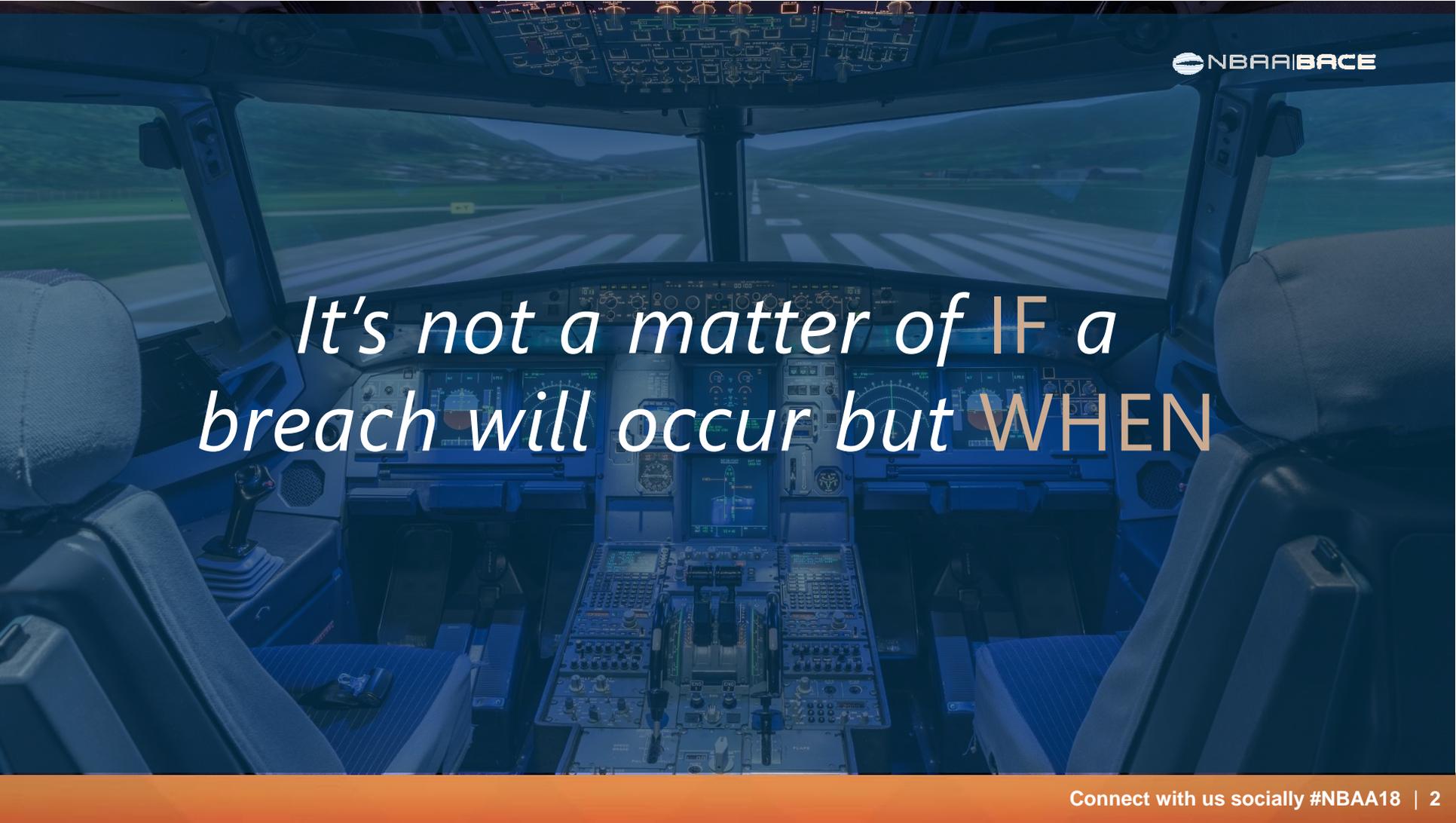




CYBERSECURITY MADE SIMPLE

Wednesday, October 17, 2018 1300Hrs

Rob Hill, Business Development Director – Global Data Solutions: Satcom Direct

A detailed view of an aircraft cockpit, showing the instrument panel, control yokes, and the runway ahead through the windshield. The image is overlaid with a semi-transparent blue filter.

