Web Application Toolkit for Squeak

Introduction

- About us
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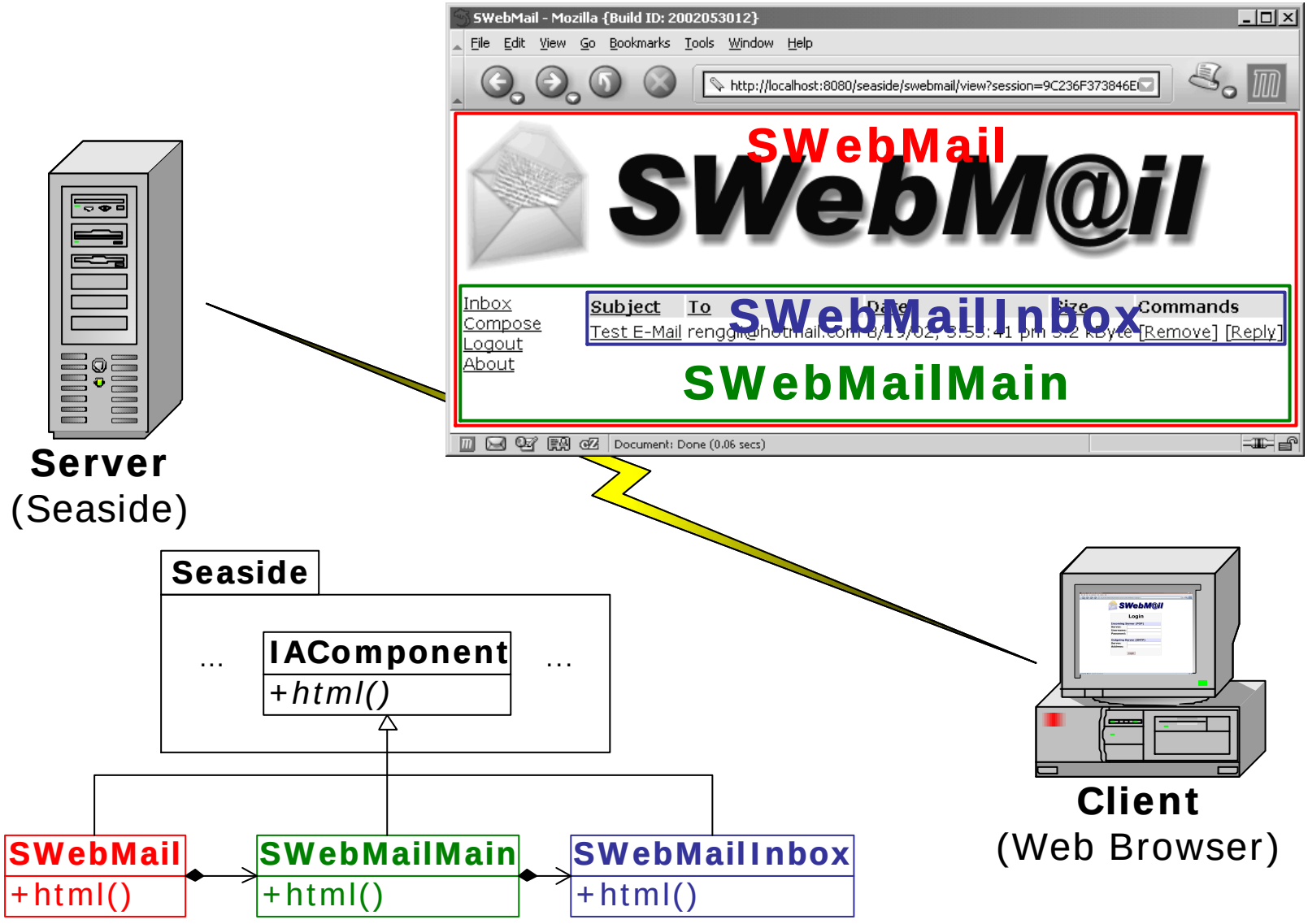
  - Adrian Lienhard

