

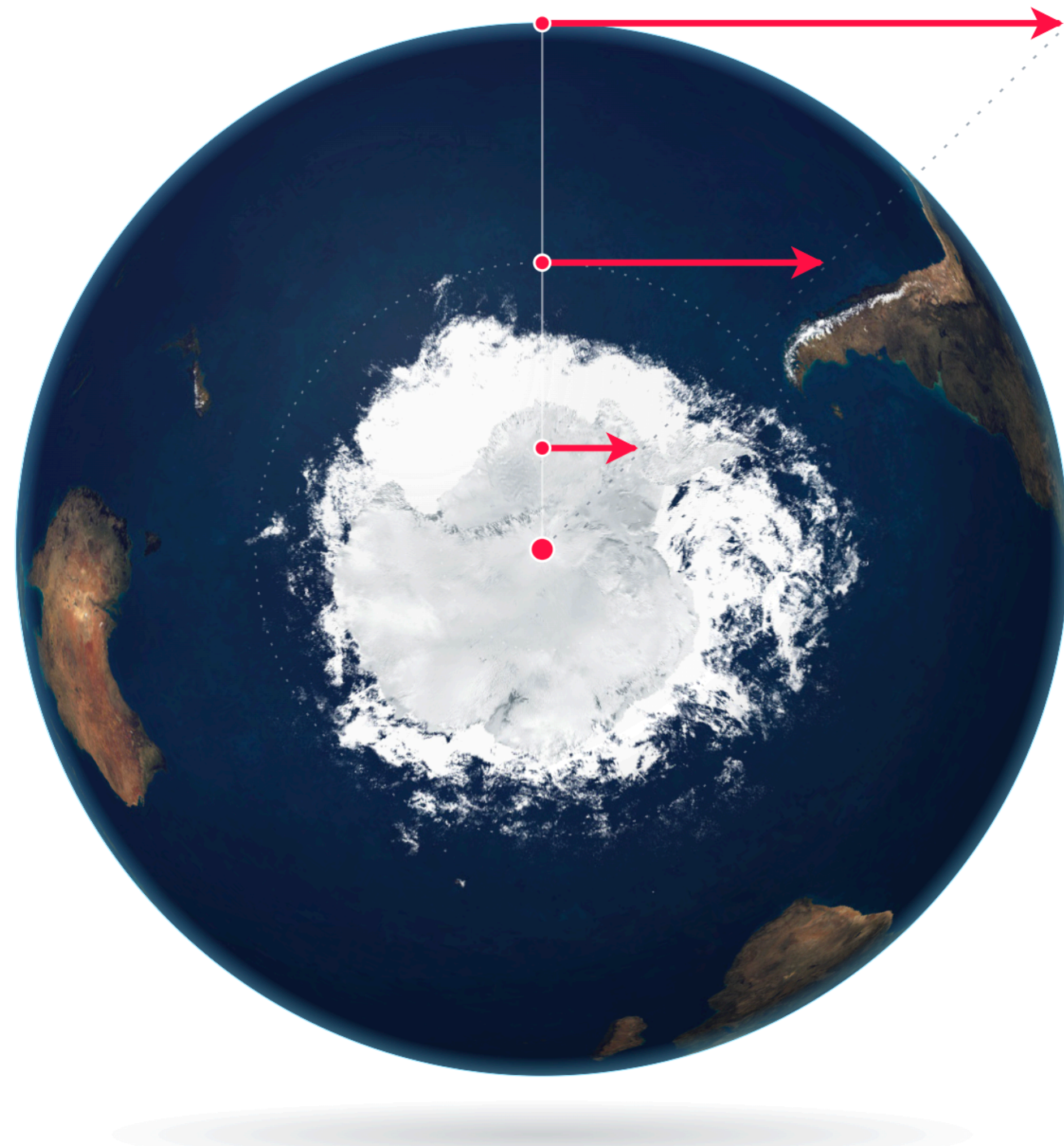
The Art of Looking Deeper

Alisa Esage

October 9th, 2026

