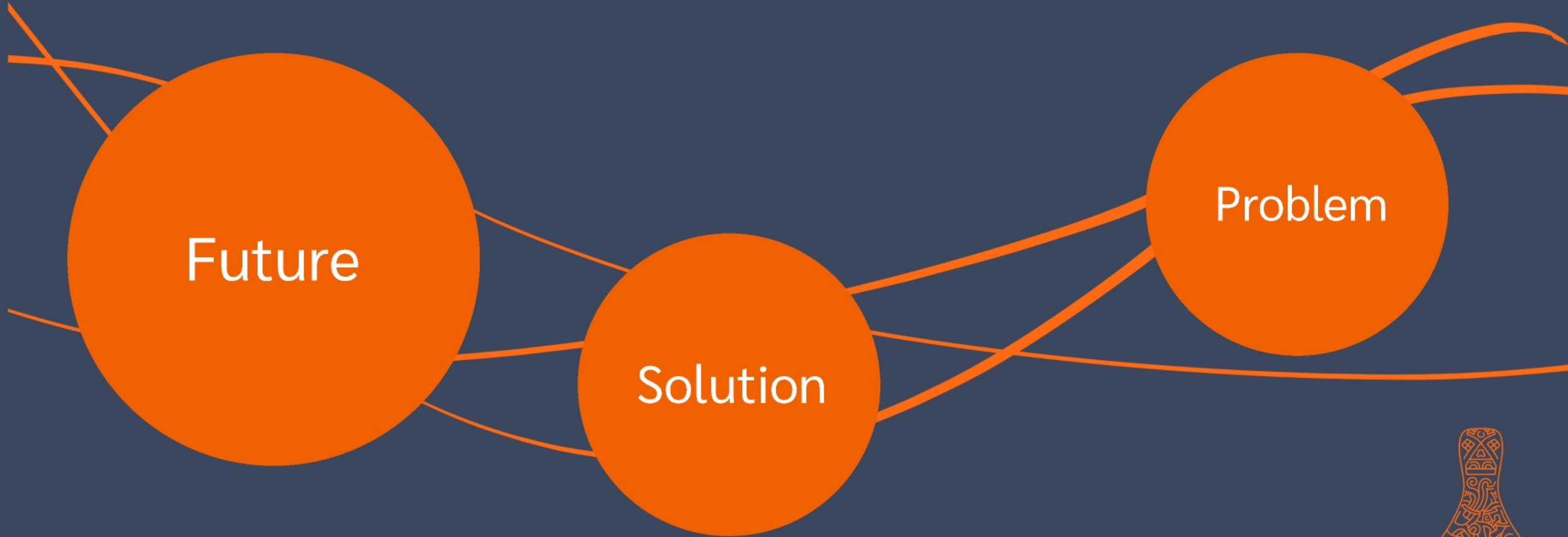


Static analysis of APL in APL

Brandon Wilson



Problem



Bugs



Policy

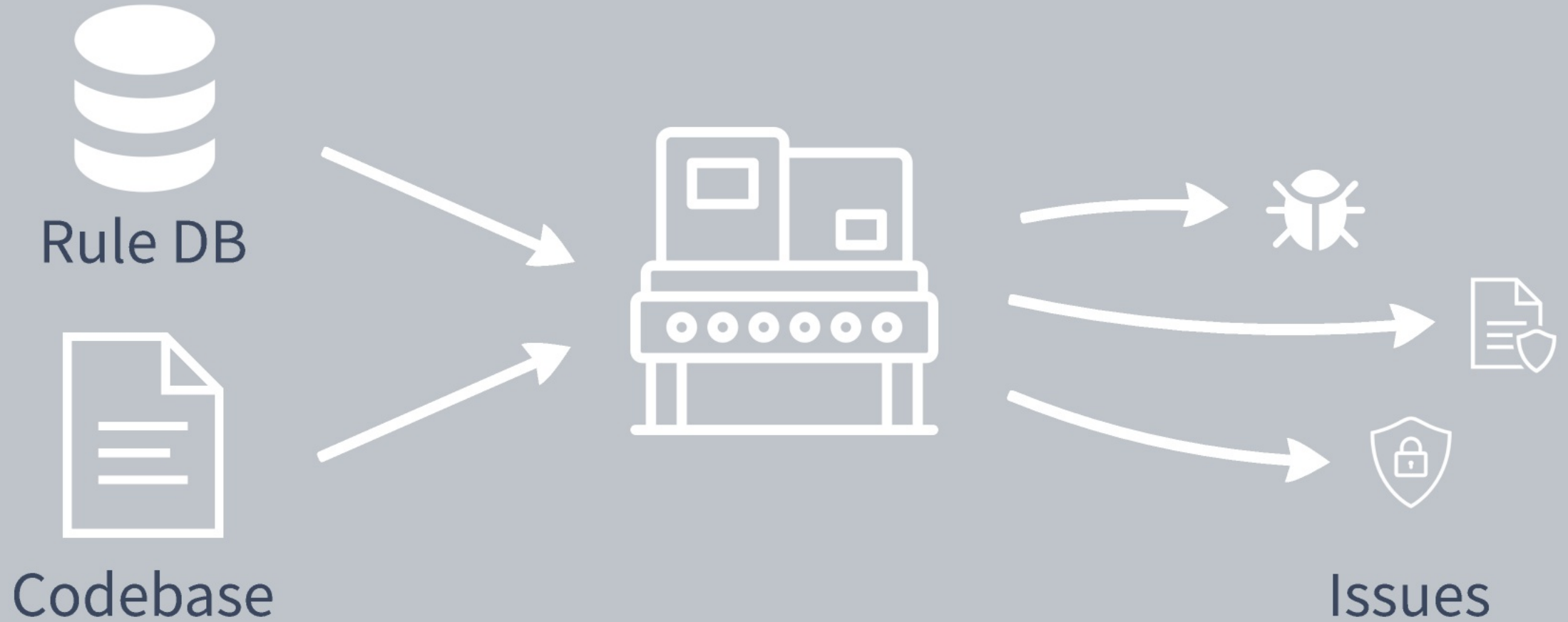


Security

Static Analysis

Challenges

Static Analysis



Problem



Bugs



Policy



Security

Static Analysis

Challenges

“APL is not
statically
parseable”

