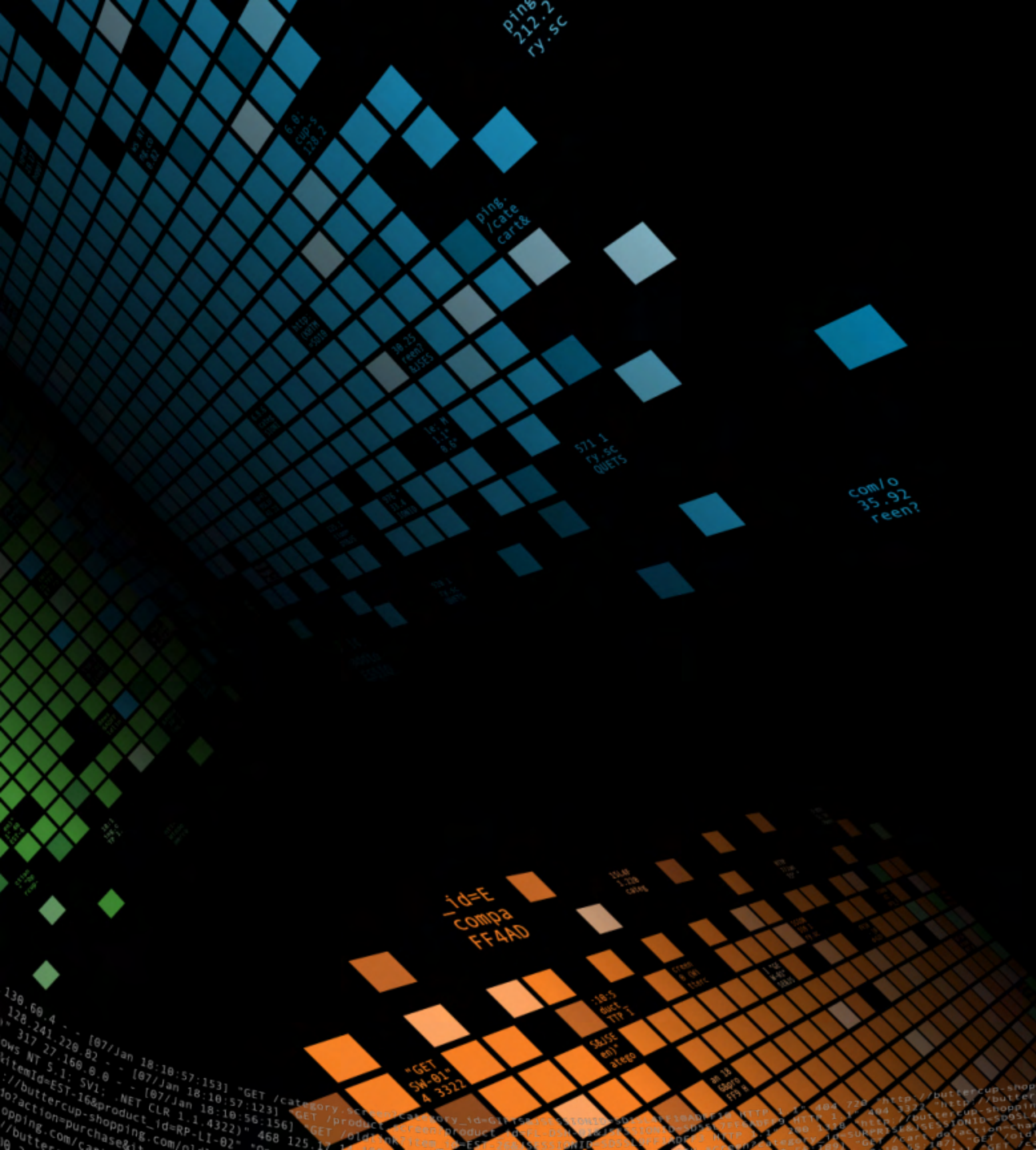


What you will learn

After this session you know

- What the GDPR is
- How it will impact your organization
- What PI information can be in machine data
- **How to treat log data in Splunk under the GDPR**
- How Splunk can help you during a breach (Day in a life of a GDPR breach)
- **What articles Splunk can help you with**
- What further Workshops/Collateral Splunk provides you to

Get **D**ata **P**rivacy **R**ight (GDPR)



About the GDPR

Freddy Dezeure

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GDPR Timelines

The regulation is binding across all EU members states

January, 2012

Commission proposes reform to Data Protection regulation

December, 2015

EU agreement on regulation

April, 2016

EU Council adopts new regulation

25 May, 2018

Regulation enters into force

What’s the scope of the GDPR?

Any information relating to an ***identified*** or ***identifiable natural*** person

- Individual IP, DNA, fingerprint, credit card, username, address, email address, phone number…

- Processed by ***establishment in the EU***
- Or related to ***data subjects in the EU***
- Or related to ***behavior taking place in the EU***

- ***Even if at no cost***

What are the general principles?

- Lawful, fair and transparent
- Specific, explicit and legitimate purpose
- Adequate, relevant and limited
- Accurate
- No longer than necessary
- Security and confidentiality

How are the roles defined?

Controller

- A **Controller** is the natural or legal person who determines the purpose and means of the processing of personal data

Processor

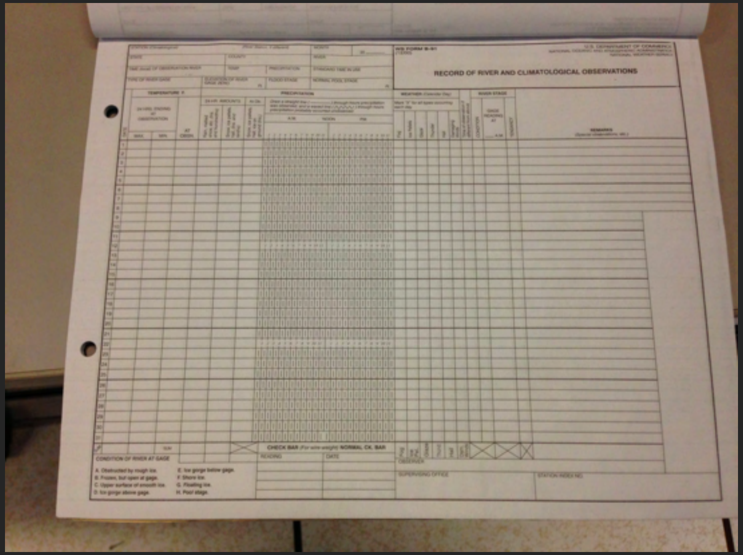
- A **Processor** is a natural or legal person that processes personal data on behalf of a controller. The Controller remains responsible to make sure the processor applies the relevant measures to comply

Responsibilities

- Controllers and Processors need to **maintain a record of their processing activities** and **be able to demonstrate compliance**

What Does This Mean?

Identify why you collect and process personal data, how much, how you keep them up to date, how long and how you protect them.



WS FORM B-91

U.S. DEPARTMENT OF COMMERCE

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

TEMPERATURE F | PRECIPITATION | WEATHER (Calendar Day) | RIVER STAGE | REMARKS

Document all this and have processes in place to maintain and update the documentation.

The right of a data subject

- Data subjects have a right of **access, rectification, transfer, removal**

- Right not to be subjected to automated decision-making (profiling).

Mitigation

Measures to comply take into account the risk

- In case of **high risk** -> perform an impact assessment (PIA) to determine appropriate mitigation measures

Appropriate technical and organizational measures, taking into account the state of the art

- Pseudonymization & encryption
- Ensure confidentiality, integrity, availability and resilience of processing systems
- Backup & restore
- Testing of effectiveness

The impact if a breach happens

- Notification within 72 hours to supervisory authority **if** there is a risk
- If high risk: communication to data subjects, coordinated with supervisor

Possible consequences:

- Administrative fine up to 4% of world-wide annual turnover
- Victim damage compensation
- Criminal prosecution

Waiver

- The controller or processor should be exempt from liability if it **proves that it is not in any way responsible** for the damage.

How to treat log data containing PI information

Freddy Dezeure

Storing and Analyzing Machine data with Splunk under the GDPR

Some frequently asked questions

Do I need the individuals consent for log data processing?

Do i need to pseudonymize all my log data?

Do I need to delete my log data in case of a delete request?

Do I need the individuals consent for log data processing?

Read beyond (a) as well

Article 6 : "Lawfulness of processing"

(a) the data subject has given **consent** for one or more specific purposes
(b) necessary for the performance of a **contract with the data subject**
(c) necessary for compliance with a **legal obligation of the controller**
(d) necessary in order to protect the **vital interest of a person**
(e) necessary for the performance of a task carried out in the **public interest** (..)
(f) necessary for the purposes of **legitimate interests** (…)

- ✓ Network and Information Security: (f) Legitimate Interest
- ✓ Other purposes of processing: understand them, document and validate with your DPO

Special clause on Network Information Security

Recital 49:

- “The processing of personal data to the extent strictly necessary and proportionate for the purposes of ensuring network and information security […] by public authorities, by computer emergency response teams (CERTs), computer security incident response teams (CSIRTs), by providers of electronic communications networks and services and by providers of security technologies and services, constitutes a legitimate interest of the data controller concerned. […]”

Do I need to pseudonymize all my machine data?

Risk mitigation techniques

Article 32 : "Security of processing"

1. Taking into account the state of the art, the costs of implementation and the nature, scope, context and purposes of processing as well as the risk of varying likelihood and severity for the rights and freedoms of natural persons, the controller and the processor shall implement appropriate technical and organisational measures to **ensure a level of security appropriate to the risk**, including **as appropriate**:

(a) the pseudonymisation and encryption of personal data (…)

Finding the **balance** between risk, appropriate technical and organisational measures while maintaining productivity, availability and integrity of machine data for different purpose.

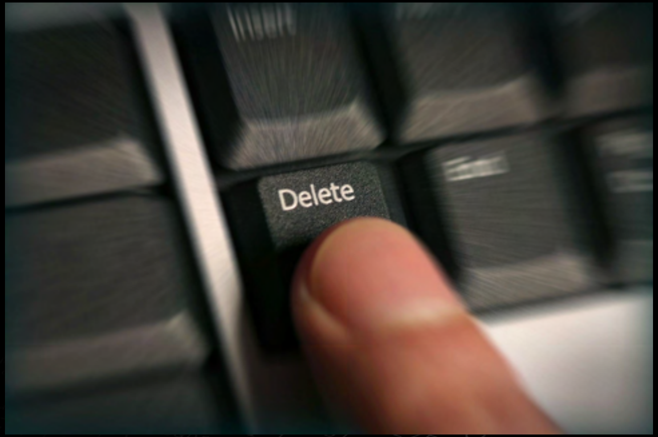
- Centralize machine data with controlled role based user access and audit trail

Further options based on risk assessment:

- Data minimization through anonymization techniques (Visualization Level or Raw Level needs to be decided - appropriate to the risk and need from different team's)
- Data pseudonymization by maintaining integrity, usability (Technical Concepts with Pro/Cons check .conf session „Data Obfuscation and Field Protection in Splunk")

Do I need to delete my log data in case of a delete request?

