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SOLUTION DESIGN DOCUMENT

Order desk and integration center for a typical buyer's refresh, applying SRA-INT-001

Design document (HLD + LLD)

CAPABILITY	DOCUMENT	VERSION	DATE
Supply Chain & Integration	SDD-INT-001	1.3	Oct 10, 2026

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What this document is. The reference architecture says what a good order desk and integration center look like. This document applies it to one client: which kit is ordered, how each vendor line is ordered and confirmed, how each rack and branch kit is built, burned in, labeled and signed off, how it reaches each site, where the spares sit, how a failure is handled, and what record is handed over. The client is SRA-INT-001's typical buyer [A]; every value marked [A] is replaced by the real client's at the design workshop. Requirement (R), failure (F), decision (D) and source (S1–S21) numbers are SRA-INT-001's, read Sep 24, 2026. Where a product is chosen by the client's comparison [CMP], this document names the slot and both candidates. The staging floor's size, location and throughput are not stated (SRA-INT-001, disclosure rule); the capacity reserved for this client is stated on the quote. 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.

Document control

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Sign-off	"The customer's named representative signs this document before build; the practice lead signs it after."		

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Table 1. Revision history

Date	Version	Change
Sep 15, 2026	1.0	First issue.
Sep 21, 2026	1.1	Corrections to wording, figure numbering and citations.
Sep 27, 2026	1.2	Revised to current platform versions and the current document format.
Oct 10, 2026	1.3	Approval line now reads: approved by the Founder, issued by Symbeeo. Avinash Dhinakaran remains the author.

1 · Introduction

1.1 Purpose.

Design for ordering, staging, delivering, spares-holding and handing over the client's 12-month infrastructure refresh through Symbeeo's order desk and integration center, on the architecture of SRA-INT-001. After review the client's representatives sign this document and the first orders are placed.

1.2 Project overview and goals.

The client refreshes two data centers and 24 branches in two countries [A]. Today each site orders from its own resellers in each vendor's format, kit arrives in boxes, and each failure is a different vendor's process. Goals: one order path and one quotation format for five lines (R2, R3); no date promised before the supplier confirms it (R5); every rack and branch kit arrives built, burned in, labeled and signed off (R11–R15); deliveries on time (R19) with few shipment errors (R20); one RMA path with next-business-day replacement (R22, R23); a record of every serial the client's asset register can import (R26, R27).

1.3 Approach and phases.

Table 2. Approach and phases

Phase	What	Exit
0	Desk set-up: request form and queue, quotation template, order exchange per trading partner (§4.3), build sheets per kit class signed, record spine live	P1–P9 closed
1	First article: one compute rack, one network rack and one branch kit built, burned in and signed off with the client witnessing	client signs the first-article checklist
2	DC-A: 6 compute racks, 4 network racks	proof of delivery with serials for each rack
3	DC-B: 6 compute racks, 4 network racks	as phase 2
4	Branches: 24 kits, 4 a week over 6 weeks [A]	proof of delivery per branch
5	Handover: lifecycle and license record imported, handover pack, acceptance (STP-INT-001 §4)	signed acceptance

The spares pool goes live with the first delivery of each model in phase 2 [A].

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1.4 Change control and reporting.

- **Change orders.** Once this document is signed, any change to the design, a build sheet, a bill of materials or a delivery date is a written change order stating what changes, why, and its cost and schedule effect. Both parties sign it before it is built or shipped. A supplier's substitution or split shipment (F1, F2) and any deviation from a build sheet (R11) enter the same register [A].
- **Weekly status report.** Every week from phase 0 to acceptance Symbeeo sends the client's infrastructure manager a report giving, per deliverable in §8: % complete, slippage against §1.3. It also carries the desk measures of SRA-INT-001 §8: order accuracy, date changes, deliveries on time, shipment errors, RMA cases open and closed [A].
- **Escalation.** Contacts on both sides, by role, are listed in §8.