  } users of the Seaside framework
- Seaside Developers
  - Avi Bryant
  - Julian Fitzell

Content

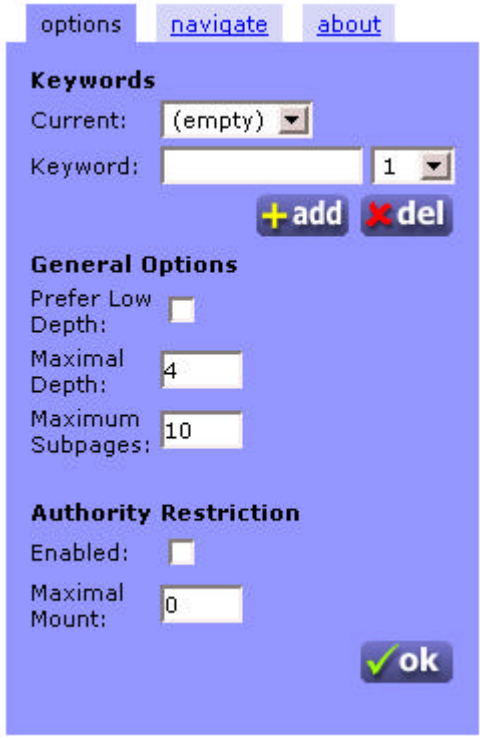
- What can be done with Seaside?
  - Example Application: SWebMail
    - Reading mailbox form POP account
    - Sending e-mails over SMTP server
- Why should Seaside be used?
  - Complete separation of logic and design
  - Object-oriented programming on the fly
  - Application control flow
- Why is Seaside so easy to use?
  - Action methods
  - Bidirectional binding of properties
  - Session management
  - ...

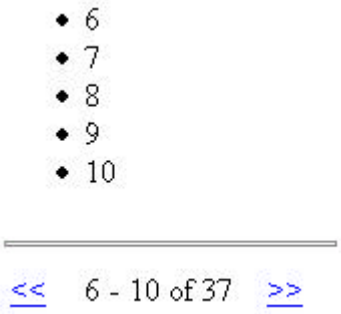
Component-Template Model

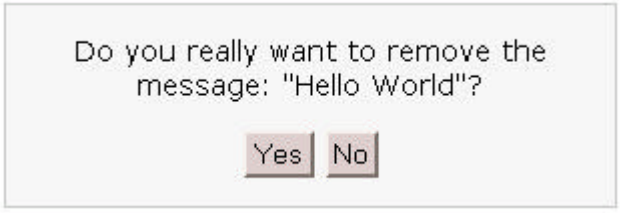


Reuse by Composition

- Component architecture
- Widgets
  - Tab sheet
  - Date selector
  - Batches
  - Sortable tables
- Dialogs
  - Information
  - Confirmation
  - Choose
  - Ask

