



StratoWeave
ORCHESTRATION PLATFORM

StratoWeave introduction

StratoWeave's raison d'être

Desirable capabilities

- Declarative / intent-based
- Model-driven
- Layered abstractions
- Reuseable services that span multiple domains and operating companies
- Telemetry, assurance & closed-loop logic

Challenge

**Automation has become
critical infrastructure**

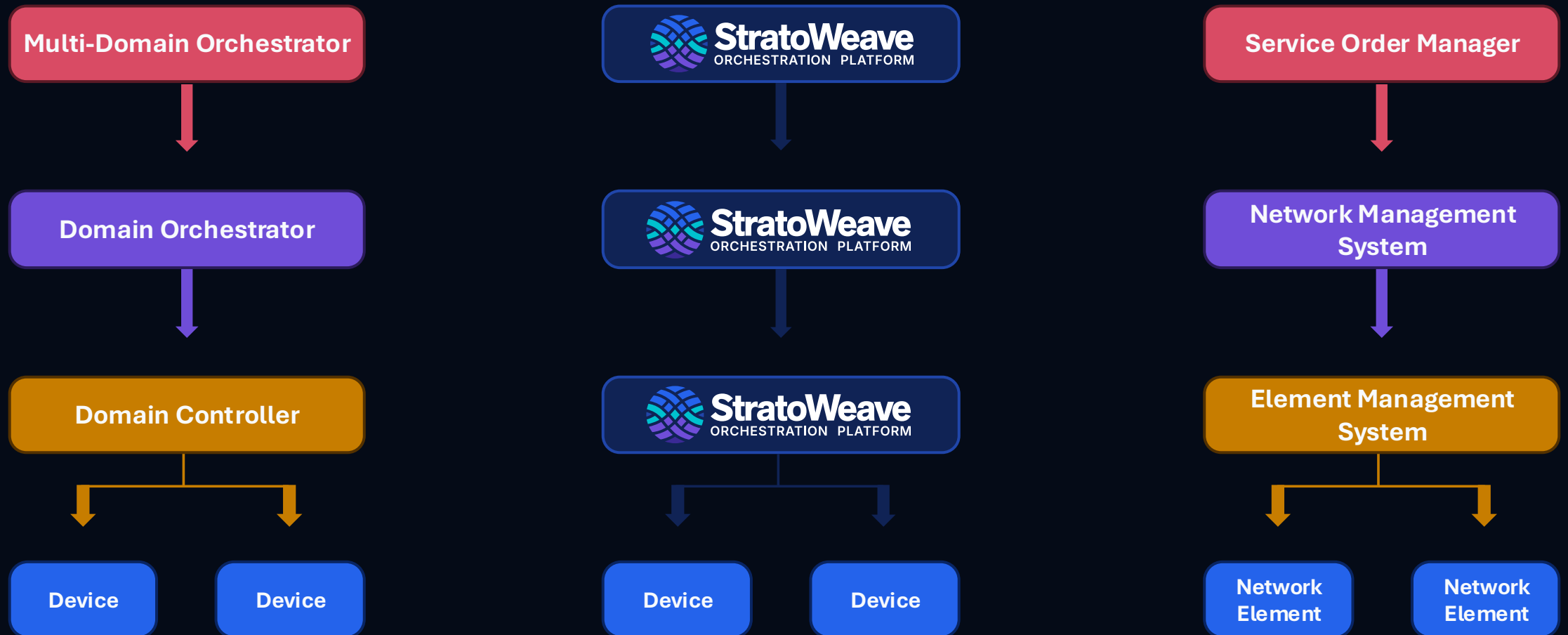
Previous constraints

- Per-device, per-instance, and feature-based pricing penalizes scale
- Custom development on proprietary platforms deepens lock-in
- Minimal roadmap influence

