

# Tech debt as theory building and practice

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# Me, professional version

- Formerly at Kong Inc, Chef Software, a handful of startups, Cray/Tera
- Tends to work on:
  - developer tooling
  - CI/CD
  - artifact storage and delivery
  - builds
  - metrics and monitoring
  - incidents and incident response
- Currently job hunting

# Also me

- Extremely mediocre rower and coxswain
- “Disastrously forthright” (Jay Coskey)
- “The most academic non-academic” (Sarah Quinn)
- “Do you tend to work on tech stuff on non-tech teams and non-tech stuff on tech teams?” (Ben Rosengart)

# Me, almost exactly four years ago



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My theory of tech debt is that housework is the correct metaphor for the thing we call tech debt, but we can't use it because tech has been made up of people who don't do housework, or manage housework being done.

📅 Archived from March 29, 2021 at 1:13 PM

November 18, 2024 at 10:49 AM 👤 Everybody can reply



# Communicating precisely (enough) is hard!




**Fred Hebert**

@ferd.ca

Any random tech discussion: this off-hand comment someone made is a perfect opportunity for a very opinionated rant that could run for hours

Preparing a tech talk: it will take many weeks to properly structure ideas into a coherent narrative worth sharing with others

March 11, 2025 at 8:59 PM  Everybody can reply

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6 reposts 4 quotes 62 likes

# Origin of tech debt as a concept

Ward Cunningham, 1992. Video:

<https://www.youtube.com/watch?v=pqeJFYwnkjE>

- Influenced by Lakoff and Johnson's Metaphors We Live By
- Working on a financial services product
- "Debt" as a way of explaining the need to refactor the product in light of new knowledge gained encounter with users
- A little debt speeds development as long as it's repaid with a prompt rewrite
- "Every minute spent on not-quite-right code counts as interest on the debt"

# Definition of tech debt

My simple take on that quote is that technical debt is what you feel the next time you want to make a change. It accrues from not only all the shortcuts you make in a project when it's rushed, but even every time the developers don't write an automated test – every time that you don't do data code analysis. When you skip these things, the debt builds up every day. It's basically all the variants, from the right way to do things versus the way we actually do things. The more of those that accumulate create this ever-increasing amount of technical debt.