Review Paragraph 3



Article 17 : “Right to erasure ('right to be forgotten')”

(1) The data subject shall have the right to obtain from the controller the erasure of personal data concerning him or her without undue delay and the controller shall have the obligation to erase personal data without undue delay where one of the following grounds applies:

(a) The data are no longer necessary for the purpose
(b) Withdrawal of consent
(c) …
(d) The data was unlawfully processed
(e) …
(f) …

These conditions would very likely not apply for Network and Information Security logs.

In case the data subject has the right to erasure of data from logs, this function is supported by Splunk. (| delete command stops processing, retention policy wipes it finally from disk)

https://docs.splunk.com/Documentation/Splunk/latest/SearchReference/Delete
https://docs.splunk.com/Documentation/Splunk/6.6.3/Indexer/Setaretirementandarchivingpolicy

“An IP address is personal data – this doesn’t mean there is a problem”

Freddy

The day in a life of a GDPR breach

Matthias

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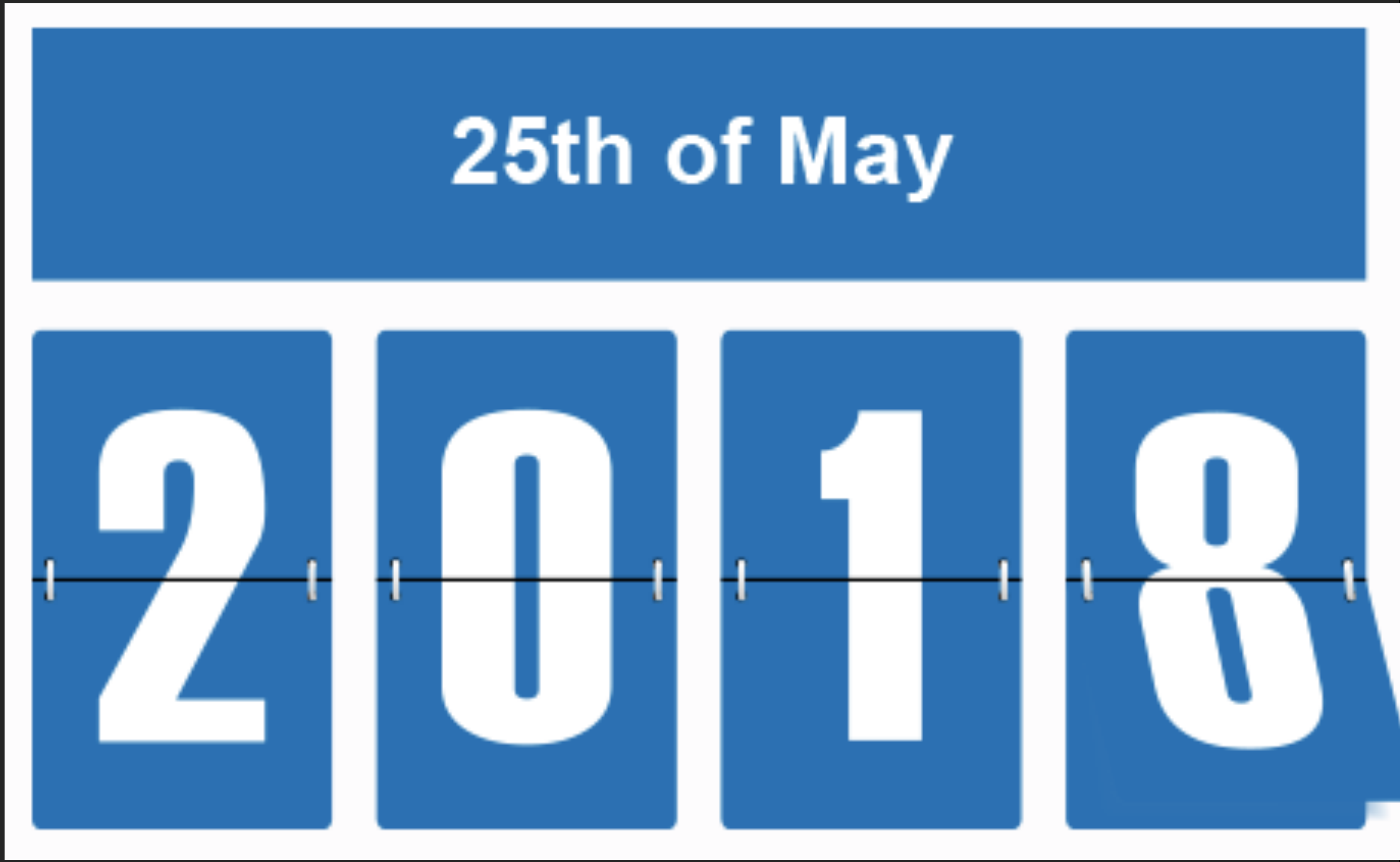
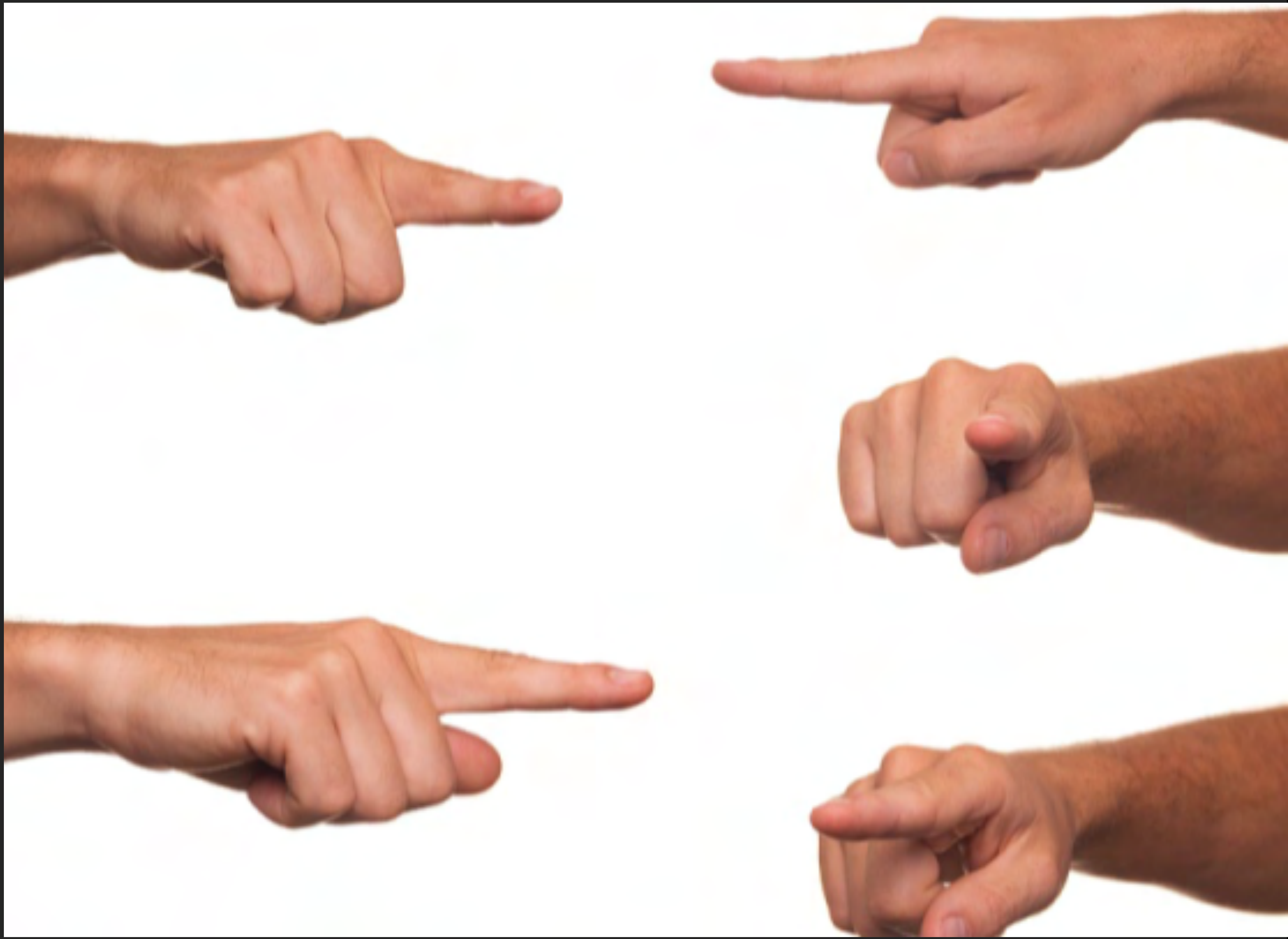
What if tomorrow is



What if you're responsible for Security?

