Data Center Futures

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humanized artificial intelligence
humanized artificial intelligence
machine intelligence
cognitive
decision making
strategic game systems
cognitive
human-inspired
self-aware
ANALYTICAL
chess
social intelligence
Analytical AI
computer science
Analytical AI
emotional intelligence
AI EFFECT
self-aware
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machine intelligence
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AI Architecture

AIOps

Network as code

None of the above

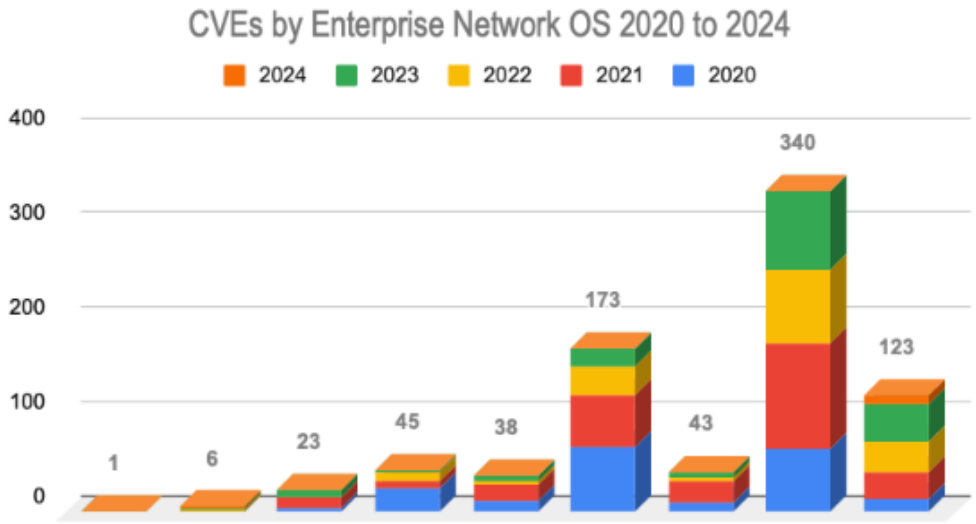
What do people want out of a data center?

- It just works
- It’s easy
- It’s affordable

IT JUST WORKS

Best-in-class quality for DC fabrics

CVEs as a proxy for quality



Source: Here (03/04/2024)