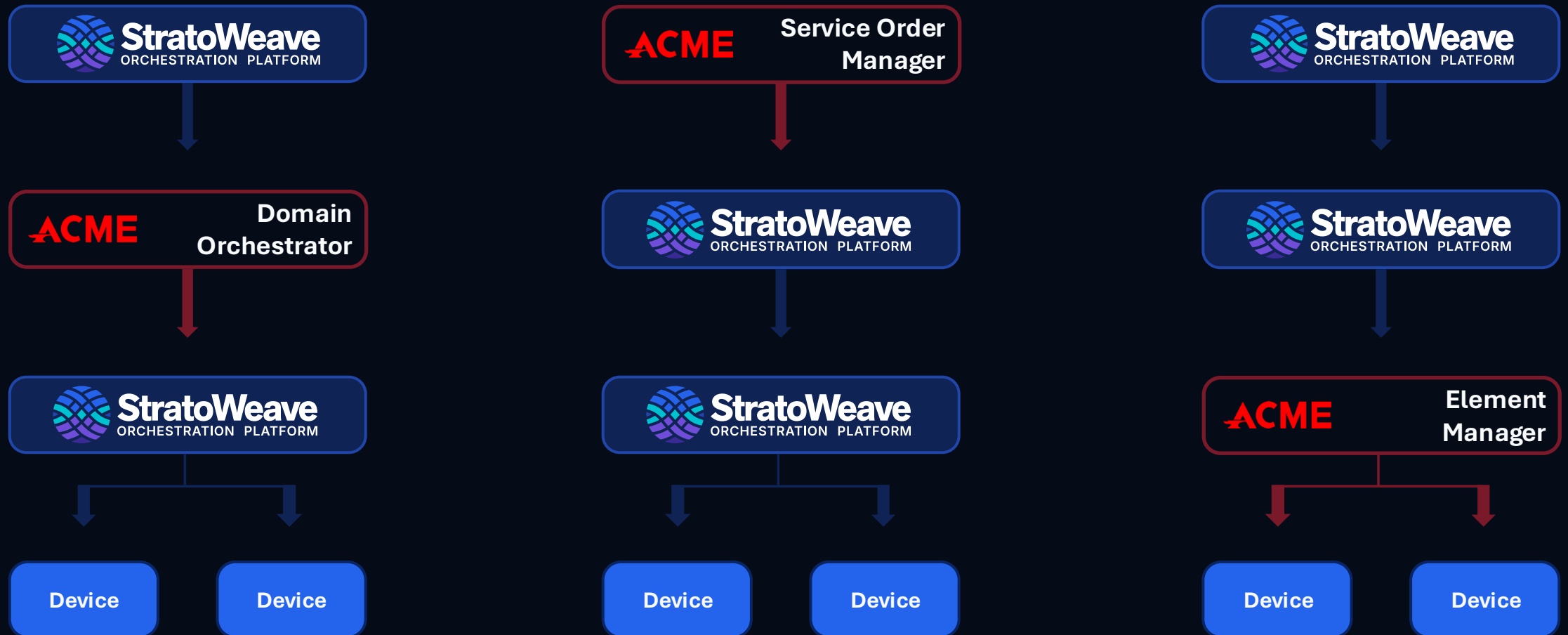
Opportunity

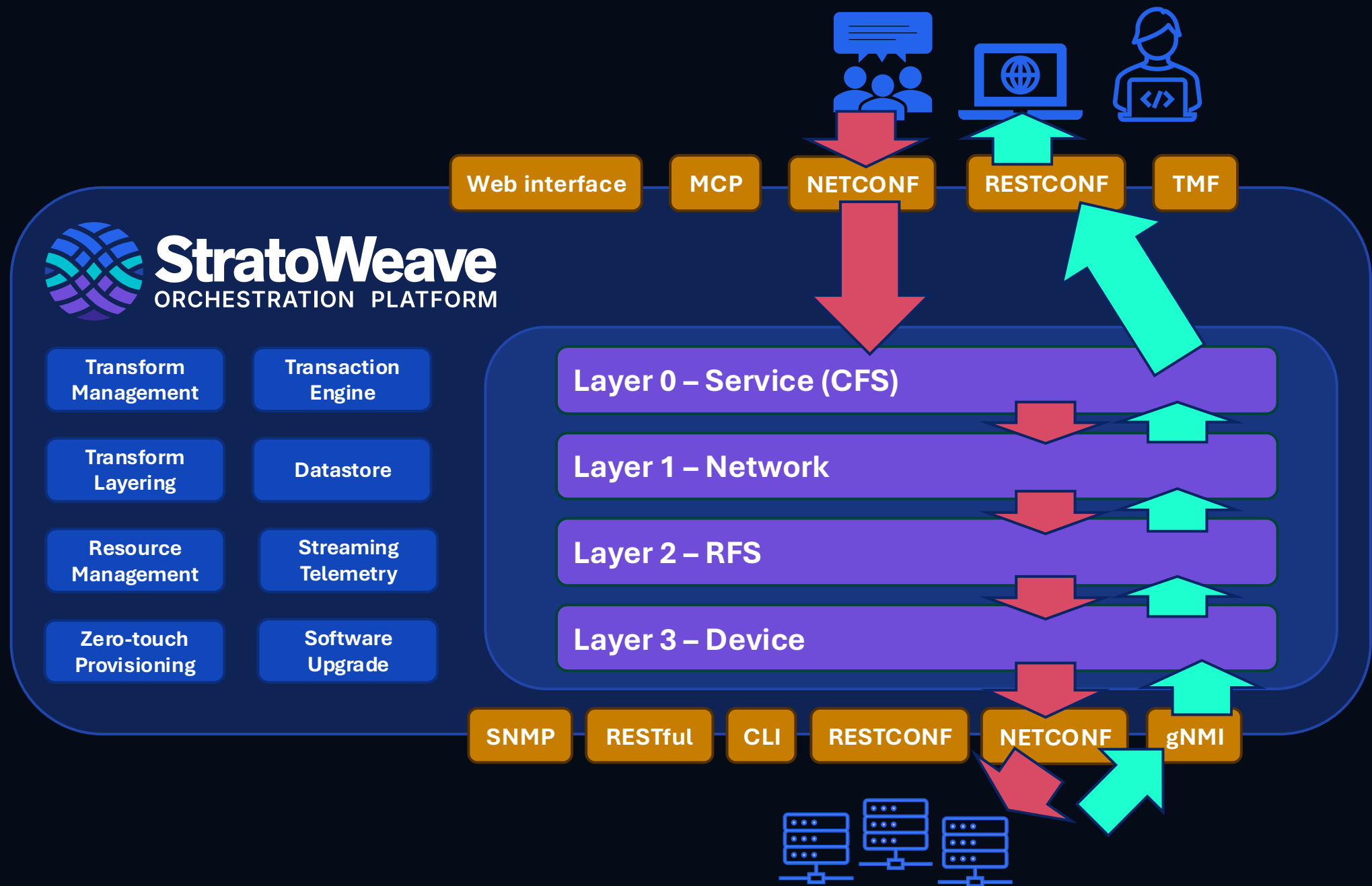
**Open, extensible,
and built to scale**

StratoWeave integrates into your existing OSS stack



StratoWeave integrates into your existing OSS stack





Device adapters

Type

- **YANG-modeled**
 - NETCONF
 - RESTCONF
 - gNMI
- **Generic**
 - CLI
 - RESTful API
 - SNMP
 - ...

Role

- **Configuration**
- **State**
 - Multiple state adapters per device

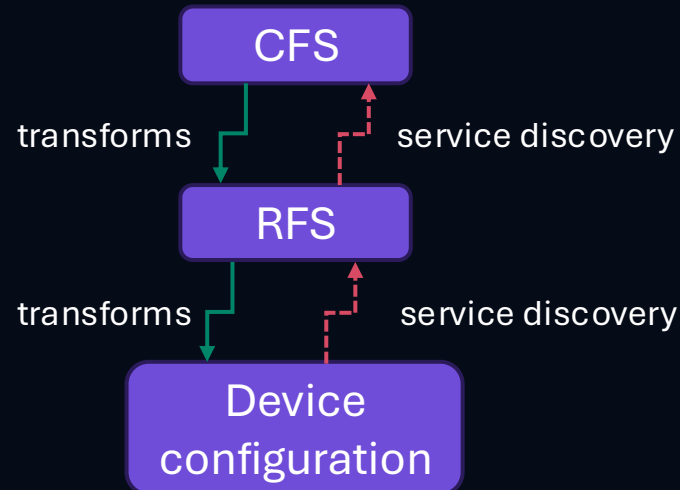
Operational state / telemetry

- Current focus is on discreet state
 - Time-series, trend analysis etc. are a future topic
- Telemetry data sources
 - gNMI dynamic subscriptions
 - YANG Push
 - UDP-based Transport for configured subscriptions
 - NETCONF get polling
 - NETCONF RPC polling
 - SSH CLI "show ..." polling

Integration into existing networks

Service Discovery

- **One-time procedure** to derive the CFS intent from running device configurations
- The process reveals gaps across models, transforms, and discovery



Brownfield

- **On-going processing** by StratoWeave of network configuration changes by operators and other systems
- **Custom policy:** reconcile, accept, merge into intent, notify, queue approval, ...

