NationalCouncil of ISACs

Information Sharing

Denise Anderson

Executive Director

National Health Information Sharing & Analysis Center (NH-ISAC)

Chair, National Council of ISACs

Agenda

- What is an ISAC?
- Overview of NCI
- Information Sharing - What and How
- Threats Seen
- Case Studies

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What is an ISAC?

Why ISACs?

Why ISACs?

❖ Trusted entities established by CI/KR owners and operators.

❖ Comprehensive sector analysis aggregation / anonymization

❖ Reach-within their sectors, with other sectors, and with government to share critical information.

❖ All-hazards approach

❖ Threat level determination for sector

❖Operational-timely accurate actionable

ISACs

- Aviation ISAC
- Communications ISAC
- Defense Industrial Base ISAC
- Downstream Natural Gas ISAC
- Electricity ISAC
- Emergency Management & Response ISAC
- Financial Services ISAC
- Information Technology ISAC
- Maritime ISAC
- Multi-State ISAC
- National Health ISAC

ISACs

Real Estate ISAC Information Sharing and Analysis Center

ONG-ISAC

- Oil and Natural Gas ISAC (ONG)
- Over the Road & Motor Coach ISAC
- Public Transit ISAC
- Real Estate ISAC
- Research and Education ISAC
- Retail ISAC
- Supply Chain ISAC
- Surface Transportation ISAC
- Water ISAC

SC ISAC

REN-ISAC

R-CISC RETAIL CYBER INTELLIGENCE SHARING CENTER

WaterISAC

APTA

ST-ISAC

Other Operational Entities and Upcoming ISACs

- **Automotive**
- Chemical
- Food & Ag
- Nuclear
- Critical Manufacturing

National Council of ISACs

What is the National Council of ISACs?

National Council of ISACs

- Began meeting in 2003 to address common concerns and cross-sector interdependencies

- Volunteer group of ISACs who meet monthly to develop trusted working relationships among sectors on issues of common interest and work on initiatives of value to CI/KR

NCI Structure

- National Council of ISACs: four designated operational representatives from each ISAC sit on the Council.
- ISAC Plus: all other entities/representatives such as operations centers who participate in information sharing
- Leadership:

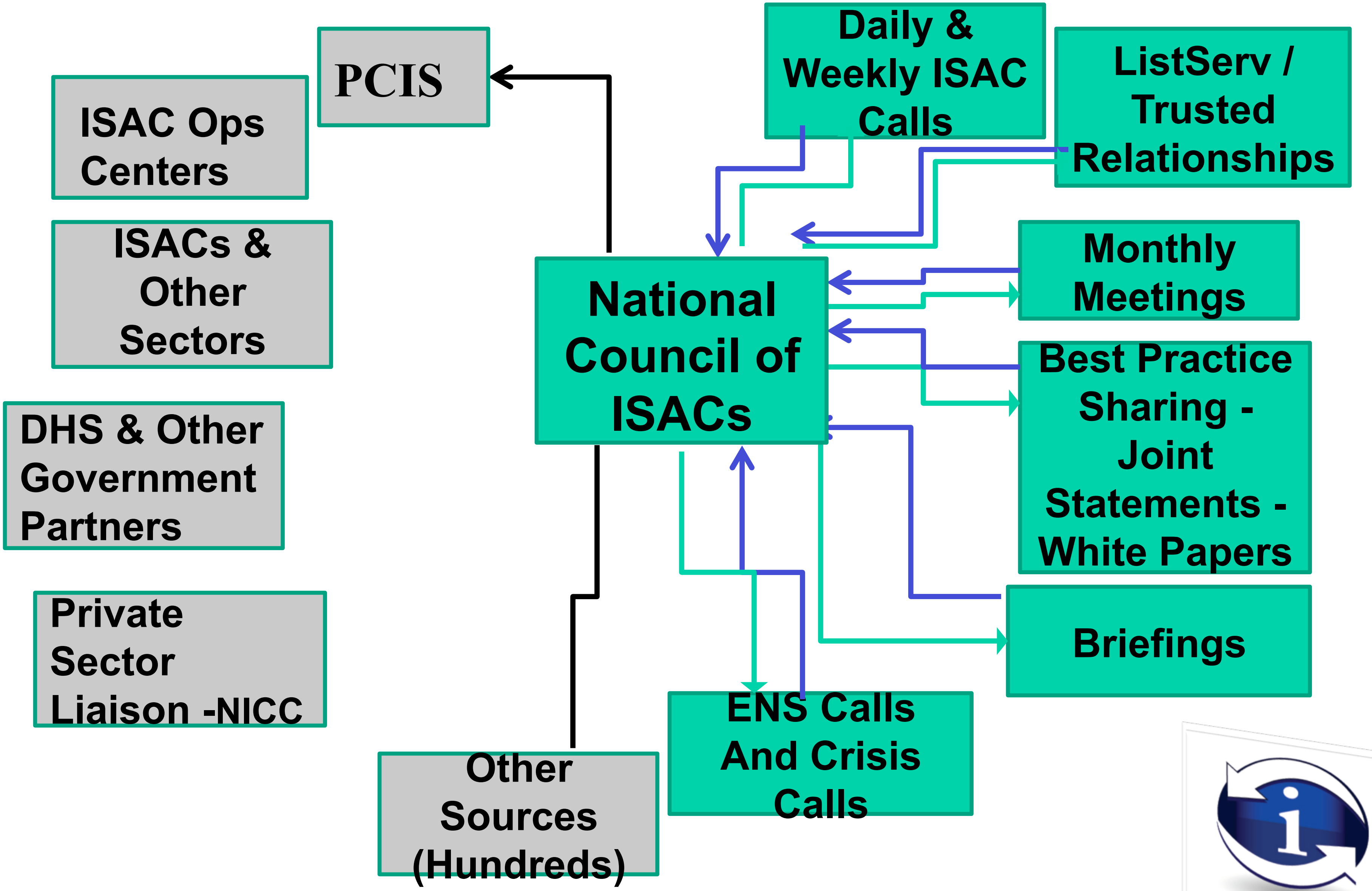
Chair: Denise Anderson-FS-ISAC

Vice-Chair: Scott Algeier-IT-ISAC

Secretary: Josh Poster-ST-ISAC

Information Sources

Communications



PCIS

ISAC Ops Centers

ISACs & Other Sectors

DHS & Other Government Partners

Private Sector Liaison -NICC

Other Sources (Hundreds)

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Daily & Weekly ISAC Calls

ListServ / Trusted Relationships

Monthly Meetings

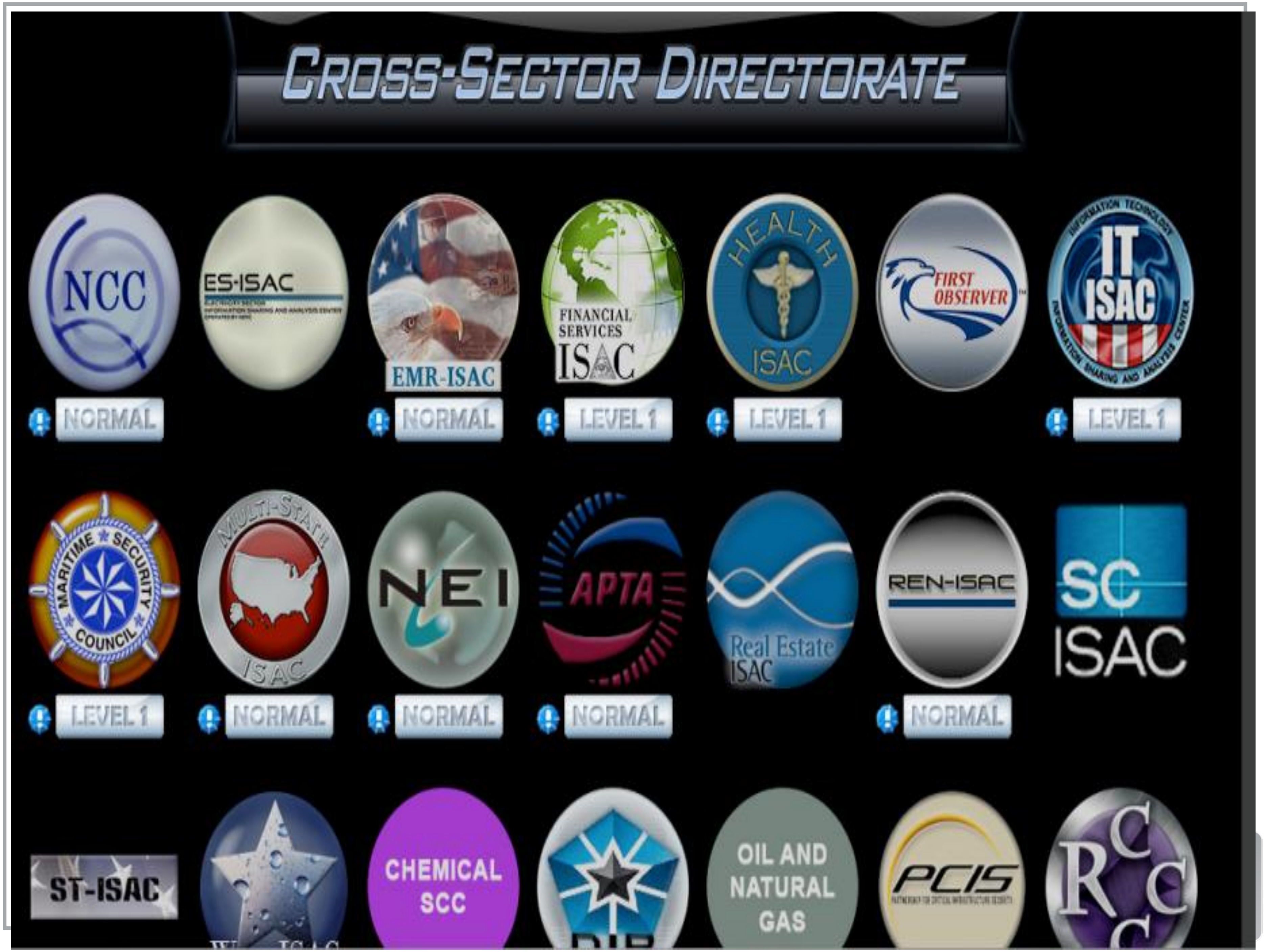
Best Practice Sharing - Joint Statements - White Papers

Briefings

ENS Calls And Crisis Calls

Examples of Activities

- Increase involvement of sectors without ISACs
- Daily, Weekly, Monthly and Crisis calls
- **Cross Sector Information Sharing Portal**
- **Private Sector Liaison with the NICC**
- Drills/Exercises Such as NLEs, Cyber Storm
  - OCF
- Implement Real-Time sector Threat Level Reporting
  - Directorate


