

Business Case for Mail Security



Corporate Screening 2020
RaySecur Inc.



Will Plummer

Chief Security Officer
Director EODSecur Program

Career: 24 Year U.S. Army EOD

- Explosives Ordnance Disposal (EOD) Master Technician
- Command EOD Operations for Southeast Asia
- Masters Degree from US Naval War College in National Strategy and Policy, emphasis in Irregular Warfare



Cody Martin

Director of Mail Security
SOP Team Lead

Career: 12 Year U.S. Postal Inspector

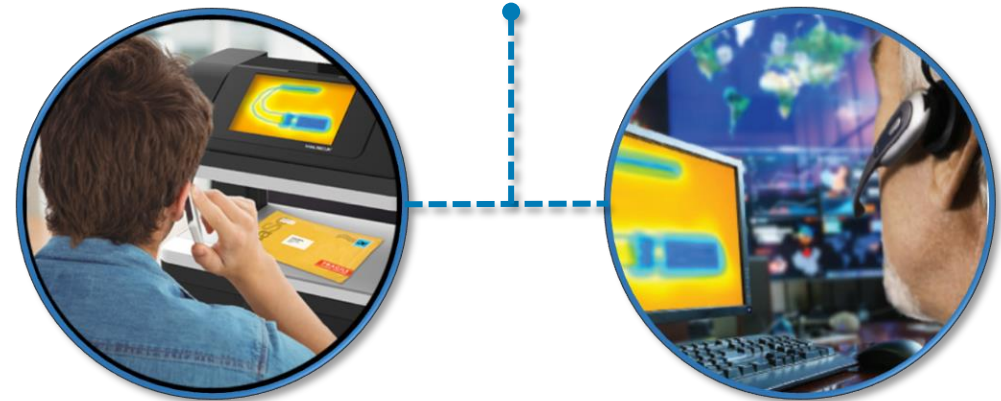
- USPIS Dangerous Mail Unit
- Responded to hundreds of incidents at businesses, government agencies, private residences
- Investigator on Shannon Richardson case – ricin letters sent to President Obama, NYC Mayor Bloomberg
- Mail security for NFL Superbowls, President Bush (ret.)

Discussion Topics

- Introductions and Situation Overview
- RaySecur Introduction
- MailSecur Demonstration
- EODSecur Demonstration
- SOP Development, Training, Certification
- Summary and Next Steps



MailSecur mmWave Scanner



EODSecur 24/7 EOD Support

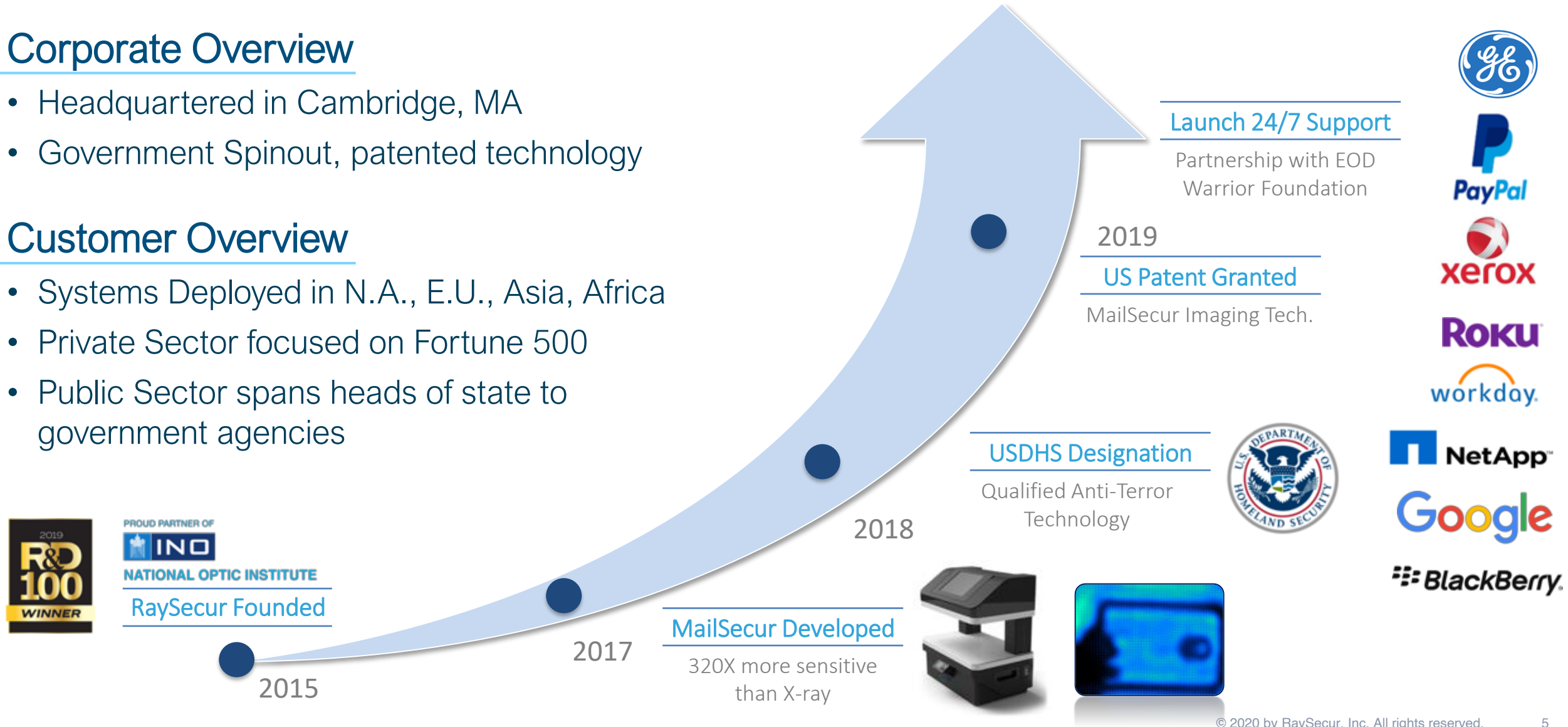
RaySecur Overview

Corporate Overview

- Headquartered in Cambridge, MA
- Government Spinout, patented technology

Customer Overview

- Systems Deployed in N.A., E.U., Asia, Africa
- Private Sector focused on Fortune 500
- Public Sector spans heads of state to government agencies



Mail Threats: Prevalence and Cost

Frequency of Occurrence and Cost to the Organization

Mail Security Loophole

PROBLEM

Letters Sent with White Powder...



Affect Major Corporations Every Day



Hoaxes Shut Down Facilities Costing \$500K/Incident



Real Threats Result in Hospitalizations and Death

1 in 3

Fortune 500 Companies receive at least one mail threat per year*.

