

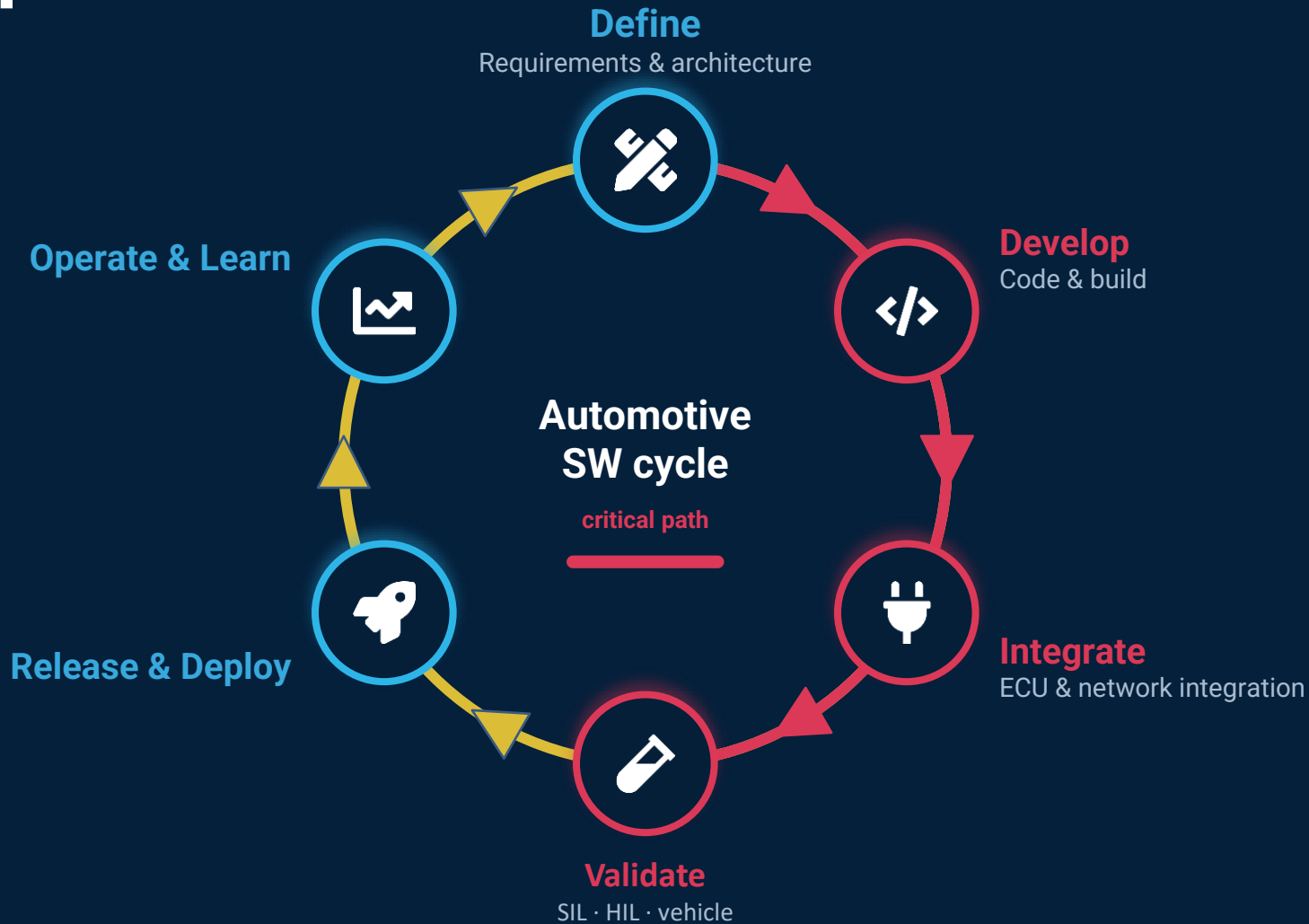
FLYNC

Configuration as Code for Vehicles and Beyond

#ONESTEPAHEAD

THE AUTOMOTIVE SOFTWARE CYCLE

WHAT HOLDS OEMS BACK?



