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REFERENCE ARCHITECTURE

# Implementation of chosen infrastructure: survey, staging, rack-and-stack, configuration, cutover, handover

| CAPABILITY | DOCUMENT | VERSION | DATE |
|---|---|---|---|
| Implementation Services | SRA-IMP-001 | 1.1 | Oct 10, 2026 |

WRITTEN BY

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## Document control

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|---|---|---|---|
| Document | SRA-IMP-001 | Version | 1.1 |
| Issued | Oct 10, 2026 | Status | Issued by Symbeeo |
| Classification | Public | Supersedes | 1.0, Sep 27, 2026 |
| Capability | Implementation Services | Author | Steve Phillips |
| Role | Principal Data Center Architect | Tested by | STP-IMP-001 |
| Credentials | CCSP, CCIE, AWS Certified Security – Specialty | | |
| Approval | Approved by Edwin Ozer, Founder, Oct 10, 2026. Issued by Symbeeo, Oct 10, 2026. | | |
| Sign-off | "The practice lead signs this document before any build proceeds under it." | | |

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CONVENTIONS

**Source tags.** [S] read Sep 24, 2026 from the publisher's own page: NIST SP 800-88r2 Guidelines for Media Sanitization (Sep 26, 2025) · NIST SP 1800-34 Validating the Integrity of Computing Devices (final, Dec 2022) · IETF RFC 8572 Secure Zero Touch Provisioning (Apr 2019) · IEC 61300-3-35 ed. 3.0 (Sep 16, 2022) · ISO/IEC 14763-3 ed. 3.0 (May 22, 2024) · ANSI/TIA-568.3-E (Sep 29, 2022) · DMTF Redfish release 2026.1 · Broadcom What's New in VCF Operations HCX 9.0 · Nutanix Move 6.3 notice (Jul 29, 2026) · Red Hat What's new in MTV 2.10 · NetBox v4.6.4 (Jun 30, 2026). [S*] from the publisher's summary or a trade-press report where the standard itself is sold, not published: ANSI/TIA-942-C (May 2024) · ANSI/BICSI 002-2024 · ANSI/TIA-606-D (Oct 2021) · TCG Platform Certificate Profile v2.0 · Redfish 2025.3 certificate enrollment. [A] typical-buyer assumption. **[VMware: Stay or Leave]** the row the published virtualization comparison decides. 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. Steve Phillips remains the author. |

## 1 · Scope

**Who it is for.** The head of infrastructure who has chosen a platform, through a Symbeeo comparison or otherwise, and now has to get it into two rooms, onto the network and under load without an outage the business notices, and hand operations a record they can run from.

**Typical buyer [A].** The build SDD-DC-001 designs: two sites 40 km apart; 28 servers (pod A 12, pod B 16), 4 ToR switches, 2 OOB switches, 4 racks into existing rooms; 250 virtual machines migrated off end-of-support hosts; a six-hour maintenance window, Saturday 22:00–04:00; a change advisory board that approves every production window; retired disks that may not leave the building unsanitized.

**What is in.** Site survey; procurement receipt; staging and integration (inspection, burn-in, firmware, base configuration); rack-and-stack; cabling and cabling test; provisioning and configuration from a source of truth; cutover and workload migration; decommissioning and media sanitization; handover and hypercare. **What is out.** Choosing the platform (the capability's own SRA and comparison); facility construction, power and cooling plant; the design of the thing being installed (SDD-DC-001, SDD-NET-001, SDD-SEC-001, SDD-AI-001); run-state operations after hypercare.

**Related documents.** SDD-IMP-001 applies this to the typical buyer; STP-IMP-001 tests it. SRA-DC-001 · SRA-NET-001 · SRA-SEC-001 · SRA-AI-001 supply the designs this capability installs.

## 2 · Requirements register

Each row is verifiable by one T-case in STP-IMP-001 and names no product.

