

BEYOND THE CULTURE DECK: WHAT YOU DON'T ALREADY KNOW ABOUT NETFLIX

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A YEAR AND A HALF AGO...

DIRECTOR OF DEVOPS





NETFLIX

House of Cards

★★★★★ 2013-2015 | TV-MA | 3 Seasons | 83

A ruthless politician will stop at nothing to conquer Washington, D.C., in this Emmy and Golden Globe-winning political drama.

WHAT MAKES NETFLIX SO SPECIAL?

Popular on Netflix



Recently Watched



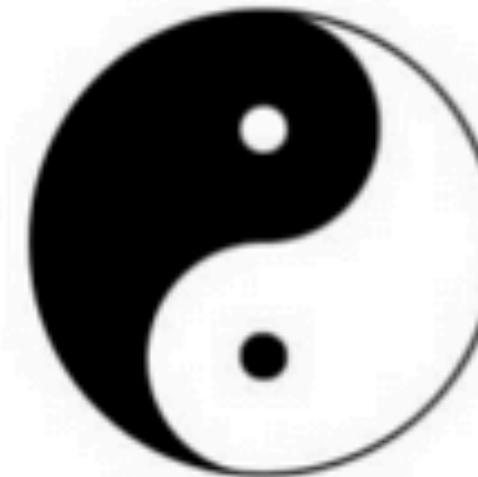
A large, reddish-brown horse stands in a lush green pasture. It is positioned in profile, facing towards the left of the frame. The horse's coat is a rich, warm color, and its mane and tail are dark. The background shows more of the green field and a simple wooden fence in the distance.

WHAT ENTERPRISES CAN LEARN FROM NETFLIX



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Netflix Culture: Freedom & Responsibility



NETFLIX

1



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IT MAY WELL BE THE MOST
IMPORTANT DOCUMENT
EVER TO COME OUT OF THE
VALLEY!¹

- SHERYL SANDBERG

¹ GQ MAGAZINE. 2013

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A historical painting depicting the Constitutional Convention in Philadelphia. George Washington stands on a platform on the right side of the room, facing a large crowd of men in 18th-century attire. The room is filled with people seated at tables, some writing or reading. In the background, several flags, including the British Union Jack and the American flag, are visible. The scene is set in a grand hall with high ceilings and decorative moldings.