! Where OEMs slow down

Communication configuration changes

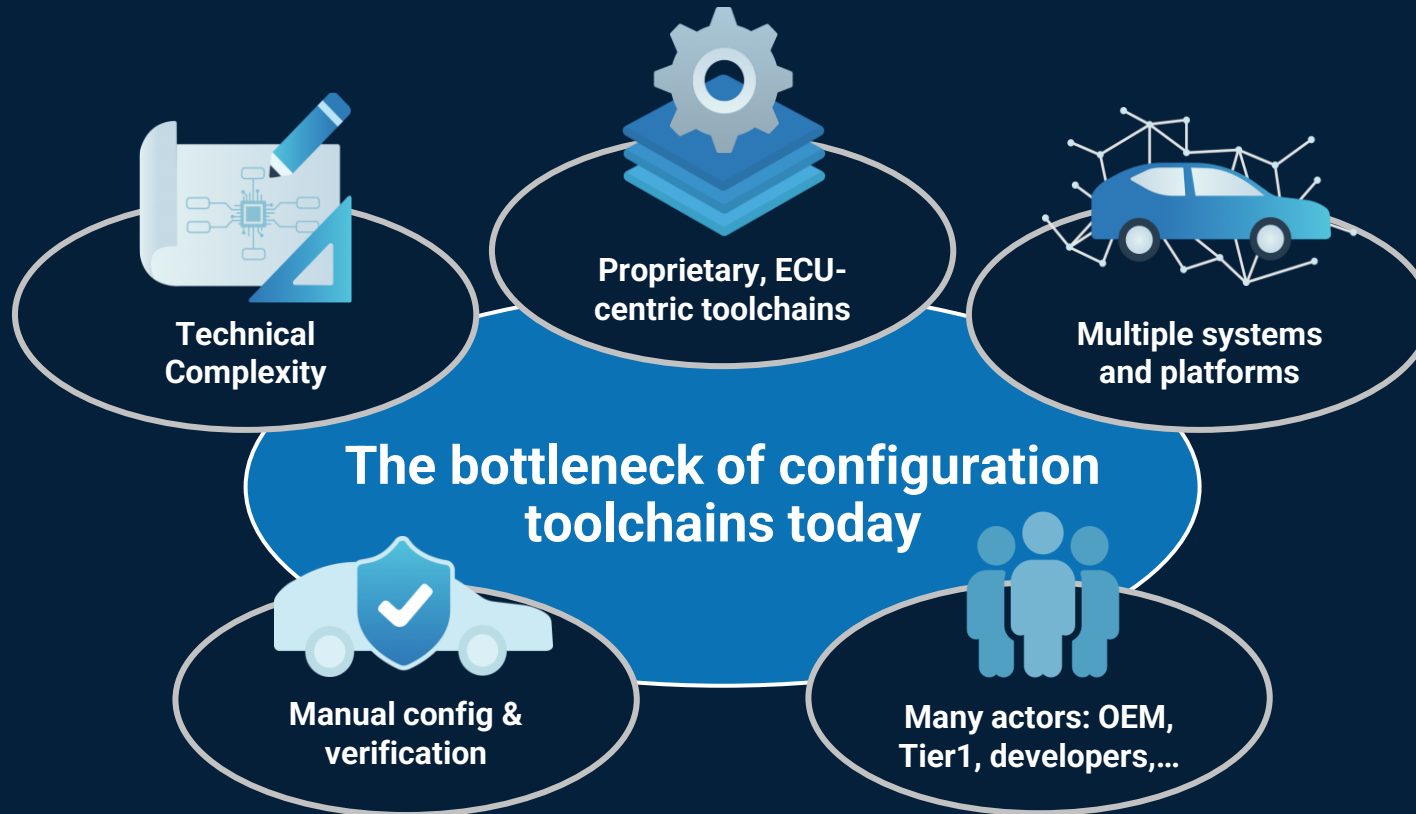
A single change to the signal matrix (DBC / ARXML) ripples through the whole loop:

- **Config change**
- Code regeneration on every affected ECU
- Re-integration
- Network re-test
- Re-release