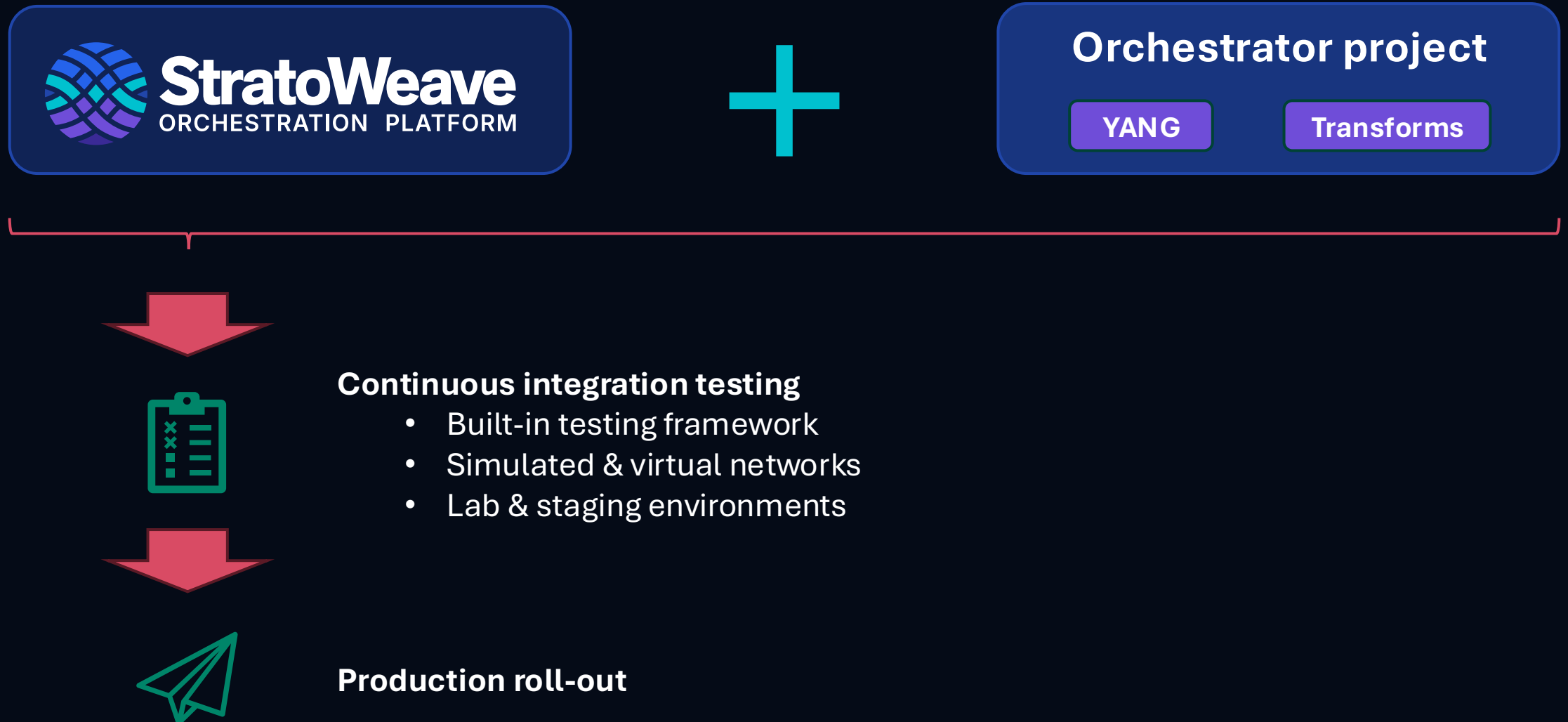


TM Forum API support

- Catalog of Service/Resource Specifications:
 - **TMF633** Service Catalog Management API
 - **TMF634** Resource Catalog Management API
- Service/Resource Ordering / Activation
 - **TMF640** Service Activation API
 - **TMF641** Service Order Management API
 - **TMF652** Resource Activation API
 - **TMF702** Resource Order Management API
- Provides TMF API consumers direct access to StratoWeave's YANG modeled data store through a [schema & API mapping](#)