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**Table 2.** Requirements register

| # | Requirement | Value | Source |
|---|---|---|---|
| R1 | Site survey before order release | every receiving room surveyed and signed: floor load, measured power per feed, cooling at the rack position, pathway fill, delivery route clearances | [S*] BICSI 002-2024; TIA-942-C |
| R2 | Survey age at delivery | ≤ 60 days; older surveys repeated | [A] |
| R3 | Cabinet width, distribution areas | ≥ 800 mm (MDA, IDA, HDA) | [S*] TIA-942-C |
| R4 | Receipt integrity | 100 % of units match the order by serial and component inventory; platform certificate verified where the manufacturer issues one | [S] SP 1800-34; [S*] TCG |
| R5 | Burn-in before the production room | manufacturer diagnostics plus 72 h sustained load; zero uncorrected memory, storage or PCIe errors | [A] |
| R6 | Firmware baseline at dispatch | 100 % of units at the baseline recorded in the capability SDD | capability SDD |
| R7 | Management plane first | every BMC and switch management port reachable over OOB, factory credentials replaced, CA-issued certificate installed, before any in-band configuration | [S*] Redfish 2025.3 |
| R8 | Configuration source | every device configuration rendered from one version-controlled source of truth; zero manual deltas at handover | [A] |
| R9 | Labels and records | every cabinet, panel, port and cable identified in the TIA-606-D scheme; a 10 % random audit finds zero label-to-record mismatches | [S*] TIA-606-D; [A] audit size |
| R10 | Fiber endface | every connector inspected and passing IEC 61300-3-35 ed. 3 before first mating | [S] |
| R11 | Fiber link test | every installed link tested for loss, length and polarity per ISO/IEC 14763-3:2024; loss within the design's link budget | [S] |
| R12 | Change window control | written go/no-go criteria, a rollback trigger time and a named decision-maker, approved by the client's change authority before the window opens | [A] |
| R13 | Rollback rehearsal | the rollback executed end to end once, on the pilot group, before the first production window | [A] |
| R14 | Outage per application group | ≤ the agreed window (6 h [A]); application owner signs the data-and-function check | [A] |

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| # | Requirement | Value | Source |
|---|---|---|---|
| R15 | Media sanitization | every retired storage device sanitized to NIST SP 800-88r2, method per IEEE 2883, one record per serial, before it leaves client control, or kept by the client under a non-return service; media holding PHI or other regulated personal data never taken back unsanitized | [S] |
| R16 | Handover pack | as-built elevations, cable schedule, serial manifest, configurations, credentials transferred, licenses, support contracts, the signed STP with test results, runbooks and open items, delivered ≤ 10 working days after the last cutover | [A] |

## 3 · Architecture overview

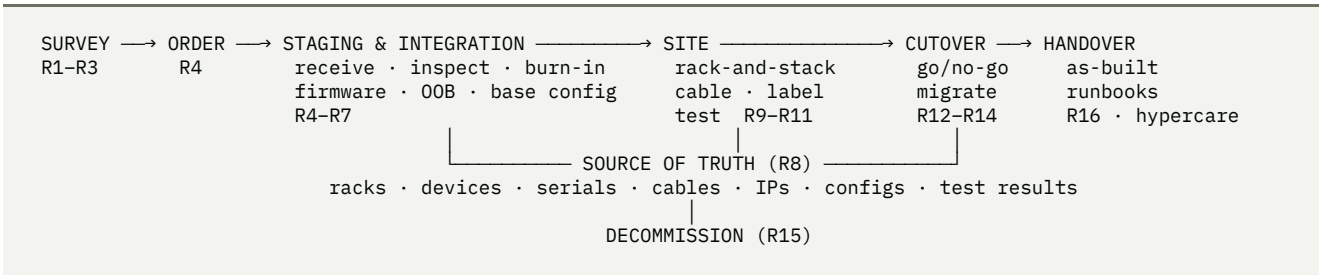



**Figure 1.** One record carries the build from survey to handover

## 4 · Component design

### 4.1 Site survey.

Measured, not read from drawings: power per feed with the room loaded, inlet temperature at the target rack positions, floor rating, route from dock to row (door, lift and ramp dimensions against the crated rack). TIA-942-C sets distribution-area cabinets at 800 mm minimum and admits very-small-form-factor fiber connectors there [S*]; BICSI 002-2024 is the design-and-implementation reference for the room [S*]. The survey is signed by the client's facilities owner (R1, R2).

