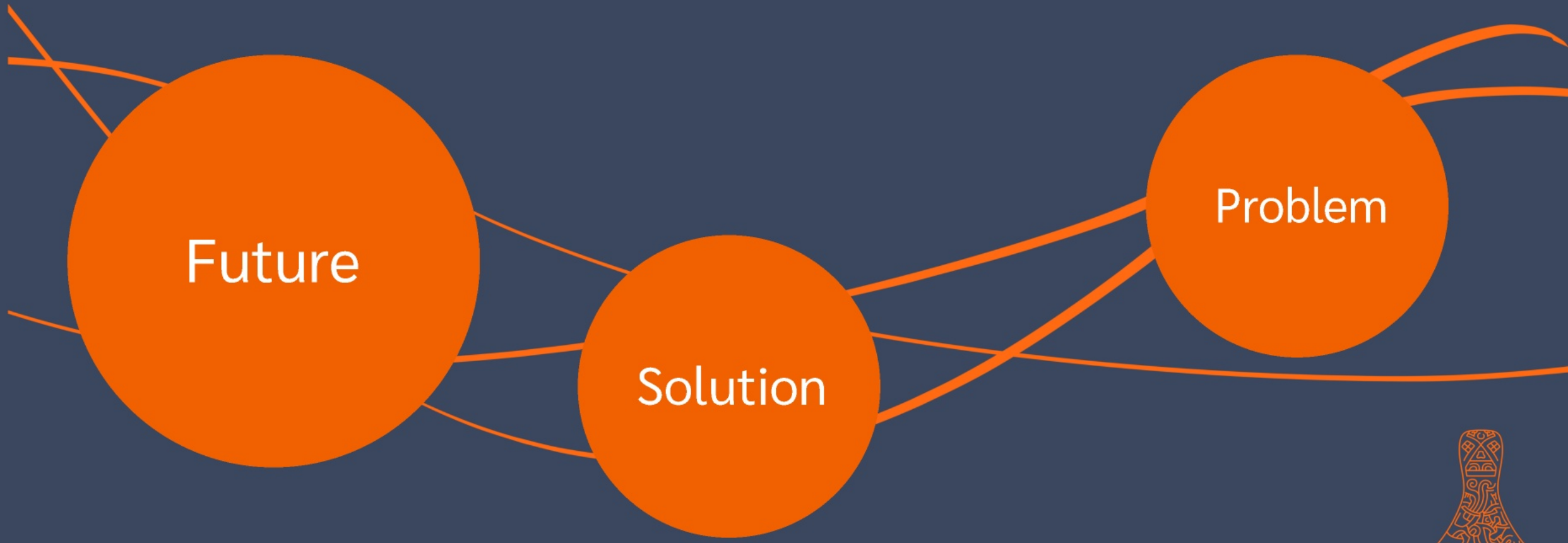
DYALOG

Static analysis of APL in APL

Brandon Wilson



Problem

Bugs

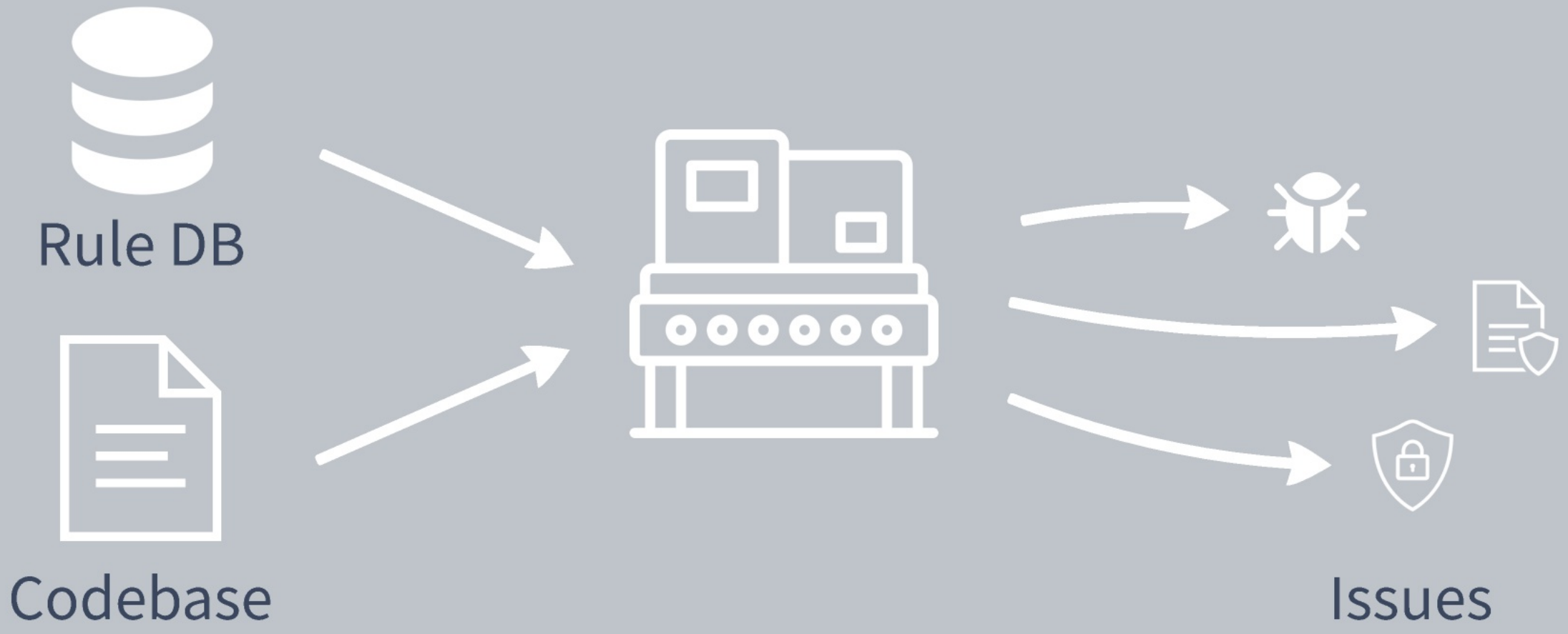
Policy

Security

Static Analysis

Challenges

Static Analysis