Building a StratoWeave orchestrator release



Developer experience



Development skills



YANG

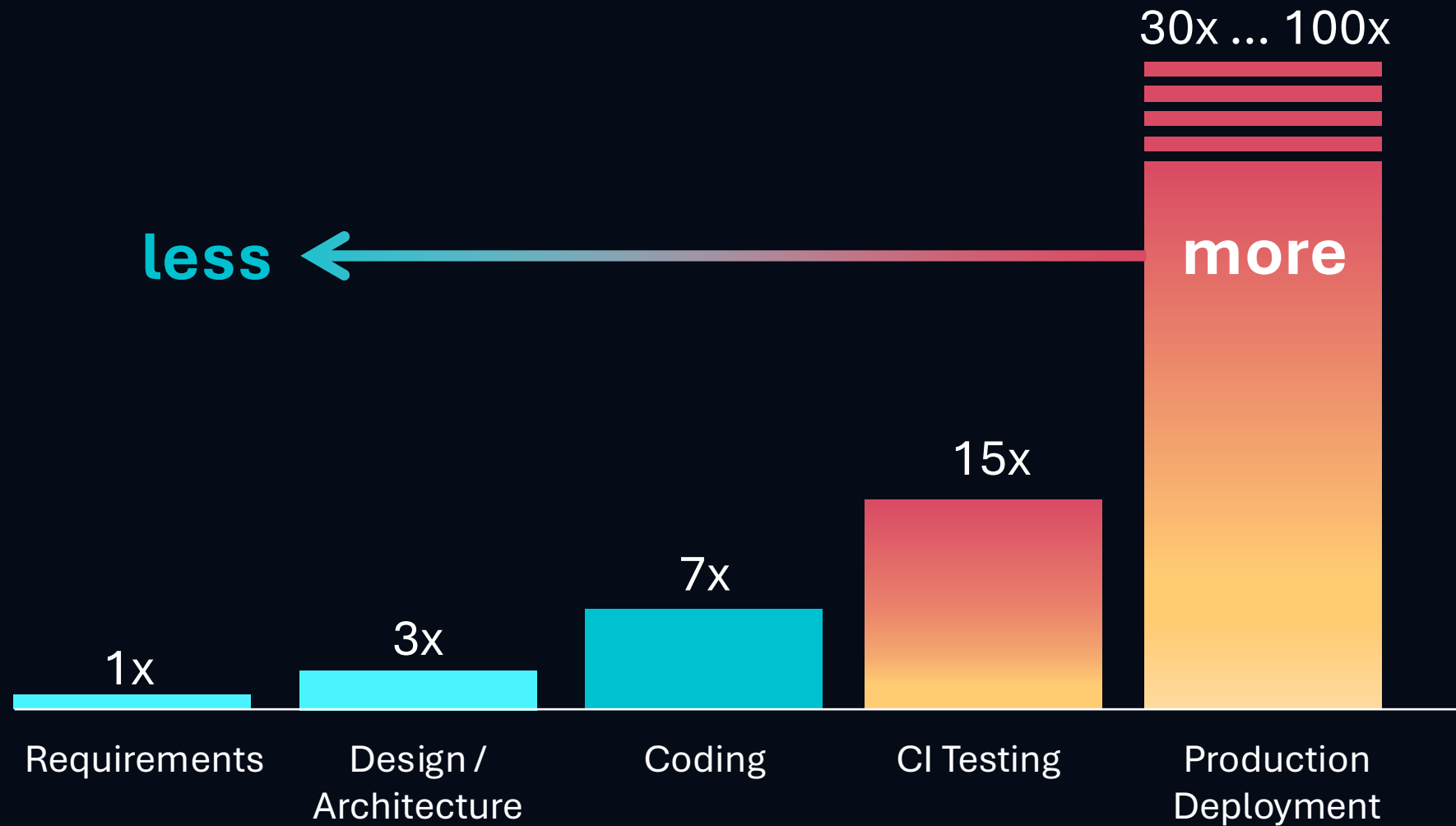
- Data modeling language
- Configuration and state data
- Defines the interface for each StratoWeave layer



