

Data End of Life in the Cloud: Why, When and How?

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Two young guys...







...erasures every day.

Data End of Life

NIST Special Publication 800-88
Revision 1

Guidelines for Media Sanitization

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Andrew Regenscheid
Matthew Scholl
Kevin Stine

This publication is available free of charge from:
<http://dx.doi.org/10.6028/NIST.SP.800-88r1>

COMPUTER SECURITY

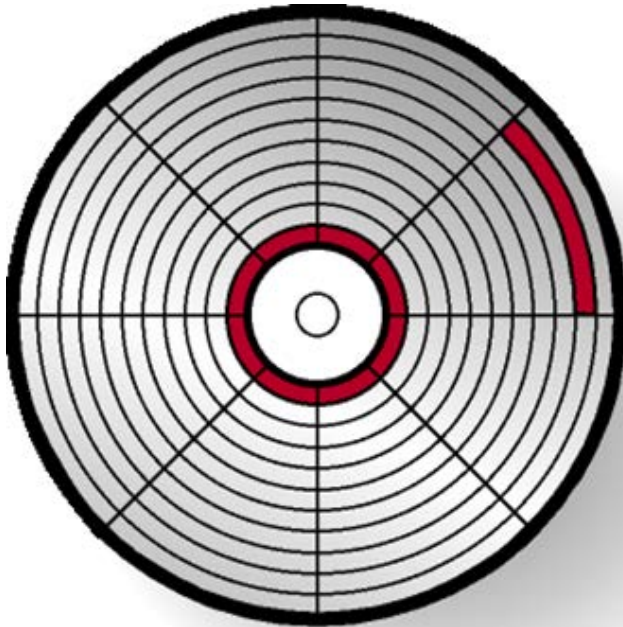
NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

“Media **sanitization** refers to a process that renders access to target data on the media infeasible for a given level of effort.”

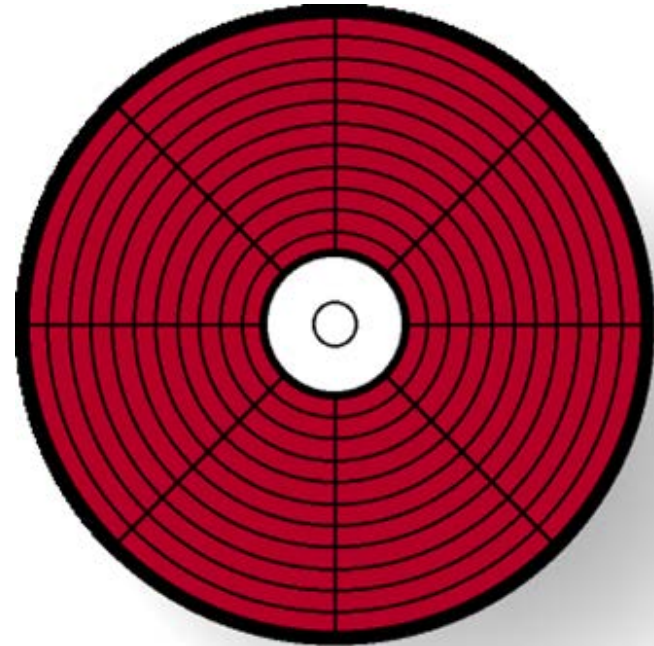


What is Certified Data Erasure?

