

# Foster a Culture of Learning Through Observability



Brooke Sargent



# About Brooke



- Software Engineer @ Honeycomb
- Background in headless e-commerce and IoT
- Discovered passion for observability while working on IoT
- Favorite hobby is baking 🥞🍪🥖

# Intro to Observability

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# What is observability?

Observability is a measure of how well the internal states of a system can be inferred from knowledge of its external outputs

# Observability in Software

- Often shortened to “o11y”
- Arbitrarily wide structured events are the foundation
- String events together as traces when possible to understand them in context

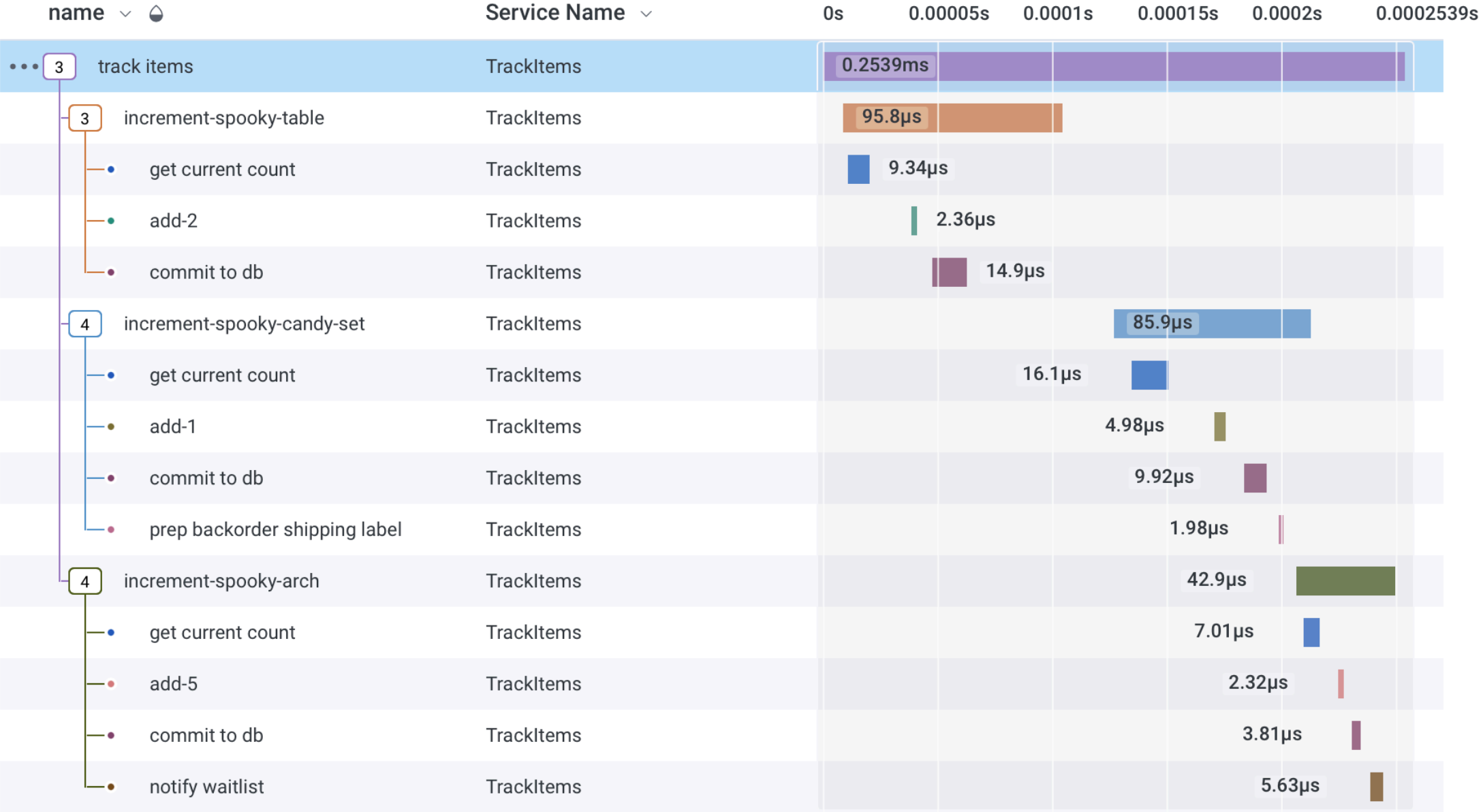
# Unstructured event vs Structured event