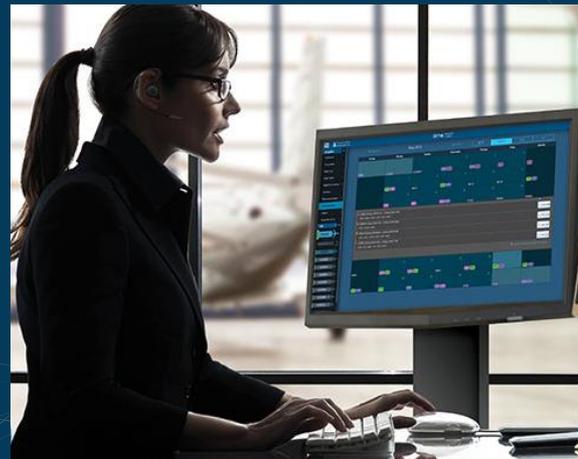
*It's not a matter of IF a
breach will occur but WHEN*

JUST THE FACTS



2.3 BILLION

Credentials spilled in 2017
HelpNetSecurity 7.9.2018



51 INDEPENDENT

Credential Spill Incidents
HelpNetSecurity 7.9.2018

CYBER SECURITY FACTS & FIGURES



\$6 TRILLION
In Cyber Crime
Damage Costs
annually by 2021
Cybersecurity Ventures



**Ransomware
Attacks** every 40
Seconds
Kaspersky Labs



**1 in 131 emails is
malicious**
Symantec



**146 Days in
Network before
being detected**
CompTIA



**IoT device can be
attacked within 2
Minutes**
Gartner Study

Who's doing the Hacking?!

- 13-21 Years of Age, Living at Home
- Work 705 hours a year
- Average Income from Hacking \$28K