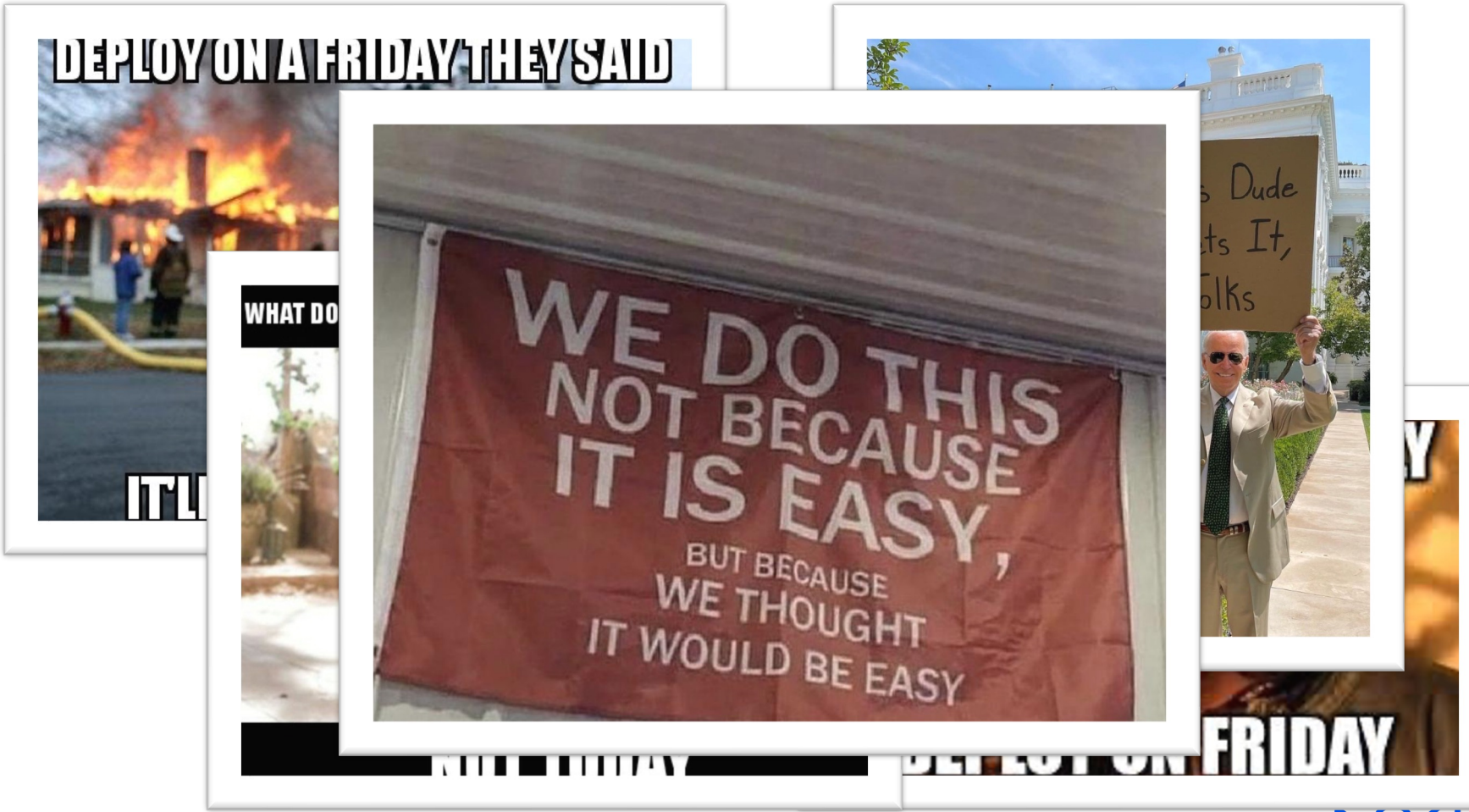
When is the last time a network *just worked* for you?

IT'S EASY

- > 2 decades of effort
- Millions of person-hours
- Hundreds of tools

➢ ~20% of DC ops automated

The need for speed?


DEPLOY ON A FRIDAY THEY SAID
WHAT DO
WE DO THIS
NOT BECAUSE
IT IS EASY,
BUT BECAUSE
WE THOUGHT
IT WOULD BE EASY
Dude
ts It,
olks
FRIDAY

The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency.

— Bill Gates —

Reliability

Lessons from aviation

Redundancy

Aviation: engines, sensors, pilots

Networking: non-blocking fabrics, dual-homed servers, multivendor

Checklists

Aviation: pre-flight checklists

Networking: syntax, configuration checks, declarative model validation, digital twin analysis

