

DevOps is a Foreign Language

(or why there are no Junior SREs)

Josh Lee, Open Source Developer Advocate @
Altinity

**"Learning Kubernetes
doesn't take 3 days, or 3
months. It takes 3 years"**

— Kelsey Hightower, 2017

About Me

- **3/4ths of a degree in Second Language Acquisition**
- **15+ years in tech, with many hats**
- **Currently: Developer Advocate at Altinity**
- **ClickHouse® and Observability Expert**

Agenda

- **Linguistics 101 in 5 minutes**
- **What is Second Language Acquisition?**
- **Krashen's Five Hypothesis**
- **What can we do?**

DevOps in 2025

is kind of complicated

"A good developer doesn't need to know what's inside every black box, but they should be able to identify when they can isolate an issue to a specific black box"

— Arthur Doler (paraphrased)

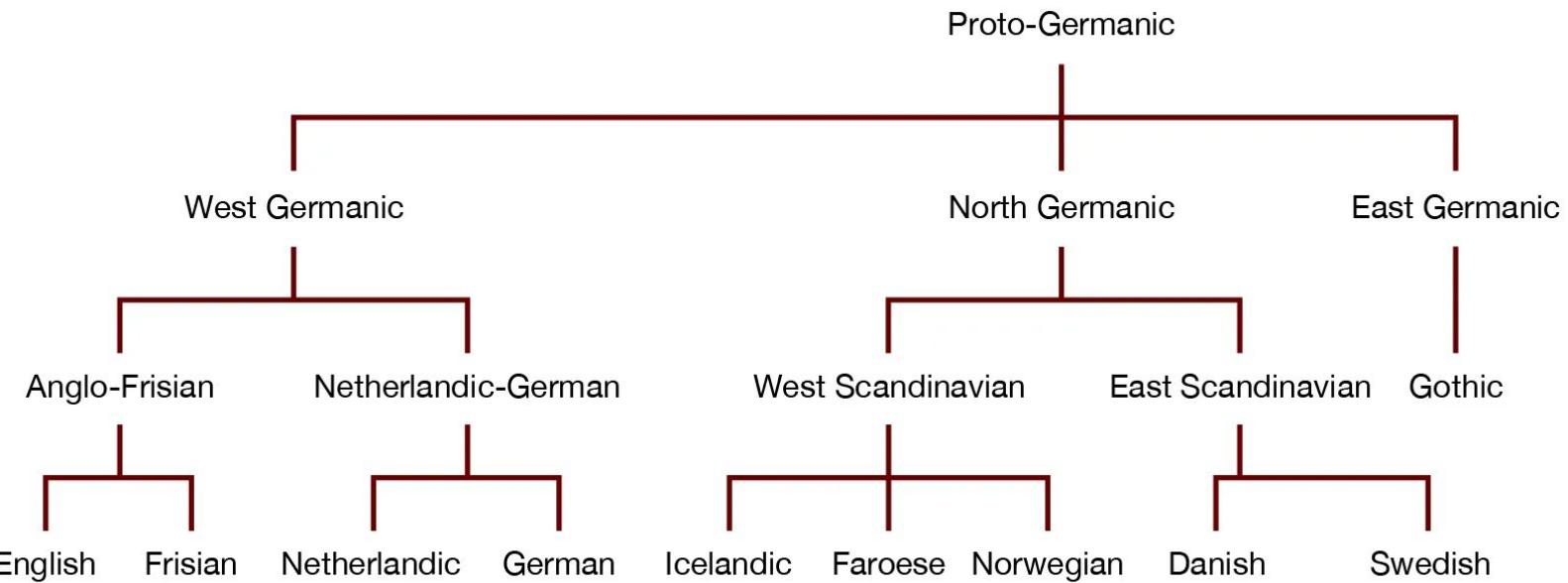
**Our modern tools come in big
boxes!**

Languages are also really complex

"It's raining cats and dogs"

"It's raining calves"

(German idiom)



What is a language?

A language is a structured system of communication that combines syntax, grammar, and vocabulary with the cultural, historical, and social contexts in which it is used. It is not merely a set of rules or symbols but a living, evolving tool that shapes and is shaped by the people who use it. Language encodes cultural knowledge, values, and worldview, serving as a medium for expressing identity, fostering community, and transmitting traditions across generations.

Human Brains

Amazing at learning languages...

... until puberty

Native Languages

All children have the capacity for natural language, and will learn one simply from exposure.

Disclaimer #1

All natural languages are equally expressive.

Mocking or disparaging natural languages is unacceptable.