Issue
Flood

Getting
the
Code

False
Positives

Legacy
Artifacts

Dynamic
Code

Tradfns

Challenges

Problem



Bugs



Policy



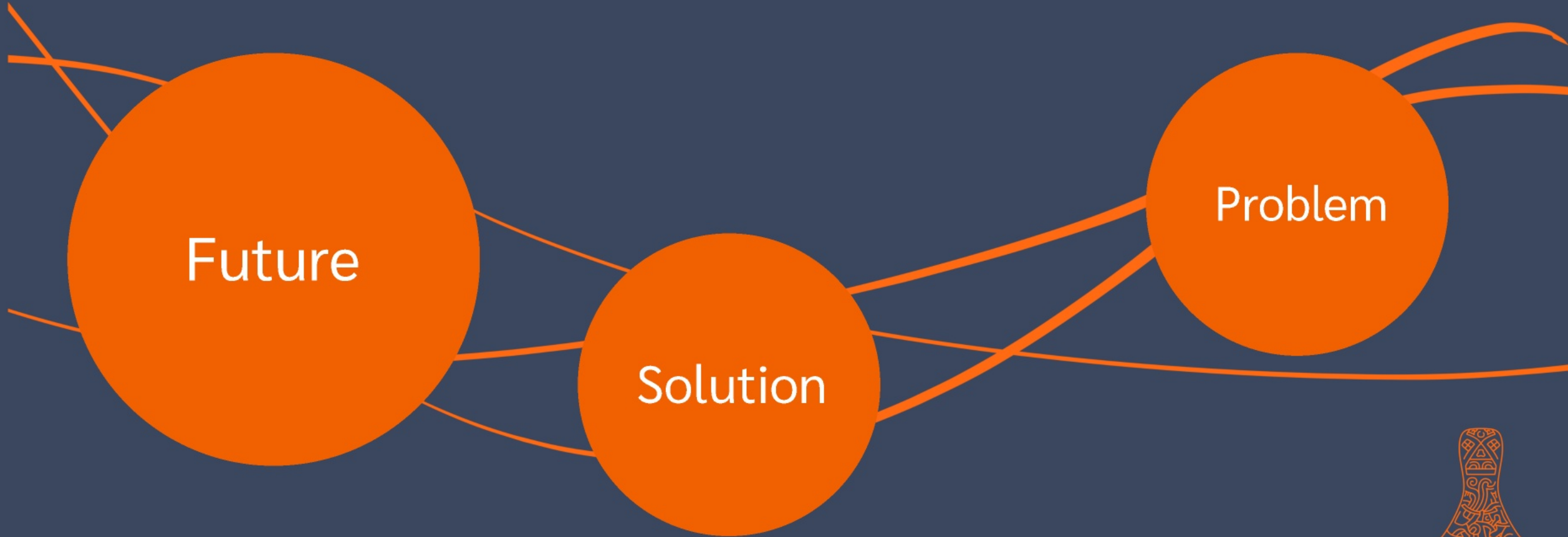
