Using EJBs in Eclipse RCP

Experiences

Eclipse Finance Day Zürich

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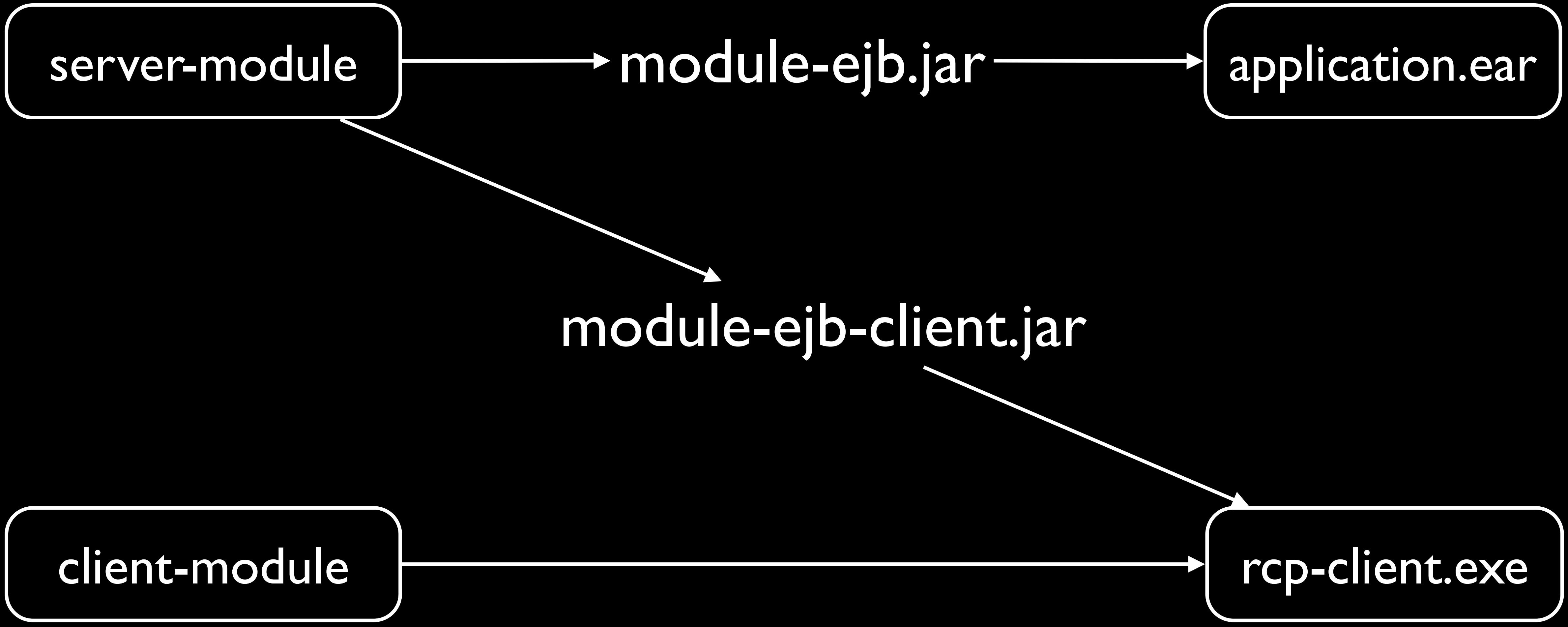
The Application 1

- acquiring processing back office
- manage master data
- manage business rule
- fix transaction errors

The Application II

- client-server application
- Java EE application server with EJBs
- Eclipse RCP client
- EJB remoting


server-module
module-ejb.jar
application.ear
module-ejb-client.jar
client-module
rcp-client.exe

The Problem

- Calling EJBs from OSGi
- EJB client library intended for use in Java EE container
- uses ThreadContextClassLoader (TCCL)
- assumes having access to all application classes
- isn’t considered sexy