Disclaimer #2

**Constructed languages (like Java or Esperanto)
— are not natural languages.**

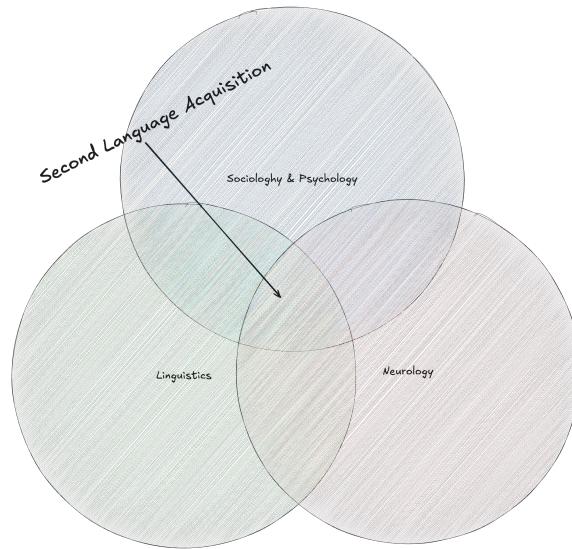
Written languages are not natural languages.

What is Second Language Acquisition?

What is Second Language Acquisition?

The study of the process by which adults learn new languages after puberty

What is Second Language Acquisition?



How is this relevant to the SDLC?

What command do I use to see which version of docker is installed?

```
→ ~ docker --version  
Docker version 27.1.1, build 6312585  
→ ~ docker version
```

How do we know this?

Also, does a bootcamp grad know how to Ctrl-C?

Implicit vs Explicit Knowledge

How we learn



How we learn DevOps

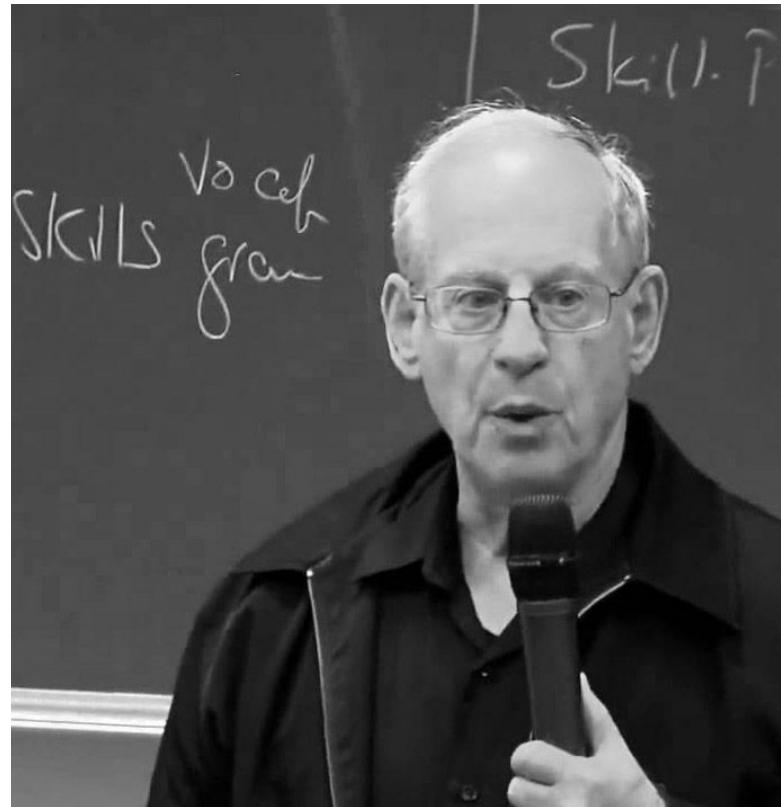


My Hypothesis

Successful software practitioners require an abundance of implicit (cultural) knowledge — which may not even be acknowledged in the learning journey.

Stephen Krashen

*Principles and Practice in
Second Language
Acquisition (1982)*



Krashen's Theory

1. Acquisition & Learning Hypothesis
2. Comprehensible Input Hypothesis
3. Natural Order Hypothesis
4. Monitor Hypothesis
5. Affective Filter Hypothesis