2019 Industry Mail Security Survey

- **16%** had more than 3 threats in that same time period
- **2X** Increase in **threatening letters**
- **4X** Increase in **drugs and illegal substances**



ANNUAL REPORT 2019 | 27

<https://www.uspis.gov/wp-content/uploads/2020/02/FY-2019-annual-report-508-web.pdf>

Many Threats Unreported

30 per Day

Reported Letter &
Package Threats

USPIS 2019 Annual Report:

- Dangerous Mail Investigations (DMI) Unit
- 400 specially-trained inspectors
- 3,289 suspicious incidents (powders, liquids) – 10/day
- 125,000 suspicious mail items subject to forensics exam

US Bomb Data Center

- 7,404 suspicious packages in 2018 – 20/day
- 2,261 incidents involving letters or parcels



<https://www.uspis.gov/wp-content/uploads/2020/02/FY-2019-annual-report-508-web.pdf>

Cost of Mail Security Incidents and Threats

Direct Cost

Company Value

<p>Facility & Busines Interruption</p> <p>\$900K – 2hr data center outage</p> <p>\$1.5M – 1 hr auto plant shut-down</p> <p>\$3.4M – Typical business interruption claim</p> <p>\$32M – Corp HQ decontamination</p>	<p>Legal and Compliance</p> <p>\$1.4M – Avg. negligent security settlement</p> <p>\$2.8M – Avg. wrongful death negligent security settlement</p> <p>\$5M+ – 8% of settlements</p>
<p>Shareholder & Brand Value</p> <p>-0.9% to 3.3% – change in stock price after high profile threat</p>	<p>Executive Protection</p> <p>\$136M – Avg. due to unexpected CEO loss</p> <p>-1.5% to 3.9% – change in stock price due to CEO accidental death</p>
<p>Hoaxes + Legitimate Threat</p>	

Cost of Corporate Security Incidents: Examples

Legal Settlements Negligent Security

\$2.8M Typical settlement for workplace negligent security

\$46.5M



2015 workplace employee shooting inadequate facility security

\$800M



2017 shooting from hotel room inadequate facility security

Business Interruption Facility Shut-Downs

\$3.4M



Typical business interruption claim according to 2019 Allianz BI report



\$1.0M

2017 auto plant shut-down for 40 minutes



\$320M

2001 facilities for decontamination from anthrax letters USPS and other agencies

Shareholder Value Stock Price Declines

\$1.8B



Loss in company value due to unplanned CEO turnover from PWC 2019 report

-\$6.3B



Decrease in market cap following sarin mail threats (false positive) 2019

-3.3%



Decrease in stock price following bomb threat at corporate HQ 2014

Mail-Borne Threats

Types of Threats and Extent of the Problem



Most Mail Threats

1. Small to fit anonymous drop box
2. Lack chain of custody
3. Exhibit unusual characteristics

Chain of Custody More Frequently Broken

Competition at the Last Mile



Image: United States Postal Service



<https://truenorthcompanies.com/blog/transportation/solving-for-risk-in-the-last-mile-sector.aspx>

Multi-Mode Last Mile Delivery

Potential for risk and complacency

- Crowdsourced providers
- Local carrier services
- Automated technologies

Common Types of Mail Threats

Dangerous Items



Needles, razor blades, guns, knives, and lithium ion batteries are just a few of the items that could hurt recipients or mail handlers.

Explosives



In just one 10-day period in 2018, 16 pipe bombs were mailed to prominent Democratic Party politicians and President Trump.

Contraband



Many companies have found illegal drugs being sent to employees through the USPS and internal mail.

Powders



Five people were killed by letters containing anthrax in 2001; since then white powder has been commonly used as a mail-borne threat.

Liquids



Acids, tear gas, and other liquids can cause havoc and injury if released in a workplace.

Chemical



Many chemicals used in industrial applications are dangerous and readily available for purchase and shipping by bad actors.

Biological



Biological threats include microorganisms, viruses, and toxins that can harm humans.

Nuclear



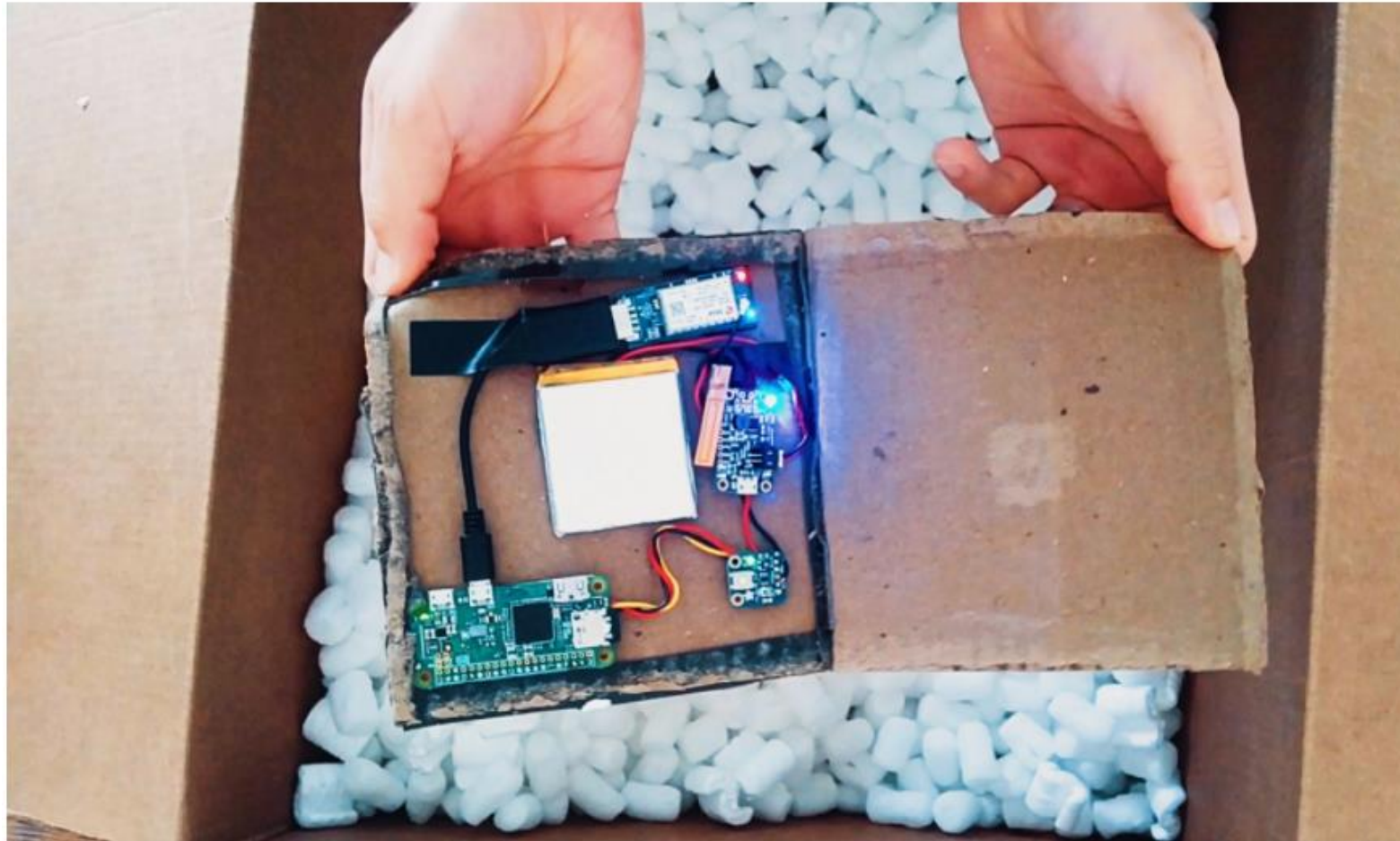
If radioactive materials were to be released in a workplace, they could seriously harm people and render the facility permanently unusable.