OUR CONSTITUTION



FREEDOM AND RESPONSIBILITY

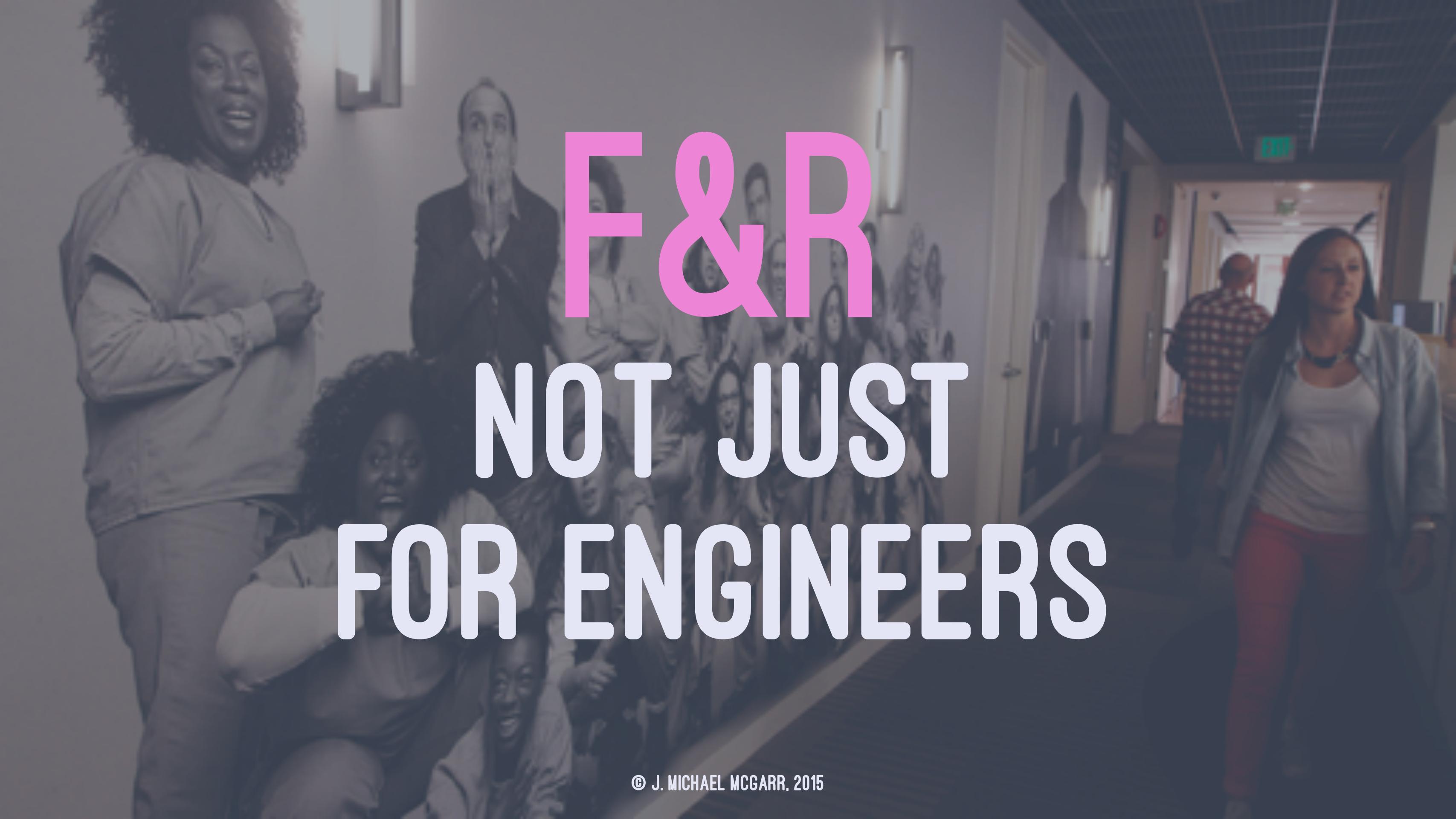


FREEDOM

A black and white photograph of a British Royal Guardsman in full ceremonial dress, including a tall bearskin hat and a red tunic with a plumed collar. He is standing at attention in front of a large, light-colored stone building, possibly Buckingham Palace. A small sign on the building's facade reads "ER".

RESPONSIBILITY

YOU BUILD IT
YOU OWN IT



F&R NOT JUST FOR ENGINEERS

'YOU CAN'T DO THAT'
(SOMETHING YOU RARELY HEAR AT NETFLIX)

ENGINEERING TOOLS



IF YOU WANT MORE FREEDOM.
YOU MUST TAKE ON MORE RESPONSIBILITY.

**QUESTION:
DO THOSE WITH
THE RESPONSIBILITY.
ALSO HAVE
THE FREEDOM?**

ALIGNMENT?



CONTEXT.
NOT CONTROL

MANAGERS FOCUS ON THE 'WHAT'
ENGINEERS FOCUS ON THE 'HOW'

CLOUD DEPLOYMENTS SHOULD...

- > IMMUTABLE SERVER PATTERN
 - > REGISTER WITH EUREKA
- > RED BLACK DEPLOYMENTS
 - > RULE OF 3

HOW DO WE ENSURE COMPLIANCE?

WE DON'T

debianivy - Clusters - Services

spinnaker.prod.netflix.net/#/projects/Astrid/applications/debianivy/clusters/serverGroupDetails

SPINNAKER Applications Infrastructure Data Search Feedback What's New (PDT 10-06-08 15:16 PDT)

Astrid / debianivy

PIPES CLUSTERS LOAD BALANCERS SECURITY GROUPS PROPERTIES TASKS CONFIG

Clusters Show Instances with details

TEST debianivy 10 ▲ : 100%

US-WEST-1 V000 (No build info) 10 ▲ : 100%

Permalink

Server Group Actions

- Resize
- Disable
- Destroy
- Clone

GROUP INFORMATION

created: 2015-10-13 22:03:16 PDT
loc: us-west-1
VPC:
Subnet:
Availability Zones: us-west-1a
us-west-1c

SIZE

MAKE DOING THE RIGHT THING EASY

PROVIDE FAST FEEDBACK



QUESTION:
IF YOU GIVE YOUR EMPLOYEES THE
RIGHT BUSINESS CONTEXT
CAN YOU TRUST THEM TO MAKE THE
RIGHT DECISIONS?