1.5 Intended audience.

The client's infrastructure delivery and procurement teams; each site's receiving contact; Symbeeo's order desk, staging and logistics staff; the client's asset-register owner for §4.4 and §7.

1.6 Related documents.

SRA-INT-001 · STP-INT-001 · SDD-NET-001 (branch network design: models and software baseline) · SDD-DC-001 (data-center design: the server and switch models the racks use) · SDD-SEC-001 (firewall policy) · SDD-IMP-001 (installation on site) · SRA-RES-001 (source register) · INT-003 to -006 · sources S1–S21 in SRA-INT-001 §9.3. Models follow SDD-DC-001 and SDD-NET-001; quantities (racks, servers, access points per branch) are this typical buyer's [A], not those designs'.

2 · Prerequisites (all must be true before the first order)

Table 3. Prerequisites (all must be true before the first order)

#	Prerequisite	Owner	Status
P1	Bill of materials per kit class released by the owning design (SDD-DC-001, SDD-NET-001, SDD-SEC-001)	client	open
P2	Comparison decided for each [CMP] slot in §3.2	client	open
P3	Order exchange agreed with each trading partner: X12 or EANCOM release, or portal access (§4.3)	Symbeeo	open
P4	Source register received from SRA-RES-001 (authorized source per line)	Symbeeo	open
P5	Site list with receiving contact, delivery address, access path (door, lift and dock sizes) and delivery windows	client	open
P6	Identifier scheme agreed per ANSI/TIA-606-D, including the client's legacy identifiers as a cross-reference (§4.5)	both	open
P7	Firmware baseline per model taken from the owning SDD (§5.2)	both	open
P8	Vendor support contract level per model and site class chosen at the quote (§6.3, §9)	client	open
P9	Asset-register import format and a test import slot provided (§4.4)	client	open

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3 · Solution overview

3.1 Architecture.

As SRA-INT-001 §3: order desk → receipt → staging floor → logistics → site, with the spares pool and one RMA path beside it and one record per serial throughout.

3.2 Kit classes and inventory [A].

Table 4. Kit classes and inventory [A]

Kit class	Quantity	Contents	Models	Lifecycle status, read Sep 24, 2026
CR compute rack	12 (6 per DC)	16 × 2U server, 2 × top-of-rack switch, 2 × PDU, 800 mm rack	HPE ProLiant Compute DL380 Gen12 or Dell PowerEdge R7725 per SDD-DC-001, chosen by the client's comparison [CMP] (INT-003 R5, R6); ToR per SDD-DC-001	**not verified Sep 24, 2026**; end-of-sale and end-of-support read on the day of the quote (R4)
NR network rack	8 (4 per DC)	8 × 64-port 800G switch, 2 × PDU, 800 mm rack	[CMP]: Cisco Nexus 9364E-SG2 or Arista 7060X6-64PE (INT-003 R8, R9)	**not verified Sep 24, 2026**; read at the quote
BK branch kit	24	2 × access switch (stack), 2 × firewall (HA pair), 8 × Wi-Fi 7 AP; boxed, no rack	Cisco C9300X-48HX and CW9178I (SDD-NET-001 §3.2); firewall per SDD-SEC-001 (FortiGate family), model set at the quote [A]	C9300X-48HX and CW9178I: no end-of-sale notice (SRA-NET-001 §9.2) [S]; firewall read at the quote
SP spares pool	§6.2	one or more of each model above, pre-staged	as above	as above

Serialized units: 12 × 18 + 8 × 8 + 24 × 12 = 568, plus PDUs, ≈ 600 (SRA-INT-001 R1) [A].

3.3 Locations [A].

Country 1: head office, DC-A, branches 1–16. Country 2: DC-B, branches 17–24. Staging on Symbeeo's integration floor; its location is stated in the contract, not here.