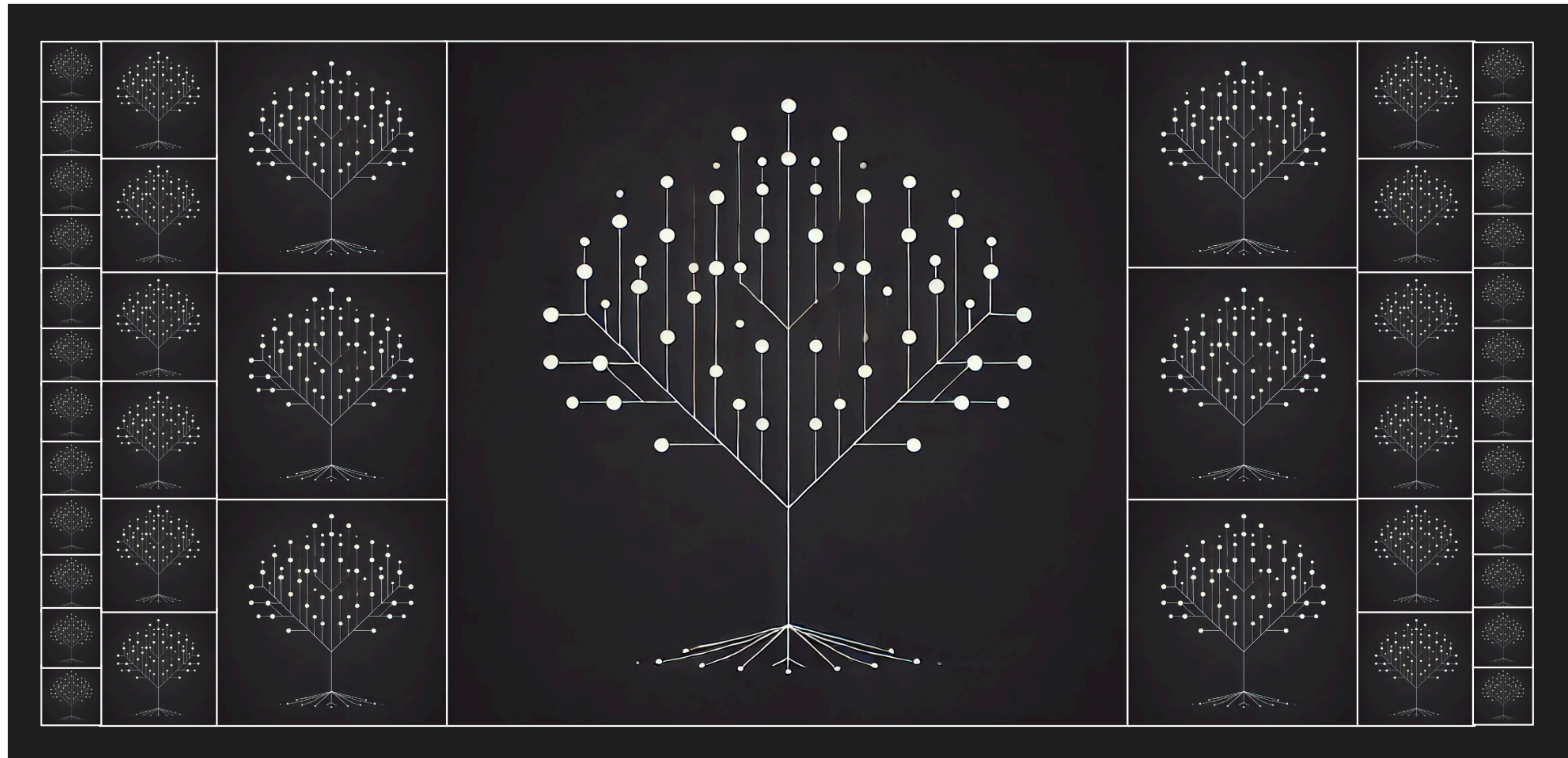
Velocity of Change

a physics metaphor



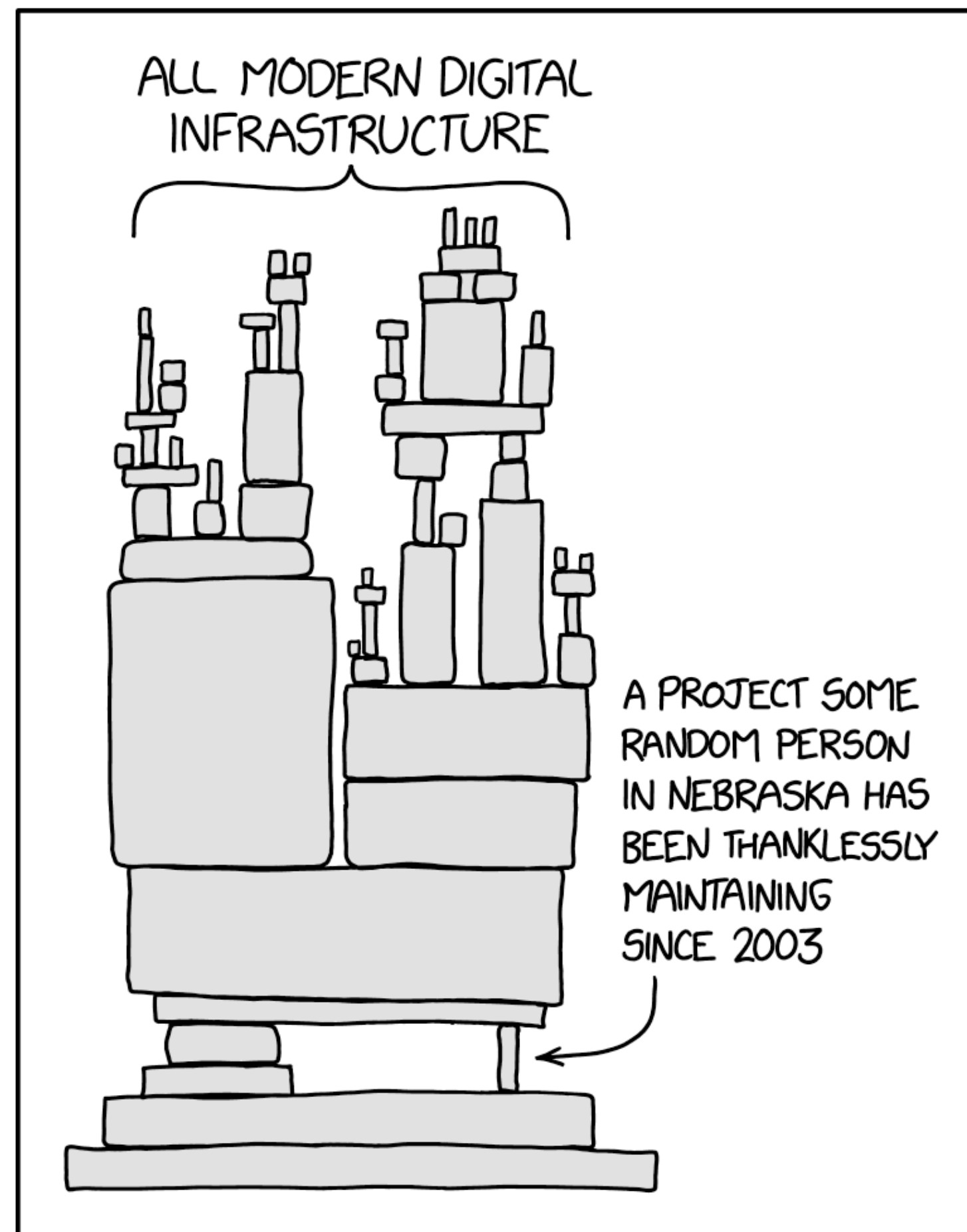
