

Domain Specific Languages *and* Modeling Technologies  
*for* Eclipse Scripting & Automation

# ECLIPSE COMMAND LANGUAGE

Andrey Platov

Santa Clara, California  
March 18<sup>th</sup>, 2008

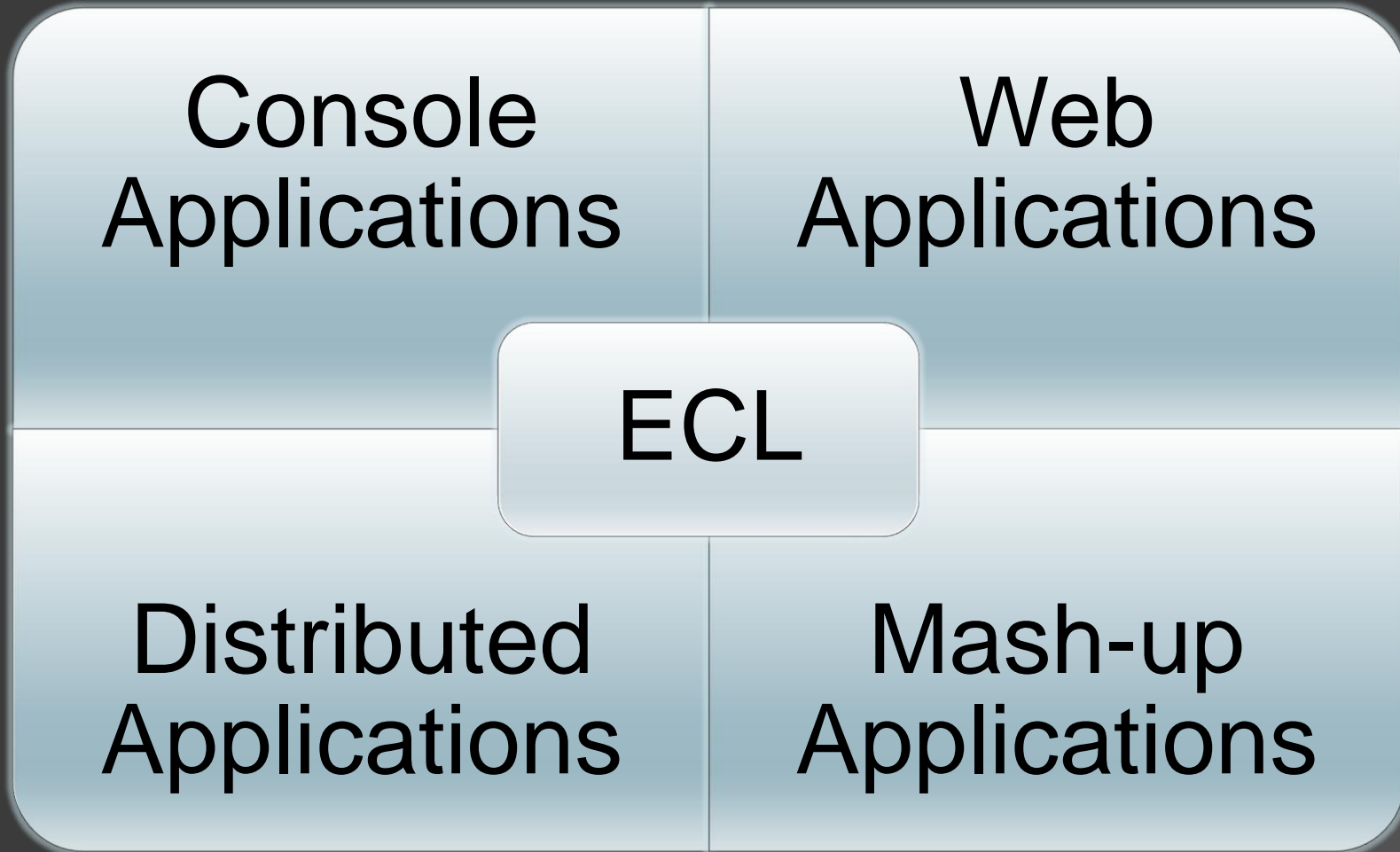
# Scripting attracts minds of Eclipse engineers