Problem

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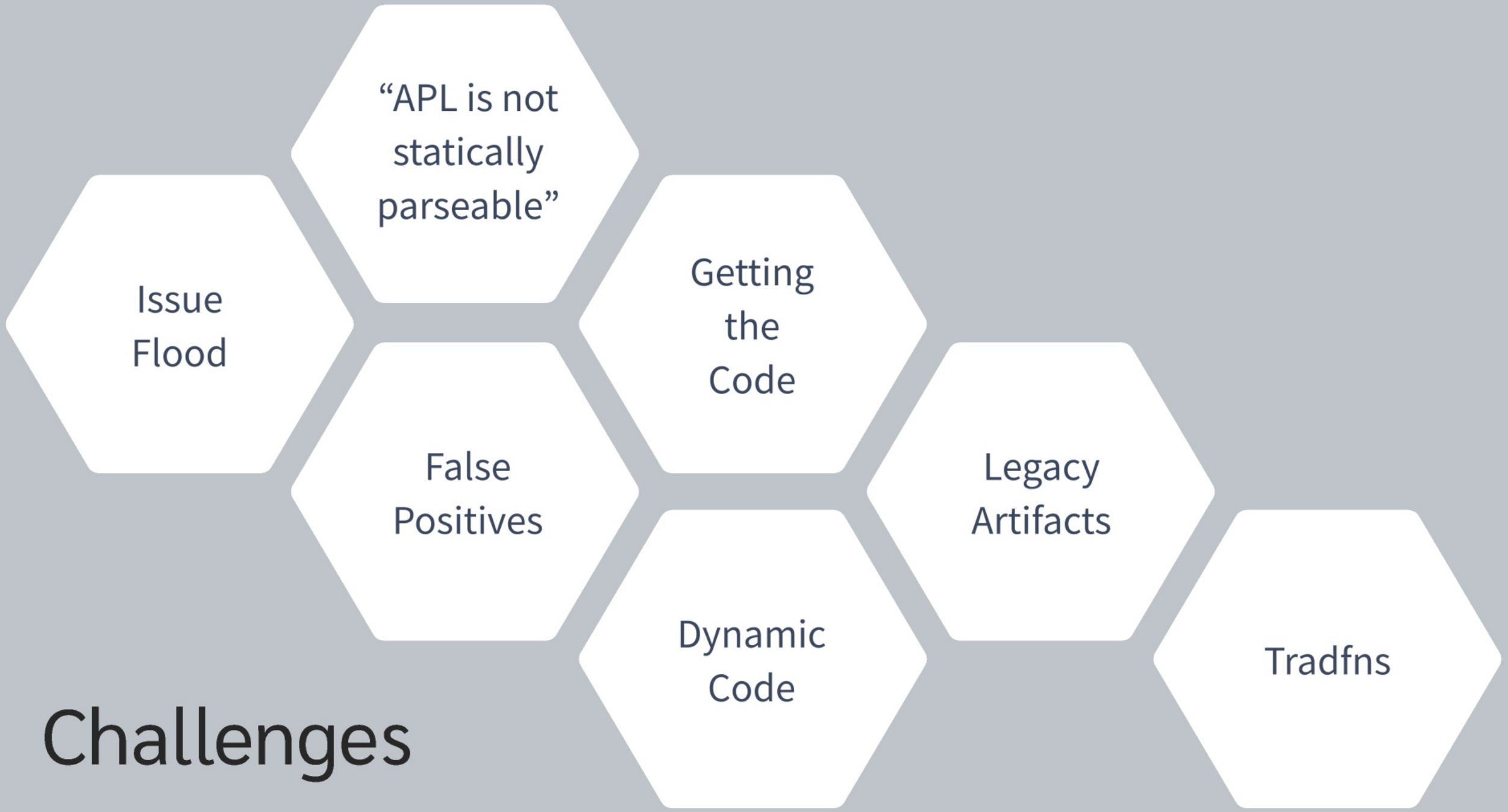
“APL is not statically parseable”
Issue Flood
Getting the Code
False Positives
Legacy Artifacts
Dynamic Code
Tradfns