Traditional X-Ray

***Not Visible by X-Ray in Typical Quantities Found in Most Mail Threats**

IBM Research Black Hat USA 2019



A warshipping device (Image: IBM/supplied)

Cyber Attack Vector

- WIFI + 3G hobby components for less than \$100
- Shipped in the mail or concealed within items
- Provides physical network access point

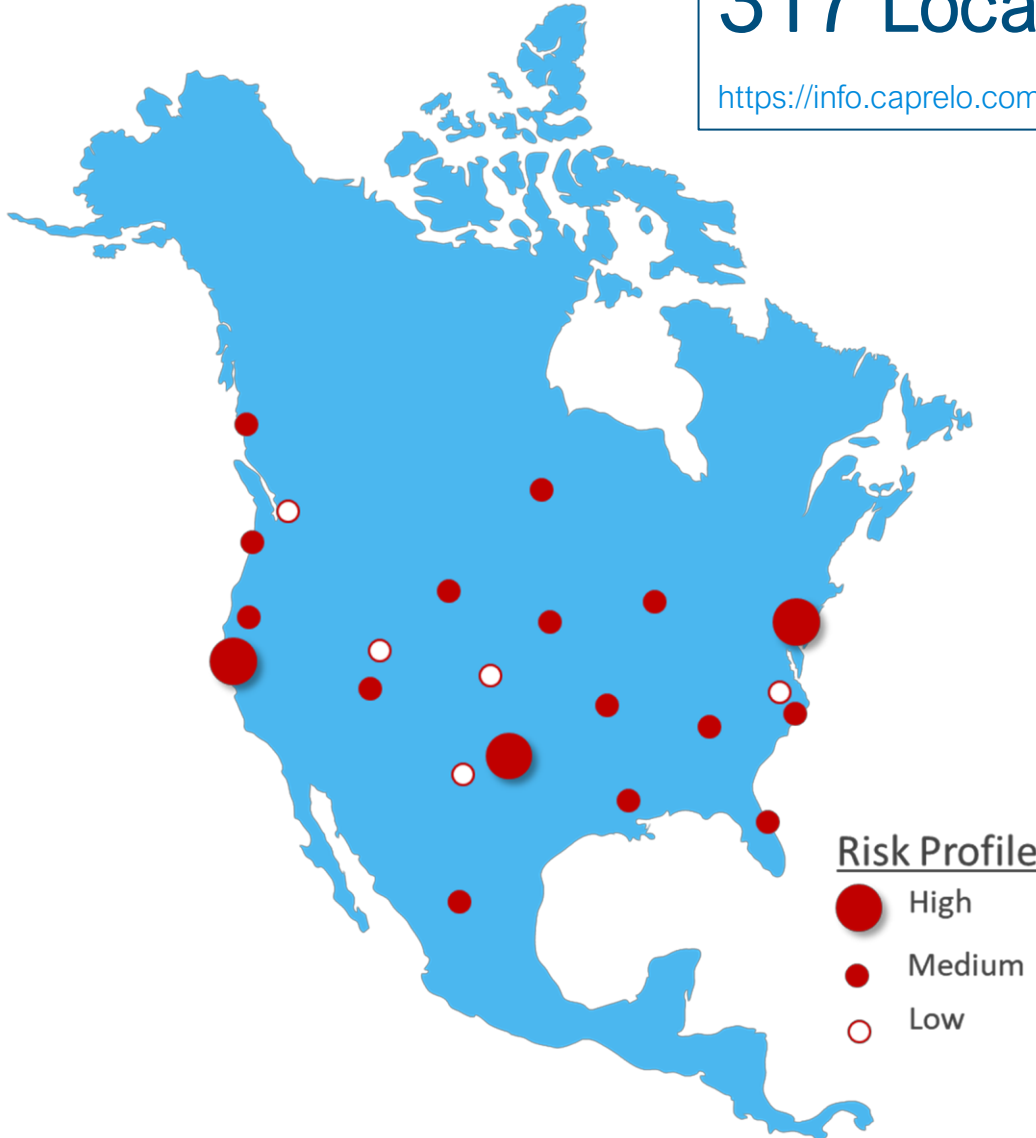
Mitigation

1. Process mail quickly
2. Scan for anomalies
3. Discard packing

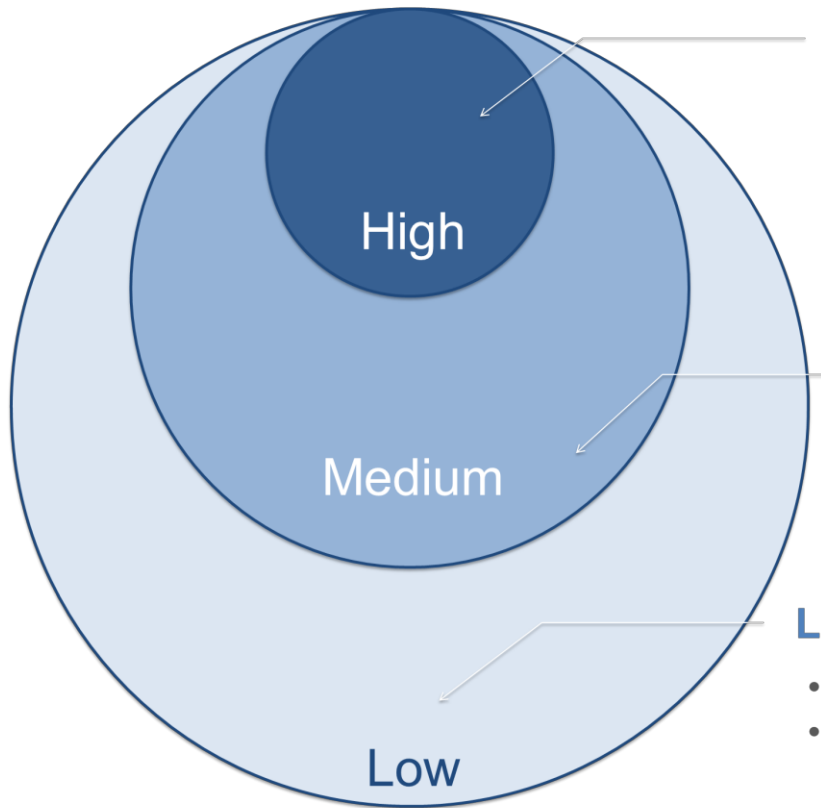
Mail Security Program

Key Concepts and Implementation

317 Locations for the Average Fortune 500 Company
<https://info.caprelo.com/blog/fortune-500-companies-international-expansion>



Site Risk Profile Varies



- High Risk**
- Corporate HQ
 - Critical Infrastructure
 - Data Centers
 - Manufacturing Plants
 - Operations Center
 - Executive Protection
 - Public Figures