1-line change ≈ weeks of delay

CONFIGURATION TOOLCHAINS

CURRENT SITUATION



Consequences

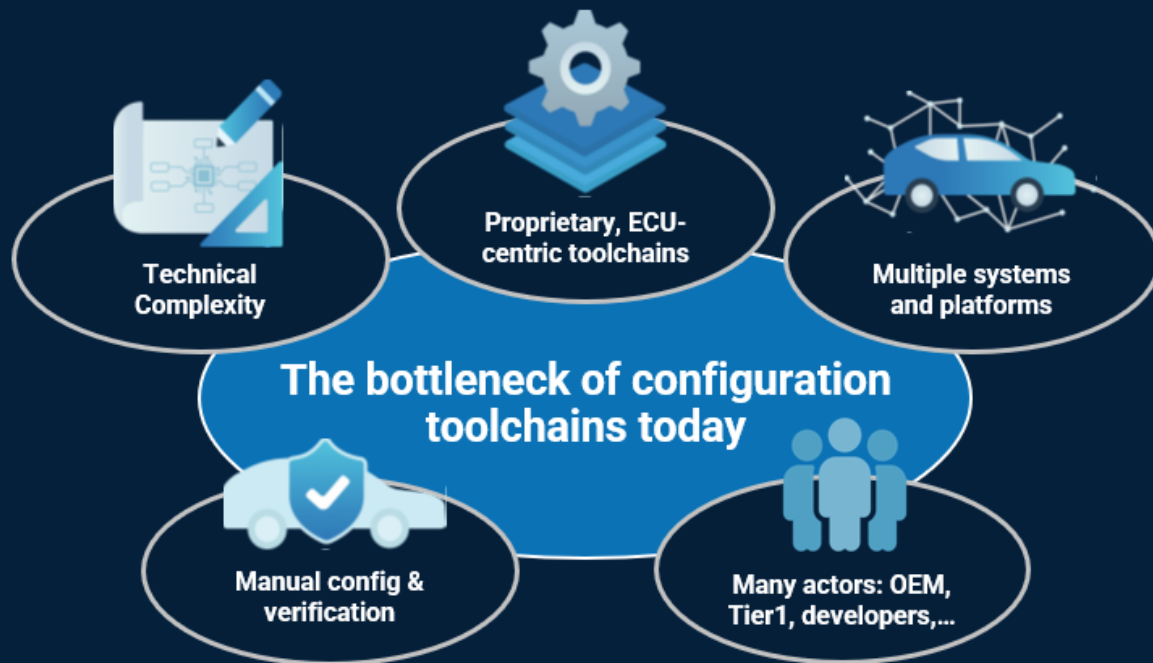
- Time consuming with manual steps
- Costly proprietary solutions
- Poor automation and no systematic reuse
- Complex maintenance and compatibility

Speed is the requirement

- Market moves at software speed.
- Every stall in the loop → slower time-to-market.
- Faster, repeatable cycles are essential to keep up.

MOTIVATION

WHAT DO WE WANT?



- **Faster than current solutions**
Aiming to reach competitive development pace
- **Automated and CI/CD friendly**
No manual configuration steps
- **Modern, config-as-code**
Versioned, reviewable, and declarative
- **Single source of truth**
One format, one model for everything
- **Open-source & license-free**
No vendor lock-in, open collaborative ecosystem

SOLUTION BENCHMARKING

WHAT IS AVAILABLE TODAY?

	DBC	LDF	FIBEX	ARXML	Franca IDL	YANG models
CAN support	Yes		Yes	Yes		
LIN support		Yes	Yes	Yes		
Automotive Ethernet support			Yes	Yes	Partial	Partial
SOME/IP support			Yes	Yes	Yes	
(PDU) Gatewaying support			Partial	Yes		
Automotive Software support			Partial	Yes	Partial	A bit?
Diagnostics support				Yes		
Specification	Vendor	ISO	ASAM	AUTOSAR	COVESA	IETF, ...
Active Development	Yes?	Yes	No	Yes	No?	Yes
Config-as-code compatible	Medium	High	No	No	High	High
Open-source compatible	Yes	(Yes)	(Yes)	No	Yes	Yes

→ These solutions come with limitations and/or gaps!