SCAMSCHOOL MODERNROGUE

BRIAN BRUSHWOOD & JASON MURPHY

HACKING SYSTEM MODERN ROGUE HACKING SYSTEM

SCAM SCAM SCAM

MODERN ROGUE MODERN ROGUE MODERN ROGUE

HACKING SYSTEM MODERN ROGUE HACKING SYSTEM

MODERN ROGUE MODERN ROGUE MODERN ROGUE

SCAM SCAM SCAM

HACKING SYSTEM MODERN ROGUE HACKING SYSTEM

<p>JACKKNIFE LOCK PICK BUNDLE \$100 \$40 A custom crafted set of lock picks with primary handles for learning lock mechanics.</p> <p>ULTIMATE LOCK PICK TRAINER \$100 \$90 Learn how to pick locks, step by step. Pick your first lock without a trainer!</p> <p>LOCK PICK EXPANSION KIT \$100 \$80 Expand on the skills of the Ultimate Lock Pick Trainer with this lighter kit!</p> <p>EXTRA CREDIT DVD \$25 \$15 Watch Brian, Jason, and the team perform the Queen of the Dime, and learn the secrets of the Queen!</p> <p>ESCAPE FROM THUMB-CUFFS \$25 \$15 Learn how to escape from your wrists without a key!</p> <p>THE LOCK-PROOF PEN \$25 \$20 The pen that picks locks and locks places.</p> <p>EXPOSED PADLOCK TRAINER \$25 \$15 A lock with a training mechanism to practice and the pins you pick the lock.</p> <p>JACKKNIFE LOCKPICKS \$25 \$35 A small but a powerful, hand set of lock picks.</p> <p>COVERT COINS \$25 \$20 Covert is a high quality, metal composition.</p> <p>INVISIBLE THREAD KIT \$25 \$15 Learn a great technique to lock your door.</p> <p>THE UTILITY KEY \$25 \$10 A simple key, with multiple uses and ends that have no equal for your home.</p> <p>WALLET LOCK PICK SET \$25 \$10 A complete set of picks in your wallet.</p> <p>CUTAWAY HANDCUFF \$25 \$15 Learn the mechanics of handcuffs with this cutaway tool!</p>	<p>THE OUTLAWS VAULT \$100 \$100 A wooden puzzle box with ten government decks. Check the right and solve the clues!</p> <p>THE ESCAPE RING \$75 \$60 A titanium ring with a hidden escape shim.</p> <p>SKELETON BUMP KEYS \$25 \$20 The fastest way to pick most locks. Set of three.</p> <p>LACE ESCAPE TOOL \$20 \$15 A hidden key that lives on your shoelaces!</p> <p>TRINKET LIDS \$20 \$15 A covert escape that hides an outfit, beverage, or an unexpected looking cup of coffee.</p> <p>SCAM SCHOOL BOOK \$25 \$10 Over 100 tricks and bar purchases illustrated with QR multimedia extras.</p> <p>BADASSIFY YOUR WALLET \$25 \$10 A must have! A Get Out of Jail Free Card, 11 in 3 multitool, and credit card knife.</p> <p>THE PENULTIMATE BUNDLE \$75 \$15 A pen with a hidden knife, & two magic ink pens.</p> <p>COVERT COFFEE \$25 \$10 Scam school coffee in a mug that hides an outfit, beverage, or an unexpected looking cup of coffee.</p> <p>FIRE W ALLET \$25 \$35 Pay your bills, and stay warm.</p> <p>TRICK DECK & BOOK BUNDLE \$50 \$25 Three great decks to go with the book.</p> <p>PADLOCK & WALLET PICKS \$25 \$20 A complete set of picks in your wallet.</p> <p>EVIL TRICK DETECTION KIT \$25 \$25</p>
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BB SCAM STUFF

GEAR FOR THE MODERN ROGUE

★★★

SCAMSTUFF.COM
SHOPTHEMODERNROGUE.COM

ALL SALES FINAL

KILLER DECK COMBO ~~\$75~~ **\$50**
Get all six decks below at a killer price.

OUTLAWS CRIMSON ~~\$15~~ **\$10**
Our latest premium deck of playing cards.

1800'S DECK ~~\$15~~ **\$10**
Looks like an antique old and worn deck of cards, but they're secretly marked!

THE APEX DECK ~~\$15~~ **\$10**
A plain, minimalist, black & silver deck, marked, and has a one-way design. Dozens of tricks possible.

STRIPPER DECK ~~\$15~~ **\$10**
Find secrets you could miss in a shuffled pack. Easy to do!

INVISIBLE DECK ~~\$15~~ **\$10**
Magically reveal any card that is merely thought of!

SVENGALI DECK ~~\$15~~ **\$10**
Perform dozens of advanced magic tricks instantly!

WHAT WE WILL COVER

Taking you from
overwhelmed to confident

- Today's Reality
- Common Threats – How the Hackers Do It
- What You Can Do to Protect Yourself
- How to Get Started
- Additional Resources

TODAY'S REALITY

Executives assume they are safe

Most are aware cyber security is an issue, but bury their head about the airplanes. That's dangerous.

Flight Departments operate airplanes

Cyber security isn't their expertise, YET they're ultimately responsible. A catch-22.

Flight Departments often forgotten

They don't always get first-tier support and attention from the corporate IT department.

Corporate IT/Security Departments are overloaded

When help is most needed, companies are often in the worst position to tackle it.

Cyber Security companies don't understand aviation

Business aviation is unique, so they're in a limited position to help

I GOT 99 PROBLEMS - *and a BREACH ain't one*

ELEMENTS OF A COMPREHENSIVE CYBER SECURITY PLAN



ONE PERSON IN CHARGE

CYBER SECURITY
FLIGHT DEPT

MAN + MACHINE

- Back-end systems & technology
- The human factor

CYBER SECURITY TRAINING

FOR EMPLOYEES

SECURING EVERY DEVICE

For crew & guests –
while minimizing
inconvenience

PASSWORD MGMT PROGRAM

For devices on aircraft
routers, etc

BEST PRACTICES

Ensuring all
vendors utilize
best practices in
cyber security



**CONCEPT: MAN VS
MACHINE**

70%

*of security experts see
employees as biggest risk*

CONCEPT: MAN VS MACHINE

Even with the most high-tech security system in place, your entire network remains vulnerable on two fronts



