



FRESH EYES, REAL CHANGES: EVOLVING THE TECH STACK

JIP SPEL

ABOUT ME

- PhD Computer Science
RWTH Aachen University, Germany
- Ice-Skating
- Working on Tech Stack
 - External Classes
 - Multi-Platform Support
 - Development Workflow
 - Other R&D Initiatives



MULTI-PLATFORM SUPPORT

DEVELOPMENT WORKFLOW

EXTERNAL CLASSES



MULTI-PLATFORM SUPPORT FROM WINDOWS-ONLY TO EVERYWHERE

- Version 4, 1996 Windows only
- Support WebAssembly (Browser), Linux, and MacOS



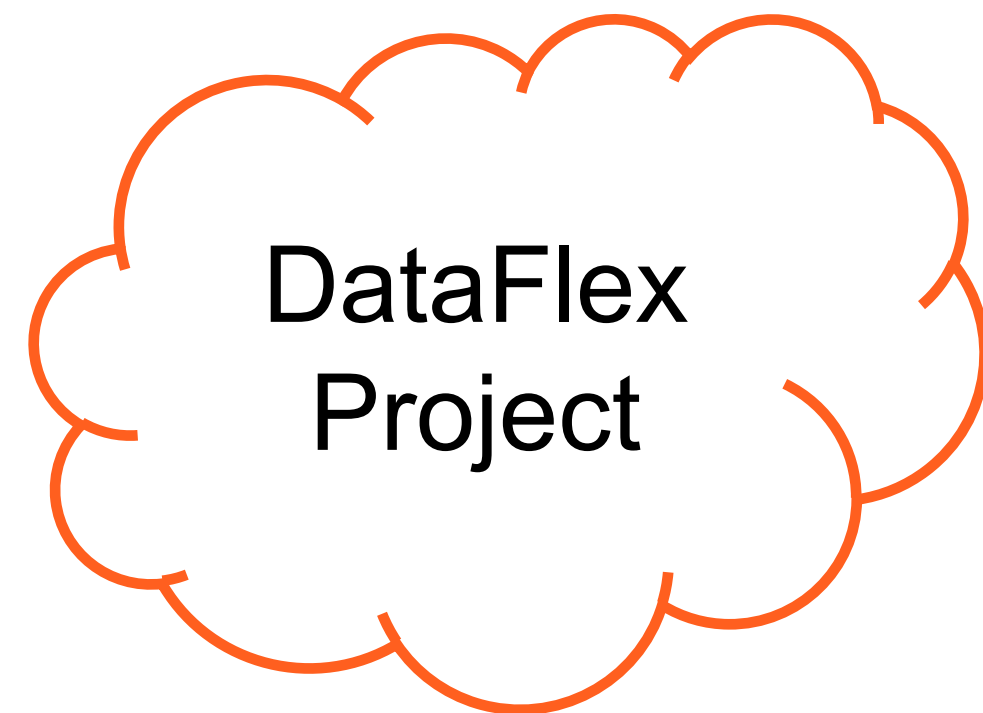
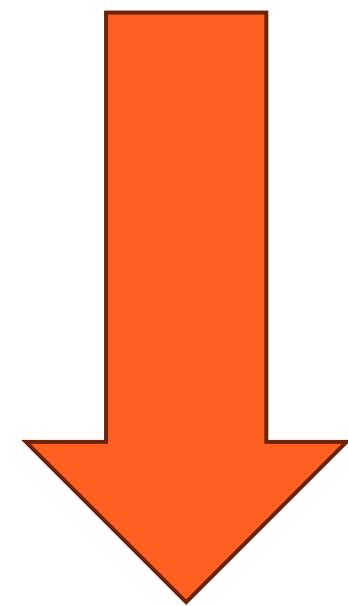
Why Multi-Platform Support?

- Run DataFlex program in a browser
- Deploy on Linux Servers
- Run in Docker containers
- MacOS for development

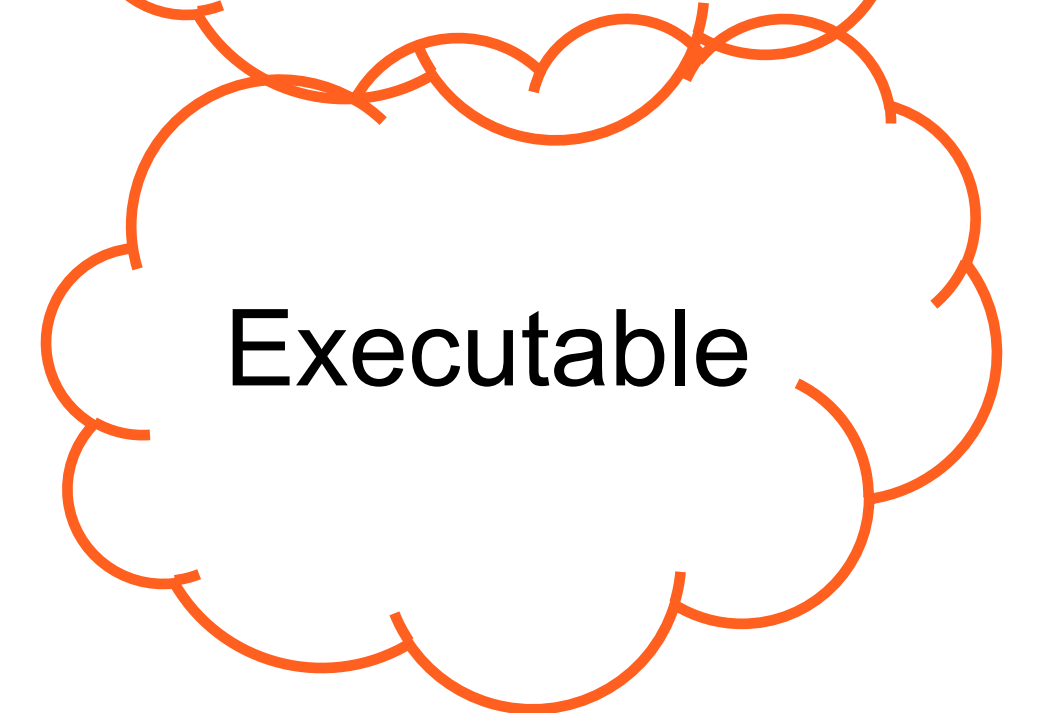
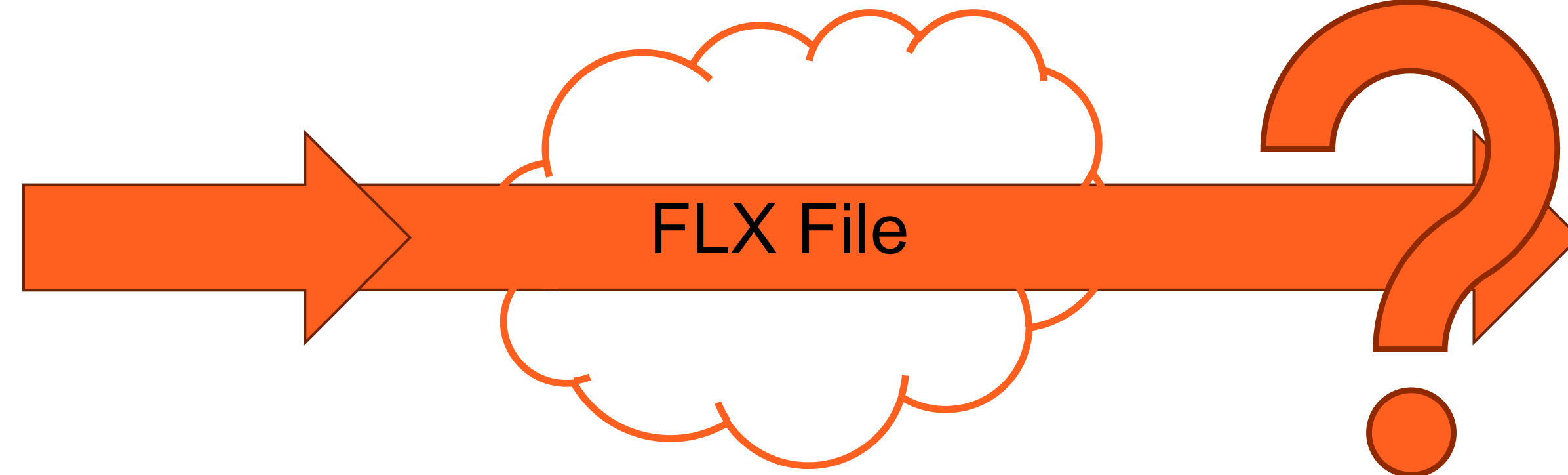
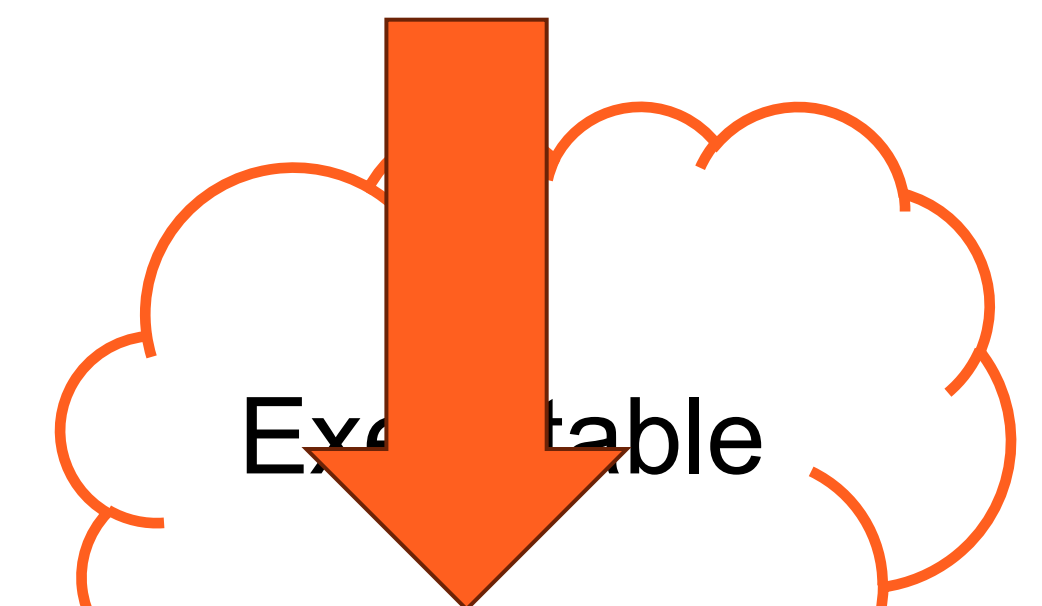