Problem

Bugs

Policy

Security

Static Analysis

Challenges

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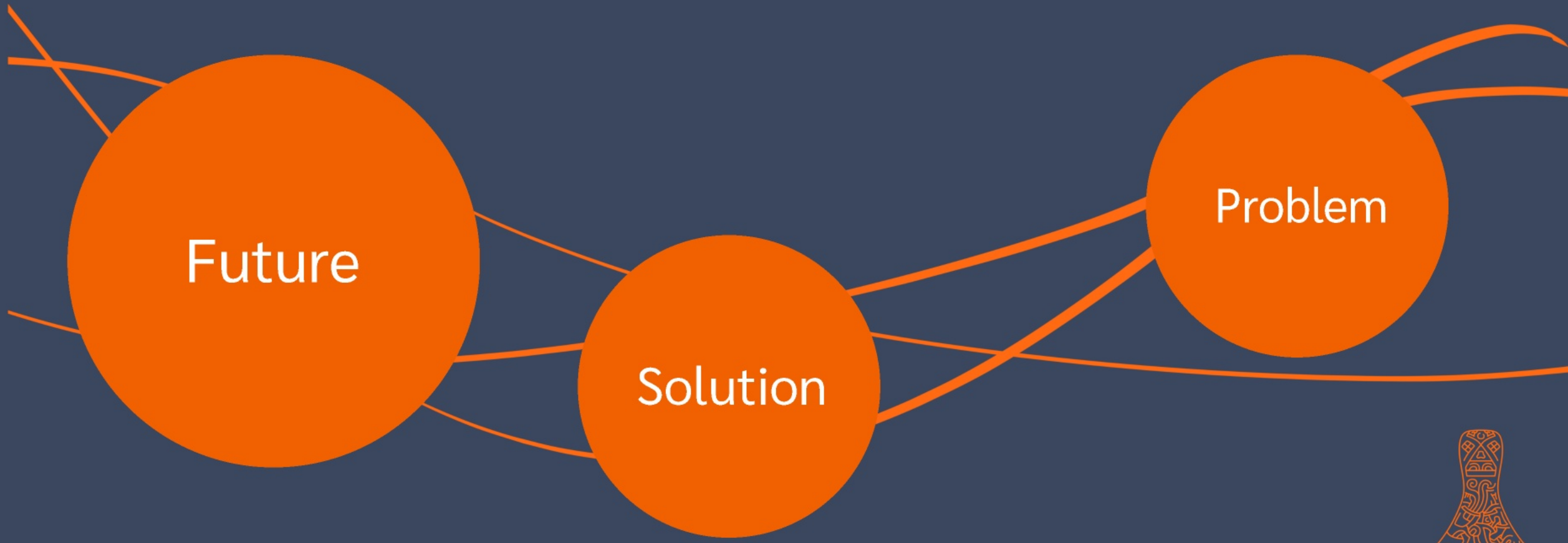