TECHNOLOGY

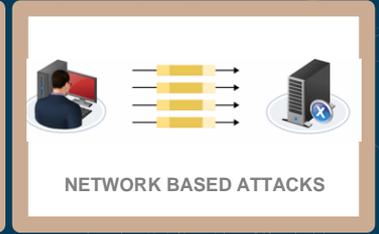
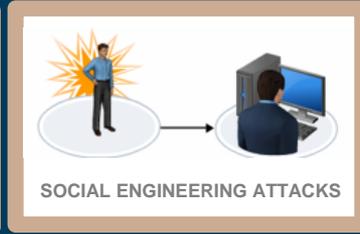
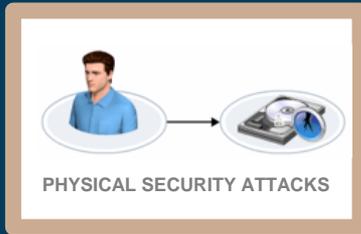
Staying ahead of the hackers with threat detection and prevention, monitoring and blocking software

HUMAN ERROR

Education, best practices, policies & procedures

To properly protect your company, you need the latest technology AND the right procedures

NETWORK SECURITY RISKS



- Data theft is a critical issue costing money, downtime, customer confidence and public embarrassment
- Attack strategies include social engineering, theft of passwords and credentials, spam, malware and more.
- Vulnerabilities are present almost everywhere
 - Improperly-configured or installed hardware or software
 - Bugs in software or operating systems
 - Poor network architecture
 - Poor physical security
 - Insecure passwords

COMMON ATTACK SCHEMES



PHISHING



**SPY WHO
STOLE THE
SECRETS**



**BAD THUMB
DRIVES**



**QUESTIONABLE
AIRSPACE**

COMMON ATTACK SCHEMES CON'T



**ROSE
PHISHING**



**VOICE
PHISHING**

SCENE 1: PHISHING

The attempt to obtain sensitive information by disguising as a trustworthy entity in an email



Your Account PayPal is Limited, You Have To Solve The Problem In 24 Hours.

Hello PayPal Customer,

We are sorry to inform you that you can't access all your paypal advantages like sending money and purchasing, due to account limitation .

Why my account PayPal™ is limited?

Because we think that your account is in danger from stealing and unauthorized uses .

What can I do to resolve the problem?

You have to confirm all your account details on our secure server by clicking the link below and following all the steps

[Confirm Your Information](#)

The principal receives an email in flight, from what appears to be a known associate



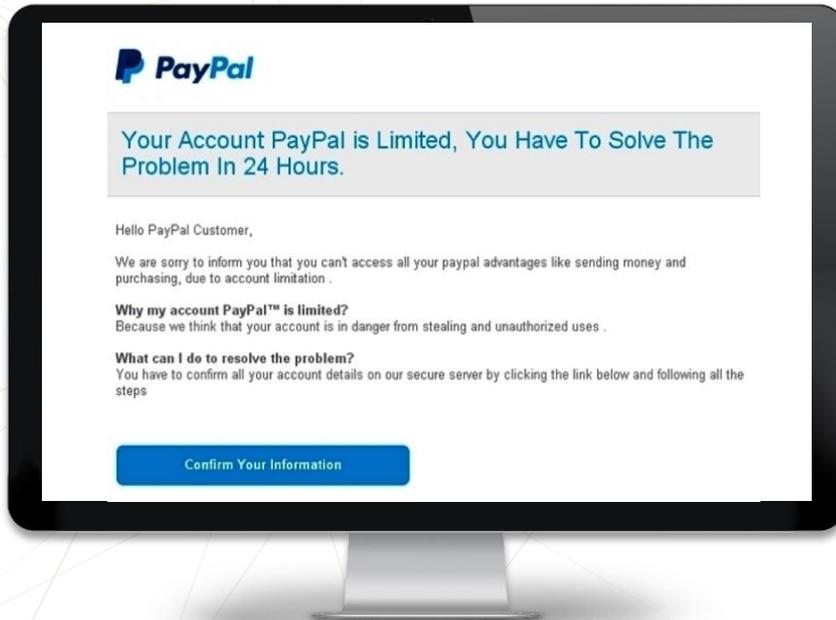
The message asks for sensitive information