Generative Hierarchy

the system behind all systems



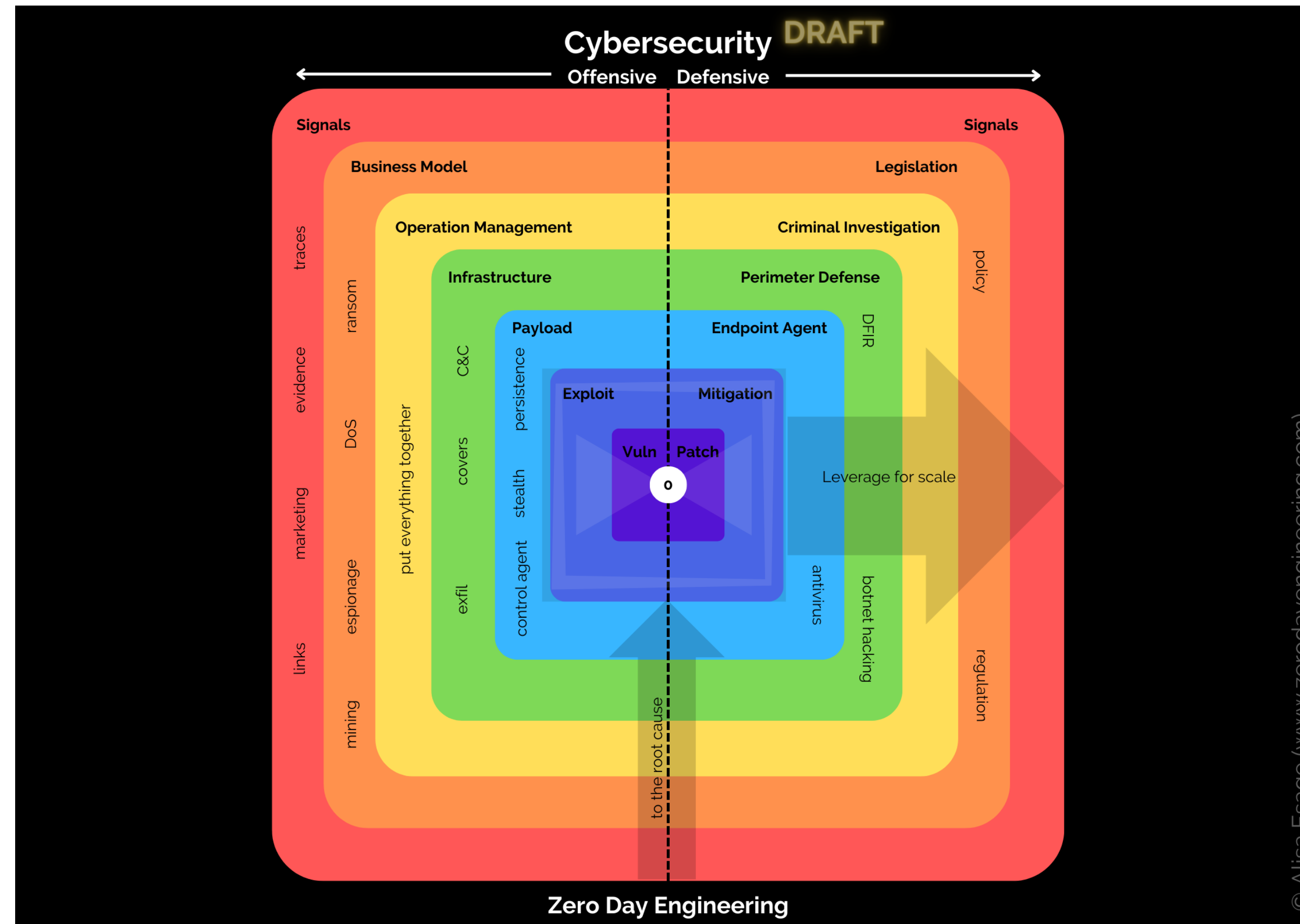
Concrete example...