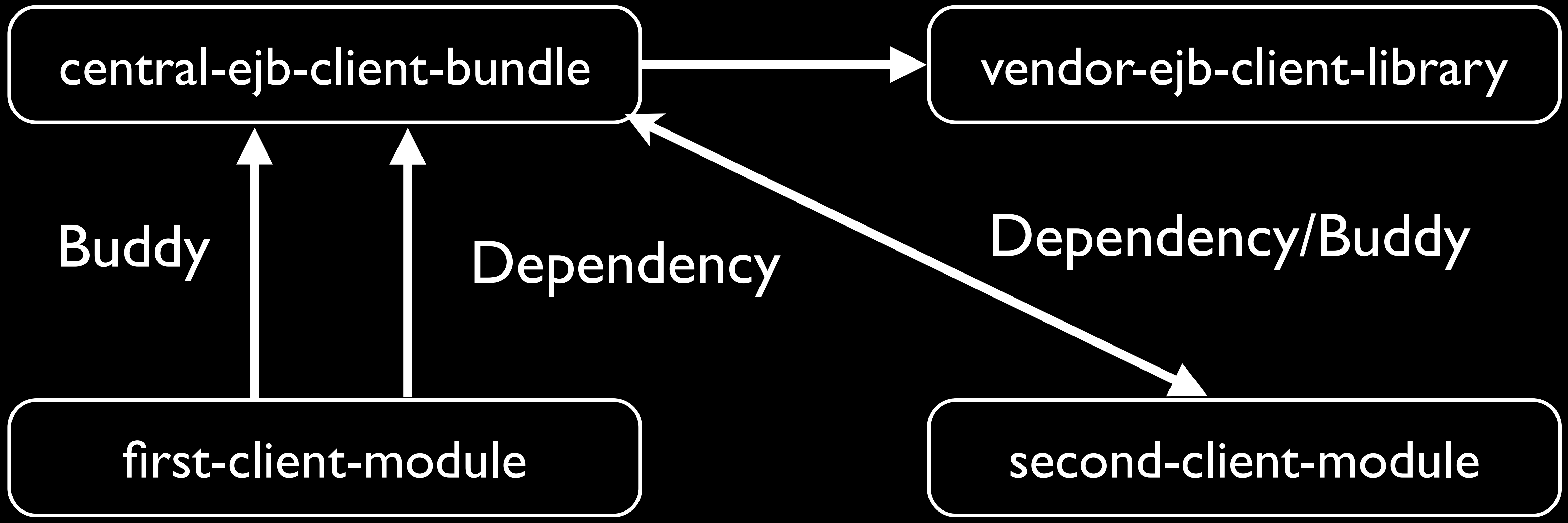
Bad Solutions 1

- Copy all ejb-client.jars into a single bundle

Bad Solutions II

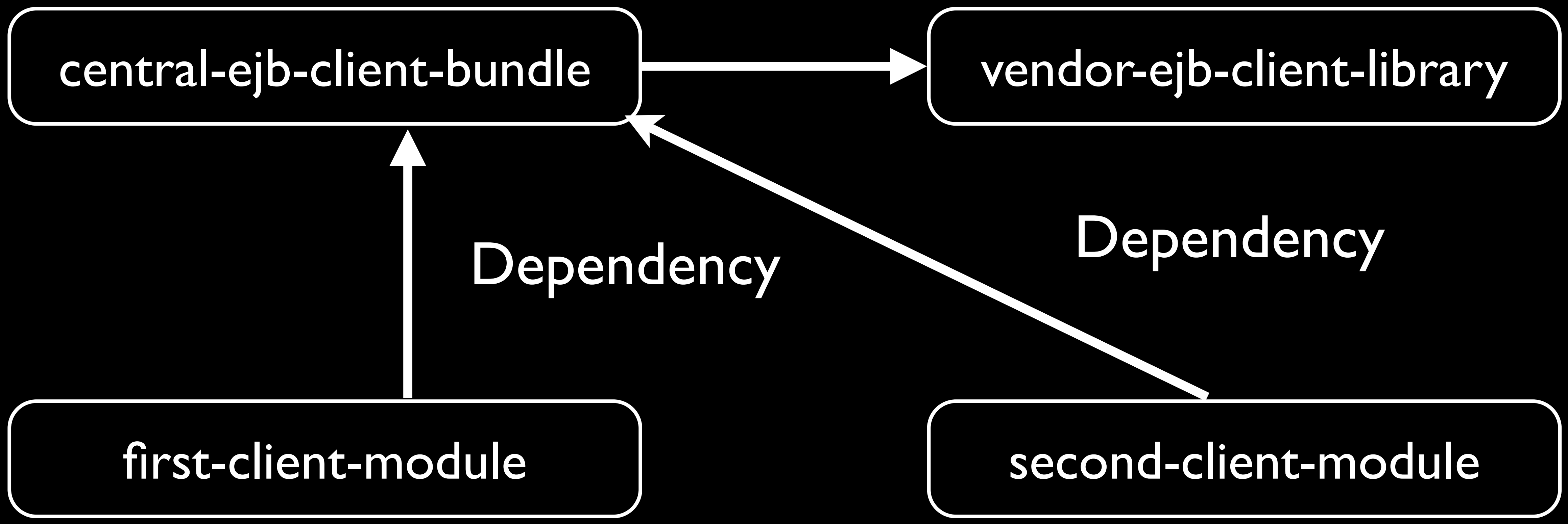
- Buddy classloading

Old Dependencies



A Less Bad Solution

New Dependencies



Look Up Proxy

- ask `central-ejb-client-bundle` for service proxy
- look up client bundle
    - find JNDI name
    - get bundle class loader
- switch TCCL to bundle class loader
- do JNDI look up

Finding the Right Bundle

- Extension point to map business interface to JNDI names
- implicitly provide client bundle

Service Call 1

- after proxy look up don’t return raw proxy
- wrap with another proxy that switches TCCL before invoking

Service Call II

- Infrastructure to make service calls in Eclipse Jobs instead of GUI thread

OSGi Cleanness

Pros

- several small bundles
- no Dynamic-Import
- no buddy class loading
- lazy bundle activation

Cons

- no services, no OSGi remoting
- still uses TCCL
- Equinox rather than OSGi API
- client bundles depend on vendor libraries

Better Solution

- Vendor support
- OSGi specification
- OSGi remote services

Development

- connect Java EE server development and RCP client development
- quick turn arounds
- source dependencies for easy refactorings
- no budget for big tooling investments

The old way

- `ejb-client.jar` weren’t bundles
- had to be wrapped in a custom library project (~80 projects)
- building project and copying JARs was required

The new way

- turn `ejb-client.jar` into bundles
- source dependency from RCP projects to EJB projects
- `Export-Packge` to hide EJBs, services, DAOs
- generate as much as possible
- only client projects are PDE projects

Generate

- META-INF/MANIFEST.MF
  - plugin.properties
- plugin.xml

META-INF/MANIFEST.MF

- generate from POM
- custom Maven plugin
- generate-resources phase
- `<dependency/> → Require-Bundle`
- very specific rules about mapping `groupId:artifactId` to bundle symbolic name

plugin.xml

- map service interface to JNDI name
  - derived from EJB
- custom annotation processor
- run by JDT when saving EJBs
- run by Maven during build

Future Improvements

- Don’t generate META-INF and plugin.xml into project root
- MANIFEST.MF is present in ejb.jar as well

Last Slide

- with a bit of effort cumbersome task could be automated
- patch work but works quite well