The principal clicks the link and enters the requested data

SCENE 1: PHISHING

The attempt to obtain sensitive information by disguising as a trustworthy entity in an email



WHAT YOU CAN DO

- Messages that ask for sensitive information or that need information urgently should always raise a red flag.
- Before clicking, hover your cursor over a link to reveal the underlying URL. If it's an unfamiliar website, don't click – just delete it.
- Always confirm that an email is legitimate before opening an attachment. This could be as simple as calling or emailing the sender to let them know you received an unexpected document and want to confirm it was from them before opening.

SCENE 2: THE SPY WHO STOLE SECRETS

Awesome Company and Better Company are negotiating a merger



Hector the Hacker, who works for a competitor, gets wind of the deal



Hector hacks the charter company's operating system to steal flight manifests



The competitor makes a well-timed competing bid and disrupts the deal

WHAT YOU CAN DO

By creating procedures that limit access, eliminate out-of-date email addresses and establish a protocol for transmitting sensitive information, many of the doors used by hackers can be wholly or at least partially closed.

SCENE 3: BAD THUMB DRIVE

- A well-known hacking strategy, a thumb drive is a seemingly harmless portable peripheral device
- When an infected thumb drive is connected to a computer, it can trigger a massive cyberattack



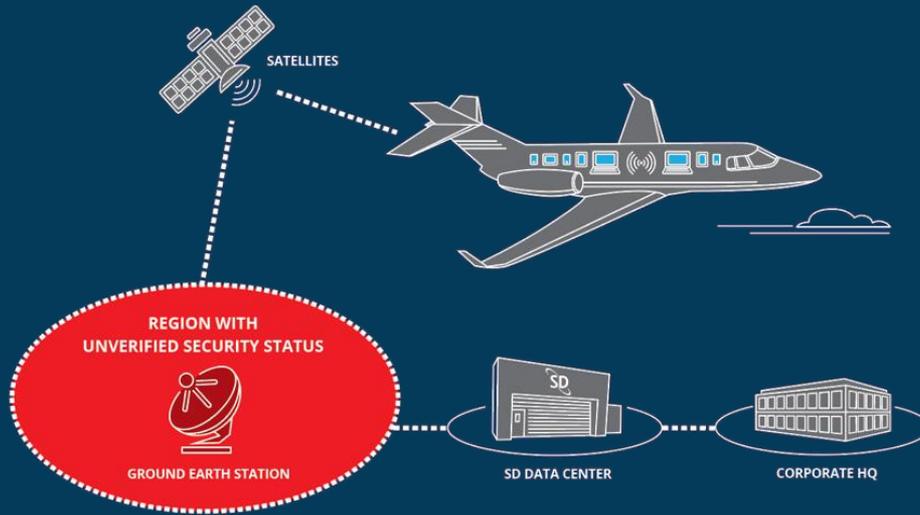
SCENE 3: BAD THUMB DRIVE

WHAT YOU CAN DO

- It's common for hackers to scatter infected USB drives in company parking lots, around a trade show, or wherever they are likely to be picked up by an unsuspecting victim.
- To protect yourself, implement protocols that prohibit the use of unauthorized USB drives.