Security

Static Analysis

Challenges

Static analysis of APL in APL

Brandon Wilson



Solution

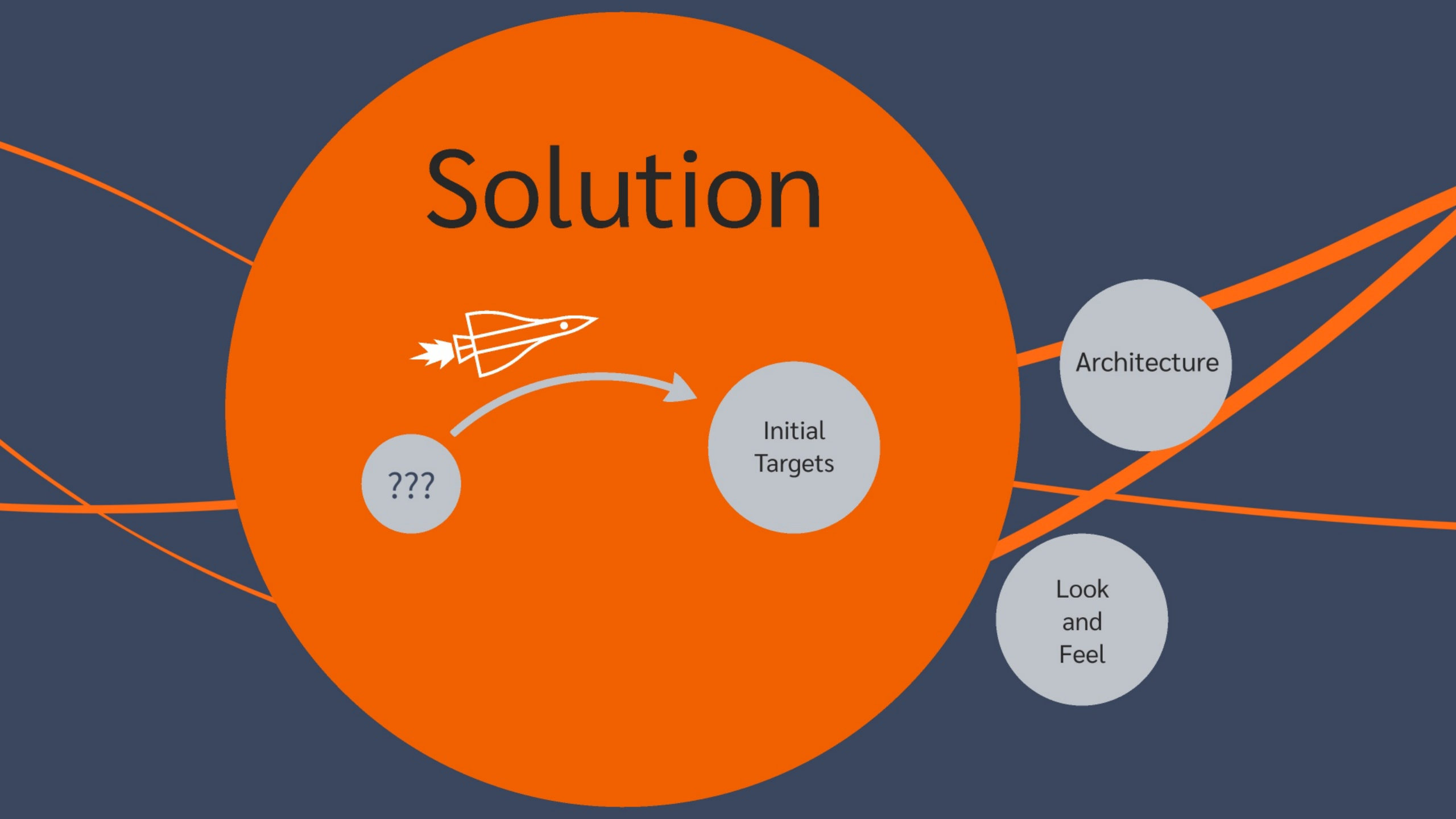


???