- ⦿ org.eclipse.scripting (inactive) plug-in – since 2001
- ⦿ Eclipse Monkey project
- ⦿ Scripting sessions each EclipseCon
- ⦿ Glimmer project proposal - JRuby DSL  
<http://www.eclipse.org/proposals/glimmer/>

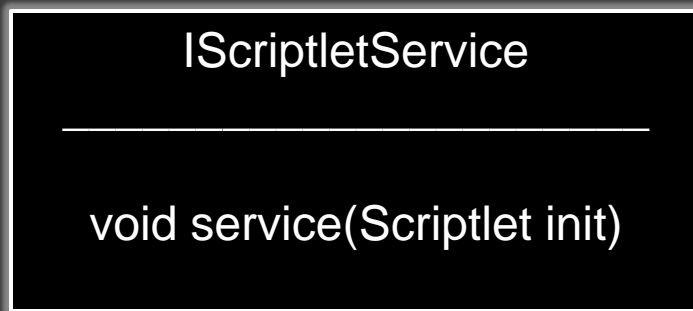
# What is ECL?

- ECL is about using modeling technologies, Java, scripting languages, and DSLs for scripting Eclipse and for DSL orchestration.
- Moreover ECL is a style of software architecture inspired by different concepts, technologies, and products like REST, SOA, MDD, and...  
Microsoft® PowerShell™