LOG | 2023-05-05 | INFO |  
Foster a Culture of Learning  
Through Observability by  
Brooke Sargent at AMC  
Easton in Columbus, Ohio

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{  
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Learning Through Observability",  
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# Tracing

- A trace represents a single request into your system and tracks its journey
- A single trace is made of a tree of spans
  - Spans are structured events





# o11y vocab lesson

- **telemetry**: data emitted from a system about its behavior
- **instrument**: the act of adding signals to code that allow it to emit telemetry data
- **span**: units of work that make up a trace
- **trace**: records the path taken by a request

# OpenTelemetry aka OTel

- Open standard for telemetry data
- Collection of observability tools, APIs, and SDKs that are open-source and vendor neutral
- Great place to get started with instrumenting your software

# Why is observability important?

- We run a lot of software and observability tooling makes it easier to keep track of
- New Theory of Disuse
  - Knowledge is use it or lose it

# o11y Story Time

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# Team Standards

- Can get code into prod in < 15 min
- >70% unit test coverage
- e2e canary tests run a couple times per hour
- Team members merge small, frequent changes



Something is still  
missing...



- Confidence in deploys still lacking
- Bugs and outages take hours or days to solve

# Struggles with Logs

- Correlating a log to the problem at hand was difficult
  - Especially difficult for problems happening for a fraction of users
- Stringing logs together to piece a full story together was even harder
- Relying on only logs to operate the platform with excellence felt like a gamble