CROSS-SECTOR DIRECTORATE
NCC
NORMAL
ES-ISAC
ELECTRICITY SECTOR INFORMATION SHARING AND ANALYSIS CENTER OPERATED BY NERC
EMR-ISAC
NORMAL
FINANCIAL SERVICES ISAC
LEVEL 1
HEALTH ISAC
LEVEL 1
FIRST OBSERVER
INFORMATION TECHNOLOGY IT ISAC INFORMATION SHARING AND ANALYSIS CENTER
LEVEL 1
MARITIME SECURITY COUNCIL
LEVEL 1
MULTI-STATE ISAC
NORMAL
NEI
NORMAL
APTA
NORMAL
Real Estate ISAC
REN-ISAC
NORMAL
SC ISAC
ST-ISAC
CHEMICAL SCC
OIL AND NATURAL GAS
PCIS
PARTNERSHIP FOR CRITICAL INFRASTRUCTURE SECURITY
RCCC

Points of Engagement

- National Infrastructure Coordinating Center (NICC)
- National Cybersecurity and Communications Integration Center (NCCIC)
  - DHS-led Unified Operations Watch & Warning Center
  - Operates 24 hours/day, 7 days/week, 365 days a year
- Unified Command Group-composed of private and public sector representatives
  - Meet monthly and during an incident as needed
  - Advise Assistant Secretary of CS&C on cybersecurity matters, provide subject matter expertise and response as necessary during an incident that requires national coordination

National Council of ISACs

www.nationalcouncilofisacs.org

nationalcouncilofisacs@natlisacs.org

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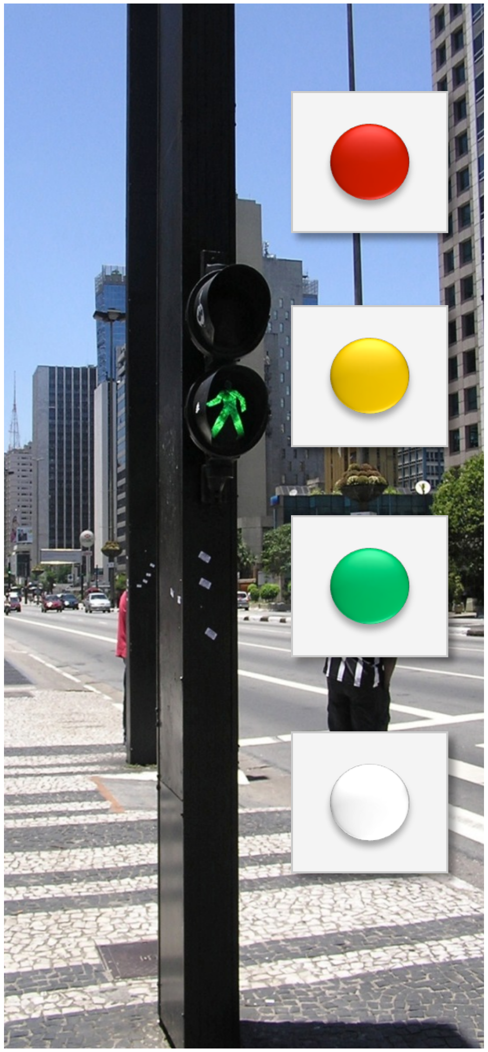
Information Sharing

Valu
e

Trust

Structur
e

Information Sharing: Traffic Light Protocol



- Restricted to a defined group (e.g., only those present in a meeting.) Information labeled RED should not be shared with anyone outside of the group

- This information may be shared with FS-ISAC members.

- Information may be shared with FS-ISAC members and partners (e.g., vendors, MSSPs, customers). Information in this category is not to be shared in public forums

- This information may be shared freely and is subject to standard copyright rules

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Types of Information Shared

Cyber Threats, Vulnerabilities, Incidents

- ✓ Malicious Sites
- ✓ Threat Actors, Objectives
- ✓ Threat Indicators
- ✓ TTPs, Observables
- ✓ Courses of Action
- ✓ Exploit Targets
- ✓ Denial of Service Attacks
- ✓ Malicious Emails: Phishing/ Spearphishing
- ✓ Software Vulnerabilities
- ✓ Malicious Software
- ✓ Analysis and risk mitigation
- ✓ Incident response

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Primary Ways Information Is Shared

✓Portal/Alerts

✓Listservers

✓Automation

Sample of Sharing Thread

Received close to 500 so far and still coming in, 90 made it through to employees before being blocked by perimeter as spam

Subject:
Important message from BANK
Sender:
youraccount@BANK.message.com
URL: hxxp://www2.webmasterradio.fm/FanPagePro/css/Logon.html

0 hits last 7 days

We've had about 50 hits; so far all are discarded

BANK: Submitted a takedown request for the phishing site

TLP AMBER
PROPRIETARY INFORMATION

Sample of ISAC Sharing

Indicators of Compromise

IP Address, Subject Line, MD5, TTP, Malware

Ask a question

Anyone else seeing?...

What do you do in this situation?....

How do you handle?…………

Share a Best Practice

Here’s how we……

Share a Mitigation Strategy

Here’s a script you can use……

We did this……

A Common Language

STIX™

- **Structured Threat Information Expression is a common language a way for all to speak the same**

Trusted Automated eXchange of Indicator Information (TAXII)

- **The goal of TAXII is to facilitate the exchange of structured cyber threat information**
  - Designed to support existing sharing paradigms in a more automated manner
- **TAXII is a set of specifications defining the network-level activity of the exchange**
  - Defines services and messages to exchange data
  - Does NOT dictate *HOW* data is handled in the back-end, *WHAT* data is shared or *WHO* it is shared with
  - TAXII is NOT a sharing program
- **TAXII is a protocol over which STIX can be transported**

What is Cyber Threat Intelligence?
8 Constructs of STIX

Atomic

Observable

What threat activity are we seeing?