Initial
Targets

Architecture

Look
and
Feel



Real security issue

Basic execute handling

Parse some
dynamic code

Some lint issues

Minimal UX



Initial Targets

Solution

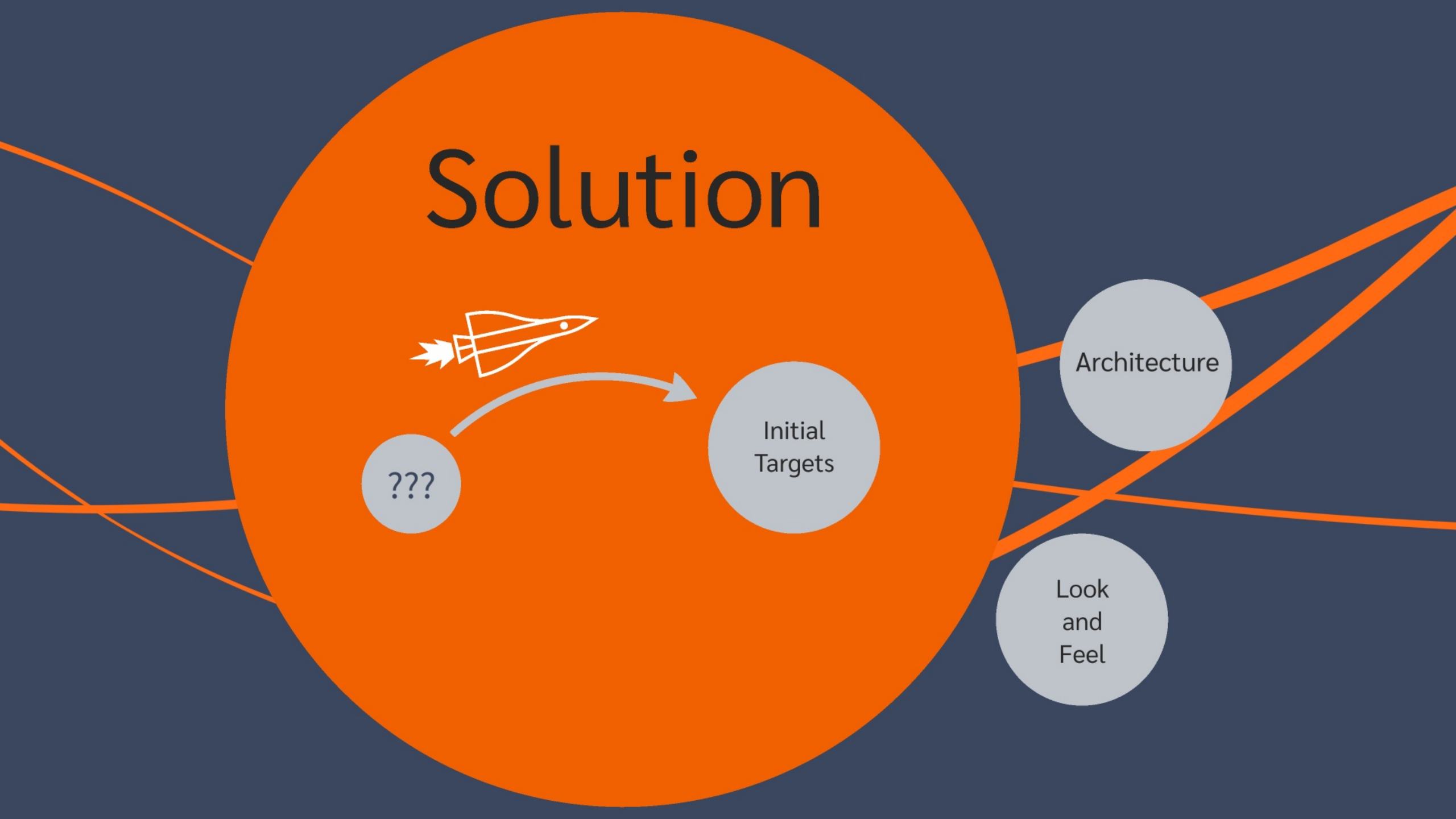


???

