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DESIGN STUDY

Store-estate disposal for a retailer: 3,200 retired assets, one sanitization certificate each

Complete design on current platforms

CAPABILITY	INDUSTRY	SETTING
IT Spend Optimization	Retail	Fashion and homeware retailer
DOCUMENT	**VERSION**	**DATE**
SPD-005	1.1	Oct 10, 2026

WRITTEN BY

Avinash Dhinakaran, Principal Integration Architect

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Document control

Document	SPD-005	Version	1.1
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Capability	IT Spend Optimization	Industry	Retail
Author	Avinash Dhinakaran	Role	Principal Integration Architect
Credentials	iSAQB Certified Professional for Software Architecture – Advanced Level (CPSA-A), Oracle Certified Consultant – Value Chain Planning, Master Data Management, SCM Cloud		
Approval	Approved by Edwin Ozer, Founder, Oct 10, 2026. Issued by Symbeeo, Oct 10, 2026. Design study: every figure is vendor-published, a design target or a marked assumption.		
Sign-off	"An engagement under this design is signed by the practice lead before any build proceeds."		

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CONVENTIONS

Source tags. [S] figure read from the standard owner's own current page on Sep 24, 2026, or on Sep 27, 2026 where the text says so · [S*] figure from the owner's page summary where the page itself could not be opened · [A] design assumption · [T] design target (the record's outcome figure and anything derived from it). Every figure carries at least one tag. No figure comes from any prior engagement, file or asset. A row with more than one tag is counted once: as a published figure if any tag is [S] or [S*], otherwise as an assumption if any tag is [A], otherwise as a design target.

Table 1. Revision history

Date	Version	Change
Sep 27, 2026	`1.0`	First issue.
Oct 10, 2026	`1.1`	Approval line now reads: approved by the Founder, issued by Symbeeo. Avinash Dhinakaran remains the author.

1 · Scope

Who it is for. The IT asset manager and the PCI compliance lead of a store chain retiring a generation of point-of-sale and back-office equipment, who must show an assessor that every device that held cardholder data left the estate unrecoverable, and show finance that every device on the fixed-asset register was accounted for.

Typical buyer [A]. A fashion and homeware retailer with 180 stores. Retiring over twelve months: 1,400 POS terminals with solid-state storage, 360 back-office PCs, 180 store servers with two drives each, and 1,260 handheld scanners with flash storage — 3,200 assets and 3,380 storage media. POS terminals and store servers sit in the cardholder data environment [A].

What is in. The retirement list drawn from the asset record; chain of custody from store to disposal partner; sanitization method per media type; verification; one certificate per device; disposition (reuse, resale or recycling); closure on the asset and fixed-asset records. **What is out.** Choosing the replacement equipment; the disposal partner's commercial terms; stores' paper records.

Assumptions. The disposal partner holds a current R2v3 or e-Stewards certification (SDD-SPD-001 P8) [A]. Store-server drives are sanitized or destroyed on site before collection; everything else travels sealed to the partner's facility [A]. Records are kept 7 years [A].

Related documents, read Sep 24, 2026. SRA-SPD-001 v1.0 and SDD-SPD-001 v1.0 (issued Sep 27, 2026) · NIST SP 800-88 Rev. 2, Guidelines for Media Sanitization, September 2025 (`https://csrc.nist.gov/pubs/sp/800/88/r2/final`; text read from `https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-88r2.pdf`) · IEEE 2883-2022, IEEE Standard for Sanitizing Storage (`https://standards.ieee.org/ieee/2883/10277/`) · e-Stewards Standard (`https://e-stewards.org/the-e-stewards-standard/`) · R2 standard, SERI (`https://sustainableelectronics.org/r2/`; the page could not be read, figures [S*]) · PCI DSS document library (`https://www.pcisecuritystandards.org/document_library/`; requirement text [S*]).

