— CAPSTONE · THE SCARS

Every chapter carried a warning. Here they are in one place.

This chapter teaches nothing new. It gathers the production warnings from twenty chapters into one honest post-mortem, so you recognise them on day one instead of at two in the morning.

- Every chapter had a warning
- Here they are in one place
- How to not get burned

— SCAR · R4 SUBSCRIPTIONS — CALLBACK TO CHAPTER 12

Ava & Marcus · War story

It worked perfectly in the demo. What actually breaks when an R4 Subscription is real?

Why it stays silent

No error. No log. Just a missing notification.

3 **In-memory match cache**
not shared across nodes — multi-node drop without a broker

4 **The cure exists**
R5-style SubscriptionTopic backport — Chapter 12 covered it

— SCAR · PARTITION FOOTGUNS — CALLBACK TO CHAPTER 11

Two leaks that never throw and never log.

The most dangerous property a bug can have is silence. Neither of these errors. They just leak rows — and a single-tenant test passes while the data quietly bleeds.

— FOOTGUN 1 · DEFAULT-PARTITION LEAK

Forgot to assign a partition

A missed assignment — or a tenant-registry miss that falls through instead of being rejected — lands the resource in DEFAULT, visible to anyone whose query is not partition-scoped.

— FOOTGUN 2 · CROSS-TENANT READ HOOK

A Pointcut that returns too much

A READ Pointcut that returns more than the caller's own partition — or returns null or all — silently exposes every tenant's data at once.

- **Catch it only with a two-tenant isolation test — A cannot see B**
- **HAPI 8.x default / null-partition semantics are version-sensitive — verify against your pinned tag**

— SCAR · SEARCH BLOWUPS — CALLBACK TO CHAPTER 9

Search power is a footgun unless you bound it.

Two convenience operations scale badly the moment they run unbounded. Neither is exotic — both are the default behaviour of features you reach for on instinct.

— BLOWUP · _INCLUDE=*

The bundle that ate the server

A star include or :iterate recursion pulls referenced resources in until the bundle is enormous and the server is on its knees. Name your includes explicitly; cap with _count.

$eve

COST · WHOLE-COMPARTMENT SWEEP

Patient/$everythin walks every resource that references the patient — expensive by nature. Bound it with _count and paging.

● Custom SearchParameter does NOT retroactively index existing rows — reindex or get zero results

— SCAR · PROFILE DRIFT — CALLBACK TO CHAPTER 8

A profile is a contract. Contracts have version numbers.

The quiet scar — no boot failure, no leaked data, just a contract that moved under you. Profiles are versioned, and the version moves while your tooling stays still.

— WHEN THE TOOLING WAS WRITTEN

US Core at v7

A lot of tooling and curricula were written against US Core v7. Must-support lists and bindings reflect that version's understanding of conformant.

— CURRENT IN 2026

US Core 8.0.1 · STU 8

If the validator is pinned to one version and the IG package loaded is at another, they silently disagree on what conformant means — or the validator goes quiet and waves things through.

- Pin the US Core version
- Validator and IG package must agree

— SCAR · HAPI 8.X CONFIG TRAPS — CALLBACK TO CHAPTER 7

Three boot-time scars — pattern and symptom, not config keys.

Every one of these is an it-worked-on-my-machine failure, and every one is prevented by pinning the exact tag and verifying against it.

1

EMAILSENDER MANDATORY

Enable the email subscription channel and autoconfig demands an email-sender bean. Symptom: the server will not boot, the context fails to start.

2

PARTITIONING BOOLEAN FLIP

A partitioning boolean's meaning shifted across 8.x minors. Symptom: same yaml, a minor bump, different behaviour — a silent semantic flip.

3

SPRING.PROFILES PRECEDENCE

Env-vs-yaml activation precedence means the dev config you were sure was active quietly is not. Symptom: wrong datasource or flags applied without complaint.

- **Verify exact bean name, property paths, and shipped profile names against your pinned 8.x tag**

— SCAR · SSE DELIVERY + BACKPRESSURE — CALLBACK TO CHAPTER 15

The live update can drop. Gap-detection is the contract.

Honest about the distributed-systems reality under the live-update loop — these are patterns, not a specific package's verified API.

— FAILURE · THE HONEST REALITY

Delivery is at-least-once

SSE delivery is at-least-once, not exactly-once. A slow client plus a capped ring buffer — the MAXLEN you set — drops events off the back. Proxies and CDNs love to buffer and can stall the stream completely.

— MITIGATION · THE CONTRACT

Idempotent + gap-refetch

Handlers must be idempotent — re-applying patient.updated is safe by design. On a detected gap (Last-Event-ID older than the buffer head) the client falls back to a full refetch. Disable buffering on the stream route.

- At-least-once · capped MAXLEN · proxy buffering
- Idempotent handlers · gap-detection refetch · no-buffer route

— EARNED WISDOM · THE META-LESSON

The bugs were never exotic — they were the boring three you skipped.

Every scar in this chapter collapses into three habits. Exotic bugs are rare; these three are the ones that actually ship.

PILLAR 1

Test against real data

Demo data hides the partition leak, the include blowup, the multi-node subscription drop. One tenant, ten rows, one node — none fire. Two tenants, a million rows, two nodes — all do.

PILLAR 2

Pin every version

The 8.x config flip and the US Core drift are both version-skew. Pin the HAPI tag, pin the IG package, pin them in the lockfile — not in your head.

PILLAR 3

Validate at the boundaries

Reject non-conformant writes at the interceptor. Reject an unknown tenant instead of defaulting it. Validate every SSE payload against the shared schema.

Three habits map 1:1 onto the seven scars above

— EARNED WISDOM · PRE-PRODUCTION CHECKLIST

The questions to answer before you tell anyone it is done.

— VERSIONS · SLIDE 06 & 05

Pinned the exact HAPI 8.x image tag.
Verified config keys and the spring profile against THAT tag.
Pinned US Core / IG package version — validator and IG agree.

— TENANCY · SLIDE 03

Ran a two-tenant isolation test — tenant A cannot see tenant B.
Unknown or absent tenant header is REJECTED, never defaulted.

— SEARCH · SLIDE 04

Every _include is explicit — no _include=*; $everything bounded with _count.
Reindexed after adding any custom SearchParameter.

— EVENTS · SLIDE 02 & 07

Shared broker if more than one HAPI node.
SSE handlers idempotent with gap-detection refetch.

● **Check every box and the scars above are scars you will never earn**

— EARNED WISDOM · WRAP

The spec is generous. The implementations are subtle.

The scars are how you learn the difference between the two. Every pitfall here came from a real codebase — yours will produce its own, and now you will recognise the shape of them before they cost you.

- Chapter ZZ — course wrap-up & where to go next
- Demo · reading list · contact