### 4.2 Receipt and integrity.

Every unit checked against the order by serial. Where the server manufacturer issues a TCG platform certificate, the delivered component inventory is verified against it; NIST SP 1800-34 is the reference build for that check [S]. A unit that fails is quarantined, not installed (R4, F1).

### 4.3 Staging and integration.

Location per §5. Per unit: manufacturer diagnostics, then 72 h load [A]; firmware, BIOS and BMC to the SDD baseline; BMC reachable over OOB, factory credentials replaced, certificate enrolled. Redfish 2025.3 added automatic certificate enrollment over ACME or SCEP [S*]; Redfish 2026.1 is the latest release confirmed on Sep 24, 2026 [S]; the

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conformance baseline is the release the server's BMC implements. GPU rack-scale systems arrive factory-integrated and are received and tested as a rack, not rebuilt (SRA-AI-001).

### 4.4 Rack-and-stack.

Unpacking outside the white space; elevations from the SDD; heaviest units lowest; A/B power cords to opposite PDUs, checked per unit; blanking panels fitted.

### 4.5 Cabling and test.

Labels in the TIA-606-D scheme, which provides for automated infrastructure management records [S*]. Fiber polarity per the TIA-568.3-E methods, which added universal methods U1 and U2 [S]. Every endface inspected to IEC 61300-3-35 ed. 3 before mating [S]; every link tested per ISO/IEC 14763-3:2024, which now covers MPO cabling [S]. Results filed against the cable record (R9–R11).

### 4.6 Provisioning and configuration.

One source of truth holds racks, devices, cables, addresses and rendered configurations (R8). Network devices boot from factory state through secure zero-touch provisioning where the operating system supports RFC 8572 [S], otherwise through the vendor's controller (§5). Servers through Redfish. No configuration is typed on a console that is not first in the repository.

### 4.7 Cutover and migration.

Application groups in dependency order, one group per window. Each window: pre-checks, go/no-go against R12, migration, application owner's check, close or roll back at the trigger time. Migration tool follows the platform (§5, **[VMware: Stay or Leave]** for DC work).

### 4.8 Decommissioning.

Retired hosts leave only after SP 800-88r2 sanitization. Revision 2 replaces the old technique tables with a pointer to IEEE 2883, NSA specifications or an organization-approved standard, and adds trust in the vendor's sanitize implementation [S]. Record per serial (R15).

### 4.9 Handover and hypercare.

The as-built is an export of the source of truth plus test results, not a separate drawing set (R16). Hypercare 10 working days [A].

## 5 · Options and platform choices

One row per decision. Every option weighed is kept, rejected ones included, with whether it meets §2 and its cost band.

**Table 3.** Options and platform choices

| ID | Decision | Requirement | Alternatives considered | Decision taken | Rationale |
|---|---|---|---|---|---|
| D1 | Where staging and integration happen | R5, R6, R7 | the manufacturer's rack-integration line; meets §2; in unit price — an integrator-controlled area; meets §2; labor-priced — the client's build room; meets §2 if surveyed to R1; lowest cost | per build (SDD P3) | Manufacturer line: fewest touches, but burn-in evidence must be supplied to R5. Integrator area: full control of R5–R7, adds a shipment. Client room: no shipment, competes with client space [A] |