Observability is  
introduced 🌈

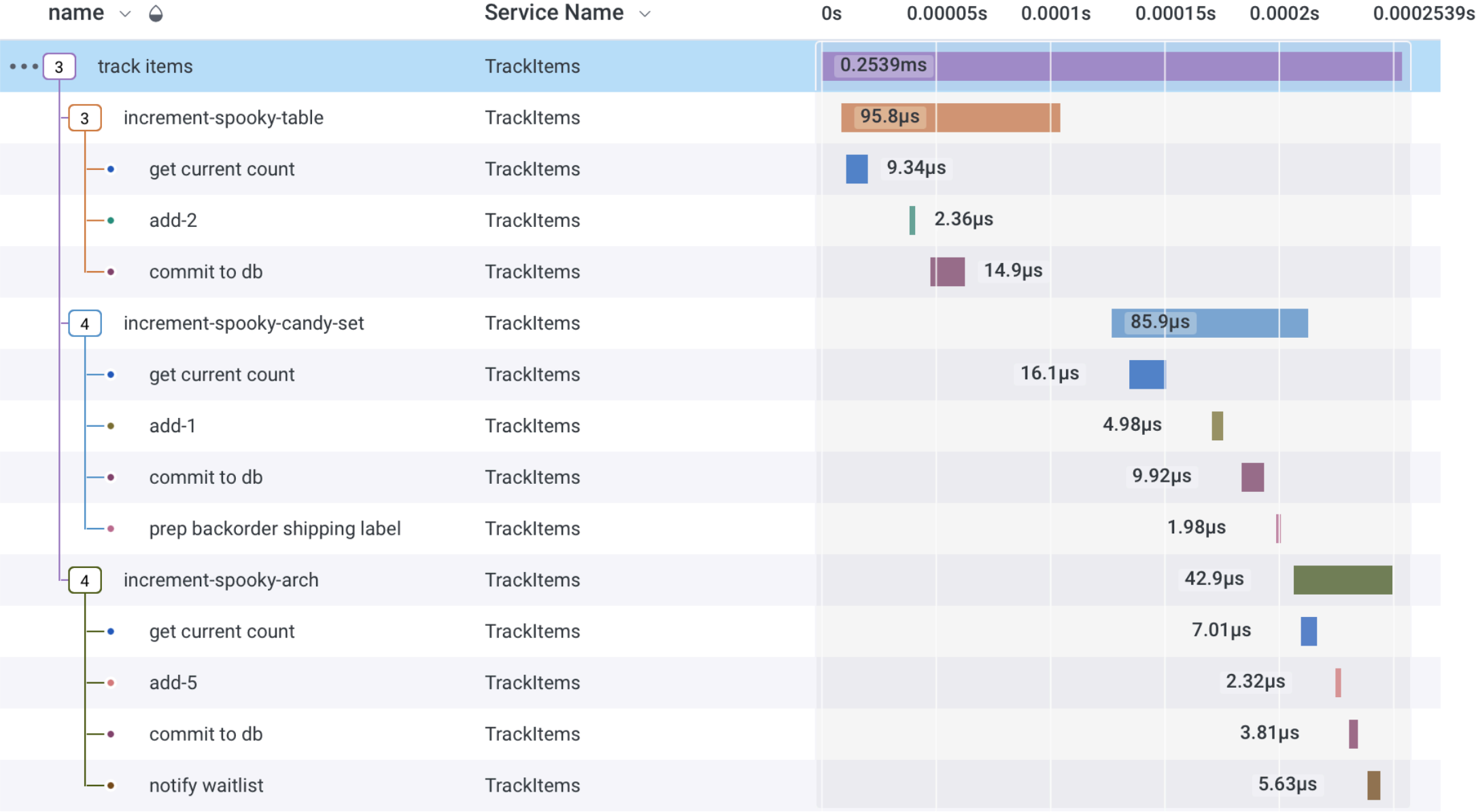
# Observability as a practice

Dev cycles invested in adding tracing, one service at a time

Invested in tooling to visualize the telemetry data

Observability added to the definition of done







# Culture shifts

# Software Teams and Learning Culture

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## Knowing Culture



- “I’ve done this before and know exactly what to expect”
- “I know exactly how this change will behave in prod”

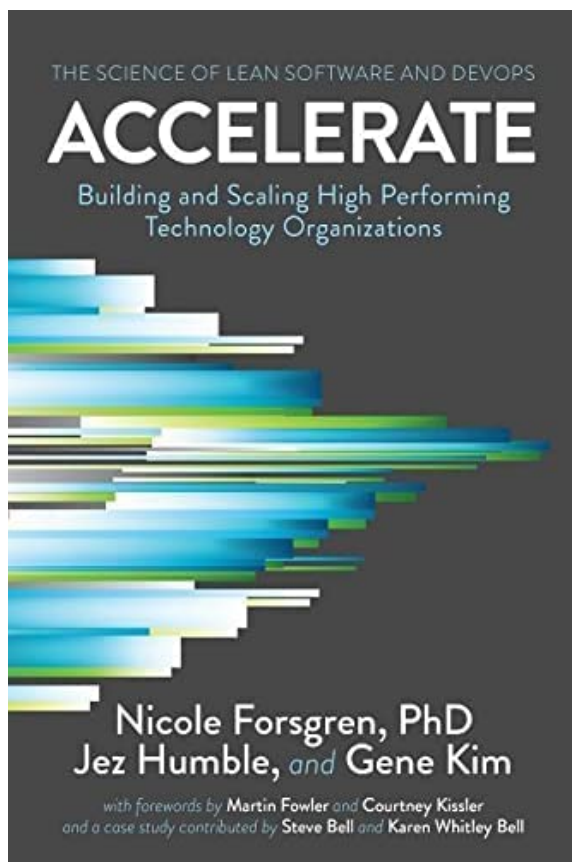
## Learning Culture

Stir Trek 2023

- “I haven’t done this before but I am confident I can figure it out”
- “I know how to observe this change in prod and make adjustments accordingly”

# What is a culture of learning?

A mindset within an organization where learning and improvement are at the heart of how people prioritize their time, do their jobs, and interact with one another



“The best thing you can do for your products, your company, and your people is institute a culture of experimentation and learning.”

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Accelerate: Building and Scaling High Performing Technology Organizations