Tactical

Indicator

What threats should I look for on my networks and systems and why?

Operational

Incident

Where has this threat been seen?

Course of Action

What can I do about it?

ExploitTarget

What weaknesses does it exploit?

Strategic

ThreatActor

Who is responsible for this threat?

Campaign

Why do they do this?

TTP

What do they do?

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Threats Seen

Cyber Threat Environment

- **Actors:**
  - Nation States
  - Terrorists
  - Criminals
  - Insiders
  - Activists/Hacktivists
  - Media
  - Vendors

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Seen Last Week…..

Nuclear Exploit Kit

Open VAS Scanning

Dridex

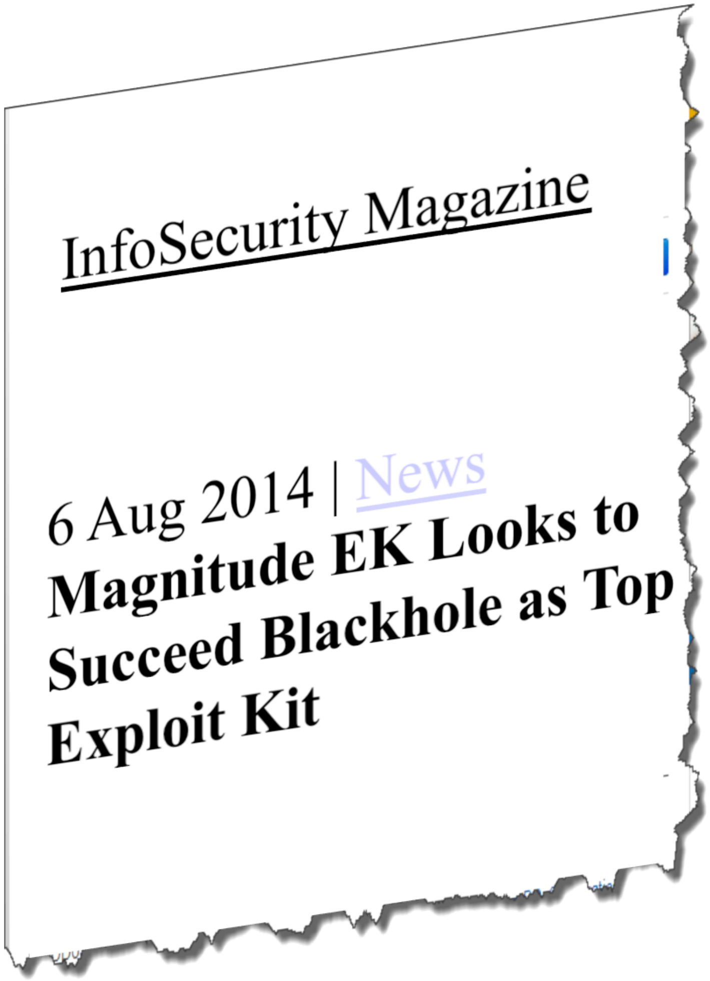
PlugX

Upatre/Dyre

Angler/Neutrino

DDoS

Malware-Exploit Kits



InfoSecurity Magazine

6 Aug 2014 | News

Magnitude EK Looks to Succeed Blackhole as Top Exploit Kit

Top Exploit Kits Seen

Blackhole EK *– Paunch 10/13*
Infinity EK*: Flash player exploit*
Neutrino EK*: Mixes legitimate non-legitimate requests to obsfuscate the code.*
Magnitude EK*: - Ransomware*
Sweet Orange EK*: - Website*
Fiesta EK*: - Silverlight*
Angler EK*: hides behind legitimate web code*
Crimeboss EK*: Java exploits*

