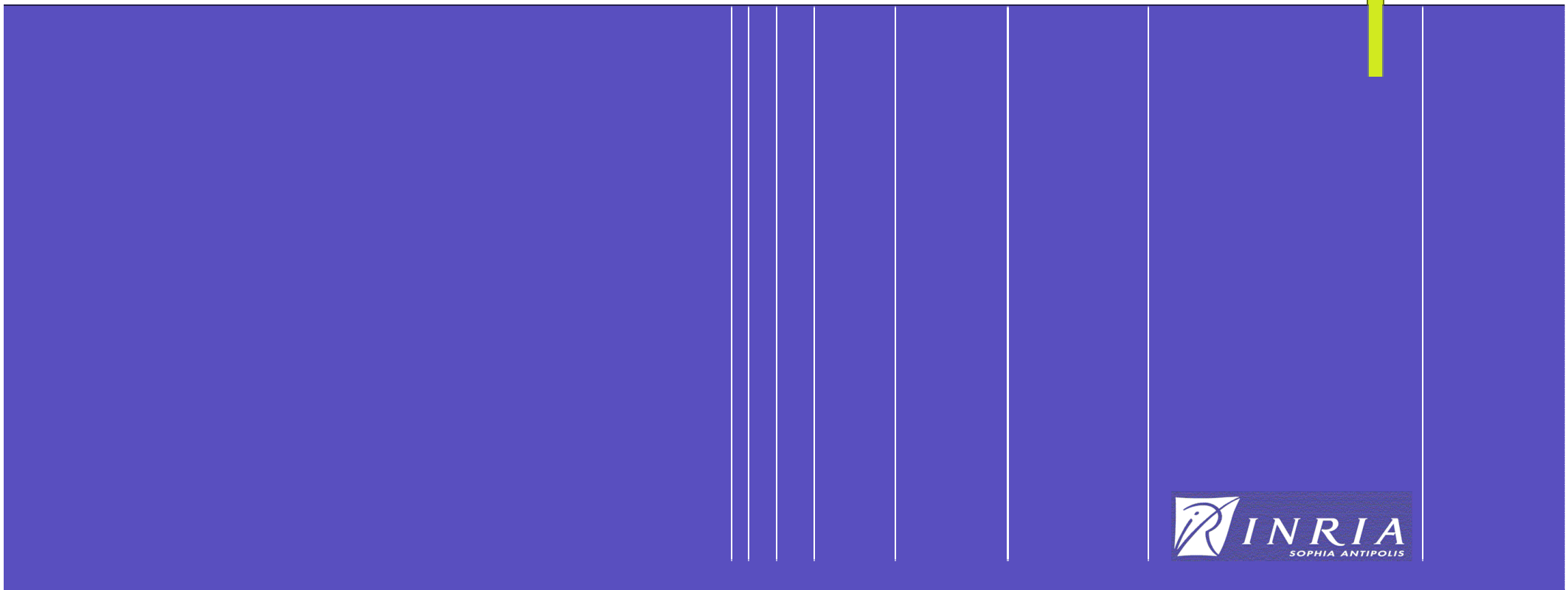
DREAM seminar : introduction

David Rey - DREAM



Software development: what is it ?

- “In my team, we are using a common software library. I have to integrate my last paper results in this platform.”
- “We are working on the next release of our open source code which is on the public part of the inria gforge.”
- “I am doing a PhD in mathematics. I usually prototype few algorithms with Matlab and publish some of them.”
- “I am in a training period for now. The researcher who leads me wants me to test if there is a solution for a given problem… I have to add few lines of code (C++, java, Fortran, …) in his current software (which is not distributed at all).”
- ...

Minimal personal investment

- Methods are easy to learn:
  - Usually, logical is useful
  - A lot of publications
  - Many other developers use them: a lot of existing examples + many possible exchanges
  - Examples :
    - Development process
    - Tests
    - Design
    - ...
- Tools are generally made to simplify things (thus they are not so hard to use / learn):
  - GUI (web, …)
  - Usually, lot of available documentation (tutorials, examples, …)
  - Developers community helps a lot!
  - Examples :
    - Svn
    - GForge
    - Eclipse
    - ...