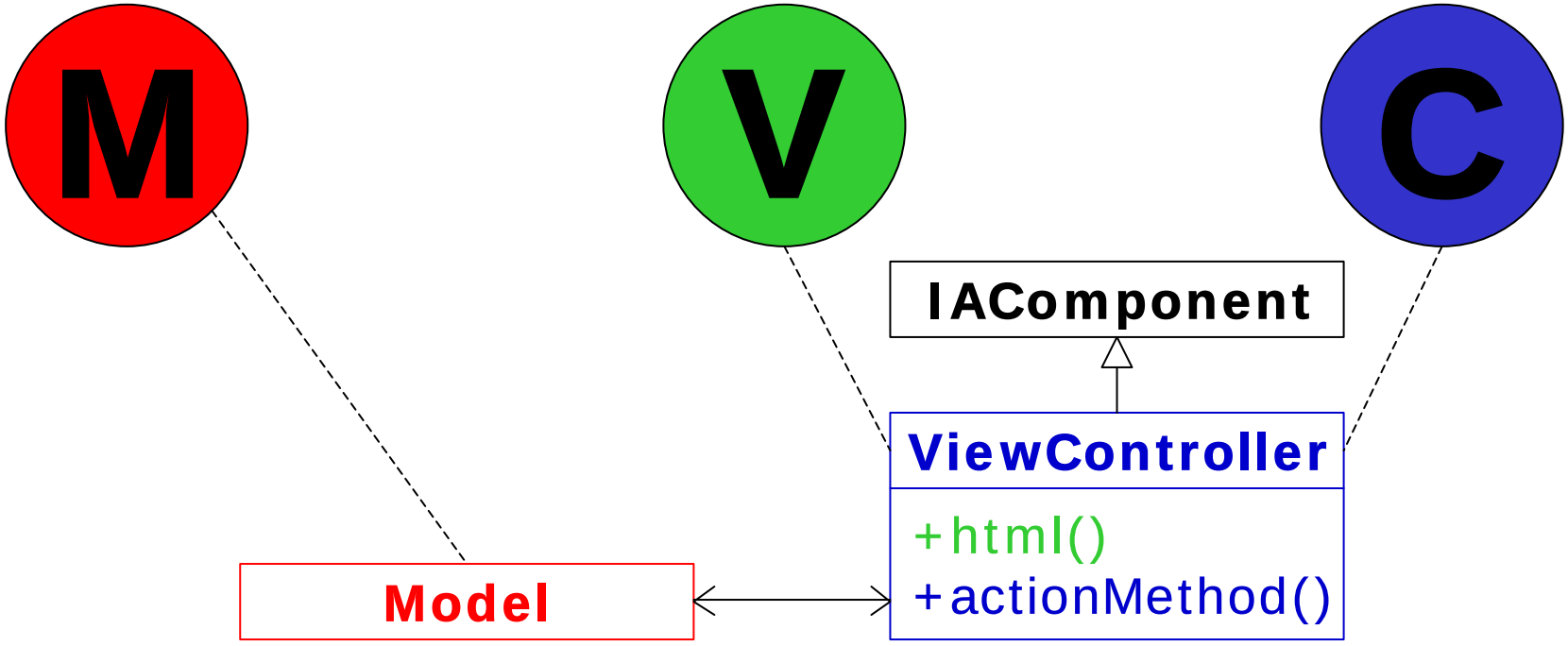






Separation of Logic and Design

- Programmers should create *logic*
- Designers should create *HTML (templates)*



Creation of Templates

- Override **`IAComponent>>html`** and return
  - a string containing valid HTML

```
SWebMail>>html
   ^ '<html>
        <head>
          <title>SWebMail</title>
          <style type="text/css">[css]</style>
        </head>
        <body>
          <h1>SWebMail</h1>
          <swebmaillogin sea:id="login"></swebmaillogin>
        </body>
      </html>'
```

- External files
  - WYSIWYG editors
  - Designers can work independently

Binding of Properties

- Unidirectional binding

```
SWebMailView>>html
   ^ '...
      <tr>
        <td>Subject:</td>
        <td>[message.subject]</td>
      </tr>
      ...'
```

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- Bidirectional binding

```
SWebMailCompose>>html
   ^ '...
      <form sea:id="reload">
        <input type="text" sea:id="subject">
        ...'
```

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```
SWebMailCompose>>subject
   ^ subject ifNil: [ subject := String new ]

SWebMailCompose>>subject: aString
   subject := aString
```

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Template-Variable Look Up

- Looking up sequence of properties
  - Template Locals
  - Accessor methods
  - Instance variables