MULTI-PLATFORM SUPPORT LINKER

Platform Independent



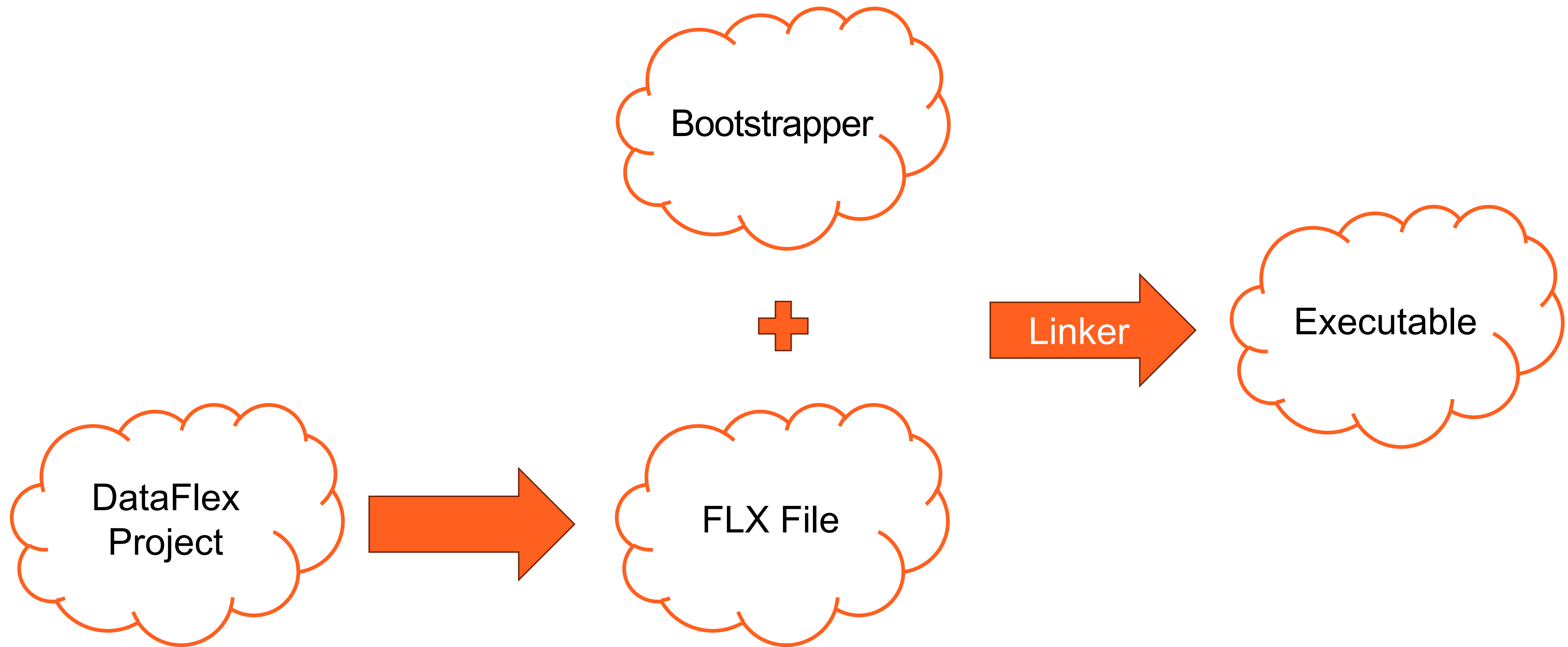
Platform Dependent



DEMO

COMPILING AND RUNNING ON WINDOWS AND LINUX

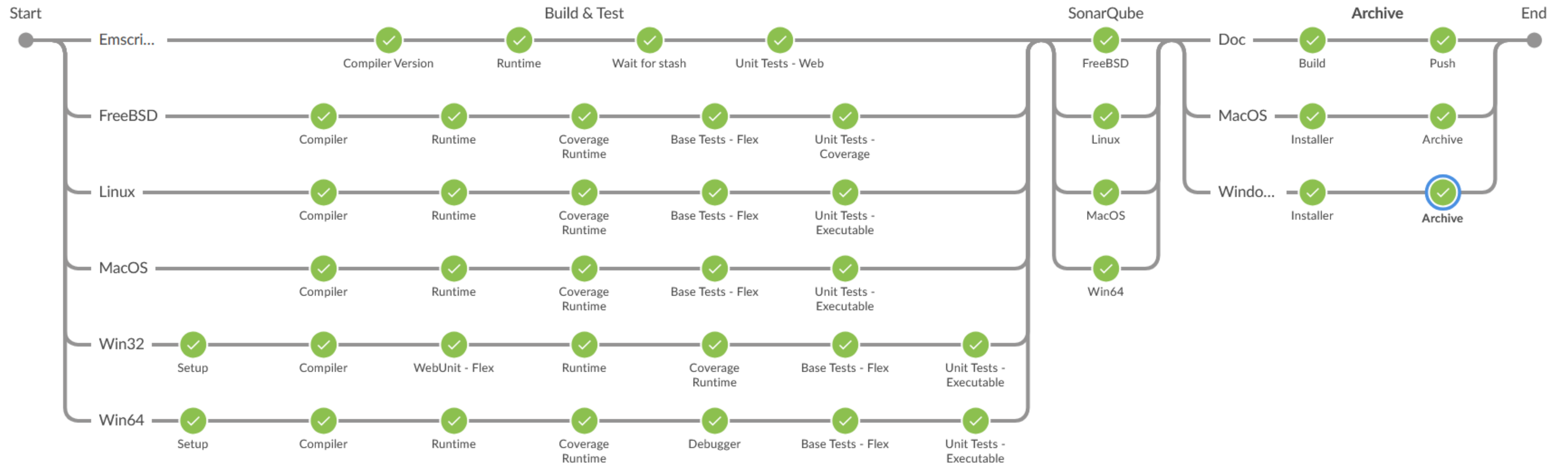
MULTI-PLATFORM SUPPORT LINKER



MULTI-PLATFORM SUPPORT
DEVELOPMENT WORKFLOW
EXTERNAL CLASSES

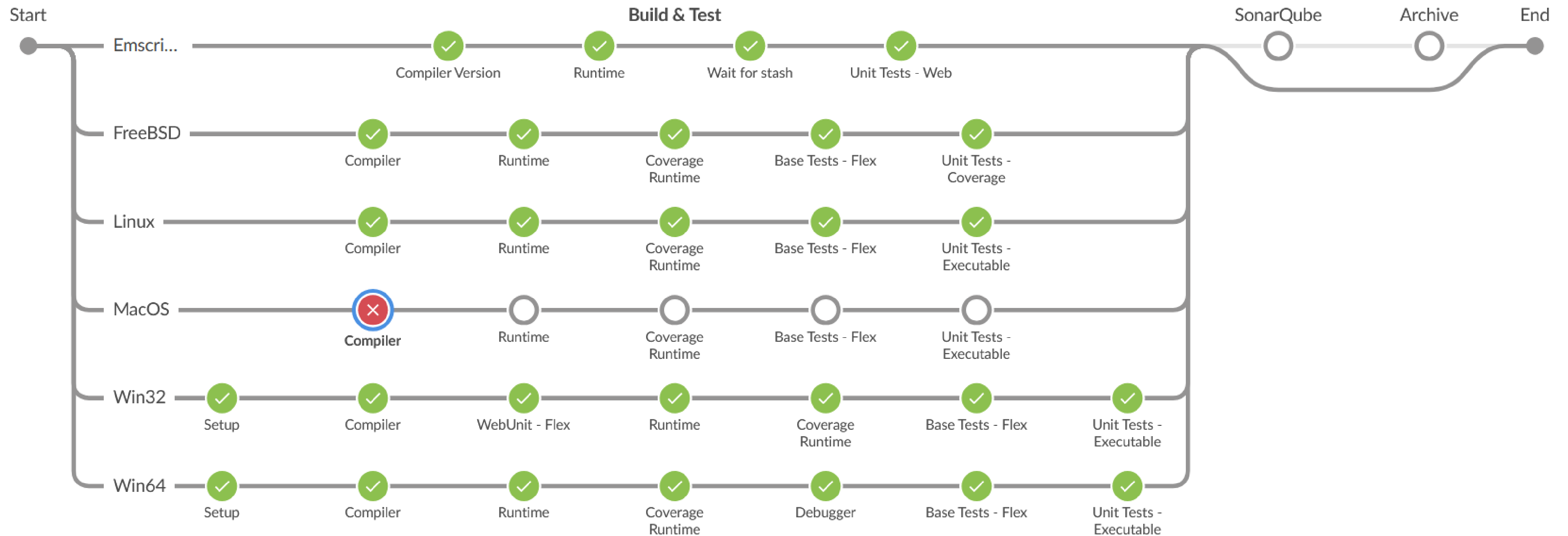


DEVELOPMENT WORKFLOW OVERVIEW



DEVELOPMENT WORKFLOW

JENKINS – COMPILATION FAILURE



DEVELOPMENT WORKFLOW

GITLAB

 **Pipeline #2572713208 failed** 
Pipeline failed for `be51d941` on `r-and-d/DF-999-jip-...` 28 seconds ago

8  **Approve** Requires 1 approval from eligible users.

[Assign reviewers](#) 

 **Merge blocked: 2 checks failed** 

 Pipeline must succeed.

