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DESIGN STUDY

Lead-time plan for a new-build hospital: network, wireless and server lines scheduled back from the opening date

Complete design on current platforms

CAPABILITY	INDUSTRY	SETTING
Strategic Resourcing	Healthcare	New-build acute hospital
DOCUMENT	**VERSION**	**DATE**
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Document control

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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 or clause read from the vendor's or standards body's own current page on Sep 24, 2026, or on Sep 27, 2026 where the text says so · [S*] figure from the page summary where the page itself could not be opened · [A] assumption about the typical buyer, to be confirmed by the signing engineer · [T] design target taken from the design's stated outcome or 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 lead on a hospital construction program whose opening date is fixed by the building contract, and whose network has to be live months earlier so that medical devices can be connected, risk-assessed and commissioned before the first patient arrives.

Typical buyer [A]. A 450-bed new-build acute hospital. Network and wireless in the design: 1,100 Wi-Fi 7 access points, a pair of wireless controllers, 90 access-switch stacks, a collapsed core, and 12 servers for on-site clinical systems. Opening in week 0; every date below counts back from it [A].

What is in. Need-by date per line, derived from the building program; order date per line from quoted lead time and float; lifecycle check against the opening date; the software-release dependency between access points and controllers; receipt into a staging store on site. **What is out.** The network design itself; medical-device integration, which the hospital runs under IEC 80001-1; the building program, which is an input.

Assumptions. Rooms are ready for active equipment 28 weeks before opening [A]. The network must be live 20 weeks before opening so that device commissioning can start at week −16 [A]. Installation takes 8 weeks and starts once every line is on site [A]. The comparison fixed the manufacturer for switching, wireless and servers; each is bought through two authorized distributors [A].

Related documents, read Sep 24, 2026. SRA-RES-001 · SDD-RES-001 · STP-RES-001 · Cisco Healthcare (Non-Fabric) Validated Profile, updated Apr 17, 2026 (https://www.cisco.com/c/en/us/td/docs/cloud-systems-management/network-automation-and-management/catalyst-center/cisco-validated-solution-profiles/validated_profile_healthcare_nonfabric_vertical.html) · Cisco Wireless 9176 Series data sheet, updated Apr 9, 2026 (https://www.cisco.com/c/en/us/products/collateral/wireless/wireless-9176-series-access-points-ds.html) · Cisco End-of-Life Policy (https://www.cisco.com/c/en/us/products/eos-eol-policy.html) · Dell PowerEdge R7725 product page (https://www.dell.com/en-us/shop/dell-poweredge-servers/new-poweredge-r7725-rack-server/spd/poweredge-r7725/pe_r7725_tm_vi_vp_sb) · IEC 80001-1:2021 (https://www.iso.org/standard/72026.html) · TrendForce, Apr 15, 2026 (https://www.trendforce.com/presscenter/news/20260415-13013.html). Read Sep 27, 2026: Cisco End-of-Sale and End-of-Life Announcement for the Cisco Catalyst C9800-40/-80 Wireless LAN Controller, EOL15034, announced Jan 9, 2025, amended Aug 25, 2026 (https://www.cisco.com/c/en/us/products/collateral/wireless/catalyst-9800-series-wireless-controllers/catalyst-c9800-wireless-lan-controller-eol.html) · Cisco Catalyst CW9800M Wireless Controller data sheet, updated Sep 22, 2026

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(https://www.cisco.com/c/en/us/products/collateral/networking/wireless/wireless-lan-controllers/catalyst-cw9800m-wireless-controller-ds.html).