hierarchies in SWE ecosystem



The Root of Cyber

and the thought experiment that proves it



Deep Trend 1

Pattern Recurrence

The Bug that Shouldn't Exist

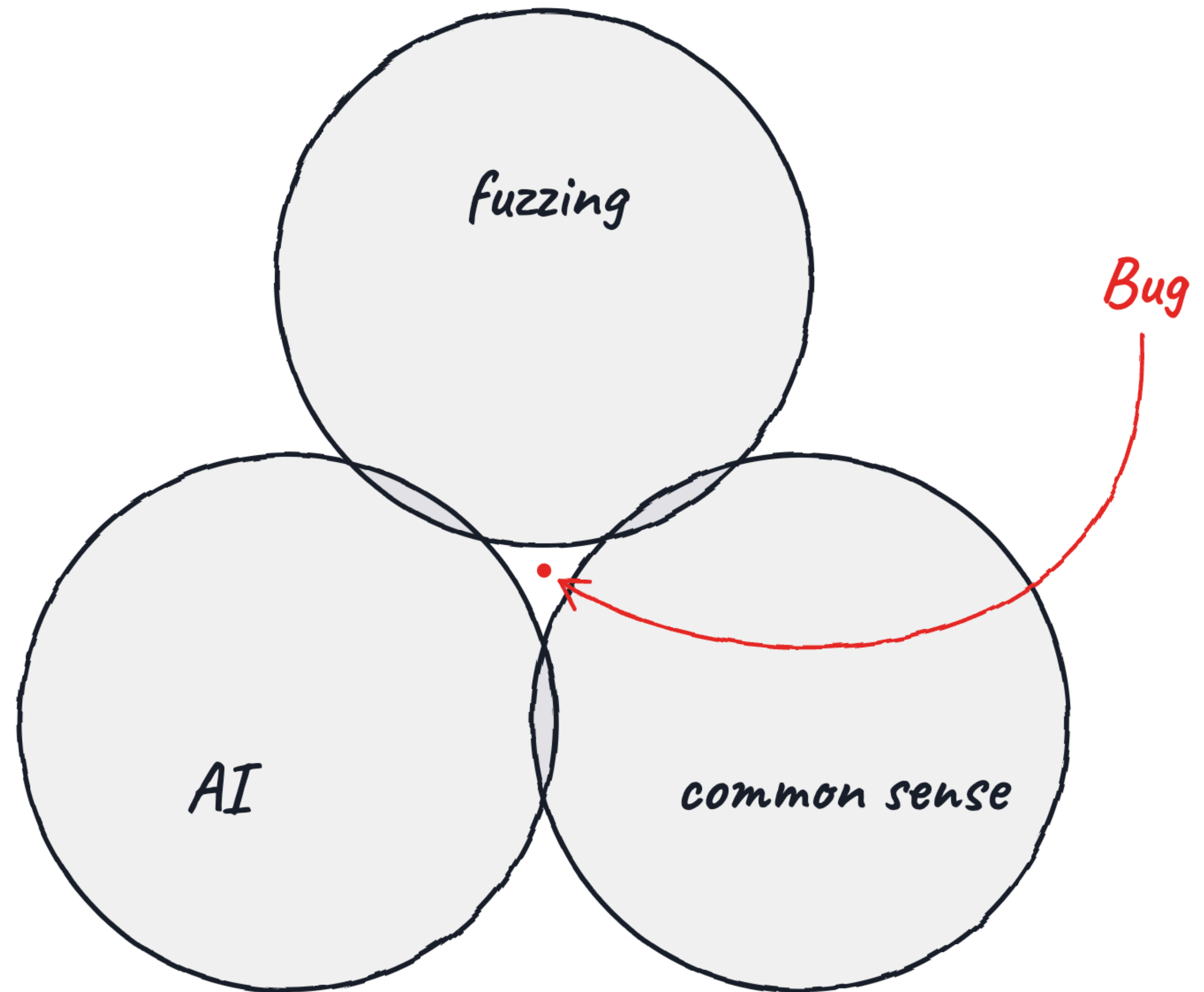
my Pwn2Own 2021 Hypervisor Escape

```
Mar 16 00:17:18 thefactory kernel: [ 11.393950] *** prl_tg_user_to_host_request_prepare
Mar 16 00:17:18 thefactory kernel: [ 11.393953] TG_REQUEST: 00000000: 33 81 00 00 ff ff ff ff 80 00 01 00 00 00 00 00 3.....
Mar 16 00:17:18 thefactory kernel: [ 11.393999] inline: 00000000: 00 00 00 00 00 00 00 00 32 0c 02 1f 78 00 26 91 .....2...x.&.
Mar 16 00:17:18 thefactory kernel: [ 11.394000] inline: 00000010: 01 00 07 19 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394001] inline: 00000020: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394002] inline: 00000030: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394002] inline: 00000040: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394003] inline: 00000050: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394004] inline: 00000060: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394004] inline: 00000070: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394007] buffers: 00000000: 70 3c 24 f0 fc 7f 00 00 2c 00 00 00 00 00 00 00 p<$.....,.....
Mar 16 00:17:18 thefactory kernel: [ 11.394007] *** call_tg_sync
Mar 16 00:17:18 thefactory kernel: [ 11.394016] buf 0, size = 44, dbuf = ffffad85c1fcf0a0 ->
Mar 16 00:17:18 thefactory kernel: [ 11.394017] TG_PAGED_BUFFER :00000000: 2f 00 75 00 73 00 72 00 2f 00 62 00 69 00 6e 00 /.u.s.r./.b.i.n.
Mar 16 00:17:18 thefactory kernel: [ 11.394018] TG_PAGED_BUFFER :00000010: 2f 00 67 00 6e 00 6f 00 6d 00 65 00 2d 00 73 00 /.g.n.o.m.e.-.s.
Mar 16 00:17:18 thefactory kernel: [ 11.394018] TG_PAGED_BUFFER :00000020: 68 00 65 00 6c 00 6c 00 00 00 00 00 00 00 00 00 h.e.l.l.....
Mar 16 00:17:18 thefactory kernel: [ 11.394020] tg_req_create: RequestSize = 0xb0, Request = 0x8133, InlineByteCount = 0x80, BufferCount = 0x1; dpages = 1, addr = fff
Mar 16 00:17:18 thefactory kernel: [ 11.394021] TG_PAGED_REQUEST:00000000: 33 81 00 00 ff ff ff ff b0 00 00 00 80 00 01 00 3.....