 All required approvals must be given.

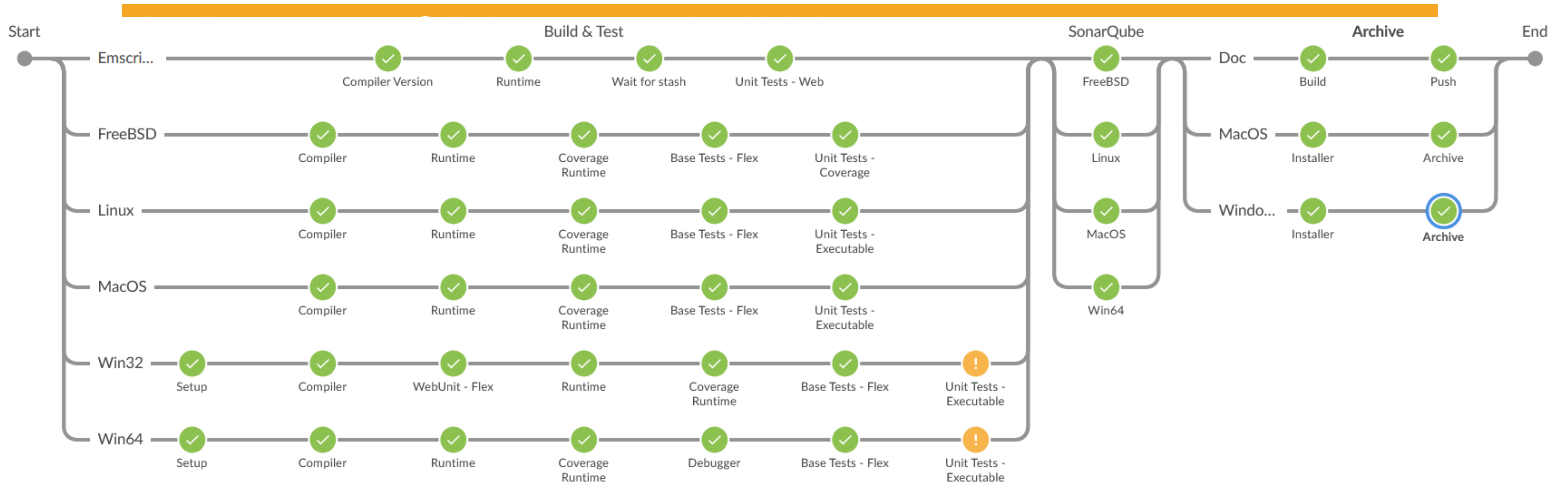
[Assign reviewers](#)

Merge details

- 4 commits and 1 merge commit will be added to DeveLop.
- Source branch will be deleted.
- Closes issue [DF-999](#)

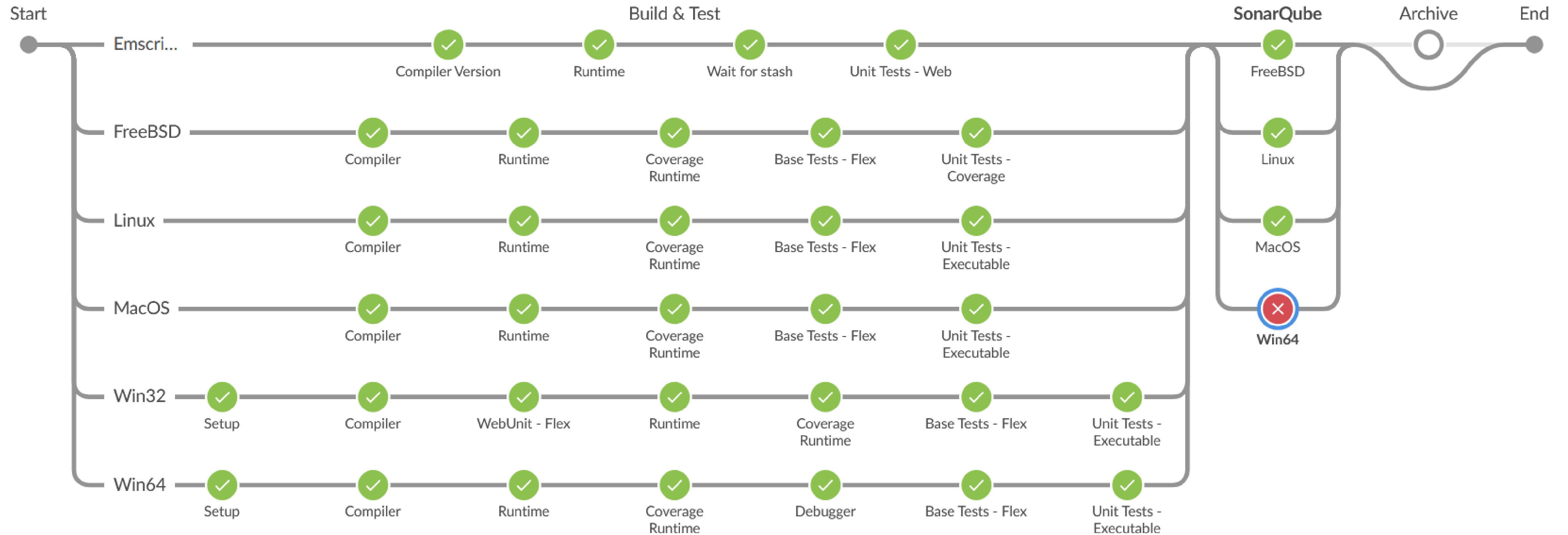
DEVELOPMENT WORKFLOW

JENKINS – UNIT TEST ISSUES



Passed - 5275

DEVELOPMENT JENKINS & SONARQUBE



DEVELOPMENT WORKFLOW

SONARQUBE – MAIN OVERVIEW

My Favorites **All**

Filters

Quality Gate

✓ Passed 4

✗ Failed 0

Security

A ≥ 0 info issues 4

B ≥ 1 low issue 0

C ≥ 1 medium issue 0

D ≥ 1 high issue 0

E ≥ 1 blocker issue 0

Search for projects... Perspective Overall Status **Sort by** Name 5 project(s)

