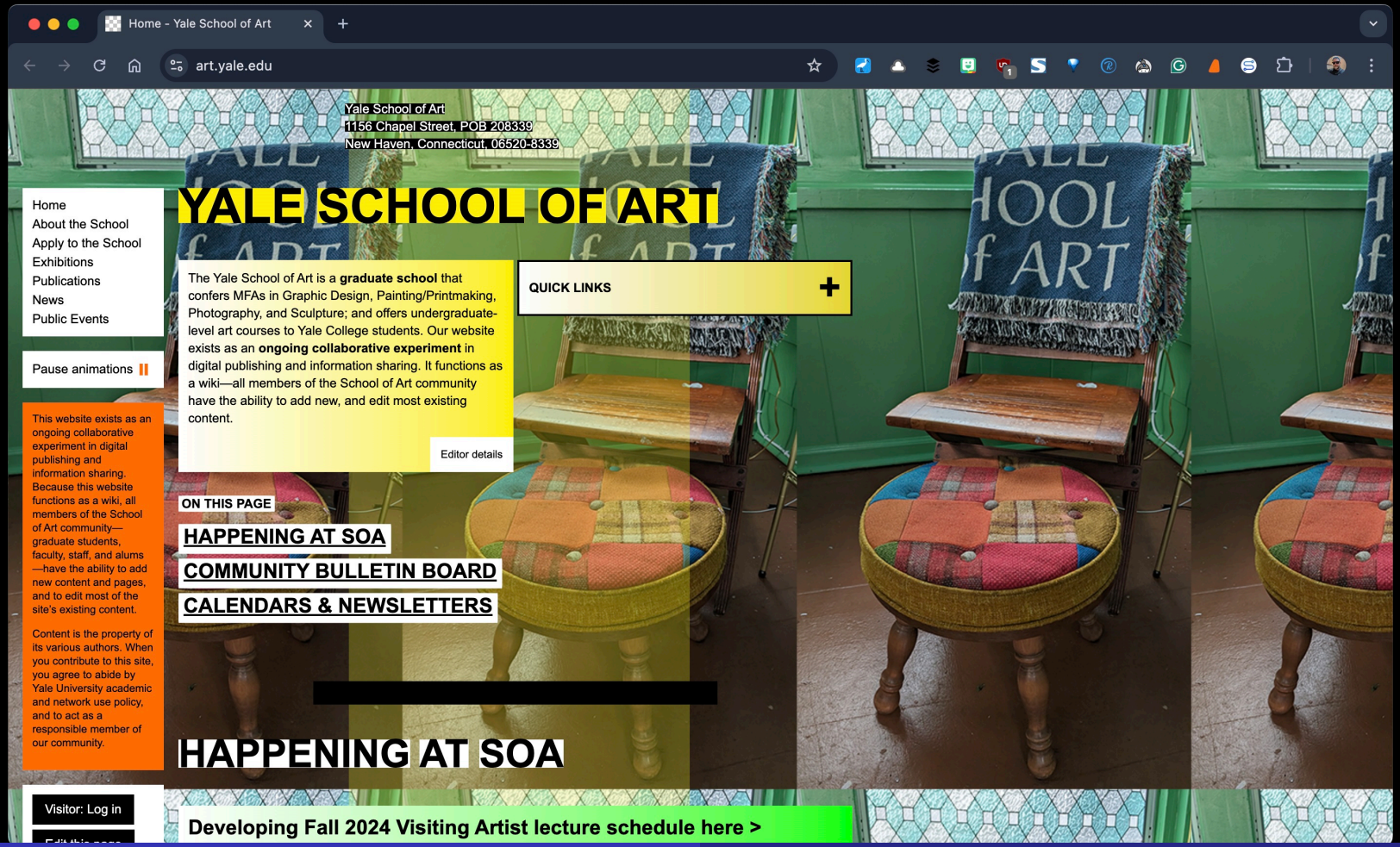
Streamlining the Developer Experience

The Power of Standardization and Interoperability

@IAmJerdog

DevEx as Disaster…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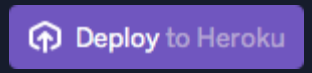
Developing Fall 2024 Visiting Artist lecture schedule here >