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| ID | Decision | Requirement | Alternatives considered | Decision taken | Rationale |
|---|---|---|---|---|---|
| D2 | Source of truth | R8, R9, R16 | NetBox 4.6 (open source); meets §2; support-priced — a commercial DCIM; meets §2; license-priced — spreadsheets as the record: fails R8, R16; lowest cost | NetBox 4.6 by default; the client's DCIM where it already runs one | NetBox holds racks, cables, IPs and config contexts in one model [S]; spreadsheets drift from the build within one window [A] |
| D3 | Fabric provisioning | R7, R8 | RFC 8572 SZTP plus automation; meets §2 where the NOS supports it; labor-priced — the switch vendor's controller (e.g. Cisco Nexus Dashboard 4.2, HPE Networking Apstra Data Center Director 6.2); meets §2; license-priced | SZTP where the NOS supports it, otherwise the controller SRA-NET-001 names | SZTP is vendor-neutral [S]; the controller follows the switch the network comparison chose [S*] |
| D4 | Migration tool | R13, R14 | VCF Operations HCX 9; meets §2; in the VCF subscription — Nutanix Move 6.3; meets §2; included — Red Hat MTV 2.10; meets §2; included | **[VMware: Stay or Leave]** for HCX or Move; MTV per client | HCX targets ESX (ESXi before VCF 9.0) and is now part of VCF, with WAN optimization and DR removed [S]. Move targets AHV, with ESXi-to-AHV zero-copy on supported external storage [S]. MTV targets OpenShift Virtualization, with warm migration [S] |
| D5 | Cutover shape | R12, R13, R14 | one application group per window, in dependency order (§4.7); meets §2; labor-priced — single big-bang cutover: fails R13, R14; lower labor | one group per window | Big-bang leaves no rollback unit smaller than the estate [A] |

# 6 · Failure conditions

**Table 4.** Failure conditions

| # | Condition | What the client sees | Recovers by itself | Needs a hand | Time |
|---|---|---|---|---|---|
| F1 | Unit fails receipt integrity (R4) | nothing; unit quarantined | no | manufacturer replaces | lead time |
| F2 | Unit fails burn-in (R5) | nothing; unit held | no | part or unit replaced, burn-in rerun | days |
| F3 | Room not as surveyed on delivery day | delivery held | no | re-survey; facilities fix | until fixed |
| F4 | Fiber link fails R10 or R11 | nothing; link not in service | no | clean, re-terminate, retest | hours |
| F5 | Go/no-go fails before a window | window canceled; nothing changes | n/a | reschedule through change authority | next window |
| F6 | Migrated group fails the owner's check | outage inside the window | no | roll back at the trigger time | ≤ R14 |
| F7 | Source of truth and device disagree | nothing until next change | no | drift report; correct the record or the device | before handover |

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## 7 · Validation

None yet. STP-IMP-001 is the plan; its first run is on the SDD-DC-001 build, recorded there, and makes this document a validated architecture.

## 8 · Operations and lessons learned

Every build closes with a lessons entry against the F-number that fired. Lessons: to be written by the signing engineer.