- Medium Risk**
- Satellite Offices
 - Support Facilities

- Low Risk**
- Remote sites,
 - Low profile sites

Five Pillars of Mail Security



All-in-One Mail Screening Solution



Customer Benefits Optimized for Mail Screening

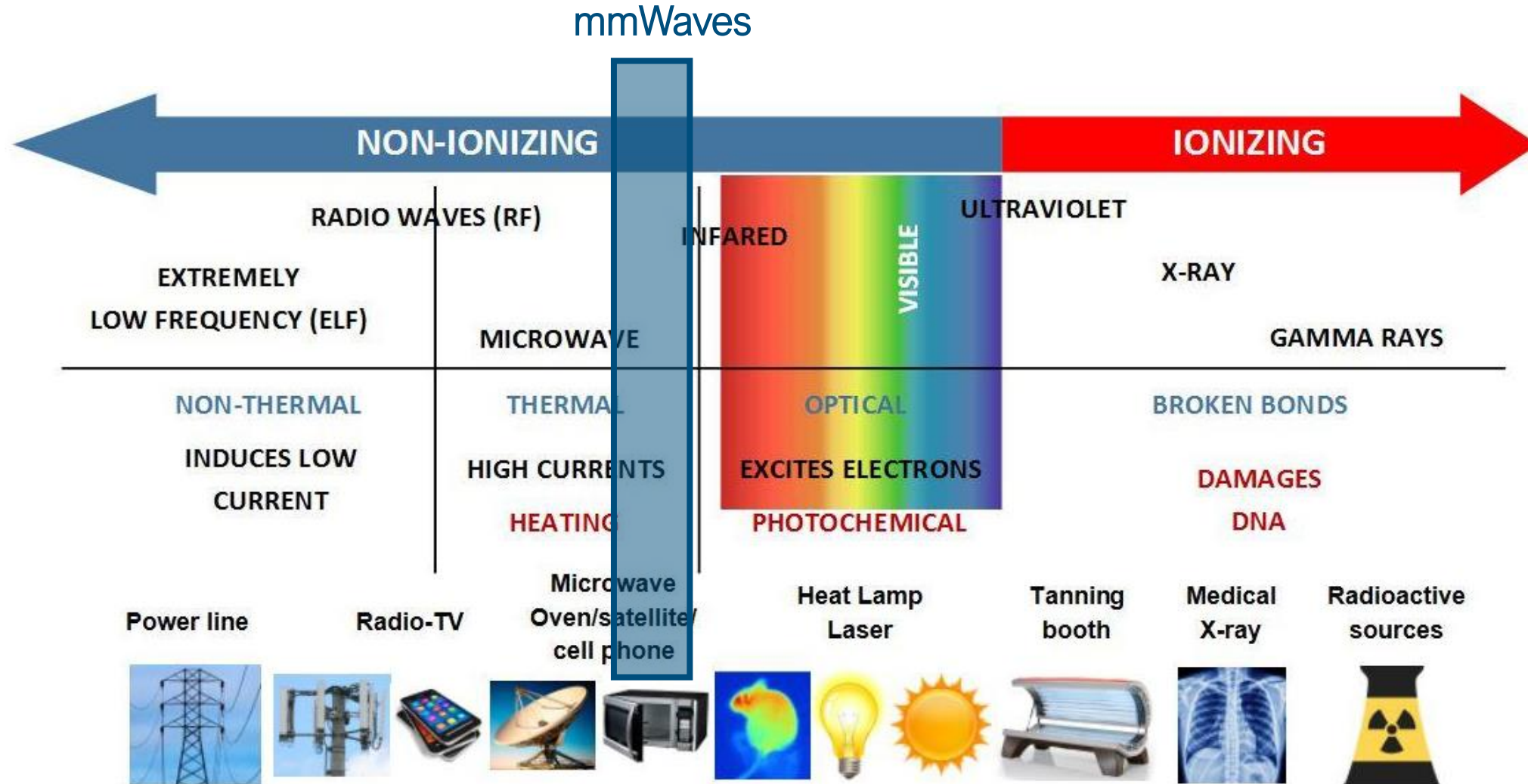
1. Performance: All in one device for Chemical, Biological, Explosive etc.
2. Simplicity: Anyone can scan mail
3. Safety: non-ionizing mmWaves
4. Intuitive: hold and move objects by hand in the viewing area
5. Compact: desktop setup, no special requirements
6. Peace of Mind: expert support 24/7



USDHS Designated MailSecur™

EODSecur™
24/7 expert remote support

Terahertz Frequencies (mmWaves)



Next Gen Scanning – Advantage to X-Ray

Detection Capabilities Comparison

X-Ray Provides Limited Scope of Detection



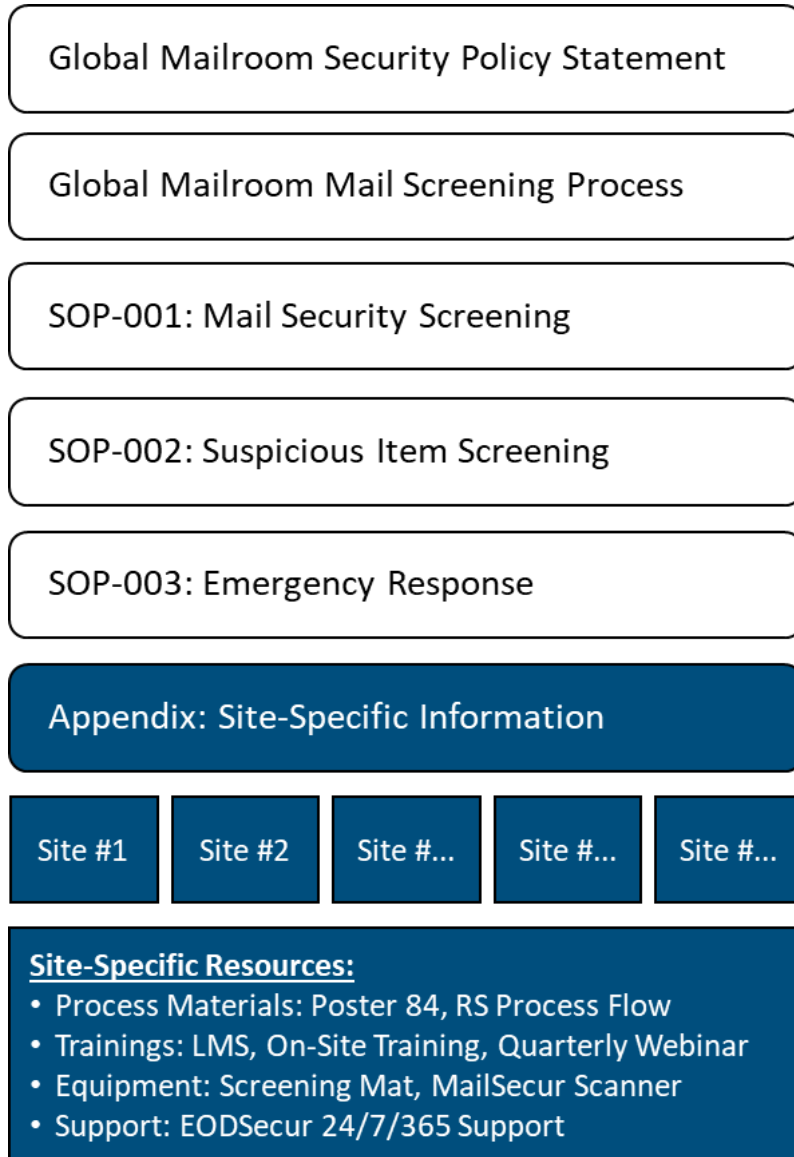
- Static 2-D images
- Radiation permits required
- Radiation safety program
- Trained operators needed

Threat Type	X-Ray	MailSecur™
Explosives	●	●
Dangerous Items and Contraband	●	●
Hoax Letters		●
Biological Threats		●
Chemical Threats		●
Radiological Threats		●

MailSecur Provides Comprehensive Detection



- Dynamic 3-D images
- No permits needed
- Existing staff easily trained to use



Broad
Corporate
Guidelines to
Define Global
Mail Screening
Standards

Site-Specific
Information

SOP Development Support



Cody Martin

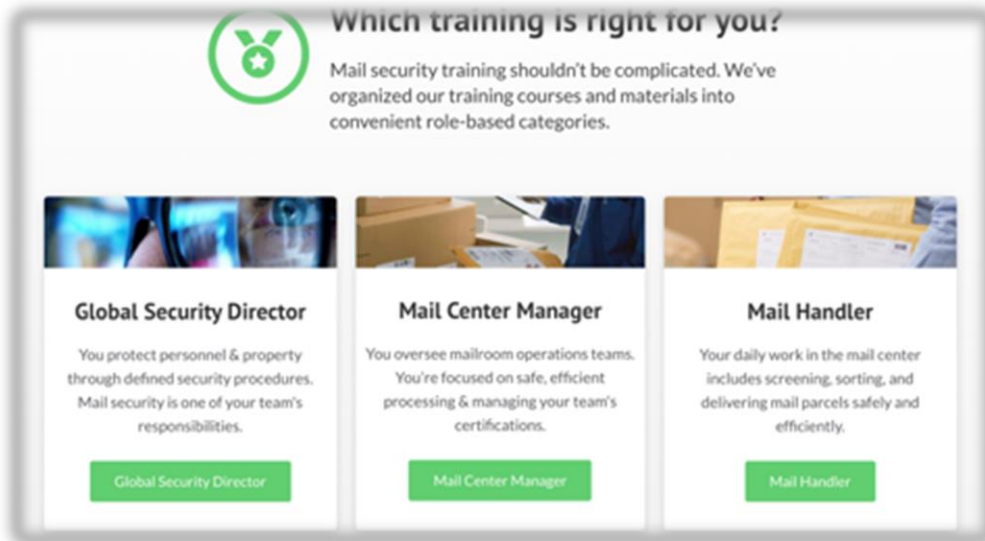
Director of Mail Security
SOP Team Lead

Former US Postal Inspector

Customized SOPs

- Based on USDHS mail screening guidelines
- Compiled best practices for mail security spanning government agencies, Fortune 500 and executive protection
- Tailored to unique organizational requirements