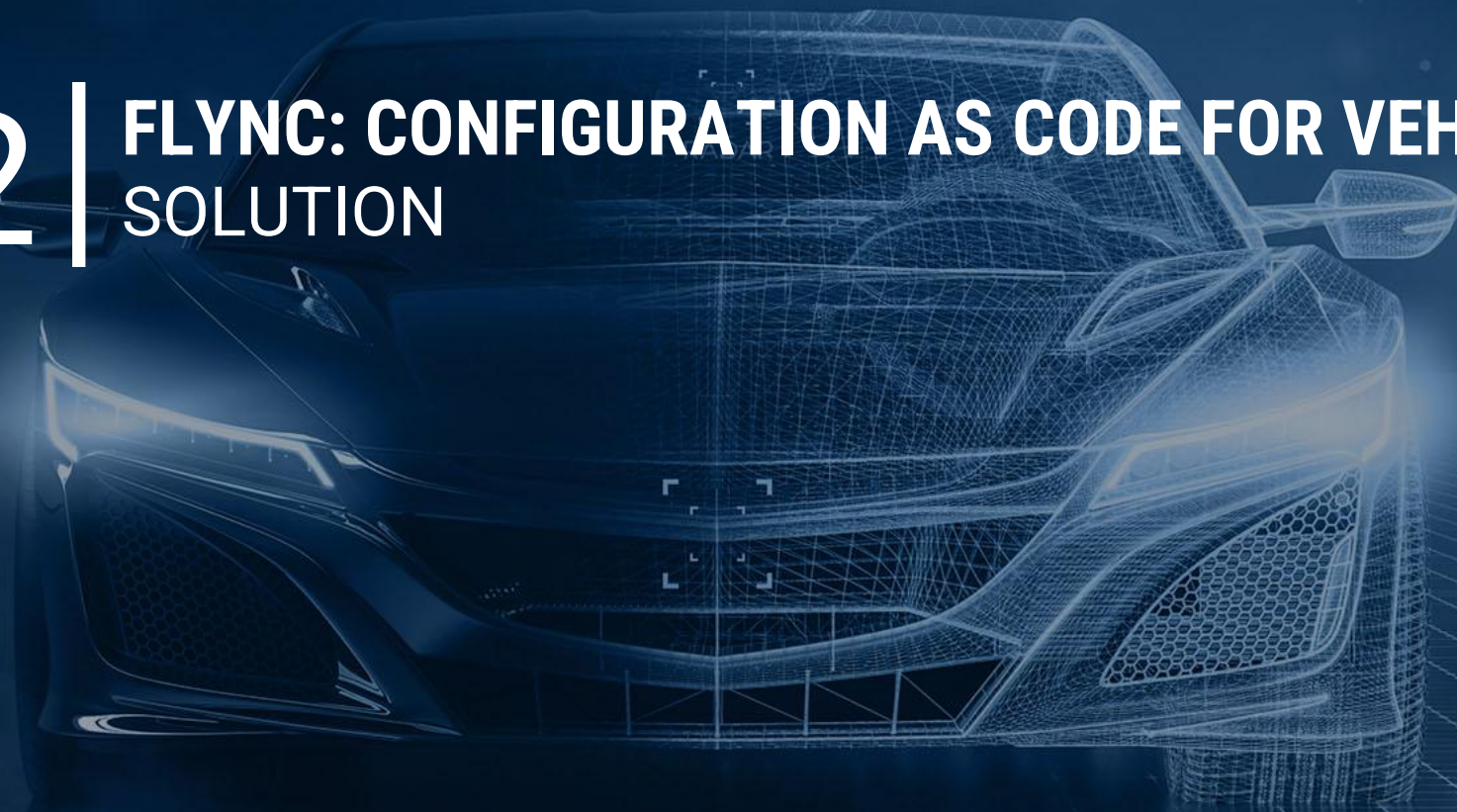
SOLUTION BENCHMARKING

WHAT IS AVAILABLE TODAY?

	DBC	LDF	FIBEX	ARXML	Franca IDL	YANG models
CAN support	Yes		Yes	Yes		
LIN support		Yes	Yes	Yes		
Automotive Ethernet support			Yes	Yes	Partial	Partial
SOME/IP support			Yes	Yes	Yes	
(PDU) Gatewaying support			Partial	Yes		
Automotive Software support			Partial	Yes	Partial	A bit?
Diagnostics support				Yes		
Specification	Vendor	ISO	ASAM	AUTOSAR	COVESA	IETF, ...
Active Development	Yes?	Yes	No	Yes	No?	Yes
Config-as-code compatible	Medium	High	No	No	High	High
Open-source compatible	Yes	(Yes)	(Yes)	No	Yes	Yes

→ These solutions come with limitations and/or gaps!

#2 | FLYNC: CONFIGURATION AS CODE FOR VEHICLES AND BEYOND SOLUTION



AUTONOMOUS

SAFE

1G-2

SENSOR
ACTIVE

INT*3

ITS SENSOR GROUP 3/12

8E0

7A

FLYNC

OPEN-SOURCE PLATFORM FOR SDV CONFIGURATION

Flync

The open-source platform for SDV configuration

Communication configuration as code:
authored once, validated in layers,
deployed to every ECU.



Turns the slowest step of the automotive software cycle into a **Pull Request (PR)**.



Fast authoring

Human- and machine-readable YAML, parsed at scale.

