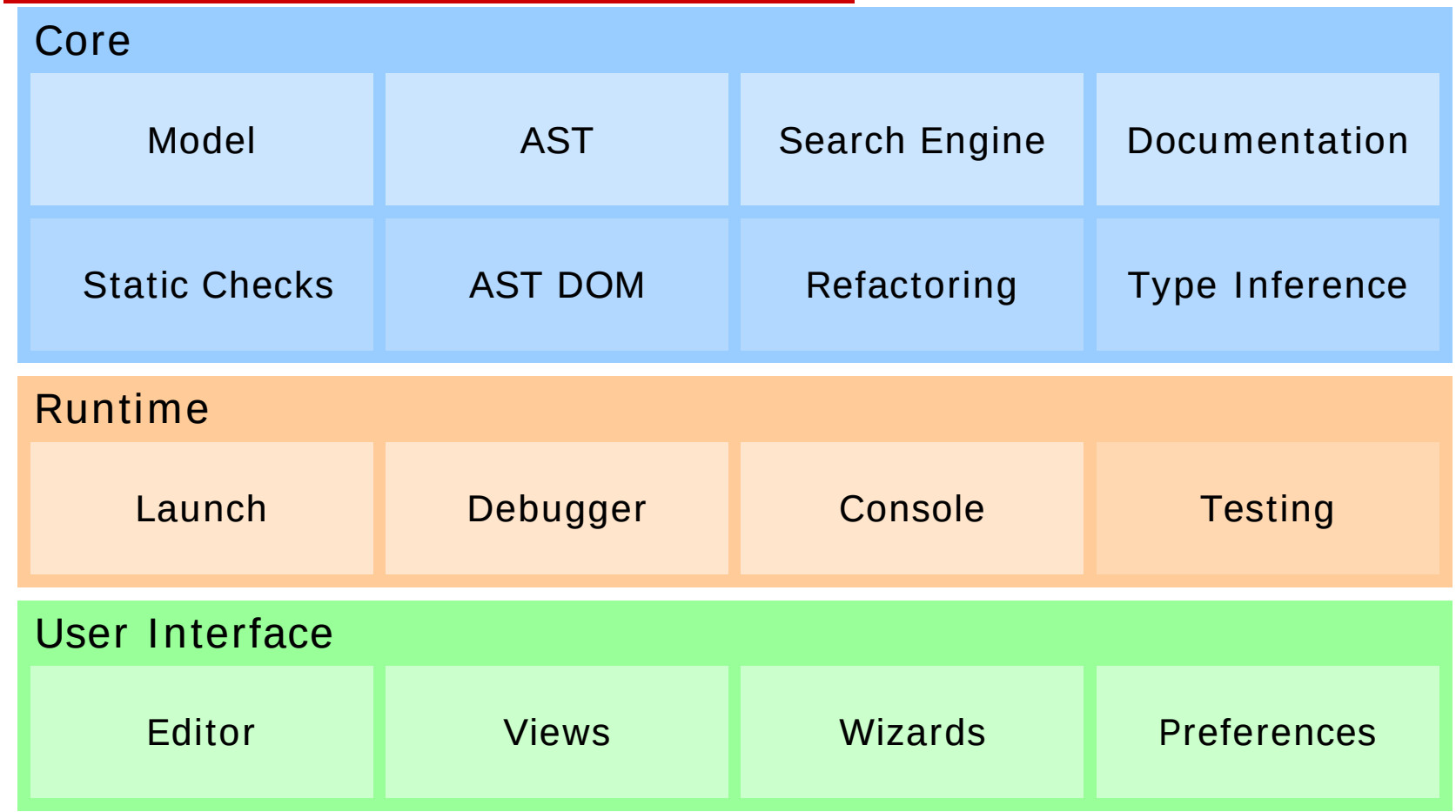
Dynamic Languages Toolkit

Presented by **Andrey Tarantsov**

Dynamic Languages Toolkit

- Serves as a foundation for scripting and dynamically-typed language IDEs
- Generalizes JDT code and follows its architecture
- Provides exemplary Python, Ruby and TCL IDEs

What's Inside DLTK?



