SERVICE DELIVERY STANDARDS

Installation, power & network equipment standards for Smart Hands engagements

The standards Optera Hub engineers work to on site: how jobs are controlled, how cabling is installed and labelled, and how power and network equipment is mounted, connected, verified and documented. Where your site has its own conventions, we adopt them; these standards apply wherever no convention exists.

Document	Reference	Applies To	Version	Date
Service Delivery Standards	OPT-STD-01	All Smart Hands engagements	1.0	July 2026

1. How Every Job Runs

Stage	What happens	What you see
1 · Scope & plan	Every cable and device captured in a cable schedule before travel; labels machine-printed in advance, sorted by rack.	Cable schedule shared for review before the job.
2 · Arrival & access	Sign in, confirm rack locations and keys with facility staff, check active maintenance and floor restrictions.	Confirmation we are on site.
3 · Change control	Live equipment is never touched without an approved change window, a reachable client contact, a rollback plan, and photographs of the current state.	Your change ticket referenced on the job.
4 · Installation	Work to the standards in this document; schedule updated in real time as each cable and device goes in.	Progress photos at milestones.
5 · Verification	Every connection link-checked; testing to the level agreed in scope, result recorded per cable.	Test status against every line of the schedule.
6 · Handover & sign-off	Racks locked, waste removed, photos and finalised schedule delivered the same day.	Handover pack + sign-off request on the Optera Hub platform.

Anything unexpected on site — damage, a failed test, a scope change — engineers stop and escalate. You hear it from us first, with photographs and a proposed fix, before work proceeds.

2. Cabling & Labelling Standard

Every cable is labelled at both ends with its full path, following ANSI/TIA-606-D.

```
Data center:  A01-PP1/24 <> B03-SW1/Gi0/24  rack A01, patch panel 1, port 24 → rack B03, switch 1, port Gi0/24
Office:       2F-D014 <> CR1-PP1/14        2nd-floor desk outlet 14 → comms room 1, patch panel 1, port 14
Multi-site:   LON1-H1-A01-PP1/01 <> LON2-H1-D02-SW1/Gi0/01
```

Rule	Standard
Both ends	Both ends carry the identical, machine-printed label — never handwritten.
Placement	Within 150 mm of the connector, clear laminate tail wrapped fully around.
Port accuracy	Port references match the hardware markings exactly (`Gi0/1`, not “Port 1”).
Live accuracy	If a port changes on site, a new label is printed immediately and the schedule updated the same day.
Device codes	`PP` patch panel · `SW` switch · `RTR` router · `FW` firewall · `SRV` server · `PDU-A/B` power · `UPS` UPS · `ODF` fibre frame · `KVM` · `LB` · `AP` · `SAN`

Your convention wins. If your site has a labelling scheme, we match it exactly; a sample is collected at onboarding. Where labelling is partial or inconsistent, we apply this standard to new work and flag it in the handover notes.

3. Rack & Cable Dressing

Area	Standard
Binding	Velcro wraps only, every 300–450 mm — never cable ties on data. Loose enough to slide a single cable out.
Bend radius	Copper (Cat6/6a) ≥4× cable diameter; fibre ≥10×; power ≥6× or per manufacturer. Service loop rather than a tight bend where space is short.
Power / data separation	Data routed at least 300 mm from power; where they must cross, at 90°.
Bundling	Maximum 24 cables per bundle, flat and parallel; copper and fibre never mixed; pulled by the jacket, never the connector.
Routing	Through cable managers, never free-hanging or across equipment faces; 150–300 mm service loop for future re-termination.
Airflow	Bundles clear of hot/cold aisles and exhaust vents; blanking panels in every empty U-space.
Front of rack	Correct-length patch leads through horizontal managers — no slack loops, connectors fully seated.

4. Power Equipment: Rack PDUs & UPS

4.1 RACK PDUS

Standard	What we do
Feed redundancy	Dual-PSU equipment cabled across both feeds — one supply to PDU-A, one to PDU-B. Single-PSU feed agreed with you and recorded.
Failover headroom	Rack load measured before and after work; combined load must run on a single feed at ≤80% of its rating. Load readings photographed before and after.