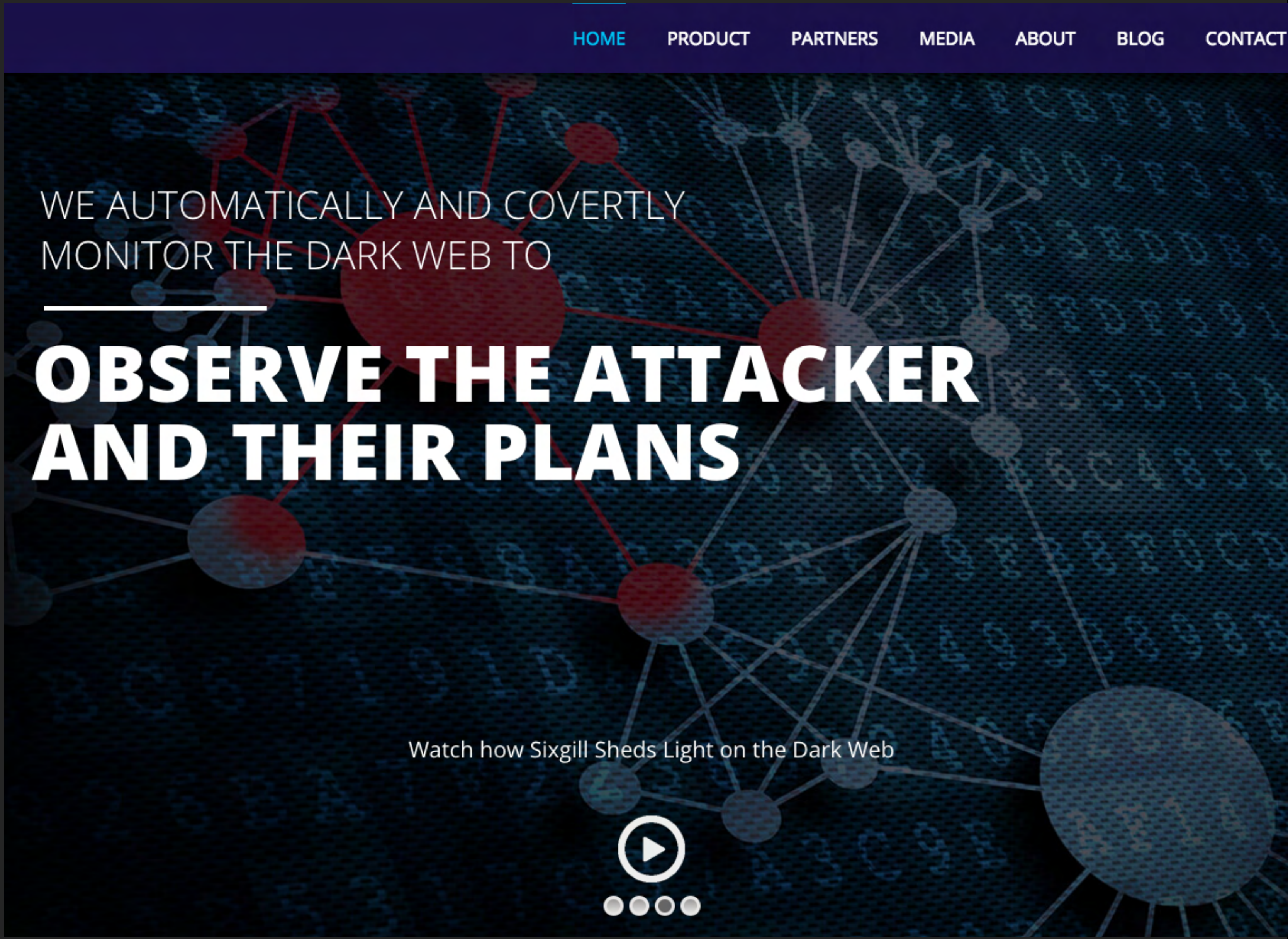


You wake up in the morning and you even haven’t had your coffee

Your friendly Data Privacy Officer is on the phone

Someone claims to sell PI data you hold

Your threat Intelligence provider informed you and provided you samples



WE AUTOMATICALLY AND COVERTLY MONITOR THE DARK WEB TO

OBSERVE THE ATTACKER AND THEIR PLANS

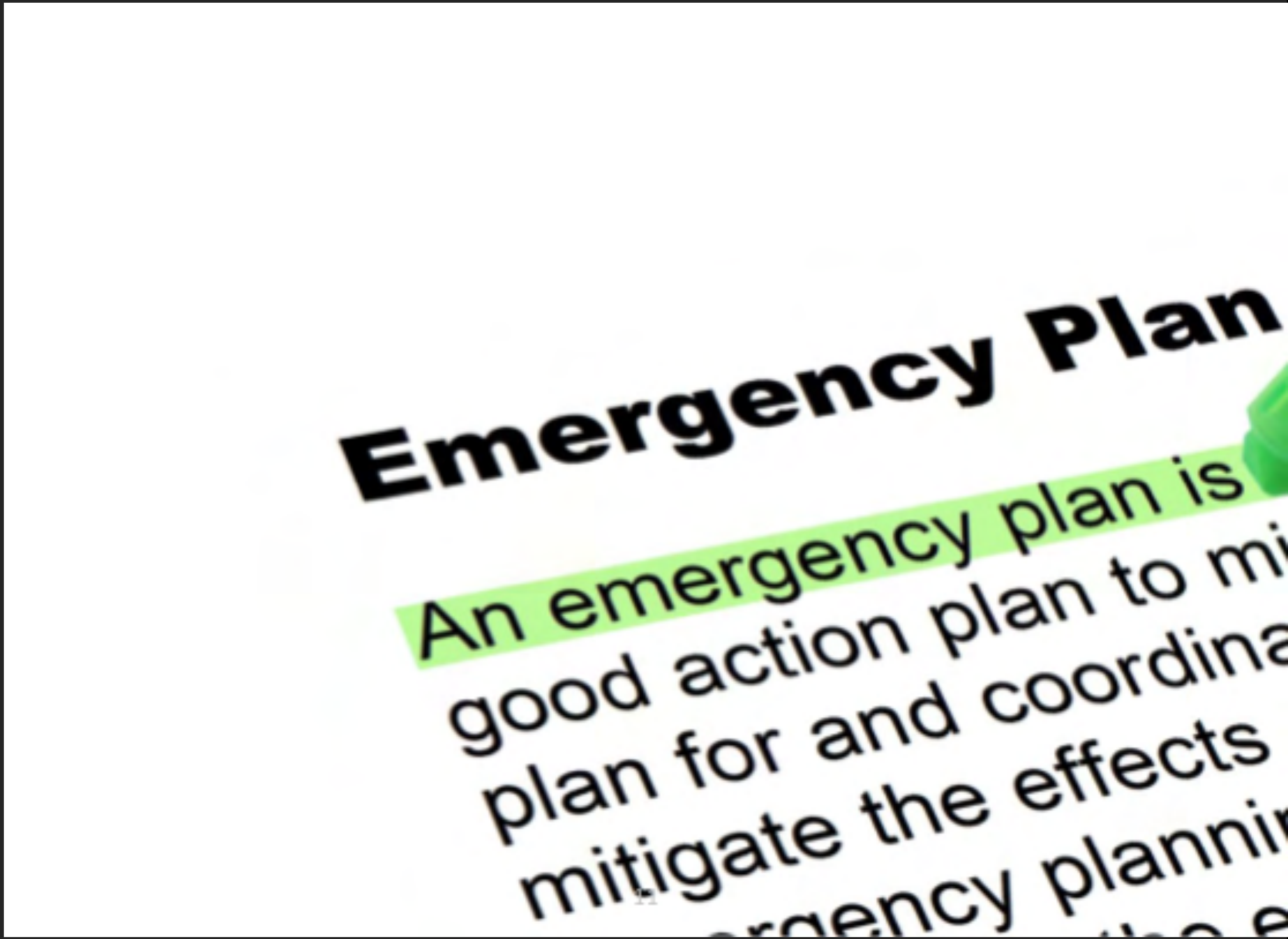
Watch how Sixgill Sheds Light on the Dark Web

It may be your data!

There is data in the deep web

He hangs up! What’s next?

Your incident investigation plan kicks in



Emergency Plan

An emergency plan is
good action plan to mi
plan for and coordina
mitigate the effects
rgency plannin

Coordination

DPO
IT
PR/Media Team
Legal
(CEO)

Hahaha

Sid "we'll be back soon" on dev centre

Yeah it's usually around 30 mins after the keynote isn't it?

Something like that yah

Only thing I don't like is Control Centre...too much blur I think...I dunno. :\

Yesterday 20:09

developer.apple.com doesn't even load now

Emergency call

Emergency chatroom

The fire alarm button is pulled down

72 Hour Breach Notification

Incident commander

Internal Leak

External Leak

T- 70h

Reaching out to your security operations team

“We need to investigate!!!”

T- 65h

Where is that data stored in your environment?

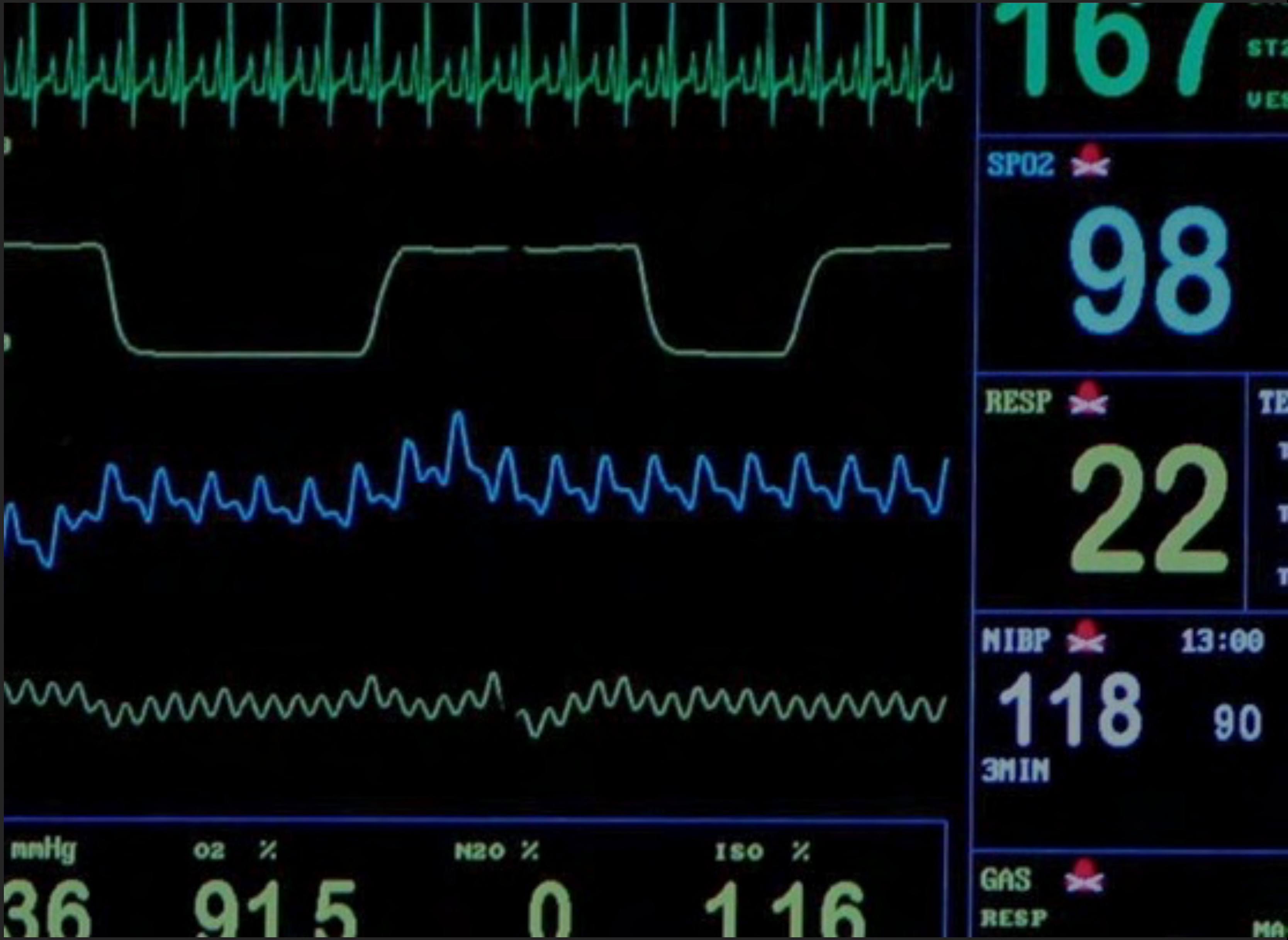
T- 55h

Is data still leaking?

First Action

T- 45h

How will you watch them?



T- 40h

Nice, structured, tidy data

T- 39h

Diving deep into the digital infrastructure

T- 35h

Machine data

time series, in motion,
unstructured

T- 34h

External authorities might come in to your organization and say: “Don’t stop it”

Worst Case

T- 25h

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Take response actions to stop data leakage

T- 20h

Understand

T- 15h

Who processed your information?

T- 10h

Which user or systems was involved?

