

打造高效的单机开发环境

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About me



Senior developer
@dianping.com Arch team

Message Queue
Customized Tomcat
Software Load Balancing

<http://osrc.dfm.io/marsqing>



Easy Setup Coupling



架构师

产品经理

Boss

程序员



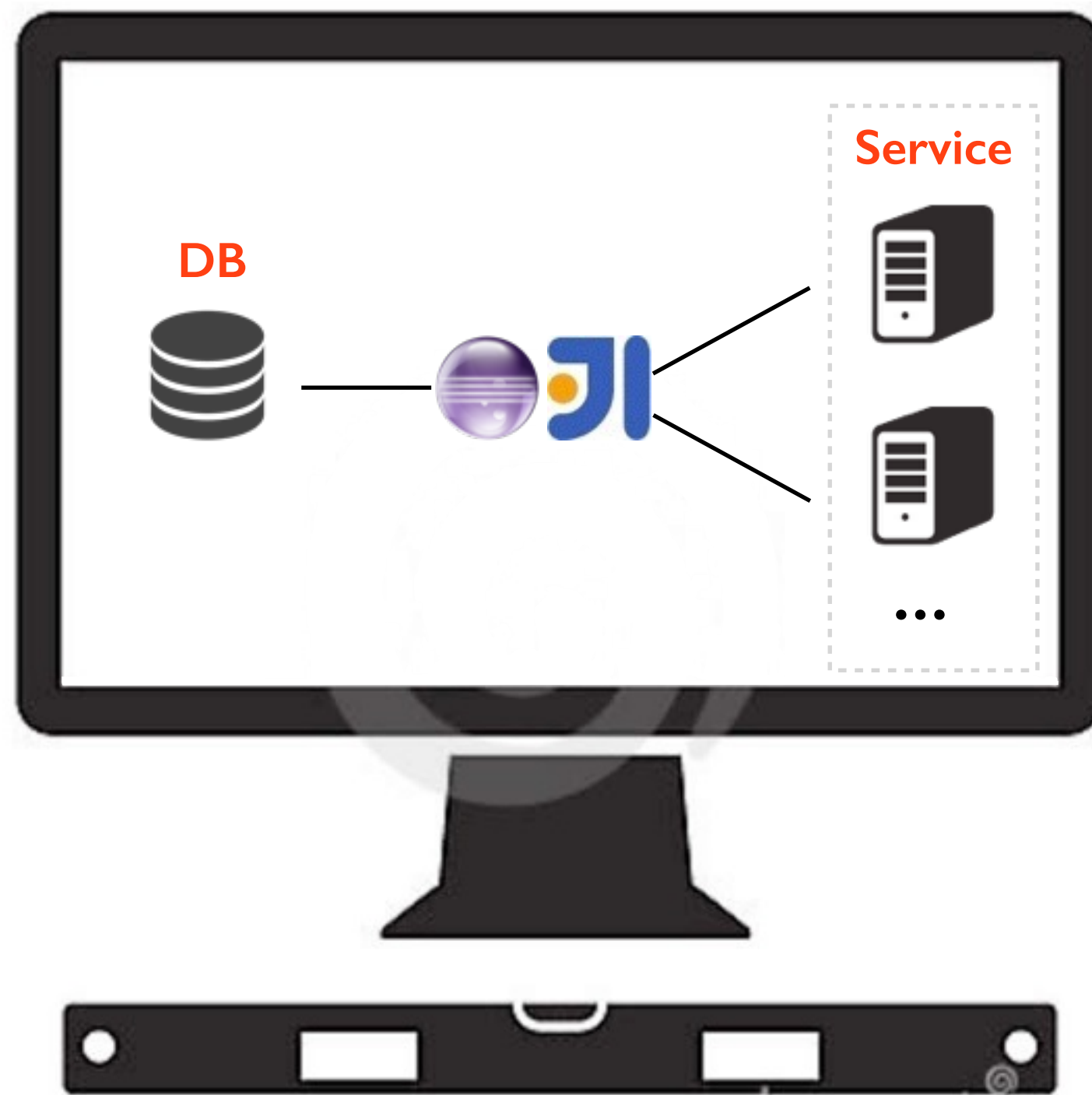
Before and After SOA



Via Mock

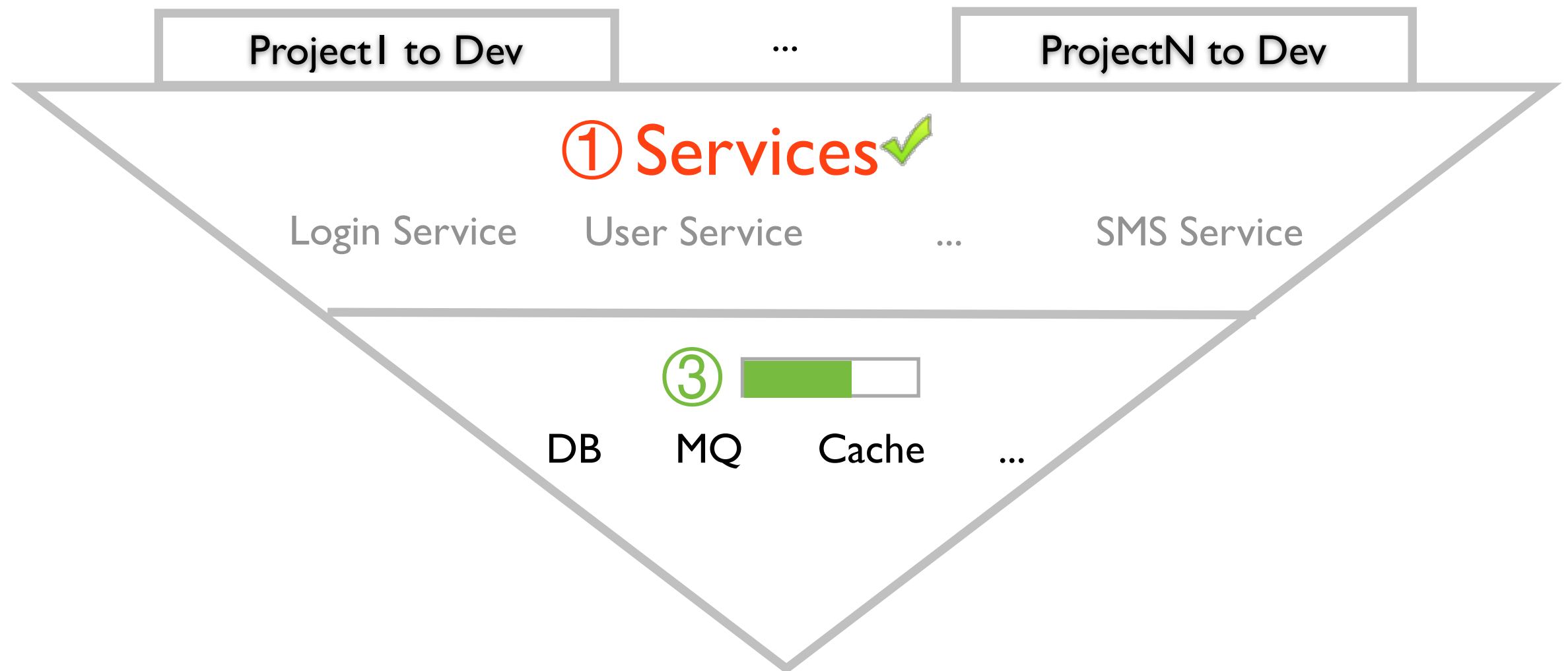


Localize All



A Step by Step Process

② HTTP Routing ✓



① and ③ have something in common

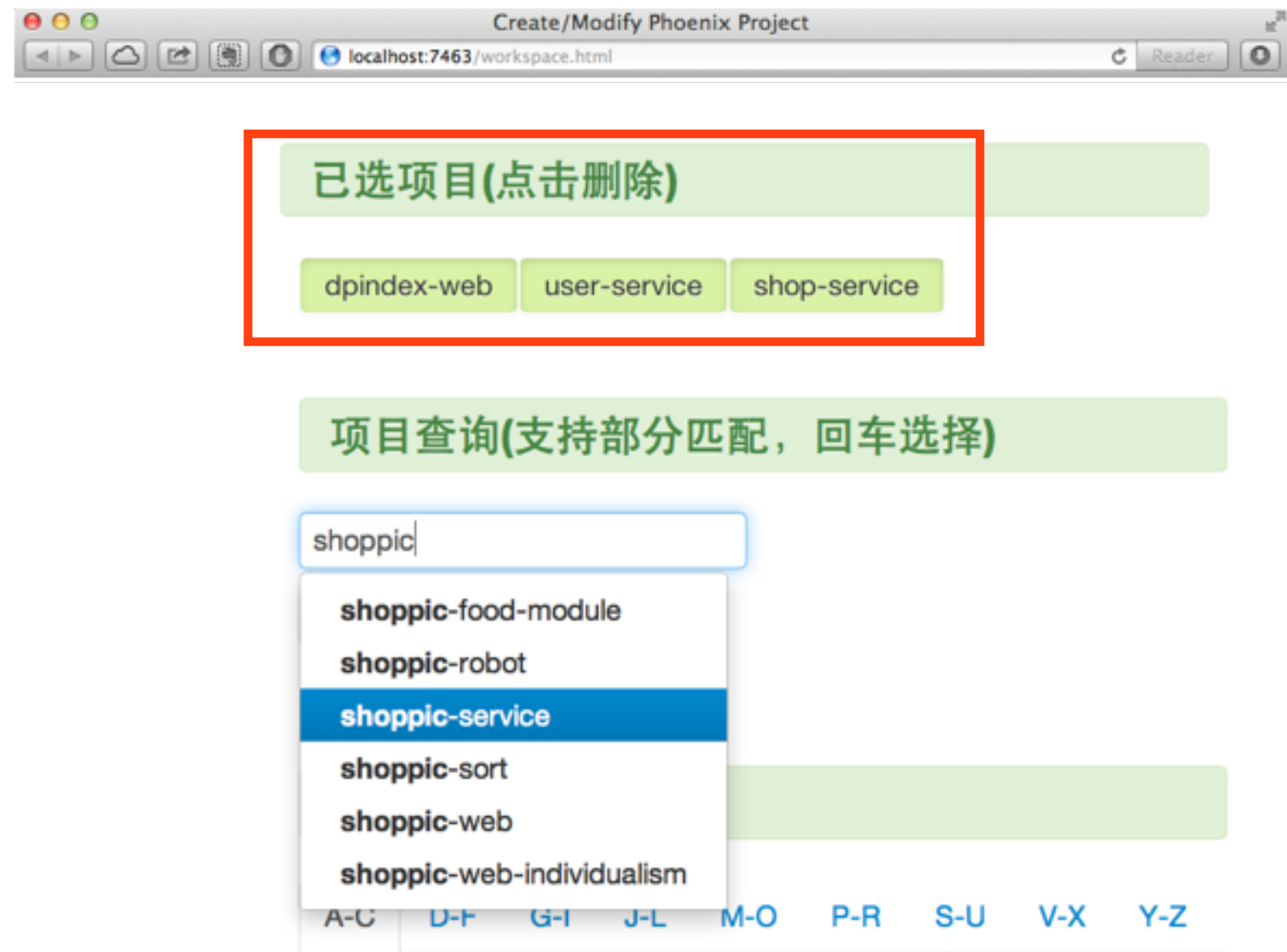
