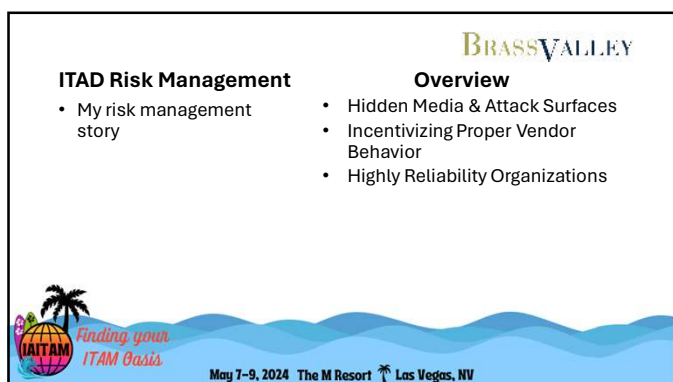


IAITAM ACE
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Rocco D'Amico
Brass Valley
Managing ITAD Risks: Strategies for High Reliability in Decommissioning Processes

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ITAD Risk Management

- My risk management story

Overview

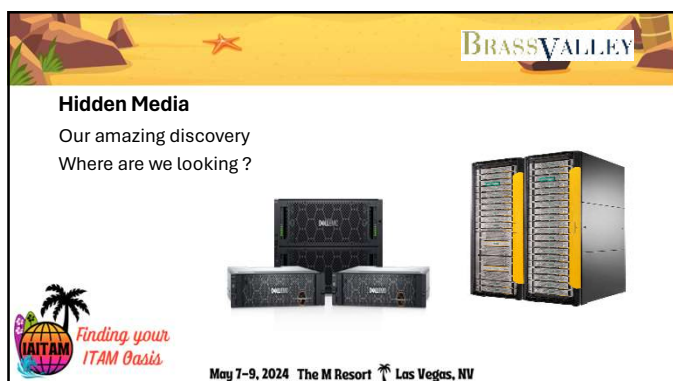
- Hidden Media & Attack Surfaces
- Incentivizing Proper Vendor Behavior
- Highly Reliability Organizations

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Hidden Media

Our amazing discovery
Where are we looking ?



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Hidden Media
Desktop Example



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Hidden Media
NVME




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Hidden Media
HP Server Example




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Hidden Media
HP Server Example




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Hidden Media
HP Server Example




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Hidden Media
HP Server Example



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Hidden Media
Apple Server Example



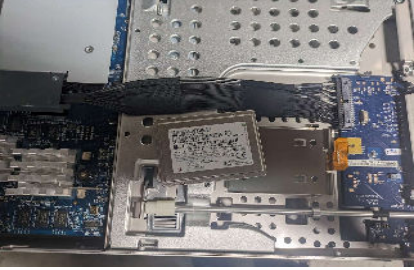
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Hidden Media
Apple Server Example



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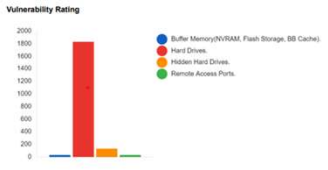
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New Reporting

Accounts for:

- Buffer Memory
- Hard Drives
- Hidden Hard Drives
- Remote Access Ports

Vulnerability Rating



Category	Vulnerability Rating
Buffer Memory (NVDRAM, Flash Storage, BB Cache)	~10
Hard Drives	~1800
Hidden Hard Drives	~100
Remote Access Ports	~10

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Hidden Media

Pro Tips

1. Think beyond the hard drive.
2. Look at your vendors COD's for information about attack surfaces and buffer memory.
3. Audit your own infrastructure to find any exposure.



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Property Incentivizing Your Vendor

Key concepts

- Liability is non severable
- ITAD is a specialized service
- Insurance coverage is influenced by what is in the service agreement
- Data protection and environmental regulations do not necessarily prescribe methods or acceptable levels of performance.
- Acceptable performance is reverse engineered through litigation
- The Master Service Agreement (MSA) can be a window into a Subcontractor's capabilities and culture
- Value of the MSA vs. Certifications

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MSA Concepts


Pay attention to definitions

- Make sure Apples = Apples
- Look for insight into the vendor's culture
- Uncommon definitions
 - Chain of Custody
 - Disaster Recovery
 - Hazardous Material

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Indemnification


What you need to pay attention to

What is covered?

- Environmental
- Data Incidents (Cyber Liability)
- Theft
- Damage
- Injury

Who is covered?