Initial
Targets

Architecture

Look
and
Feel



Architecture



Solution

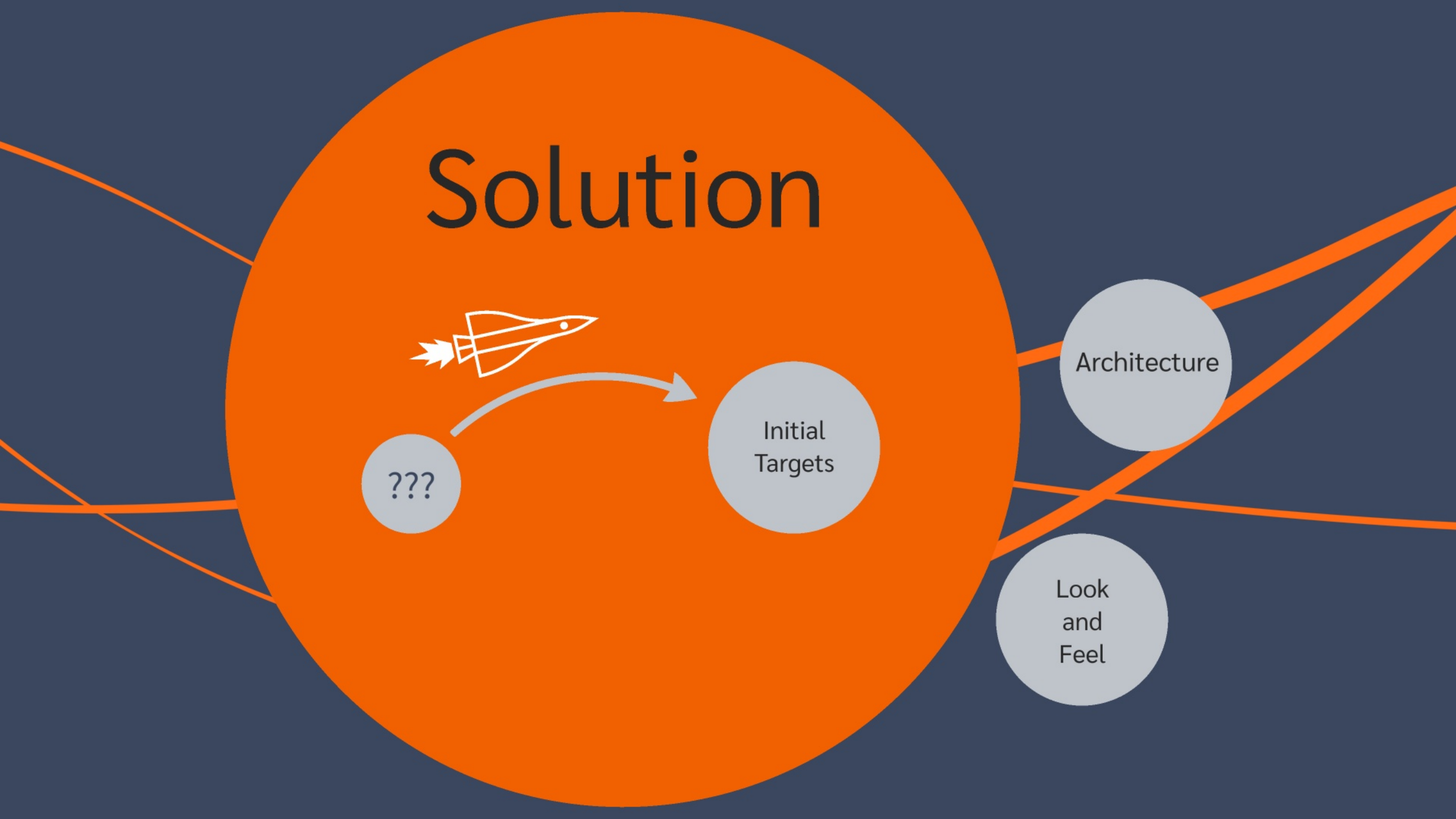


???

Initial
Targets

Architecture

Look
and
Feel



Look and Feel

```
(t=Z)^k=^-2
```

```
(lx∈0 1)<(t[p]=B)^(k[p]=1)^t[p[p[p]]=T
```

```
i←l(≠p)^(t[p]=B)^(k[p]=1)^n∈-sym: 'Password'
```

```
(t=A)^(k=1)^(≠p)<p=p[i]
```

A Syntax error

A New global variable crated in tradfn

A Assignment to variable "Password"

A with a literal

DSL?

Precision vs.
Fragility?

Rule writing
helpers?