…or DevEx as a Delight?

```
git push heroku master
```

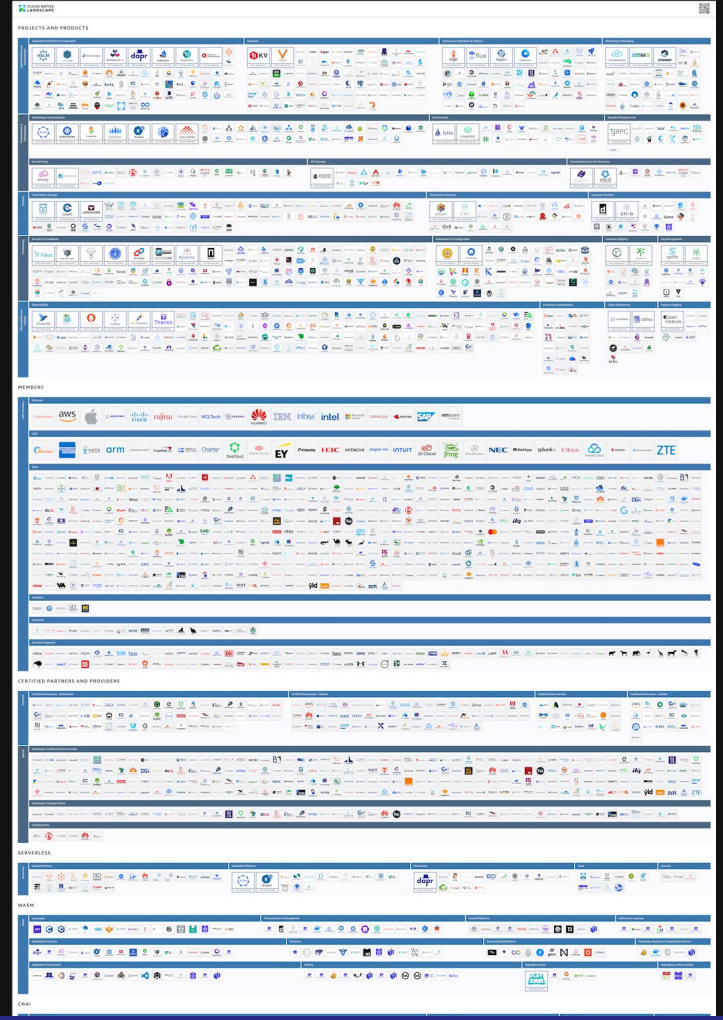


CLOUD NATIVE
COMPUTING FOUNDATION

CNCF Landscape

- 204 projects
- 751 member companies
- 873 repositories
- 250k+ contributors

as of 11-Oct-2024



Jeremy Meiss

DevEx / DevRel Consultant

DevOpsDays Kansas City Organizer

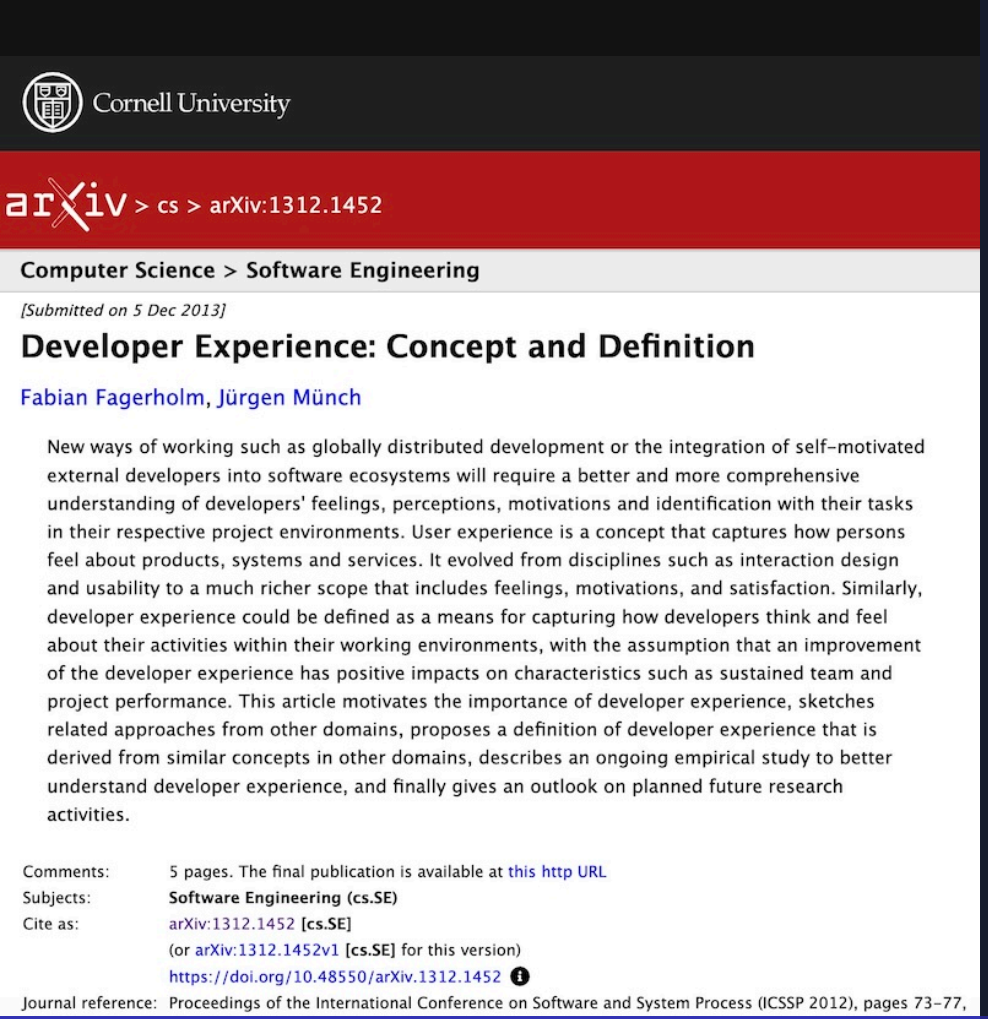
A working definition of DevEx

*"...the **journey** of developers and practitioners as they learn and deploy technology, which if successful, focuses on eliminating obstacles that hinder them from achieving success in their endeavors."*

-**Jessica West**, *Co-Founder, DevEx Institute*

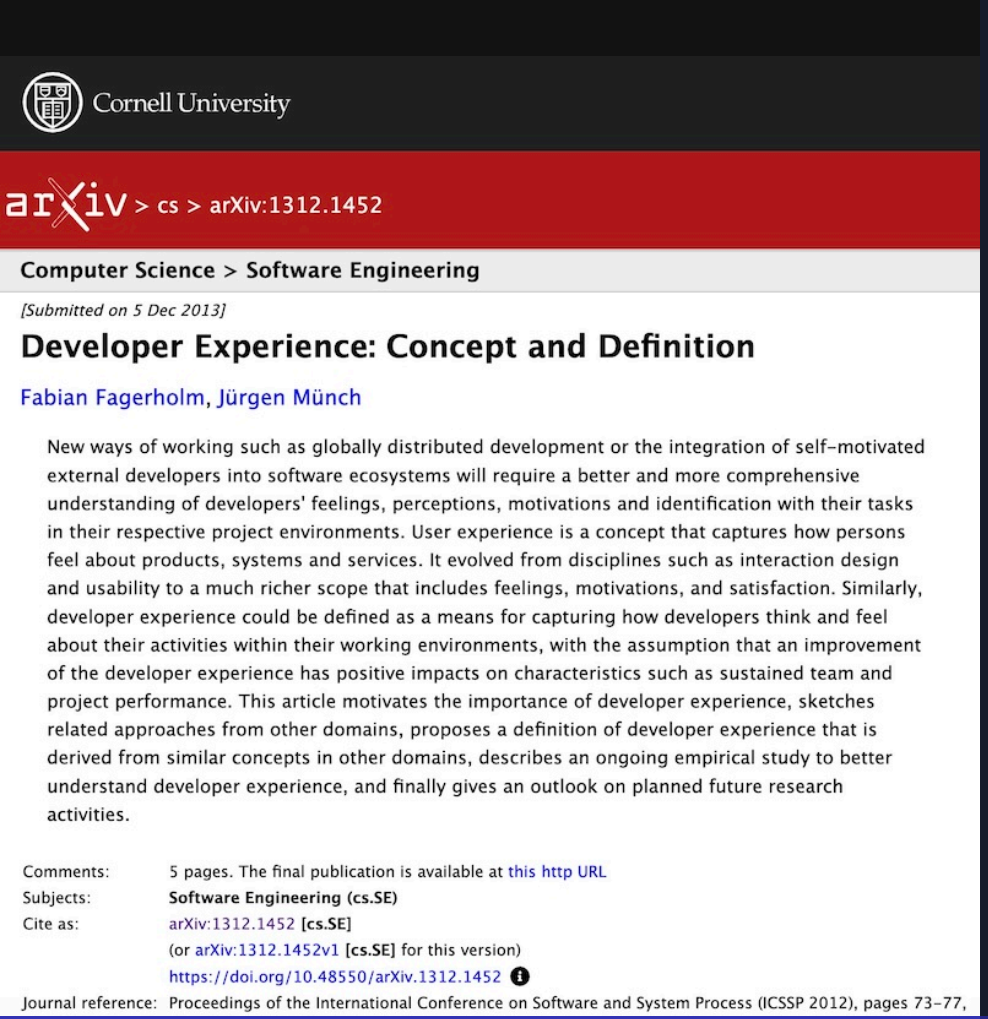

DevEx
A Good Developer Experience
EFFECIENCY
EFFECIENCY
DEVELOPIER
EFFECIENCY


DEVELOPER EXPERIENCE
DEVEX
PLANNING
DEVEX
CODING
CODING
CODING
CODING
PARNING
Software Development Lifecyce
CODING
TESTING
TESTING
Software
Deployment



DevEx isn't new

REF: F. Fagerholm and J. Münch, "Developer experience: Concept and definition," 2012 International Conference on Software and System Process (ICSSP), Zurich, Switzerland, 2012.



Cornell University

arXiv > cs > arXiv:1312.1452

Computer Science > Software Engineering

[Submitted on 5 Dec 2013]

Developer Experience: Concept and Definition

Fabian Fagerholm, Jürgen Münch

New ways of working such as globally distributed development or the integration of self-motivated external developers into software ecosystems will require a better and more comprehensive understanding of developers' feelings, perceptions, motivations and identification with their tasks in their respective project environments. User experience is a concept that captures how persons feel about products, systems and services. It evolved from disciplines such as interaction design and usability to a much richer scope that includes feelings, motivations, and satisfaction. Similarly, developer experience could be defined as a means for capturing how developers think and feel about their activities within their working environments, with the assumption that an improvement of the developer experience has positive impacts on characteristics such as sustained team and project performance. This article motivates the importance of developer experience, sketches related approaches from other domains, proposes a definition of developer experience that is derived from similar concepts in other domains, describes an ongoing empirical study to better understand developer experience, and finally gives an outlook on planned future research activities.

Comments: 5 pages. The final publication is available at this http URL
Subjects: **Software Engineering (cs.SE)**
Cite as: arXiv:1312.1452 **[cs.SE]**
(or arXiv:1312.1452v1 **[cs.SE]** for this version)
https://doi.org/10.48550/arXiv.1312.1452
Journal reference: Proceedings of the International Conference on Software and System Process (ICSSP 2012), pages 73–77,

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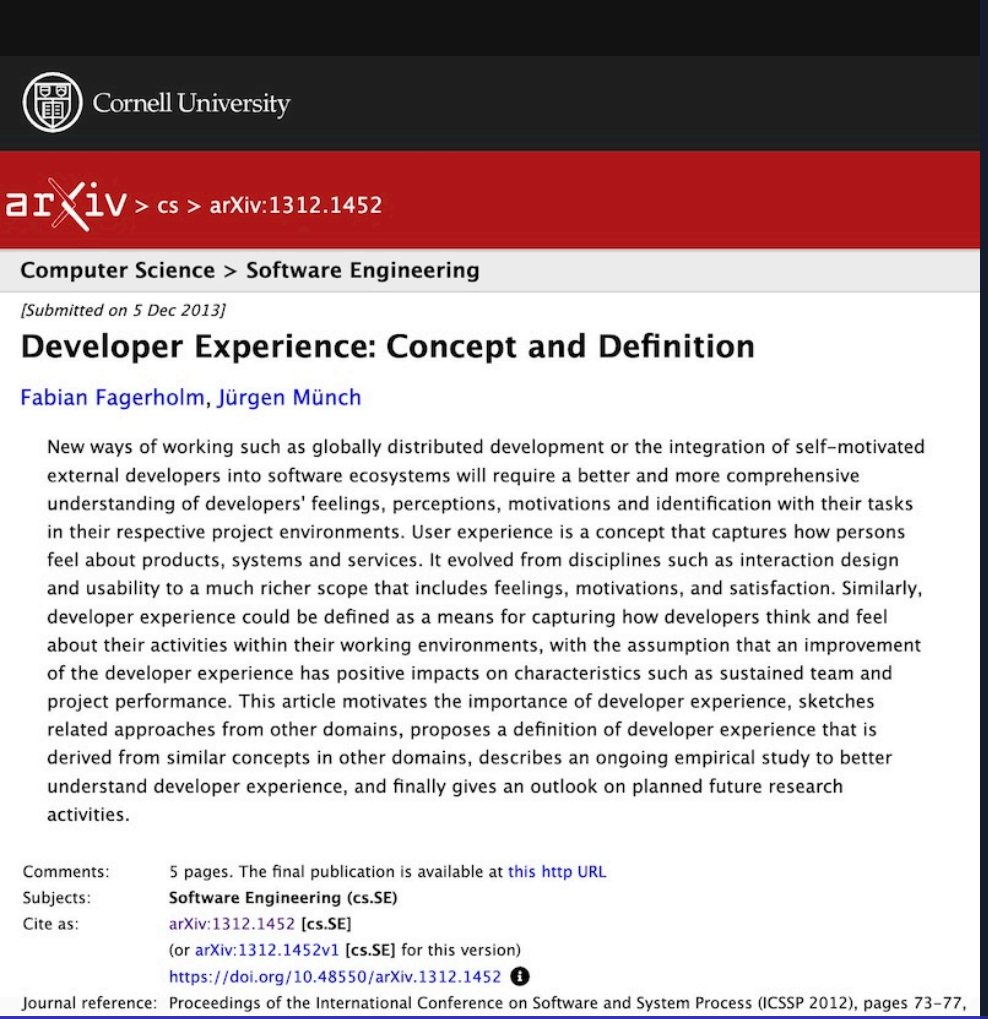

