Development and deployment of Common Lisp applications on the JVM

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About me

- Owner of  HUCS B.V.:
  Independent Business analyst (Financial) Reporting

- Co-owner of EFFICITO.COM
  Cloud-hosted open source ERP for SMB

- Open source developer of
  (Subversion,) LedgerSMB
  and **Armed Bear Common Lisp**

ABCL development progress

Milestones set in 2008

- Maxima test suite runs without crashing (achieved)
- Maxima test suite runs without errors (achieved)
- ANSI test suite runs without errors
  (<20 left out of 21.000)
- 1.0: CLHS compliance
  (last hurdle: support for long form of DEFINE-METHOD-COMBINATION)
- 2.0: AMOP compliance
  (estimated delivery: “far future”)

As a measure of practical usability

Development targets revisited

The world has changed due to

- Quicklisp
- CL-Test-Grid

→ Measuring *practical usability* redefined

ABCL development status

ABCL 1.2 release – ECLM 2013

- Closer to MOP compatible! *(Thanks Rudi!!)*
- Now runs lots of additional Quicklisp libraries
- Some long-standing bugs fixed (XPath)

Next steps

- Finally fix the pretty-printer / Gray streams interaction issues
- Work on optimizations (JAR size, execution)

ABCL use(r)s

Embedded:

- *Application engine*
  Triggering events through Java UI,
  Lisp business logic execution
- Scripting language
  Java web application inside servlet container,
  customization and trigger implementation

Commercial uses

Stand alone:

- (ask Hans Huebner)

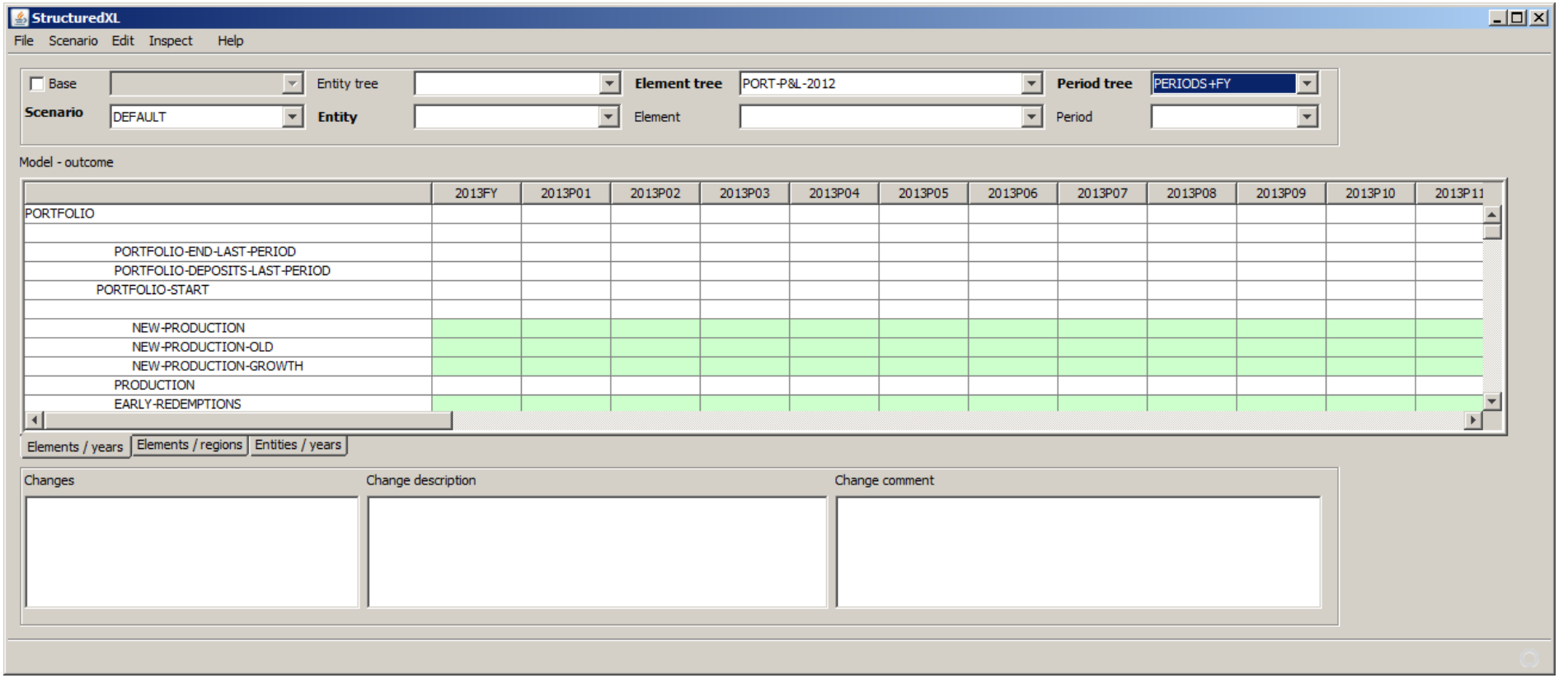
Why use ABCL?