Structural Project Model

- Structural elements:
  - Projects
  - Code folders and code libraries
  - Source modules
  - Types, Functions, Variables
  - Package and import declarations
- Environment configuration

Abstract Syntax Tree

- Extensible with language-specific node types and attributes
- Used by completion, search and selection engines

Type Inference

- Under research
- Attempt to implement base algorithm in language-independent fashion
- Used to improve:
  - code analysis
  - code assistance
  - refactoring
  - code verification and error detection

Code Analysis

- Based on Core DLTK infrastructure
- Research to provide common code analysis in a language-independent way

Launch and Debug

- Environment configuration based on different interpreter types and their installations
- Full featured Eclipse-based debugger for all scripting languages provided
- Remote debugging and launching
- Debug based on open DBGp protocol (xdebug.org)

Interactive Console

- Common console protocol
- Remote console
- Code completion & assistance
- All standard features

Editor

- Easily extensible with:
  - Folding
  - Indenting
  - Formatting
  - Code assistance / Selection
  - Highlighting / Advanced highlighting

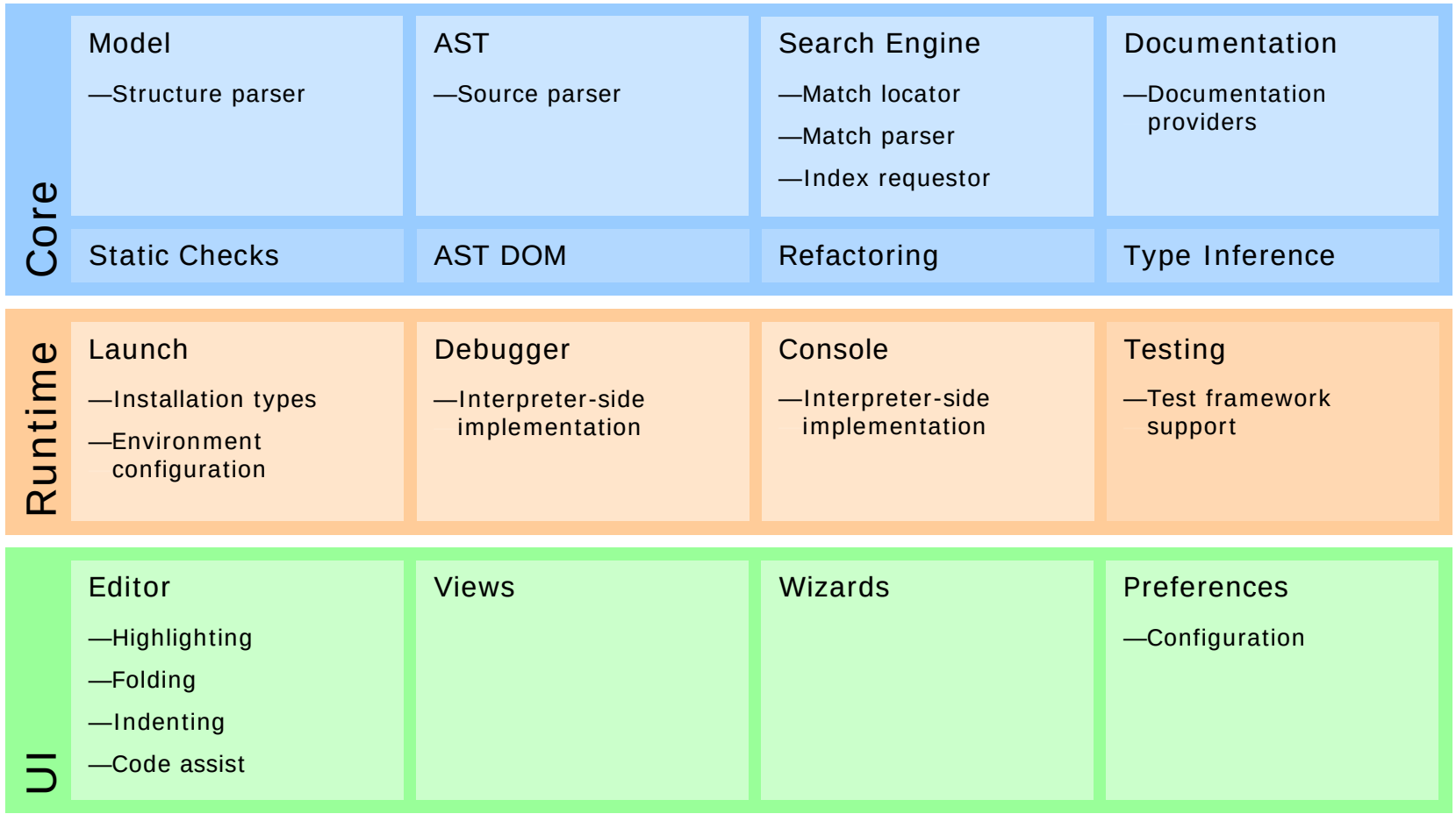
Views

- Script Explorer
- Outline
- Call Hierarchies
- Navigation (packages, types, functions)
- Type Hierarchy
- Quick Outline / Quick Hierarchy

More UI

- Project properties
- Wizards
- Preference pages
- Search UI

DLTK Extensibility



Codebase Statistics

	TruStudio	DLTK (current state)
Common	3.8 Mb	3.4 Mb
PHP	0.9 Mb	—
Python	0.8 Mb	0.3 Mb
TCL	—	0.3 Mb
Ratio	4:1	10:1

Which Languages is DLTK for?