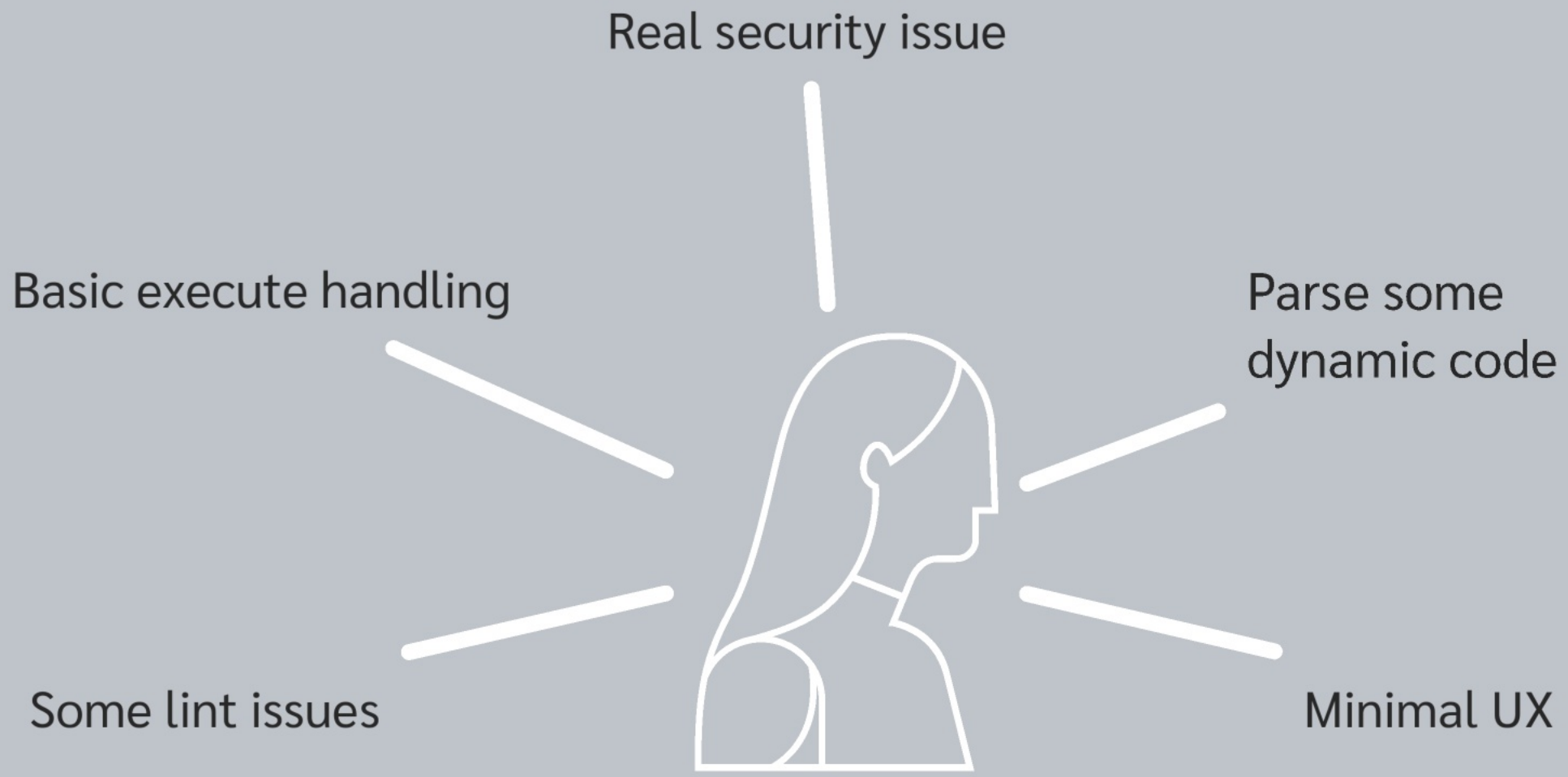
Solution

???

Initial Targets

Architecture

Look and Feel



Initial Targets

Solution

???