I. Learning Management System Online Training Platform for All Sites



II. Mobile Application

Ensure Procedures are Followed
Activity and Reporting Log
EODSecur Remote Support



Standard Enterprise Roll-Out

Global Mailroom Security Policy Statement

Global Mailroom Mail Screening Process

SOP-001: Mail Security Screening

SOP-002: Suspicious Item Screening

SOP-003: Emergency Response

Appendix: Site-Specific Information

Site #1

Site #2

Site #...

Site #...

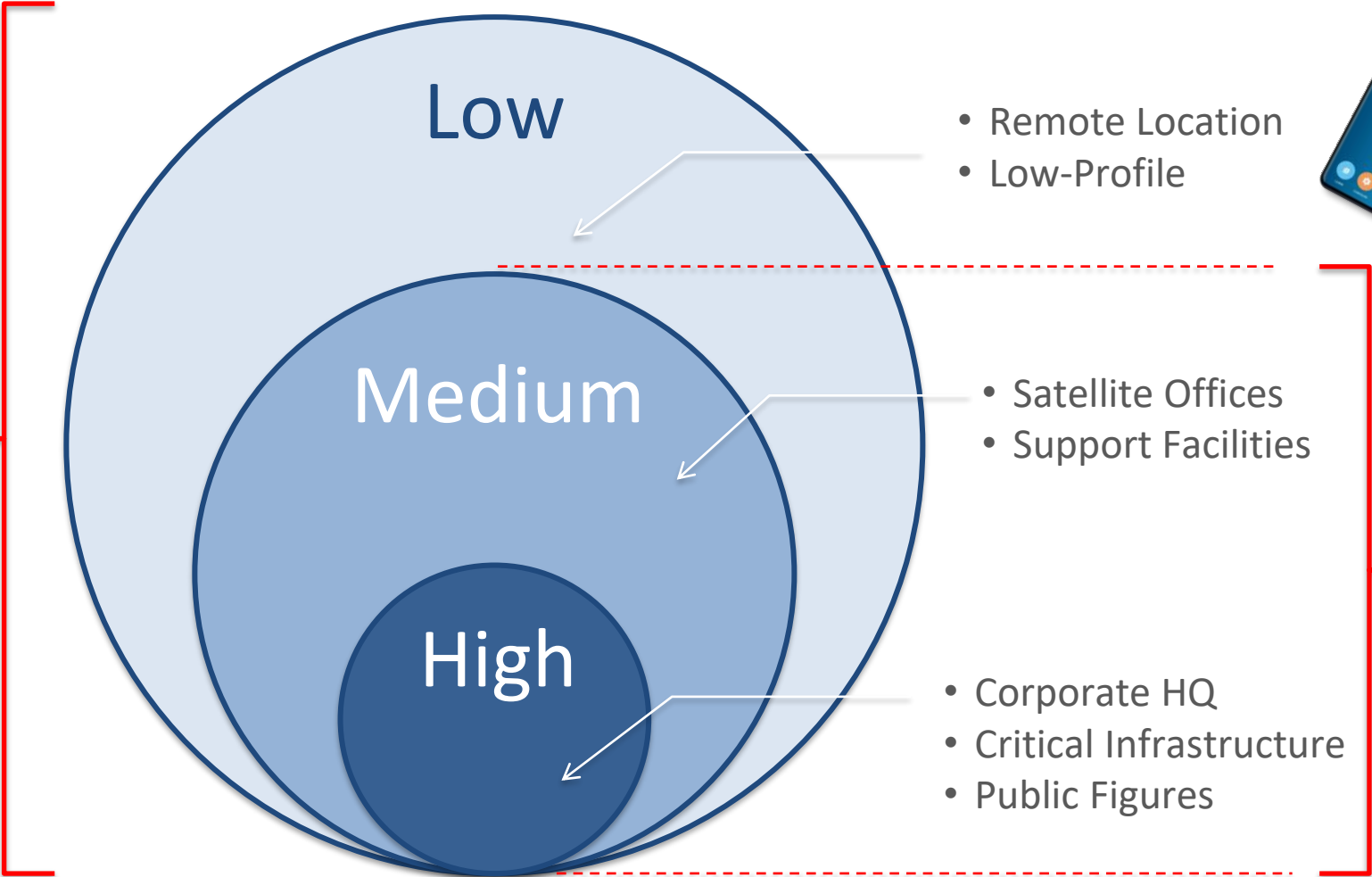
Site #...

Site-Specific Resources:

- Process Materials: Poster 84, RS Process Flow
- Trainings: LMS, On-Site Training, Quarterly Webinar
- Equipment: Screening Mat, MailSecur Scanner
- Support: EODSecur 24/7/365 Support

Full-Enterprise Mail Screening Coverage

**EODSecur™
Support
and LMS
Training
Platform**



MailSecur™ Scanner

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APPENDIX

Supporting Information



Cody Martin

Director of Mail Security
SOP Team Lead

Certifications

- Mail Flow Train the Trainer
- HAZWOPER (Hazardous Waste Operations)
- Level B SCBA (Self-Contained Breathing Apparatus)
- Advanced Forensic Sampling
- Suspicious Substance Screening
- Biological Detection System
- SABRE 5000 Trace Detection
- Logos Imaging Orama II Portable X-Ray
- MultiRae Portable X-Ray, MultiRae
- Ludlum
- GenPrime Prime Alert
- HAZMAT ID | HAZMAT 360
- Miscellaneous testing papers
- Post-blast Investigations
- Improvised Explosive Device Recognition and Response

Career: 12 Year U.S. Postal Inspector

As a USPS dangerous mail investigator he has responded to hundreds of incidents at businesses, government agencies, and private residences. He was one of the investigators in the Shannon Richardson case when she tried to frame her husband by sending ricin-laced letters to many politicians including President Obama and NYC Mayor Michael Bloomberg.