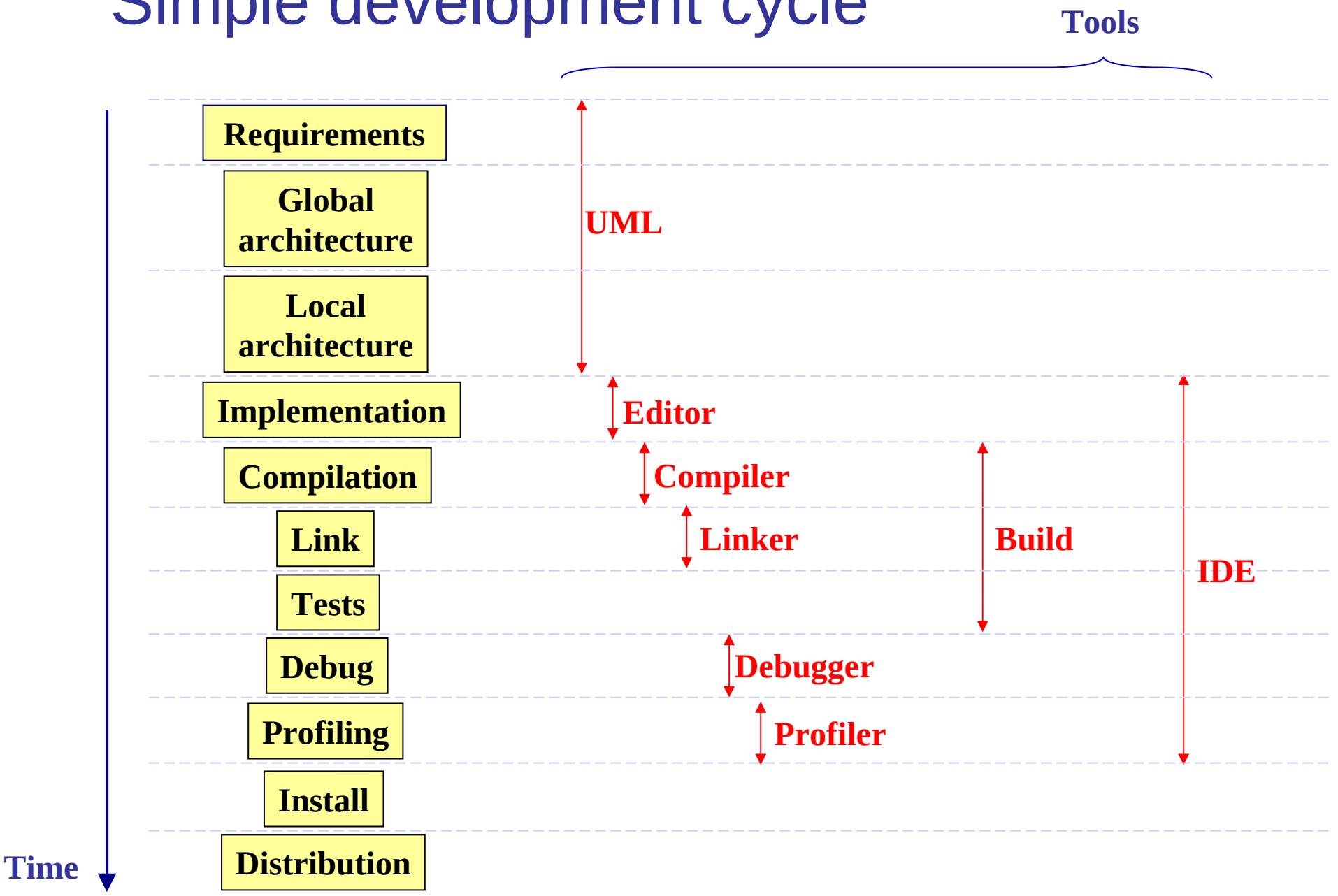
Maximal personal gain

- Beginning by the analysis and the design eases the implementation a lot, and decreases the development time
- With a good design: debug is simpler & quicker
- With good tests: debug is simpler & quicker
- If the software is well written (documentation, proper coding style, maintainability, …): it is easier to show / give code to other users/developers