- Cross-platform UI
- Tap into VM research for JVM
- Tap into vast Java development resources
- To run inside the same image as Java application being interfaced with

But most of all:

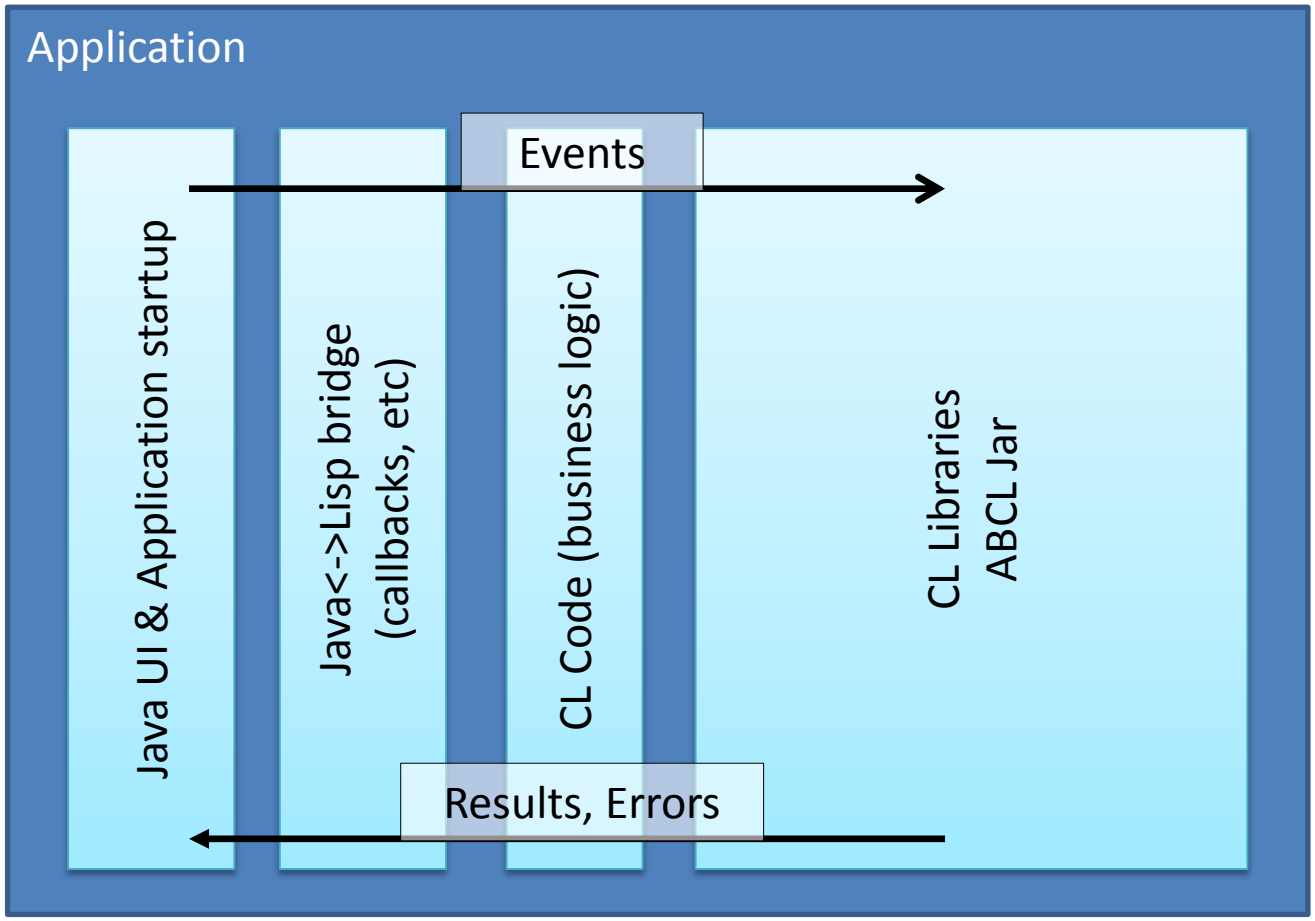
- Customers like hearing: *It's Java based*

How?