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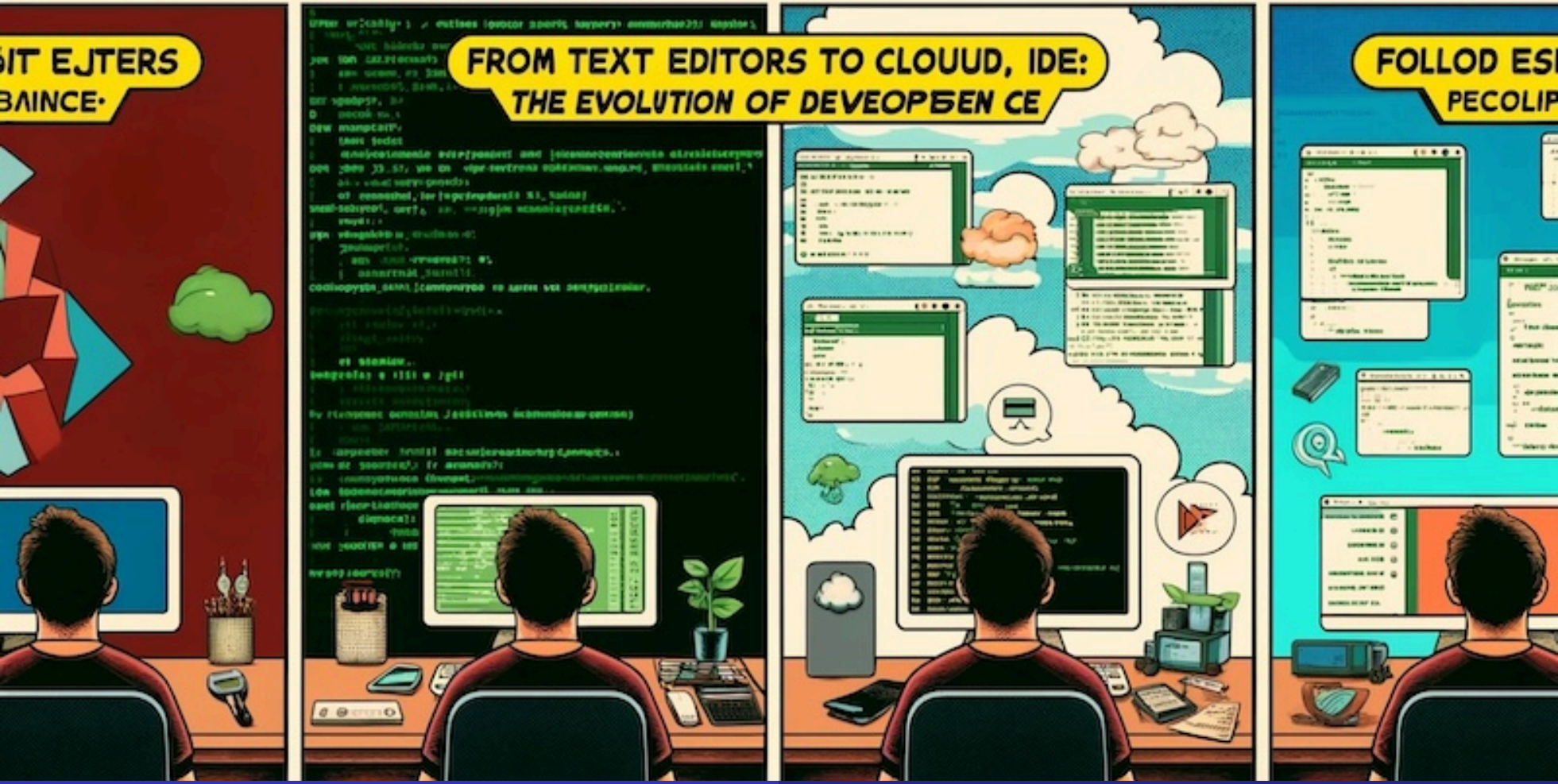
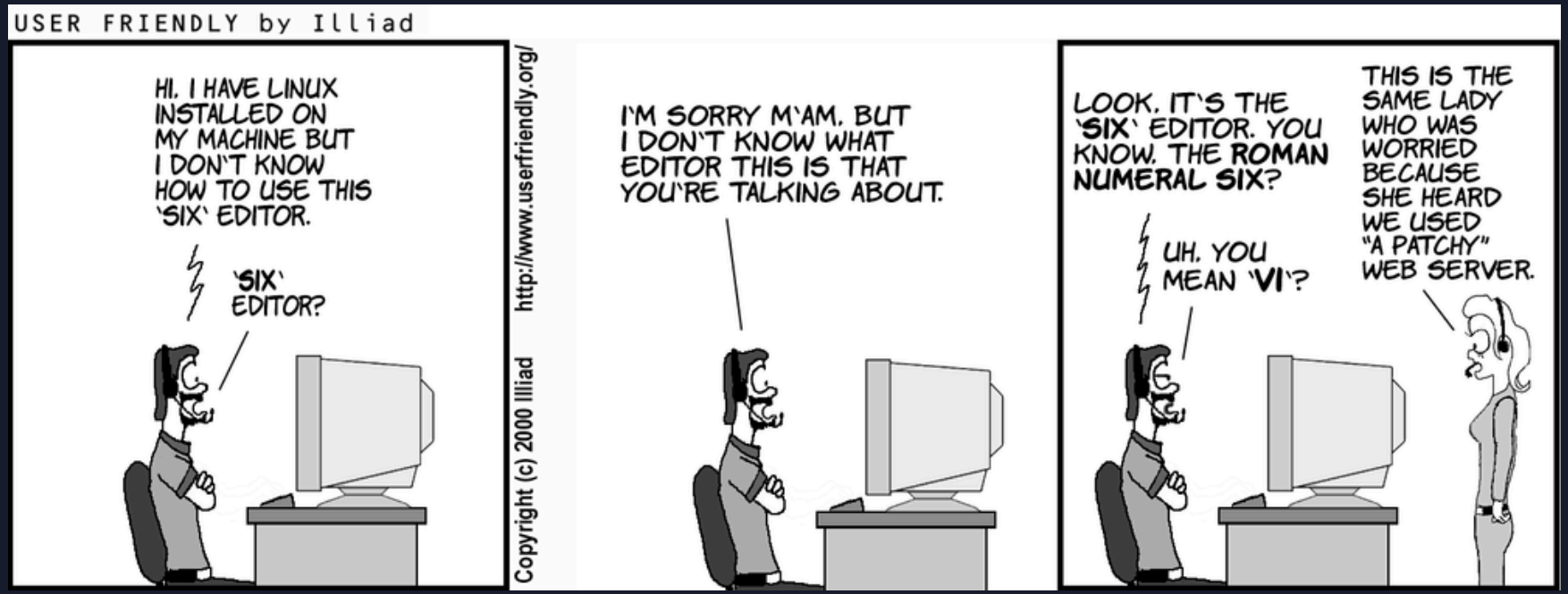
Point of clarification

- "DevEx" by default focuses on "developer"
- View "DevEx" as a whole of the lifecycle