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
Healthcare (Non-Fabric) Validated Profile	Cisco · updated Apr 17, 2026 · vendor documentation, used to build our own design	A validated hospital network at 6,000 access points, 25,000 wireless and 50,000 wired endpoints, 2 wireless controllers per site with AP SSO and N+1; C9800-40 and C9800-L controllers on IOS XE 17.9.6 and 17.12.5 through 17.18.3; Catalyst 9300 access and 9500/9600 core. The design's 1,100 access points sit inside it. Its C9800-40 is past end-of-sale (next row), so the design takes the profile's design and releases, not its controller model	https://www.cisco.com/c/en/us/td/docs/cloud-systems-management/network-automation-and-management/catalyst-center/cisco-validated-solution-profiles/validated_profile_healthcare_nonfabric_vertical.html
End-of-Sale and End-of-Life Announcement for the Cisco Catalyst C9800-40/-80 Wireless LAN Controller, EOL15034	Cisco · announced Jan 9, 2025, amended Aug 25, 2026 (read Sep 27, 2026) · vendor documentation, used to build our own design	End-of-sale Dec 31, 2025, last ship Mar 31, 2026, last date of support Dec 31, 2030; the replacement for the C9800-40-K9 is the Cisco Catalyst CW9800M Wireless Controller, which runs the same IOS XE with a minimum release of 17.14.1. The 9800-40 can no longer be ordered new, so R5 names the CW9800M	https://www.cisco.com/c/en/us/products/collateral/wireless/catalyst-9800-series-wireless-controllers/catalyst-c9800-wireless-lan-controller-eol.html
Cisco End-of-Life Policy	Cisco · page dated Feb 9, 2026 in its metadata; applies to notices made on or after Sep 29, 2022 (read Sep 27, 2026) · vendor documentation, used to build our own design	End-of-sale is typically announced 6 months ahead; hardware support and parts run 5 years from end-of-sale. R9 reduces to a check that no Cisco part reaches end-of-sale before the opening date	https://www.cisco.com/c/en/us/products/eos-eol-policy.html
IEC 80001-1:2021	IEC / ISO · second edition, published 2021-09 (read Sep 27, 2026) · published standard, used to build our own design	The hospital's risk management for connecting medical devices to its network; the network has to exist before that work can start, which fixes the week −20 need-by	https://www.iso.org/standard/72026.html
A university teaching hospital's new clinical tower	Cisco customer story · page dated Jun 22, 2026 in its metadata (read Sep 27, 2026) · public deployment	A new 12-level clinical tower with 130 additional beds, delivered as an empty shell whose network "had to be built from nothing", after a two-year planning and design phase with Cisco and an integrator; the case for planning network lines back from the building program rather than forward from an order	https://www.cisco.com/site/us/en/about/case-studies-customer-stories/bayside-health.html

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The profile's C9800-40 passed end-of-sale on Dec 31, 2025, so R5 names Cisco's stated replacement, the CW9800M (read Sep 27, 2026); the profile's table does not list the CW9800M, so R7 carries its validated releases to the CW9800M as an assumption. The access point's minimum release (17.15.2) is checked against those releases in R7.

2 · Requirements register

Table 3. Requirements register

#	Requirement	Value	Source
R1	Network live	week −20	[T]
R2	Last delivery on site for each line	week −28 (live date minus 8 weeks of installation)	[T] derived from R1 and §1
R3	Float on every class-A line at order	≥ 4 weeks, so order by week −32 minus quoted lead time	[A]; SRA-RES-001 R6
R4	Access points	1,100 × Cisco Wireless CW9176I: Wi-Fi 7 (802.11be), 1 × 10G mGig uplink, 802.3bt Class 5, 39 W maximum	[A] count; [S] Cisco
R5	Wireless controllers	2 × Cisco Catalyst CW9800M, one pair: SSO with 1:1 active standby and N+1, as the profile's design uses; up to 3,000 access points and 32,000 clients per controller; Cisco's named replacement for the Catalyst 9800-40, end-of-sale Dec 31, 2025	[A] count; [S] Cisco data sheet and EoL notice, read Sep 27, 2026
R6	Access-switch PoE budget	1,100 × 39 W = 42.9 kW of AP draw at full 802.3bt, spread over 90 stacks	[T] derived from R4
R7	Controller release	≥ IOS XE 17.15.2 for the CW9176, on a release the profile validates for the 9800 family (17.15.4d or 17.18.3); the CW9800M itself needs 17.14.1 or later	[S] Cisco data sheets and profile; [A] that the profile's releases hold on the CW9800M
R8	Servers	12 × Dell PowerEdge R7725, DDR5-6400, iDRAC10	[A] count; [S] Dell
R9	Manufacturer support at opening	≥ 5 years after opening on every line	[T]
R10	Promised-date change in the register	≤ 1 business day after acknowledgment	[A]; SRA-RES-001 R7
R11	Component lead times on record	CPUs and PCBs near one year; BMC chips 21–26 weeks	[S] TrendForce, Apr 15, 2026
R12	Units received, serial-checked and entitlement-live	100 % before installation	[T]
R13	Float review cadence, class A	weekly, from order to delivery	[A]
R14	Staging store on site	secure, dry, available from week −30	[A]

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Fourteen rows; five carry a vendor or analyst figure (three beside an assumed count, one beside an assumed release fit), four are design assumptions, five are design targets.

3 · Architecture overview

```
week 0 opening ←── −16 device commissioning ←── −20 network live ←── −28 last delivery ←── order dates
                     (IEC 80001-1 work)          (R1)                  (R2)                 (need-by − float
                                                                                               − quoted lead time)
per line:  need-by ─→ quoted lead time ─→ order-by ─→ acknowledgments ─→ float watch ─→ receipt at staging
```

Figure 1. Backward lead-time plan from the opening date

The plan is a backward pass: the opening date sets the live date, the live date sets the delivery date, and each line's quoted lead time sets its order date. Nothing is ordered on a forward estimate.