# Qualities of a Learning Culture

# Make Learning Habitual



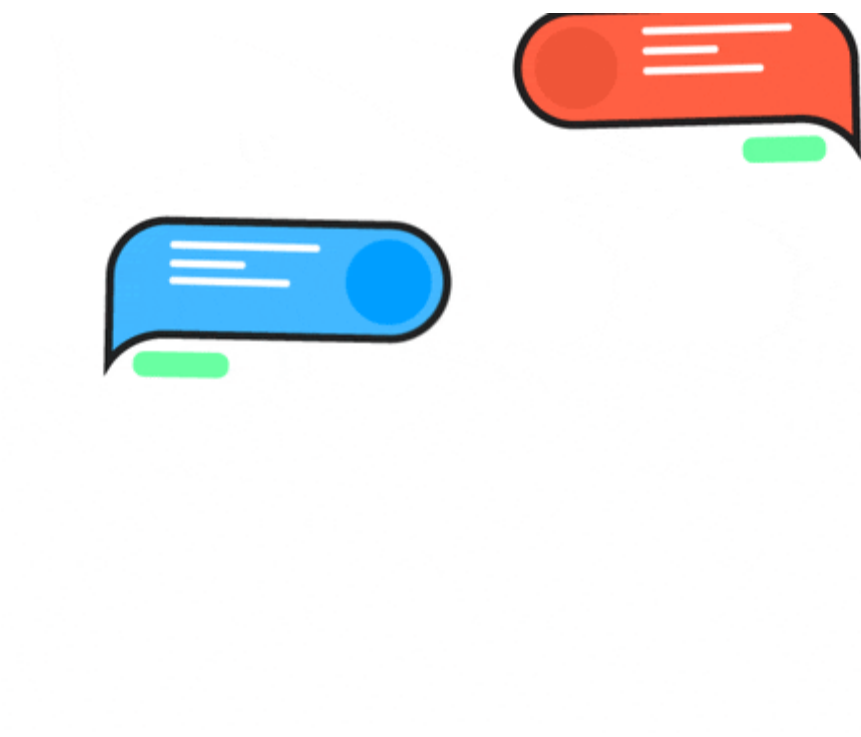
# Reward Curiosity



# Progress > Perfection

**PERFECTION**

# Make Learning