VA Smalltalk Update

John O'Keefe
Chief Technical Officer
Instantiations, Inc.

instantiations
VA Smalltalk

Recent Events

- Completed first year as pure Smalltalk company
  - # of users and revenues continue to grow
- Growing Engineering staff
  - 4 engineers joined since Smalltalks 2010
  - Using contractors for additional capacity

instantiations
VA Smalltalk

Recent Events
Continued

- University Outreach
  - Hasso Plattner Institute Bachelor Project
    - GTK+ Bindings for Linux
  - Interested in more
- User Outreach
  - Conference participation
    - ESUG, Smalltalk Solutions, Smalltalks
  - VA Smalltalk Forum -> VA Smalltalk Google Group
    - Aggregated on **[Smalltalk]** http://forum.world.st
    - Previous forum content still available (static)
- New "Videos and Podcasts" pages on website

instantiations
VA Smalltalk

Recent Release History

- V8.0 (May 2009)
  - Seaside, Tabbed Browsers, Documentation delivery system
- V8.0.1 (November 2009)
  - Seaside update, 'cdecl' calling convention
- V8.0.2 (May 2010)
  - Seaside update, GLORP
- V8.0.3 (February 2011)
  - Seaside update, GUI improvements, added documentation
- V8.5.1 (August 2011)
  - See following slides

instantiations
VA Smalltalk

VA Smalltalk V8.5
August 2011

- Development Tools
  - Code Assist (code completion)
- Infrastructure
  - Logging Framework
  - Preference Settings Framework
  - Deprecation Exception
- Graphics and Windowing
  - Rebar Control
  - TIFF CCITT T.4 bi-level encoding
- Web Interface
  - Grease 1.0.5+ / Seaside 3.0.5+
  - HTTP Chunked Transfer Encoding

instantiations
VA Smalltalk

Development Tools
Code Assist

- **Problem**: Developers can create many more classes and methods than we can hold names for in our minds
- **Solution**: Use the computer's calculating capabilities to predict names as they are being entered in the code editor

Development Tools
Code Assist

- General and extensible content assist framework
  - Customizable popup list displays actionable suggestions
  - Layout management functions controls popup location
  - APIs and Extension Points allow for customization
- Numerous configuration options
  - Enable and configure auto-popup of completion suggestions
  - Visibility settings (i.e. Show only Public method suggestions)
  - <Tab> or <Enter> to accept completion suggestion
  - Automatic completion if single available suggestion

instantiations
VA Smalltalk

Development Tools
Code Assist

- Context-Sensitive Auto-Completion
  - Supported in Browsers, Workspaces and Debuggers
  - Suggestions for Methods, Symbols/Atoms, and Variables
  - Uses parse tree analysis and type reconstruction to provide most relevant suggestions
- Smart Suggestion Sorting
  - *Variable Suggestions*: Locals before pseudo variables before pool variables
  - *Method Suggestions*: Public before Private
  - *Class Suggestions*: Classes that extend SubApplication after other classes

instantiations
VA Smalltalk

Development Tools
Code Assist

- Suggestion descriptions provide additional details
  - *Methods*: Class in which the method is defined or common superclass
  - *Scoped Pool Variables*: Value of the pool variable
  - *Unscoped Pool Variables*: Pool Dictionary in which it is defined
- Suggestions offered for ambiguous receivers
  - *OrderedCollection new add: #(1 2) be<Activate CA>*
    - Does the user want to complete *before:* for the receiver: *#(1 2)*?
    - Does the user want to complete *add:before:* for the receiver: *OrderedCollection new?*
    - Only the user knows; both suggestions are offered

instantiations
VA Smalltalk

Development Tools
Code Assist

- Parentheses auto-inserted for method completions
- Method override suggestions
  - Requesting Code Assistance at the top of a code browser will offer methods available to be overridden
  - Arguments are automatically inserted upon completion of an overridden method

