Eclipse IDE and RCP Platform: Unveiling the Past, Present and Future

Johannes Matheis (Vector Informatik GmbH), Mark Goodchild (Renesas), Sebastian Ratz (SAP SE), Heiko Klare (Vector Informatik GmbH)
Eclipse RCP: A Widely Adopted Framework

- e² Studio: MCU Development
  Renesas

- ADT: ABAP Development
  SAP SE

- PREEvision: E/E Design
  Vector Informatik GmbH
Eclipse IDE: 20 Years of History

Eclipse 3.x

Eclipse 4.x

2001 2004 2010 2013 2021 2023

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https://www.adictosaltrabajo.com/2006/07/06/callisto/
Drivers for Eclipse Adoption

Vendor Neutral

Open Source / Open to Contribute

Proven and Stabilized

Extensible

Active Member Companies:
Member companies supporting this project over the last three months.

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Current State of the Eclipse IDE / RCP

Still several USPs

... but lacking

- Attractiveness
- Responsiveness
- Ease of use
- ...
Missing Progress in Last Decade
Trends in IDE Development

- **Simplification of Dev Workflows**
  - Improve UX/UI / responsiveness / setup

- **AI-Supported Coding**
  - Improve ease-of-integration (e.g., LSP)

- **Emerging Technologies**
  - Integrate dev containers (see VS Code)

- **Rise of APIs**

- **Cloud IDEs**
  - Improve browser integration / portability

- **Greater Emphasis on Security**
  - Security and vulnerability initiative at EF

- **Ecosystems, not just Communities**
  - Improve ease-of-use / monetization

- **Social Coding**

Supported via extensible RCP platform

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Progress Since EclipseCon 2022

Eclipse IDE Working Group Investments
- Secured investments
- Additional funding & developers
- New charter

Simplification of Development Workflows
- Started analyzing and addressing fundamental issues:
  - Attractiveness / ease of use
  - Responsiveness
  - Keep up with new trends (AI)

Eclipse Hackathon at SAP
Challenges in Platform Development

Trade-Offs

- Adaptation to new trends / technologies (Web, AI etc.)
- Stability
- Adaptivity
- IDE: One product on RCP
- RCP: Platform for many products
- Stable APIs for large base of existing adopters

Architectural Challenges
- Synchronous execution
- SWT paradigm
## Current Work on Essential Topics

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<th>Simplification of Dev Workflows</th>
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**Modernized UX / UI**
- Modernized look and feel
- Proper HiDPI support
- Performance (responsiveness, freezes)

**Lightweight Setup** (IDE + Workspace)
- Onboarding

**Adoption of AI Trends**

**Support for Technology Providers**

- Rise of APIs
- Social Coding
- Eclipse IDE and RCP Platform: Unveiling the Past, Present and **Future** ~ Johannes, Mark, Sebastian, Heiko
Modernized Find and Replace

New: Overlay or integrated in view

Existing: Free-floating dialog

State: WiP
Proposal approved, Initial PR in discussion

https://github.com/eclipse-platform/eclipse-platform.ui/pull/1192
Multi-Monitor HiDPI Support

Simplification of Dev Workflows

State: WiP
Advanced technical realization

Moving to Monitor With Different DPI Scaling
Here: 150%

Current: Blurry scaling

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Long UI Freezes in IDE

Quick Outline in Class With Complex Hierarchy

Severe performance issue in large projects
2000 Plug-ins – PREEvision

State: Analysis
To be addressed in the next time
Improved Onboarding

Simplification of Dev Workflows

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State: Done
Released with 2023-06
Lightweight UI

Simplification of Dev Workflows

State: WiP
PR open, Functionality agreed

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Lightweight UI

Editor area: ‘main actor’

View areas: ‘supporting actors’

State: WiP
PR open, Functionality agreed

Simplification of Dev Workflows

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https://github.com/eclipse-platform/eclipse.platform.ui/pull/1071
AI Integration

Technical Architecture

- Powerful RCP / IDE extension points
- AI integration is possible and mostly an implementation detail
- Is there something missing?

Variety in the Eclipse Ecosystem

- Some AI extensions already out there
- Not all vendors offer 'official' solutions (yet)
- But users are asking for them*

* [https://github.com/orgs/community/discussions/51197](https://github.com/orgs/community/discussions/51197)
Vendor Vision and Strategy

‘All-In’ – Opt for Desktop
- Target = end-user desktop machines
- RCP
- -> dedicated toolsets for industry solutions

Choice for End-Users
- Target = multiple environments
- RCP + LSP for maximum re-use
- -> programming language plug-ins for IDEs, AI

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Assessment of the Eclipse RCP and IDE Ecosystem

- RCP offering is uniquely powerful
- Architecture is tried and tested
- Can handle large workloads
- Eclipse is the vendor-neutral RCP and desktop IDE
- LSP is showing the way to target more ecosystems
Conclusion

- Simplification of Dev Workflows
- AI-Supported Coding
- Emerging Technologies
- Rise of APIs
- Cloud IDEs
- Greater Emphasis on Security
- Ecosystems, not just Communities
- Social Coding

Join Our BoF Session
Eclipse IDE – Contributors and Committer
Today, 19:00 – 20:00
Schubartsaal

Eclipse IDE Working Group
https://eclipseide.org/working-group/

Eclipse SimRel
https://github.com/eclipse-simrel

Let’s grow with us!
- Feedback
- Discussion
- Contributions
- …
Thank you!

Join the conversation:

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