Maximal INRIA/team gain

- Inria/team can more easily reuse/extend/… the software
- Inria/team can increase the scientific visibility
  - Conferences / publications
  - Software distribution / transfer
  - Demonstrations
- Maintainability, extensibility, … even by different developers (trainee, engineer, researcher, PhD student, Post-doc, …)

Simple development cycle

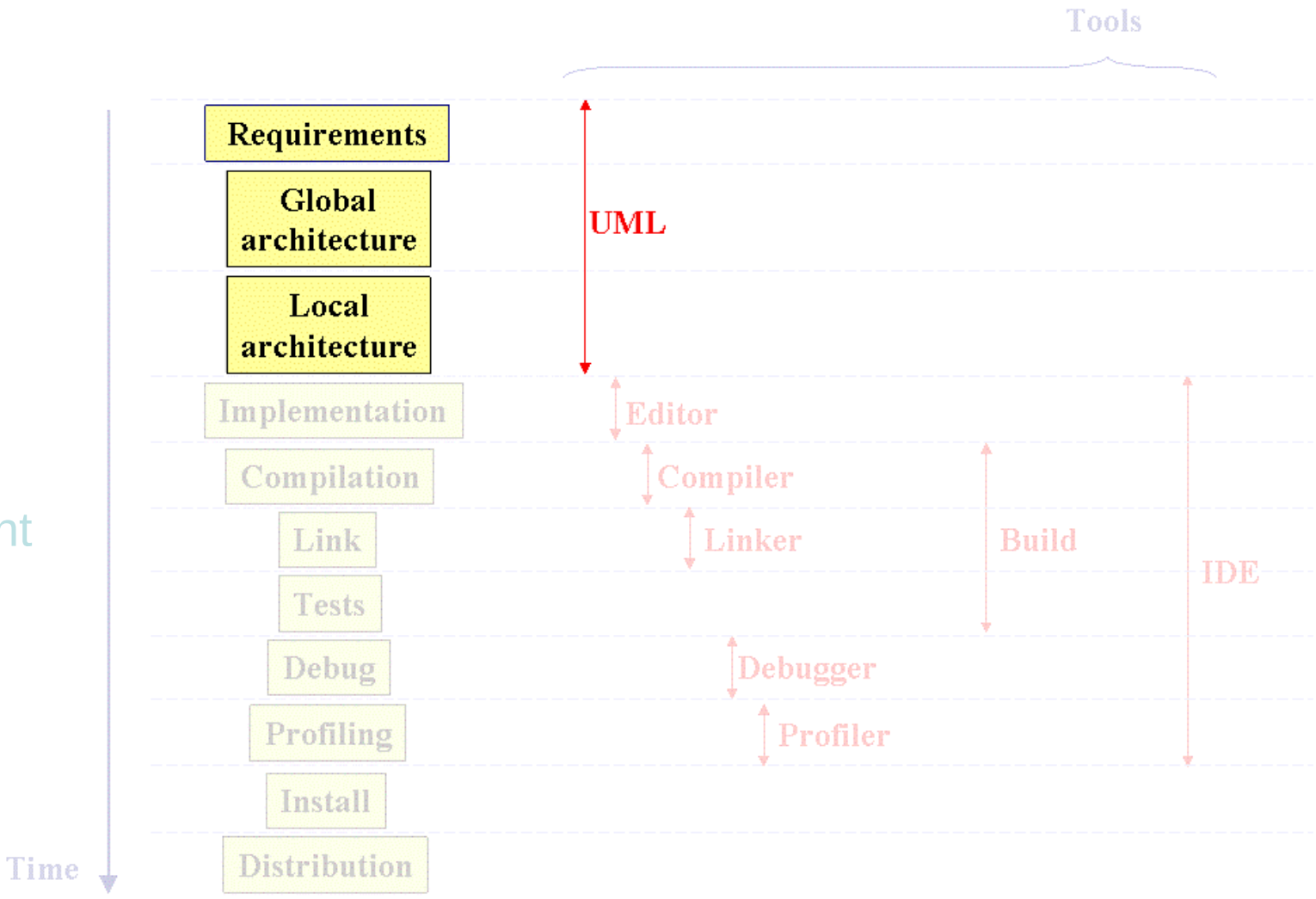


Seminar overview

- Introduction
- Analysis/design
- Build
- Tests
- Debug
- Profiling
- Project management
- Documentation
- Versioning system
- IDE
- GForge
- Conclusion