T- 8h

Painting the picture

You know what you know

You know what you don't know

T- 5h

Puts the breach data subjects at risk?

Maybe resulting in a non event?

How sensitive was the data?

Do individuals need to be informed additionally?

As an organization you want to control the story

before chatter explodes

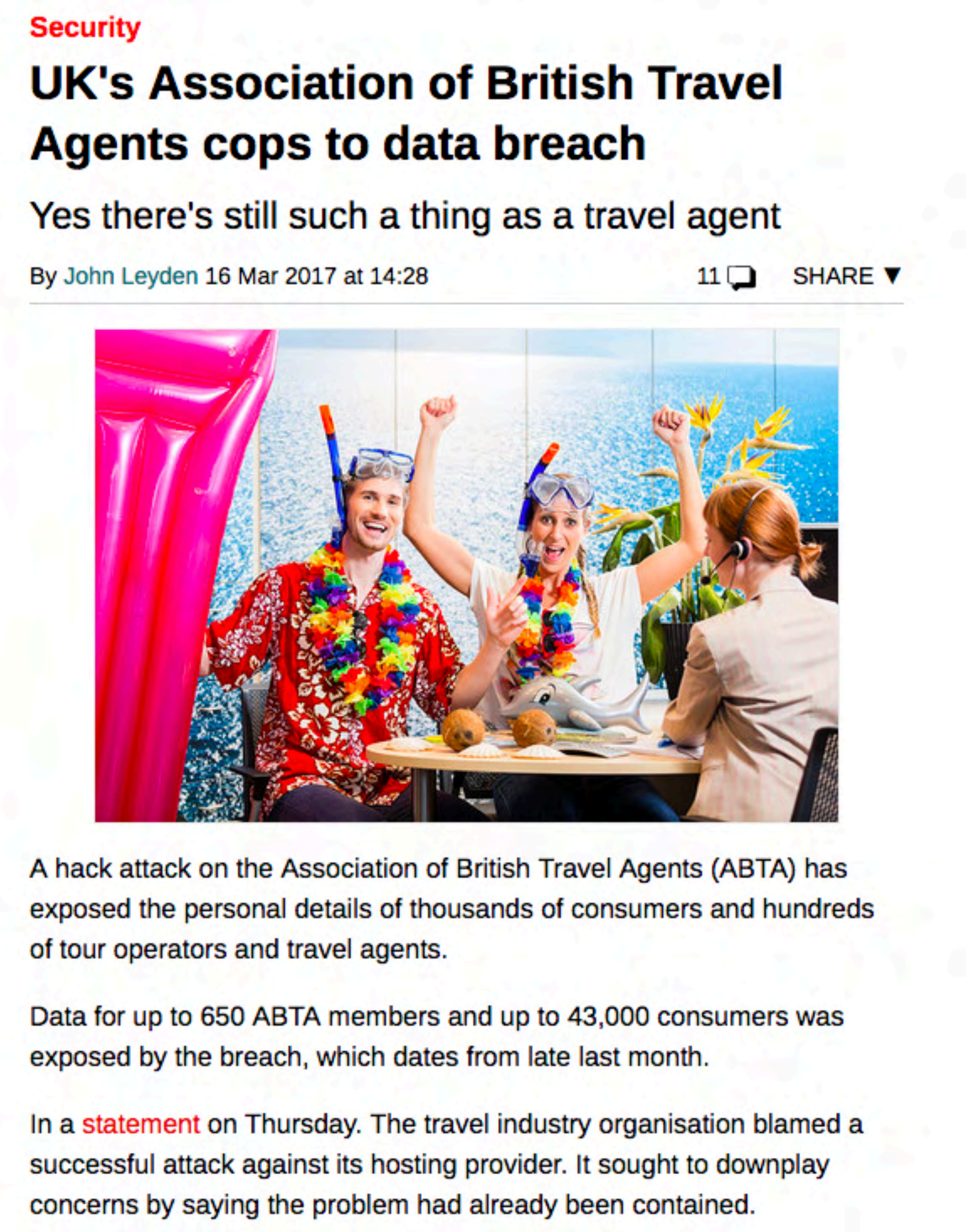
- Inform Authority
- Inform affected Individuals
- (Inform Public)

T- 0h

ress Release
ation +++ News +++ Information +++ News +++ Information +++ News +++ Information
INFO

Best Practice:

ABTA Breach



Security

UK's Association of British Travel Agents cops to data breach

Yes there's still such a thing as a travel agent

By John Leyden 16 Mar 2017 at 14:28

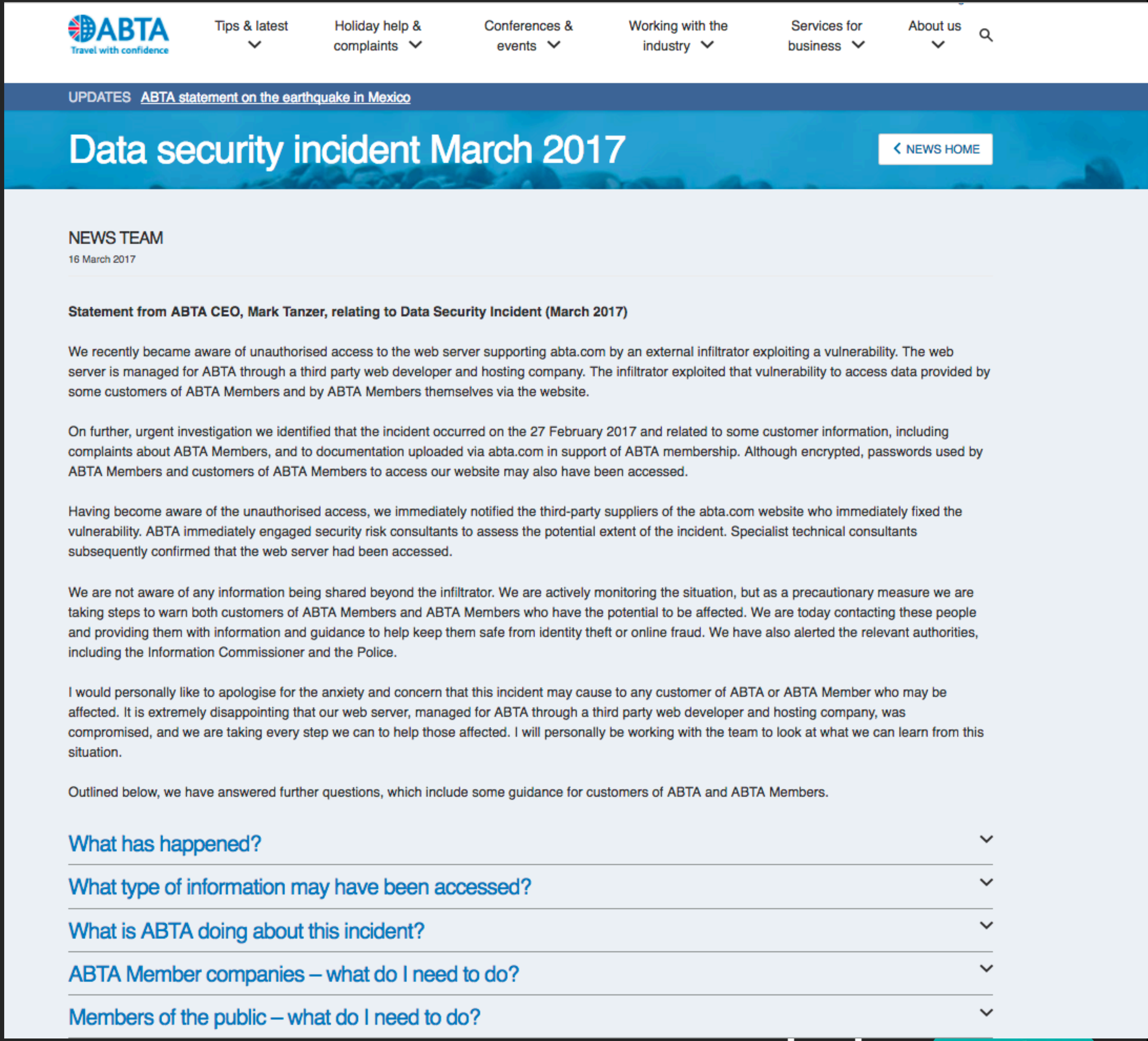
A hack attack on the Association of British Travel Agents (ABTA) has exposed the personal details of thousands of consumers and hundreds of tour operators and travel agents.

Data for up to 650 ABTA members and up to 43,000 consumers was exposed by the breach, which dates from late last month.

In a statement on Thursday. The travel industry organisation blamed a successful attack against its hosting provider. It sought to downplay concerns by saying the problem had already been contained.

Best Practice:

ABTA Breach



UPDATES ABTA statement on the earthquake in Mexico

Data security incident March 2017

NEWS TEAM
16 March 2017

Statement from ABTA CEO, Mark Tanzer, relating to Data Security Incident (March 2017)

We recently became aware of unauthorised access to the web server supporting abta.com by an external infiltrator exploiting a vulnerability. The web server is managed for ABTA through a third party web developer and hosting company. The infiltrator exploited that vulnerability to access data provided by some customers of ABTA Members and by ABTA Members themselves via the website.

On further, urgent investigation we identified that the incident occurred on the 27 February 2017 and related to some customer information, including complaints about ABTA Members, and to documentation uploaded via abta.com in support of ABTA membership. Although encrypted, passwords used by ABTA Members and customers of ABTA Members to access our website may also have been accessed.

Having become aware of the unauthorised access, we immediately notified the third-party suppliers of the abta.com website who immediately fixed the vulnerability. ABTA immediately engaged security risk consultants to assess the potential extent of the incident. Specialist technical consultants subsequently confirmed that the web server had been accessed.

We are not aware of any information being shared beyond the infiltrator. We are actively monitoring the situation, but as a precautionary measure we are taking steps to warn both customers of ABTA Members and ABTA Members who have the potential to be affected. We are today contacting these people and providing them with information and guidance to help keep them safe from identity theft or online fraud. We have also alerted the relevant authorities, including the Information Commissioner and the Police.

I would personally like to apologise for the anxiety and concern that this incident may cause to any customer of ABTA or ABTA Member who may be affected. It is extremely disappointing that our web server, managed for ABTA through a third party web developer and hosting company, was compromised, and we are taking every step we can to help those affected. I will personally be working with the team to look at what we can learn from this situation.

Outlined below, we have answered further questions, which include some guidance for customers of ABTA and ABTA Members.

What has happened?

What type of information may have been accessed?

What is ABTA doing about this incident?