FROM TEXT EDITORS TO CLOUUD, IDE:
THE EVOLUTION OF DEVEOPБEN CE

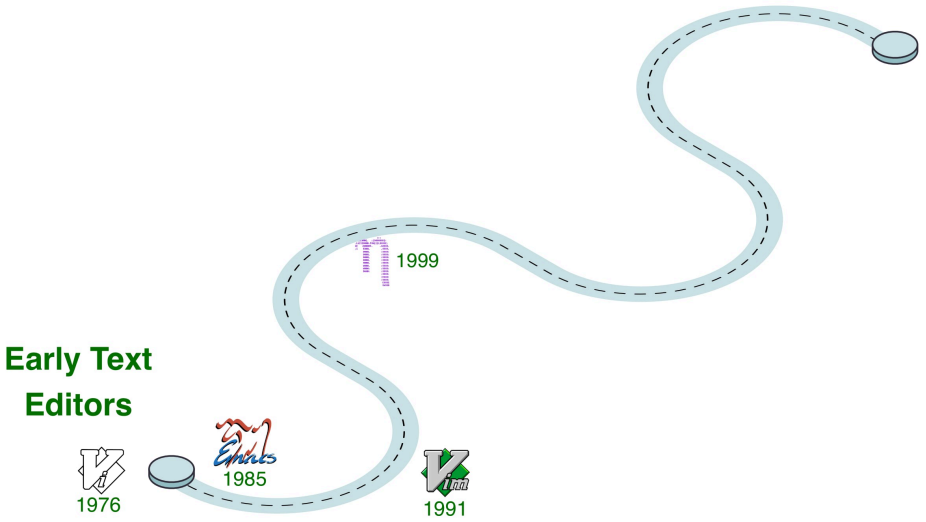
The evolution of the IDE

Early text editors



REF: O'Reilly "Learning the vi and Vim Editors"

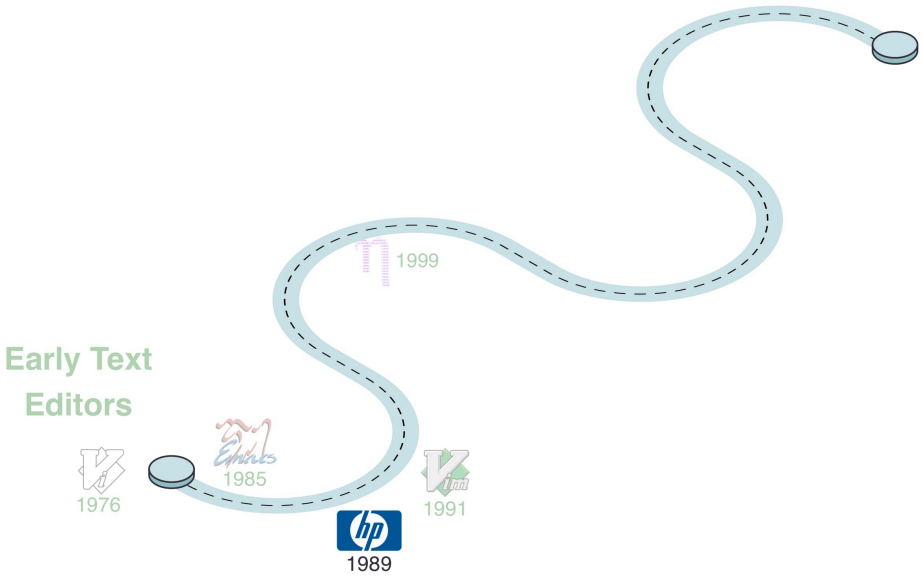
EVOLUTION OF THE IDE



Early text editors

- Emacs, 1985
- Vim, 1991
- `nano`, 1999

EVOLUTION OF THE IDE



First plug-in IDE

HP Softbench, 1989

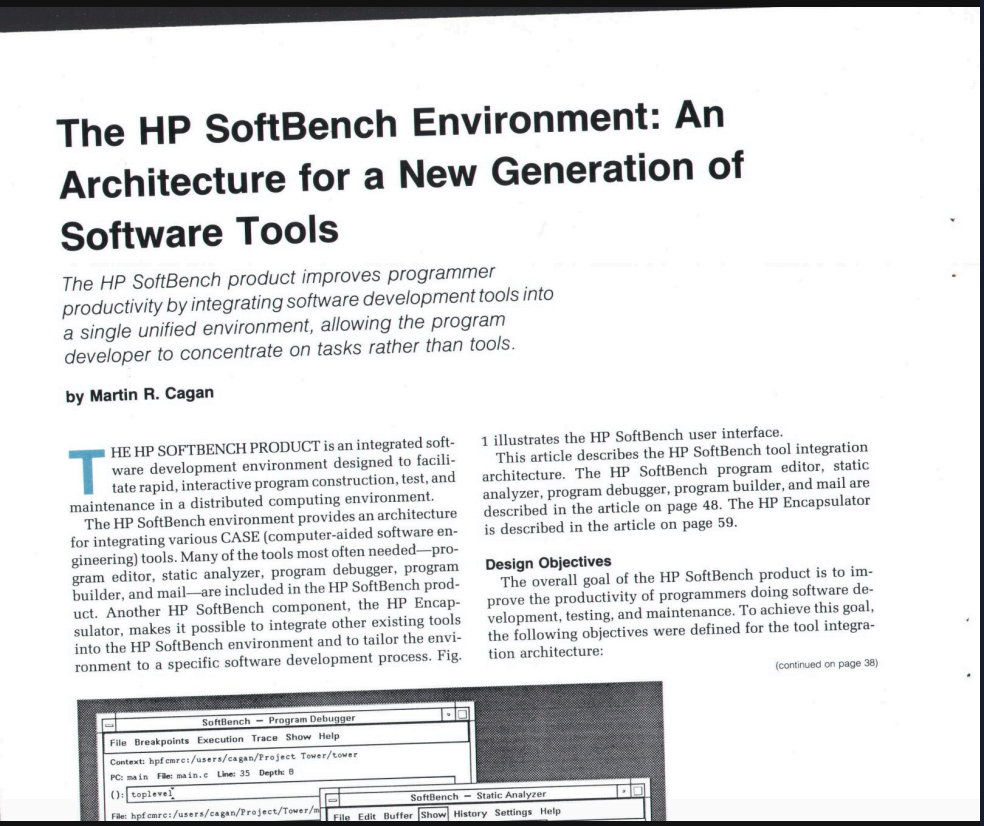
First plug-in IDE

HP Softbench, 1989

First plug-in IDE

HP Softbench, 1989

REF: HP Journal, June 1990 edition



The HP SoftBench Environment: An Architecture for a New Generation of Software Tools

The HP SoftBench product improves programmer productivity by integrating software development tools into a single unified environment, allowing the program developer to concentrate on tasks rather than tools.

by Martin R. Cagan

THE HP SOFTBENCH PRODUCT is an integrated software development environment designed to facilitate rapid, interactive program construction, test, and maintenance in a distributed computing environment.

The HP SoftBench environment provides an architecture for integrating various CASE (computer-aided software engineering) tools. Many of the tools most often needed—program editor, static analyzer, program debugger, program builder, and mail—are included in the HP SoftBench product. Another HP SoftBench component, the HP Encapsulator, makes it possible to integrate other existing tools into the HP SoftBench environment and to tailor the environment to a specific software development process. Fig. 1 illustrates the HP SoftBench user interface.

This article describes the HP SoftBench tool integration architecture. The HP SoftBench program editor, static analyzer, program debugger, program builder, and mail are described in the article on page 48. The HP Encapsulator is described in the article on page 59.

Design Objectives

The overall goal of the HP SoftBench product is to improve the productivity of programmers doing software development, testing, and maintenance. To achieve this goal, the following objectives were defined for the tool integration architecture:

(continued on page 38)

SoftBench — Program Debugger

File Breakpoints Execution Trace Show Help

Context: hpfcmrc:/users/cagan/Project Tower/tower

PC: main File: main.c Line: 35 Depth: 0

(): toplevel

File: hpfcmrc:/users/cagan/Project/Tower/m

SoftBench — Static Analyzer

File Edit Buffer Show History Settings Help

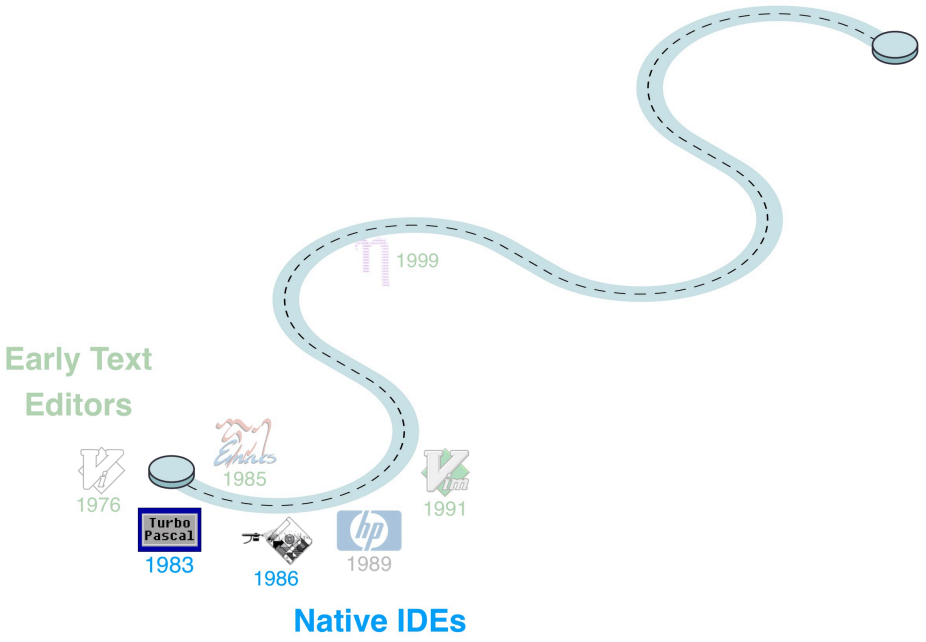
Evolution of the IDE

Early Reviews

> "...the use of an IDE was not well received by developers since it would fence in their creativity."