Major Cases and Awards

- Contribution Award, Inspector in Charge Regina Faulkerson
- Certificate of Appreciation, DTMC, Inspector in Charge Regina Faulkerson
- Certificate of Appreciation, Coldspring, TX, Homicide Case, VP Area Operations
- Certificate of Appreciation, Waldo, AR, Homicide, Inspector in Charge Randall Till
- Team Player Award, Acting Inspector in Charge Regina Faulkerson
- Letter of Appreciation, ETX Bomb Case, Team Leader Timothy Vasquez
- Letter of Appreciation, Assisting FTW EC Team – Team Leader James Galloway
- Certificate of Appreciation, ETX Bomb Case, Inspector in Charge Randall Till
- Excellent Performance, Broadway Robbery – Inspector in Charge Thomas Brady
- Letter of Commendation, Chief of Police, Village of Winfield, Illinois
- Outstanding Performance Recognition, Bishop Bomb Case
- Letter of Appreciation, Threat Management, Inspector in Charge Thomas Brady
- Special Recognition – Bishop Bomb Investigation, Chief Alexander Lazaroff
- Excellent Performance Award, FY 2006, Inspector in Charge Kenneth Laag
- Letter of Appreciation, Inspector in Charge Kenneth Laag

EODSecur™ Remote 24/7 Support



	EODSecur: Basic	EODSecur: Full (incl. all Basic offerings)
Support	<ul style="list-style-type: none"> Review or develop mail security and emergency action plans 24/7 phone support 	<ul style="list-style-type: none"> 24/7 remote expert EOD support Remote login to client site via MailSecur scanner Full threat diagnostics Situational response assistance
Training	<p>Delivered via Web Conference:</p> <ul style="list-style-type: none"> Introduction to mail threats Introduction to mail security screening processes and procedures Basic mail screening techniques Evaluating your mail security needs: risks, mailroom setup, equipment, and workflow 	<p>Delivered On-Site (1/2 Day) Course:</p> <ul style="list-style-type: none"> Fundamentals of Mail Screening Operations: <ol style="list-style-type: none"> Mail handling procedures MailSecur device operation Advanced mail threat detection with MailSecur Emergency management plans and operations
Equipment (Hardware and Software)	<ul style="list-style-type: none"> Visual and tactile inspection Use of existing equipment 	<ul style="list-style-type: none"> Mailsecur mmWave Scanner EODSecur software and hardware Remote EOD access and reachback capability Dedicated LTE network connection
Certifications and Liability Protection	<ul style="list-style-type: none"> NONE 	<ul style="list-style-type: none"> US. Department of Homeland Security Safety Act Qualified Anti-Terror Technology (QATT) \$250,000 Liability Limit

1 EXAMINE

INITIAL SORTING (PRE-SORTING) WHERE THE MAIL IS INITIALLY RECEIVED

- Assess mail screening requirements and ensure all necessary tools and Personal Protective Equipment are in place
- Immediately remove nonthreatening mail (known vendors, ads, postcards etc.) and forward to organization
- Separate mail per required inspection type based on organizational policy

2 INSPECTION

IDENTIFIED DELIBERATE EXAMINATION FOR IMMEDIATE THREATS

- Suspicious mail is and set aside for additional screening
- Inspect mail that has requires additional screening thoroughly following Proper Mail Screening Procedures.
- Cleared mail is moved into the organizational mailstream

3 INSPECTION/DETECTION

PRIORITIZED INSPECTION

- Mail Screening for Individuals or Departments that require inspection
- Historically high threat mail based on organizational norms
- Known and expected mail, media mail, internal mail etc.

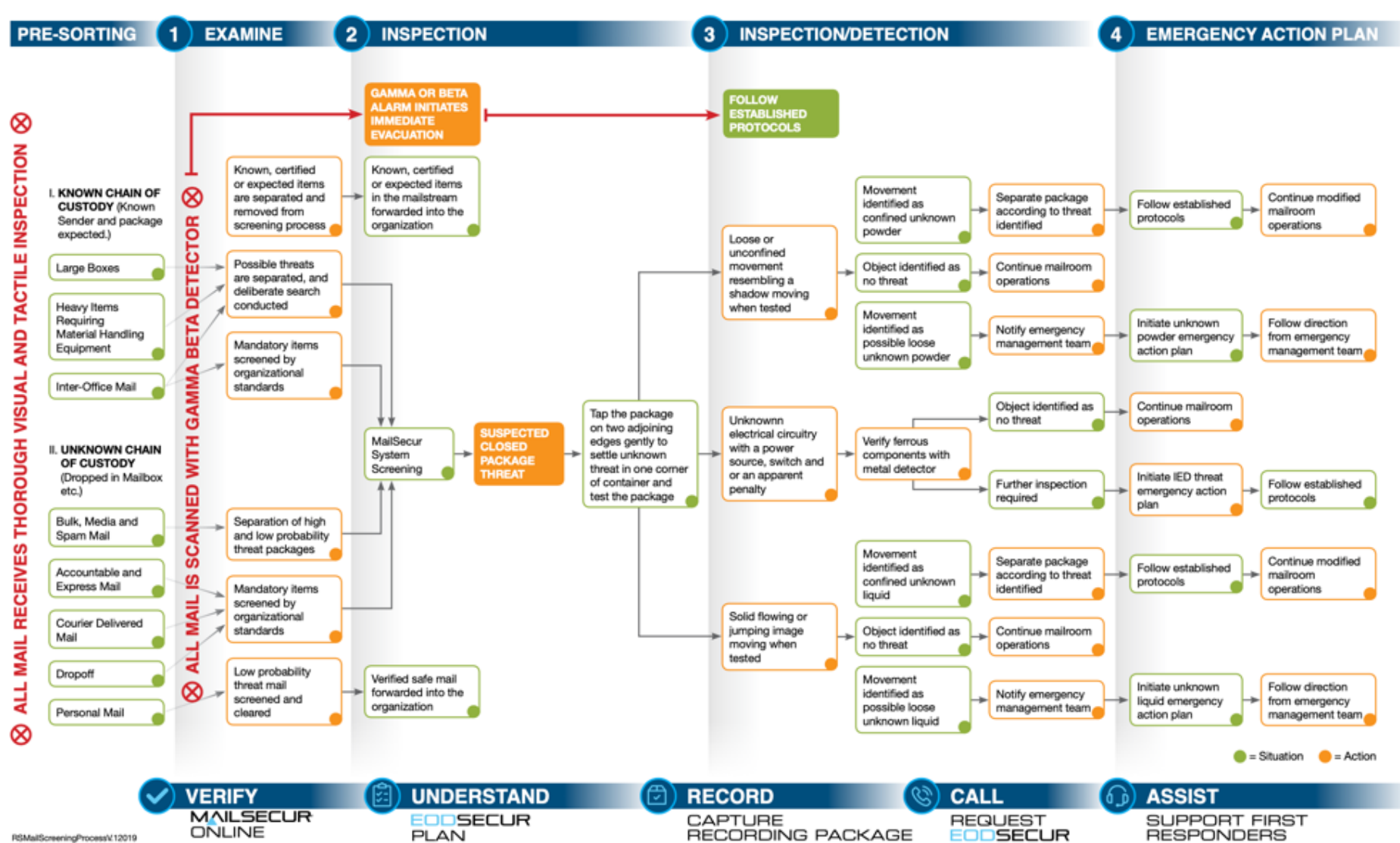
4 EMERGENCY ACTION PLAN

DELIBERATE INSPECTION

- Inspect all remaining mail and note when questionable mail is found:
- Sender and recipient
- Odd identification features that raised question to a threat