YAML · pydantic



Configuration-as-Code

Git-versioned, CI/CD-ready, fully traceable and reproducible.

Git · CI/CD



Tailored for automotive

Ethernet, CAN, LIN, SOME/IP, with MACsec, TSN/QoS and gTP built in.

More on the roadmap



Layered validation

Syntax, semantics and field / device / system rules caught before integration.

Shift-left quality



Open & open-source

Community-driven, HW/SW-independent, extensible for what comes next.

Ecosystem integrations



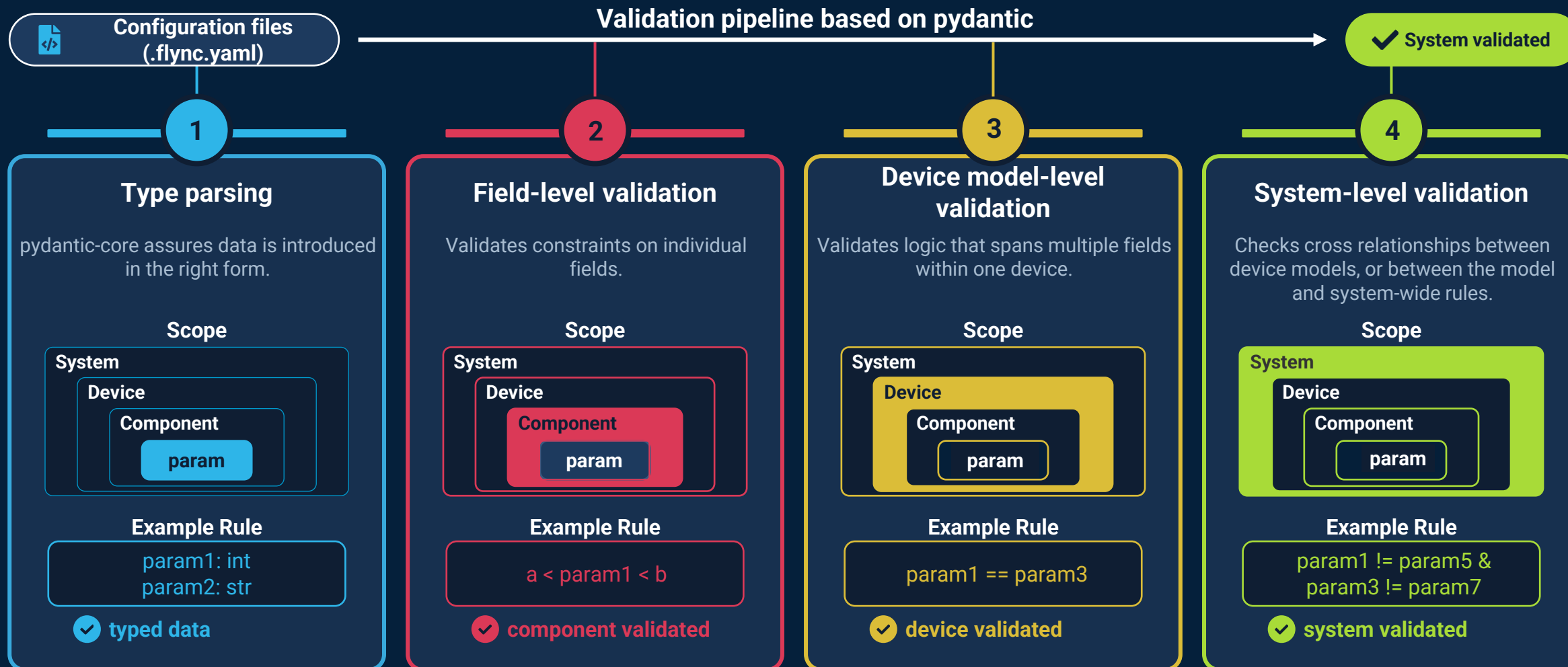
Single source of truth

One system-level definition shared by design, development and test.