REF: *Computerwoche* ("Computer Week", German counterpart of American magazine *Computer World*), 1995.

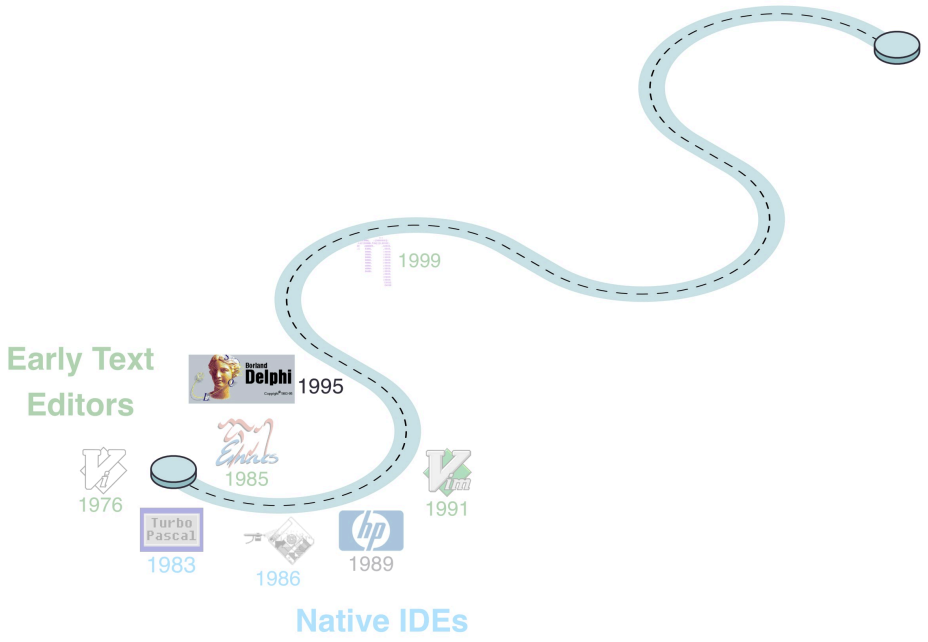
EVOLUTION OF THE IDE



Native IDEs in the 1980s

- Turbo Pascal, 1983
- Apple's Macintosh Programmer's Workshop, 1986

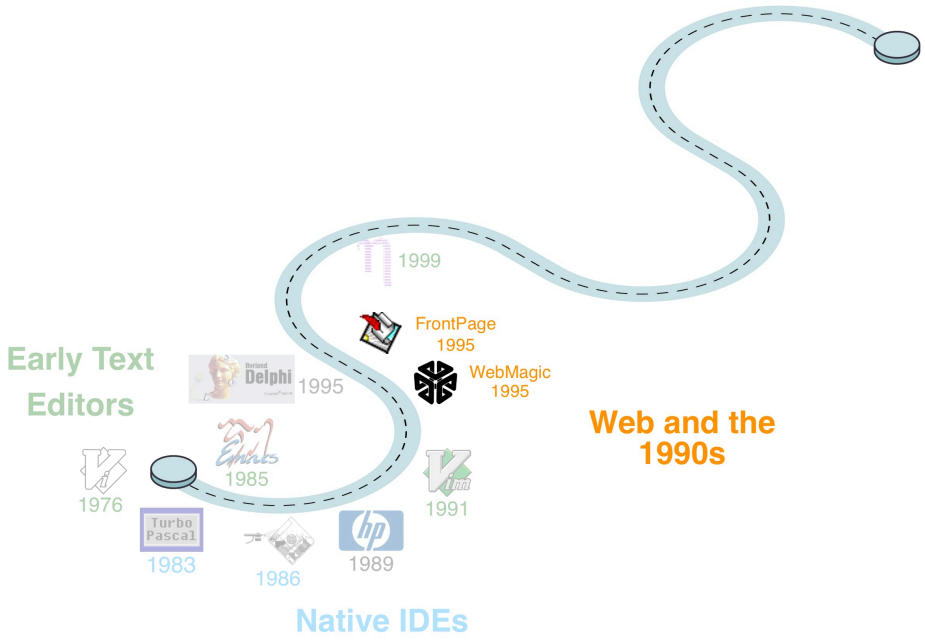
EVOLUTION OF THE IDE



Cross-platform in the 1990s

- Borland Delphi, 1995

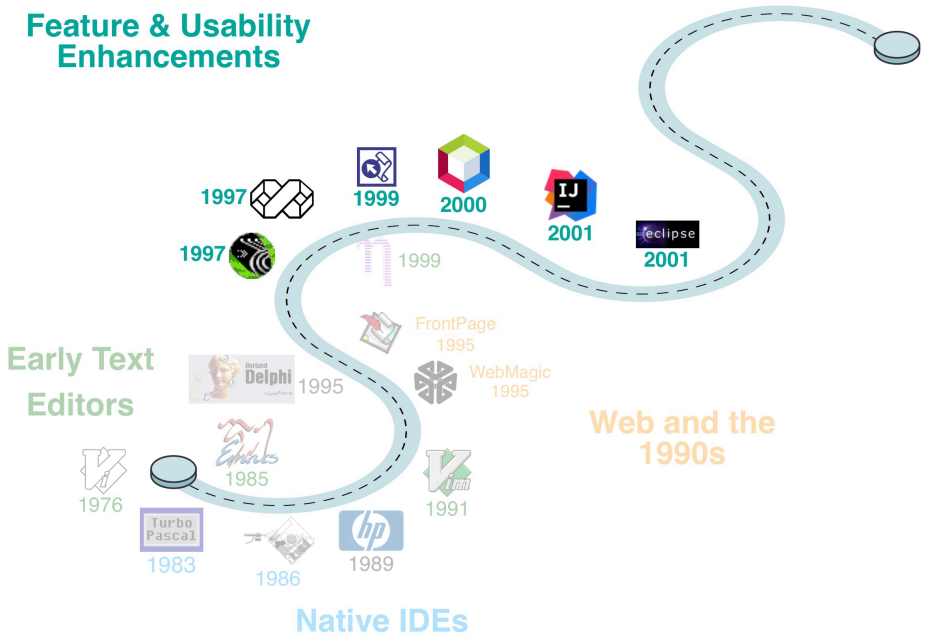
EVOLUTION OF THE IDE



The Web and the 1990s

- Netscape Navigator, 1995
- SGI WebMagic, 1995 (story)
- Microsoft FrontPage, 1995

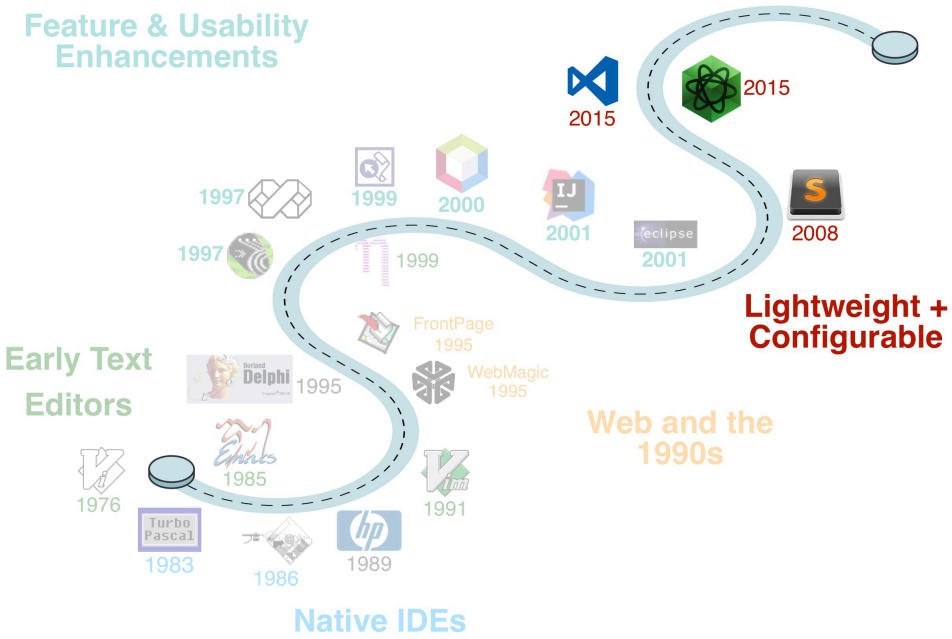
EVOLUTION OF THE IDE



Feature & Usability Advancements (1990s - 2000s)