Acton

- Pythonic syntax *you already know it*
- Fast *compiles to C*
- Powerful type system *with inferencing*
- Actor-based *robust concurrency*

Cost of bugs



Static typing avoids bugs



YANG model



Code types



Code



```
list process {  
  key "process-id";  
  leaf process-id {  
    type uint8;  
  }  
  leaf is-type {  
    type enumeration {  
      enum level-1;  
      enum level-2-only;  
      enum level-1-2;  
    }  
  }  
}
```

```
class process_entry(yadata.MNode):  
    process_id: int  
    is_type: ?str
```

```
Leaf(  
    name='is-type',  
    type=Enumeration(  
        name_to_val={  
            'level-1':1,  
            'level-2-only':2,  
            'level-1-2':3  
        }  
    )  
)
```

```
ip = dev.router.isis.process.create("stratoweave")
```

```
ip = dev.router.isis.process.create(1)
```

```
ip.is_type = "level-2-olny"
```

```
ip.is_type = "level-2-only"
```

Development environment



VS Code

- Syntax highlighting
- Syntax checking, type checking `tab completion, (remote) debugging`



Containerlab

- Develop & test against container-based routers
- Linux, macOS, Windows `remote development`

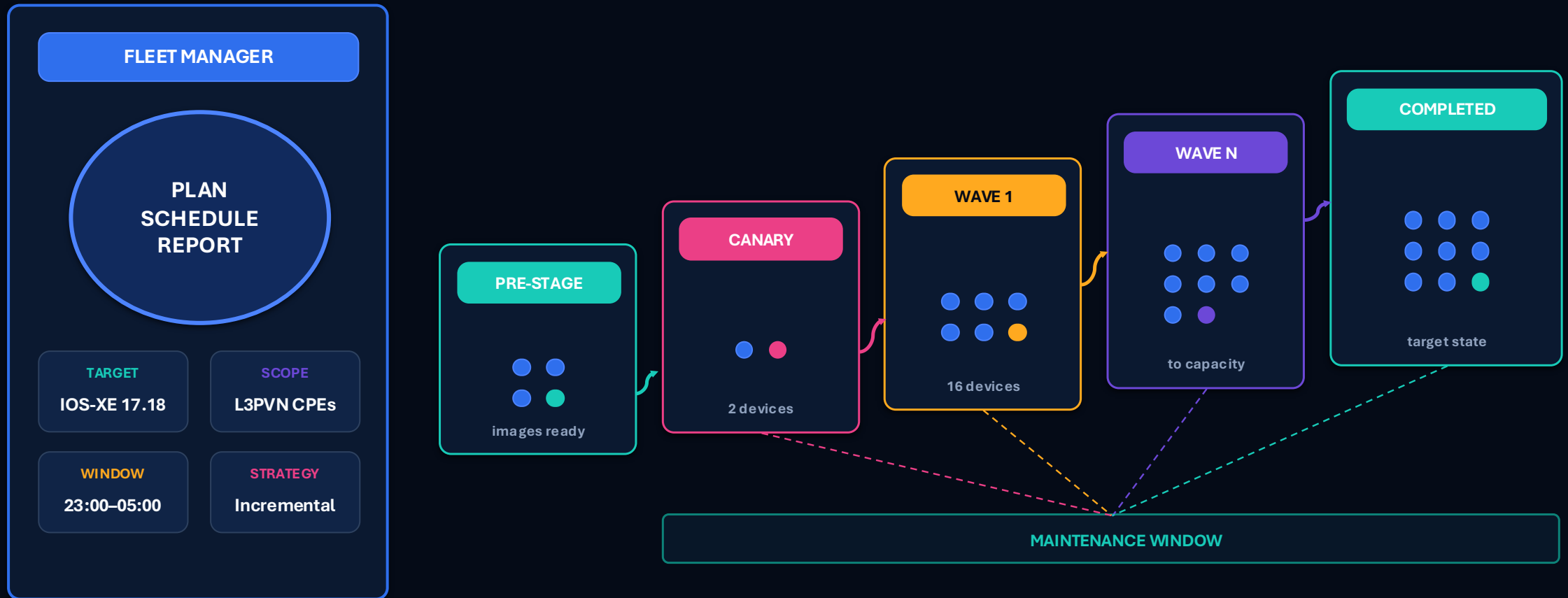
Software upgrade & ZTP

The background of the slide is a dark blue gradient. On the right side, there is a complex, abstract graphic consisting of numerous thin, curved lines and bands of light in shades of blue and purple. These lines appear to be flowing or radiating from a point further to the right, creating a sense of depth and movement. A faint grid pattern is also visible within the light bands.