Initial Targets

Architecture

Look and Feel

Architecture

Solution

???

Initial Targets

Architecture

Look and Feel

Look and Feel

```
(t=Z)∧k=¯2
(⌊x∈0 1)<(t[p]=B)∧(k[p]=1)∧t[p[p[p]]=T
i←⍳(≠p)∧(t[p]=B)∧(k[p]=1)∧n∈-sym⍳'Password'
(t=A)∧(k=1)∧(≠p)<p=p[i]
```

```
⍝ Syntax error
⍝ New global variable crated in tradfn
⍝ Assignment to variable "Password"
⍝   with a literal
```

DSL?

Precision vs. Fragility?

Rule writing helpers?

Solution

???

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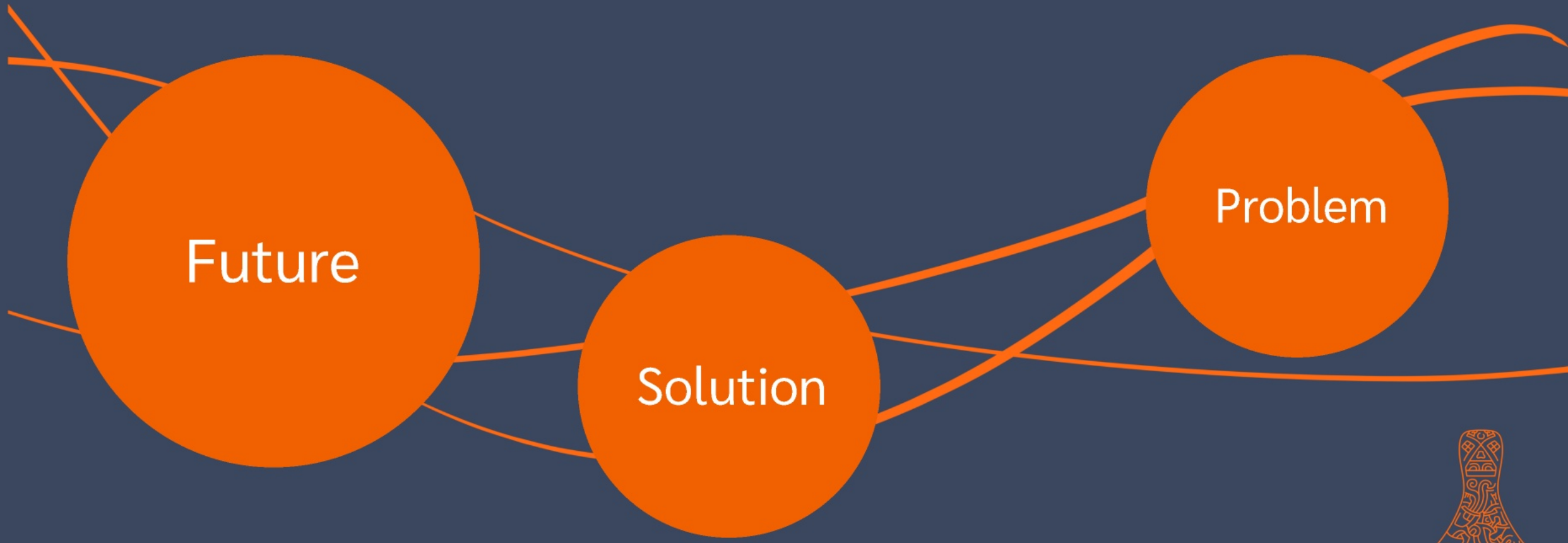
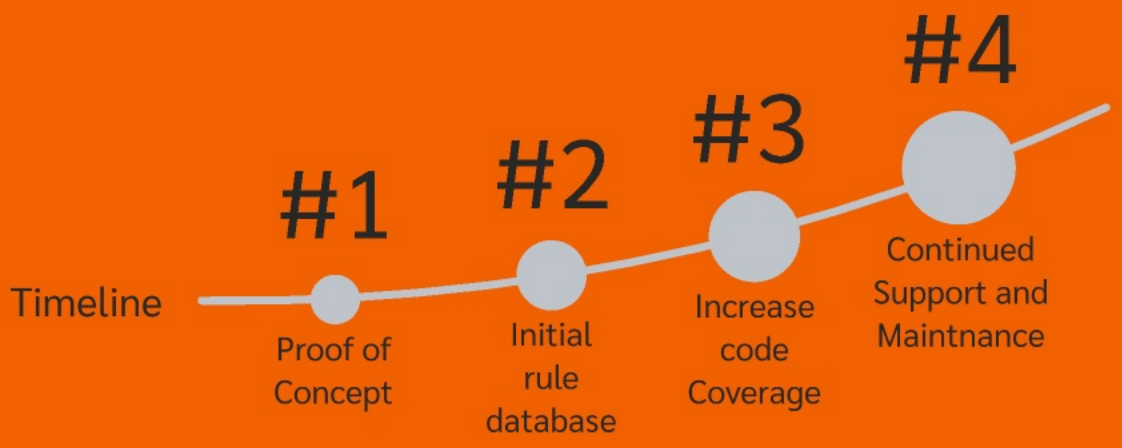