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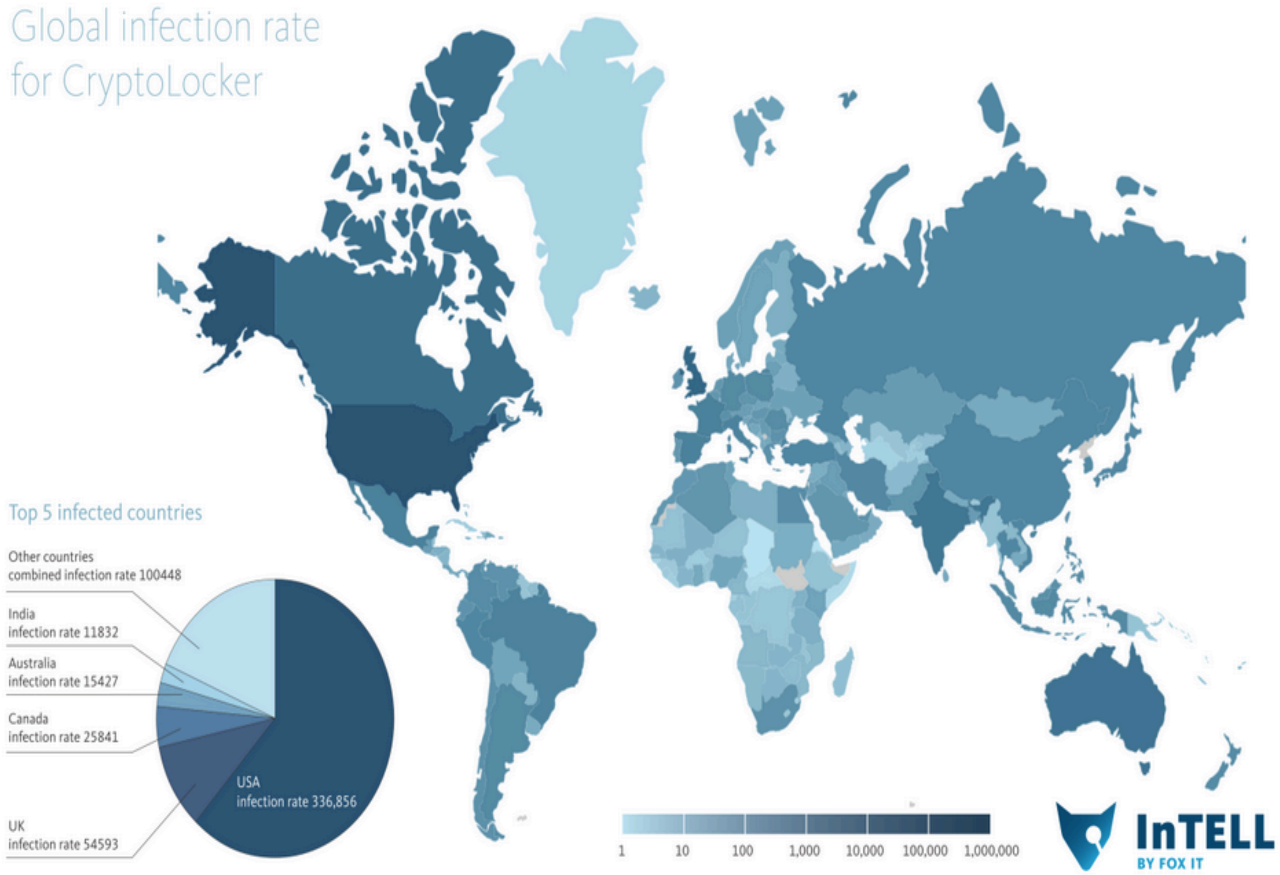
Ransomware

-Crytolocker
-CryptoWall
-CryptoDefense
-Torrent Locker
-Darkleach

Top infections:
US
AU
Canada
UK
India
Also saw Singapore trend


Global infection rate for CryptoLocker
Top 5 infected countries
Other countries combined infection rate 100448
India infection rate 11832
Australia infection rate 15427
Canada infection rate 25841
UK infection rate 54593
USA infection rate 336,856
1
10
100
1,000
10,000
100,000
1,000,000
InTELL
BY FOX IT

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Delivery Mechanisms:
Phishing/Spearphishing

