SRE is Weird, Down the Stack

Plumbing the Bowels of Production

John Looney - Reddit Infrastructure
Where I've been an SRE

**Upper-Level Infra**
- ML training
- Ads Serving

**Low-Level Infra**
- Storage (filesystems, databases)
- Bare Metal & Cloud Compute
- Lockservering
- Datacenter Automation
- Modem banks (no, really)
How low can SRE go?
Modern Hardware

Timothy Roscoe's talk on "OS people need to rediscover hardware"
System Management Mode

A glitch in the Matrix
On Time, High Quality, Cheap

Pick one
That wasn't in the spec

Are you serious?
Other customers don't mind

Once it's shipped, changes become unlikely
Upstreaming is Risky

Fix the least you can
Without source, we are helpless

Why is it this way?
Web Developers ship hourly

A new server platform is a 3 year process
## The Treadmill of Misery

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Designed</th>
<th>Sampled</th>
<th>Testing</th>
<th>Shipped!</th>
<th>V2 Sampled</th>
<th>V2 Shipped</th>
<th>V1 Decommed</th>
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Rollback a bad software push = minutes

Bad Hardware ? "Ooooh."
"I'll fix & push that now"

"I'm sure the software people can workaround"
"#YOLO"
-- Node developers

"One does not improvise the deployment of millions"
-- von Moltke
"If we have a work around, why fix the hardware?"

-- HW Eng
"If we won't see a fix for years, why log bugs?"

-- Ops
"We get few bug reports after shipping, why staff a team ?"

-- HW Eng
Ops Need to Engage
And SRE? What do we do?

- Talk to DC techs, DC automation, Qualification, Infrastructure SRE
- Create/Audit on Requirements
- Assess impact on reliability, velocity
- Find bugs earlier
Ask for the Source
But .. we use The Cloud
Trust But Verify
"Elite teams are 4x less likely to outsource testing than low-performing teams" - DORA 2019
The Cloud Changes Daily
Share Requirements & Tests
Share Requirements & Tests

We should talk; [github.com/linuxboot/contest](https://github.com/linuxboot/contest) might do the job
• Qualify foundations
• Meet hardware halfway
• Specify & Test
• Share tests
• Don't give up