Mail Screening SOP



RS-MailScreeningProcessV1.2019

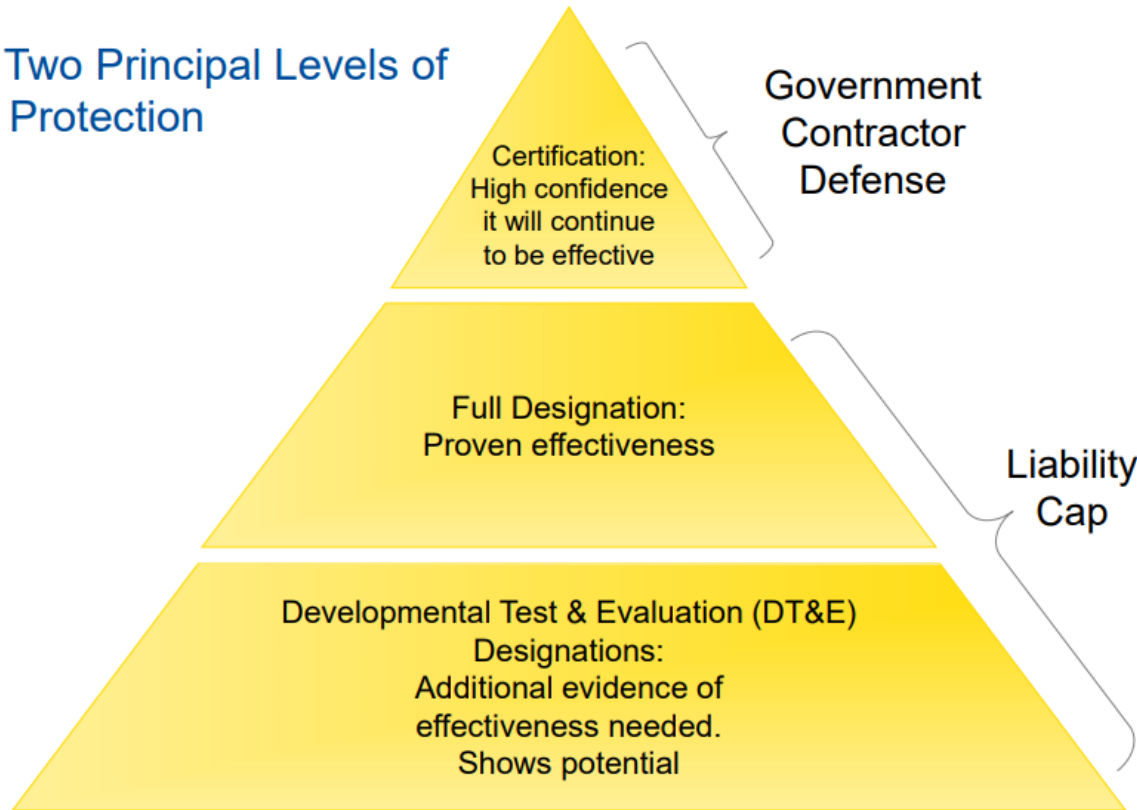
Technology Certification Standards

Adhere to validated standards.



Essential Concepts

1. Two Principal Levels of Protection





Best Practices for Mail Screening and Handling Processes: A Guide for the Public and Private Sectors

September 27, 2012

1st Edition



Homeland Security



Interagency Security Committee

US Department of Homeland Security Identified At Risk Industries

Banking	Legal	Health & Medical
Energy	Pharmaceutical	Telecom
Power	Chemical	Construction
Defense	Transportation	Bio-Medical R&D

Applies to All

MAIL SCREENING BEST PRACTICES

FACILITY TYPE	VISUAL SCREENING	DANGEROUS CONTRABAND	HOAX SCREENING	EXPLOSIVE SCREENING	CHEMICAL SCREENING	BIOLOGICAL SCREENING	RAD/NUKE SCREENING	CONTENT SCREENING
1A	X	X	X					
1B	X	X	X					
2A	X	X	X	X				
2B	X	X	X	X				
3A	X	X	X	X	X	X	X	X
3B	X	X	X	X	X	X	X	X
3C	X	X	X	X	X	X	X	X

UK Mail Security Guidelines

Introduction to **PAS 97:2015**

Mail screening and security – Specification



Screening levels

A key component of PAS 97 is a series of screening levels.

Generally, the greater the commitment of resource and effort to mail screening, the greater the protection that is likely to be achieved. It is, however, important that the organization achieves an appropriate level of screening, balancing the threat it faces with the need for

operational efficiency, whilst having the flexibility to adapt screening in response to changes to the threat or the requirements of the organization's business.

It might be appropriate to apply different levels of screening to different mail streams, to reflect the different risks associated with the various streams.

People often refer to **"white powders"** in the context of postal threats. These can include hazardous chemical (including explosive or narcotic), biological or radiological materials, as well as benign materials. Such materials may not be "white" and may not be "powders"; materials may be crystalline (e.g. sugar), oily or waxy residues, or liquids, and might be present in sufficiently small quantities as to be undetectable by typical X-ray-based screening processes.

- knives;
- blades and other sharp items, (e.g. syringe needles, broken glass);
- offensive material (e.g. faeces, urine);
- bulk chemicals – toxic, corrosive or otherwise harmful, including narcotics;
- bulk biological materials;
- bulk radiological (radioactive) materials.

People often refer to **"white powders"** in the context of postal threats. These can include hazardous chemical (including explosive or narcotic), biological or radiological materials, as well as benign materials. Such materials may not be "white" and may not be "powders"; materials may be crystalline (e.g. sugar), oily or waxy residues, or liquids, and might be present in sufficiently small quantities as to be undetectable by typical X-ray-based screening processes.

Level	Screening method	Protection afforded against		Measures common to all screening levels
		Discrete threat objects and bulk materials	"White powders"	
(0)	No screening, other than general staff awareness of postal threats	Low	Very low	The chosen screening level(s) shall be implemented in combination with physical protective measures appropriate for each activity being conducted (see Clause 6). Staff shall be suitably trained and shall be deemed competent to carry out the screening activities. Emergency procedures shall be initiated if at any point during screening an item is considered suspicious. PAS 97 provides actions that are recommended upon discovery of any suspicious delivered item.
1	<ul style="list-style-type: none"> • External visual inspection of every item. • X-ray anything of concern, especially larger items (packets, parcels, etc.). 	Moderate	Low	
2	<ul style="list-style-type: none"> • X-ray all items in bulk/large batches initially. • X-ray again individually or in smaller batches if anything anomalous is observed. 	Very good to excellent	Low	
3	<ul style="list-style-type: none"> • For any item, open side of envelope or packaging by cutting, and without removing, examine contents visually; remove contents if satisfied safe to do so; inspect outer wrapping and contents for any further evidence of powders and other anomalous items or materials. 	(Negligible further benefit)	Low to moderate	
4	<ul style="list-style-type: none"> • For any items identified as anomalous, open side of envelope or packaging by cutting, and without removing, examine contents visually; remove contents. 	(Negligible further benefit)	Moderate to good	
5	<ul style="list-style-type: none"> • Level 2 followed by: • External visual inspection of every item. • For each item, open side of envelope or packaging by cutting, and without removing, examine contents visually; remove contents if satisfied safe to do so; inspect outer wrapping and contents for any further evidence of powders and other anomalous items or materials. 	(Negligible further benefit)	Very good	

1. Detect

CORPORATE LEVEL

- Visual and tactile
- X-ray imaging
- mmWave imaging
- K9 teams

2. Isolate

CORPORATE LEVEL

- Confirm and de-escalate
- Initiate response

3. Identify

LAW ENFORCEMENT LEVEL

- Spectroscopy
- Chromatography
- Wet chemistry
- Bio-assays
- Chem / bio sensors
- Explosives analyzers
-



Revenge is the motivation that most often triggers a letter or package bomb, or a bomb threat.