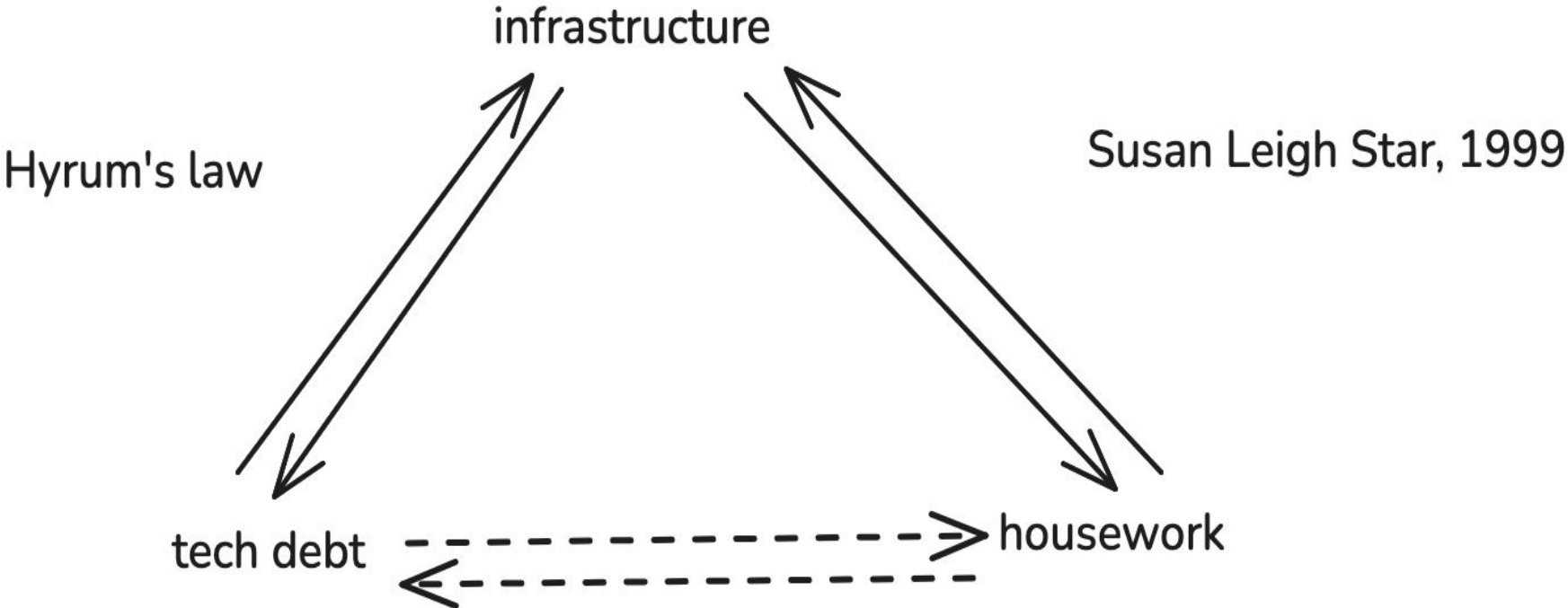
Gene Kim,

<https://devops.com/qa-gene-kim-technical-debt/>

# Tech debt as metaphor

- Social concept
- But not \*only\* a social concept
- How powerful a social concept is it?
  - Powerful enough that when we hear the words, we know what social response is expected
  - (in my opinion) Not powerful enough to communicate on its own without more specifics

# Housework as metaphor for tech debt



Hyrum's Law (Hyrum Wright, <https://www.hyrumslaw.com/>)

*An observation on Software Engineering*

Put succinctly, the observation is this:

With a sufficient number of users of an API,  
it does not matter what you promise in the contract:  
all observable behaviors of your system  
will be depended on by somebody.

# Susan Leigh Star's properties of infrastructure

- Infrastructure is **relational** and ecological
- Properties of infrastructure (from “The Ethnography of Infrastructure”, 1999)
  - Embeddedness
  - Transparent to use
  - Has reach or scope
  - Learned as part of membership
  - Links with conventions of practice
  - Embodies standards
  - Built on an installed base
  - Becomes visible on breakdown
  - Is fixed in modular increments, not all at once or globally

Tech debt and housework share qualities with infrastructure that make housework a powerful metaphor for thinking about tech debt.

# Examples and horror stories

The toilet, or “People  
want (need?) to see a  
positive change”