4 · Order and record design

4.1 Order desk flow.

Site approver submits a request (site, kit class, quantity, required-on-site date) → desk validates completeness (incomplete returned the same day) → one order number (R2) → quotation in the one format (§4.2) → client approval → orders placed per trading partner (§4.3) → acknowledgment matched line by line (R6) → on-site date committed (R5) → supplier status tracked; a date change reaches the client within one business day (R7) [A].

4.2 Quotation format.

One set of columns for every line and vendor (R3): order number · line · kit class · site · vendor · part number · description · quantity · unit price · price basis (% off list, with the list-price source) · currency · duty and tax as separate lines · quoted lead time · end-of-sale date · end-of-support date · warranty term · support contract level · support response time for

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severity 1, 2, 3, 4 · quote expiry [A]. The price basis column follows the public buyers who price as % off list against the OEM's own list **[S18]**. A line whose end-of-sale date has passed is not quoted (R4).

4.3 Order exchange per trading partner.

Each trading partner (the manufacturer or the authorized distributor in the source register, P4) is set up in phase 0 in one of two modes (SRA-INT-001 D2) [A]:

Table 5. Order exchange per trading partner

Mode	Order	Acknowledgment (R5, R6)	Change	Ship notice (R8, R16)
EDI	X12 850 or EANCOM ORDERS	X12 855 or ORDRSP, quantity and ship date per line	860/865	X12 856 or DESADV with SSCC and serials [S14] [S15*]
Portal	placed in the partner's portal	order-status page, screenshot filed against the line	portal amendment, screenshot filed	packing list and portal serial list, entered at the dock

The mode per partner is recorded in P3. No date is committed on an emailed promise.

4.4 Record schema (the record spine).

One record per serial [A]:

Table 6. Record schema (the record spine)

Group	Fields
Identity	serial · part number · vendor · kit class · order number and line · SSCC of the logistics unit it shipped in
Receipt	ship-notice match (Y/N) · authenticity method and result (§5.1) · received date · received by
Build	rack or kit ID · RU position · MAC and management address · firmware at build · build-sheet version
Burn-in	start and end time · load profile · power, temperature, error counters summary · result · tester
Ship	firmware at ship (post-burn-in read) · pre-shipment checklist ID · dispatch date · carrier · logger ID
Site	site · delivered date · signed for by · logger reading at arrival
Lifecycle	end of sale · end of software maintenance · end of security vulnerability support · last date of support (Cisco EoX dates [S17], or vendor equivalent)
Coverage	warranty start and end · support contract ID · level · severity 1–4 response · contract end
License	license type (perpetual or subscription) · term · renewal date · entitlement ID
RMA	each case: ticket time, vendor case ID, spare serial sent, dispatch time, replacement received, defective returned, credit date
Custody	each transfer: from, to, time, person accountable (R17)

Delivered at phase 5 in the client's import format (P9) and as a signed PDF (SRA-INT-001 D10).

4.5 Identifiers and labels.

Identifiers per ANSI/TIA-606-D **[S3]** at the class that covers a multi-site estate, format fixed at P6 [A]: one identifier per space, rack, panel, port and cable, each with its record. Every rack door carries the rack identifier and a 2D code; every unit an asset tag with a 2D code of its serial; every cable both ends [A]. The client's legacy identifier is a field in the record, not a second label [A].

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5 · Staging design

5.1 Receipt and authenticity.

At the dock: ship notice ↔ serial scan for every unit (R8); authenticity per SRA-INT-001 §4.3 (R9) [A]:

Table 7. Receipt and authenticity

Model family	Method
Cisco C9300X, CW9178I, Nexus 9364E-SG2	Secure Unique Device Identifier verified on first power-on [S9]
Dell PowerEdge R7725	Secured Component Verification: delivered inventory validated against the factory platform certificate [S10]
HPE ProLiant Compute DL380 Gen12	iLO 7 component attestation and factory IDevID [S11*]
Arista 7060X6-64PE, FortiGate, PDUs	serial lookup against the manufacturer's record, and inspection [A]; a cryptographic method is used if the manufacturer offers one at the quote

A failed unit is quarantined and reported (F4). Custody is recorded at each move (R17).