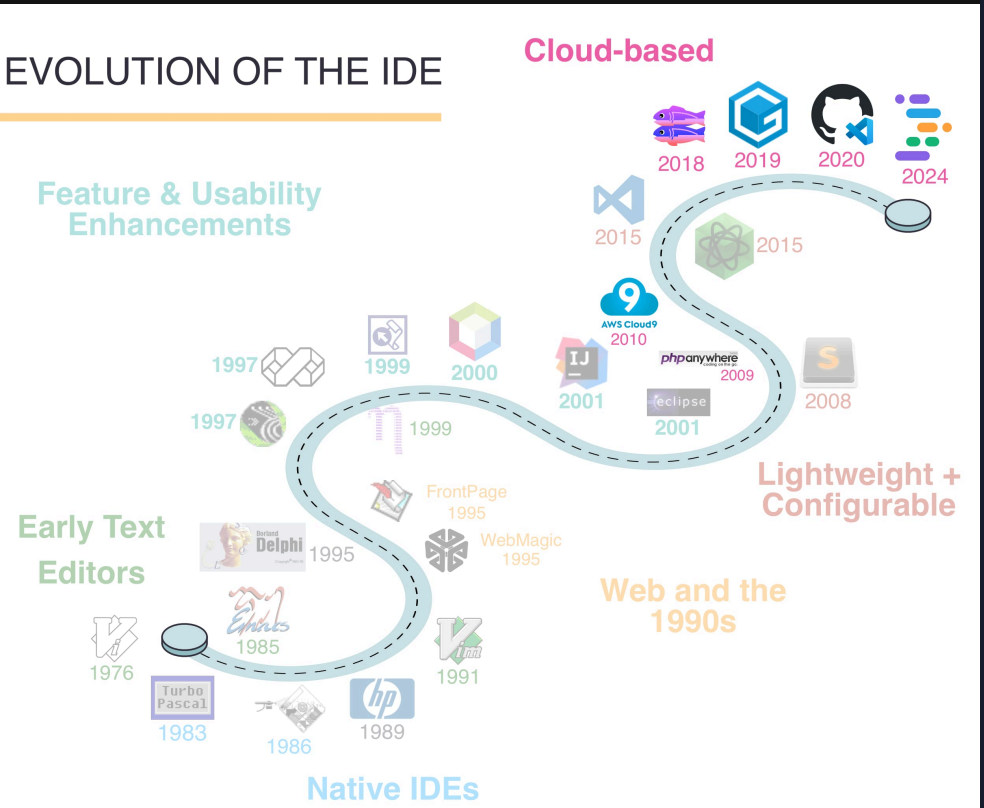
- Macromedia Dreamweaver, 1997
- MS FrontPage 2000, 1999
- NetBeans, 2000
- IntelliJ IDEA, 2001
- Eclipse, 2001
- MS Visual Studio, 2001

EVOLUTION OF THE IDE



Lightweight and configurable (2010s - Now)

- Sublime Text, 2008
- Atom, 2014
- VS Code, 2015



Cloud-based options

- PHPAnywhere (CodeAnywhere), 2009
- Cloud9, 2010
- Glitch, 2018
- GitPod, 2019
- GitHub Codespaces, 2020
- Google's Project IDX, 2024

IDEs are a result of DevEx

Things we never knew we needed...

From this:

> "...the use of an IDE was not well received by developers since it would fence in their creativity."

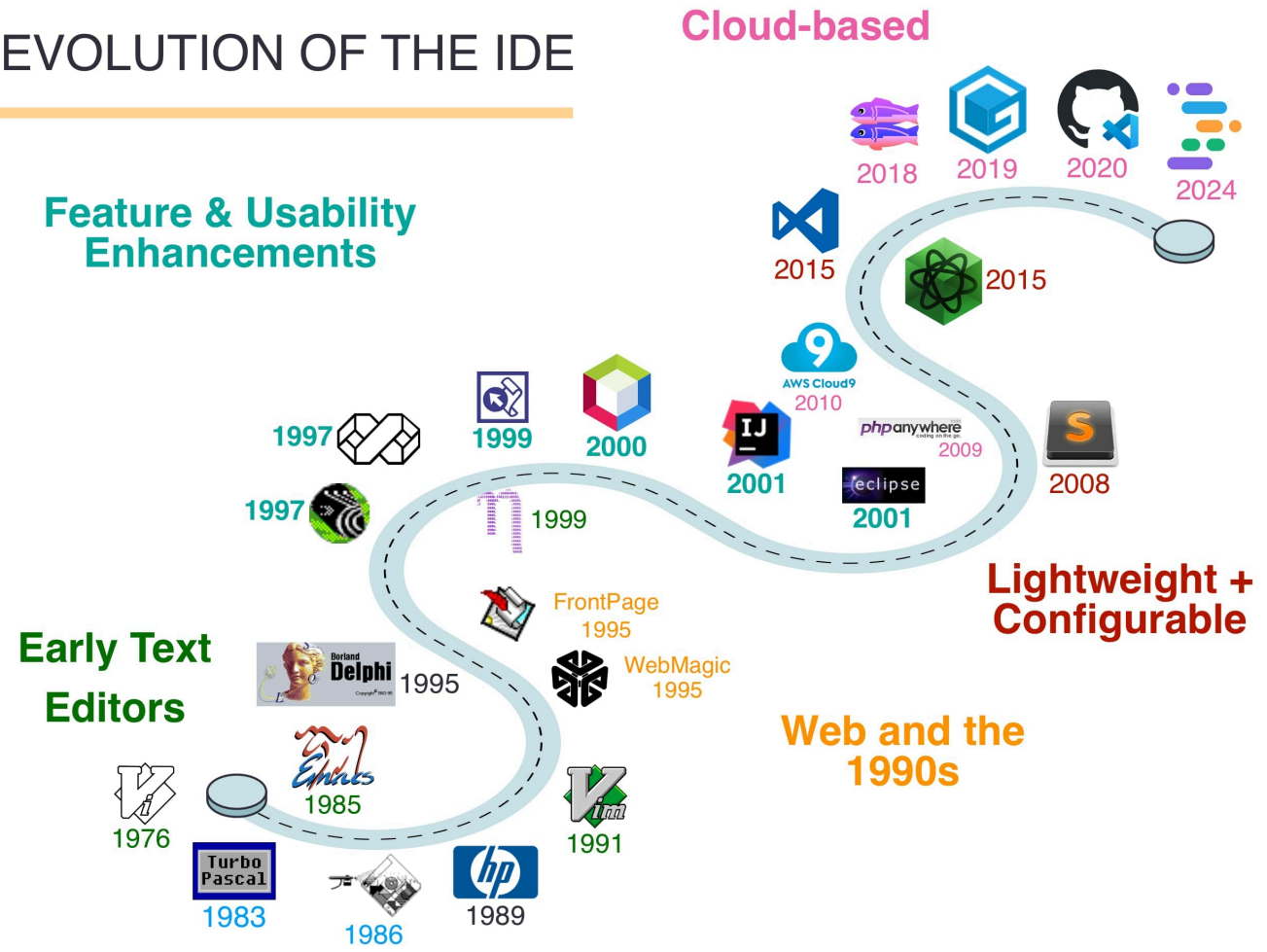
IDEs are a result of DevEx

Things we never knew we needed...

To this:

- Code completion
- Syntax highlighting
- Debugging
- VCS integration (no more FTP)
- Multi-language support
- Framework integration
- Pair programming

EVOLUTION OF THE IDE




CI/CD
Standardization
Interoperability

CI/CD Standardization

- consistency to development pipelines
- reduces friction
- enhances collaboration

Implementing CI/CD Standardization

Assessment and Analysis

- Thoroughly assess your current CI/CD pipelines
- Identify pain points and bottlenecks
- Analyze specific requirements and constraints

Implementing CI/CD Standardization

Define Standardization Goals

- Define goals and objectives, align with strategy and objectives
- Determine success, like reduced deployment times / error rates

Implementing CI/CD Standardization

Select Tools and Practices

- Choose tools & practices aligned with organization needs, goals
- Establish standard templates and configurations for pipelines
- Enforce coding standards for consistency and readability

Implementing CI/CD Standardization

Utilize Version Control

- Store pipeline configs as code in version control systems
- Implement branching and pull request strategies

Implementing CI/CD Standardization

Automated Testing and Validation

- Integrate automated testing and validation into templates
- Implement code reviews and peer validation early in dev process

Implementing CI/CD Standardization

Documentation and Training

- Create comprehensive docs for processes, configs, best practices
- Provide training to ensure understanding and effective use