Future



Open Questions

Wants?

Open Questions

#1

Dynamic code handling strategies

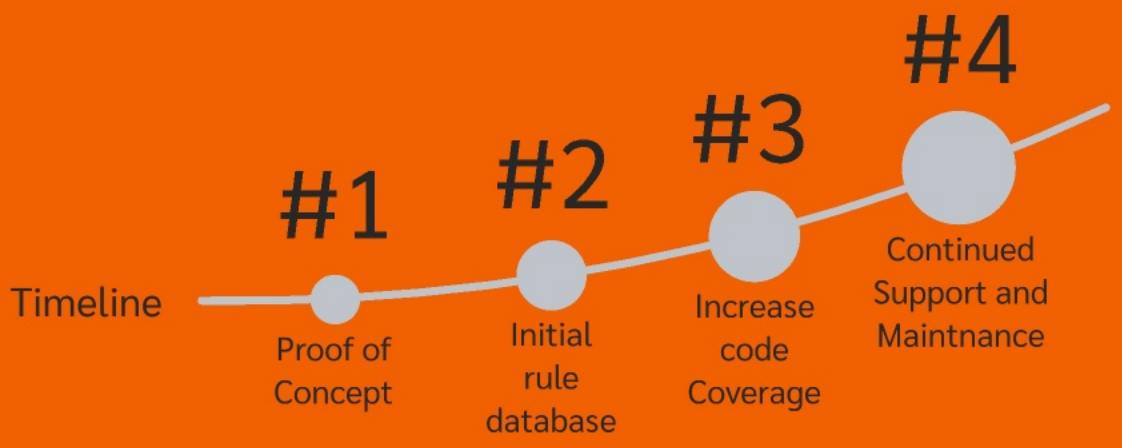
#2

How to ensure useful and easy-to-write rules

#3

Realistic constrainsts imposed by parser

Future



Open Questions

Wants?