Solution

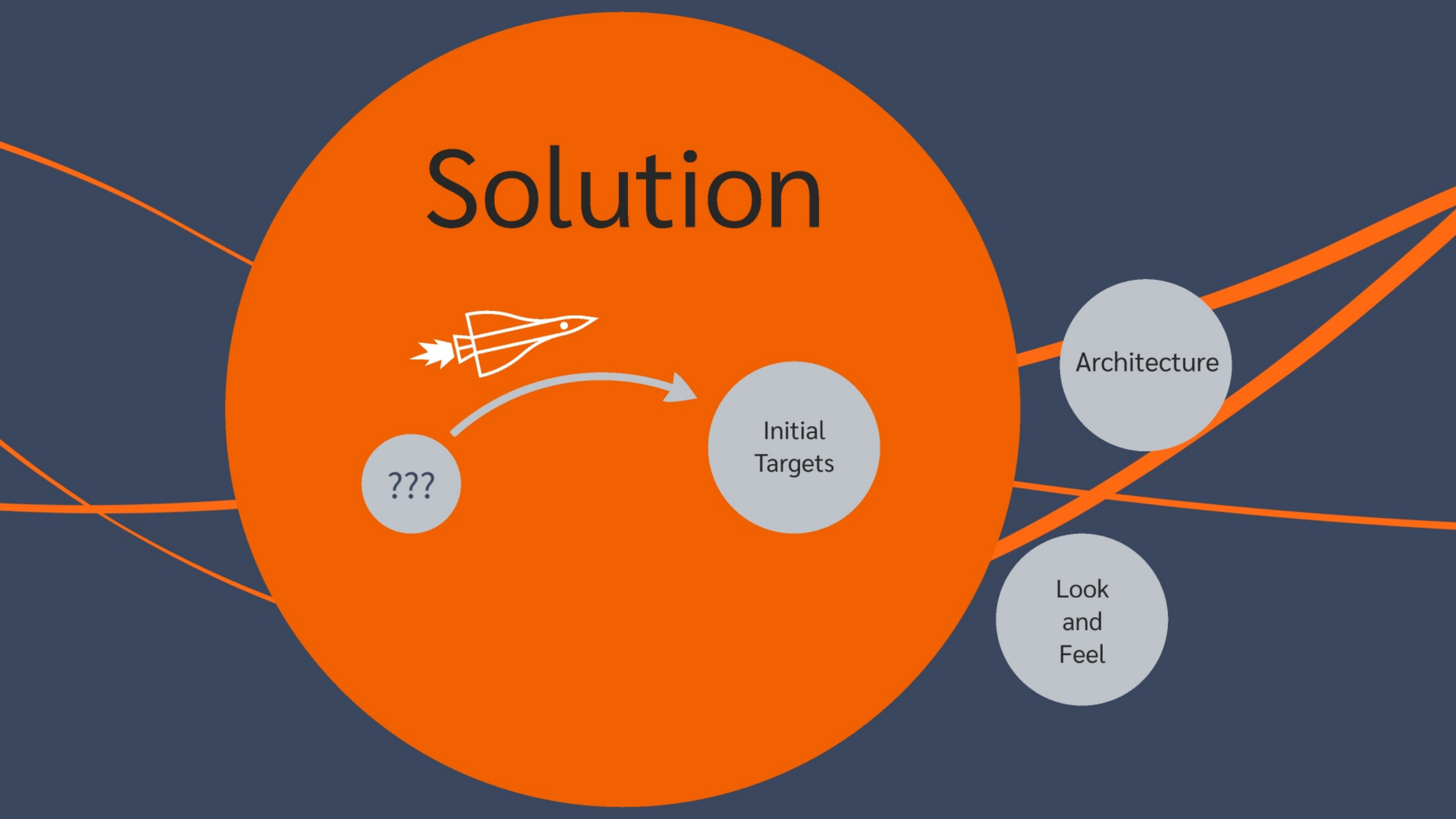


???

