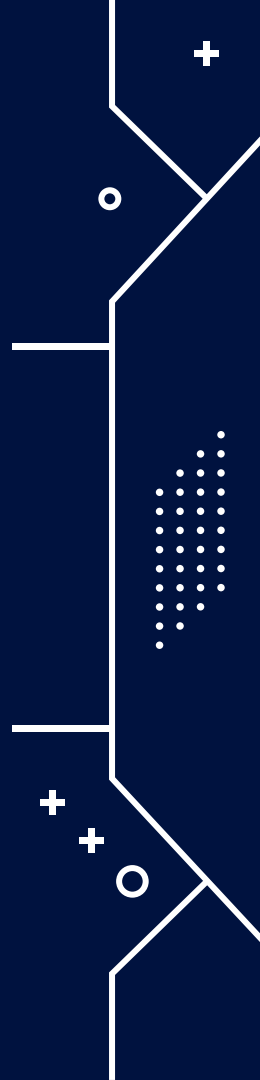
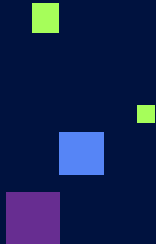


# Maintaining Builds at Scale





# Speakers



**Sam Snyder**

Vice President Of Engineering at  
Moderne, Inc

- First adopted Gradle at version 2.14
- Former Gradle Developer Advocate

 [sambsnyder](#)

 [sambsnyd](#)



**Brian Demers**

Developer Advocate at Gradle, Inc

- Beekeeper
- Maven Fan!

 [bdemers](#)

 [bdemers](#)