Social

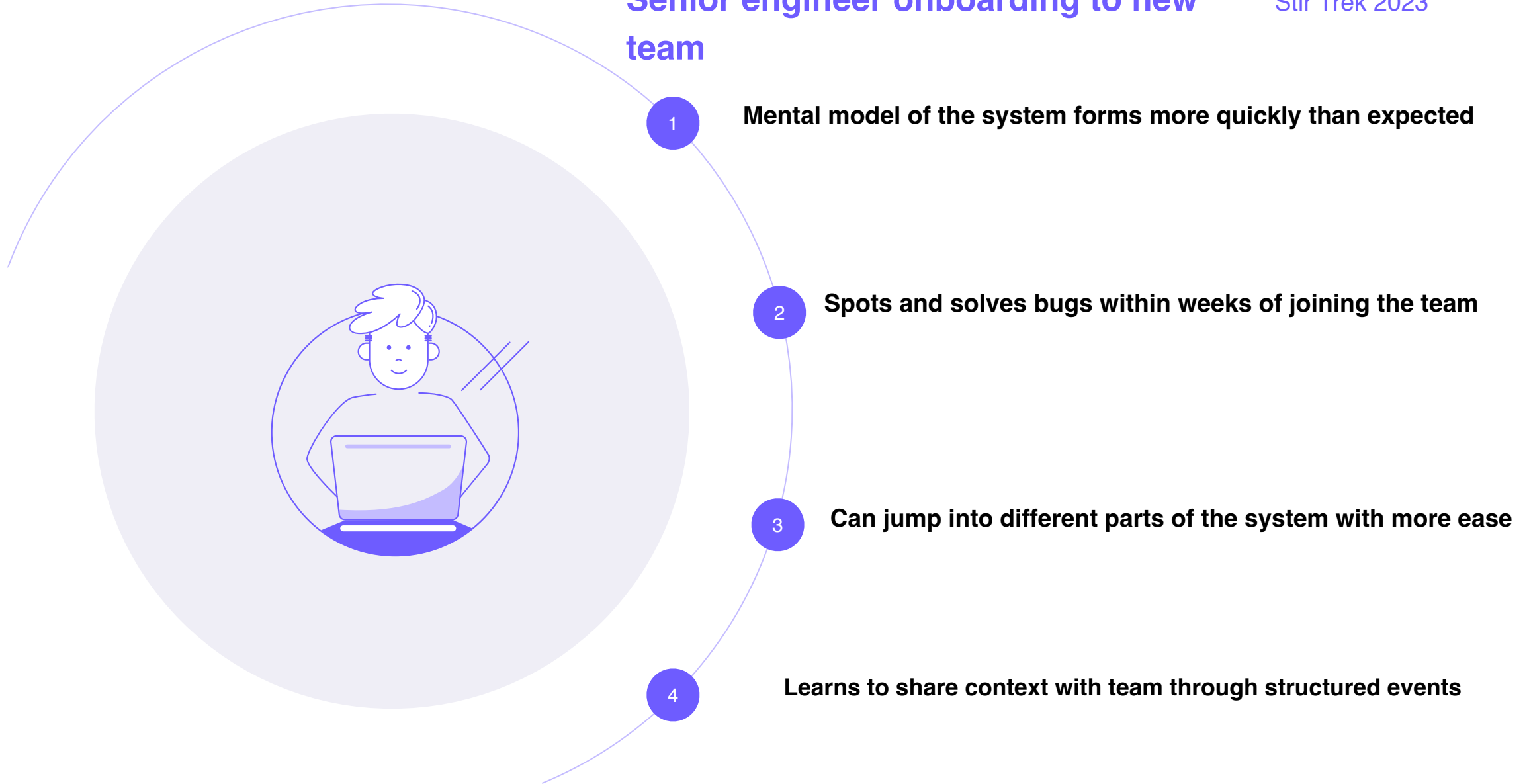




Everyone on the  
team benefits from  
observability

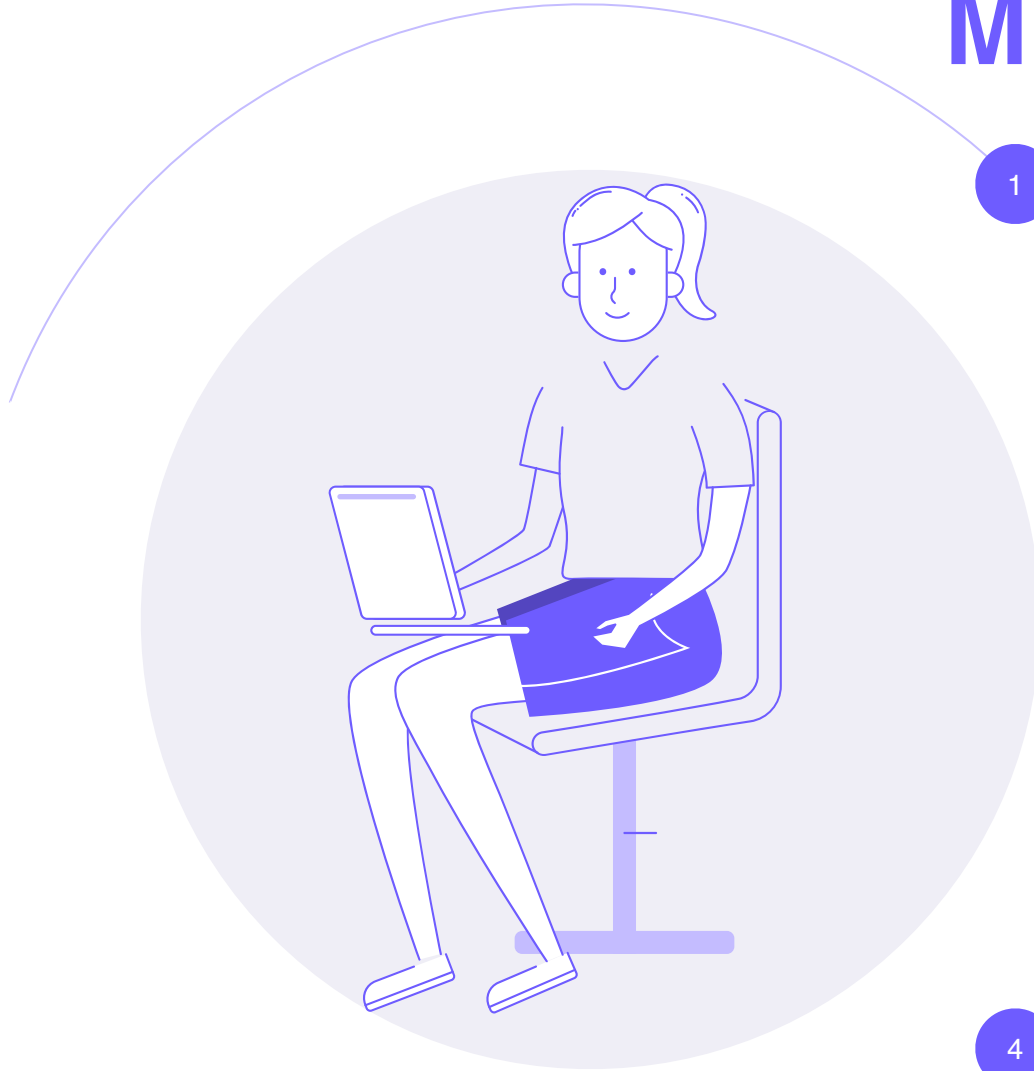
## Senior engineer onboarding to new team