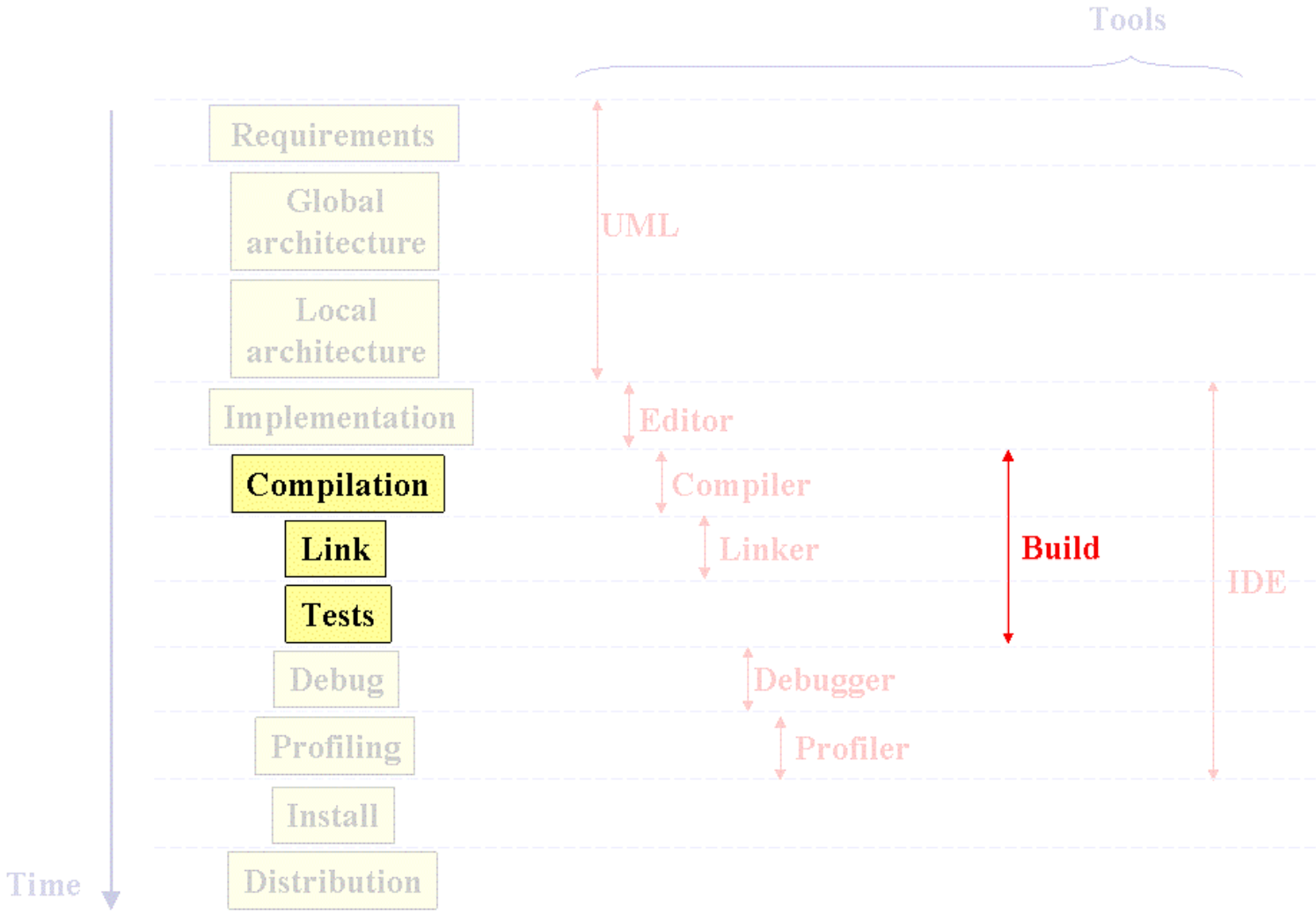
Design

- Introduction
- Analysis/Design
- Build
- Tests
- Debug
- Profiling
- Project management
- Documentation
- Versioning system
- IDE
- GForge
- Conclusion