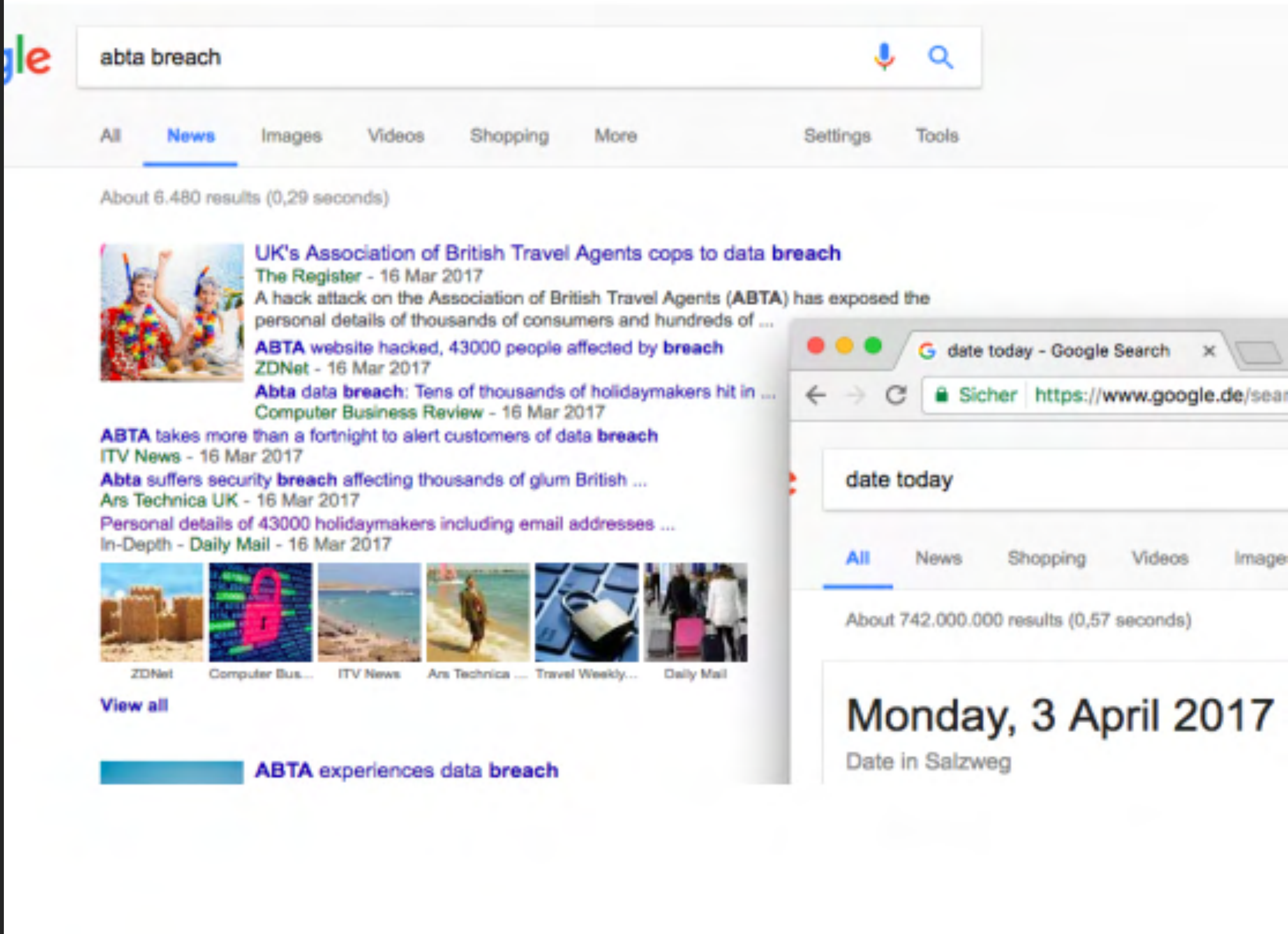
ABTA Member companies – what do I need to do?

Members of the public – what do I need to do?

Example

ABTA Breach

2+ weeks later out of the news



abta breach

About 6.480 results (0,29 seconds)

UK's Association of British Travel Agents cops to data breach
The Register - 16 Mar 2017
A hack attack on the Association of British Travel Agents (ABTA) has exposed the personal details of thousands of consumers and hundreds of ...

ABTA website hacked, 43000 people affected by breach
ZDNet - 16 Mar 2017

Abta data breach: Tens of thousands of holidaymakers hit in ...
Computer Business Review - 16 Mar 2017

ABTA takes more than a fortnight to alert customers of data breach
ITV News - 16 Mar 2017

Abta suffers security breach affecting thousands of glum British ...
Ars Technica UK - 16 Mar 2017

Personal details of 43000 holidaymakers including email addresses ...
In-Depth - Daily Mail - 16 Mar 2017

ABTA experiences data breach

date today - Google Search

Sicher https://www.google.de/sear

date today

About 742.000.000 results (0,57 seconds)

Monday, 3 April 2017
Date in Salzweg

Someone knocks on your door

T+ 1 Week

Data Privacy Audits

Have you deployed "countermeasures appropriate to the risk"?

Have you used "state of the art" best practices?

T+ 1 Week

Massive Fines

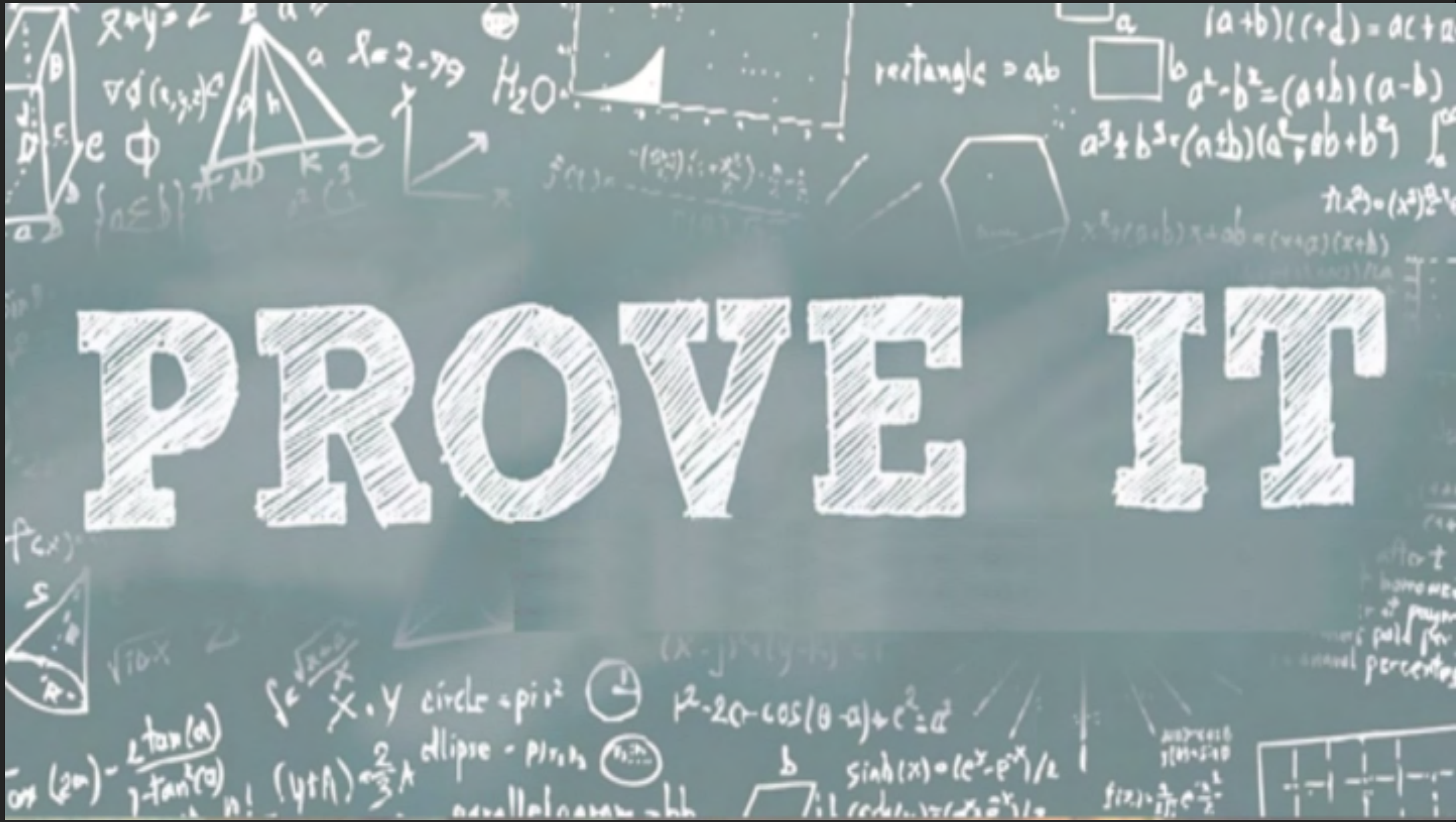
T+ 1 Week

Prove

What did you know?

When did you know?

How did you know about it?



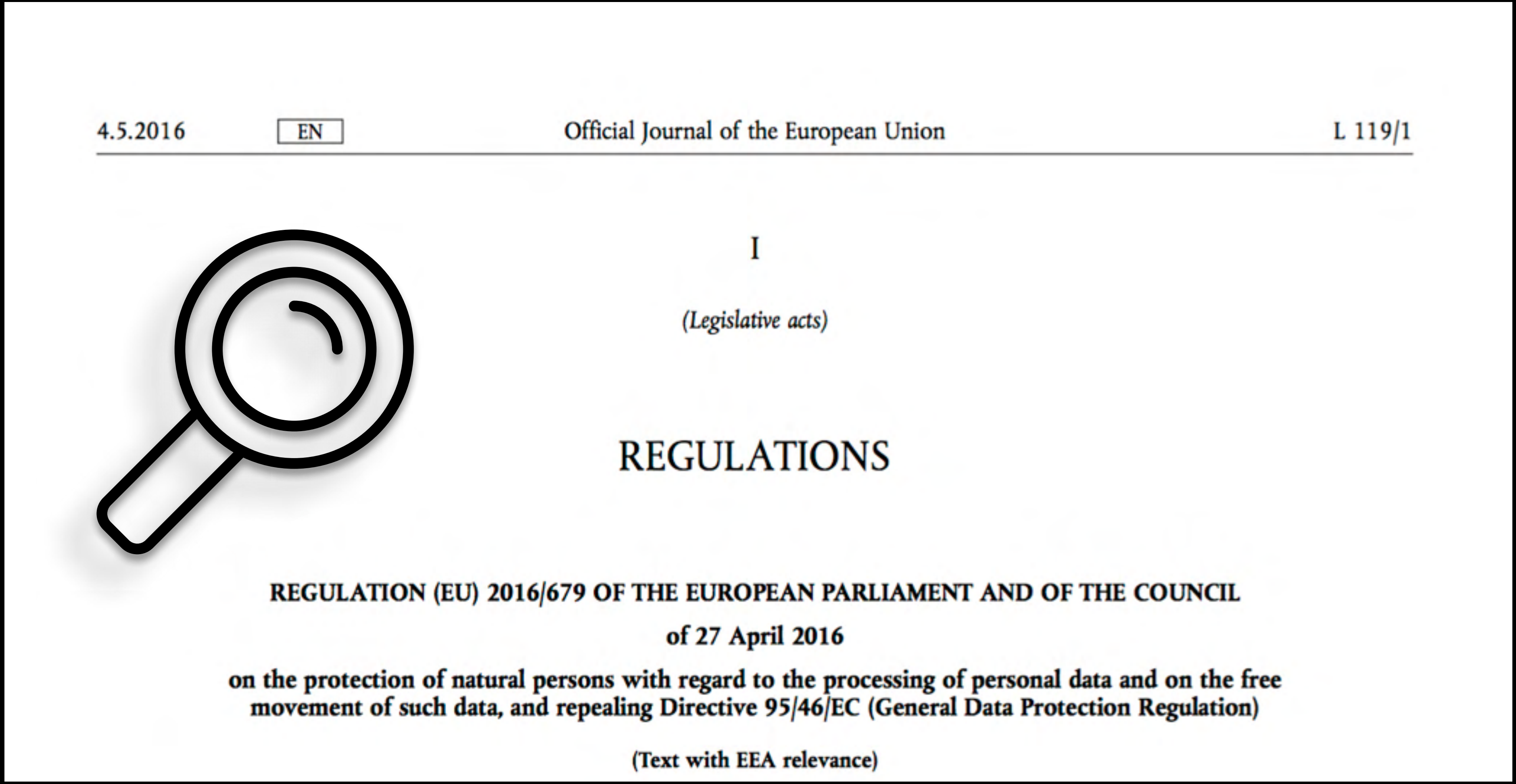
T+ 2 Weeks

Logs become your digital fingerprints

GDPR Article Mapping

James Hanlon

Looking into the Details



I

(Legislative acts)