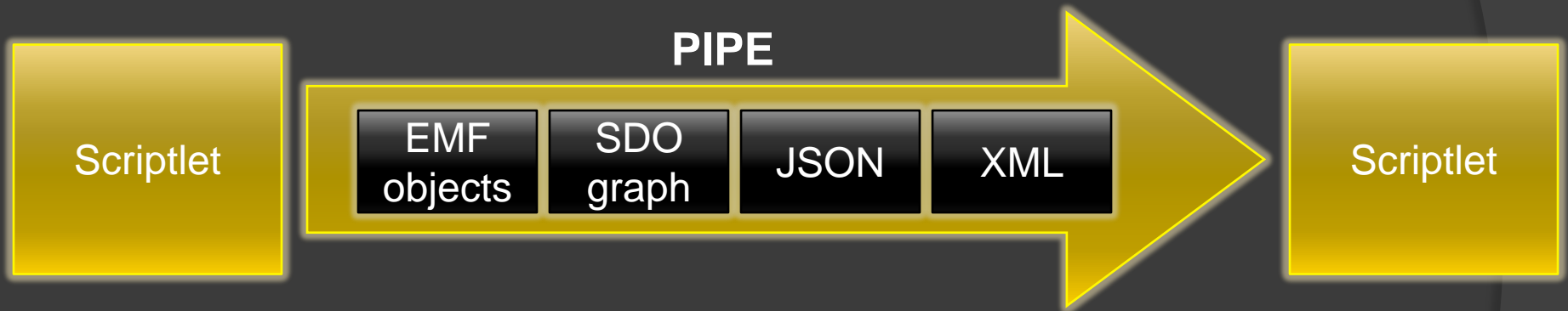
# Purpose of the ECL



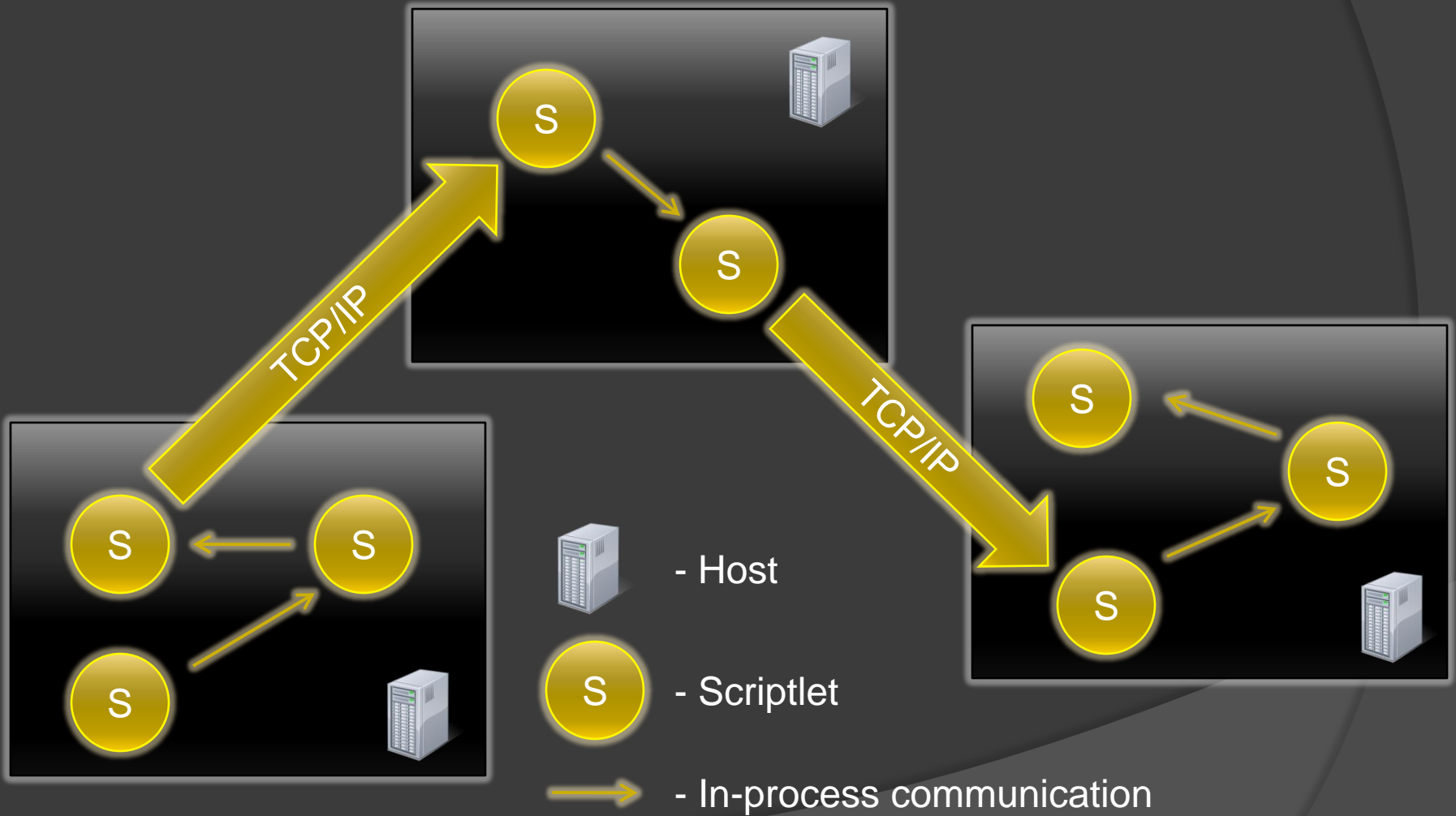
# ECL Program Model