Court Notice

Invoice/Statament

Shipping Themes: DHL, Fedex, UPS

EZ Pass

Bank Phish – Swift Transfer

Dhgate invoice

eFax

Salesforce

Reward themes

Airline – Delta

WhatsApp – You’ve got a voicemail

Malware: Banking Trojans

Top Trojans Seen

Citadel

Kronos

Kulouz – Asprox

Carperb

Zeus

Zberp - hybrid

Game-over Zeus (GOZ) - P2P (.arj) 9/14

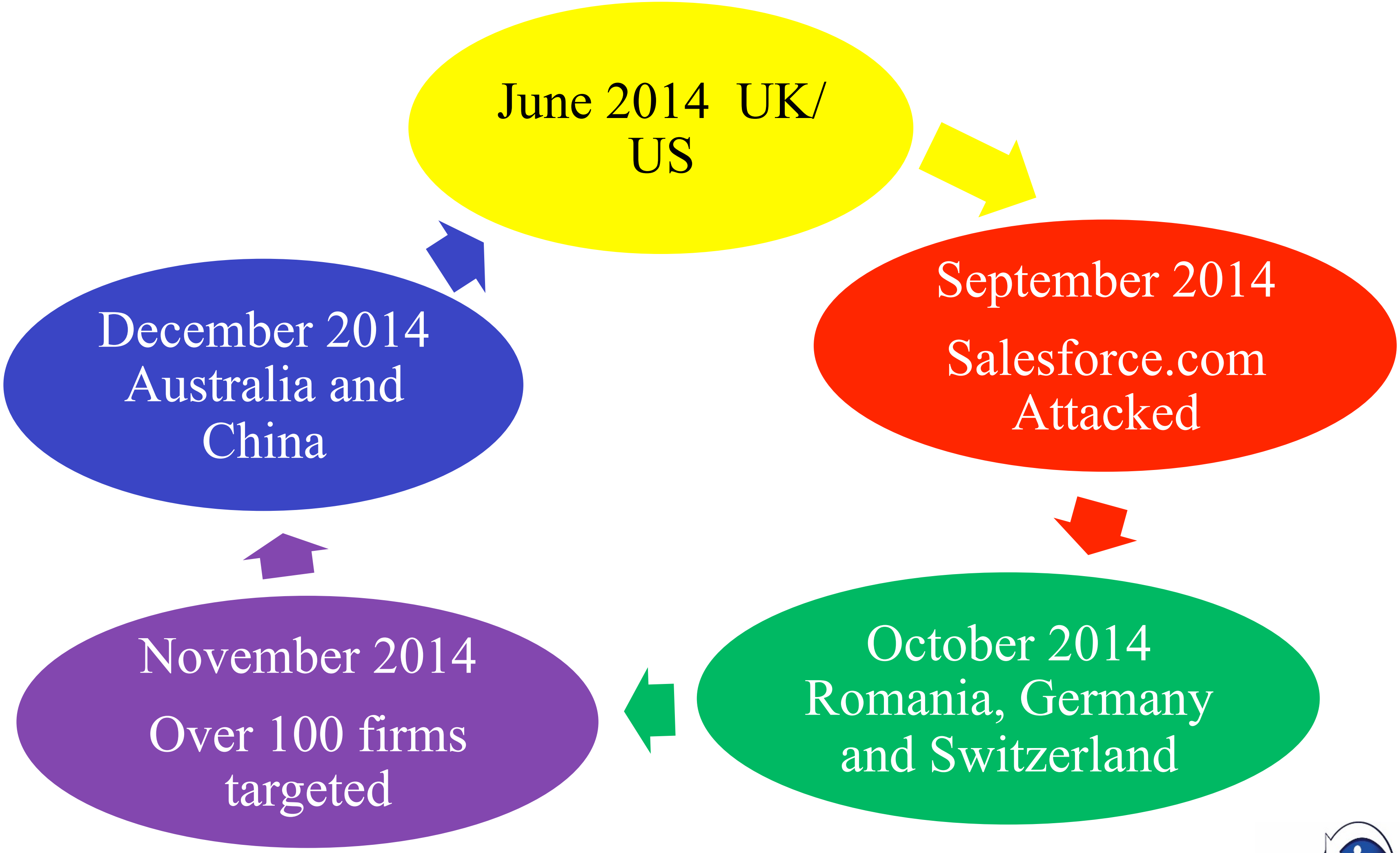
Cridex – Bugat, Feodo

Dridex

Dyre

Shylock – July 2014 Takedown

Dyre Spreads Like A Global Virus…



June 2014 UK/ US

September 2014

Salesforce.com Attacked

October 2014 Romania, Germany and Switzerland

November 2014

Over 100 firms targeted

December 2014 Australia and China

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Delivery Mechanisms:
Drive-by Downloads and Watering Holes

Forbes.com
Energystar.com
AusPost-tracking.com
VA.gov
NBC.com – Citadel 2013

Vulnerability Scanning

- *Port Scans – Open ports*
- *Vulnerability Scans   - Wordpress, Joomla, Java, Flash, Open SSL*
- *Infrastructure*

Vulnerabilities

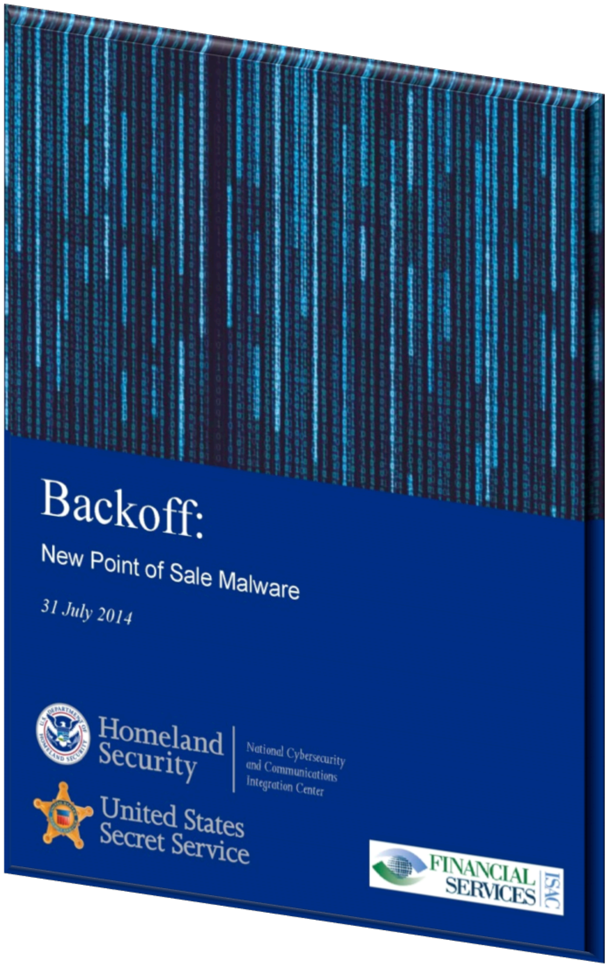
- *OpenSSL/Heartbleed*
  - *Old vulnerability*
  - *Allows more data than allowed to be read*
  - *Website vulnerability*
  - *Banks took rap unfairly*

- *GNU Bash/Shellshock*
  - *Old vulnerability 1994*
  - *Unix based: Linux, Apple Mac OX*
  - *Went public Wednesday 9/24*
  - *Exploits and scanning seen almost immediately*

Breaches

Malware: ChewBacca, Dexter, Black POS, Backoff

- ➢ *Target: 70 million - 2013*
- ➢ *OPM: 21.5 million*
- ➢ *Primera BC/BS: 11.2 million*
- ➢ *Community Health Systems: 4.5 million*
- ➢ *Anthem BC/BS: 80 million*
- ➢ *Sony/Hacking Team*



Backoff:

New Point of Sale Malware

31 July 2014

Homeland Security | National Cybersecurity and Communications Integration Center

United States Secret Service

FINANCIAL SERVICES ISAC

2015 Breaches Identified by the ITRC as of: 8/11/2015

•Total Breaches: 5,500 approx

•Total Records Exposed: 818,004,561

•Identity Theft Resource Center

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DDoS

- *Sony PlayStation – Lizard Squad*
- *Operation Ababil*
- *Las Vegas – Gaming Industry*
- *Israel*
- *DD4BC*
- *World Cup*

<u>Q1 2015 Compared to Q4 2014</u>

15 % decrease in avg. attack time

35 % increase in total DDoS attacks

42 % increase in SSDP DDoS attacks (routers)