REGULATIONS

REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 27 April 2016

on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)

(Text with EEA relevance)

http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679&from=EN

Splunk for GDPR

Detect
and Investigate
Data Breaches

Prove GDPR
Security Controls
are enforced

Search and Report
on Personal Data
Processing

Article 33 & 34

Breach Notification

“In light of the tight timescales for reporting a breach - it is important to have robust breach detection, investigation and internal reporting procedures in place.”

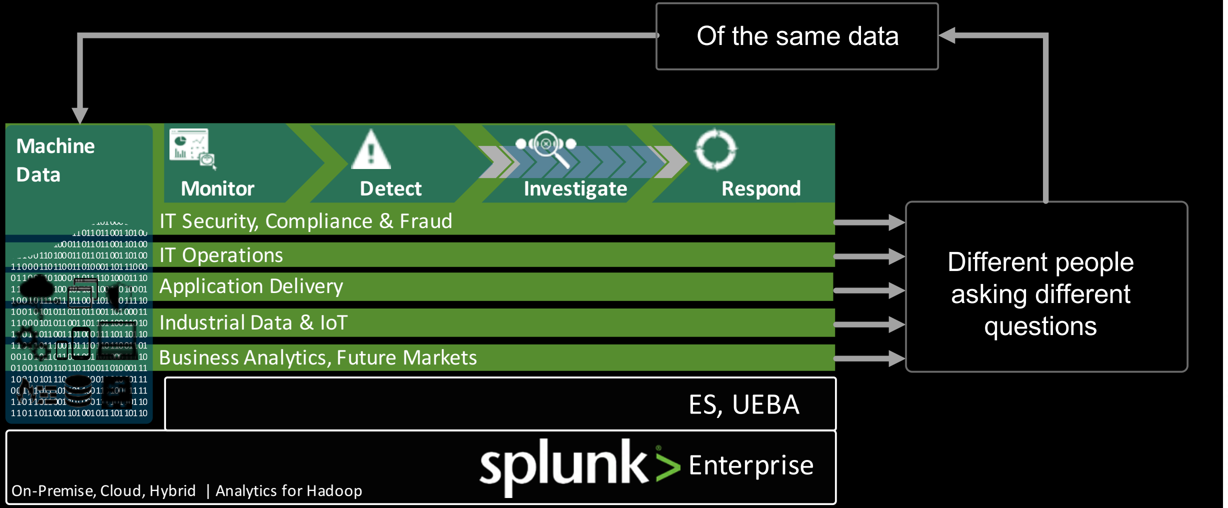
ICO (Information Commissioner's Office) on the GDPR Breach Notification

https://ico.org.uk/for-organisations/data-protection-reform/overview-of-the-gdpr/breach-notification/

Splunk for GDPR

- **Article 33** - Notification of a personal data breach to the supervisory authority
- **Article 34** - Communication of a personal data breach to the data subject

Data Breach Notification



Of the same data

Machine Data

Monitor

Detect

Investigate

Respond

IT Security, Compliance & Fraud

IT Operations

Application Delivery

Industrial Data & IoT

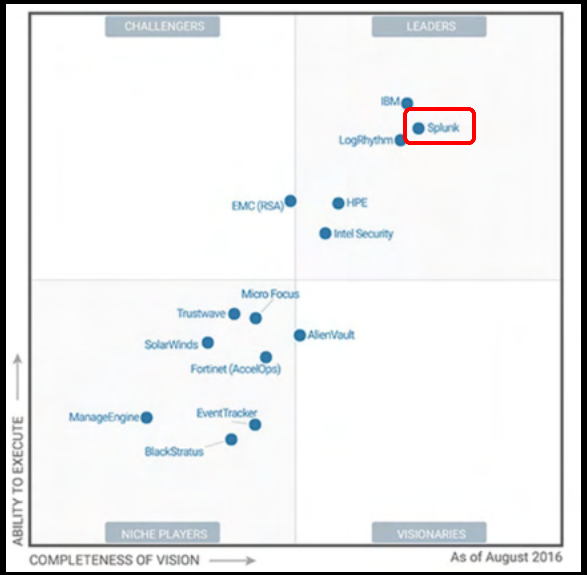
Business Analytics, Future Markets

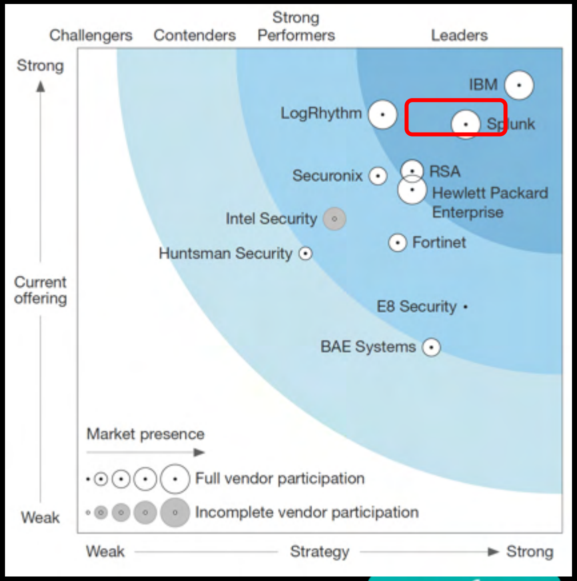
Different people asking different questions

ES, UEBA

splunk> Enterprise

On-Premise, Cloud, Hybrid | Analytics for Hadoop





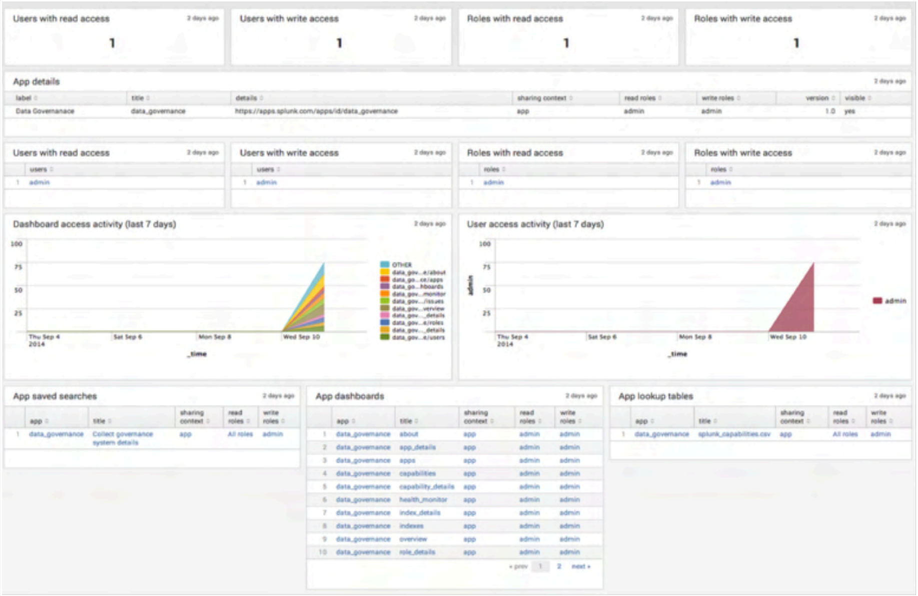
Splunk for GDPR

> **Article 32** - Security of processing

> Risk Minimization

> Evaluate Controls Effectiveness

> Prove Appropriate Controls in Place



Users with read access	Users with write access	Roles with read access	Roles with write access
1	1	1	1

App details

label	title	details	sharing context	read roles	write roles	version	visible
Data Governanace	data_governance	https://apps.splunk.com/apps/id/data_governance	app	admin	admin	1.0	yes

Users with read access

	users
1	admin

Users with write access

	users
1	admin

Roles with read access

	roles
1	admin

Roles with write access

	roles
1	admin

App saved searches

	app	title	sharing context	read roles	write roles
1	data_governance	Collect governance system details	app	All roles	admin

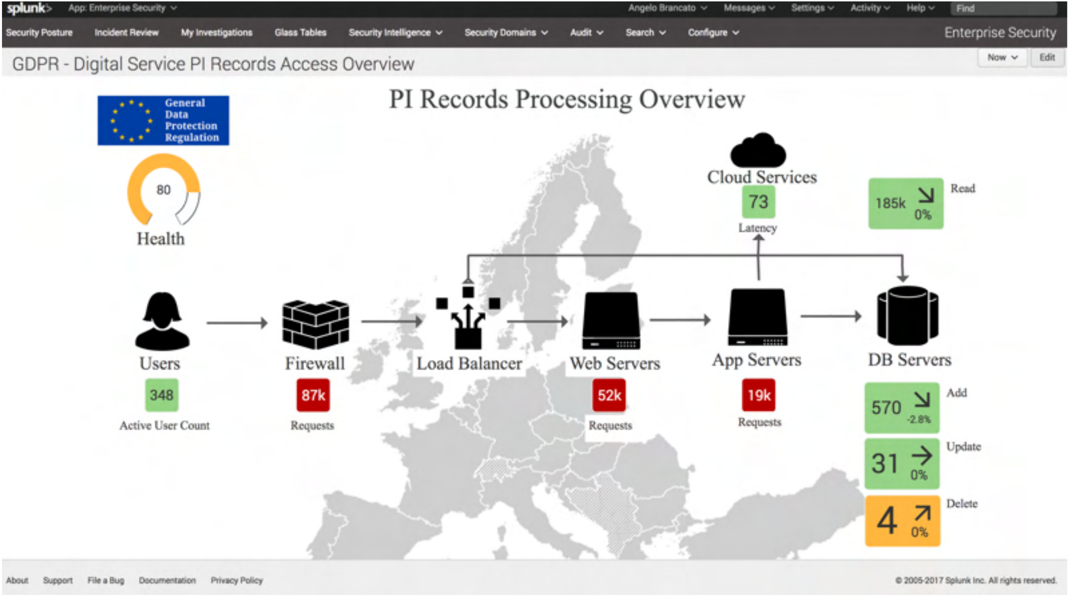
App dashboards

	app	title	sharing context	read roles	write roles
1	data_governance	about	app	admin	admin
2	data_governance	app_details	app	admin	admin
3	data_governance	apps	app	admin	admin
4	data_governance	capabilities	app	admin	admin
5	data_governance	capability_details	app	admin	admin
6	data_governance	health_monitor	app	admin	admin
7	data_governance	index_details	app	admin	admin
8	data_governance	indexes	app	admin	admin
9	data_governance	overview	app	admin	admin
10	data_governance	role_details	app	admin	admin