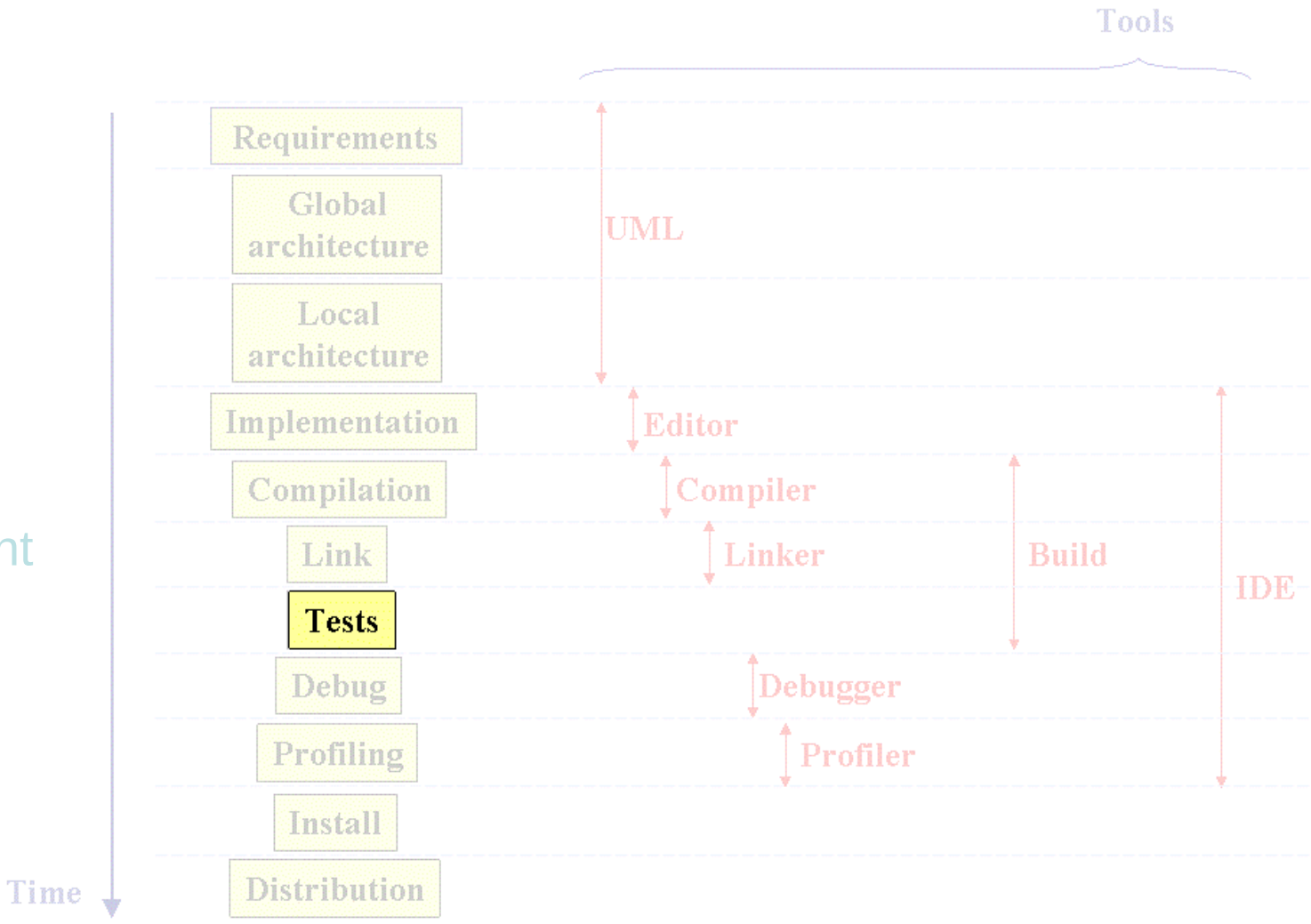
Build

- Introduction
- Analysis/Design
- Build
- Tests
- Debug
- Profiling
- Project manageme
- Documentation
- Versioning system
- IDE
- GForge
- Conclusion