Initial
Targets

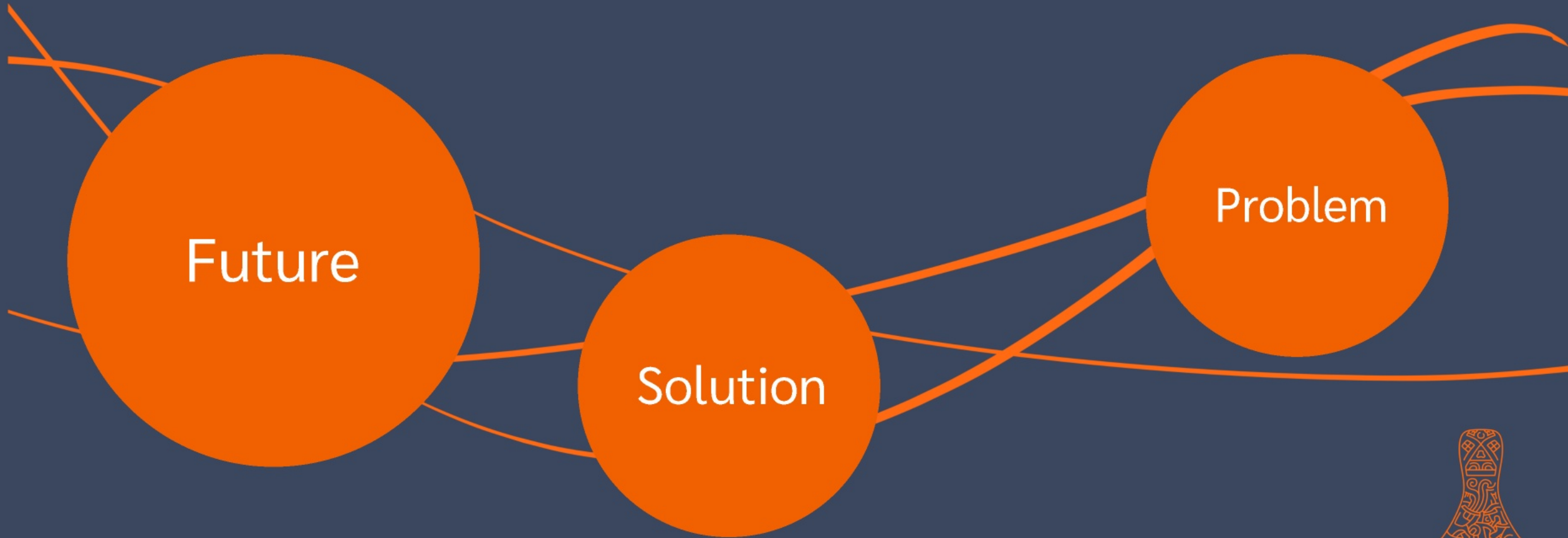
Architecture

Look
and
Feel

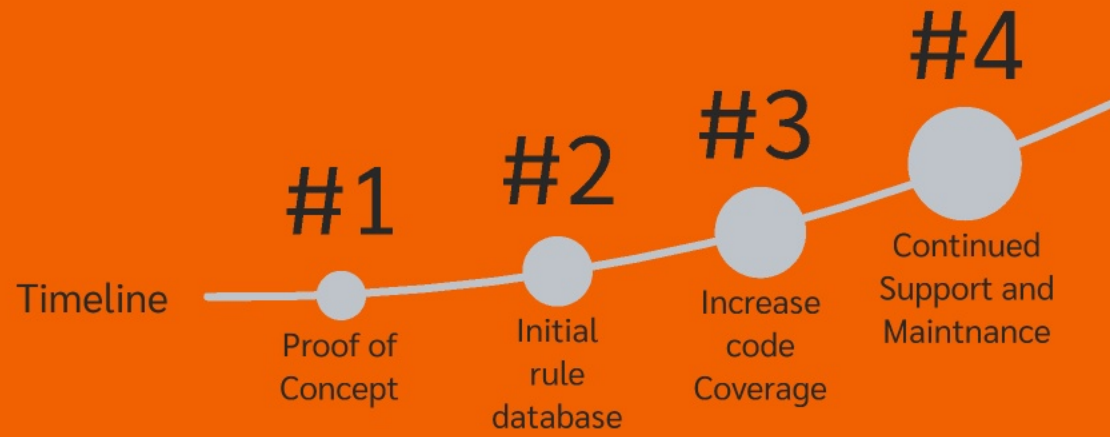


Static analysis of APL in APL

Brandon Wilson



Future



Open Questions

Wants?

Open Questions



#1

Dynamic code handling
strategies



#2

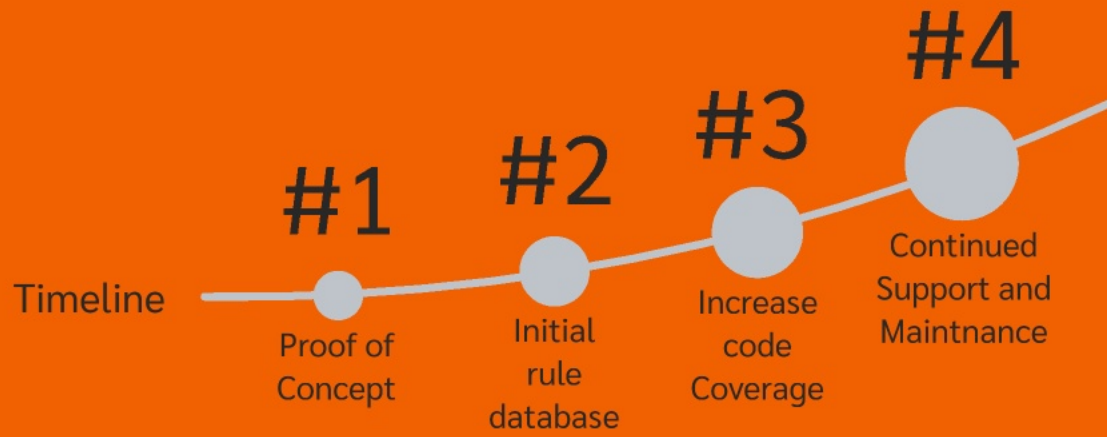
How to ensure useful and
easy-to-write rules



#3

Realistic constraints
imposed by parser

Future



Open Questions

Wants?