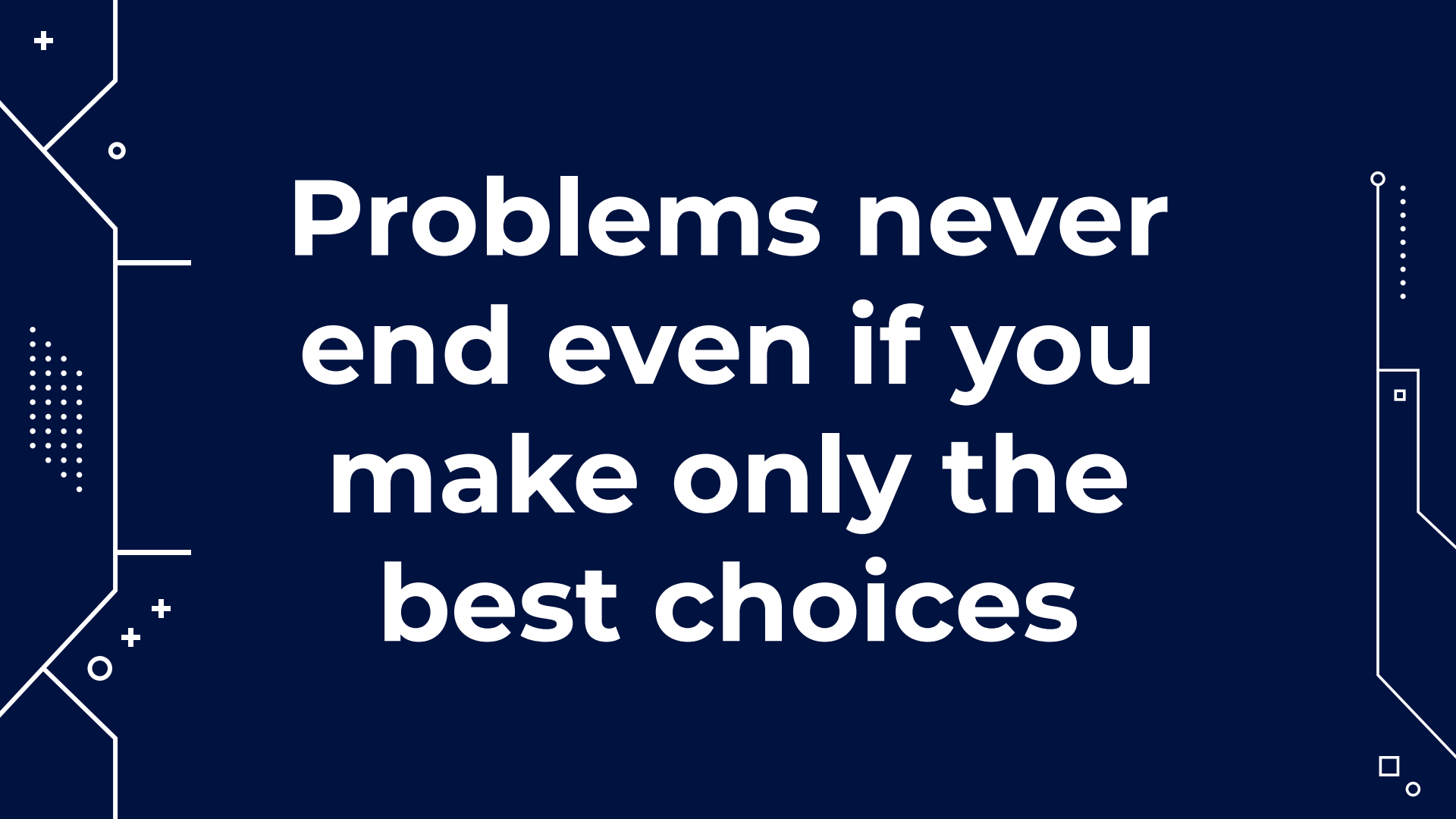
# Topics

- **The problems with scale**
- **Managing your software supply chain**
- **What is OpenRewrite**
- **Demos!**



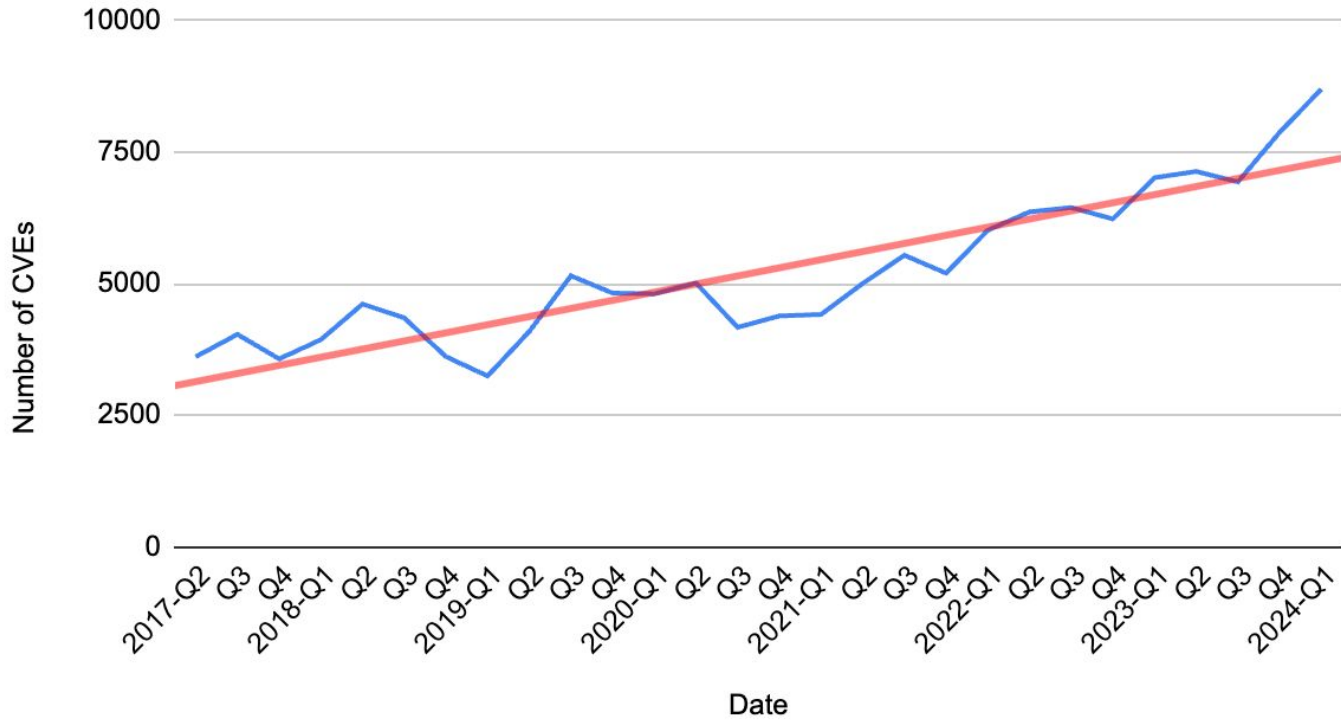
+ + +





**Problems never  
end even if you  
make only the  
best choices**

## Number of CVEs / Quarter





# Just use a bot!

## Dependabot is great

Easy to run into limitations

## Falls short when code changes are needed

Update to JUnit 5, Spring Boot 2 to 3

## What about dead libraries?

Move from Javax to Jakarta





# What is OpenRewrite



# OpenRewrite

- **Open source (Apache 2)**
- **Parsers turn source into LSTs**
- **Recipes manipulate LSTs to effect change**
- **Maven and Gradle plugins**