instantiations
VA Smalltalk

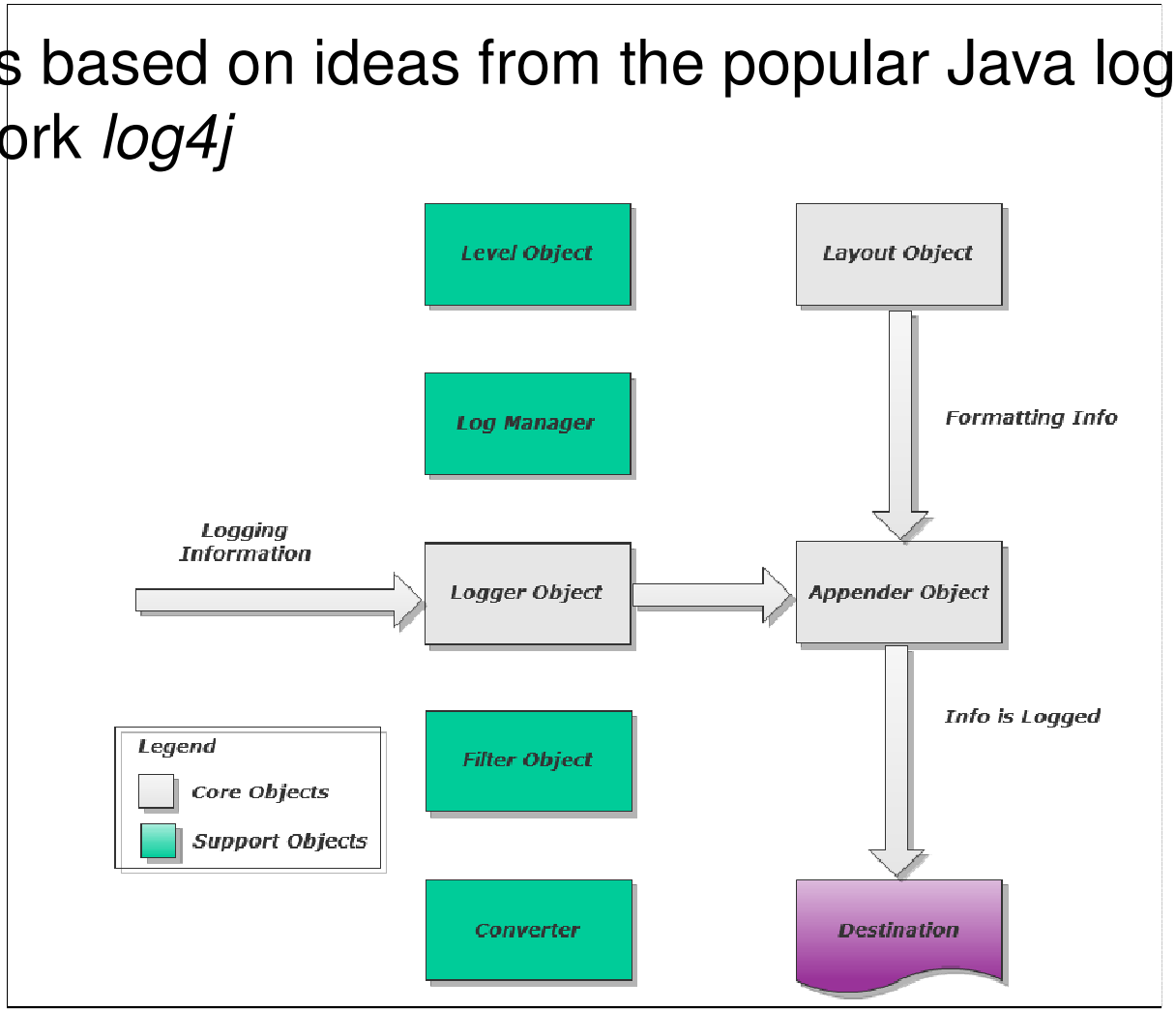
Infrastructure
Logging Framework

- **Problem**: The product currently contains many one-off logging solutions, but no centralized facility useable by product developers and customers.
- **Solution**: Provide a Logging Framework to standardize the definition, use, and output formats of logging.

instantiations
VA Smalltalk

Infrastructure
Logging Framework

Log4s is based on ideas from the popular Java logging framework *log4j*



instantiations
VA Smalltalk

Infrastructure
Logging Framework

- Example of application logging requirement
  - A banking company is required to keep monthly logs of all foreign transactions and weekly logs of all foreign transactions greater than $10000

Infrastructure
Logging Framework

- Example of application logging solution
  - Make `.ini` file entries

```
[log4s]
createLogger=('vast')

dailyRollingFileAppender=(ForeignTxns, root,
c:\logs\foreignTxns.log, false, info,
EsPatternLayout, '%d [%c] %o', true, topOfMonth)

dailyRollingFileAppender=(BigForeignTxns, vast,
c:\logs\bigForeignTxns.log, false, warn,
EsPatternLayout, '%d %c %o', true, topOfWeek)
```

The pattern of `%d %c %o` will log the time, the logger name, and the transaction object.

instantiations
VA Smalltalk

Infrastructure
Logging Framework

- Define *Transaction>>printLog4s*

```
^ String streamContent: [ :stream |
    stream nextPutAll: self payee; space; nextPutAll:
self amount printString ]
```