★ **Tech Stack - Windows - MSVC** Public ✓ Passed

Last analysis: 5 days ago • 29k Lines of Code • CXX

A 0 Security A 0 Reliability A 37 Maintainability A — Hotspots Reviewed 68.4% Coverage 0.9% Duplications

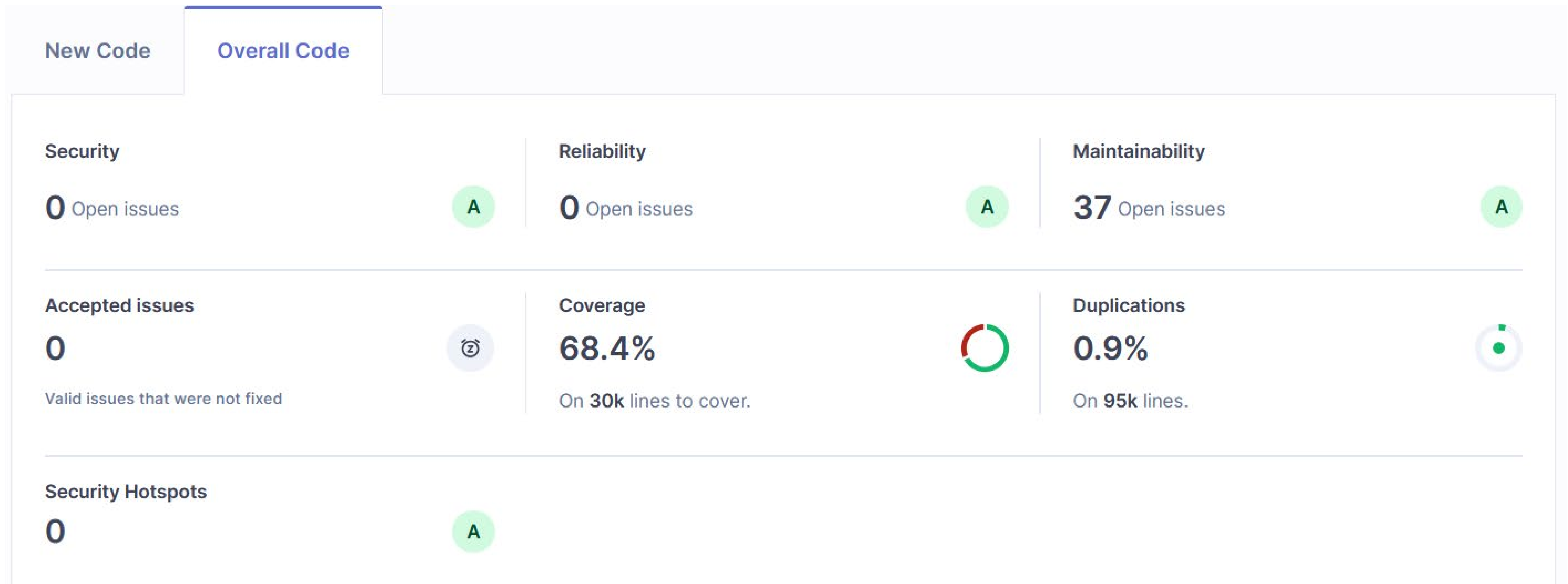
★ **Tech Stack - MacOS - LLVM** Public ✓ Passed

Last analysis: 5 days ago • 28k Lines of Code • CXX

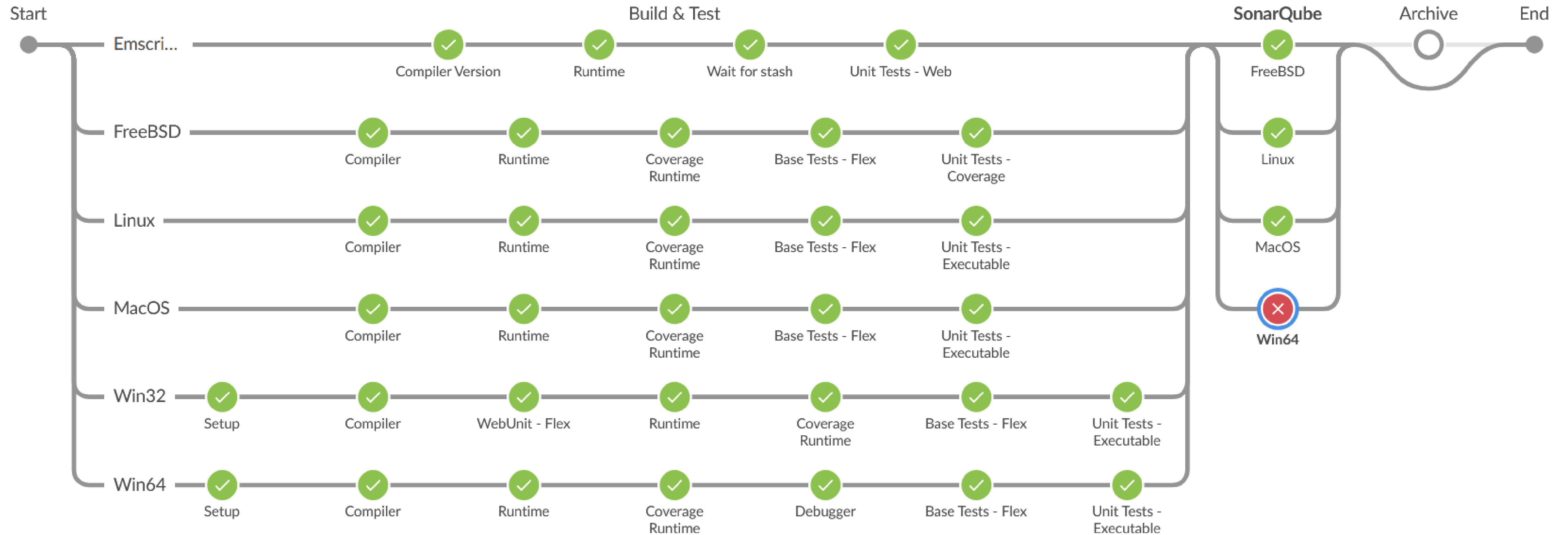
A 0 Security A 0 Reliability A 36 Maintainability A — Hotspots Reviewed 56.1% Coverage 0.8% Duplications