Format or Delete



Data Erasure



TÜV-SÜD



NATO



Common Criteria




C S P N



Data End of Life- broader definition

2014-04-04T13:57:42+0300, BLANCCO LUN 1.3.2.2

DATA ERASURE REPORT



Custom fields

| Location: | Example | Date: | Example |
|-----------|---------|-------|---------|
|-----------|---------|-------|---------|

Erasure results

| | | |
|-----------------|--|--------------------------|
| Vendor: LIO-ORG | Model: FILEIO | Serial: RN303RE0014B-013 |
| Size: 10GB | Bus: Reserved | Device ID: 2 |
| Target(s): | \\?\scsi#disk&ven_lio-org&prod_fileio#1&1c121344&0&00000c#{53f56307-b6bf-11d0-94f2-00a0c91efb8b} | |
| Method: | HMG Infosec Standard 5, Lower Standard | |
| Duration: | 00:05:13 | |
| Status: | Erased | |

Software information

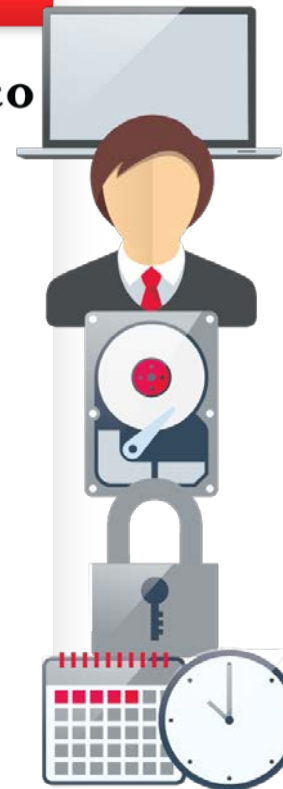
| | |
|----------------|-----------------|
| OS version: | 6.1.7601 |
| Computer name: | Z620 |
| User name: | Blancco\Example |

Report details

| | |
|--------------------|--|
| Report UUID: | 3036114a-a47c-4720-a824-6c23bbeff943 |
| Report date: | 2014-04-04 13:57:42 (+0300) |
| Software version: | Blancco LUN 1.3.2.2 |
| Digital signature: | MEQCIFC34s2hjeGsb12q7xFNlaCZHSsE+I+TXrDFohK1dFqPAiB5CbhrRdwNUw9mhdS0XYs9s/jf9T+6IBXmbKFZQ9mY3Q== |

I hereby state that the data erasure process has been carried out in accordance with the given instructions.

DATA ERASURE OPERATOR SUPERVISOR



- Erasure technology choice
- Process implementation and verification
- Reporting and audit trail

Why?

Many current drivers!



**National Data
Protection Law**



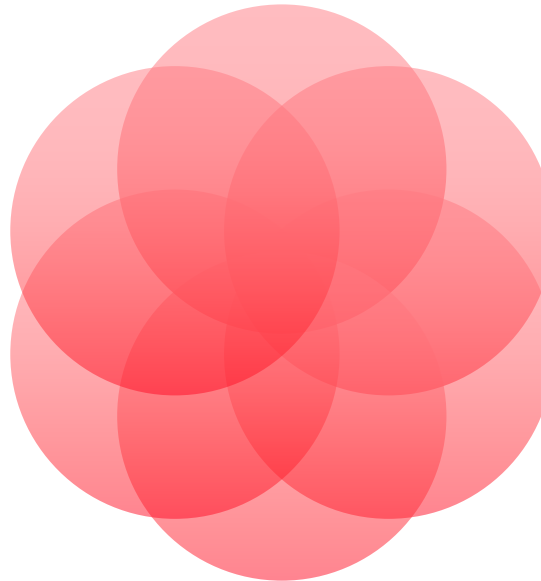
**EU Data Protection
Regulation
2015/16**