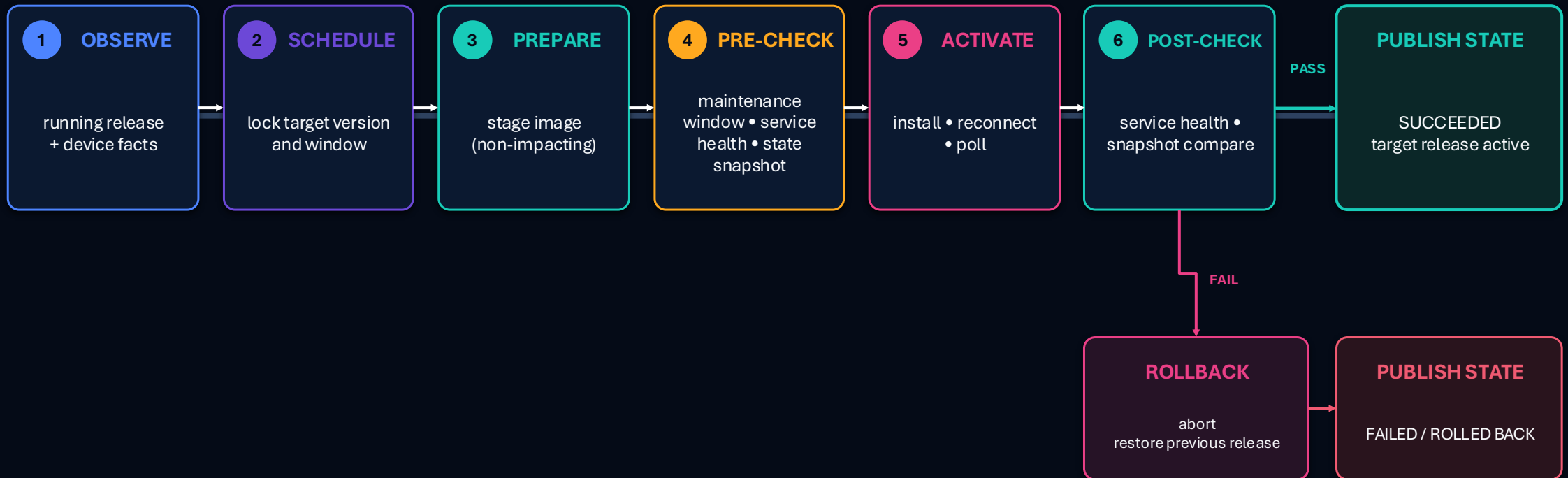
Software upgrade & ZTP

- Automated software upgrade on managed devices
 - Execute pre- and post-checks, rollback *stop on excessive failures*
 - Understands service health *only commence when redundancy partner is available*
 - Adheres to maintenance windows
 - Dashboard for observability on progress, failures, ...
- Zero-Touch Provisioning
 - IETF Secure Zero Touch Provisioning (SZTP)

Software upgrade: fleet manager



Software upgrade: device manager



Open-source

StratoWeave is completely open-source

- StratoWeave is BSD-3 licensed
- A project of the **Linux Foundation Networking**
 - Trust for contributors through neutrality
 - Project governance through well-defined frameworks
- Get involved
 - Weekly LFN project community call
 - StratoWeave Zulip channels



StratoWeave Zulip Channel

LF NETWORKING

A growing open-source eco-system

Several partners with StratoWeave development and implementation skills are already available





StratoWeave is ready for evaluation today!

StratoWeave's [GitHub](#) repository includes everything needed for evaluation and proof-of-concept implementation



www.stratoweave.org

StratoWeave will be ready for large-scale production by early 2027