- The application code might look like this:

```
logIfNeeded: aTransaction

 aTransaction isForeign ifTrue: [
  EsLogManager
   info: 'Foreign txn‘
   object: aTransaction. "goes to root logger"
  aTransaction amount > 10000 ifTrue: [
   EsLogManager
    loggerNamed: 'vast‘
    warn: 'Large Foreign txn‘
    object: aTransaction ] ].
```


instantiations
VA Smalltalk

Infrastructure
Logging Framework

- Result
  - `foreignTxns.log` will have output like this:
    '28 Aug 2011 08:15:07,000 [root] Mark Twain 13.67‘
  - `bigForeignTxns.log` will have output like this:
    '28 Aug 2011 08:15:07,000 vast Fred Smith 23645.23'

Infrastructure
Preference Settings Framework

- **Problem**: Existing customization preference settings are not well-managed or well-documented. In some cases, they are completely hidden.
- **Solution**: Provide a Preference Settings Framework to standardize the management and documentation of preferences.

Infrastructure
Preference Settings Framework

- Preferences are held in `.ini` file
  - Major groupings are stanzas -- generally named the same as the application they relate to
  - *keyword=value* entries hold the settings
  - Values are typed
    - Simple: boolean, decimal, directory, file, fraction, integer, multiLineString, number, point, string
    - Complex: array, range

Infrastructure
Preference Settings Framework

- Preference settings are managed by Applications
- The user implements 3 methods to support preference settings for an application
  - *validSettings*
  - *currentSettings*
  - *setCurrentSettings*
- Preference settings are read from the `.ini` file
  - At image startUp
  - When an application is loaded

instantiations
VA Smalltalk

Infrastructure
Preference Settings Framework

- *validSettings*
  - Provides valid element types for keywords within stanzas
  - Example

```
validSettings
^ LookupTable new
  at: self symbol asString
  put: (LookupTable with: 'fplevel' ->(0 inclusiveTo:
9) elementType: self integerType));
  at: 'VAST 5.0 Compatibility'
  put: (LookupTable with: 'installPath' -> self
directoryType);
  yourself
```


instantiations
VA Smalltalk

Infrastructure
Preference Settings Framework

- *currentSettings*
  - Provides current and default setting values for keywords within stanzas
  - Example

```
currentSettings
^ LookupTable new
    at: self symbol asString
     put: (LookupTable with: 'bitmapPath' -> (Array
with: CgScreen bitmapPath with: #()));
     yourself
```


instantiations
VA Smalltalk

Infrastructure
Preference Settings Framework

- *setCurrentSettings*
  - Transfers setting values to their 'used' location for the application
  - Example

```
setCurrentSettings
| addr |
addr := self settingFor: 'ServerAddress'.
addr isEmpty ifTrue: [ addr := nil ].
EmLibrary
  defaultName: (self settingFor: 'DefaultName');
  serverAddress: addr;
  openReadOnly: (self settingFor: 'OpenReadOnly')
```


instantiations
VA Smalltalk

Infrastructure
Deprecation Exception

- **Problem**: Frameworks evolve and some API methods are destined to be removed in favor of replacement methods, but customers may have code dependencies.
- **Solution**: Mark methods as deprecated and gather usage information

Infrastructure
Deprecation Exception

- Technique
  - Categorize method as ‘Deprecated’
  - Replace method content with:

```
self
 deprecated: ‘explanation string’
 in: ‘version string’.
^ …invocation of alternate implementation…
```

- Example

```
asDecimal
 ^ self
    deprecated: 'Replaced by #asScaledDecimal‘
    in: ‘V8.5';
    asScaledDecimal
```


instantiations
VA Smalltalk

Infrastructure
Deprecation Exception

- *Deprecation* is subclass of *Warning*
- Default handling based on preference
  - *Logging*: write message to in-memory log
  - *Showing:* write message to Transcript (TranscriptTTY in runtime)
  - *Raising:* open MessagePrompter allowing continue or terminate
- Documentation provides sample code to dump in-memory log

Graphics and Windowing
Rebar Control

- **Problem**: Windows customers want Toolbars with adjustable content.
- **Solution**: Add support for Rebar control

instantiations
VA Smalltalk

Graphics and Windowing
Rebar Control

- Specialized container for widgets
- Holds bands
  - Bands may be moved and resized
  - Band may hold
    - Gripper (for resizing)
    - Child widget
    - Label
    - Bitmap

instantiations
VA Smalltalk

Graphics and Windowing
TIFF CCITT T.4 bi-level encoding

- **Problem**: Customers are receiving FAX documents encoded as TIFF CCITT T.4 that they can't process
- **Solution**: Add support for CCITT T.4 bi-level encoding (read and write) to existing TIFF support

instantiations
VA Smalltalk

Web Interface
Seaside 3.0.5+ / Grease 1.0.5+

- **Problem**: Seaside and Grease development has progressed since VA Smalltalk V8.0.3
- **Solution**: Port Seaside 3.0.5 and Grease 1.0.5 (both with updates through 8/9/2011 – exact level identified in configuration maps)

instantiations
VA Smalltalk

Web Interface
HTTP Chunked Transfer Encoding

- **Problem**: Customers need to maintain persistent connections for HTTP with dynamically generated content (size not known when connection established).
- **Solution**: Add support for HTTP Chunked Transfer Encoding. Chunked HTTPRequests and HTTPResponses (including web services) can be processed.