Wants?

Code
Linter

Tracking
Variables

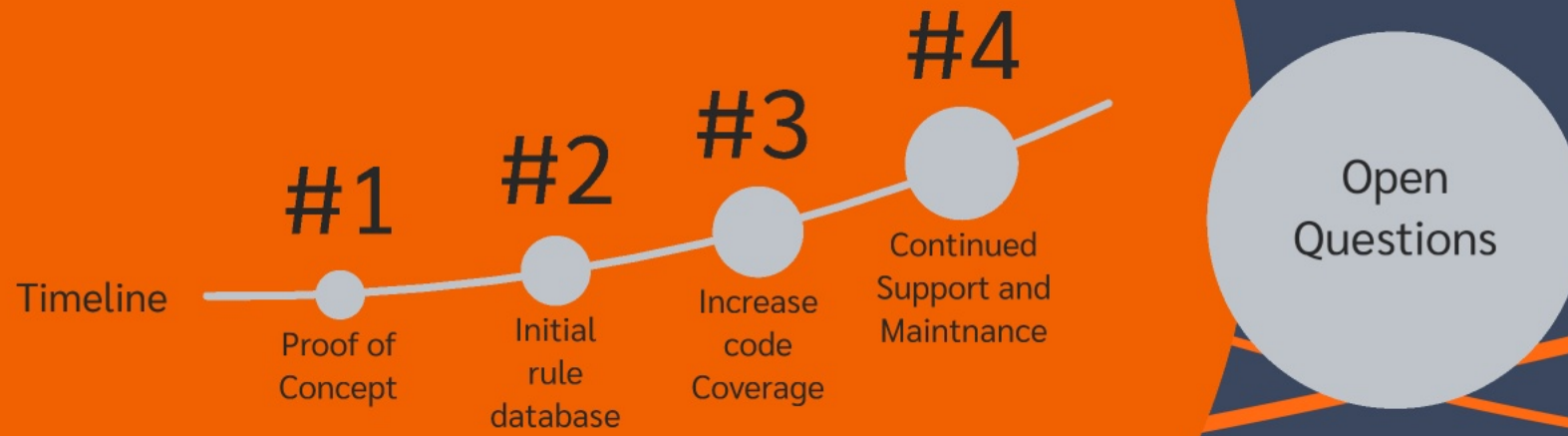
Security
Guarantees

Migration
Assistance

Control
Semi-globals

Enforce
Conventions

Future

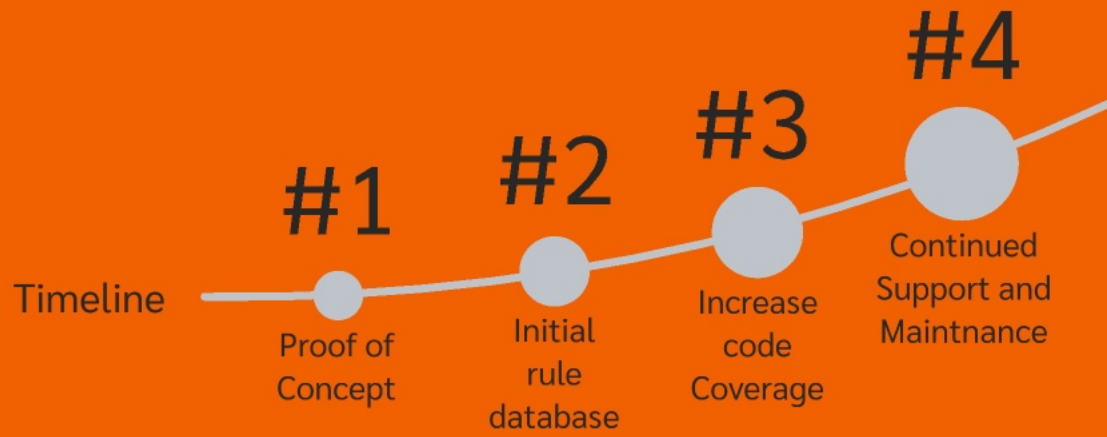


Wants?

A light gray circle is centered on a dark blue background. Several thick orange lines are scattered around the circle, some overlapping it and others extending to the edges of the frame. The lines are curved and appear to be part of a larger, abstract design.

Thank you

Future



Open Questions

Wants?

Static analysis of APL in APL

Brandon Wilson