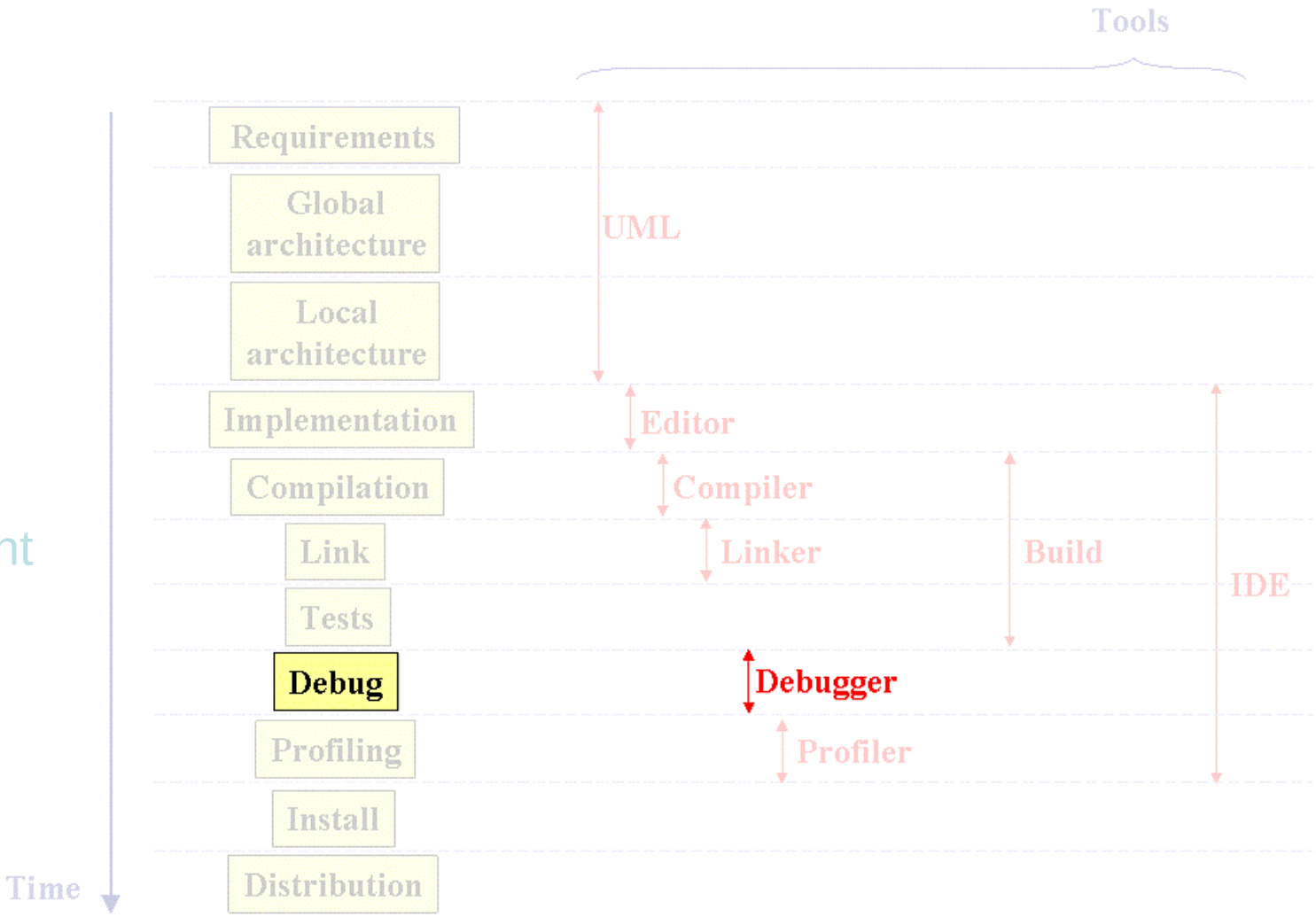
Tests

- Introduction
- Analysis/Design
- Build
- Tests
- Debug
- Profiling
- Project management
- Documentation
- Versioning system
- IDE
- GForge
- Conclusion