DEVELOPMENT WORKFLOW

SONARQUBE – MAIN BRANCH

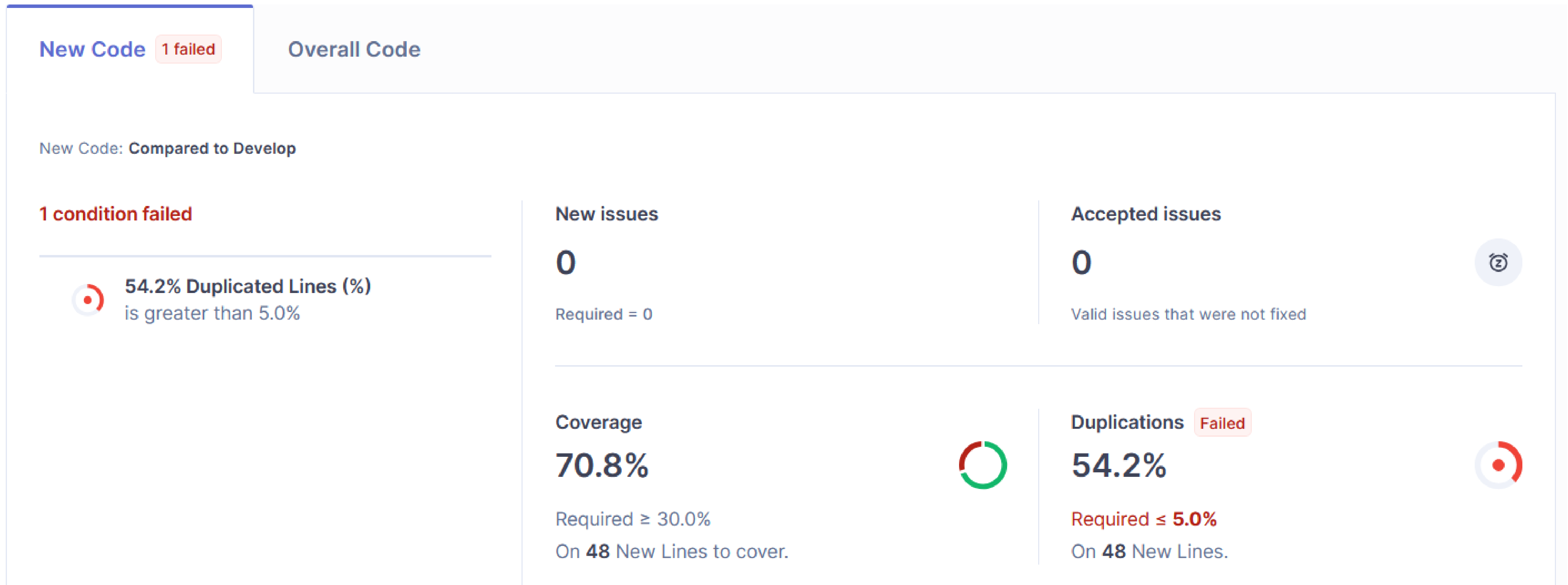


DEVELOPMENT JENKINS & SONARQUBE

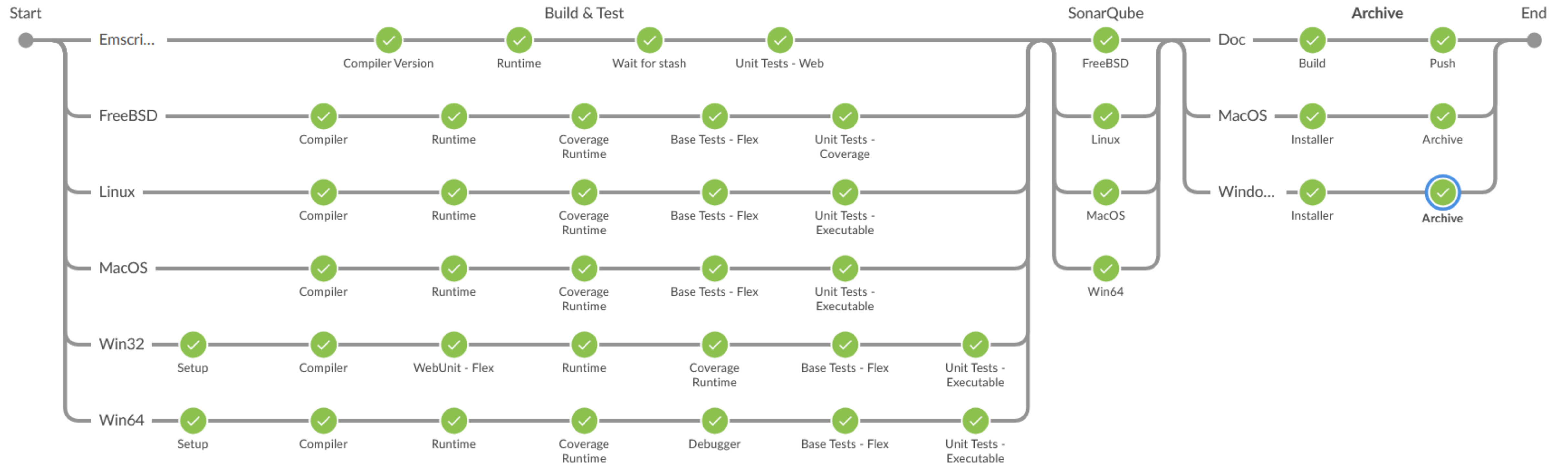


DEVELOPMENT WORKFLOW

SONARQUBE – FEATURE BRANCH



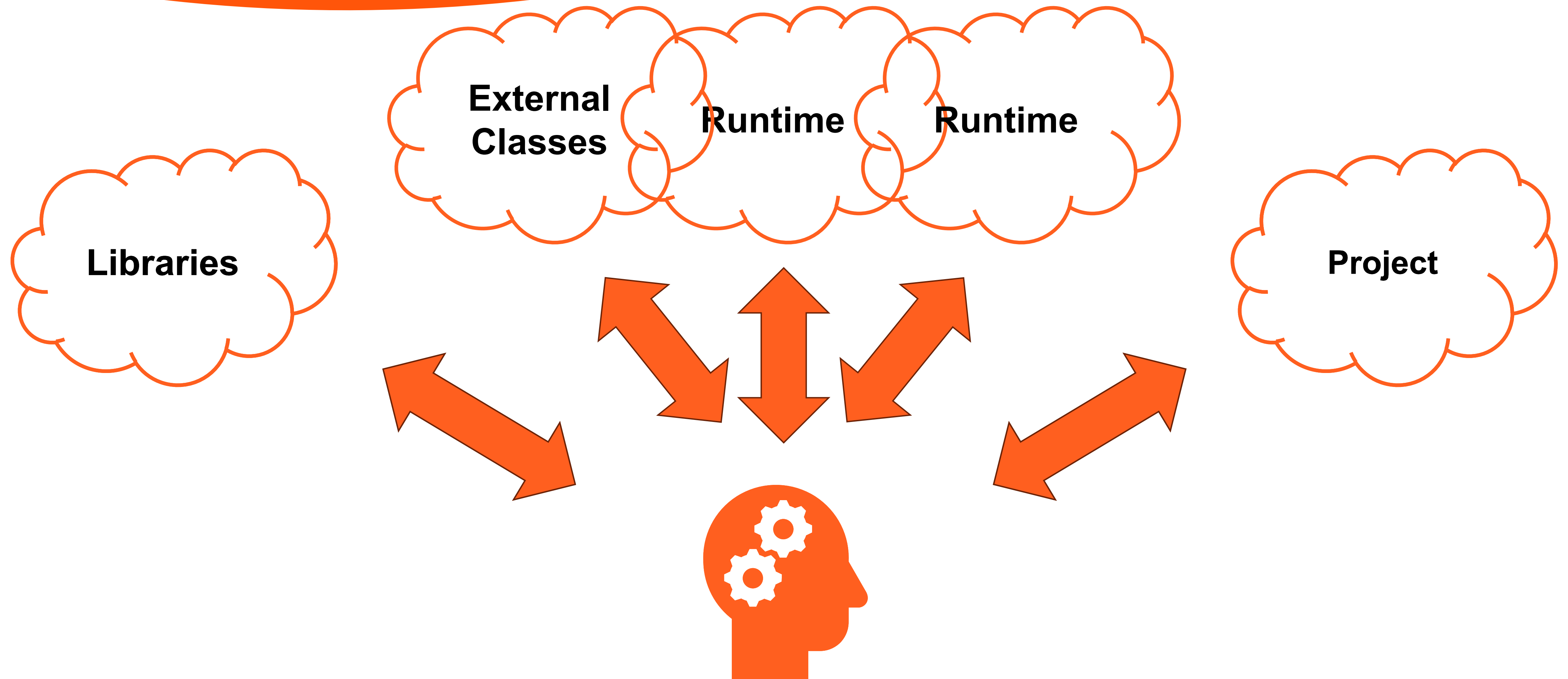
DEVELOPMENT WORKFLOW OVERVIEW



MULTI-PLATFORM SUPPORT
DEVELOPMENT WORKFLOW
EXTERNAL CLASSES