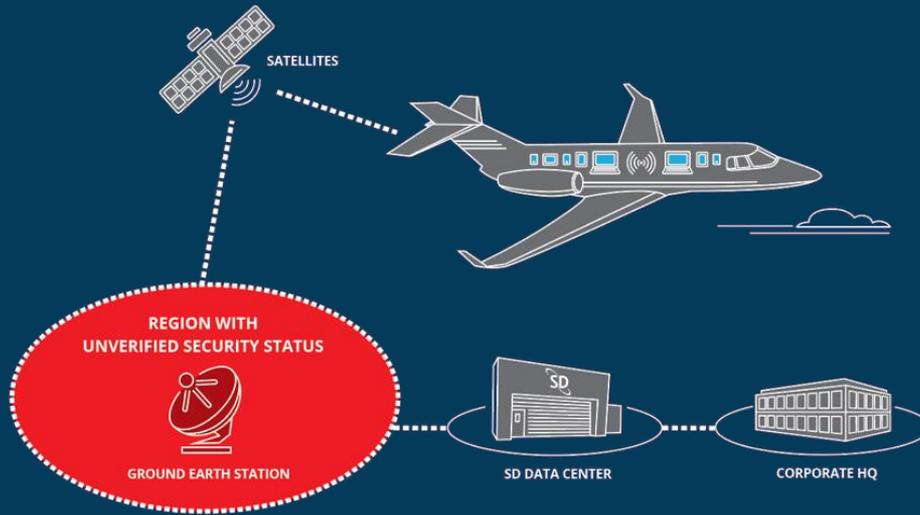


SCENE 4: QUESTIONABLE AIRSPACE



- Flying over certain countries can increase the risk of hacking.
- When in some countries' airspace, airborne internet traffic is automatically routed to an in-country satellite earth station – allowing third parties to intercept the data.

SCENE 4: QUESTIONABLE AIRSPACE



WHAT YOU CAN DO

- Use predictive flight mapping technology that sends an automatic alert to pilots when entering questionable airspace to remember to terminate the internet connection.

SCENE 5: Rose Phishing

Targeted Person



Hector the Hacker,
sets of fake friends
who are friends of
Dad's friends



Hector messages Dad
over a period of time,
months, years.



After creating a
rapport, needs money
sent.

WHAT YOU CAN DO

Look for "new" friends of friends, pay attention to details.

SCENE 6: VOICE PHISHING

The attempt to obtain sensitive information by disguising as a trustworthy entity in a phone call

Bank Calls – Credit Card Compromised

Offers to reset card, Verifies address, Mother's Maiden Name, Offers to reset PIN to keep card working the same. Let you keep using card...

WHAT YOU CAN DO

- If it feels wrong, it may be wrong
- Hang up and call back on number listed on card
- **DO NOT GIVE AWAY PIN ON AN INBOUND CALL FOR ANY REASON!!** Phone numbers can be spoofed.

PHYSICAL SECURITY



Who has access to the
Aircraft?



Who caters the
aircraft?



Who is working on
or in the aircraft?



The sounds of
wildlife...Who, Who,
Who...

PHYSICAL SECURITY



Who has access to the
Aircraft?

- Mechanics
 - Avionics
 - Cleaners
 - Vendors
 - Contractors
1. Know background of people on aircraft
 2. Monitor repairs, service work
 3. Spot Check during repairs or service
 4. Ask questions

PHYSICAL SECURITY



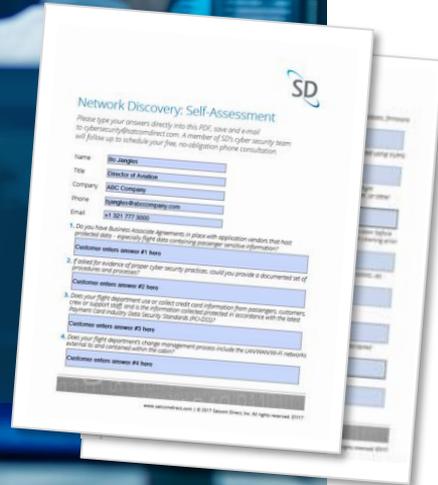
Who has caters to the
Aircraft?