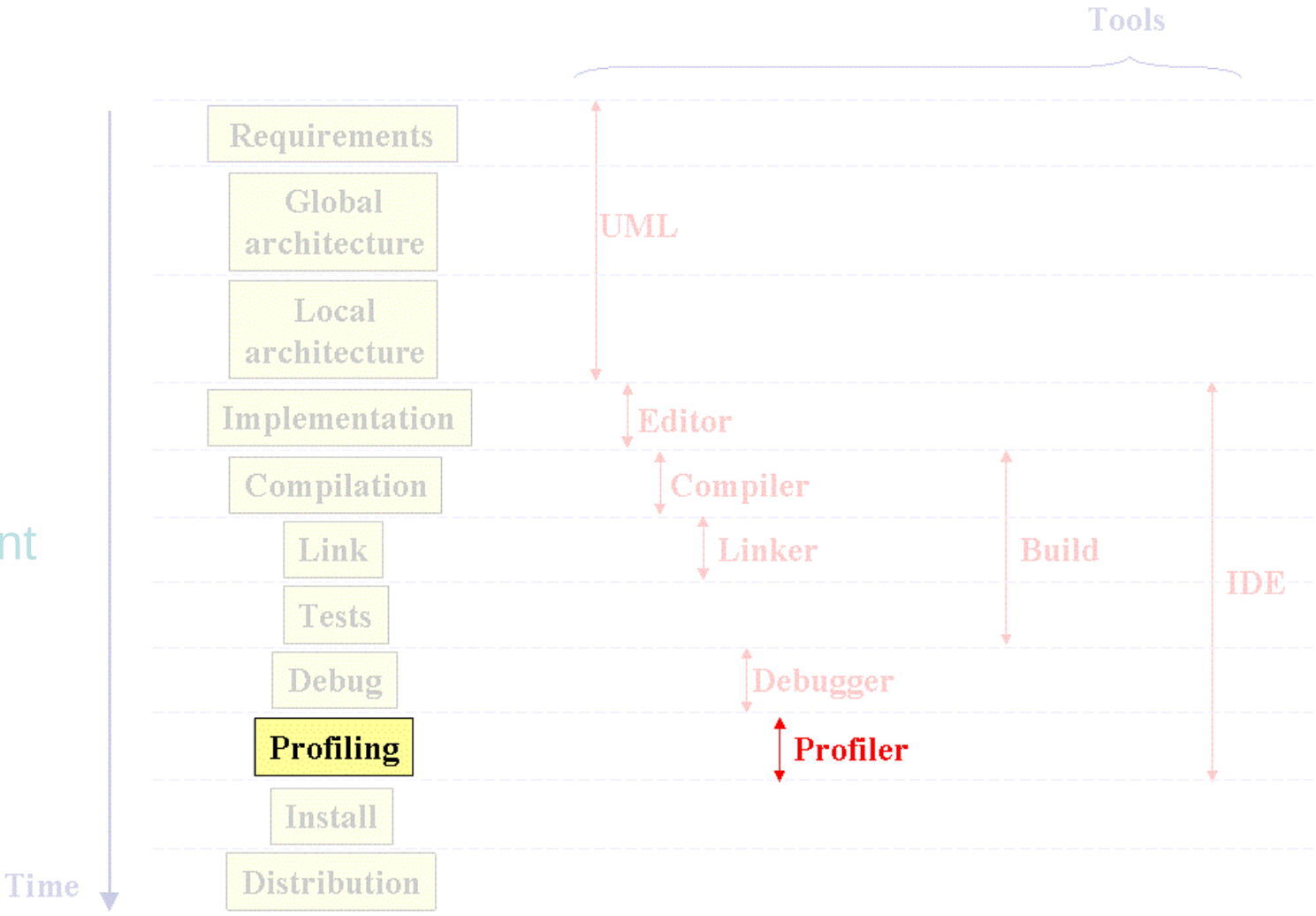
Debug

- Introduction
- Analysis/Design
- Build
- Tests
- Debug
- Profiling
- Project management
- Documentation
- Versioning system
- IDE
- GForge
- Conclusion