```
SWebMailInbox>>html
   ^ '...
      <tr sea:id="item/sortedmessages">
        <td>[item.subject]</td>
        <td>[item.fromAddress]</td>
        ...'
```

Action Methods

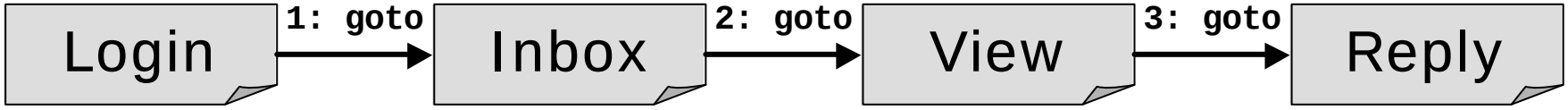
- Modify the component's state
  - Message is executed
  - Same component is redisplayed
- The action method might also
  - Expect a parameter
  - Replace the current component at runtime
  - Throw an exception: a stack-dump will be sent to the browser

```
SWebMailMain>>html
   ^ '...
      <a href="@about">About</a>
      ...'
```


```
SWebMailMain>>about
   self callPage: (SWebMailAbout new)
```

Application Control Flow

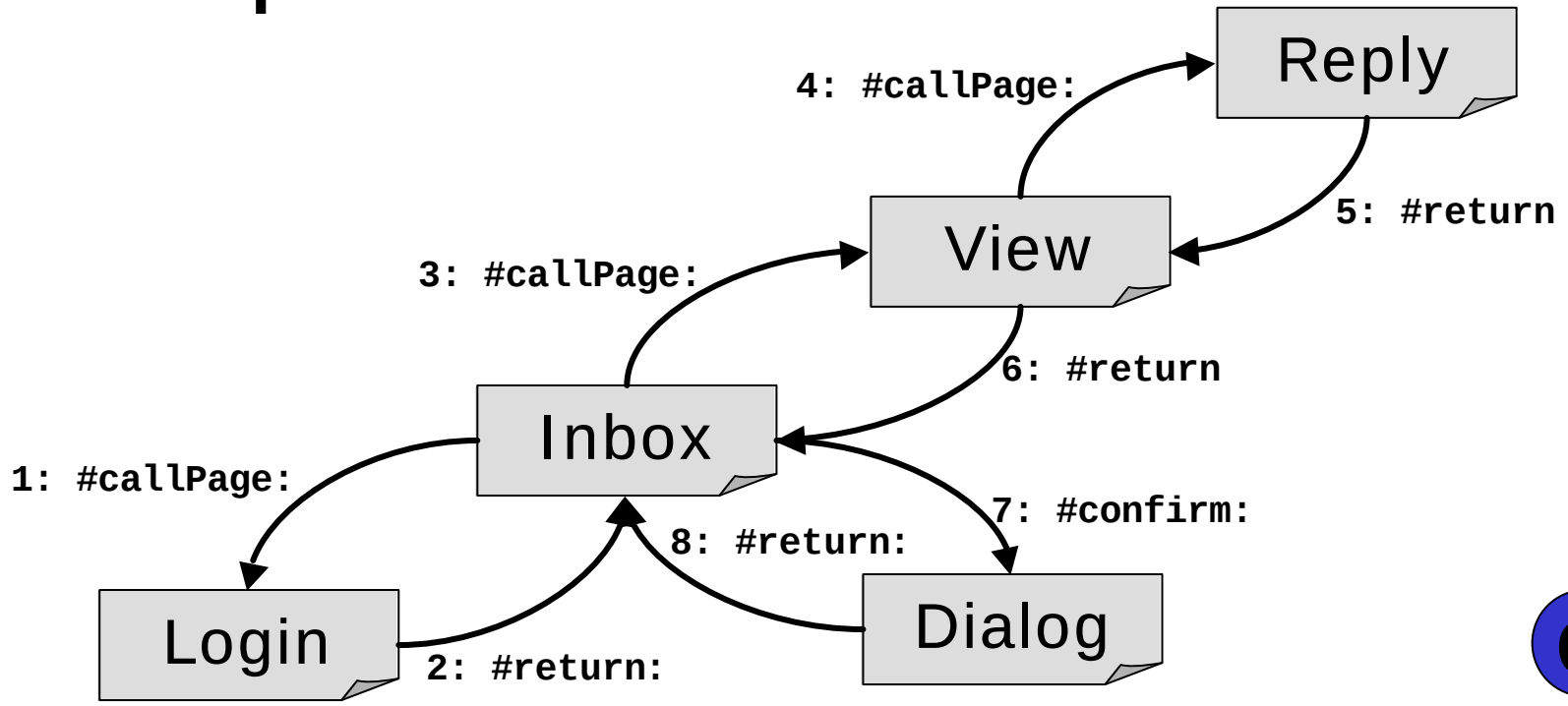
- Common way
  - Manual stack handling
  - Difficult to implement
  - Error prone



- Seaside
  - Transforms traditional Smalltalk send/return control flow onto the web
  - Supports
    - Backtracking (back button)
    - Transactions (full blocks)

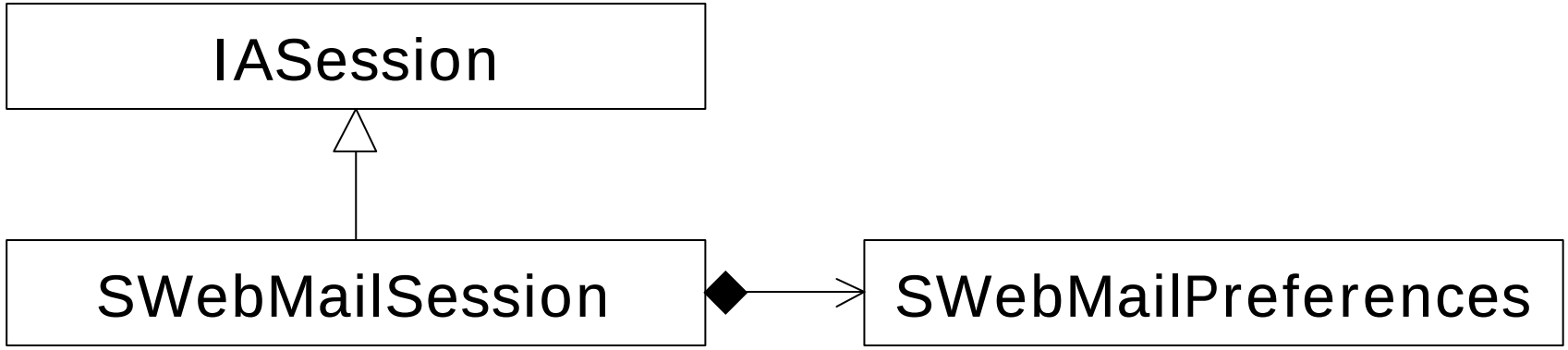