**Credit Card
Industry PCI-
DSS**



**(Health
Insurance
Portability and
Accountability)**



**„Right to
Erasure“**

**ISO Standard
27001**

Sarbanes-Oxley



Government initiatives



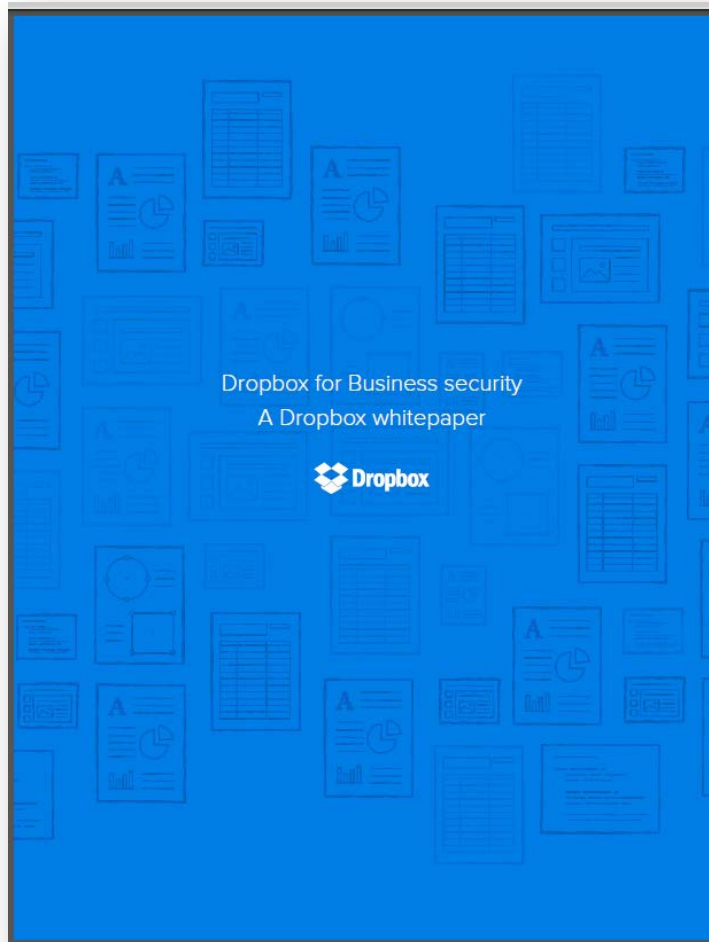
Cloud Industry recommendations

“Include data end-of-life (erasure) with auditable reporting into your cloud security eco system”



Data Life Cycle
According to the Cloud Security Alliance, it falls to “...the provider to keep that data secure, and when it is deleted, the provider should ensure (or be able to prove) that it is permanently destroyed.”

A San Francisco Case



Corporate facts:

- Founded in 2007 and product release in 2008.
- One of the largest AWS S3 customers.
- Running tens of thousands of servers in multiple data centers.
- Managing hundreds of billions of files and growing.
- Founded by Drew Houston and Arash Ferdowsi.

Dropbox Case



CONSENSUS ASSESSMENTS INITIATIVE QUESTIONNAIRE v3.0.1



“Dropbox uses **secure deletion process to delete data once a customer has permanently deleted a file from their Dropbox account or after service termination.**

When a Dropbox storage disk has reached the end of its useful life or is damaged, we follow a decommissioning process that is designed to destroy the disk to the point data cannot be reasonably recovered. Our managed service provider also follows secure destruction processes for media they control.”