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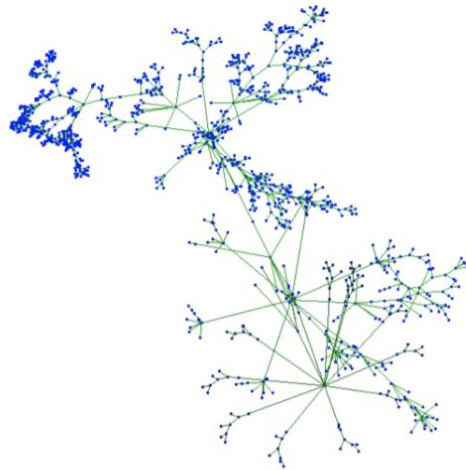


# Structured representation facilitates transformation

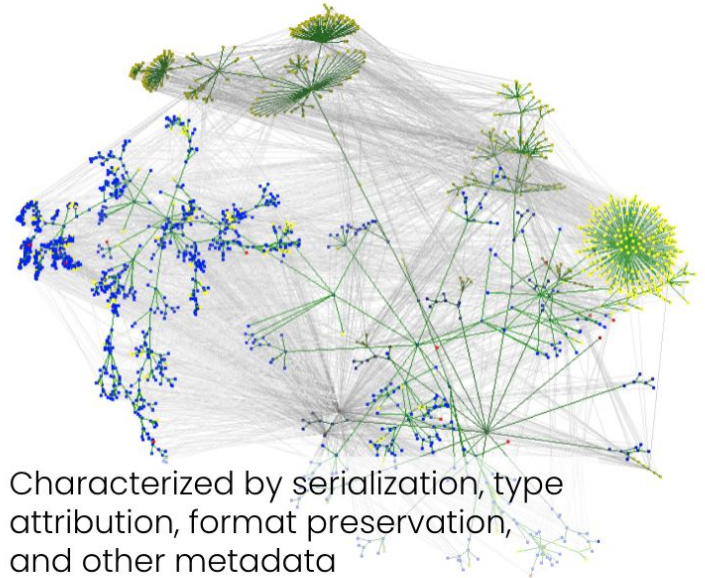
## Text-based search

```
void m() {  
  if(c > 2) {  
    x = c;  
  }  
  while(c < 10) {  
    x += p();  
    c++;  
  }  
}
```

## Abstract Syntax Tree (AST)



## Lossless Semantic Tree (LST)



Characterized by serialization, type attribution, format preservation, and other metadata

+ another 600,000 nodes that didn't fit in this graphic



# Recipes



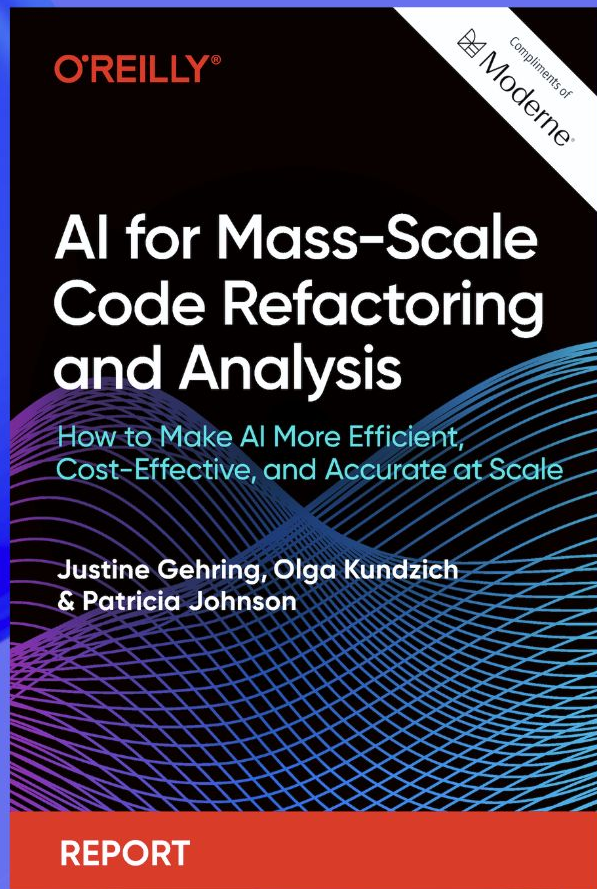
- **Preserve style & formatting**
- **Operate on both code and data**
- **Type-attributed LSTs allow high accuracy**
- **Transform, search, extract data**



+++

# Demos





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# Thank you!

Questions?

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