Application Control Flow

- Call pages with message:
  `IAComponent>>callPage: aComponent`
- Return result from page with message:
  `IAComponent>>return: aValue`



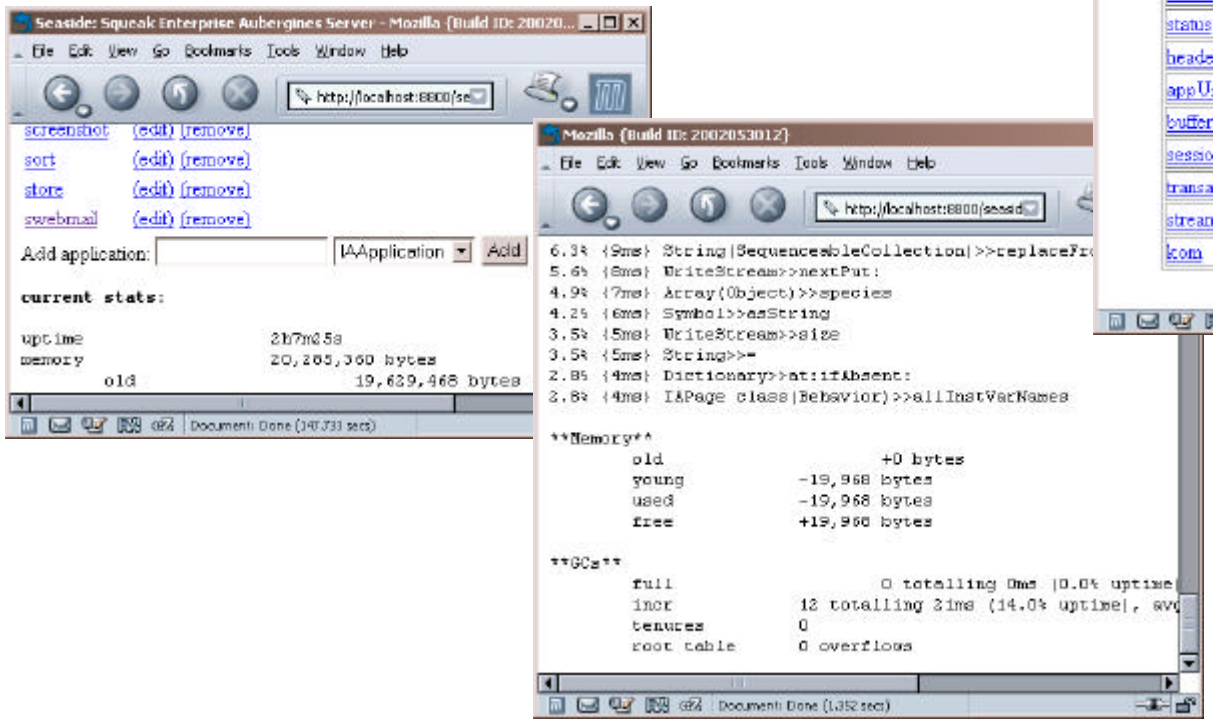
Session Management

- Seaside manages and caches all needed session data automatically
  - Each session has its own set of objects
  - Caches: LRU, Expiring, ...
- Example: IASession is subclassed to
  - Store the user-preferences
  - Login and logout handling



Goodies

- Web-based inspector
- Profiler
- Configuration tools



Seaside 2.0 (Borges)

- Full reimplementation
- Supports a wider set of styles
- Layered design

Borges-Components
Control flow between pages
Safe backtracking
Component embedding

Borges-Support
Callback system
HTML renderer

Borges-Kernel
HTTP session
Request
Response

Comparison

	Seaside	Zope
Language	Smalltalk	Python
OOP	Complete	Partly
Reuse	Heavily	Possible
Separation	Yes	No, but ZPT
Control Flow	Message calling	Request, Response
Debugging	WebInspector	Difficult
Database	(Seashell), GOODS, Tantalus, ODBC, ...	ZODB, PostgreSQL, MySQL, ODBC, ...
Large Systems	Not tested	Possible
Integration	Apache	Apache

Summary

- Seaside: Squeak Enterprise Aubergines Server
  - Developers: Avi Bryant, Julian Fitzell
  - Current Version: 0.94.1
  - License: Squeak-L, BSD
- Works best with
  - Squeak 3.0, 3.1, 3.2
  - Comanche 4.9, 4.10
  - Windows, Mac OS X, Linux, SUN Unix, ...
- Ports underway
  - Dolphin Smalltalk
  - VisualWorks

References

- Seaside
  - Homepage
    http://www.beta4.com/seaside
- Seaside 2.0 (Borges)
  - Documentation
    http://beta4.com/squeak/aubergines/docs/seaside/borges.html
  - Download
    http://beta4.com/squeak/aubergines/source/Borges.st
- SWebMail
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    http://renggli.freezope.org/programming/smalltalk/swebmail
  - Running Server
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