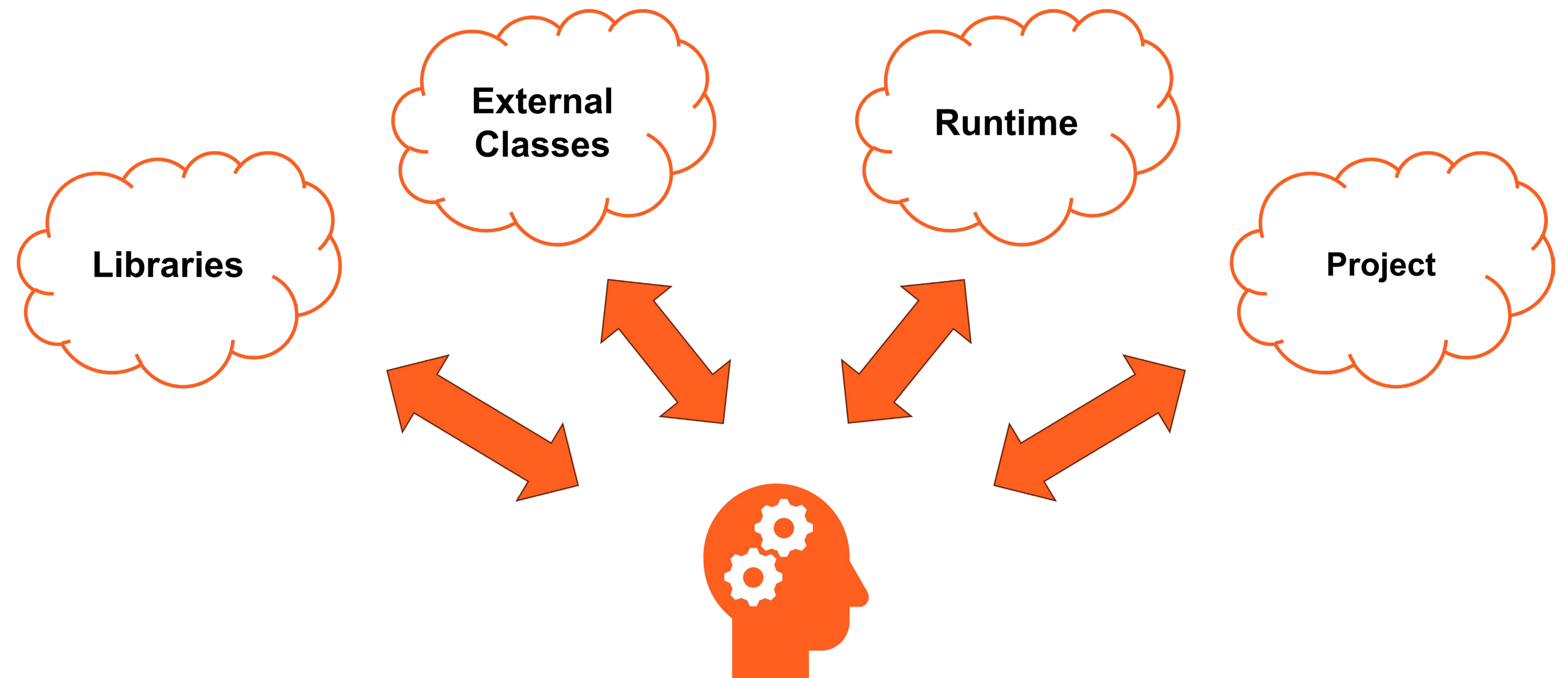
EXTERNAL CLASSES USING CLASSES IN DATAFLEX



EXTERNAL CLASSES

WHY?

- Modularization
 - Runtime size
 - Updates
- Standardization
 - JSON Library
 - Http Transfer
- Platform specific libraries
 - COM

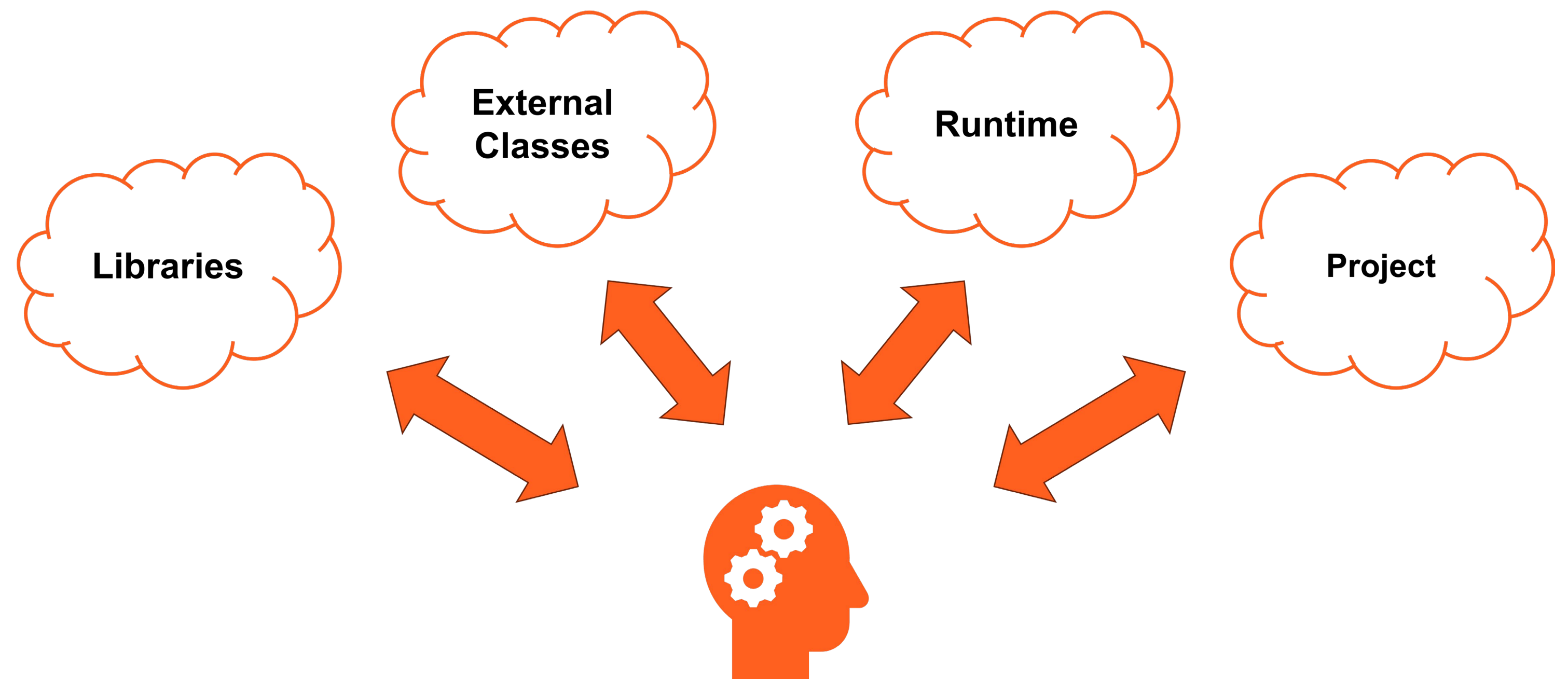


EXTERNAL CLASSES

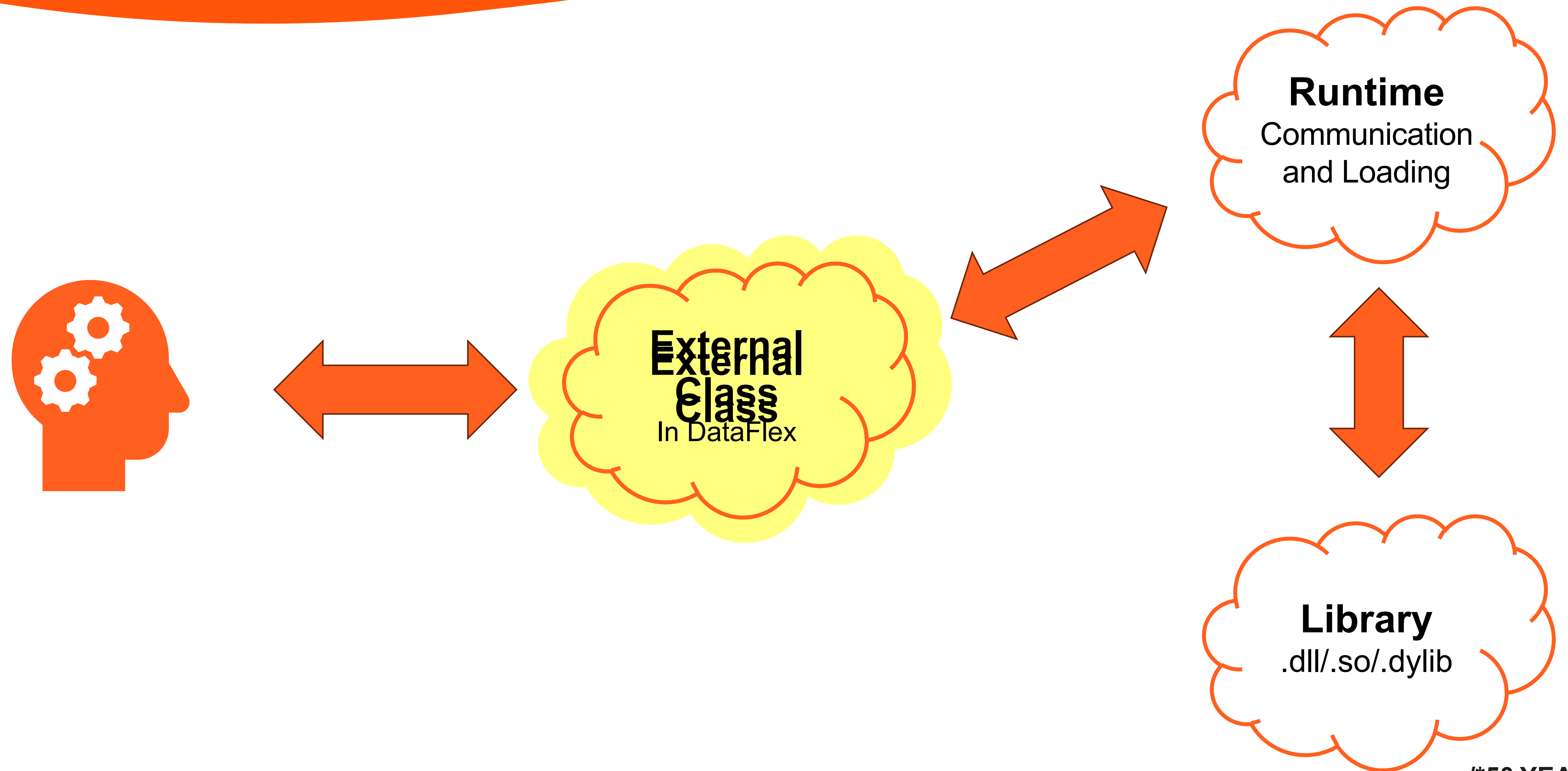
WHY?