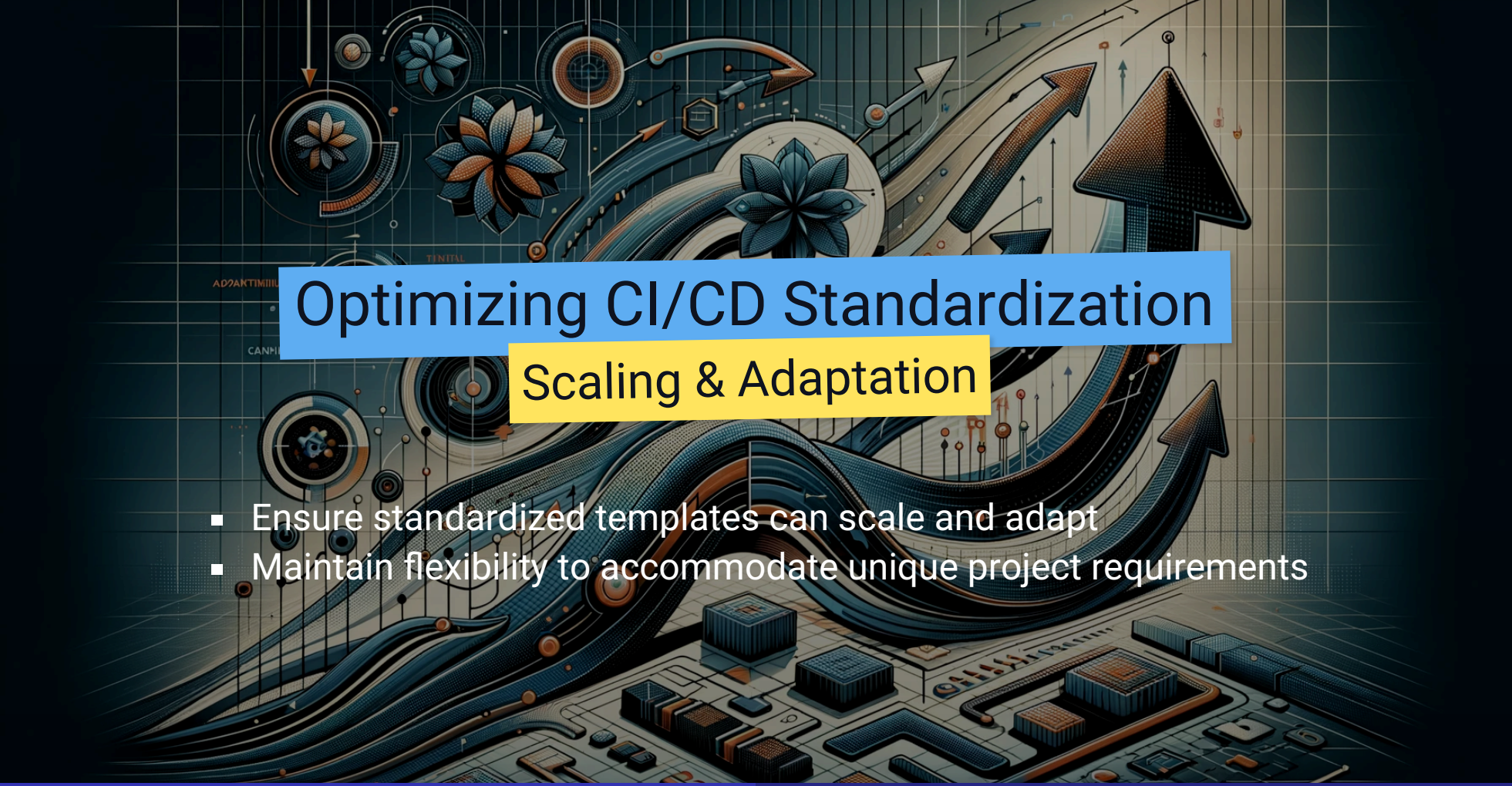
Optimizing CI/CD Standardization

Optimizing CI/CD Standardization

Continuous Monitoring & Improvement

- Detect pipeline issues and bottlenecks in real-time
- Establish culture of regular reviews and updating pipelines


Optimizing CI/CD Standardization
Governance & Compliance
Implement governance policies to enforce pipeline standards
Validate compliance with industry regulations / internal standards
Regularly audit and assess adherence to standardized practices



Optimizing CI/CD Standardization

Scaling & Adaptation

- Ensure standardized templates can scale and adapt
- Maintain flexibility to accommodate unique project requirements

Optimizing CI/CD Standardization

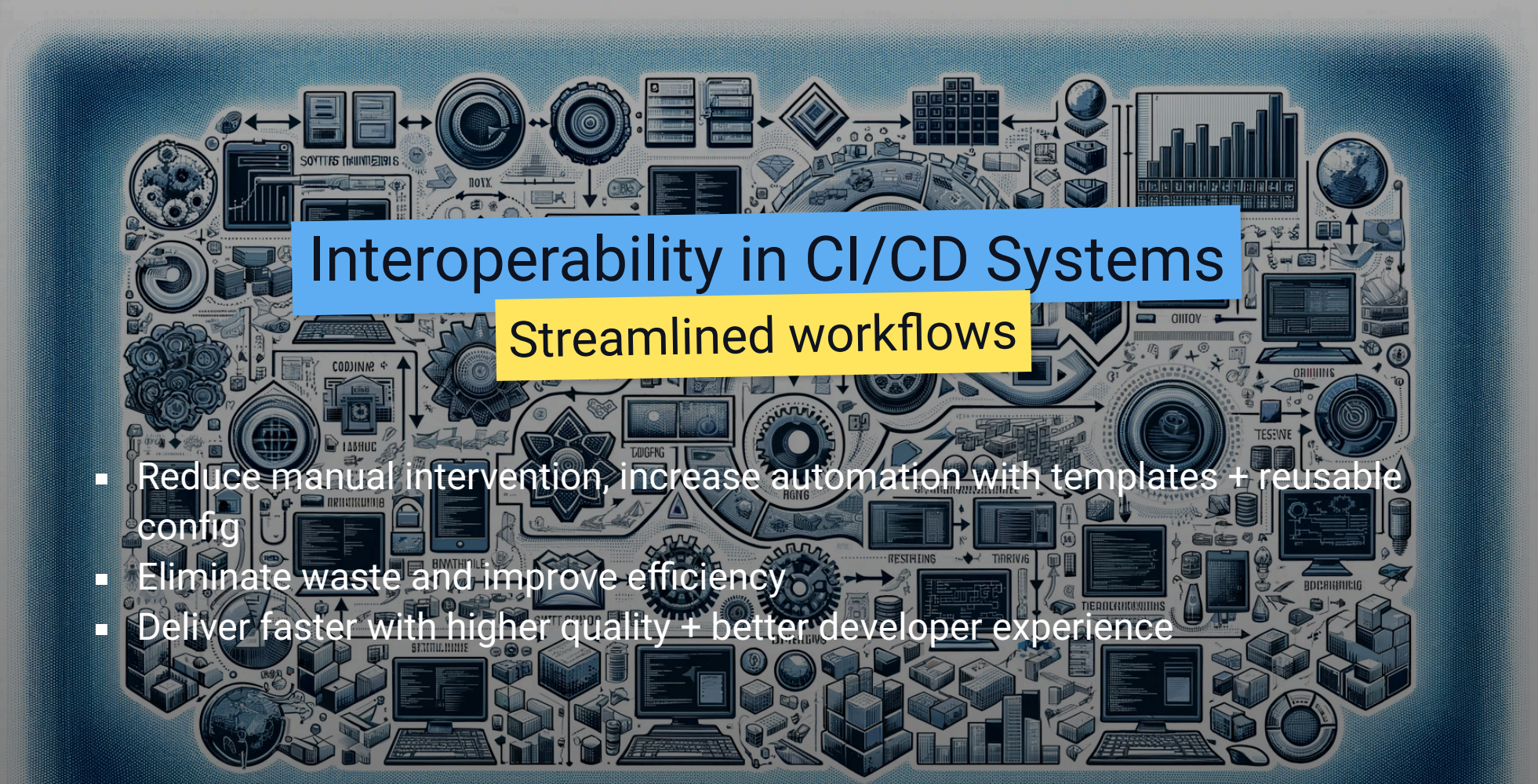
Feedback Loop & Collaboration

- Foster collaborative environments where feedback & contributions encouraged
- Continuously communicate benefits of standardized pipelines & celebrate successes


CI/CD PIPELINE
PIPELINE
TESTING
DEPLOYMENT
MEPLOYATION
TESTING
DEPLOYING
MEPLOYATION
MEPLOLYATIEND
OPTIMIATION

CI/CD Interoperability

- seamless integration across diverse toolsets
- fosters flexibility in development environments



Interoperability in CI/CD Systems

Streamlined workflows

- Reduce manual intervention, increase automation with templates + reusable config
- Eliminate waste and improve efficiency
- Deliver faster with higher quality + better developer experience