« prev 1 2 next »

App lookup tables

	app	title	sharing context	read roles	write roles
1	data_governance	splunk_capabilities.csv	app	All roles	admin



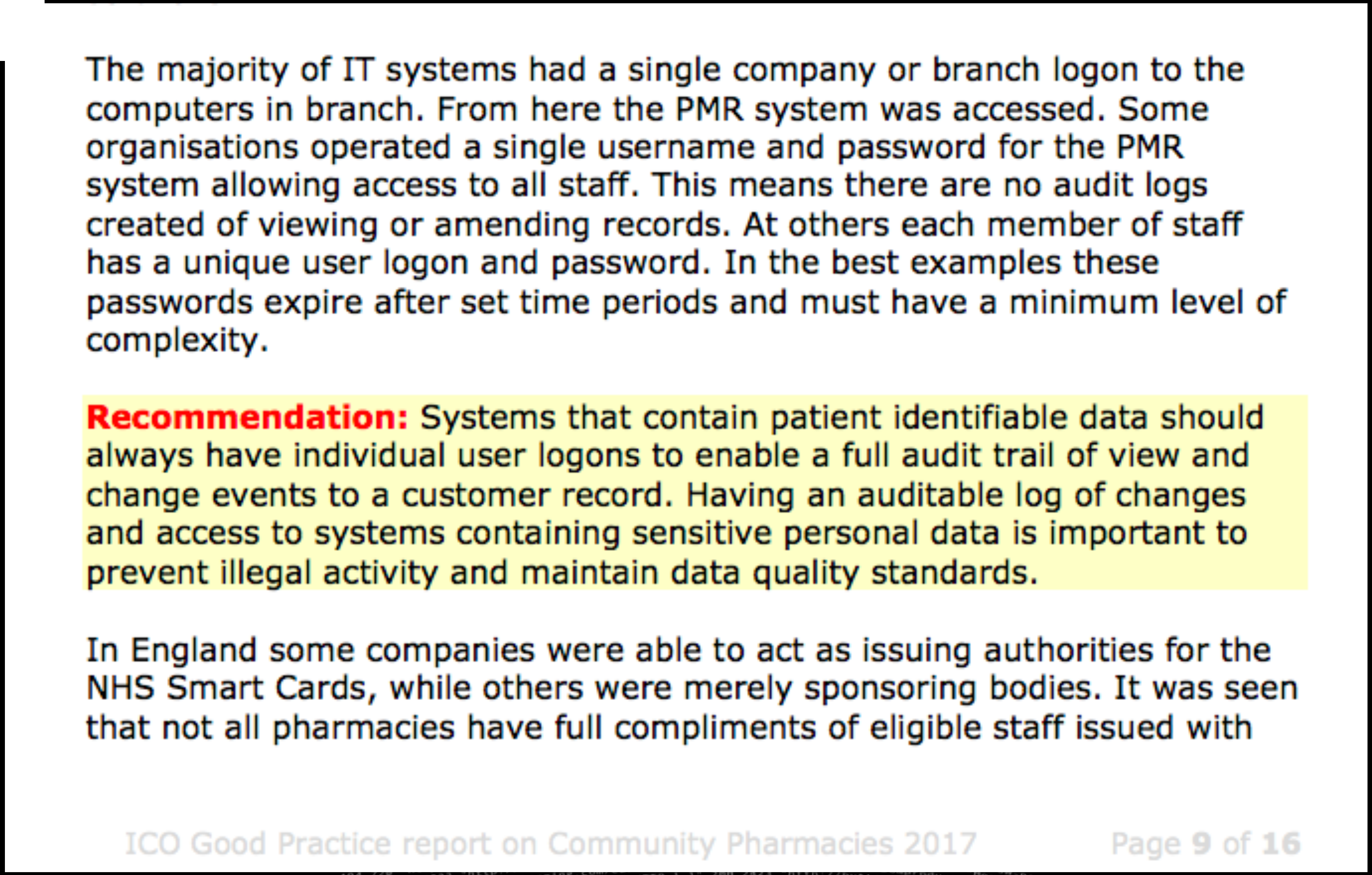
GDPR - Digital Service PI Records Access Overview

PI Records Processing Overview

Article 30

Records of Processing

Findings from ICO
work relating to
Community Pharmacies



The majority of IT systems had a single company or branch logon to the computers in branch. From here the PMR system was accessed. Some organisations operated a single username and password for the PMR system allowing access to all staff. This means there are no audit logs created of viewing or amending records. At others each member of staff has a unique user logon and password. In the best examples these passwords expire after set time periods and must have a minimum level of complexity.

Recommendation: Systems that contain patient identifiable data should always have individual user logons to enable a full audit trail of view and change events to a customer record. Having an auditable log of changes and access to systems containing sensitive personal data is important to prevent illegal activity and maintain data quality standards.

In England some companies were able to act as issuing authorities for the NHS Smart Cards, while others were merely sponsoring bodies. It was seen that not all pharmacies have full compliments of eligible staff issued with

Splunk for GDPR

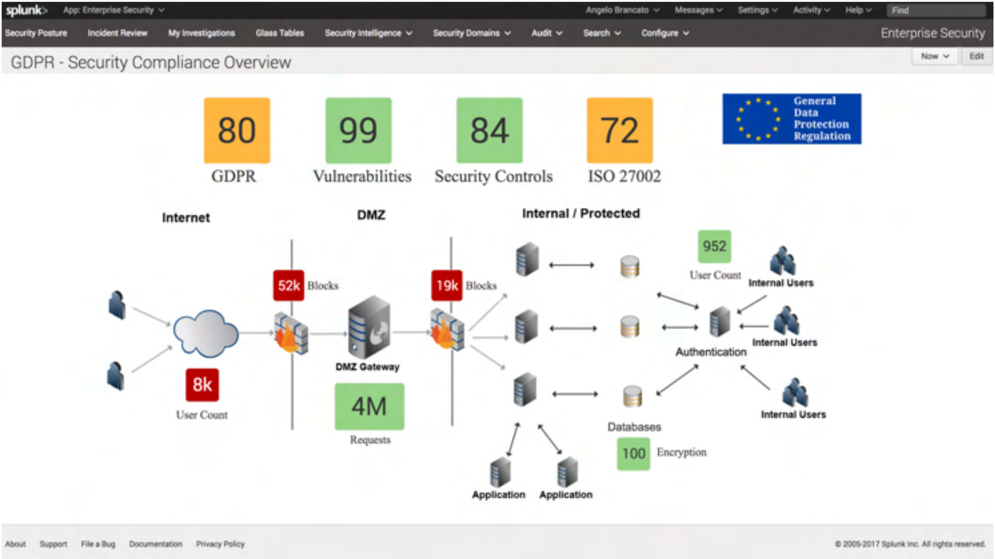
- > **Article 30** - Records of Processing Activity
- > **Article 5, 15, 17, 18** and **28** - Data Subject Rights

> Right to be Forgotten

> Right of rectification

> Right of access

> Right of data portability



GDPR - Security Compliance Overview

80	99	84	72
GDPR	Vulnerabilities	Security Controls	ISO 27002

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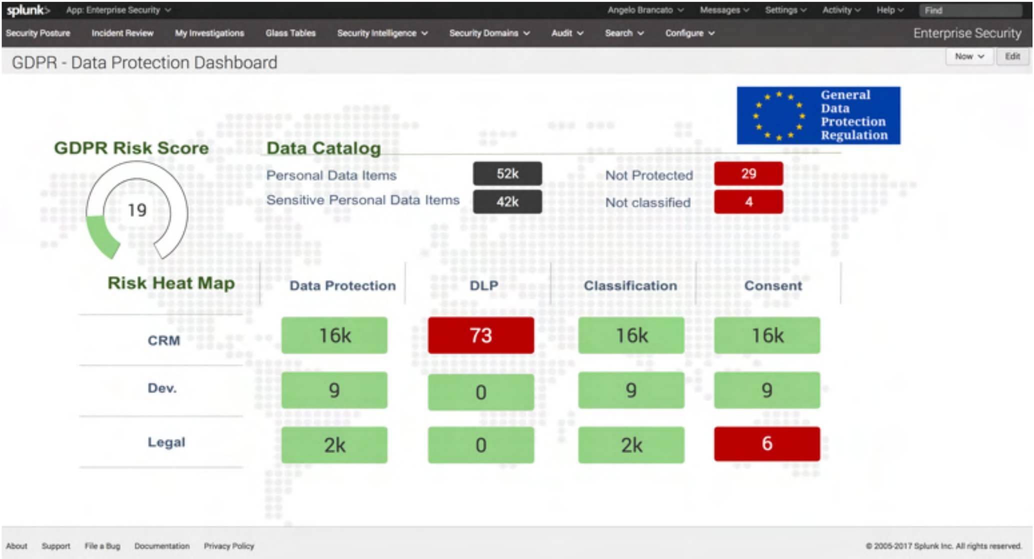

GDPR - Data Protection Dashboard

GDPR Risk Score

19

Data Catalog

Personal Data Items	52k	Not Protected	29
Sensitive Personal Data Items	42k	Not classified	4

Risk Heat Map	Data Protection	DLP	Classification	Consent
CRM	16k	73	16k	16k
Dev.	9	0	9	9
Legal	2k	0	2k	6