Perfect Fit

—Python
—Ruby
—Perl
—PHP
—VBScript
—Smalltalk
—ActionScript 3
—ECMAScript 4
—and much more...

Good Fit

—TCL
—Lua
—ECMAScript 3
—Objective C
—C++

Don't Fit

—Lisp
—Prolog
—Scheme

Benefits for Community

- End users receive high-quality Python, Ruby and TCL IDEs with modern JDT-alike features
- Developers may implement support for the language of their choice with less effort
- Academic organisations get a base for research (type inference, code analysis, etc)
- Benefits for other Eclipse projects interested in scripting languages support
- Learn from JDT generalization experience

Current Community

- Community site at www.eclipsedltk.org
- Complete infrastructure: nightly and integration builds, CVS, bug tracker
- Interest and contributions from other projects and companies
  - Cisco Systems, Inc. (TCL support)
  - Eclipse Perl IDE (e-p-i-c.sourceforge.org)

Initial Team

- xored software, Inc.
  - Andrey Platov
  - Andrey Sobolev
  - Andrey Tarantsov
  - Dmitriy Kovalev
  - Mikhail Kalugin
  - Yuri Baburov

Deliverable Schedule

- January 23, 2007
  - Preliminary DLTK Core and TCL IDE complete
- March 1, 2007
  - DLTK Core 1.0 complete
  - Python IDE complete
  - Ruby IDE complete
  - Documentation complete