CENTRALIZED TEAMS



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CENTRALIZED OPS OR QA TEAMS



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An aerial photograph of a large bridge under construction, likely a cable-stayed bridge, spanning a body of water. The bridge's towers are tall and white, with orange construction cranes attached. The bridge deck is grey and appears to be in the early stages of construction. In the background, there are green fields and some buildings on the shore. The water is a deep blue.

CENTRALIZED TOOLS TEAMS

CENTRALIZED TEAMS **ENABLE** PRODUCT TEAMS

NO OPS TEAM

NO QA TEAM

- > WE DON'T OWN YOUR CODE
- > WE DON'T OWN YOUR BUILDS
- > WE DON'T OWN YOUR PIPELINES
- > WE DON'T OWN YOUR INSTANCES

QUESTION:
HOW COUPLED ARE YOUR
CENTRALIZED TEAMS
TO YOUR
PRODUCT TEAMS?



PROCESS

With the Right People,
Instead of a
Culture of Process Adherence,

We have a Culture of
Creativity and Self-Discipline,
Freedom and Responsibility

NETFLIX HAS NO PROCESS?

IMMUNE SYSTEM AGAINST UNNECESSARY PROCESS

PROCESS ALLERGY

USE PROCESS TO SOLVE PROBLEMS
(THEN AGGRESSIVELY ABANDON IT WHEREVER YOU CAN)



COMMUNICATION

FEEDBACK

COLLABORATIVE CULTURE

(NO BRILLIANT JERKS)



ONE ON ONES

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MEMOS

Java Dependency Management @ Netflix

Update (2015-07-14)
The Build Tools team has solicited a lot of feedback in the document below. Rather than update the document, we felt it was important to leave the feedback as is and address our updated views separately. We are currently drafting our [updated strategy/roadmap here](#).

[Summary](#)
[Introduction](#)
[Problems Engineers Face](#)
[Our Philosophy](#)
[Our Strategy](#)
[Solutions](#)
[Definitions](#)

Summary

Addressing dependency management issues for engineers at Netflix is the top priority for the Build Tools team in 2015. This is because managing dependencies in their build is a major source of confusion, frustration and time for engineers, and we feel this should be solved by a normalized team. We have documented our understanding of the [problems engineers face](#), [our philosophy](#), [our strategy](#). This document identifies three core strategies for reducing the impact of dependency management issues: [dependency resolution](#), [dependency analysis](#), and [dependency policy](#). We intend to support a suite of tools to address problems with dependency management, including [maven](#), [gradle](#), [dependency toolchain](#), [Netflix dependency management plugin](#), [Bomfiles](#) and [auto-deps](#).

Introduction

Dependency management is an essential component of code reuse, internal and external to Netflix. When it's working, it saves countless hours of dependency management. However, the process also adds a non-trivial amount of complexity and when problems arise, the task of managing builds and dependencies can consume hours of an engineer's time. **Build tools** believe dependency resolution is the primary problem facing build automation at Netflix, and it is our highest priority for 2015.

Because our [culture](#) gives freedom to individual engineering teams to select their own tools and dictate their own release schedules, [Engineering tools & practices](#) are [integrating](#) the build process with the "build the world" solution even as far upstream. Through [Dependency analysis](#), dependency management is the preferred method of sharing code between teams. As this paper will address, there are a number of challenges to this solution.

The main challenge arises from the [java platform build](#), which has no native support for modularity, instead the Java Virtual Machine provides a single flat namespace for all libraries to live in together. Future versions of Java may have better or improved modularity through Project Jigsaw, and it is too early to predict the potential of this evolution. In the

Matthew Johnson 9:19 AM May 14 Resolved
I am not sure that dependency resolution is the biggest problem facing the Netflix build ecosystem as a whole, promotions bad artifacts to Show more

Netflix Tip 9:49 AM May 14
FWIW, some of those artifacts were dependency related. There are many times when our stuff works in isolation and/or within our own ecosystem but Show more