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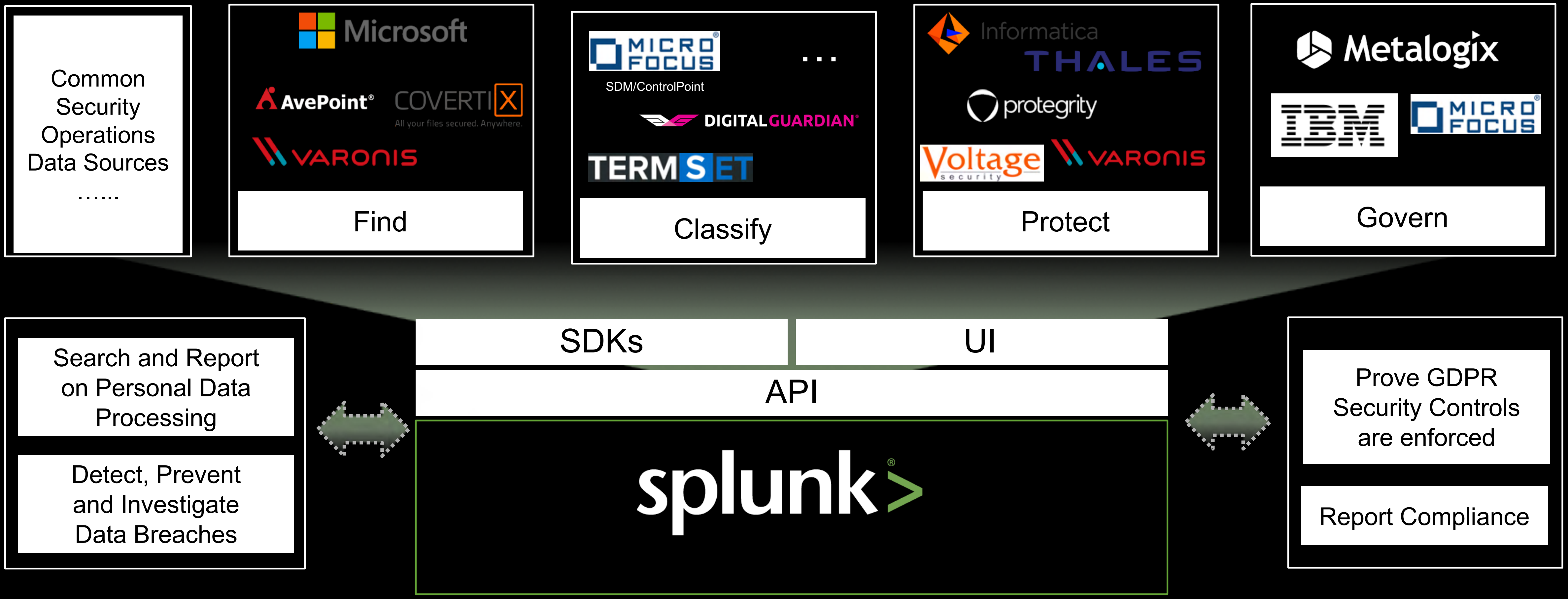
Visibility and Enforcement for GDPR



No rigid schemas – add in data from any other source.

Pseudonymization of PII

Stay compliant whatever occurs in your machine data

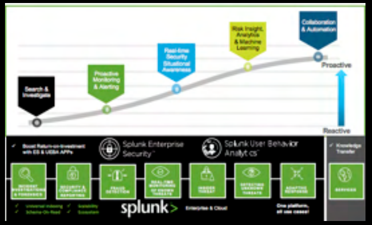
Supporting Your Risk Minimization Strategy

- ✓ Data in transit: Encryption
- ✓ Data at rest: Encryption
- ✓ Data at rest: Integrity
- ✓ Data/Fields within Splunk:
  - ✓ Anonymization in raw event
  - ✓ Anonymization in presentation layer
  - ✓ Pseudonymization in raw event
  - ✓ Pseudonymization in presentation layer

Resources to help you

James

Splunk Support for the GDPR Journey

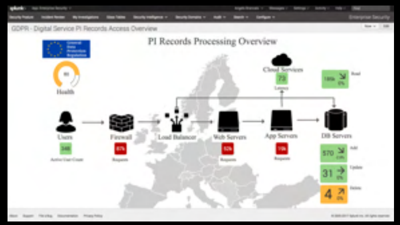

Search & Investigate
Proactive Monitoring & Alerting
Real-time Security Situational Awareness
Risk Insight, Analytics & Machine Learning
Collaboration & Automation
Proactive
Reactive
Splunk Enterprise Security
Splunk User Behavior Analytics
Knowledge Transfer
splunk> Enterprise & Cloud
One platform, all use cases!

Security Analytics & Investigation Readiness

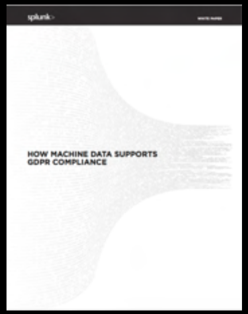
Define a strategy & outcome for security analytics & breach Investigation

GDPR Workshop

Map analytics capabilities to GDPR security monitoring & reporting needs


GDPR - Digital Service PI Records Access Overview

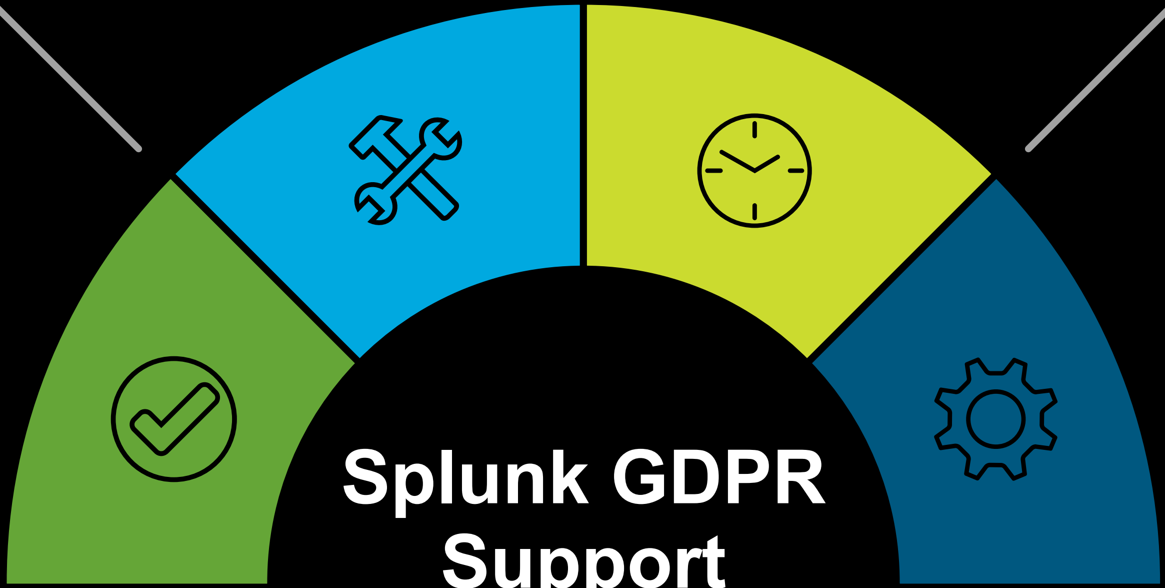
PI Records Processing Overview


splunk>

HOW MACHINE DATA SUPPORTS GDPR COMPLIANCE

How to use Machine Data for GDPR

Whitepaper outlining how machine data can support GDPR


Splunk GDPR Support

Agenda

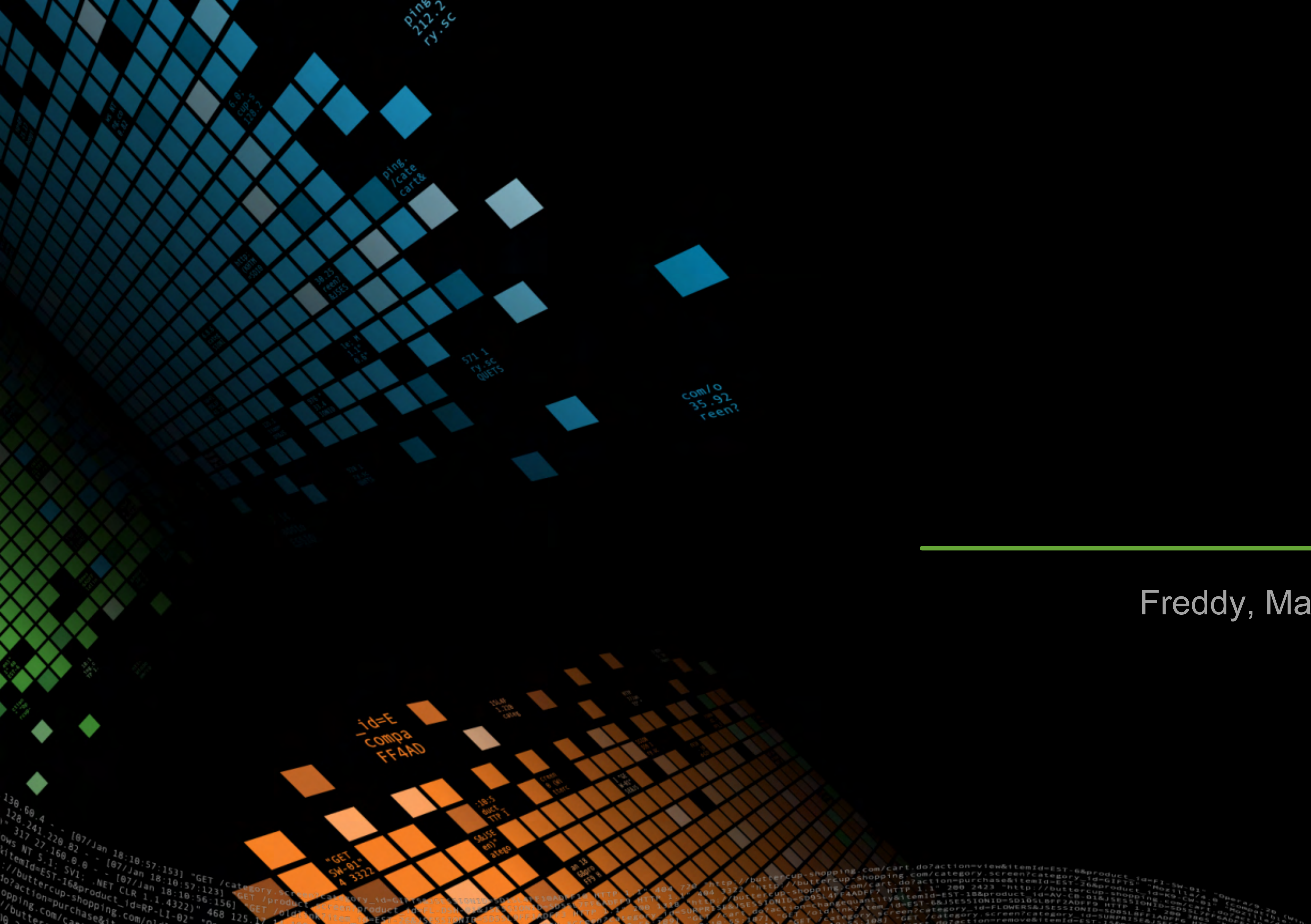
Best practices to protect your machine data

- The Drivers
- Role Based User Access
- Data-in-Flight
- Data-at-Rest
- Data Obfuscation within Splunk Enterprise
  - Anonymization
  - Pseudonymization
- Summing Up
- Demonstration

Splunk Data Obfuscation

How to protect data using anonymisation, pseudonymisation & encryption in Splunk

Thursday, September 28, 2017 | 11:35 AM-12:20 PM



Q&A

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