5.2 Build sheets and firmware baseline.

One versioned build sheet per kit class (CR, NR, BK): elevation by RU, cable schedule by identifier, A/B power feeds, management addressing, and the firmware baseline per model [A]. Baselines come from the owning design: for the branch kit's Cisco switches and access points, IOS XE 17.18.4 and 17.18.4a with APSP2 as planned in SDD-NET-001 §5.4 (read Sep 24, 2026) [S]; for servers, data-center switches and firewalls, the vendor's recommended release on the day of staging, set in SDD-DC-001 and SDD-SEC-001 [A]. Racks are 800 mm wide to meet ANSI/TIA-942-C's minimum for distribution areas where a rack serves one **[S2]**.

5.3 Burn-in plan (R12).

Table 8. Burn-in plan (R12)

Device class	Load	Duration	Pass
Server	CPU, memory and NVMe stress	≥ 24 h	no uncorrectable error; no PSU or fan fault; temperatures inside the vendor's range
ToR and 800G switch	line-rate traffic on every port through loopback optics or cables	≥ 24 h	zero CRC and drop counters above threshold [A]; no PSU or fan fault
Firewall	traffic through both HA members; one HA failover during the run	≥ 24 h	no fault; failover completes
Wi-Fi 7 AP	powered on PoE, joined to a staging controller, radios up	≥ 4 h [A] (beyond R12)	joins, radios up, no reboot

Each run writes the burn-in fields of §4.4 and the staging quality record per unit (R13). A failed unit is swapped and the rack re-burned for 24 h (F5); firmware is read again afterwards (F6).

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5.4 Quality gates and pre-shipment checklist.

Gates G1–G8 of SRA-INT-001 §3. The checklist per rack or kit (R15): build sheet matched · firmware diff empty · burn-in passed per unit · labels match the record (sample of every rack, R14) · every staging quality record complete · change orders closed · front and rear photographs with power and link lights · signed by Symbeeo's quality lead; client witness optional, in person or by video (SRA-INT-001 D7); mandatory for the first article in phase 1 [A]. The floor is designed to run under an ESD control program to ANSI/ESD S20.20-2021 (R10) **[S13]**; certification of the floor is not claimed.

6 · Logistics, spares and RMA

6.1 Dispatch and delivery.

Racks crated with a shock and tilt logger (R18); branch kits boxed per site [A]. Every logistics unit labeled with an SSCC on a GS1-128 label; the site's receiving contact gets the ship notice listing each SSCC and its serials before dispatch (R16) **[S15*]**. Delivery window booked against the required-on-site date and the site's access path (P5); proof of delivery with serials signed at site closes the shipment (G7) [A]. Transit between the two countries uses the client's nominated customs broker per country [A].

6.2 Spares pool (R21) [A].

Per model, 2 % of installed count, minimum 2, split between the two countries by installed count; pre-staged at the site baseline.

Table 9. Spares pool (R21) [A]

Model	Installed	Pool
2U server (one model per [CMP])	192	4
ToR switch	24	2
800G switch	64	2
Access switch	48	2
Firewall	48	2
Wi-Fi 7 AP	192	4

Field-replaceable units (PSUs, fans, optics) are held per the owning SDD's spares list [A].

6.3 One RMA path.

Ticket (any line) → record lookup: serial, site, contract level → vendor RMA raised under that level → pool spare dispatched ≤ 4 business hours (R22) → on site next business day (R23) → defective collected, media sanitized or retained (§9), returned within the vendor's window → vendor replacement refills the pool → turnaround written to the record (R24) [A]. Vendor cutoffs are those of each line's contract: Cisco Support (formerly Smart Net Total Care) 8x5xNBD, read Sep 27, 2026, and FortiCare Priority RMA, read Sep 20, 2026 **[S20]**, both read again at the quote; Dell, HPE and Arista read at the quote [A]; the level per model is chosen at the quote (P8).