Table 4. Architecture overview

Line family	Class	Need-by	Order-by rule	Dependency
Server nodes	A	week −28	−32 minus quoted lead time	memory-bearing; CPU lead times near one year (R11)
Core switching	A	week −28	−32 minus quoted lead time	first installed; everything else hangs off it
Access-switch stacks with PoE	A	week −28	−32 minus quoted lead time	must carry 42.9 kW of AP draw (R6)
Wireless controllers	A	week −28	−32 minus quoted lead time	release ≥ 17.15.2 (R7)
Access points	B	week −28	−32 minus quoted lead time	installed after switching; alternates in the comparison
Optics, cabling, racks	C	week −28	on price	interchangeable
Support contracts and licenses	B	week −28	with the hardware	entitlement live at receipt (R12)

4 · Design by subsystem

4.1 Backward pass.

Opening at week 0; commissioning from week −16; network live at week −20 (R1); 8 weeks of installation put the last delivery at week −28 (R2) [T]. A 4-week float puts the latest order date at week −32 minus the quoted lead time (R3). A server line quoted at 30 weeks must therefore be ordered by week −62, fourteen months before opening [T] derived.

4.2 Lead-time control.

Quoted lead time, quote expiry and promised date recorded per line at order; acknowledgments recompute float weekly for class A (R13). Under 2 weeks escalates to the program's IT lead; under zero moves quantity to the second authorized distributor or re-plans installation order with the build lead [A]. Rejected: ordering everything at once on the longest lead time — it puts access points in a store for months under a warranty clock that is already running.

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4.3 Lifecycle against the opening date.

R9 counts support from opening, not from order. For Cisco hardware, support and parts run 5 years from end-of-sale and end-of-sale is announced about 6 months ahead [S]; so a Cisco part meets R9 only if it is not past end-of-sale when delivered, and any end-of-sale notice received between order and delivery is a trigger to re-check it [T] derived. The Catalyst 9800-40 the healthcare profile validates is the worked case: end-of-sale Dec 31, 2025, last ship Mar 31, 2026, last date of support Dec 31, 2030 (EOL15034, read Sep 27, 2026) [S]. It can no longer be ordered new, and its support ends within five years of any opening after 2025, so it fails R9 and the CW9800M, Cisco's named replacement, takes its place in R5 [T] derived. Dell lines are read per part from Dell's own lifecycle notice [A].

4.4 Release dependency.

The CW9176 requires IOS XE 17.15.2 or later [S]; the healthcare profile validates the C9800-40 and C9800-L on releases up to 17.18.3, among them 17.15.4d [S]. The CW9800M runs the same IOS XE from 17.14.1 [S] but is not in the profile's table, so the profile's releases are carried to it as an assumption [A]. The controllers are ordered with 17.15.4d or 17.18.3, recorded against their serials at receipt; a controller shipped on an older train is upgraded in staging before the first access point is joined [A].

4.5 Power.

At 39 W maximum per access point under 802.3bt Class 5 [S], 1,100 access points draw up to 42.9 kW [T]. The access-switch line is not released for order until each stack's PoE budget in the comparison covers the access points it feeds; this is a sourcing check on a design figure, not a design change [A].

4.6 Receipt.

Deliveries land in the on-site staging store from week −30 (R14). Every unit: serial against ship notice, seal, entitlement on the manufacturer's portal, firmware read (R12) [A]. The medical-device integration team receives the network, not boxes.

5 · Failure behavior

Table 5. Failure behavior

Failure	Behavior	Source
Server line quoted beyond the order-by date	ordered at once; installation order changed so servers go in last; float recomputed weekly	[A]
Promised date slips on core switching	escalated the same day; second distributor quoted; commissioning date defended before any other line	[A]
End-of-sale notice on an ordered access-switch model	R9 re-checked on the delivery date; if it fails, the comparison's alternate is ordered	[T]
Controllers ship on a release below 17.15.2	upgraded in staging before any access point joins	[S] minimum; [A] handling
Building slips, rooms late	delivery dates hold; units wait in staging; warranty start recorded	[A]
Unit fails serial or entitlement check	quarantined; return raised; replacement ordered on the same line	[A]

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6 · Limits

- Every date is counted back from an assumed opening and assumed durations; the building program replaces them.
- The 42.9 kW figure is the access points' maximum draw, not a measured load; the switch design sizes the real budget.
- The profile validates up to 6,000 access points on the C9800-40, now past end-of-sale; this design uses it for design and release fit only, takes controller capacity from the CW9800M data sheet (3,000 access points per controller), and does not treat either as a capacity test.
- Lead times quoted by distributors decide every order date; TrendForce's figures describe components, not this order.
- 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

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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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