U.S. Postal Inspection Service Report

- Most mail threats motivated by someone within or close to the organization
- Know your people, your customers, and anticipate changes in the business climate

<https://about.usps.com/publications/pub166.pdf>

Overt Mail Security

- Let employees know all mail is subject to screening
- Stamp security screened mail
- Discourage insider threats and reinforce security culture



Mail Screening Technology Mis-Match



Best Practices for Mail Screening and Handling Processes: A Guide for the Public and Private Sectors

September 27, 2012
1st Edition



Table 5-1. Common Screening Technology Applications

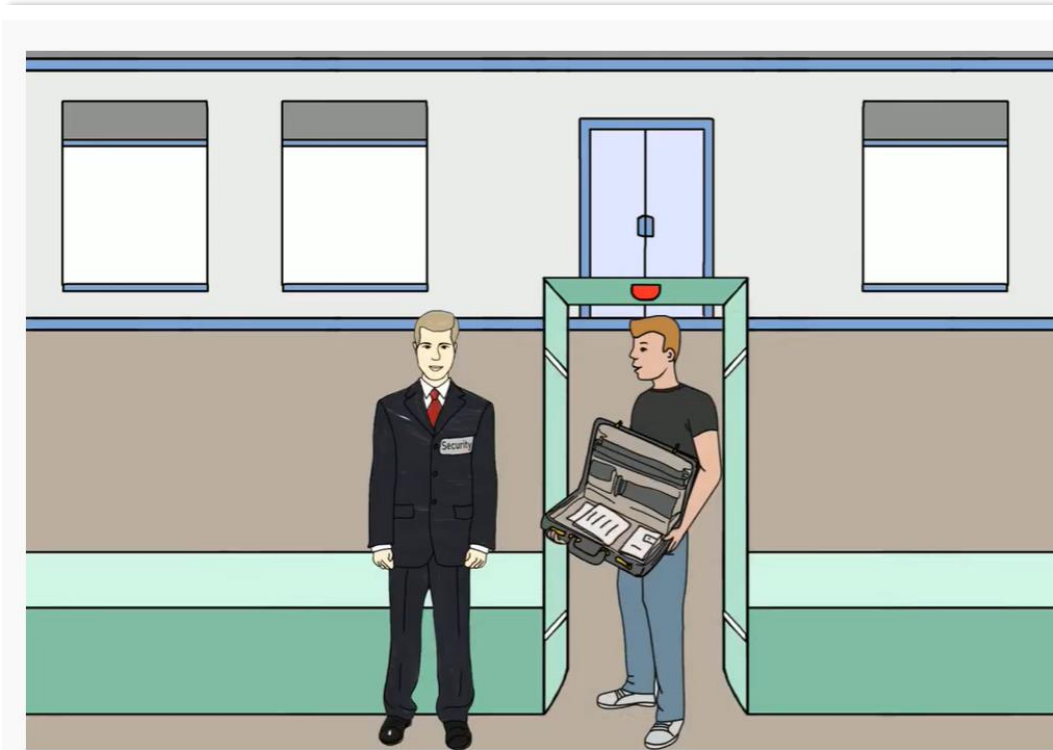
SUBSTANCE	VISUAL INSPECTION	AUTOMATIC SENSORS	HANDHELD SENSORS	CANINE TEAMS	X-RAY SCANNERS	AIR SAMPLING SYSTEMS	CDC LRN* Tests	AUTOMAT IC BIO ID SYSTEMS
Chemical	X	X	X			X		
Biological	X	X	**			X	X	X
Radiological		X	X					
Nuclear		X	X					
Explosives	X	X	X	X	X			
Dangerous Items	X				X			
Contraband	X		X	X	X			
Suspicious powders	X						X	
Threatening Content	X							

*Centers for Disease Control (CDC) Laboratory Response Network (LRN)

** Current American Society for Testing and Materials (ASTM) guidance states that suspicious powders should be sent to the LRN for analysis of biological agents.

The Mail Security Gap

The front door is well-protected.



The back door is wide open...



New High-Risk Environment

COVID-Related Business Risk

Political Risk Climate

Contraband Risks



BUSINESS EXCLUSIVE

Subway HQ receives suspicious powder after recent firings

By Josh Kosman

May 29, 2020 | 10:30pm



A Subway restaurant sign is seen in The Bronx.
Christopher Sadowski



The Coronavirus Crisis

As Coronavirus Delays Primary Season, States Weigh Expanding Absentee Voting

March 24, 2020 · 5:00 AM ET
Heard on Morning Edition



- Anthrax events of early 2000's
- Boston polling station shut-down in 2018 due to powder in absentee ballot

Boston Fire Dept. @BostonFire
Haz-Mat Response to 735 Shawmut Ave. Roxbury at approx. 4:40 PM for an unknown powder substance. Substance confirmed to be non-hazardous/baking soda. Baking soda was located inside an envelope with an absentee ballot. This is a polling station. @bostonpolice investigating.

20 8:02 PM - Nov 6, 2018
See Boston Fire Dept.'s other Tweets



PowerPost • Perspective

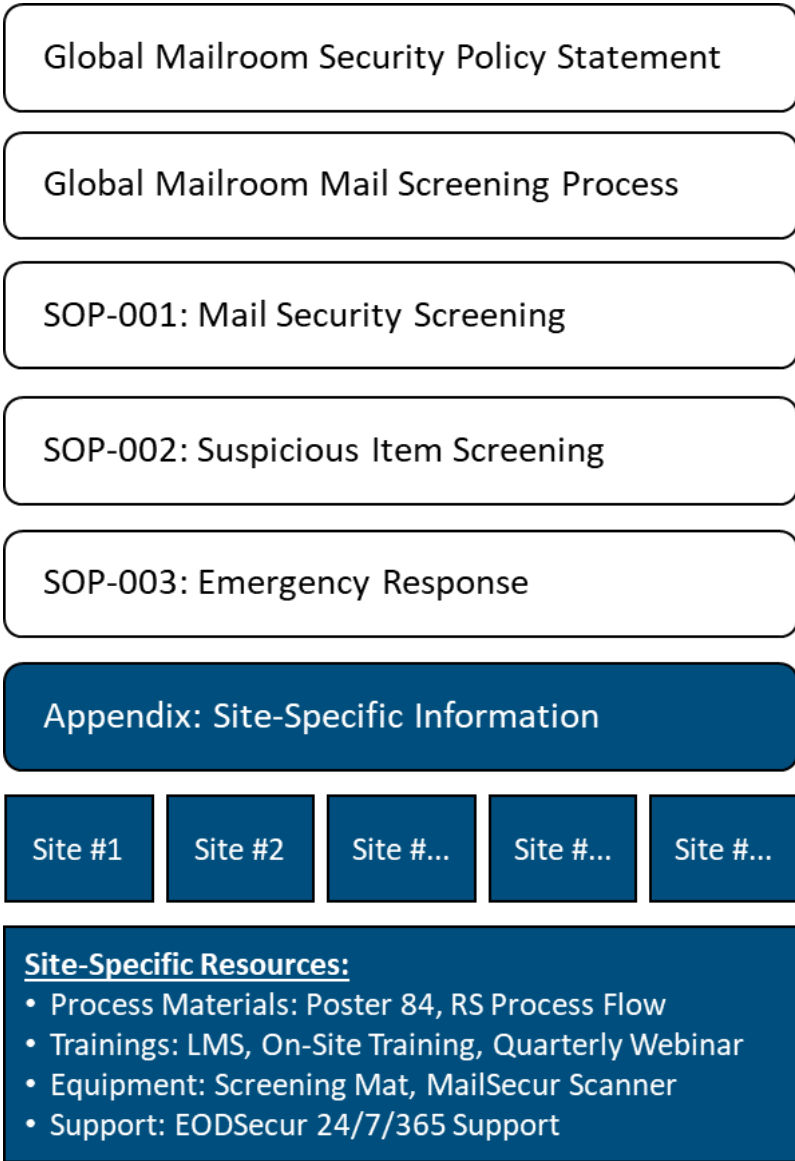
Postal Service – the preferred shipper for drug dealers

Websites “instructed traffickers to use the Postal Service.”



Parcels on a conveyor belt in Louisville. Drug trafficker tool. (Luke Sharrett/BI)

Standard Operating Procedure



Broad
Corporate
Guidelines to
Define Global
Mail Screening
Standards

Site-Specific
Information



Flexibility to Adapt as COVID
Situation Evolves