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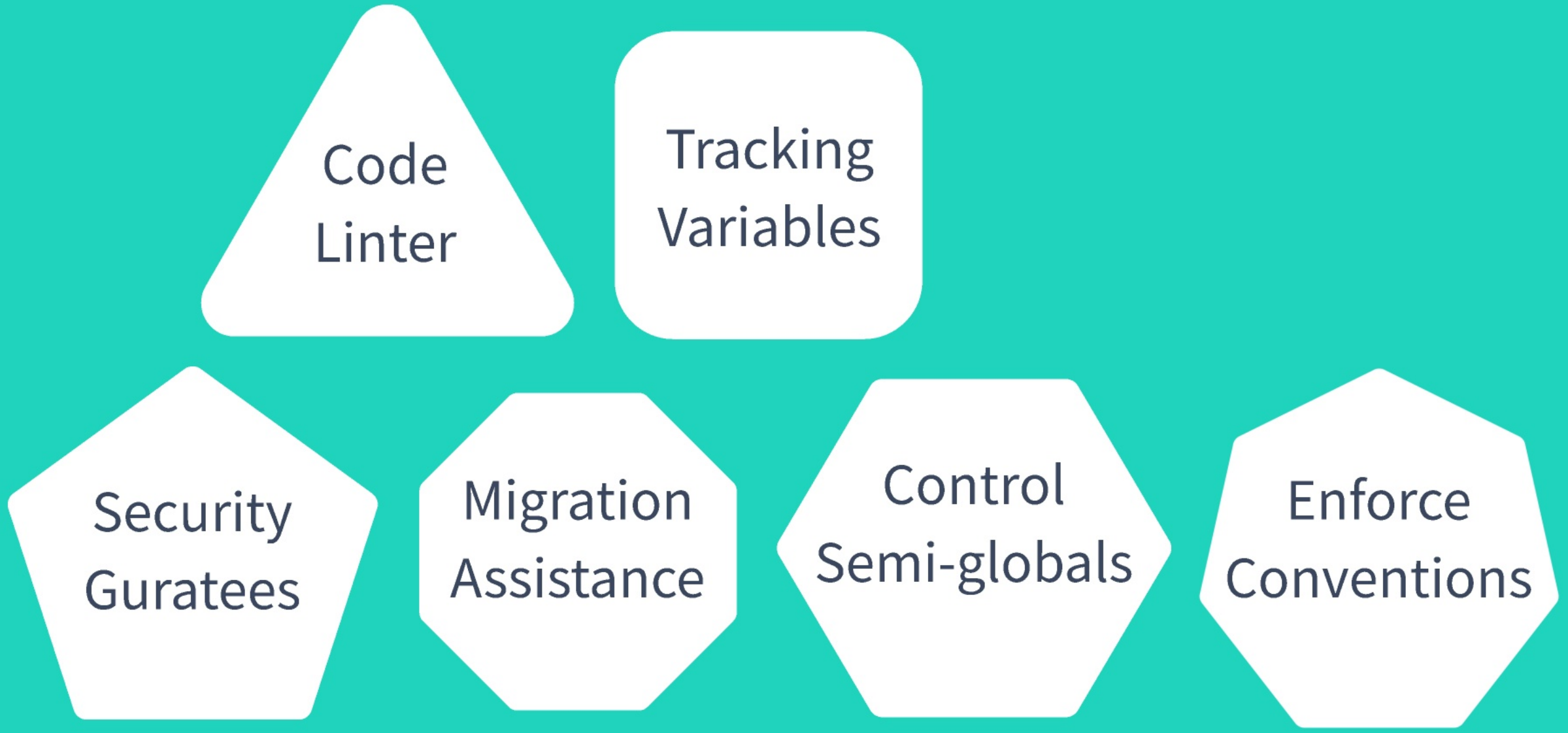
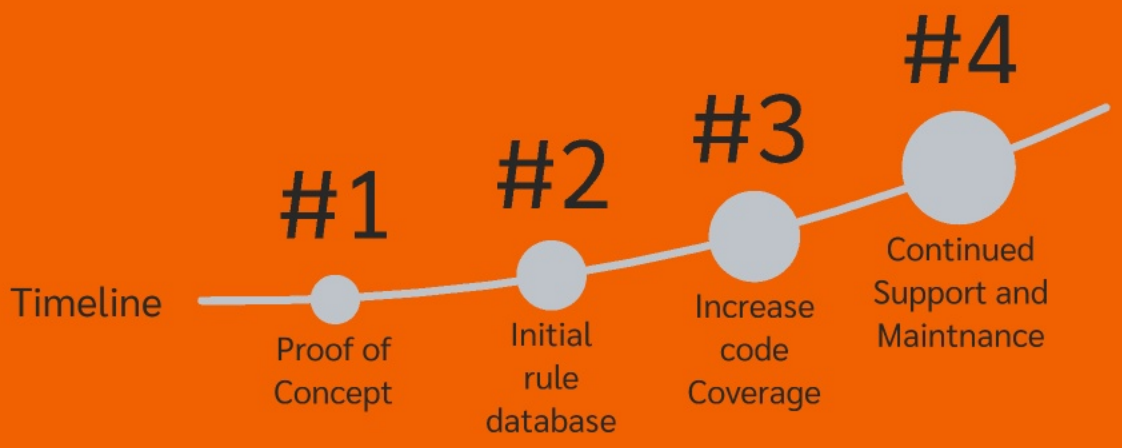

Code Linter
Tracking Variables
Security Guratees
Migration Assistance
Control Semi-globals
Enforce Conventions