# The toilet



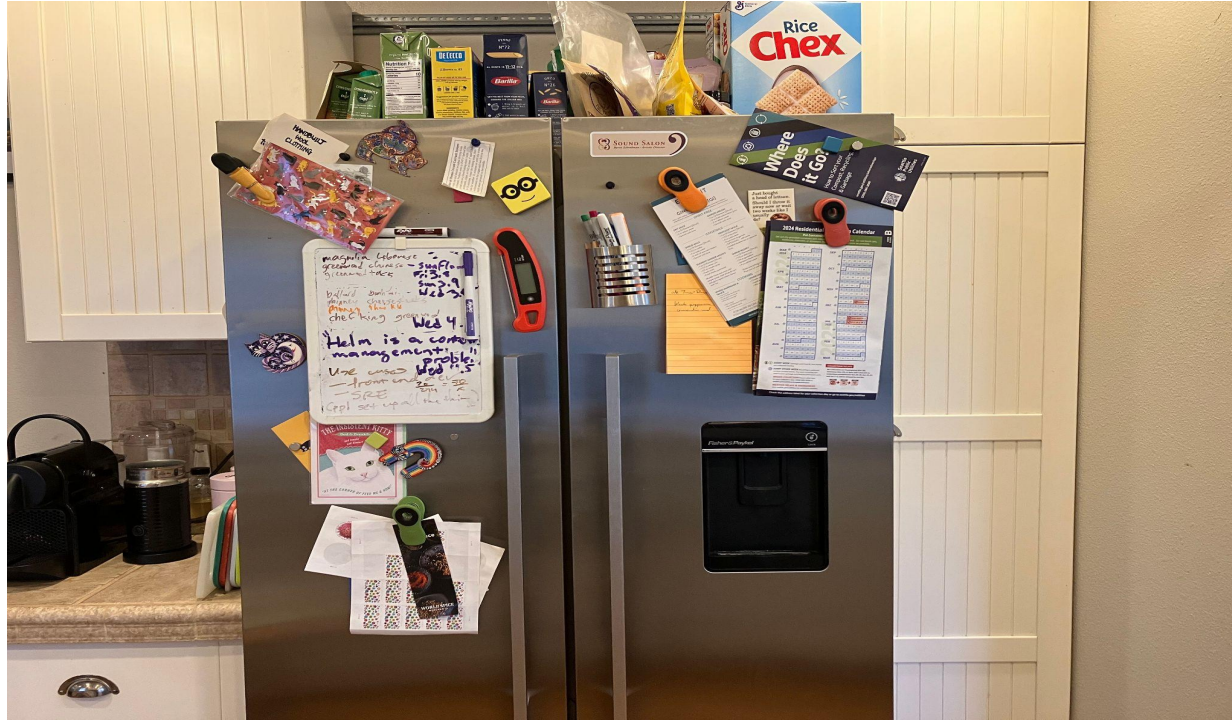
Story: package repos  
at Chef

# My takeaways

- Find the win for internal customers.
- A shift in how you tell the story might make the win you already have clear.
- Team balanced between people who had opinions/feelings about what already existed and people who didn't.

The fridge, or path dependence

# The fridge



Story: “it was easy to install”

# My takeaways

- Nothing would have saved us.
- “I want to know what things do.”
- Pay attention to how people decide what they decide.
  - Possible aspiration: Record the real reason for a decision in durable form.

The closet, or “do we  
have to fix all of this  
right now?”

# The closet



Story: solaris 10u1 support at Chef

# My takeaways

- Keep asking both “Do we really have to do this?” and “Can we do this?” Be both intentional and pragmatic.
- Being intentional and pragmatic can mean making a lot of tradeoffs. Be prepared for it to feel unsatisfying.
- Maintaining clarity on the problem space helps you to be intentional.

# Problem space

**The problem space is a person's domain.** It's where they are addressing something they want to make progress on, or put off, or just think about. The problem space is separate from your solutions, although the person may reach out for your tool along the way. People also reach out for other tools, they consult their memories, they chat with others, and even use mechanical and manual tools. So, the problem space is that person's context.

Indi Young, "Why Problem Space?"

<https://indiyoung.com/explanations-problem-space/>

My spice drawer, or finding places for things

# Find homes for stuff that doesn't have them



**Captain Awkward**

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Trying to unfuck the old habitat today, according to the "5 things" method popularized by KC Davis.

There are only 5 kinds of mess:

1. Dishes
2. Laundry
3. Trash
4. Stuff that has a home
5. Stuff that doesn't have a home

October 6, 2024 at 9:24 AM  Everybody can reply

The home does not have to be perfect!



Seriously: it does not have to be perfect



## Tech example: etsy's deployinator (2010)

When we first brought Deployinator online, it was just a web frontend to the shell scripts that moved everything in the right place. What we gained by putting a screen in front of it was the ability to iterate the backend without changing the experience for people deploying. Deployinator currently uses svn to update the code, then rsync to move it between environments.

Erik Kastner, “Quantum of Deployment”

<https://www.etsy.com/codeascraft/quantum-of-deployment>

Story: the open source  
Helm chart

# Why write a document?

- No clear narrative around decision to avoid the Helm chart.
- Lots of details/tradeoffs that people would need time to absorb/respond to.
- Needed to be clear that we had done our due diligence.
- We had stuff, we needed to find a home for the stuff. The document was the home.

# Takeaways

- Documents are great homes for stuff.
- Documents are one example of a mediating layer. (see: deployinator)
- It can be hard to explain why a piece of tech debt should be addressed.
- If there is a piece of tech debt you/your team care about, you need to be able to explain it to other people in a form where they can take it in.

“A document...you  
mean, like a plan?”

“No.”

People need to be invested in the work (unlike this cat)



What does all this mean?