Future considerations

- Create your own external class in C++
- DataFlex code as external class



EXTERNAL CLASSES HOW IT WORKS



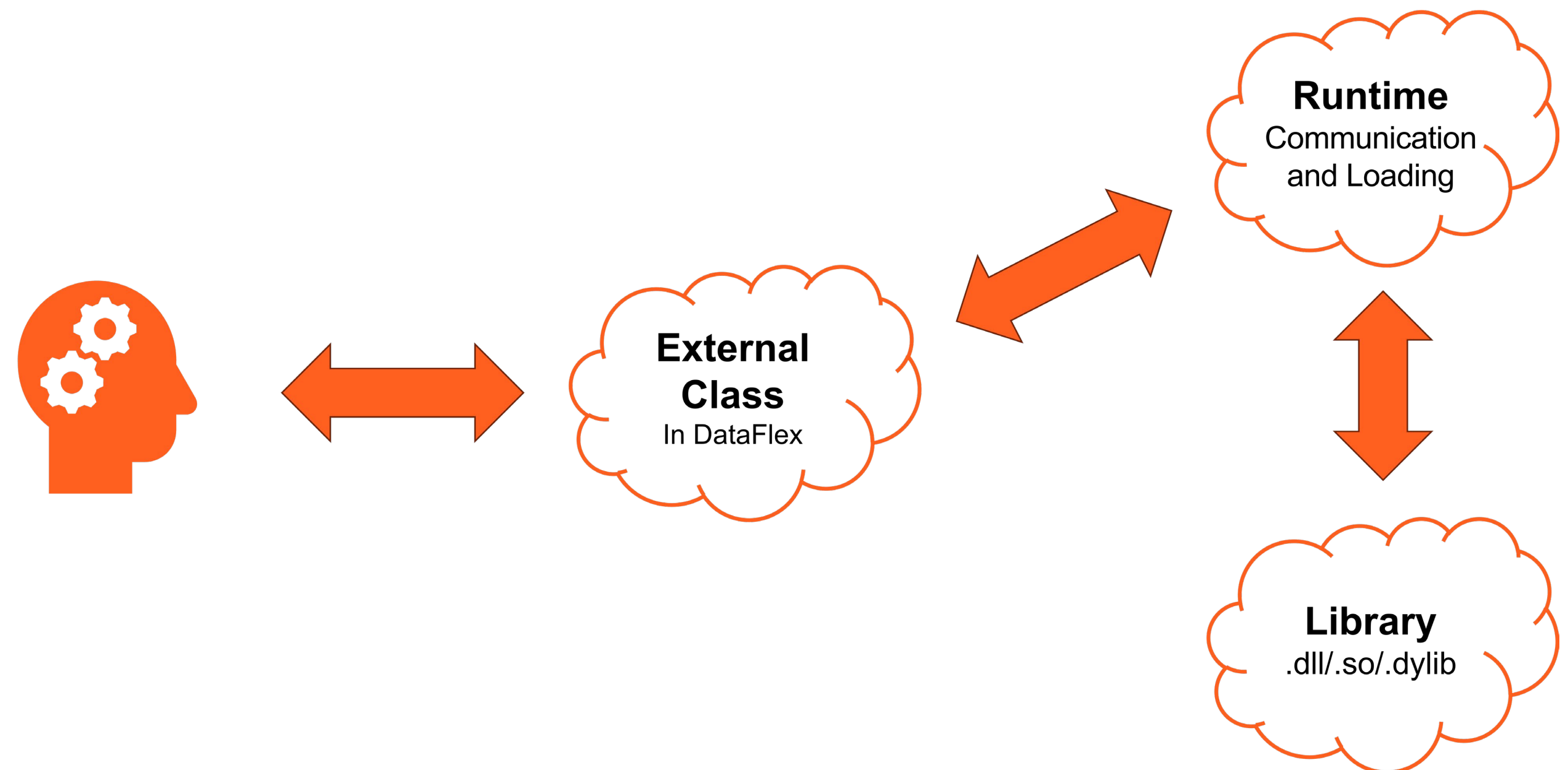
DEMO

EXTERNAL CLASSES IN DATAFLEX

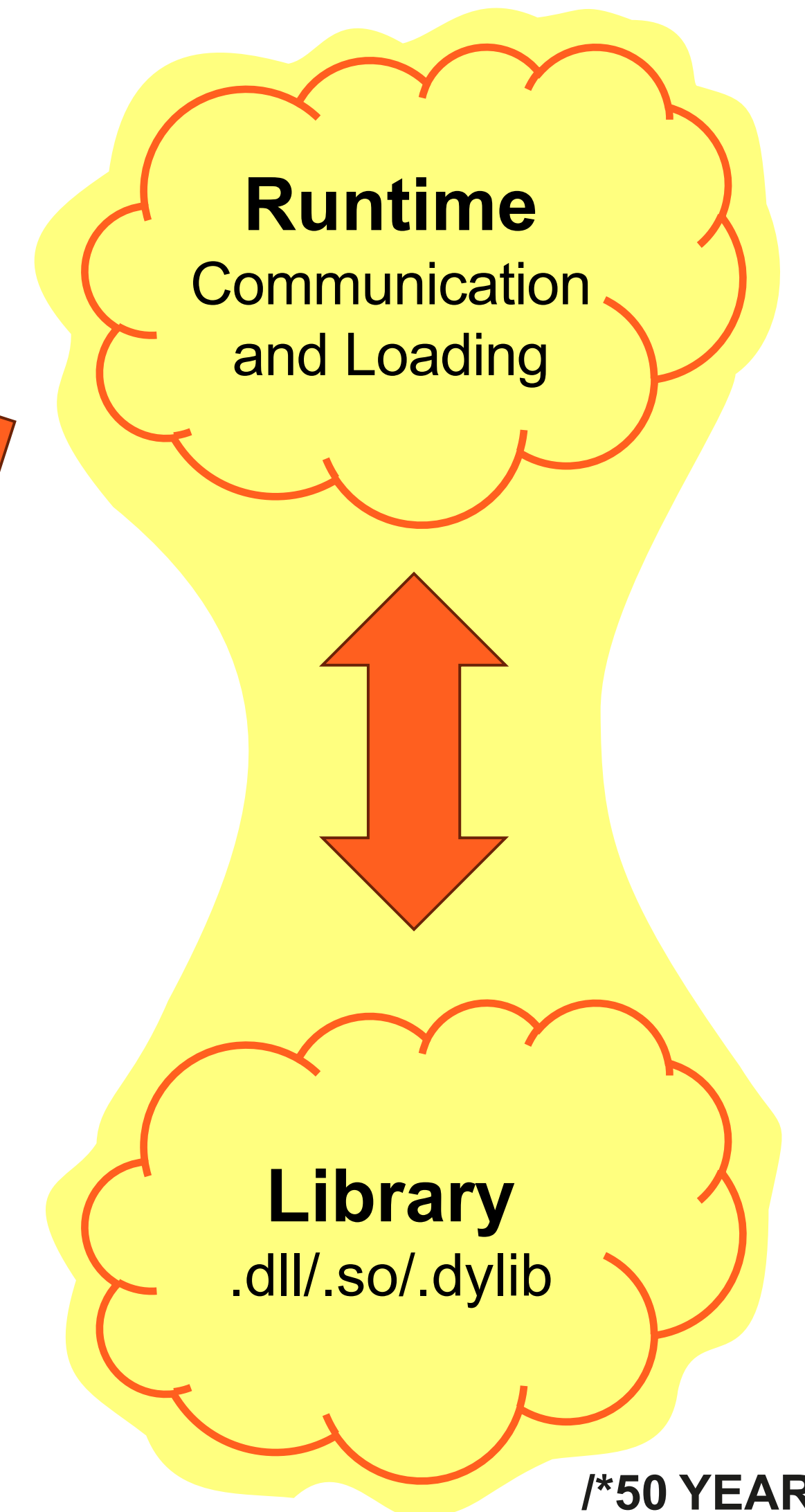
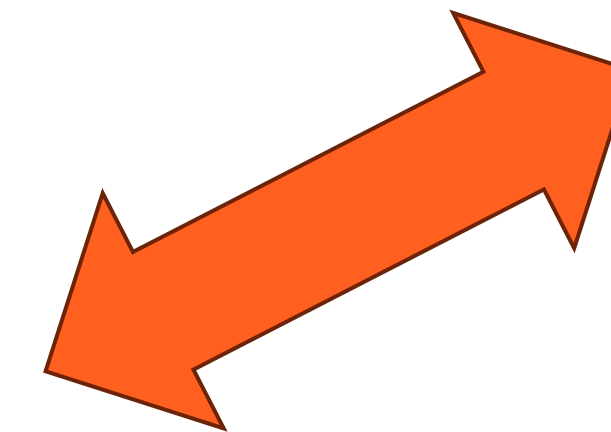
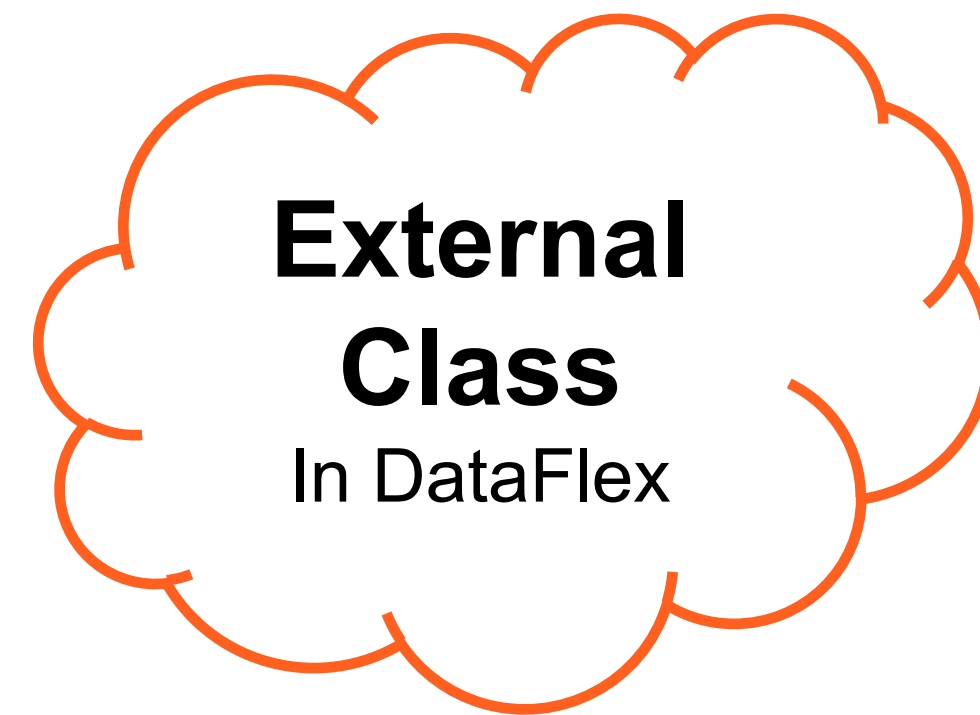
EXTERNAL CLASSES

WHAT WE HAVE