I. Acquisition / Learning Hypothesis

Acquisition / Learning Hypothesis

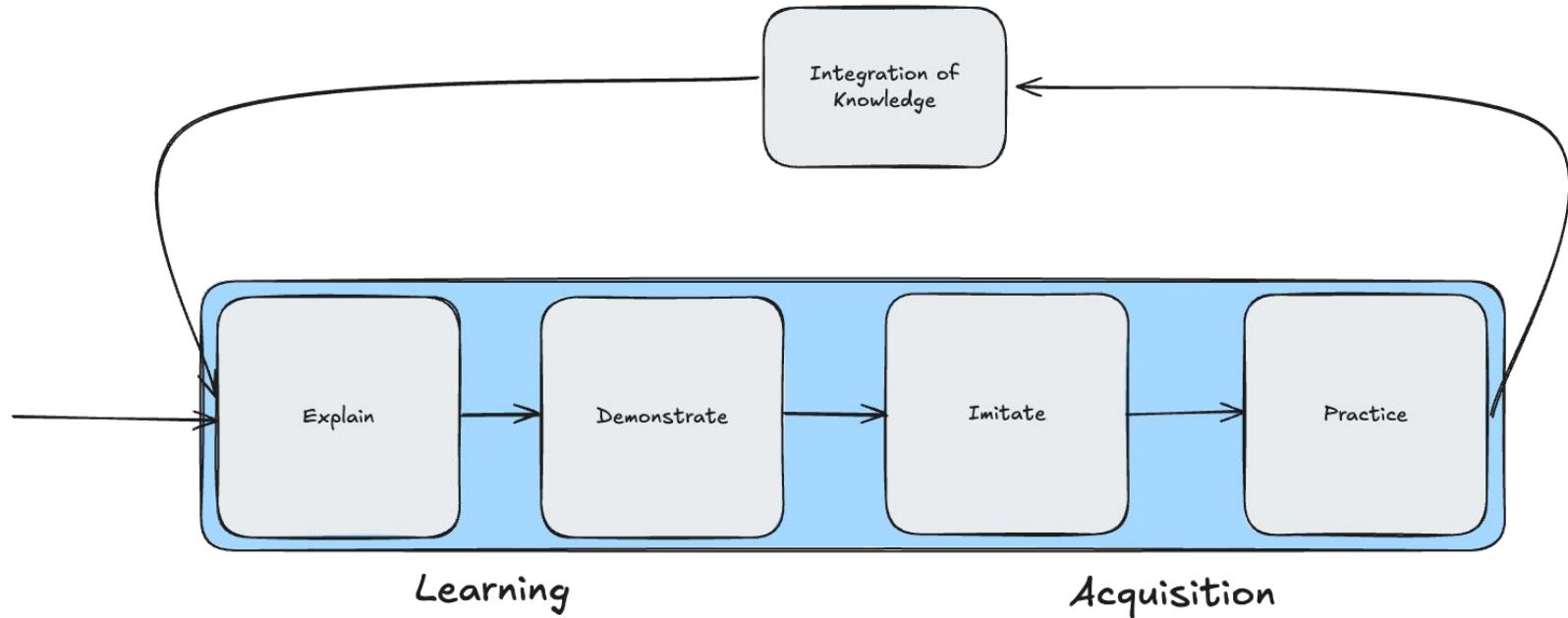
**Humans learn best by combining theoretical
learning with real-world knowledge
acquisition**

Acquisition / Learning

EDIP Learning

- 1. Explain**
- 2. Demonstrate**
- 3. Imitate**
- 4. Practice**

Acquisition / Learning



II. Comprehensible Input Hypothesis

Comprehensible Input Hypothesis

Humans learn best when exposed to new inputs of size $i+1$, where i represents already familiar concepts.