## Our story so far

- Tech debt and housework are related through Star's properties of infrastructure
- Thinking about tech debt with and against the labor of keeping and maintaining a house/home enables us to think (and write, and talk) about the stakes of the tech debt with more clarity and specificity.
- Housework as a (not the) way to build a theory or model around tech debt.

# This talk is secretly thinking about theories

- What makes a good theory?
- How do we build a theory?
- How do we use a theory to help us communicate?
  - Warning: it might not involve saying anything about our theory at all!

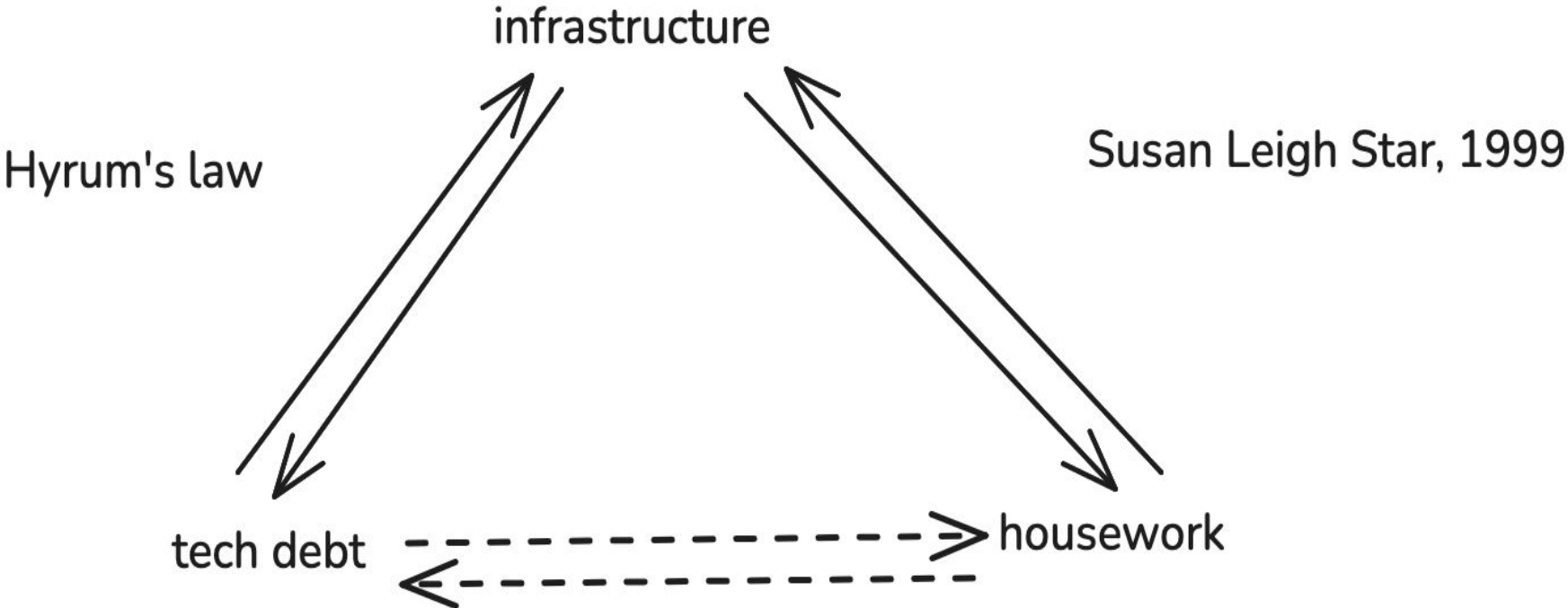
# A few words about the title

“Let me begin to say that I came to theory because I was hurting...I came to theory desperate, wanting to comprehend”

bell hooks, “Theory as Liberatory Practice”

[https://openyls.law.yale.edu/bitstream/handle/20.500.13051/7151/05\\_4YaleJL\\_Feminism1\\_1991\\_1992\\_.pdf?sequence=2&isAllowed=y](https://openyls.law.yale.edu/bitstream/handle/20.500.13051/7151/05_4YaleJL_Feminism1_1991_1992_.pdf?sequence=2&isAllowed=y)”

# Housework as metaphor for tech debt



In closing...