- Remote Sites
 - Hostile Airspace
 - Unknown companies
1. Watch Carefully
 2. Accompany Vendor
 3. Check for accuracy of order
 4. Check for everything in its place



A 12-question self-assessment followed by a free phone consultation with an SD cyber security expert.

- Evaluate current policies and procedures
- Identify initial recommendations on how to fix any identified risks
- Start to develop and implement best practices and solutions



Network Discovery: Self-Assessment

Please type your answers directly into this PDF, open and e-mail to cybersecurity@satcomdirect.com. A member of SD's cyber security team will follow up to schedule your free, no-obligation phone consultation.

Name:

Title:

Company:

Phone:

Email:

1. Do you have Business Associate Agreements in place with application vendors that host protected data, especially those containing passenger sensitive information?
Customer enters answer #1 here

2. Focused for evidence of unique cyber security practices, could you provide a documented set of procedures and processes?
Customer enters answer #2 here

3. Does your flight department use or collect credit card information from passengers, customers, crew or airport staff and is the information reflected processed in accordance with the stated Payment Card Industry Data Security Standards (PCI-DSS)?
Customer enters answer #3 here

4. Does your flight department's change management process include the latest version of network patches, which contained within the system?
Customer enters answer #4 here

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Conduct a comprehensive, cyber security assessment at your facility.

- Evaluate your network and current security processes (policy, penetration testing, target vulnerability validation...)
- Identify vulnerabilities on-wing and in the hangar
- Educate your team
- Get recommendations to address technology and human-based risks
- Training courses for members of your flight department



SECURITY RISK ASSESSMENT





STEPS TO TAKE

- Employee Training
- Quarterly Updates
- Create Security Policies
 - IT
 - Physical
 - ENFORCE THEM!!!Test the Procedures!!
- Get InfoSec, CSO, CISO and IT involved in Aviation Department
- Have them visit each aircraft that has a different configuration
- Test the newly created policies and procedures
 - Do not embarrass staff for their mistakes as it happens to everyone, use as a teachable moment



STEPS TO TAKE - 2

- Educate Flight Crews
 - Try to educate Execs
 - Very tough I know!!
- Know where the hostile airspace is located
Have threat monitoring on the aircraft
Have aircraft and hanger swept on a regular basis if traveling to hostile companies on a regular basis

- Check Vendors
- Make sure Vendors and employees are only using approved IoT items on aircraft where possible
- Make sure Guest SSID is working for guests aboard aircraft including family members
- **CHANGE WiFi Passwords MONTHLY** – I know they will scream...



BEGIN WITH THE END IN MIND

WHEN SOMETHING HAPPENS,
WILL YOU BE READY?



THANK YOU

QUESTIONS?

FLIGHT OPERATIONS

EASY WAYS TO GET STARTED



TALK TO YOUR AIRTIME PROVIDER

Find out what they're doing, what tools & programs are available, and how they can help you.



TAKE A COURSE

"Cybersecurity Risk Management for Flight Departments" offered in NBAA's Professional Development Program (PDP).



TAKE A DIFFERENT COURSE

The certified CyberSAFE course is available via SD's Learning Management System online.



COMPLETE A SELF- ASSESSMENT

Establish where you are today. Answer 12 questions and get a 30-minute phone consultation – no cost or obligation.

ADDITIONAL RESOURCES

SD Cyber Smart Kit

- Available free of charge at www.sdcybersmart.com
- See the video
- Read the white paper
- Get literature
- Download the free Network Discovery self-assessment
- Sign up for ongoing alerts & updates

Articles

- **“Cybersecurity in the Flight Department – How Secure Is Your Aircraft?”**, by David Esler, Aviation Week, August 2017
 - <http://aviationweek.com/connected-aerospace/cybersecurity-flight-department-how-secure-your-aircraft>
- **“Cyber Security: Top Flight Department Threats”**, NBAA Insider, July 2016
 - <https://www.nbaa.org/ops/security/20160704-cyber-security-top-flight-department-threats.php>



CONTACT INFO:

Rob Hill

Global Data Solutions

RHill@SatcomDirect.com

+1.321.544.7177

FLIGHT OPERATIONS



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