Mar 16 00:17:18 thefactory kernel: [ 11.394021] TG_PAGED_REQUEST:00000010: 30 c0 30 00 00 00 00 00 00 00 00 00 00 00 00 00 0.0.....
Mar 16 00:17:18 thefactory kernel: [ 11.394022] TG_PAGED_REQUEST:00000020: 32 0c 02 1f 78 00 26 91 01 00 07 19 00 00 00 00 2...x.&.....
Mar 16 00:17:18 thefactory kernel: [ 11.394023] TG_PAGED_REQUEST:00000030: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394023] TG_PAGED_REQUEST:00000040: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394024] TG_PAGED_REQUEST:00000050: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394024] TG_PAGED_REQUEST:00000060: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394025] TG_PAGED_REQUEST:00000070: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394025] TG_PAGED_REQUEST:00000080: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:18 thefactory kernel: [ 11.394026] TG_PAGED_REQUEST:00000090: 00 00 00 00 00 00 00 00 70 3c 24 f0 fc 7f 00 00 .....p<$.....
Mar 16 00:17:18 thefactory kernel: [ 11.394027] TG_PAGED_REQUEST:000000a0: 2c 00 00 00 00 00 00 00 29 9f 30 00 00 00 00 00 ,.....).0.....
Mar 16 00:17:19 thefactory kernel: [ 11.445596] *** prl_tg_user_to_host_request_prepare
Mar 16 00:17:19 thefactory kernel: [ 11.445599] TG_REQUEST: 00000000: 37 81 00 00 ff ff ff ff 80 00 00 00 00 00 00 00 7.....
Mar 16 00:17:19 thefactory kernel: [ 11.445610] inline: 00000000: 00 00 00 00 00 00 00 00 32 0c f5 84 08 19 00 00 .....2.....
Mar 16 00:17:19 thefactory kernel: [ 11.445610] inline: 00000010: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:19 thefactory kernel: [ 11.445611] inline: 00000020: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:19 thefactory kernel: [ 11.445612] inline: 00000030: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:19 thefactory kernel: [ 11.445612] inline: 00000040: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:19 thefactory kernel: [ 11.445613] inline: 00000050: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:19 thefactory kernel: [ 11.445614] inline: 00000060: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Mar 16 00:17:19 thefactory kernel: [ 11.445614] inline: 00000070: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
```