- Additional insured



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Indemnification


What you need to pay attention to

Limits to coverage

- To insurance limits
- To Previous billings over time
- Arbitrary Fixed number

How does it activate? (Key Words)


- Primary and Non-Contributory
- Waiver of Subrogation



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Incentivizing Your Vendor

Pro Tips


- Master Service Agreement is the most important part of vendor relationship
- Use the MSA to get a window into the vendor's culture
- Don't overlook what indemnification really means




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Highly Reliable Organizations




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<p>Highly Reliable Organizations</p> <p>Goal: Learn how to be a highly reliable organization</p>	<p>Objectives</p> <ol style="list-style-type: none"> 1. Identify how errors occur and events happen. 2. Learn how to <i>prevent</i> errors. 3. Learn and commit to practicing Highly Reliable methods and habits.
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<p>From Our Customer's Perspective</p>	<p>Fulfill my requests</p> <p>Be honest with me</p> <p>Be nice to me</p> <p><i>...in that order</i></p>
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Harm in Healthcare

1999 Institute of Medicine report:
To Err is Human
 44,000 to 98,000 Americans die annually from medical errors
 98,000 = 268 people/day (Boeing 747)
 44,000 = 120 people/day (Boeing 737)

2-3 747 crashes per day

2001-03: ~300,000 deaths (HealthGrades, 2005)
 2007-09: ~240,000 deaths (Dept. HHS, 2011)



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Safety is Everybody's Business

- Maintenance employees drained hydraulic fluid from elevators into containers used for surgical detergent.
- Not properly re-labeled or securely stored.
- Containers restocked and shipped as detergent back to hospitals.
- In 2004, the elevator hydraulic fluid was used as detergent in one step of a multi-step cleaning and sterilization process of surgical tools.
- 3800 surgeries occurred using tools that were cleansed with this product.



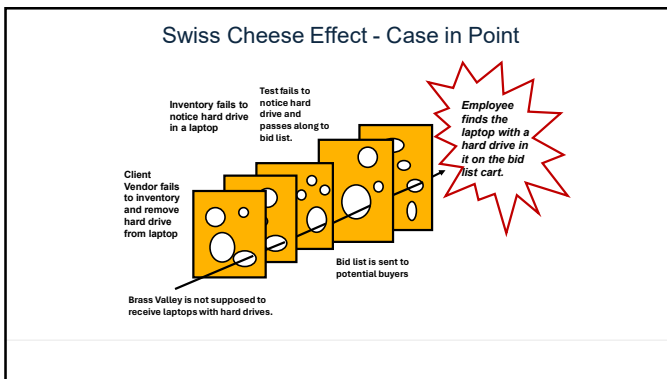

Photo Credit: Duke University Medical Center




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Common Causes of Past Events

Common causes associated with our past events:


- Lack of attention to detail
 - Failure to do double checks rigorously
- Poor communication
- Lack of questioning attitude or critical thinking skills
- Non-compliance with policy, procedure, or expectations
 - Including Normalized Deviance



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Changing Culture through Actions

A Toolkit to Prevent Errors and Events of Harm


C.H.A.M.P



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High Reliability Starts with Me

C.H.A.M.P

- C - Communicate Clearly**
Repeat Backs/Read Backs, Clarifying Questions and Phonetic and Numeric clarifications
- H - Handoff Effectively**
SBAR
- A - Attention to detail**
Self checking using STAR technique
- M - Mentor Each Other**
200% accountability, Cross Checking and Coach Teammates and Speak up for Safety
- P - Practice and accept a questioning attitude**
Validate and Verify and Stop the Line -- "I need clarity"



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Closed-Loop Communications

Clear
Complete
Accurate
Sent and Received

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"Ha ha ha, Biff. Guess what! After we go to the drugstore and the post office, I'm going to the vet's to get tutored!"

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3-Way Repeat Back

Sender initiates communication using Receiver's Name. Sender provides a request or information to Receiver in a clear and concise format

Receiver acknowledges receipt by a repeat-back of the request or information.

Sender acknowledges the accuracy of the repeat-back by saying, **That's correct!** If not correct, Sender repeats the communication.

Train our ears to listen for **"That's Correct!"** – it's a codeword for "we understand each other"

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Clarifying Questions

Ask one to two clarifying questions:

- In all high-risk situations
- When information is incomplete
- When information is not clear

Why
Asking clarifying questions can reduce the risk of making an error by **2½ times!**

How
Use the High Reliability Phrase:
"Let me ask a clarifying question..."

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Phonetic Clarifications

For **sound alike words and letters**, say the letter followed by a word that begins with the letter...