Standard	What we do
Phase balance	Three-phase PDUs balanced across phases; imbalance above 20% corrected or flagged.
Identification	PDUs labelled `PDU-A` / `PDU-B` per rack; device-to-outlet mapping recorded in the handover pack.
Power cords	IEC 60320 couplers matched to the equipment: `C13/C14` standard equipment (10 A), `C19/C20` high-draw equipment (16 A); locking variants where supported. Correct length, no coiled excess, colour-coded by feed on request (red = A, blue = B).
Never	No daisy-chained PDUs, domestic extension strips or unfused adapters in racks; any found are photographed and flagged.

4.2 UPS SYSTEMS

Standard	What we do
Mounting	At the base of the rack on manufacturer rail kits — never shelf-only where rails are specified.
Loading & runtime	Output ≤80% of rated capacity; measured load and runtime recorded at handover.
Batteries	Labelled with install and replacement-due dates; old batteries disposed of under WEEE.
Management	Network management card connected, addressed and labelled where in scope; IP and firmware recorded.
Commissioning	Self-test run and alarms cleared before sign-off; bypass behaviour confirmed where fitted.
Asset record	Model, serial, firmware and battery module references captured in the handover pack.

APC by Schneider Electric. We work regularly with the APC Smart-UPS and rack PDU ranges, including Network Management Card and SmartConnect setup, and follow APC's published installation and battery-replacement procedures. Other manufacturers are installed to the same standard from their documentation.

5. Network Equipment: Switches, Routers & Firewalls

Applies to every network device we rack — switches, routers, firewalls, load balancers, wireless controllers.

Standard	What we do
Mounting	Manufacturer rail kits; port-side vs power-side airflow intake verified against the hot/cold aisle layout before racking.
Power	Dual power supplies split across A and B feeds, per section 4.
Identification	Device-code labels front and rear (`SW1`, `RTR1`, `FW1`); model, serial, asset tag and firmware recorded.
Connectivity	Every populated port in the cable schedule; uplinks and cross-connects labelled at both ends.
Optics	Transceivers (SFP/SFP+/QSFP) matched to fibre type, wavelength and distance; dust caps on unused ports.
Management access	Console and out-of-band management ports patched and labelled where in scope.

Standard	What we do
Verification	Link state confirmed on every connection; copper validated (speed, PoE, connectivity) and fibre light levels measured where testing is in scope.
Live-work safety	Live devices touched only inside an approved change window; port order physically clipped during swaps; every port photographed before change.
Configuration	Logical configuration (VLANs, routing, firewall policy) is quoted separately; when in scope, a config backup and rollback plan precede any change.

6. Documentation & Handover

Every job closes with:

- ✓ **Finalised cable schedule** — endpoints, label text, type, length, status, test result, install date and engineer per cable; spreadsheet ready for DCIM import.
- ✓ **Photographic evidence** — front and rear of every rack worked on, label close-ups, cable managers, before/after where existing equipment was modified.
- ✓ **Equipment records** — model, serial, asset tag, firmware and outlet mapping for every device installed or moved.
- ✓ **Deviations log** — anything departing from these standards or the agreed scope, with photographs and a recommendation.
- ✓ **Client sign-off** — on the Optera Hub platform; consolidated handover pack monthly for recurring engagements.

7. Tailored to Your Site at Onboarding

Your account manager captures where your environment differs; your conventions take precedence from the first job:

We capture	So that
Labelling convention	A sample label or photo of your scheme — we replicate it exactly.
Power conventions	Your feed colour-coding, PDU naming and any single-feed policies.
Change control	Your ticketing process and approval flow, so every job references your change record.
Escalation contacts	Named contacts on both sides who can approve decisions while an engineer is on the floor.
Site access	Induction, escort and security requirements per site.

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