**El pintor coloca el lienzo sobre
el caballete en el estudio.**

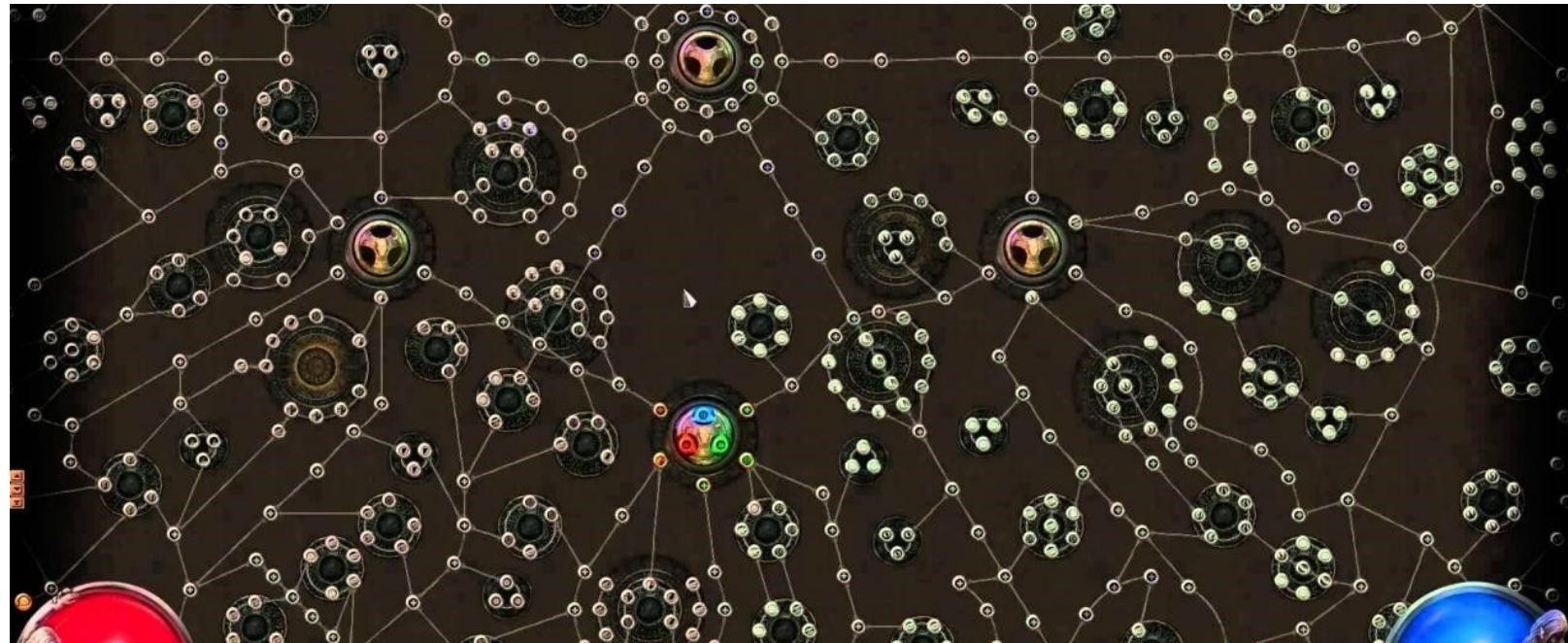
**The painter places the canvas
on the caballete in the studio.**

III. Natural Order Hypothesis

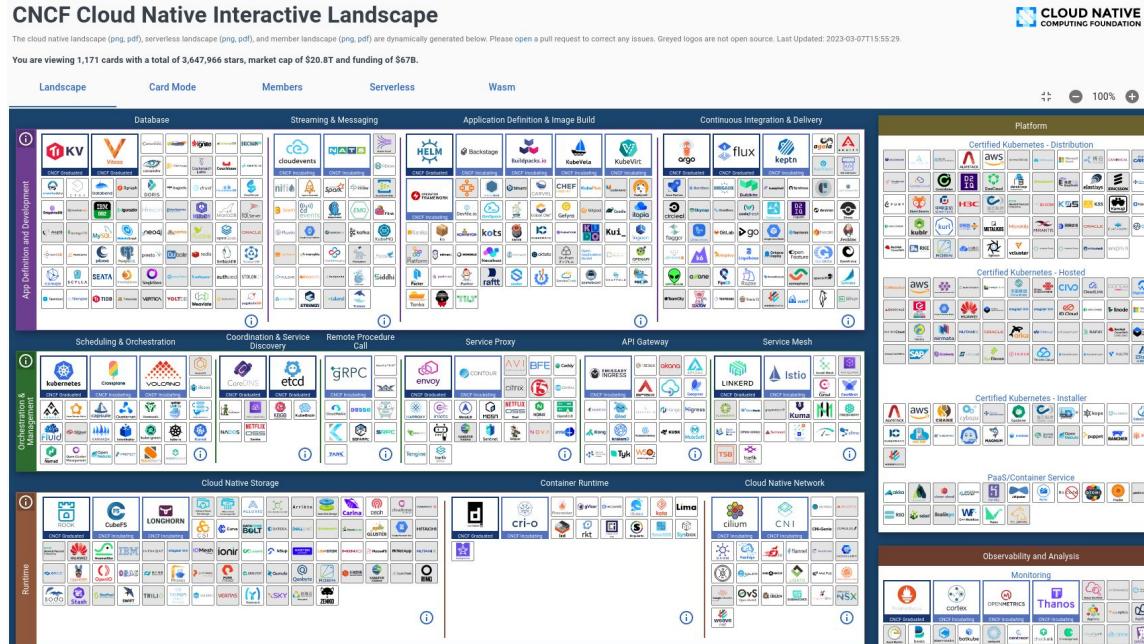
Natural Order Hypothesis

There is a natural progression for learning complex systems like languages.