22 % increase in aplication layer DDoS attacks

7 % decrease in average attack bandwidth (170 Gbps)

37 % increase in infrastructure layer DDoS attacks

Akamai

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Wiper Malware

- *Shamoon – 2012*
  - *Attack on 30,000 Saudi Aramco Workstations*
  - *Corrupts files and wipes devices*
- *South Korean Attacks– 2013*
  - *2 banks, media company and insurance company*
  - *Patch systems targeted and used to infect*
  - *Wiped windows, Linux and UNIX OS*
- *Las Vegas Casino– 2014*
  - *Wiped and destroyed files with VB bomb*
- *Sony – 2014*
  - *SMB Worm Tool, listening implant, backdoor, proxy tool, destructive hard drive tool, destructive targeted cleaning tool, network propogation wiper*
  - *Financial data destroyed, financial system still inoperable – asks for delay in filing*

The Media and Vendors

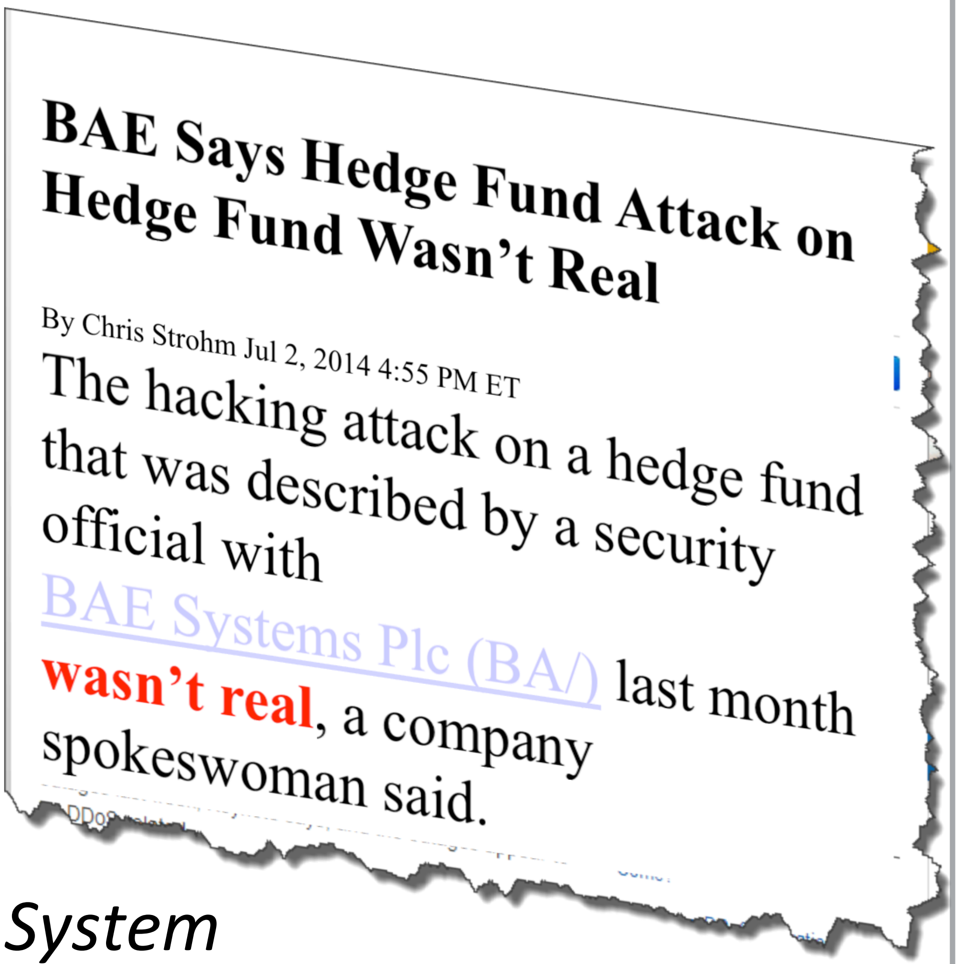
Malvertising

Watering Holes

Syrian Electronic Army

Media/
Vendor Spin Incidents:

- *HeartBleed, Open SSL*
- *Hedge Fund Attack - BAE*
- *Russians Attack Financial System*
- *Russians Hack 1.4 Billion Passwords - Hold Security*



BAE Says Hedge Fund Attack on Hedge Fund Wasn't Real

By Chris Strohm Jul 2, 2014 4:55 PM ET

The hacking attack on a hedge fund that was described by a security official with BAE Systems Plc (BA/) last month **wasn't real**, a company spokeswoman said.

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Other Threats

- *Call Center – Phishing*
- *Mobile*
- *Social Media – Sony Executive on American Airlines*
- *Industrial Control Systems - Havex*
- *Espionage – VirusTotal testing for malware*