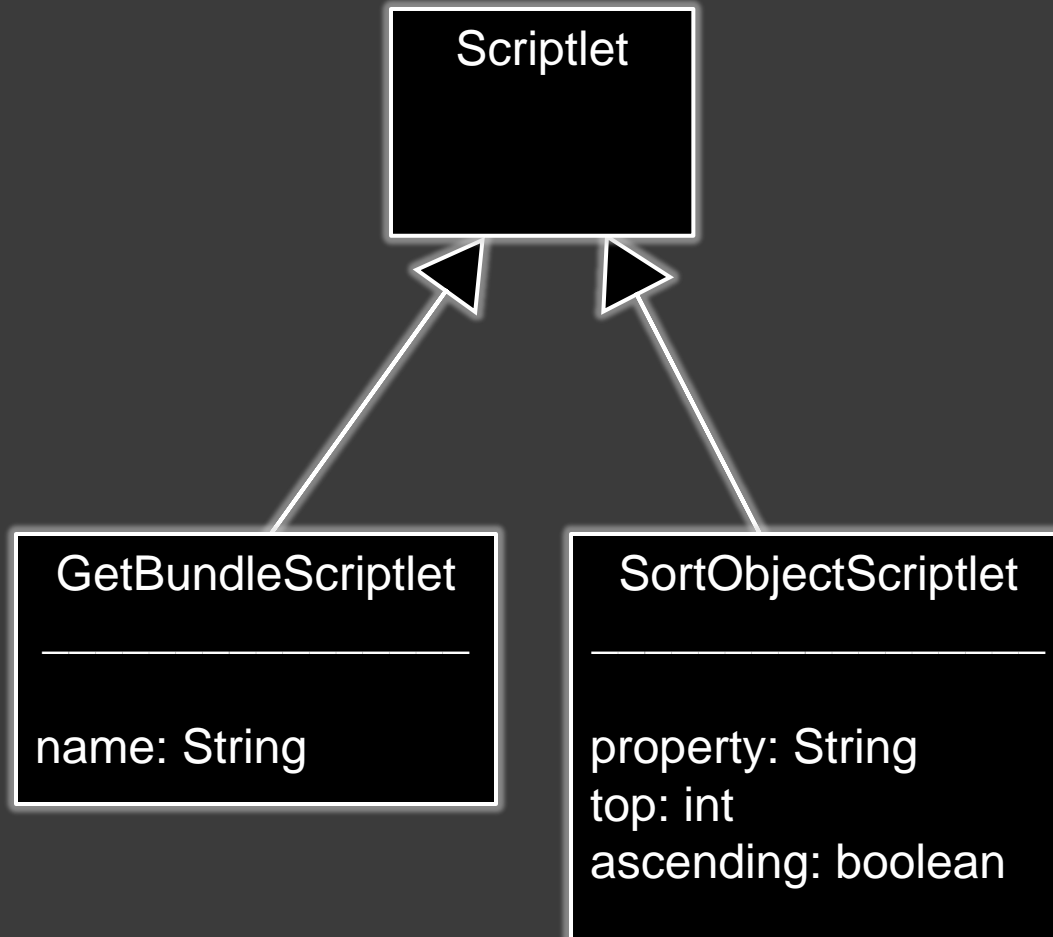
# Pipes and Objects



# Scriptlet communication

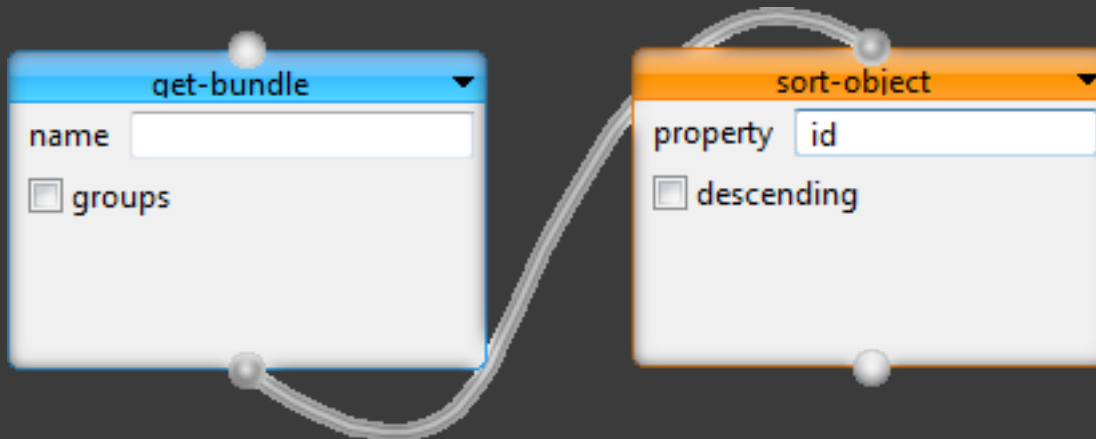