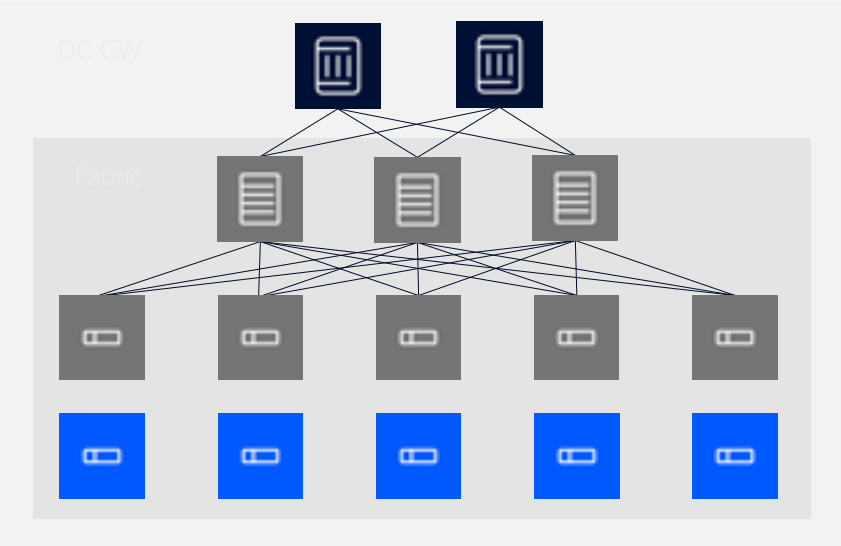
Telemetry

Aviation: meters, sensors

Networking: SNMP, JSON, streaming telemetry, gNMI, gRPC, in-band telemetry

Intent-based networking

From bottom-up to declarative operations

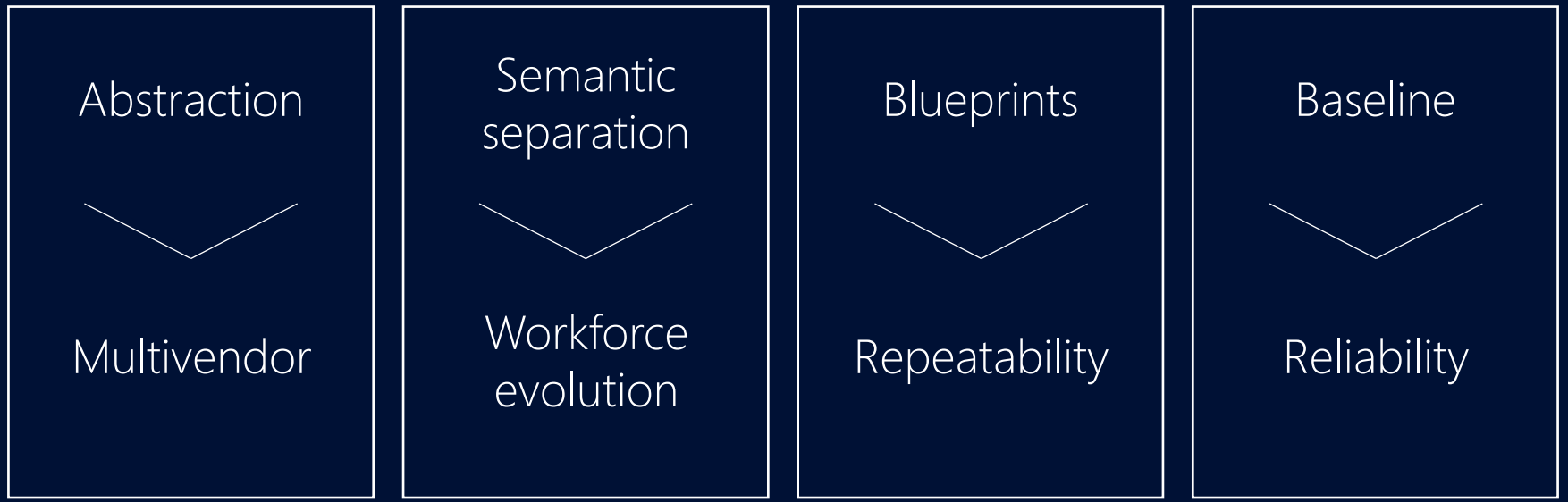


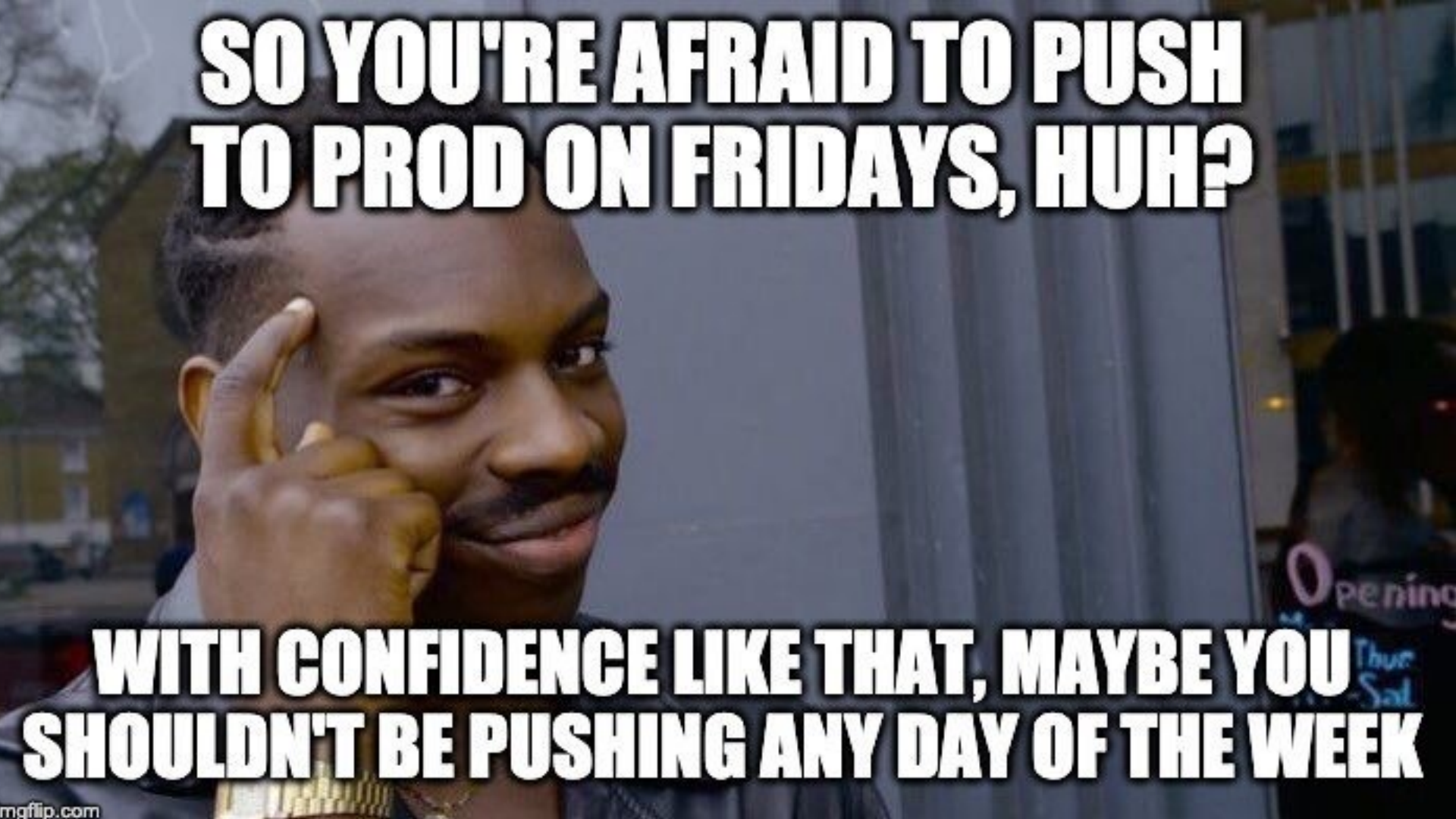
Conventional:

- 1000s of configuration knobs across hundreds of devices
- Get it right and step away
- Throttle changes

Cloud-like:

- Specify what you want
- Use tools to translate
- Maintain a single source of truth
- Trust systems to maintain


Abstraction
Multivendor
Semantic separation
Workforce evolution
Blueprints
Repeatability
Baseline
Reliability


SO YOU'RE AFRAID TO PUSH
TO PROD ON FRIDAYS, HUH?
WITH CONFIDENCE LIKE THAT, MAYBE YOU
SHOULDN'T BE PUSHING ANY DAY OF THE WEEK
imgflip.com

IT'S CHEAP

Zero human error is the goal

Reliability is the key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NOKIA