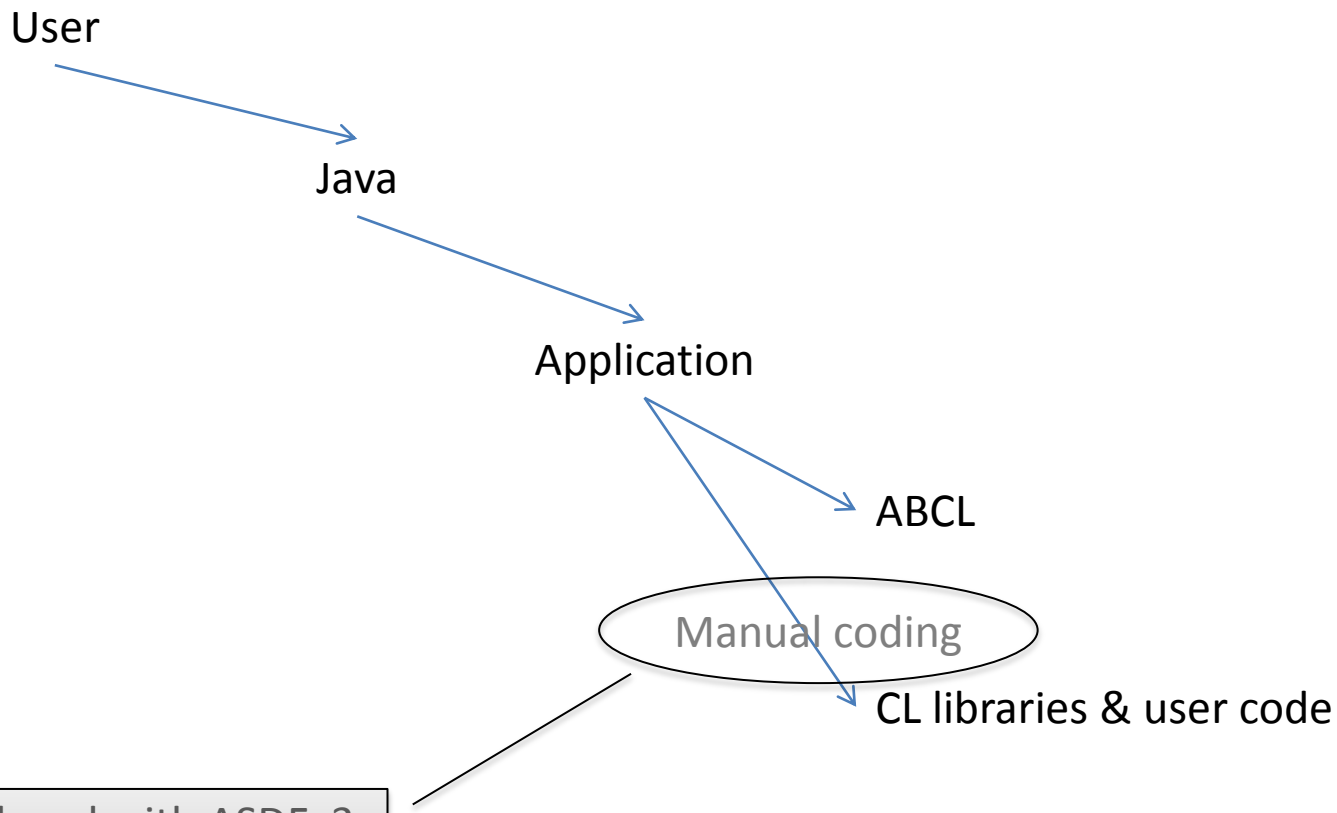


Example: StructuredXL, Financial budgetting tool

Application structure



Application start-up



To be replaced with ASDFv3 precompiled concatenated full system FASL

Build/Development tools

- NetBeans
  UI design, event forwarding, bridge coding
- Emacs/SLIME
  CL coding/testing (outside of app)
- Ant (‘make’ for Java)
  Java compilation
- ABCL & ASDF (the ABCL application, not the library)
  CL compilation (started from Ant)

Code samples (1/2)