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Case Studies

DDoS – DD4BC

Since: April 2015
•*Subject Line:*

•From: From: DD4BC Team <d4bct[AT]gmail[.]com>

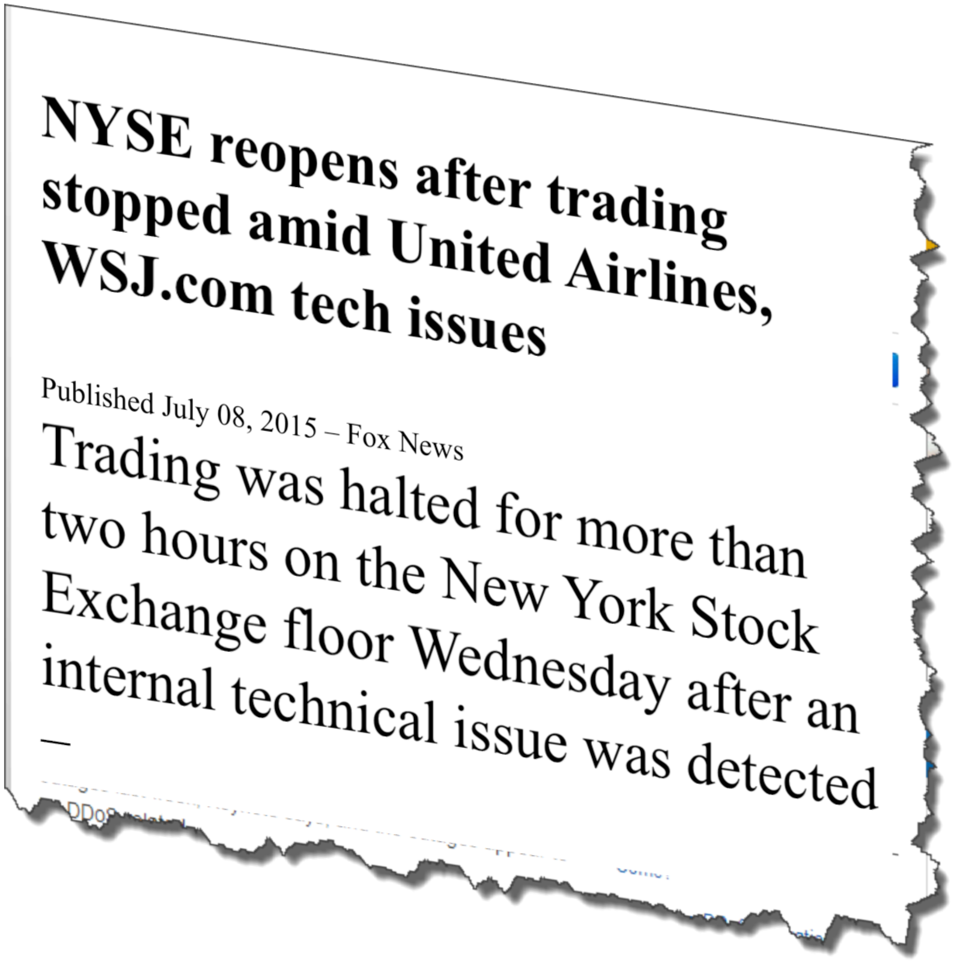
•Subject: DDOS ATTACK!

Size: 500 Mbps to 50 Gbps
Duration: Up to 1 hour
Ransom Demand: 25-40 BTC

United/NYSE

NYSE: July 8, 2015 11:32am
11:45am chatter
Noon definitive word

UNITED: 8:26 am
Reservation System



NYSE reopens after trading stopped amid United Airlines, WSJ.com tech issues

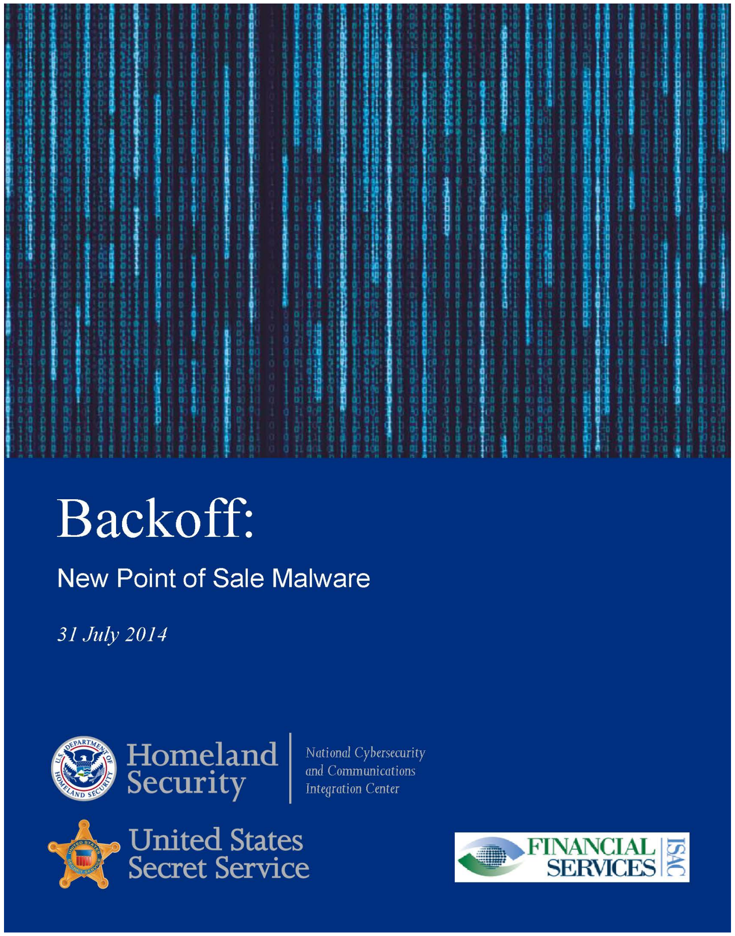
Published July 08, 2015 – Fox News

Trading was halted for more than two hours on the New York Stock Exchange floor Wednesday after an internal technical issue was detected

—

United Parcel Service

- **USSS, NCCIC, FS-ISAC –** Collaborate to release malware analysis and risk mitigation recommendations
- **Shared with Retailers Association**
- **UPS Detected and used to mitigate Malware**



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Questions?