Support

- 60+ bug fixes and minor enhancements

instantiations
VA Smalltalk

Looking to the Future

instantiations
VA Smalltalk

Future Releases

- Release schedule is about twice a year
  - Next release is planned for end of Q1/2012
  - Current information available in Product Roadmap
    - http://www.instantiations.com/products/roadmap.html
- Content based on requirements from:
  - Direct customer interactions
  - Forums
  - Support cases
  - Internals

instantiations
VA Smalltalk

V8.5.1
Planned Content

- GUI Look and Feel
  - Windows Controls
    - Rebar improvements
    - ProgressBar improvements
    - DateAndTimePicker
  - Support for .PNG files
- Web interface
  - Seaside 3.0.6.3 (early)
  - Seaside 3.x (later)
  - SST Servlet multipart form support

instantiations
VA Smalltalk

V8.5.1
Planned Content

- Development Tools
  - Code Assist improvements
  - SUnit Expected Failure support
- Middleware
  - GLORP improvements
  - MQ currency
- Platform
  - Windows Services control moved from C to Smalltalk

instantiations
VA Smalltalk

V8.5.1
Planned Content

- Performance and Scalability
  - SST Lightweight Marshaling improvements
- Installation
  - Changing to standard platform installer
    - Windows: InstallShield
    - Unix: .rpm, .deb, …

instantiations
VA Smalltalk

Priority Technologies

- Internationalization
- Web interface
- Middleware
- GUI Look and Feel
- Development Tools
- Security
- Performance and Scalability
- Platforms
- External Interfaces
- Other

instantiations
VA Smalltalk

Future Releases
Candidate Items

- Internationalization
  - Full Unicode/UTF-8 (including VM)
- Web interface
  - Seaside 3.x
  - Continuation support
  - Web services tooling improvements
  - Web services debugging tools/doc
  - Validating XML parser

instantiations
VA Smalltalk

Future Releases
Candidate Items

- GUI Look-and-Feel
  - GTK+ 2.x on Linux
  - Windows Common Controls additions
  - Icon/image support enhancements
  - Backport widgets from add-ons
- Development Tools
  - Redesigned Change Browser & Merge Tool
  - Additions to Code Assist
  - Monticello Importer

instantiations
VA Smalltalk

Future Releases
Candidate Items

- Infrastructure
  - Settings Dialogs to complement Settings Framework
  - Consolidate most settings using Settings Framework
- Middleware
  - DB2 Stored Procedures improvements
  - GLORP infrastructure improvements
  - GLORP Programmer's Reference
  - Active Records built on GLORP
  - TCP/IP V6

instantiations
VA Smalltalk

Future Releases
Candidate Items

- Security
  - "Basic" security framework (consolidate existing OpenSSL wrappers)
  - "Full" security framework -- OpenSSL 1.0 wrappers
- Performance and Scalability
  - Incremental garbage collection
  - 64-bit Smalltalk
  - Class library performance hotspots
  - Integrate KES/Stats tool for object monitoring

instantiations
VA Smalltalk

Future Releases
Candidate Items

- External Interfaces
  - JNIPort
  - .NET/C# Other
- Class Libraries
  - Collection hashing policies
  - Collection sorting policies
- Other
  - *We're always looking for suggestions*

instantiations
VA Smalltalk

How Do You Get VA Smalltalk?

- Download evaluation copy
  - http://www.instantiations.com/products/vasmalltalk/download.html
- Buy development licenses
  - http://www.instantiations.com/products/purchase.html
- Download development build
  - Announced in VA Smalltalk Google Group
- Be a committer on an Open Source project
  - http://www.instantiations.com/company/open-source.html
- Work for an educational institution
  - http://www.instantiations.com/products/academic-license-program.html

instantiations
VA Smalltalk

Contact us

- General information
  - info@instantiations.com
- Sales
  - sales@instantiations.com
- Support
  - support@instantiations.com
- Me
  - john_okeefe@instantiations.com

instantiations
VA Smalltalk