Mythic Bugs

an Archetype

- Specific, simple shape
- People think no longer exists
- Recurs across decades
- **Evades generic tooling**
- The fix is often incomplete
- A strong exploit primitive

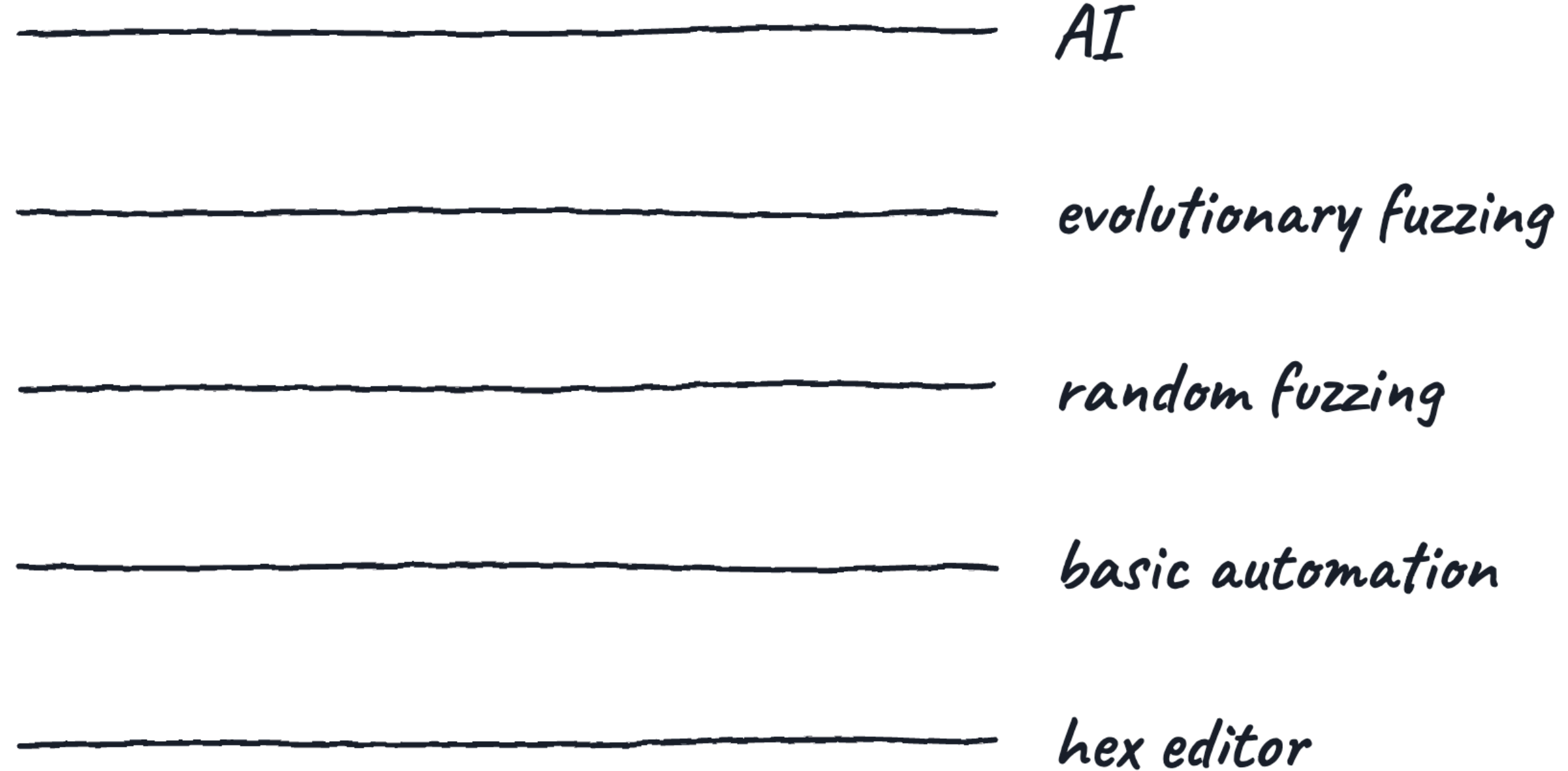


Deep Trend 2

Overestimation of Tools

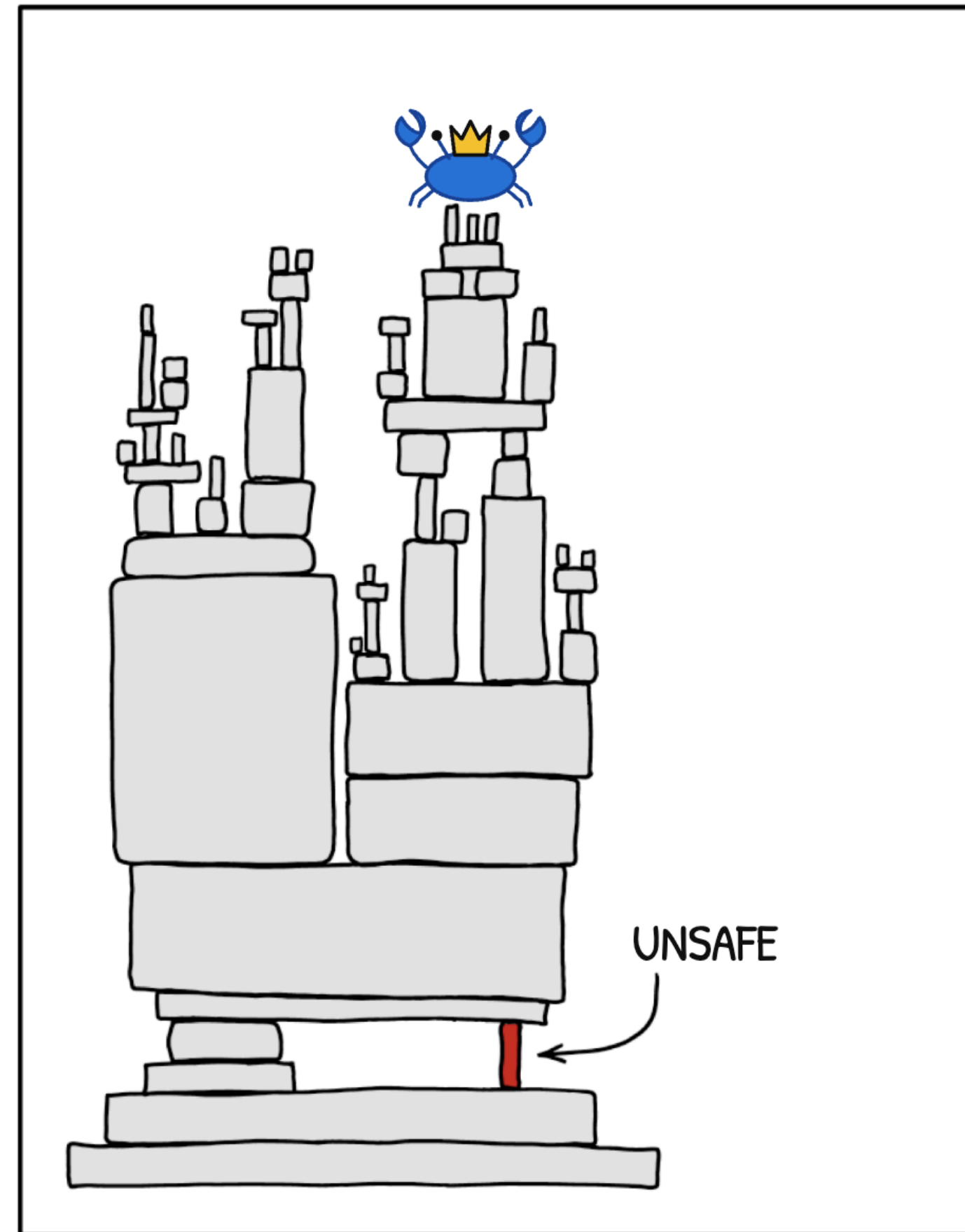
Baseline Shifts

every level: “bugs are solved”