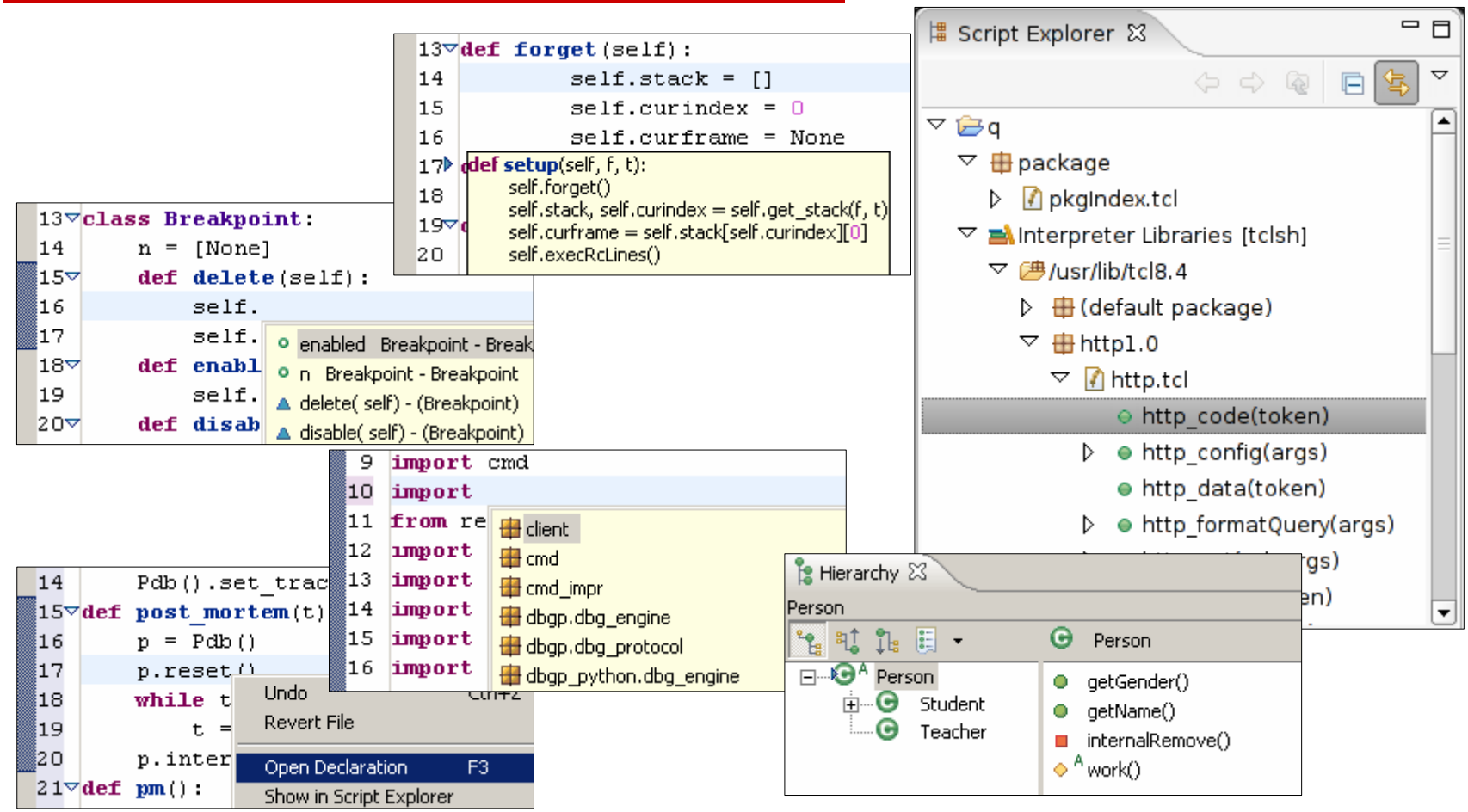
Future Directions

- Type inference improvements
- Code analysis improvements
- Refactoring improvements
- JDT integration
- More languages to be supported

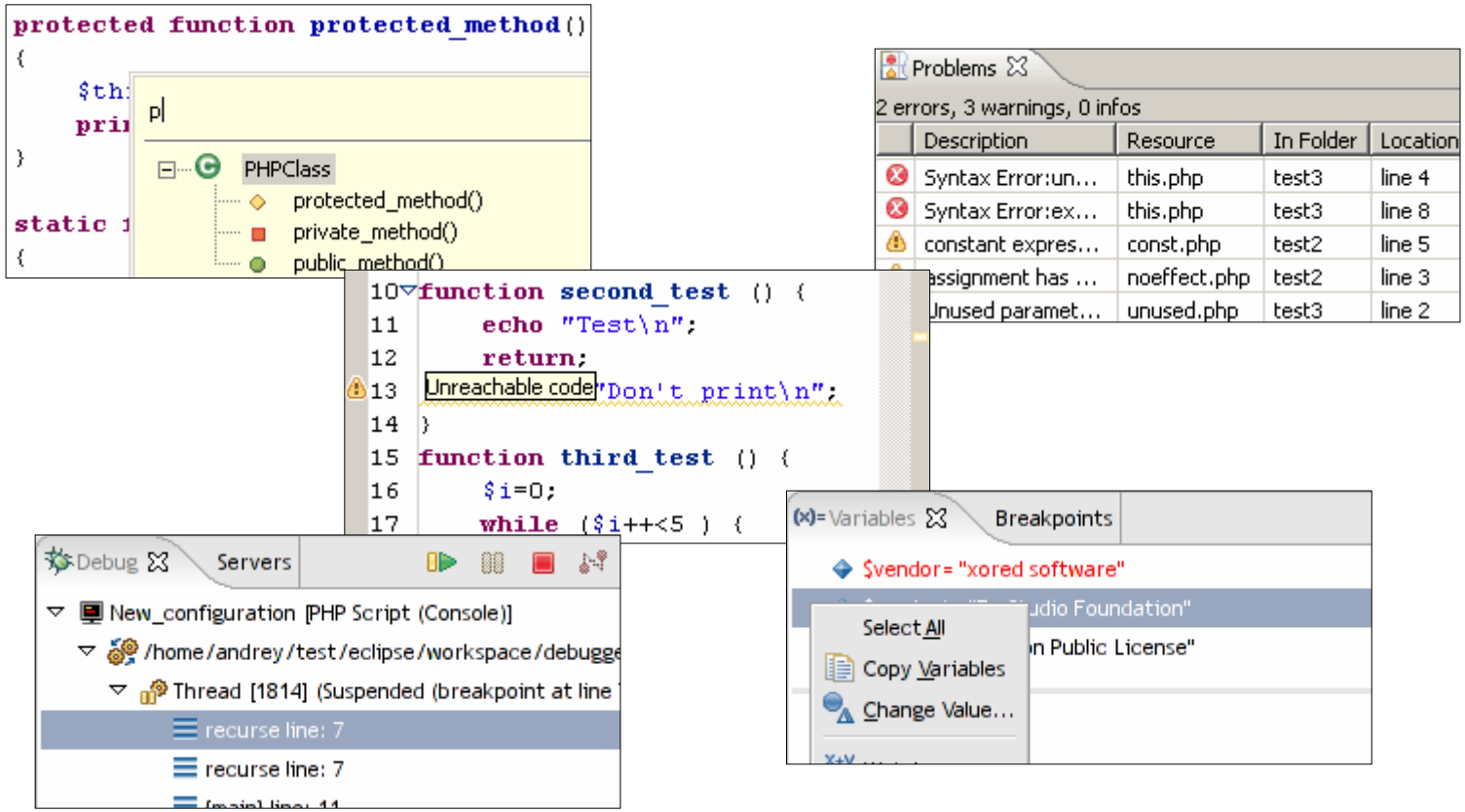
Thank you!

- Questions?
- Please take a look on screenshots following

Screenshots



More Screenshots



Even More Screenshots