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1c · Public implementations this design follows

Table 2. Public implementations this design follows

Implementation	Who published it · date	What it settles for this design	URL
NIST SP 800-88 Rev. 2	NIST · September 2025, superseding Rev. 1 of Dec 17, 2014 · published standard, used to build our own design	R1, R2, R4 as published: methods Clear, Purge and Destroy; technique detail moved to IEEE 2883; cryptographic erase counted only where the self-encrypting drive's conditions are verified; a certificate of sanitization per sanitized device, with the Appendix C fields	https://csrc.nist.gov/pubs/sp/800/88/r2/final
IEEE 2883-2022	IEEE Standards Association · approved Jun 16, 2022, published Aug 17, 2022 · published standard, used to build our own design	R3: the technique reference NIST now points to, for logical and physical storage by interface	https://standards.ieee.org/ieee/2883/10277/
e-Stewards Standard 4.1	Basel Action Network (e-Stewards) · Version 4.1 PDF, file dated May 2, 2022; NAID AAA required from Jul 1, 2022 · published standard, used to build our own design	R6: a certified processor also holds NAID AAA certification for data destruction, and export of hazardous e-waste follows the Basel Convention	https://e-stewards.org/wp-content/uploads/2023/09/e-Stewards-Standard-V4.1.pdf

Figures in §2 and §4 are from these pages, read Sep 24, 2026; the e-Stewards row is from the Version 4.1 PDF, read Sep 27, 2026. §4.3 names IEEE 2883 techniques rather than Rev. 1's per-media table, because Rev. 2 removed it. All three rows are standards: the retail disposal case studies found as of Sep 27, 2026 come only from disposal vendors about unnamed retailers, so no named retailer's public deployment is shown.

2 · Requirements register

Table 3. Requirements register

#	Requirement	Value	Source
R1	Sanitization methods	Clear, Purge, Destroy; techniques per IEEE 2883	[S] NIST SP 800-88 Rev. 2
R2	Certificate fields, per device	operator, manufacturer, model, serial, media type, method, technique, tool and version, verification, validation, destination, signatures	[S] NIST SP 800-88 Rev. 2 App. C
R3	Technique standard	IEEE 2883-2022, Standard for Sanitizing Storage	[S] IEEE SA
R4	Cryptographic erase	counts as purge only where the drive's conditions are verified	[S] NIST SP 800-88 Rev. 2 §3.2
R5	Cardholder data media	destroyed when no longer needed; data rendered unrecoverable (PCI DSS v4.0.1, 9.4.7)	[S*] PCI SSC
R6	Disposal partner certification	R2v3 or e-Stewards 4.1; e-Stewards requires NAID AAA	[S] e-Stewards; [S*] R2v3, SERI

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#	Requirement	Value	Source
R7	Estate retiring	3,200 assets, 3,380 media, 180 stores	[A]
R8	Retired assets reconciled from asset record to certificate	100 %	[T]
R9	Custody scans	store, collection, partner receipt; count difference 0 before sanitization	[T]
R10	Certificate on the asset record after collection	≤ 10 working days	[T]
R11	Verification	every non-destructive sanitization verified per device; every destruction inspected	[T]
R12	Store-server drives	sanitized or destroyed on site before collection	[A]
R13	Retired assets redeployed or resold after purge	≥ 40 %	[T]
R14	Record retention	7 years	[A]

Fourteen rows; six carry a standard's figure (one of them [S*] only), three are design assumptions, five are design targets.

3 · Architecture overview

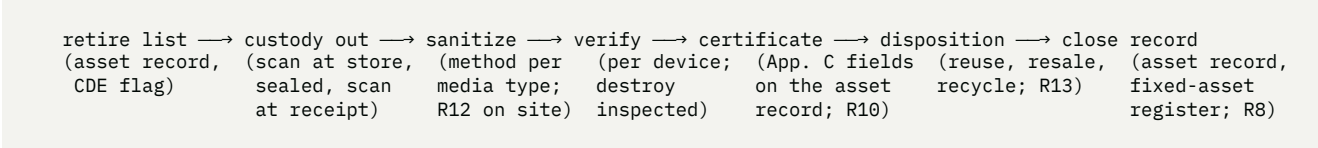


Figure 1. Disposal chain, retirement to record closure

Every device passes six gates; a device that fails one stays open on the record. The parts table is the gate checklist.