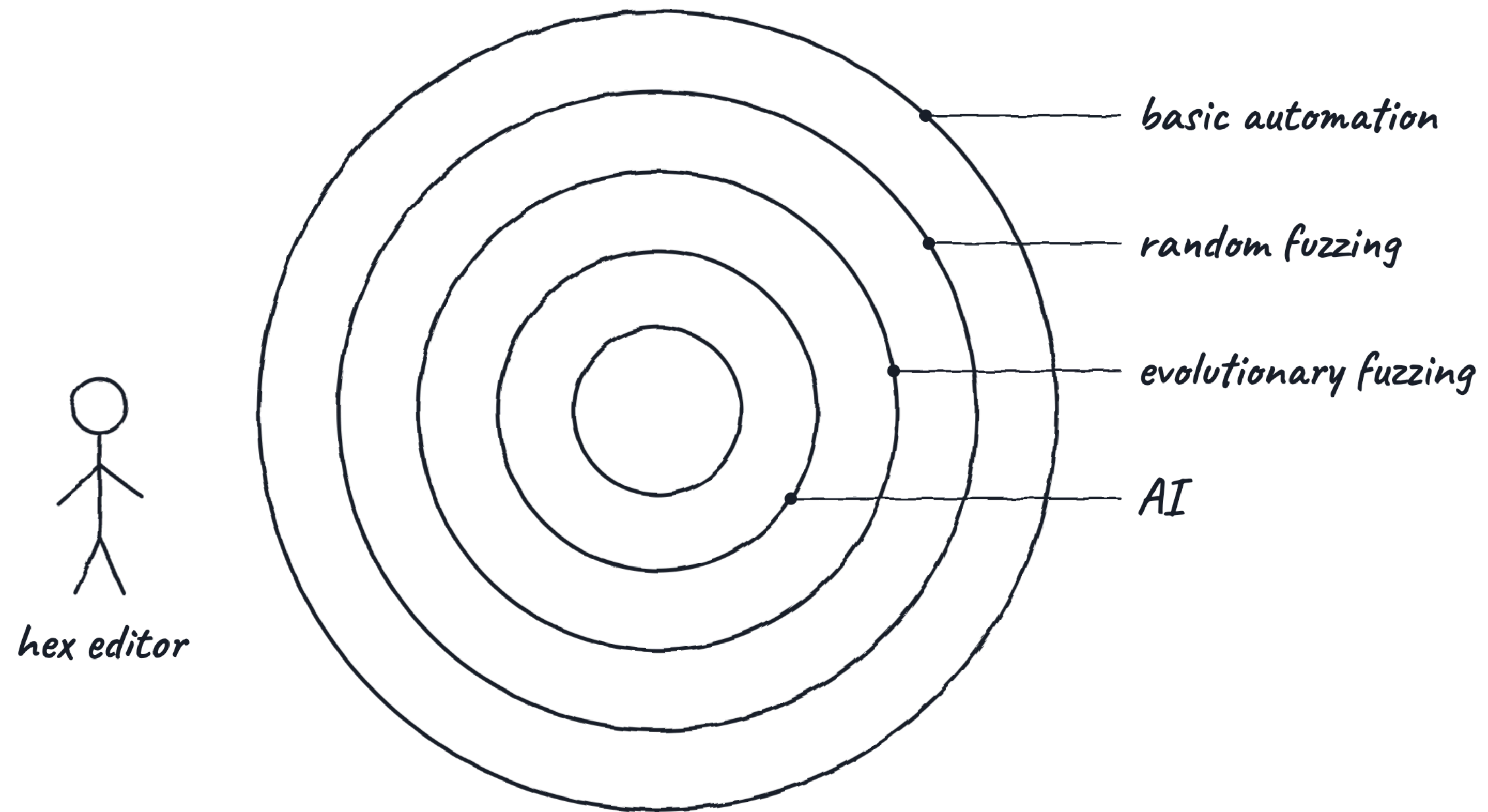


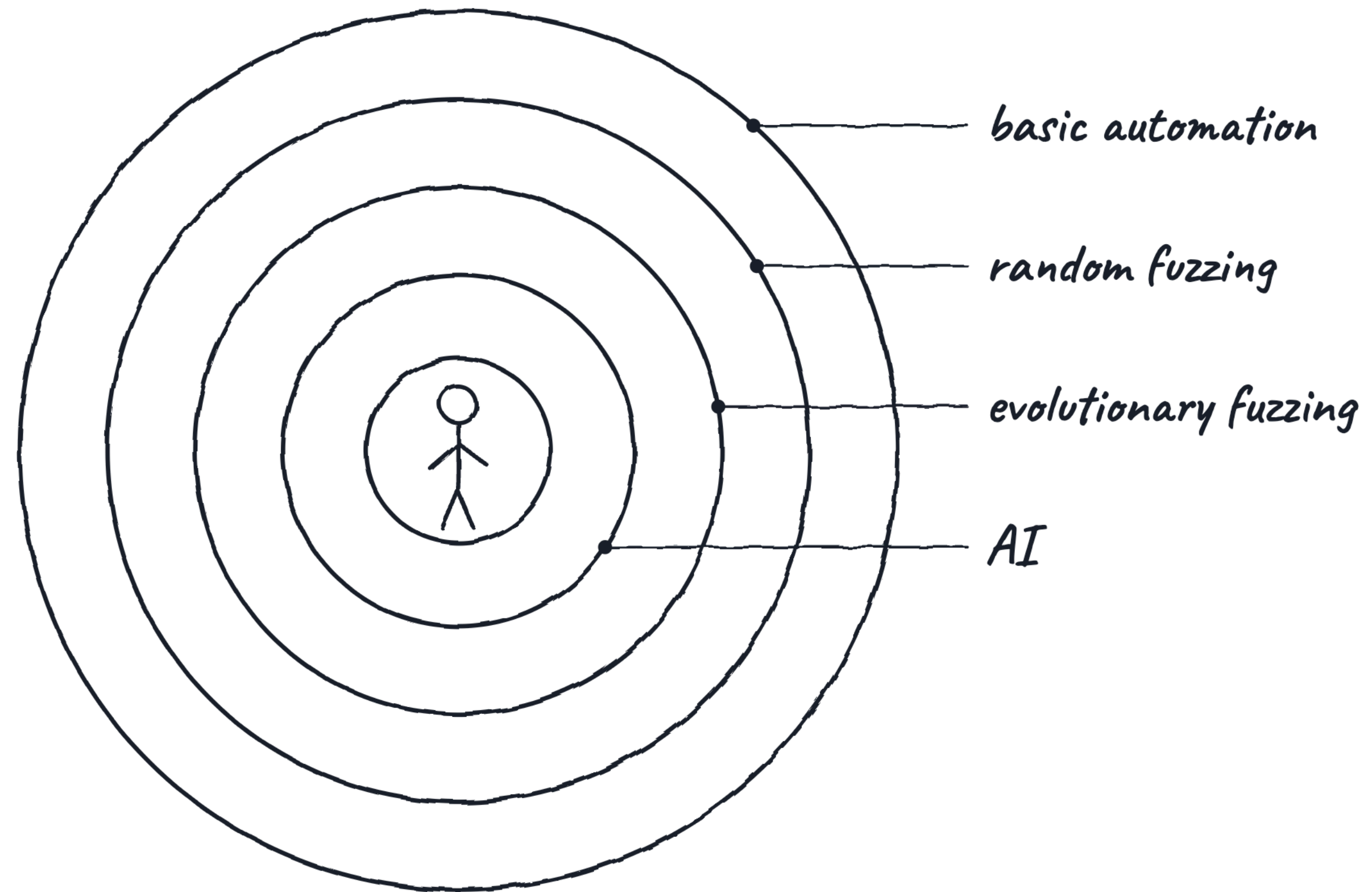
An Impossible Exploit

binary RCE in Rust app



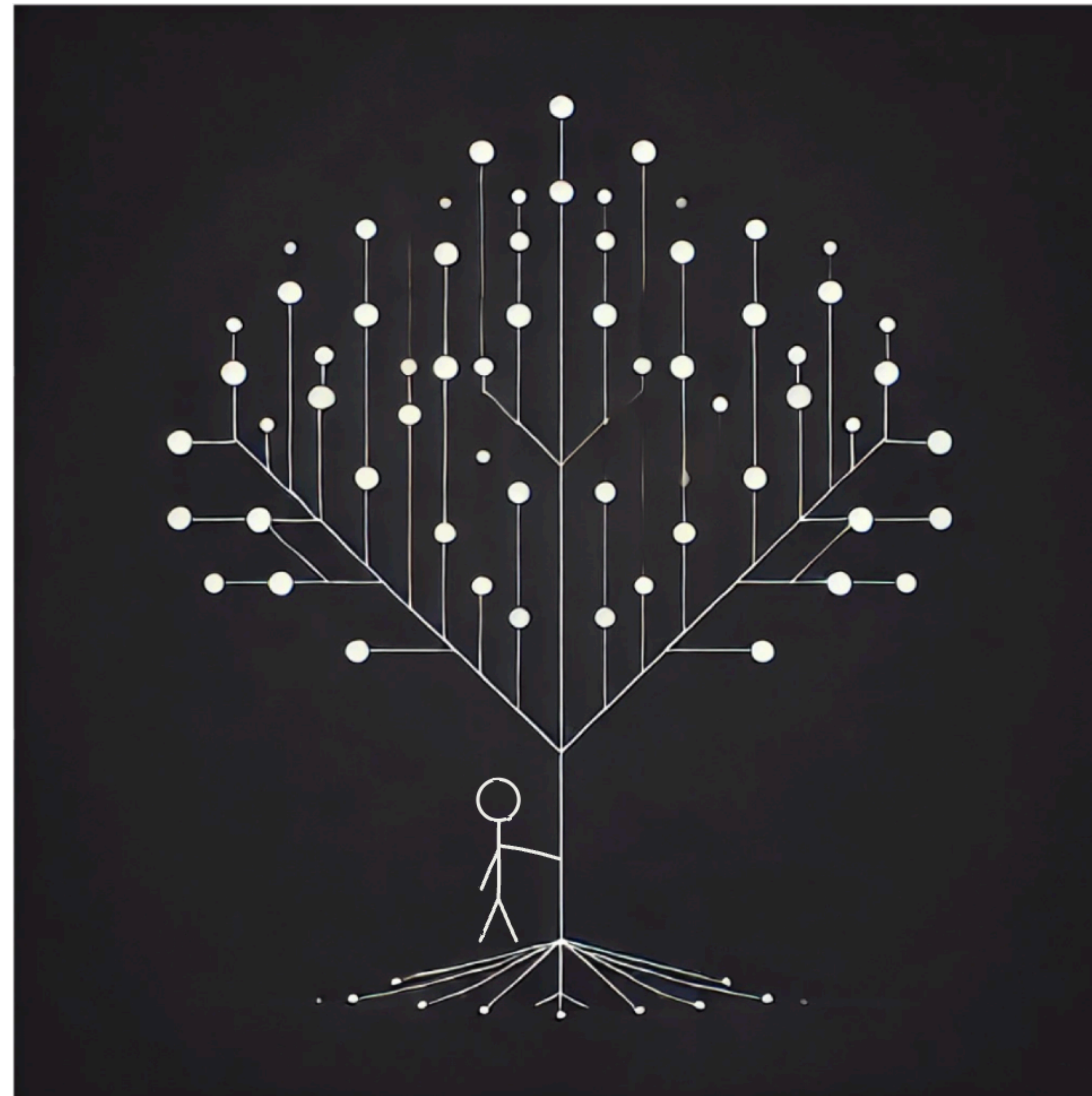
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Looking Even Deeper

what's underneath the deep trends?



~100k CVEs*

per year

depth has the 1

* Projected