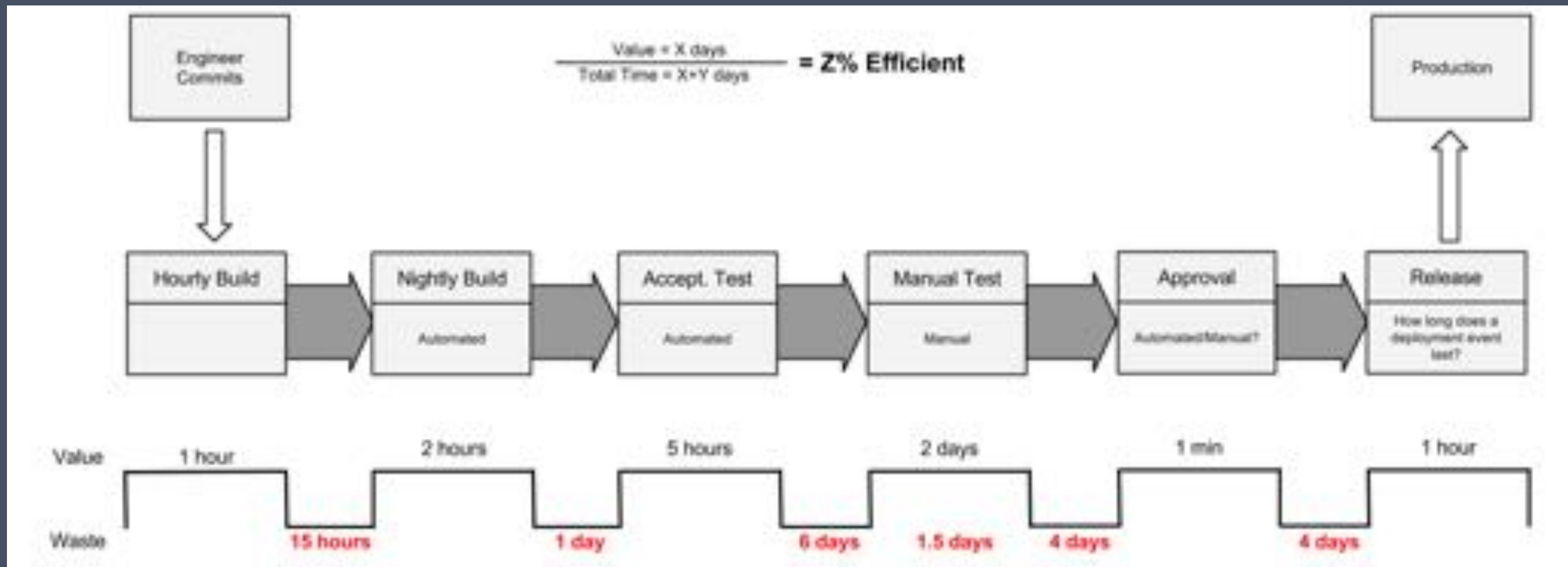
Netflix Tip 9:53 AM May 14 Resolved
I'm not sure about this conclusion. For example, learning other rationale, EngTools can eventually have a "build the world" paved path system and those that don't use it are free not to and would be responsible for their own builds.

TEAM MEETINGS



WASTE

ELIMINATE WASTE



IS A NECESSARY BYPRODUCT OF

INNOVATION

QUESTION:

HOW TOLERANT
IS YOUR CULTURE OF
DUPLICATE OR THROWAWAY
EFFORTS?

A photograph of a modern interior space. In the foreground, a large blue sofa is positioned against a wall. To the left, there's a window with a dark frame and a small table with a lamp. On the right, a stone wall with a grid pattern is visible, along with a large window showing greenery outside. The ceiling has recessed lighting.

WRAPPING IT UP

TAKEAWAYS

1. THOSE WITH RESPONSIBILITY SHOULD HAVE THE FREEDOM
2. HIGH PERFORMERS DO THE RIGHT THING. GIVEN THE RIGHT CONTEXT
3. CENTRALIZED TEAMS ENABLE PRODUCT TEAMS
4. USE PROCESS TO SOLVE PROBLEMS. THEN ABANDON IT
5. INNOVATION GENERATES WASTE

WHAT I WOULD LOVE TO HEAR

- > STORIES OF BOTTOM-UP CHANGE
- > PERSPECTIVES ON CULTURE (AND SUB-CULTURES)
 - > USERS OF NETFLIX OSS

QUESTIONS?

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