# Sample Scriptlets





# Sample ECL Command

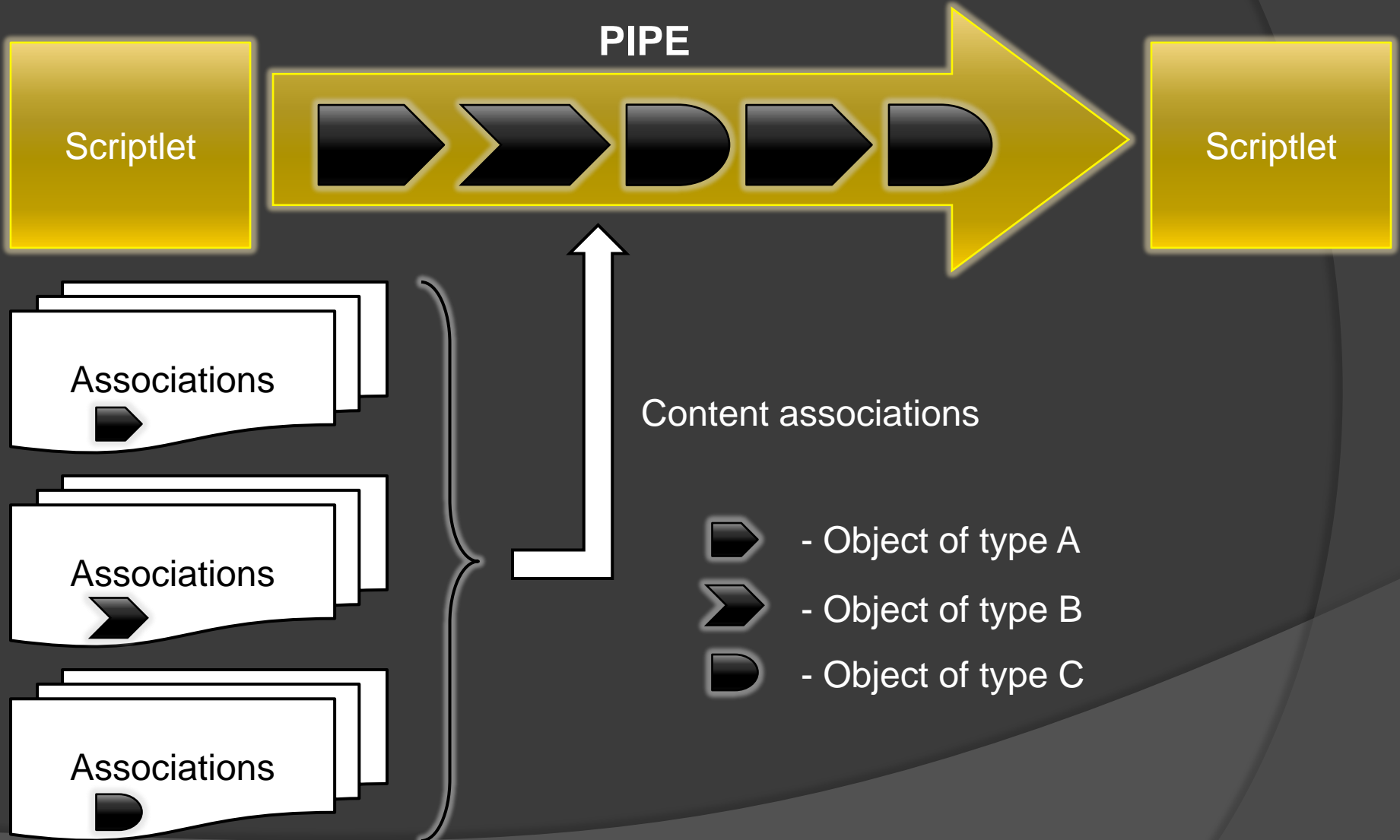


```
shell> get-bundle | sort-object -property id
```