Future

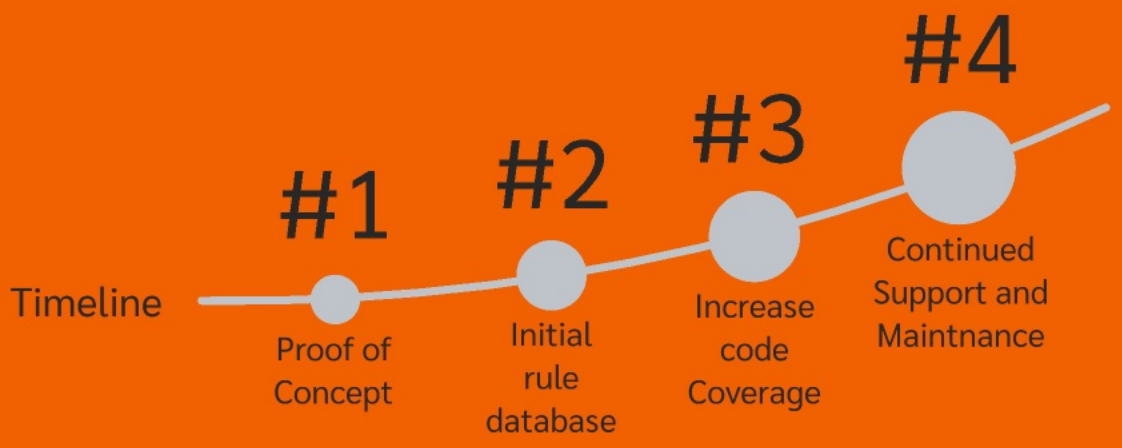


Open Questions

Wants?

Thank you

Future



Open Questions

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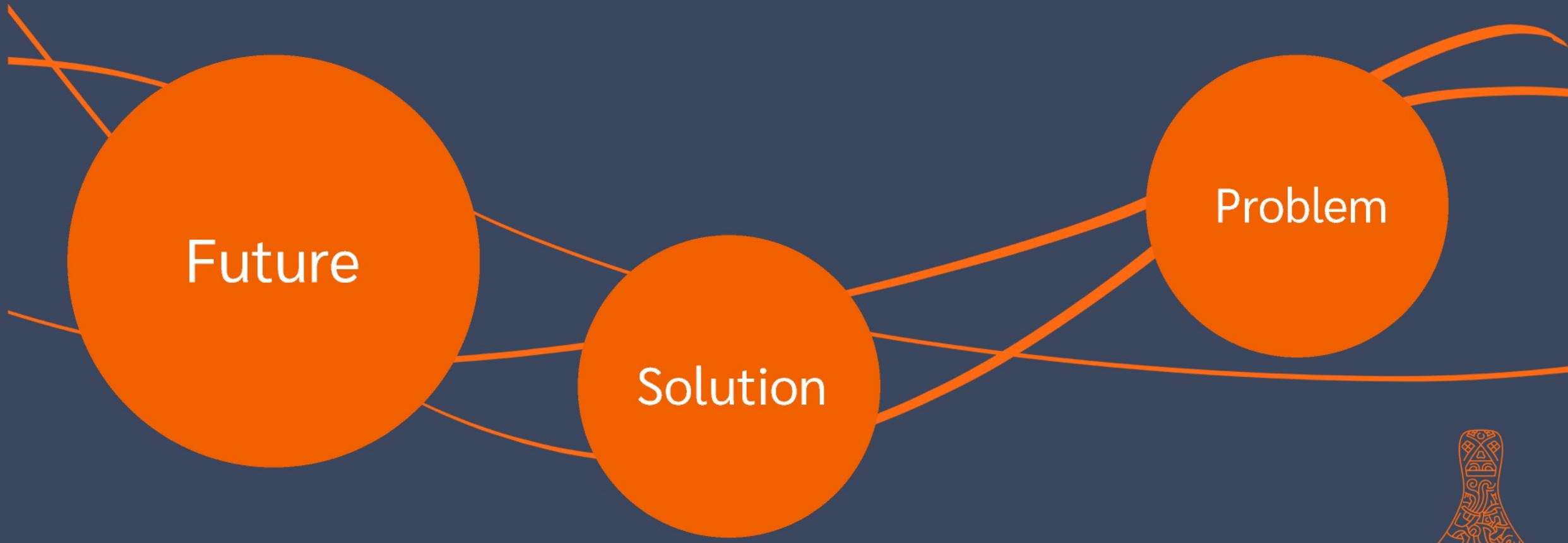
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