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7 · Delivery schedule and hold points

Table 10. Delivery schedule and hold points

Step	Action	Hold point (nothing moves past it until met)
1	Phase 0 set-up; test order and test acknowledgment with each trading partner	acknowledgment matched automatically or by portal screenshot (T4)
2	First article CR, NR, BK built, burned in, signed off with the client (STP-INT-001 T10–T14)	client signs the first-article checklist
3	DC-A racks ordered, received, staged, shipped	pre-shipment checklist signed per rack; proof of delivery per rack
4	DC-B racks, as step 3	as step 3
5	Branch kits, 4 a week	proof of delivery per branch; logger read before power-on (with SDD-IMP-001)
6	Spares pool stocked and RMA drill per vendor line (T20–T23)	drill passes
7	Handover: record imported (T26), handover pack (§8), media certificates (§9), acceptance (STP-INT-001 §4)	signed acceptance

8 · Roles and deliverables

Table 11. Roles and deliverables

Role	Symbeeo	Client
Design authority	practice lead (signs)	infrastructure manager (signs)
Orders	order desk lead	procurement lead; site approver per site
Staging and quality	staging lead; quality lead (signs pre-shipment)	optional witness
Delivery	logistics lead	receiving contact per site
Acceptance	test lead	named acceptor

Escalation contacts (by role; names filled at contract signature).

Table 12. Roles and deliverables

Level	Symbeeo	Client	When
1	order desk lead or staging lead	procurement lead or site receiving contact	day-to-day: a held line, a mismatched delivery, an RMA case
2	practice lead	infrastructure manager	slippage against §1.3, a failed T-case, a refused RMA (F12), a disputed change order
3	the Founder	the client's executive sponsor	unresolved at level 2 within 2 business days [A]; any security incident or failed authenticity check (§9, F4)

Deliverables. This document · quotations and signed change orders · pre-shipment checklist per rack and kit · staging quality record per unit · proof of delivery per shipment · weekly status reports (§1.4) · RMA case records · STP-INT-001

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with results · acceptance certificate.

Handover pack, delivered at phase 5 and before signed acceptance: as-built drawings (rack elevations and cable schedules by identifier, as shipped) · configurations and firmware of every unit as shipped, with checksums · credentials transferred to the client and Symbeeo's staging credentials revoked · licenses, with type, term and renewal date · vendor support contracts, with severity levels (§9) · the lifecycle and license record per serial (§4.4) · STP-INT-001 signed · open items, each with owner and date · media-sanitization certificates (§9).

9 · Security and lifecycle clauses

- **Incident reporting.** A security incident affecting the client's data, equipment in Symbeeo's custody, or the record spine, discovered by Symbeeo during the engagement, is reported to the client's named security contact within 24 hours of discovery, then escalated per §8. A failed authenticity check at receipt (F4) is reported the same way.
- **Media sanitization.** Storage media leaving the client's control (defective units returned under RMA, decommissioned units collected at site) are sanitized to **NIST SP 800-88 Rev. 2** (final, Sep 26, 2025), with a certificate per device giving serial number, method and date **[S12]** `https://csrc.nist.gov/pubs/sp/800/88/r2/final`, read Sep 24, 2026; or stay with the client under a non-return service where the vendor contract includes one (SRA-INT-001 D11). Media holding PHI or other regulated personal data are never taken back unsanitized.
- **No equipment past end of sale.** No item is quoted past its vendor's end-of-sale date. The quotation shows the end-of-sale and end-of-support date of every item (§4.2); §3.2 carries the status read on Sep 24, 2026 where it was verified, and every date is read again on the day of the quote.
- **Support level by severity.** Every quotation states the vendor support level bought for each item, as the vendor's response time for severity 1, 2, 3 and 4. The values come from the vendor contract offered at the quote [A]; none is stated here.
- **Handover pack.** Delivered as listed in §8.

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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.

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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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