Application start-up

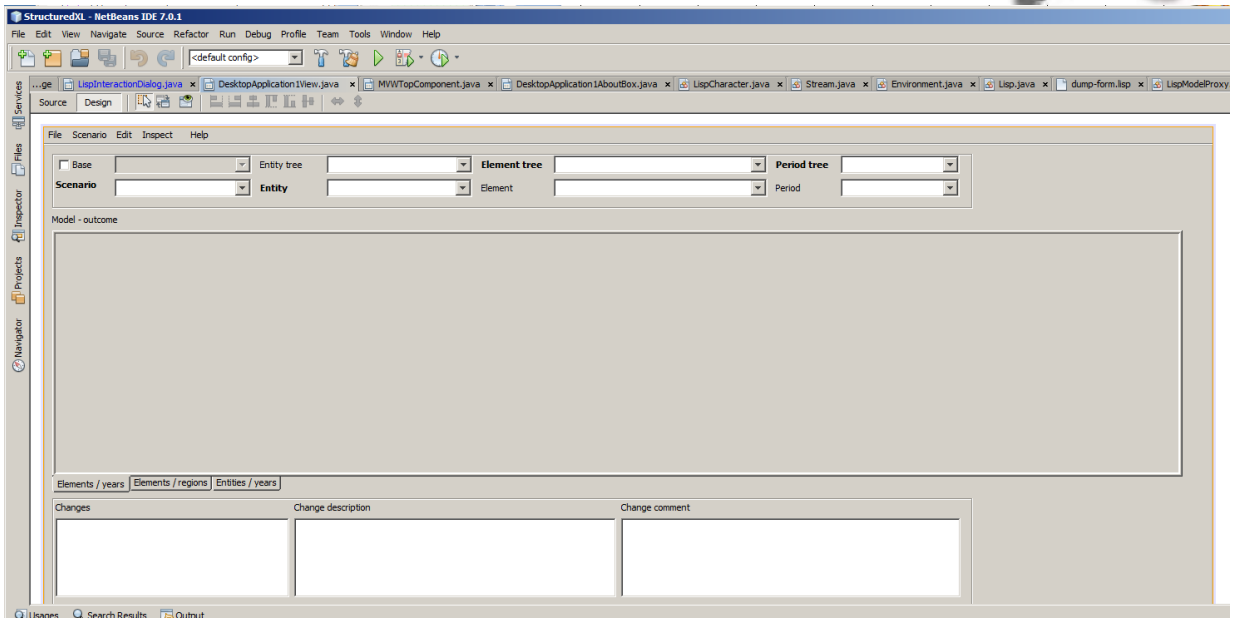
```
100      /**
101       * Main method launching the application.
102       */
103      public static void main(String[] args) {
104          Interpreter.initializeLisp();
105          try {
106              File theJar = abclJar();
107              String thePath = java.net.URLDecoder.decode(theJar.getParent(), "UTF-8");
108
109              compileOrLoad(new String[] {
110                  new File(thePath, "parse-number").getPath(),
111                      "D:\\SXL\\budget-tool-wk26-branch\\lisp\\parse-number" },
112                  false);
```

Java->CL bridge method

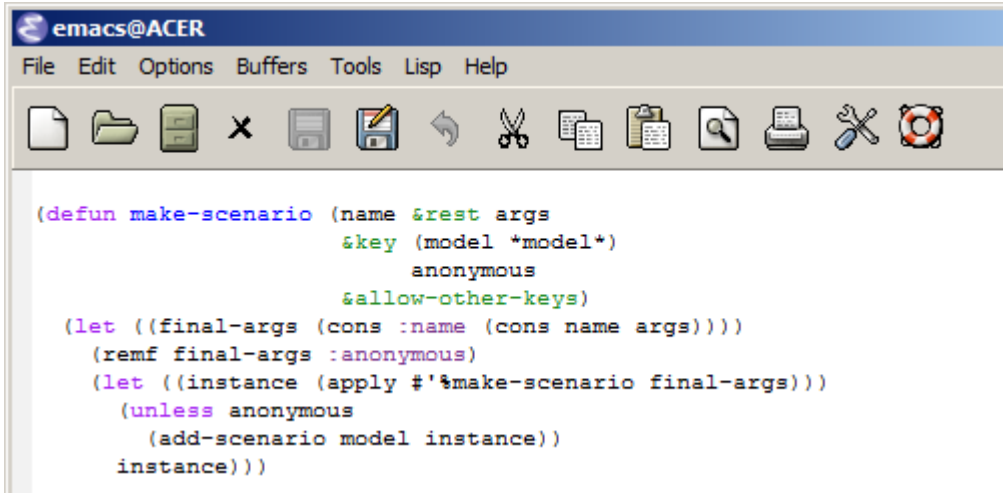
```
366      static LispObject createScenario(String name, String description)
367              {
368          return Lisp.funcall(makeScenario(),
369            new LispObject[] { keyword_name, new SimpleString(name),
370                               keyword_description, (description == null) ? Lisp.NIL : new SimpleString(description) },
371                     LispThread.currentThread());
372      }
```

Code samples (2/2)

NetBeans UI designer



The usual CL code



Deployment

Standard NetBeans packaging:

- Main application JAR
- Library JARs [abcl.jar, other java jars]
- CL fasl file(s) [*.abcl, in library directory]

Distribution

- Zipped or unpacked
  - Runs off any media including USB-stick
  - Total distribution size (incl. 8MB ABCL jar): 20MB

Servletcontainer deployment

Since time is probably up now,

see the examples in the repository...

That’s it

Questions?