Interoperability in CI/CD Systems

Cross-functional collaboration

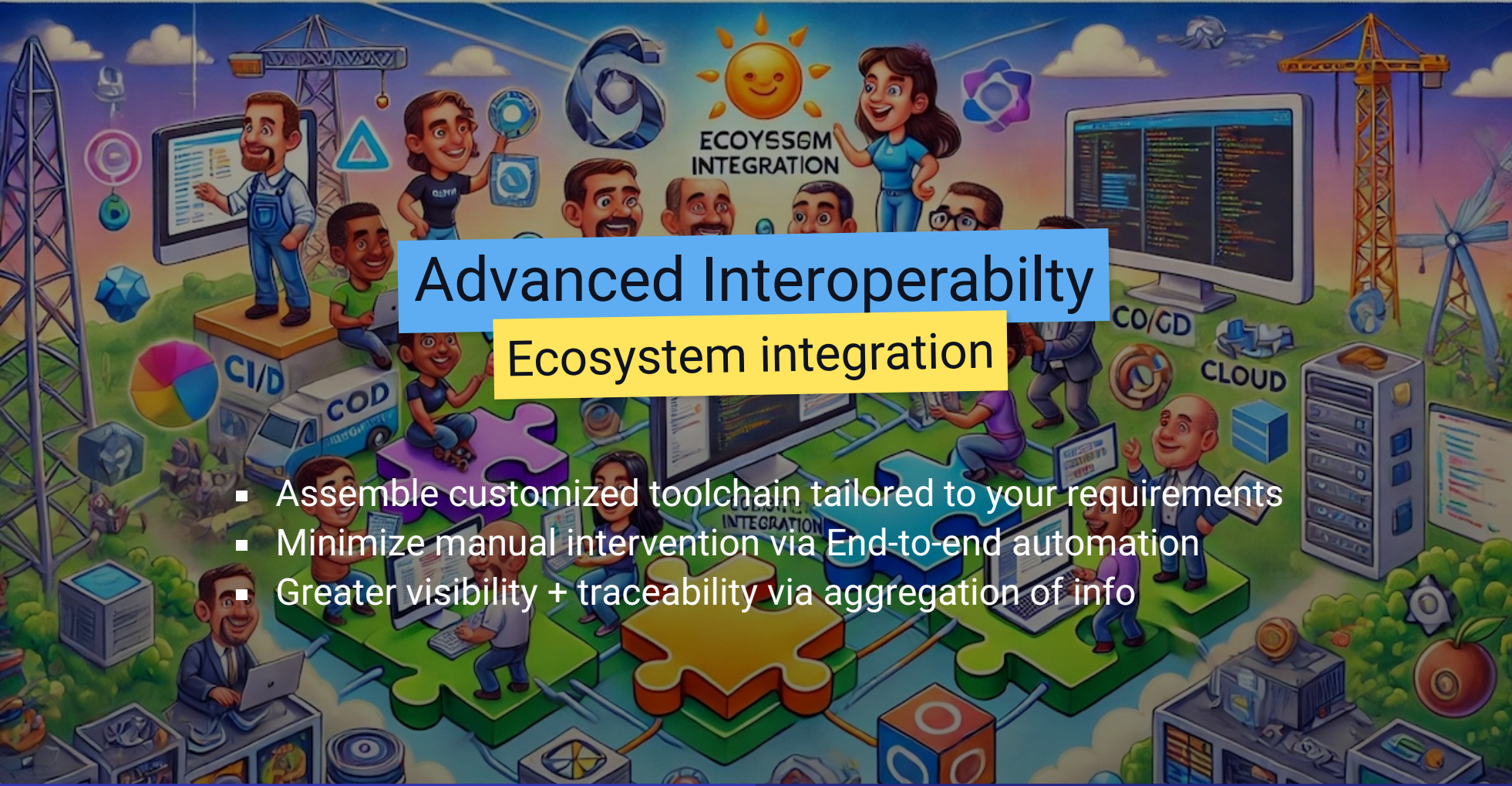
- Have shared goals and break down silos
- Improve resource utilization and efficiency
- Leverage strengths and expertise of each team

Interoperability in CI/CD Systems

Flexibility and adaptability

- Respond quickly to rapid change by adjusting workflows, add new tools, adopt new practices
- Experiment and innovate quickly by leveraging new tools and technologies
- Increase efficiency by leveraging existing resources and tools


Advanced Mod
INTEROPERABITY



Advanced Interoperabilty

Ecosystem integration

- Assemble customized toolchain tailored to your requirements
- Minimize manual intervention via End-to-end automation
- Greater visibility + traceability via aggregation of info

Advanced Interoperabilty

Ecosystem integration

Role of community and Open Source

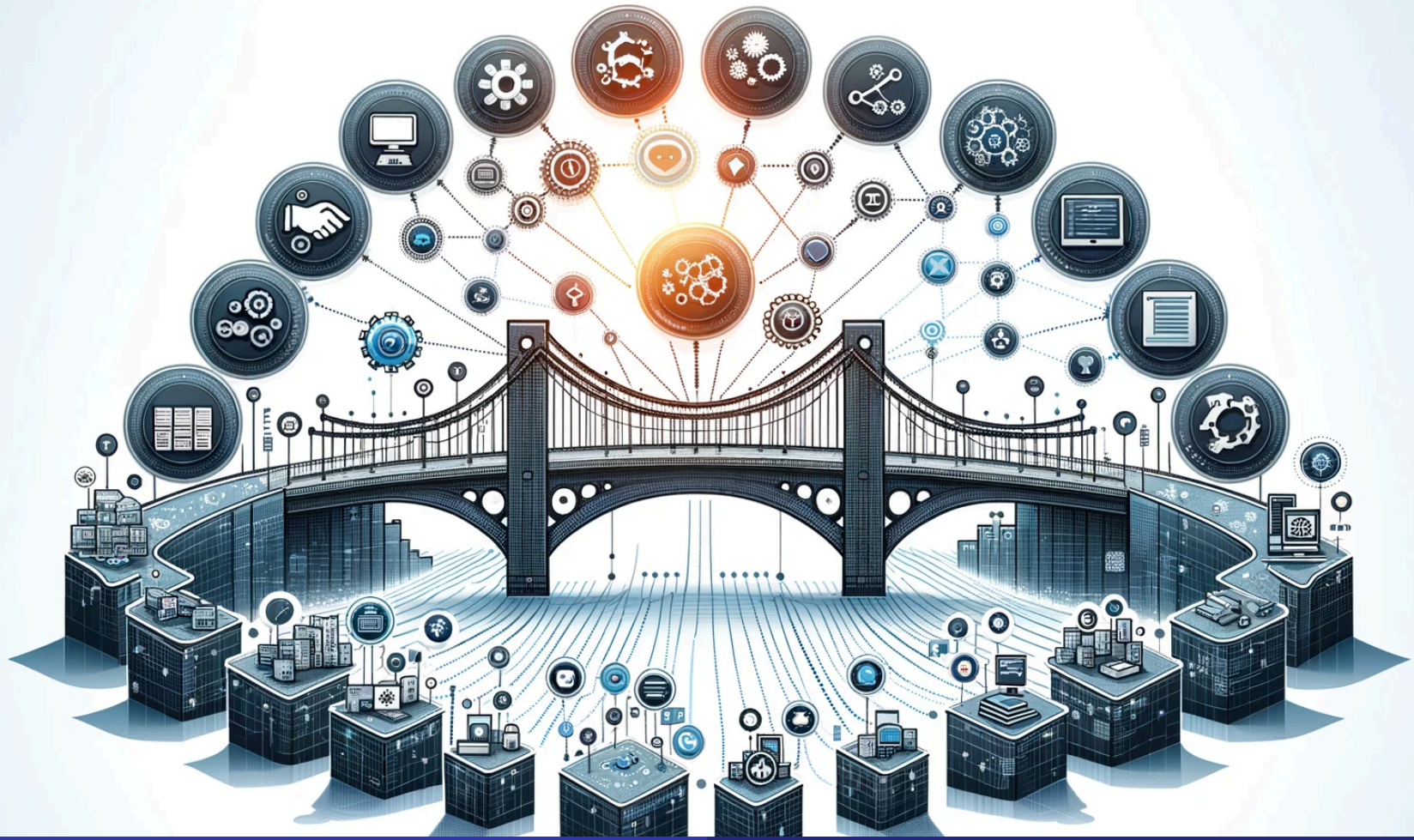
- Address potential interoperabilty challenges (case studies, submitting fixes)
- Create external community around your tools, gathering feedback directly


Advanced Interoperabilty
Troubleshooting and debugging
Identify and resolve issues early
Proactive problem solving with data and automation
Faster resolution and improved reliability
CODE
TROUBLESHOTING
DEBOPING

Advanced Interoperabilty

Cross-platform deployment

- Provide uniform approach for diverse platforms
- Reduced complexity and increased efficiency
- Broader reach and greater impact



CI/CD Interoperability Challenges…

…and Remedies

Challenges	Remedy
Diverse Toolsets & Ecosystems	*Prioritize critical dependendencies, objectives*
Data formats and schema differences	*Implement unified data formats*
Authentication and Authorization	*Standardize methods, integrate governance*
Versioning and compatibility testing	*Clear versioning policies, regular compatibility testing*
Lack of documentation	*Prioritize efforts + allocate resources, implement standards + process*

DevEx reflects an organization's values

DevEx is...

> ...ruthlessly eliminating the barriers (and blockers) that keep your developers (and practitioners) from being successful

-Me

Thank You.


/in/jeremymeiss


@IAmJerdog

@jerdog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END