Dropbox Case



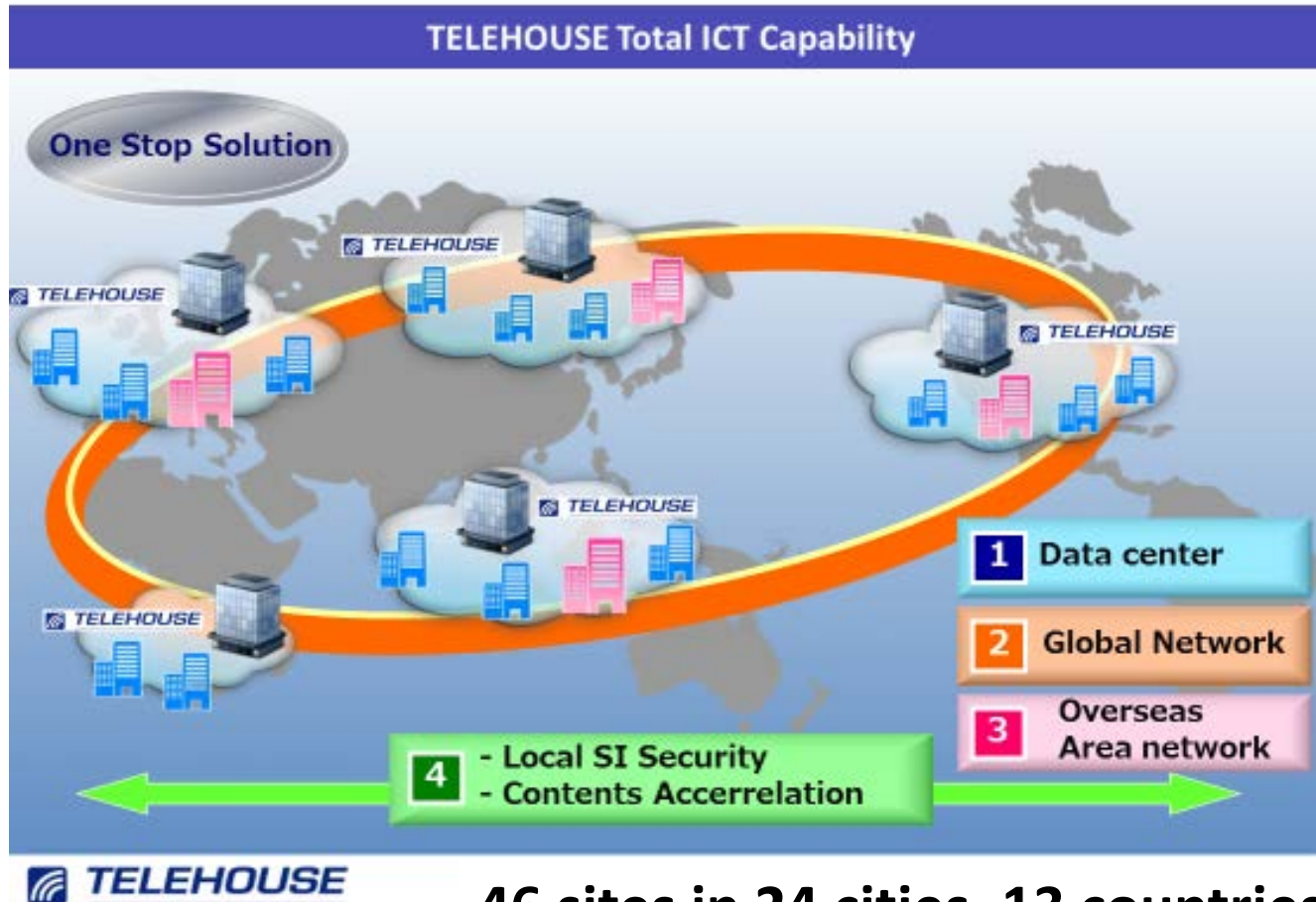
Section A.11.2.7 "Secure disposal or re-use of equipment" - "All items of equipment containing storage media shall be verified to ensure that any sensitive data and licensed software has been removed or **securely overwritten** prior to disposal or re-use."

Section A.18.1.4 "Privacy and protection of personally identifiable information"

Section A.14.3.1 "Protection of test data"