- External Classes in Tech Stack
 - Regex
 - SQLDriver
 - COM (Windows only)
- Create your own external class



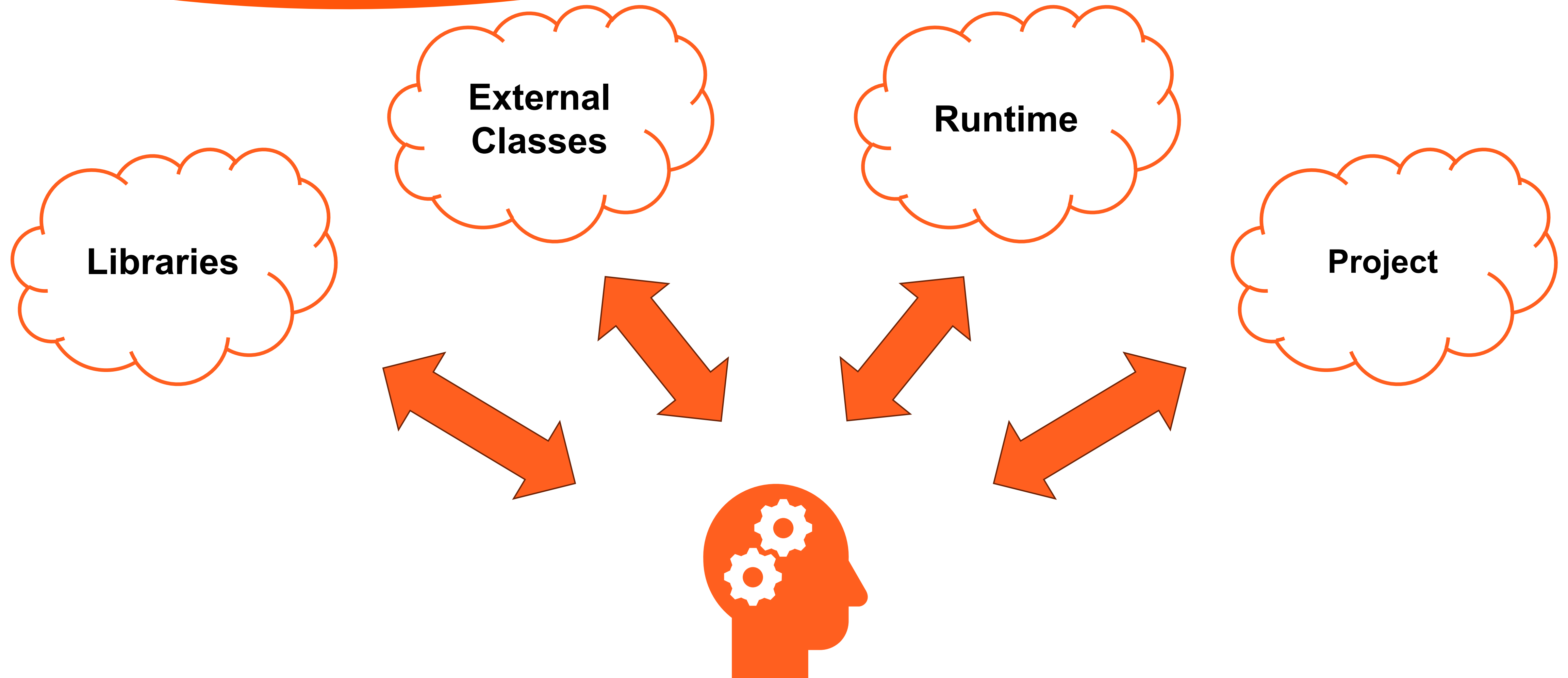
EXTERNAL CLASSES OVERVIEW



DEMO

LIBRARY SIDE OF EXTERNAL CLASSES

EXTERNAL CLASSES SUMMARY



SUMMARY

- Multi-Platform Support
 - WebAssembly, Linux, MacOS
 - Linker
- Development Workflow
- External Classes
 - Modularization



/*END*/