Table 4. Architecture overview

Gate	Check performed	Record produced
Retire list	device on the asset record with serial, store, media count, CDE flag; listed on the fixed-asset register	retirement batch per store
Custody out	scanned at store, sealed, scanned at collection, scanned at partner receipt; counts equal (R9)	custody log per batch
Sanitize	method chosen by media type and data (§4.3); tool and version recorded	sanitization log per device
Verify	tool completion status and sampled read-back for purge; inspection for destroy (R11)	verification result per device
Certificate	Appendix C fields complete (R2); signed by the operator and the partner's supervisor	certificate per device

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Gate	Check performed	Record produced
Disposition and close	reuse, resale or recycling recorded; asset and fixed-asset records closed (R8)	closed record with certificate attached

4 · Design by subsystem

4.1 Retirement list.

Drawn from the asset record, not from the stores: every device due for retirement with its serial, store, media count and whether it sat in the cardholder data environment [A]. The same list is matched to the fixed-asset register so that finance can write each one off against a certificate (R8) [T].

4.2 Custody.

Each device is scanned at the store, sealed in a numbered container, scanned again at collection and at the partner's receipt. Any difference between the three counts stops the batch before sanitization (R9) [T]. Rejected: counting by container — a container count hides a missing device.

4.3 Method per media type.

POS terminal SSDs and handheld flash: purge by the device's standardized sanitize command, as IEEE 2883 specifies for the interface [S]; cryptographic erase accepted only where the drive is verified as self-encrypting under NIST's stated conditions (R4) [S]; otherwise destroy [A]. Store-server drives: purged on site, or destroyed on site where purge cannot be verified (R12) [A]. Back-office PC drives: purge, so the PC can be resold (R13) [T]. Media from the cardholder data environment that cannot be purged and verified is destroyed (R5) [S*]; [A].

4.4 Verification.

Every non-destructive sanitization is verified per device from the tool's completion status plus a read-back sample; every destruction inspected and photographed (R11) [T], following NIST's verification guidance [S].

4.5 Certificate.

One certificate per device with the Appendix C fields: operator, manufacturer, model, serial, media type, method, technique, tool and version, verification, validation, destination, and signatures [S]. Electronic, captured by barcode scan at the bench, as NIST suggests for volume work [S]. Attached to the asset record within 10 working days of collection (R10) [T].

4.6 Disposition.

Purged and verified devices go to reuse or resale; destroyed media and end-of-life devices to recycling by the certified partner (R6) [S]. Target: at least 40 % of retired assets reused or resold (R13) [T].

4.7 Record closure.

An asset closes only when its certificate is attached and its disposition recorded; the fixed-asset register entry closes on the same event (R8) [T]. Records held 7 years (R14) [A].

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5 · Failure behavior

Table 5. Failure behavior

Failure	Behavior	Source
Custody count differs at receipt	batch held unsanitized; store and carrier logs compared; missing device reported to security the same day	[T]
Sanitize command fails on a drive	drive moved to destroy; certificate records destroy, not purge	[A]
Self-encrypting status cannot be verified	cryptographic erase not accepted; drive purged by another technique or destroyed	[S] NIST §3.2; [A]
Read-back sample finds residual data	whole batch re-sanitized with that tool, tool version flagged	[A]
Certificate missing a field	certificate rejected; device stays open on the record	[T]
Partner certification lapses mid-program	collections stop until renewed or a second certified partner is engaged	[A]

6 · Limits

- The PCI DSS requirement text is from the owner's summary as found, not the standard's PDF, which sits behind the document library; it is read again at design freeze.
- The R2 standard's version is not stated from SERI's own page, which could not be read on Sep 24, 2026.
- The 40 % reuse share is a target; the actual share depends on the resale market and device condition.
- The design proves disposal; it does not value the resale proceeds or claim any saving.
- No figure here has been measured.

7 · Lessons learned

None yet — this is a design study; populated after the first build against it.

8 · The author

WRITTEN BY

Avinash Dhinakaran

Principal Integration Architect

iSAQB Certified Professional for Software Architecture – Advanced Level (CPSA-A), Oracle Certified Consultant – Value Chain Planning, Master Data Management, SCM Cloud

Signed off by Edwin Ozer, Founder.

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SYMBEEO

Each vendor's tool shows you their option. We show you all of them against one requirement.

Compared. Then Delivered.

hello@symbeeo.com · symbeeo.com

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Figures are as published by their sources on the dates given in this document; figures marked [A] are assumptions.

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