A Alpha	J Juliet	S Sierra
B Bravo	K Kilo	T Tango
C Charlie	L Lima	U Uniform
D Delta	M Mike	V Victor
E Echo	N November	W Whiskey
F Foxtrot	O Oscar	X X-Ray
G Golf	P Papa	Y Yankee
H Hotel	Q Quebec	Z Zulu
I India	R Romeo	



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Numeric Clarifications

For **sound alike** numbers, say the number and then the digits

15...**that's** one-five
 50...**that's** five-zero
 45...**that's** four-five
 425...**that's** four-two-five
 4 to 5...**that's** the range four dash five


...and **always** use leading zeros – as in 0.9



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Handoff Effectively

We provide effective handoffs of tasks and materials to ensure understanding and ownership

Effective Handoffs:

- involve **interactive, direct communications** between employees
- should **minimize distractions**
- should follow a **standardized process**
- should use a **checklist**



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Effective Handoffs
SBAR
(Fixing the Issue)

An outline for planning and communicating information about any issue or problem

First, introduce yourself and who is involved – the customer, the project owner, the employees. Then provide the following, **ensuring you say the highlighted words:**

Situation: The bottom line (problem)
Background: What do you know? (history, details)
Assessment: What is happening now? (current findings, needs, concerns)
Recommendation: What is next? (recommendation or request for assistance)

Always check to see if any party has any questions.



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Attention to Detail

What should we do?
Pay attention to the task at hand to avoid unintentional skill-based errors

Why should we do this?
 -To avoid those slips or lapses where the hand is operating before the head
 -To reduce the chance that we'll make an error when we're under time pressure, distracted or stressed

Error-prevention tool
 - Self Check Using STAR



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Self-Check Using STAR Technique


Stop Pause for 1 to 2 seconds to focus our attention on the task at hand
Think Consider the action you're about to take
Act Concentrate and carry out the task
Review Check to make sure that the task was done correctly and that you got the correct result

STOP is the most important step because it gives your brain a chance to catch up with what your hands are ready to do.




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Add the numbers....


Say your answer out loud as a group:

$$\begin{array}{r}
 + 1000 \\
 + 40 \\
 + 1000 \\
 + 30 \\
 + 1000 \\
 + 20 \\
 + 1000 \\
 + 10
 \end{array}$$


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And the answer is....

5000 ?

or is it...


4100 ?



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Let's Check It Out....

$$\begin{array}{r}
 + 1000 \\
 + 40 = 1040 \\
 + 1000 = 2040 \\
 + 30 = 2070 \\
 + 1000 = 3070 \\
 + 20 = 3090 \\
 + 1000 = 4090 \\
 + 10 = 4100
 \end{array}$$



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Visual Cognition



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Mentor Each Other

200% accountability

What should we do?
 Look out for one another to catch each other's mistakes while building a greater sense of accountability for our actions.

Why should we do this?
 -To catch and trap honest errors before they reach our customers
 -To hold each other accountable for meeting company expectations

Error Prevention Tools
 - Crosscheck and Coach teammates
 - Speak Up for Safety/High Reliability: ARCC it up - "I have a Concern!"

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Crosscheck = Watching out for each other

Peers check each others' work and **ARE WILLING TO BE CHECKED.**

Look out for your team members...


- Offer to check the work of others
- Point out work conditions (hazards) your team member might not have noticed
- Point out unintended slips and lapses
- Say "Thanks for the crosscheck!"



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Coach Teammates

Use 5:1 Feedback

Encourage highly reliable and productive behaviors
5 times as often as you...


Correct an unsafe and unproductive behavior

Tips:

- Be willing to give feedback to others...and be willing to have others give feedback to you!
- Provide feedback based on observations
- Use the "lightest touch" possible

Good Example


Remember without saying a word
what you permit, you promote.



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Speak Up for Safety and High Reliability: ARCC it Up

A responsibility to protect in a manner of mutual respect – an assertion and escalation technique


- A**sk a question
- R**equest a change
- C**ommunicate a **C**oncern
- If no success, use the **C**hain of Command
- Safety/High Reliability Code Words – **"I have a Concern..."**



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Practice and Accept a Questioning Attitude

Validate and Verify
Stop the line – I need clarity


What should we do?
Think critically by questioning information we hear and see if it doesn't fit with what we know

Why should we do this?

- To detect incorrect information and assumptions that can lead to erroneous decisions or actions
- To help ensure work activities are **stopped** when faced with uncertainty or unsafe conditions

Error Prevention Tool

- Validate and Verify
- Stop the Line – "I need clarity"



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Validate: Internal check

Internal Smoke Detector

- Does this make sense to me?
- Is it right, based on what I know?
- Is this what I expected?
- Does this information "fit-in" with my past experience or other information I may have at this time?

Get in the habit of asking these questions all the time. It takes only seconds.

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Verify External Check

When should you Verify?

- When your detector goes off
- In every high-risk situation
- When there is a change in the customer request or plan

It's OK *not to know*.
It's **not** OK *not to find out*.

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Stop the Line – I need Clarity

Similar in concept to the "Stop the Line" or "Stop Work Authority" concept promoted by most high-risk industries – aviation, nuclear, healthcare.

If you are uncertain about what you are about to do...
If you have questions...
If someone raises a concern or question...

STOP

- Review your plan
- Resolve the concern
- Reassess your actions


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High Reliability Starts with Me

- Communicate Clearly
- Hand Off Effectively
- Attention to Detail
- Mentor Each Other
- Practice and Accept a Questioning Attitude





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