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# Mid-level engineer

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1

**Empowered to jump into debugging**

2

**Keeps up with the senior engineers around her resolving bugs and outages**

3

**Levels up more quickly than on previous teams**

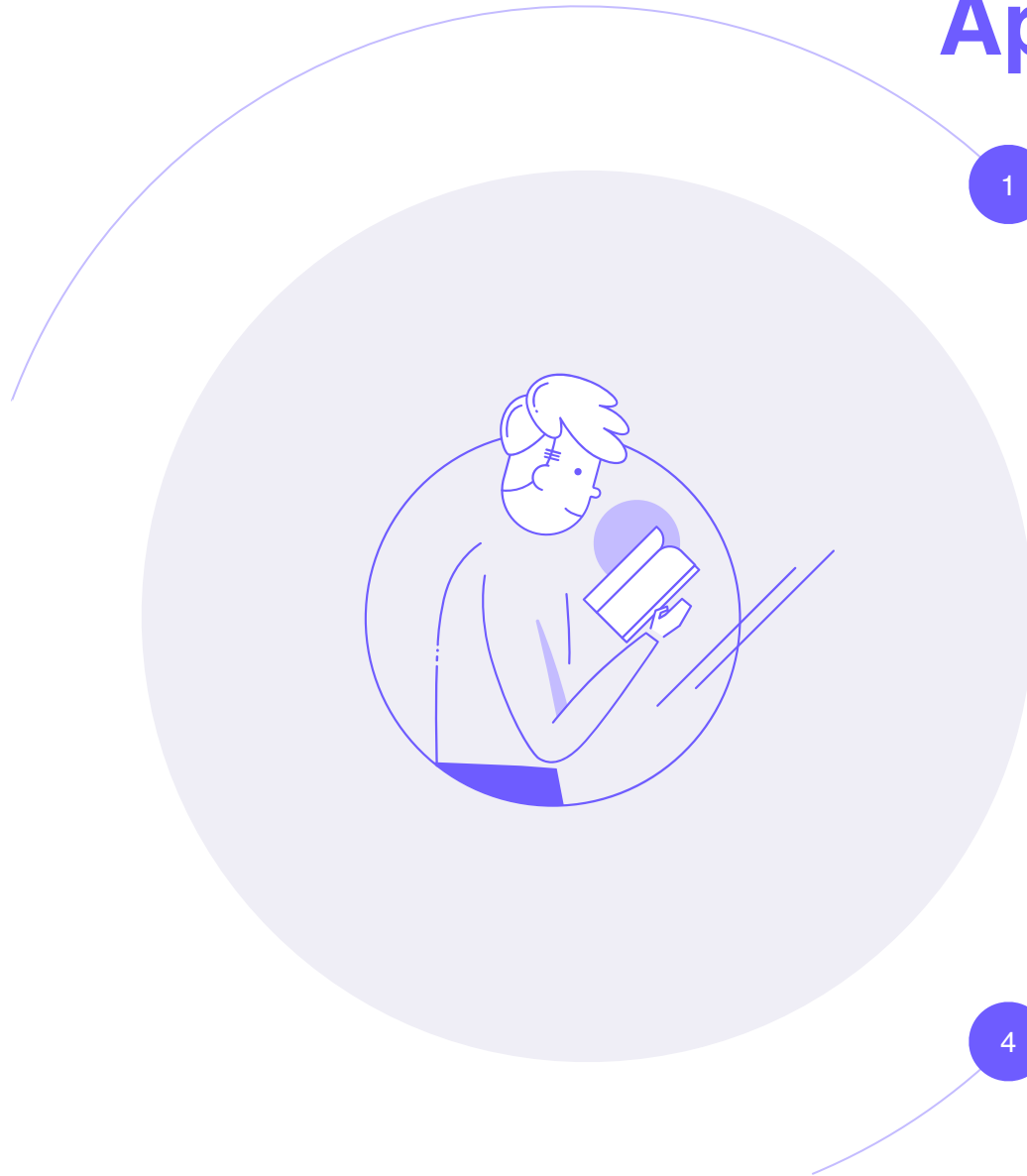
4

**Gains context from senior engineers**



# Apprentice engineer

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1

**Graphs and waterfall traces help him visualize the system**

2

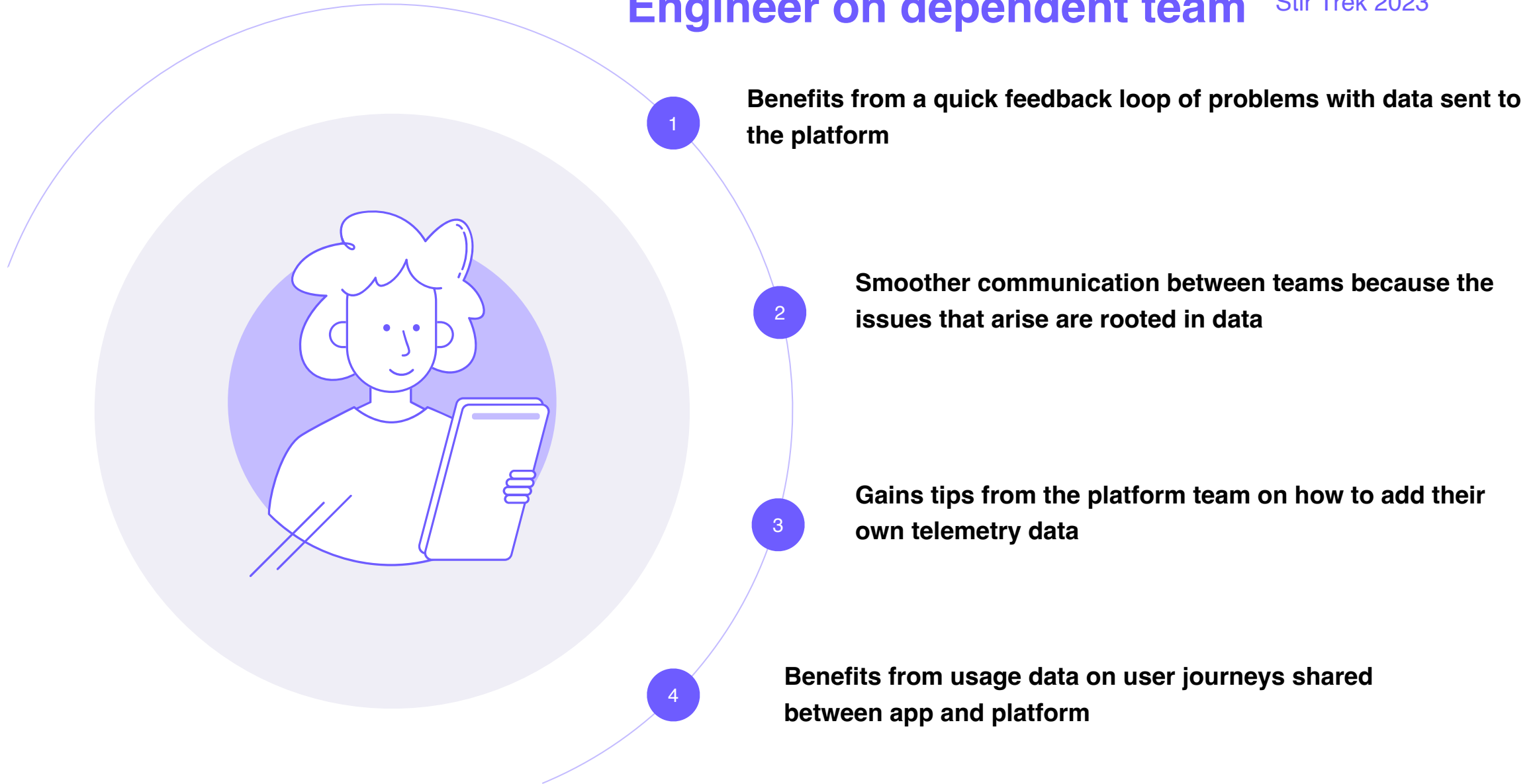
**Explores system telemetry data and asks endless questions through queries to satisfy curiosity**

3

**Learns by watching team members debug using telemetry data**

4

**Roots questions he might have in telemetry data to show what he knows happened and where the gap is**



# Takeaways

- Structured events are the foundation of observability
- Observability becomes a superpower when engineering teams successfully embed practicing it into their team processes
- Observability benefits everyone on the team, not just the most senior engineers

# Resources

- <https://opentelemetry.io/docs/concepts/observability-primer/>
- <https://opentelemetry.io/registry/>
- [Accelerate: Building and Scaling High-Performing Technology Organizations](#)

**Thank you  
for  
attending!**



**Any questions?**

@codegirlbrooke