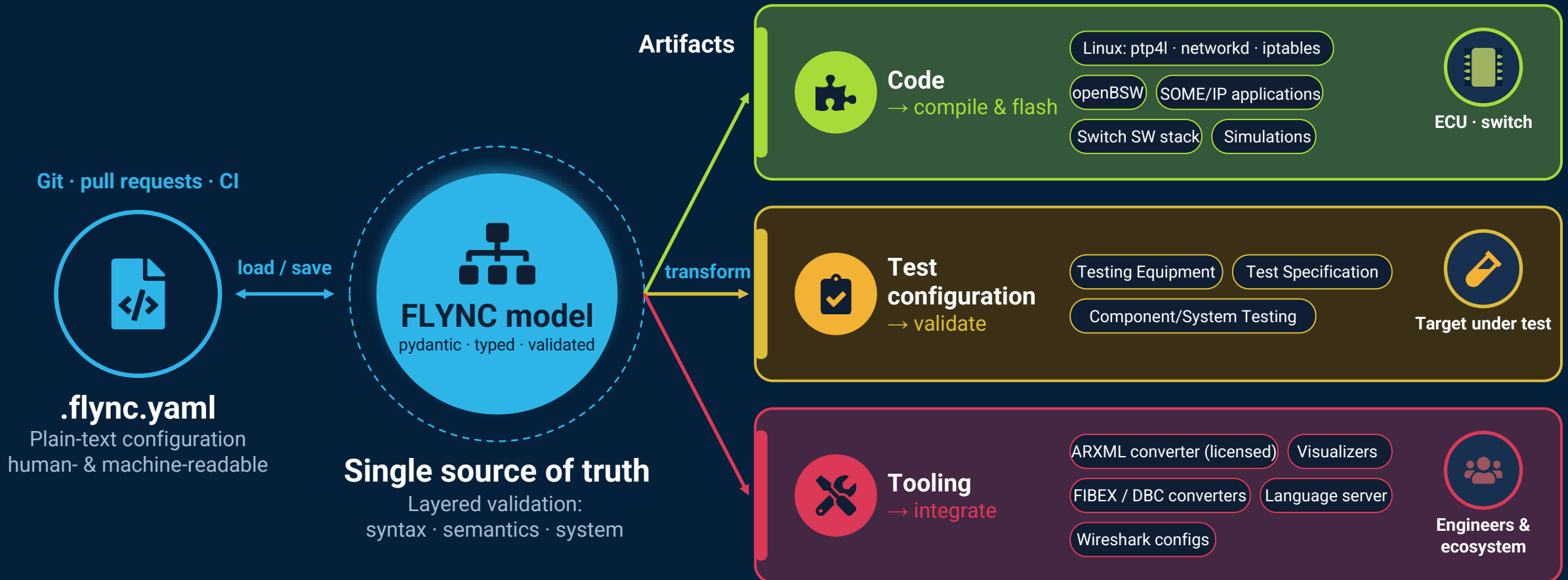
Cross-team collaboration

FLYNC VALIDATION

LAYERED VALIDATION VIA FLYNC SDK ENGINE



1 AUTHOR **2 MODEL** **3 GENERATE & DEPLOY**

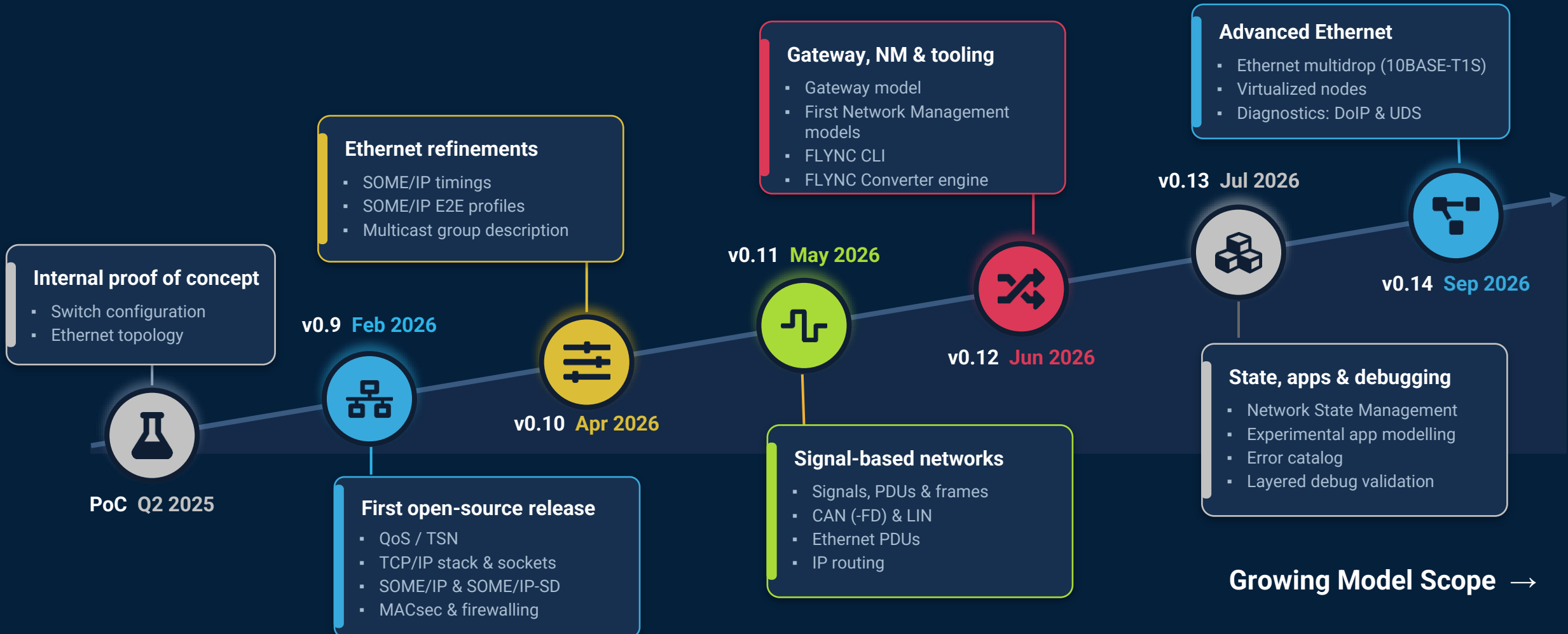


#3 | FLYNC: ACCELERATOR FOR SDV FLYNC DEVELOPMENT

```
(groupsalloc);  
EXPORTSYMBOL(groupsalloc);  
void groups_free(struct group_info *group_info)  
{  
    void groups_free(struct group_info *group_info)  
    {  
        if (groupinfo->blocks[0] != group_info->small_block) {  
            int i;  
            if (groupinfo->blocks[0] != group_info->small_block) {  
                for (i = 0; i < group_info->nblocks; i++)  
                    int i;  
                    for (i = 0; i < group_info->nblocks; i++)  
                        for (i = 0; i < group_info->nblocks; i++)  
                            Freepage((unsigned long)groupinfo->blocks[i]);  
                        kfree(groupinfo);  
                    }  
                    kfree(groupinfo);  
                }  
            EXPORTSYMBOL(groupsfree);  
            EXPORTSYMBOL(groupsfree);  
            /* export the groupinfo to a user-space array */  
            /* export the groupinfo to a user-space array */  
            /* export the groupinfo to a user-space array */  
            const struct group_info *group_info)  
            static int groups_touser(gid_t_user *grouplist,  
            {  
                const struct group_info *group_info)  
                int i;  
                {  
                    unsigned int count = groupinfo->ngroups;  
                    int i;  
                    unsigned int count = groupinfo->ngroups;  
                    (group_info->nblocks; i++) {
```