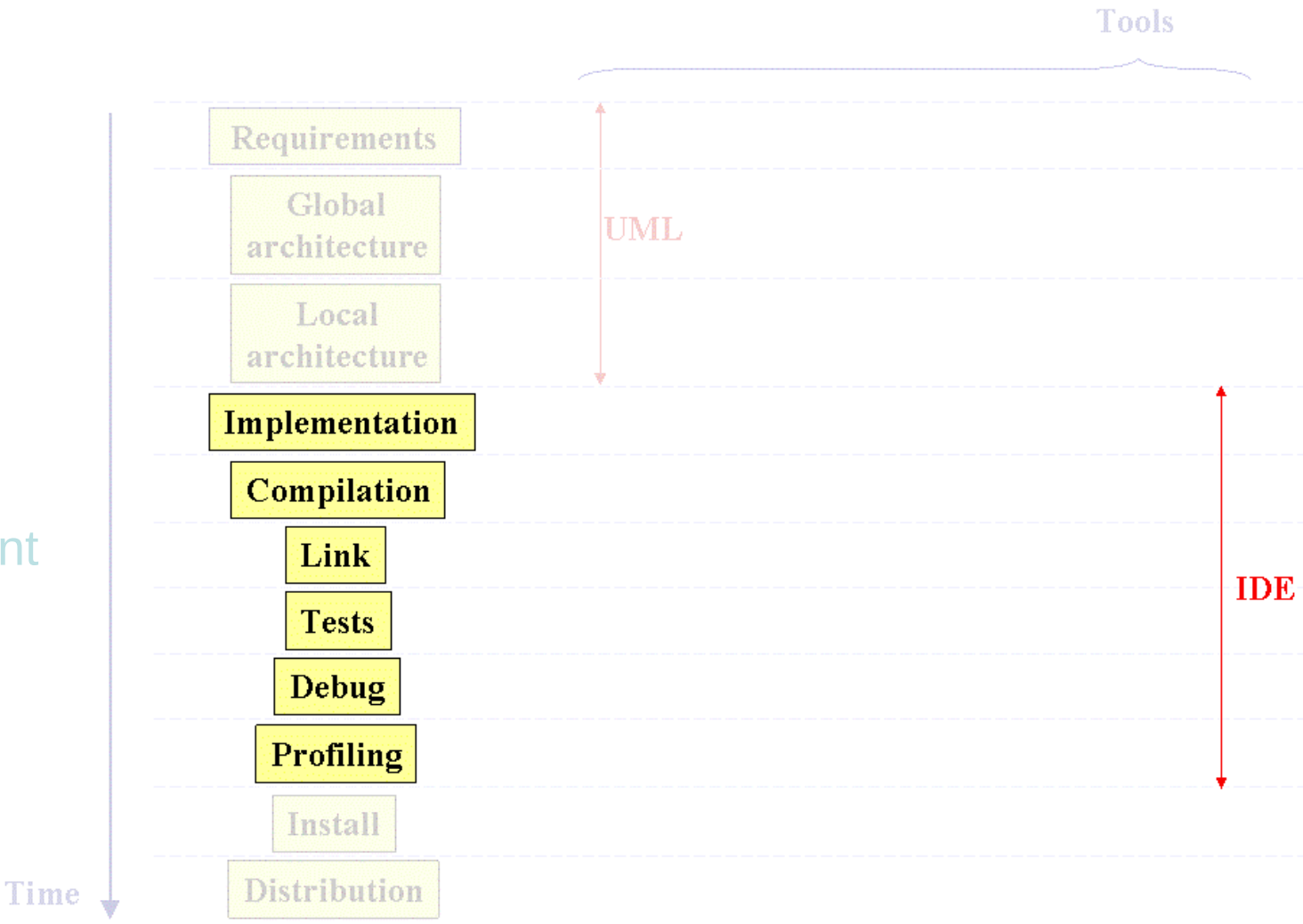
Profiling

- Introduction
- Analysis/Design
- Build
- Tests
- Debug
- Profiling
- Project management
- Documentation
- Versioning system
- IDE
- GForge
- Conclusion



IDE

- Introduction
- Analysis/Design
- Build
- Tests
- Debug
- Profiling
- Project management
- Documentation
- Versioning system
- IDE
- GForge
- Conclusion



Other presentations

- Introduction
- Analysis/Design
- Build
- Tests
- Debug
- Profiling
- Project management
- Documentation
- Versioning system
- IDE
- GForge
- Conclusion

Conclusion / questions

- You are in the right place!
- Questions ?