Natural Order Hypothesis



Natural Order Hypothesis



Natural Order Hypothesis



IV. Monitor Hypothesis

Monitor Hypothesis

Learners will self-correct, but when feedback is too frequent or too strict, it hinders progress.

It's all about feedback loops

Not too strict, not too permissive

Not too fast, not too slow

**Don't be afraid to admit when
you don't know the answer.**

V. Affective Filter Hypothesis

Affective Filter Hypothesis

Motivation and mood are the strongest filters on our ability to learn.

Know your "why"

Knowing why you are trying to learn a new skill can help keep you motivated.

Acknowledge the Humanity

Humans are humans. Do not assume they will always behave the same way or be at their best. We're building sociotechnical systems.

Work in, and provide, a safe environment

Psychological safety is paramount.

**So what can we do about this...
as learners?**

Start with basics

Start small and simple, then iterate.

Embrace practical experiences

**Choose real goals that allow you to apply
your theoretical learnings.**

Seek feedback

Train internal monitors through feedback from others. Don't be afraid to admit what you don't know.

Stay positive

You've got this!

So what can we do about this...

**as the people building
tools and platforms?**

Embrace early adopters

**Early adopters are your brave pioneers.
Embrace them and learn from them.**

Design for accessibility

Provide context and meaningful feedback to any action.

Meet users where they are

**Let users make mistakes without it hindering
their forward progress if it doesn't need to.**

**and offer a golden path (with
guardrails)**

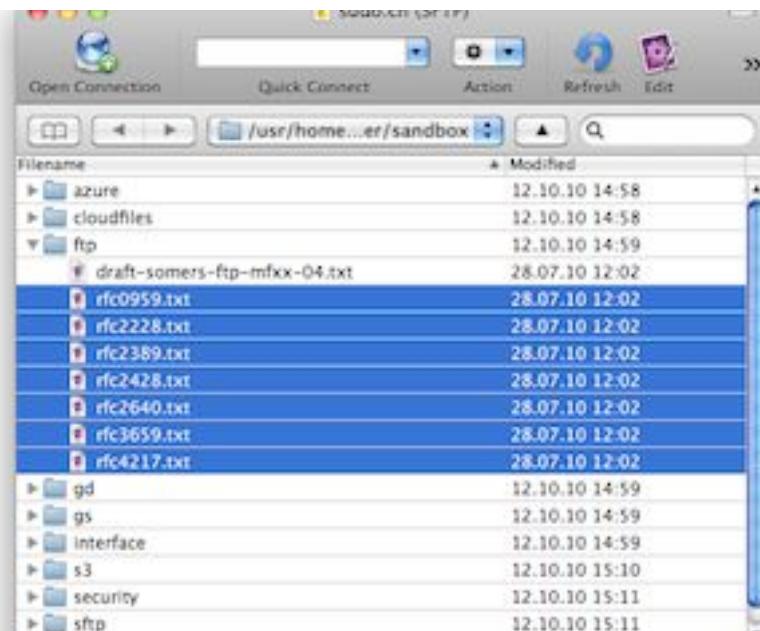
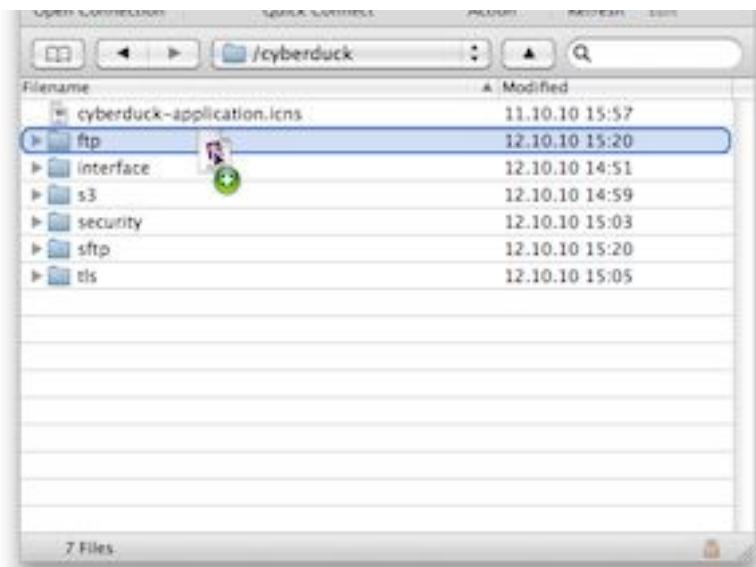
**"Platform Engineering
reduces the depth of the
stack for developers"**

**We already had this figured out
before**

My first platform:



CI/CD:



Observability:



Let's make this fun again.

Thank you!

Connect with me