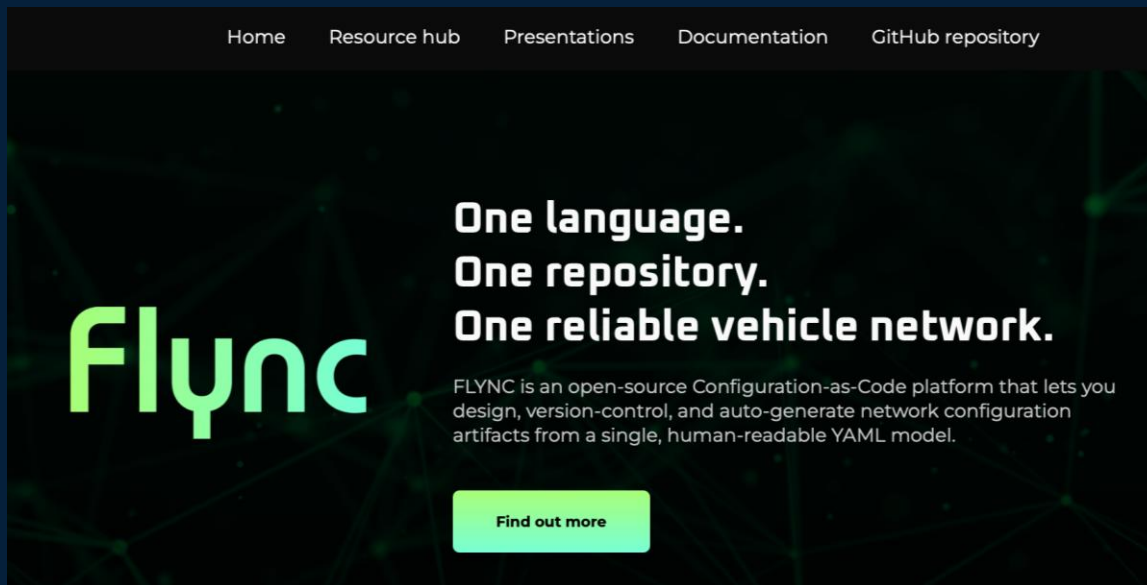
FLYNC RELEASE HISTORY

FROM POC TO FULL-VEHICLE NETWORK

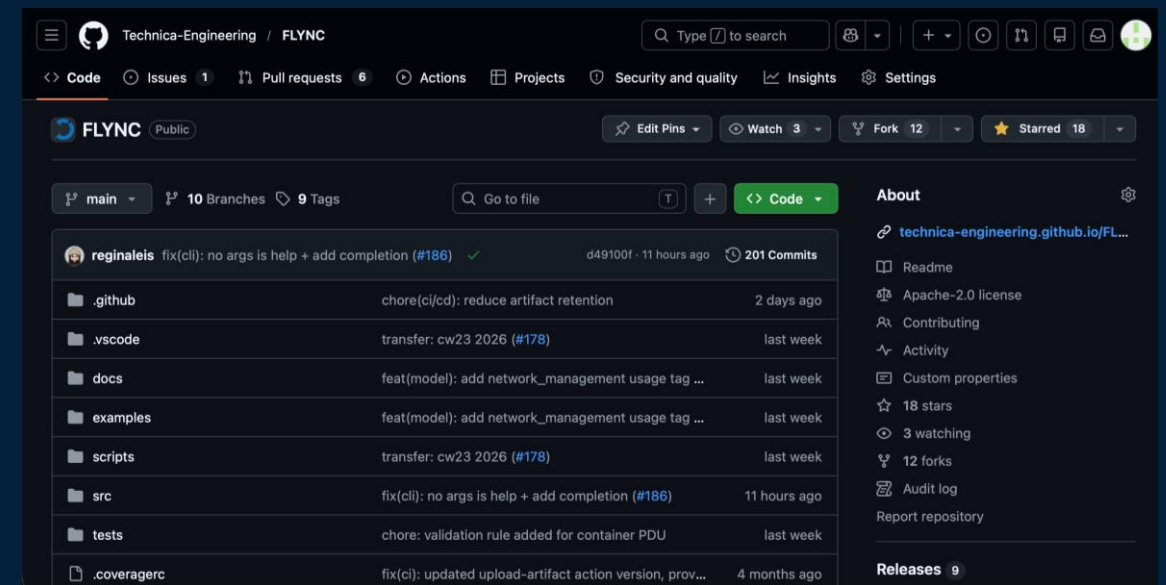


FLYNC RESOURCES

WHERE DO YOU GET FLYNC?



<https://www.flync-language.com>



<https://github.com/Technica-Engineering/FLYNC>

WHAT'S NEXT?

OPENING THE CONFIG-AS-CODE ECOSYSTEM BEYOND AUTOMOTIVE

Technica Engineering and Vector Informatik proposed Eclipse SysDaC to open the ecosystem to other industries.



Stay tuned for more news and roadmap to follow!

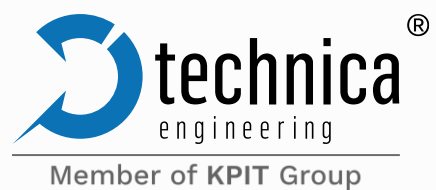
Automotive Model - Coming up next

-  **More security features**
Access control lists (ACLs)
-  **Network management & state management**
Extending the models
-  **Deeper application modelling**
From experimental to complete
-  **I/O hardware**
ECU pinout for different protocols
-  **Measurement & testing equipment**
Configure the testing setup from the same source

New sectors - First models

-  **J1939 for commercial vehicles**
First protocol model outside passenger cars
-  **Area-specific protocols & features**
Driven by the partners of each sector

#4 | FLYNC: ACCELERATOR FOR SDV CONTACT



Technica Engineering GmbH

Leopoldstraße 236
80807 Munich
Germany

IAGO ÁLVAREZ OLCINA

Lead Engineer / FLYNC Product Owner
iago.alvarez@technica-engineering.de