## 9 · Appendix

**Work packages [A]:** survey · receipt · staging · rack-and-stack · cabling and test · provisioning · cutover per group · decommissioning · handover · hypercare. **References, read Sep 24, 2026:** NIST SP 800-88r2 — https://www.nist.gov/news-events/news/2025/09/guidelines-media-sanitization-nist-publishes-sp-800-88r2 · NIST SP 1800-34 — https://csrc.nist.gov/pubs/sp/1800/34/final · RFC 8572 — https://www.rfc-editor.org/rfc/rfc8572.html · IEC 61300-3-35:2022 — https://webstore.iec.ch/en/publication/64254 · ISO/IEC 14763-3:2024 — https://webstore.iec.ch/en/publication/67723 · ANSI/TIA-568.3-E — https://tiaonline.org/standardannouncement/tia-issues-updated-optical-fiber-cabling-component-standard-ansi-tia-568-3-e/ · ANSI/TIA-942-C — https://tiaonline.org/products-and-services/tia942certification/ansi-tia-942-standard/ and https://www.cablinginstall.com/standards/article/55245177/tia-942-c-data-center-standard-brings-a-host-of-changes-and-updates · ANSI/BICSI 002-2024 — https://www.bicsi.org/standards/available-standards-store/single-purchase/ansi-bicsi-002-the-standard-for-data-center-design · ANSI/TIA-606-D — https://www.tiafotc.org/tia-standards-update/tia-606-d/ · TCG Platform Certificate Profile — https://trustedcomputinggroup.org/resource/tcg-platform-certificate-profile/ · Redfish 2025.3 — https://www.dmtf.org/content/redfish-release-20253-now-available · Redfish 2026.1 — https://redfishforum.com/thread/1296/redfish-release-2026-1-available · VCF Operations HCX 9.0 — https://blogs.vmware.com/cloud-foundation/2025/06/30/whats-new-in-vcf-operations-hcx-9-0/ · Nutanix Move 6.3 — https://next.nutanix.com/product-updates · Red Hat MTV 2.10 — https://www.redhat.com/en/blog/whats-new-migration-toolkit-virtualization-210 · NetBox v4.6.4 — https://github.com/netbox-community/netbox/releases/tag/v4.6.4 · Cisco Nexus Dashboard 4.2 — https://www.cisco.com/c/en/us/support/data-center-analytics/nexus-dashboard/series.html · HPE Networking Apstra Data Center Director 6.2 — https://www.juniper.net/documentation/us/en/software/apstra6.2/apstra-user-guide/index.html

### 9.1 · Industry rules this architecture helps a buyer meet.

From Symbeeo's industry research of September 2026. Only rules that research links to this document's requirements are listed; rules it found this document does not address are left out.

**Table 5.** Industry rules this architecture helps a buyer meet

| Rule | Jurisdiction | What it asks of infrastructure | Requirements here | Coverage |
|---|---|---|---|---|
| HIPAA Security Rule, 45 CFR Part 164 Subpart C (the January 2025 proposed update is not final) | US · covered entities and business associates | device and media controls: disposal of media holding ePHI | R15 | partial |
| ANSI/TIA-942-C (2024) and ANSI/TIA-606-D (2021) | US (ANSI) · named in customer specifications | TIA-942-C data-center spaces, including distribution-area cabinets; TIA-606-D identifiers and records | R3, R9 | full |

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| Rule | Jurisdiction | What it asks of infrastructure | Requirements here | Coverage |
|---|---|---|---|---|
| NERC CIP-010-4 (enforceable; CIP-010-5 from Jul 1, 2028) | US and Canada · Bulk Electric System entities | baseline configuration per asset, authorized and documented changes, baseline monitored at least every 35 days (high impact) | R8 | partial |
| ISPE GAMP 5 Second Edition (Jul 2022) | Industry guidance · GxP-regulated firms worldwide | risk-based qualification of infrastructure, with lifecycle records | R16 | partial |

Naming a rule here is not a claim of compliance or certification: the buyer's assessor decides compliance, and Symbeeo holds no certification or authorization.

**Sources for §9.1, read Sep 25, 2026:** HIPAA Security Rule; status of the proposed update, final action targeted July 2027 [S] `https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=202510&RIN=0945-AA22` · ANSI/TIA-942-C [S] `https://store.accuristech.com/standards/tia-ansi-tia-942-c?product_id=2902413` · ANSI/TIA-606-D [S] `https://store.accuristech.com/standards/tia-ansi-tia-606-d?product_id=2594255` · NERC CIP-010-4 [S] `https://www.nerc.com/standards/reliability-standards/cip/cip-010-4` · GAMP 5 Second Edition [S] `https://ispe.org/publications/guidance-documents/gamp-5-guide-2nd-edition`.

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

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

SRA-IMP-001 · Version 1.1 · Oct 10, 2026