# Demo I

- ⦿ Scriptlet chains
- ⦿ Code injection
- ⦿ Scripting languages supported by JVM
- ⦿ Eat our own dogfood

# Pipe content associations



# Default groovy template

```
<TableFragment xmlns="http://www.xored.com/ecl/table.ecore">
<%
  caption = false;
  for (r in resource) {
    print "<rows>";
    if (!caption) {
      for (attr in r.eClass().getEAttributes()) {
        label = attr.getName();
        print "<columns style='border: bottom' text='${label.toUpperCase()}'/>";
      }
      print "</rows>\n<rows>";
      caption = true;
    }
    for (attr in r.eClass().getEAttributes()) {
      Object value = r.eGet(attr);
      if (value != null)
        print "<columns text='${xmlEncoder.escapeXML(value)}'/>";
      else
        print "<columns text=''/>";
    }
    println "</rows>";
  }
%>
</TableFragment>
```

# Demo II (Web & Mash-ups)

- ⦿ Rendering to HTML
- ⦿ Rendering Eclipse UI with UI DSLs
- ⦿ Legacy code support - RSS Feed Reader

# Thank you!

- Please contact us if interested
- E-mail: [andrey@xored.com](mailto:andrey@xored.com)
- Source code will be available at <http://www.xored.com/ecl>

# Why scripting languages attract developer minds?

- ⦿ Productivity at first
  - Python or TCL programs are often 2 times shorter (LOC) than Java or C++ equivalents. They usually takes less time (hours) to develop
- ⦿ Simplicity and Developers availability
  - There are 2.5 millions PHP programmers
  - Most of web sites done with PHP
- ⦿ And this is true, so it looks like many of us will develop plug-ins with scripting languages; Q: Who are developing plug-ins with them?

# Domain Specific Languages

- ⦿ There are several XML-based DSLs exist for building Eclipse UI
  - XSWT: [http://www.coconut-palm-software.com/the\\_visual\\_editor/?page\\_id=58](http://www.coconut-palm-software.com/the_visual_editor/?page_id=58)
  - eFace (XAML implementation for Eclipse): <http://www.soyatec.com/eface/>
  - RCPML: <http://kb.xored.com/display/rcpml/>
- ⦿ Some of these DSLs pairing with scripting languages like DHTML/JavaScript
- ⦿ The truth is that declarative UI significantly increases productivity for UI developers, Q: Who are developing eclipse UI with declarative languages (besides authors of mentioned projects)?



# Right tools for right tasks

- ⦿ If I need to develop a simple database browsing application I'll use PHP, do not you?
- ⦿ Simplified deployment and short development cycle using declarative UI (HTML) with script embedded
- ⦿ Unfortunately all of above is true until complexity of the system increased: at some point you shall expect integration problems, deployment issues, and maintain huge test-base to keep project in health
- ⦿ Conclusion: We need to have clear boundaries for script responsibility

# ECL – What developer wants?

- ⦿ Productivity of DSLs
  - Perl initially designed as a DSL for textual processing
  - Declarative UI languages reduce time to develop UIs in times
  - Custom DSLs increasing productivity in specific areas
- ⦿ Simplicity
  - There is a lack of experienced engineers on the market
- ⦿ ECL is about to have all of them: to make any scripting language and DSLs work together