Telehouse case



46 sites in 24 cities, 13 countries



Benoît Mercier

Directeur ICT Solutions
Telehouse Europe

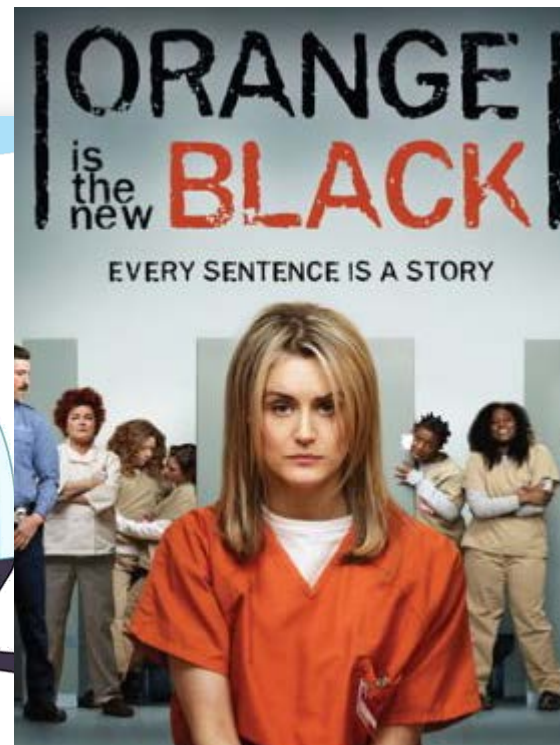
“As Datacenter and Cloud solution provider, Telehouse is committed to providing strong guaranty to its customer. We chose a software based data erasure process as a irrefutable evidence that we comply with EU regulation when deleting Customer data.

More than a technical solution the software erasure process allows us to deliver **TRUST** to our Customer. This is the most valuable asset in our business field, on top of providing strong evidence for our security certifications like ISO 27001 or PCI DSS”.

Threats- Internal

Case Study – Deleted Virtual Disks

- Initial Facts
 - 28 LUNs (28 DataStores)
 - 440 VMDKs
 - 1000+ snapshots
- Additional Information
 - Exchange, SQL, Oracle, File Servers all gone
 - Backups also deleted



Threats- External

CNN Money Business Markets Tech Personal Finance Small Business Luxury stock tickers

Ex-NSA director: China has hacked 'every major corporation' in U.S.

✉ f t in ... Recommend 2.3k



PHOTO: GREGG DEGUIRE/REUTERS

Mike McConnell, when he was still national director of intelligence at the tailend of the Bush administration.

The Chinese government -- seeking to steal valuable secrets -- has hacked into the computers at every major American company,

When?

PROCESS EXAMPLE:

#1 SAN decommissioning

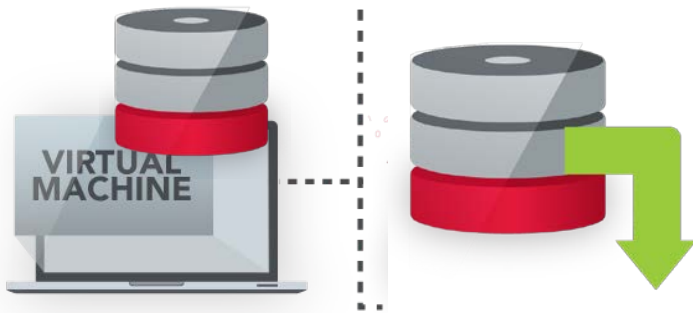


- **HDD level or LUN level**
- **Functioning or not after Erasure**
- **Locally or remotely**
- **Auditable**

PROCESS EXAMPLE:

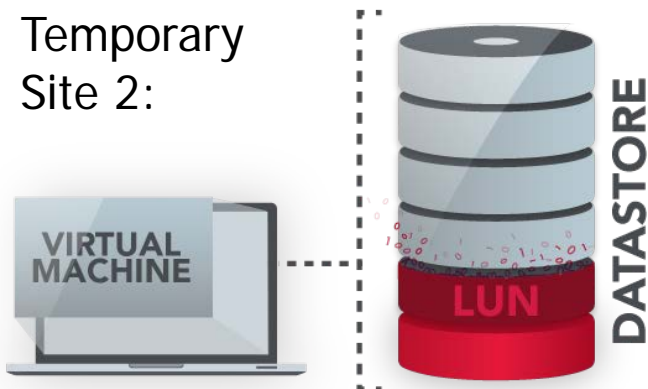
#2 Extra Data

Site 1:



- Disaster recovery exercises
- Test data
- Actual disasters
- Auditable

Temporary
Site 2:



PROCESS EXAMPLE:

#3 Data Entry

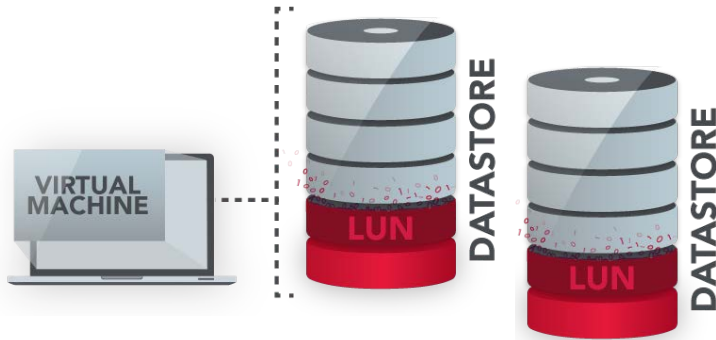


- **Data in original sites**
- **Temporary sites**
- **Auditable**



PROCESS EXAMPLE:

#4 Data Migration and Data Exit



- Data migration policy
- Secure Data Exit
- Auditable



All the “whens” will need to be defined in your service contracts



Dropbox, now for
your business

“Dropbox customers retain control and ownership of their data and are responsible for enforcing their data retention policies according to their requirements. **Dropbox for Business provides administrators and users with the ability to permanently delete their data**”

How?

Erasure levels:

Erasure on File, Logical and Virtual Levels:



VIRTUAL Erasure



LUN Erasure



FILE Erasure

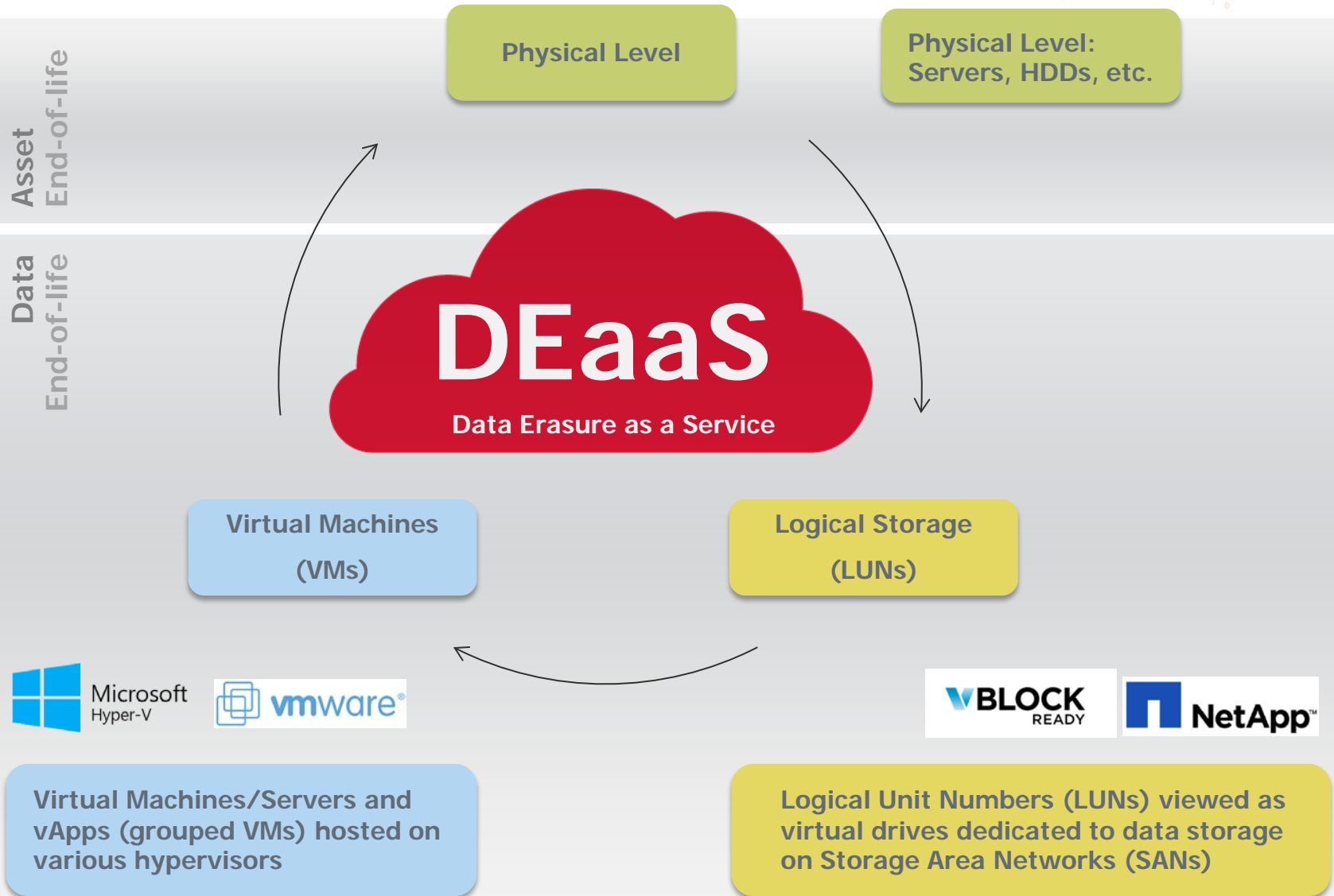
Total Erasure on physical level:



SERVER Erasure



DISK Erasure
(HDD and SSD)



Final Comments!

What not to do!

A Norwegian Data End of Life Process...

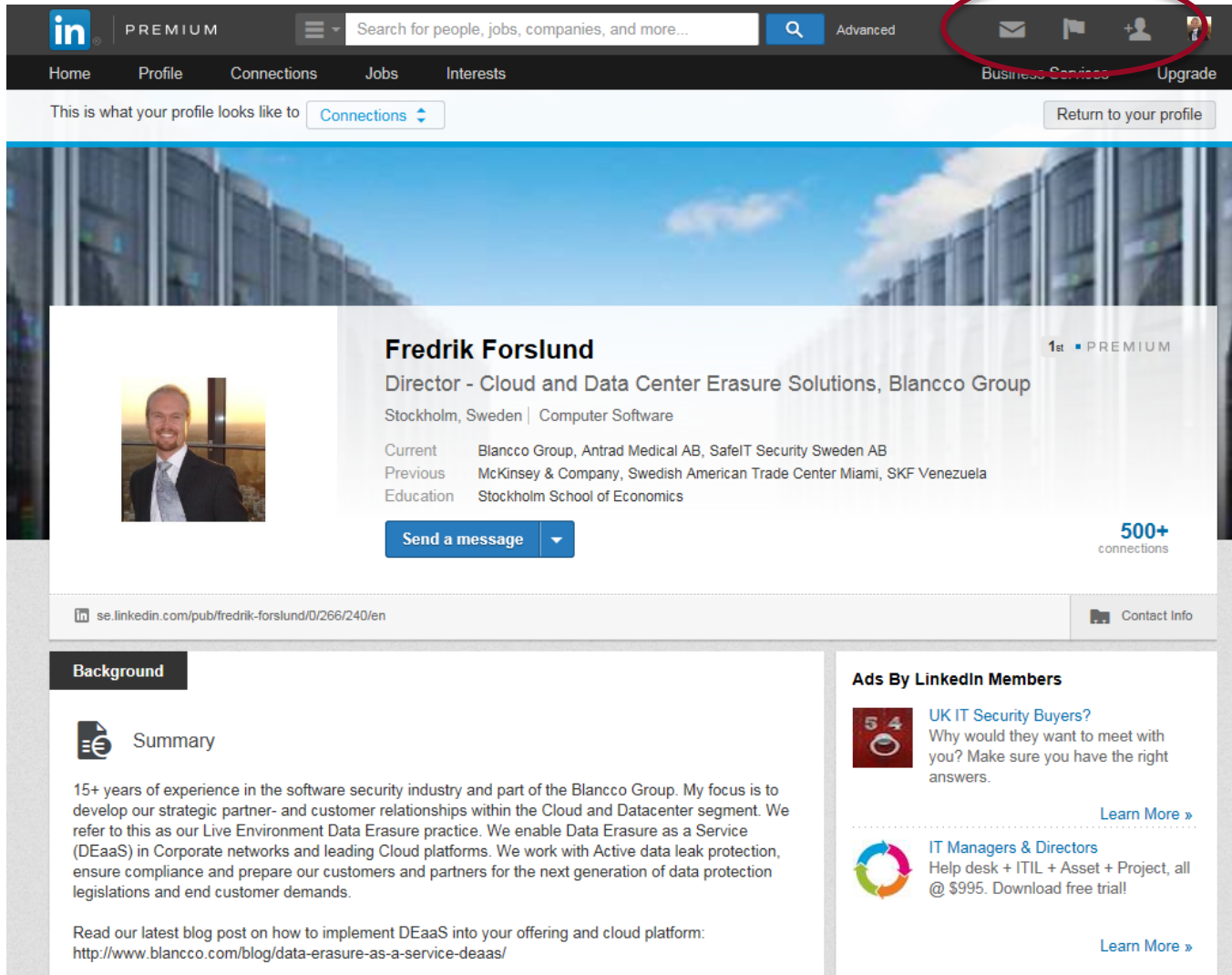


Reuse! instead of retire and destroy.

- Significant value for someone within your own organization
- Might help an external organization in your community
- Might help an organization abroad in a developing region

88%

Connect! Or e-mail: fredrik.forslund@blancco.com



The image is a screenshot of a LinkedIn profile for Fredrik Forslund. The top navigation bar includes the LinkedIn logo, a 'PREMIUM' badge, a search bar, and icons for messages, flags, and profile management. The profile header shows 'Fredrik Forslund' with a '1st' badge and 'PREMIUM' status. His title is 'Director - Cloud and Data Center Erasure Solutions, Blancco Group', and his location is 'Stockholm, Sweden | Computer Software'. His current employer is 'Blancco Group, Antrad Medical AB, SafeIT Security Sweden AB'. Previous employers include 'McKinsey & Company, Swedish American Trade Center Miami, SKF Venezuela'. His education is from the 'Stockholm School of Economics'. There is a 'Send a message' button and a '500+ connections' badge. The background section is titled 'Background' and contains a 'Summary' with text about 15+ years of experience in software security and data erasure. The right sidebar features 'Ads By LinkedIn Members' with two ads: 'UK IT Security Buyers?' and 'IT Managers & Directors'.

Fredrik Forslund 1st • PREMIUM
Director - Cloud and Data Center Erasure Solutions, Blancco Group
Stockholm, Sweden | Computer Software

Current Blancco Group, Antrad Medical AB, SafeIT Security Sweden AB
Previous McKinsey & Company, Swedish American Trade Center Miami, SKF Venezuela
Education Stockholm School of Economics

[Send a message](#) 500+ connections

se.linkedin.com/pub/fredrik-forslund/0/266/240/en [Contact Info](#)

Background

Summary

15+ years of experience in the software security industry and part of the Blancco Group. My focus is to develop our strategic partner- and customer relationships within the Cloud and Datacenter segment. We refer to this as our Live Environment Data Erasure practice. We enable Data Erasure as a Service (DEaaS) in Corporate networks and leading Cloud platforms. We work with Active data leak protection, ensure compliance and prepare our customers and partners for the next generation of data protection legislations and end customer demands.

Read our latest blog post on how to implement DEaaS into your offering and cloud platform:
<http://www.blancco.com/blog/data-erasure-as-a-service-deaas/>

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Thank you...