Show me

Step 1

```
[marsqing:~] $ mvn phoenix:project
```


Choose Projects to Dev

Step 2



Work Hard

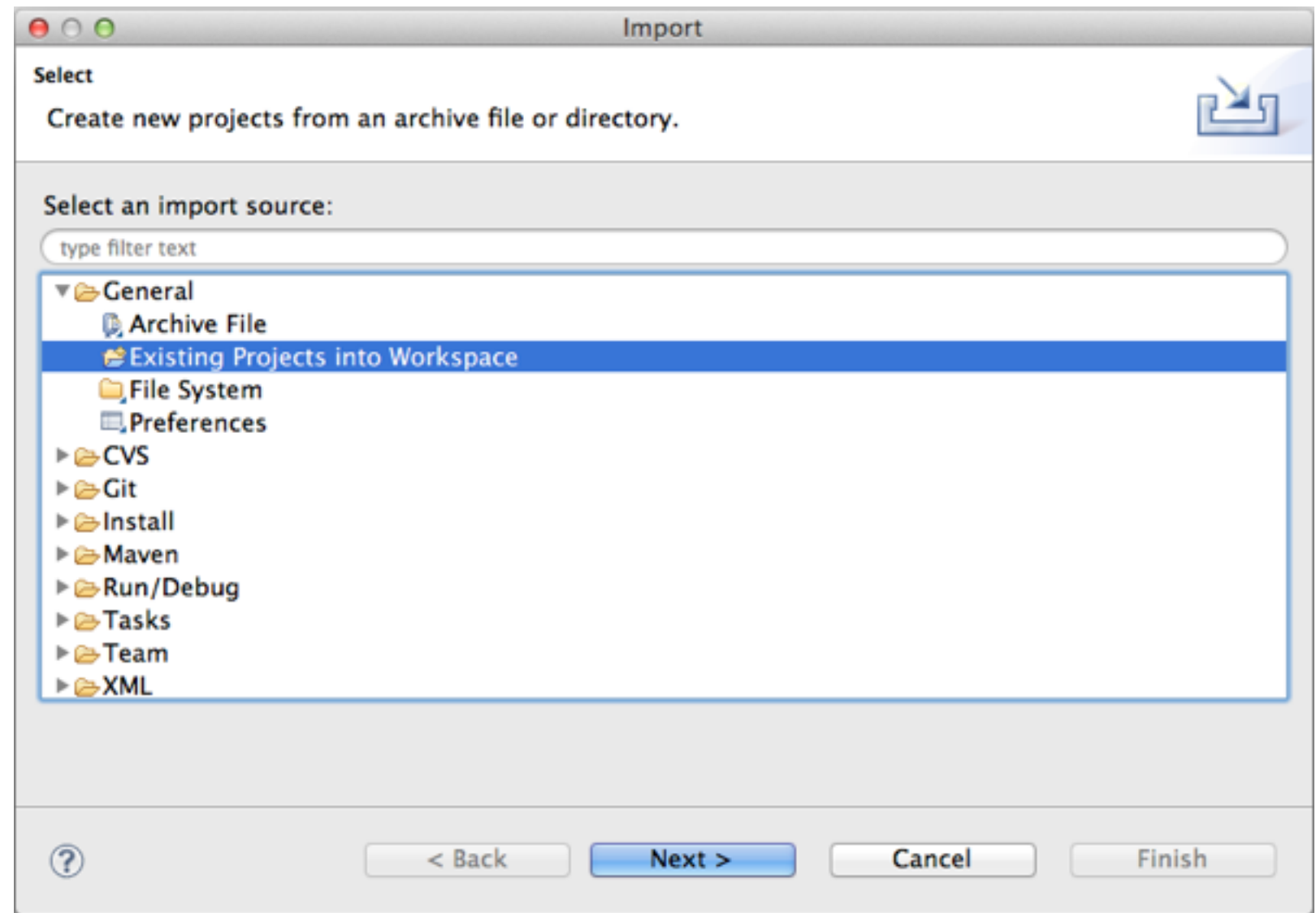
```
[INFO]
[INFO] --- phoenix-maven-plugin:0.2.5-SNAPSHOT:projectEx (default-cli) @ standalone-pom ---
[INFO] Directory to put code(/Users/marsqing/Projects/tmp/phoenix-maven-tmp)
[INFO] -----
[INFO] Checking out project phoenix-maven-config(repo:http://code.dianpingoa.com/arch/phoenix-maven-config.git)...
[INFO] -----
[INFO] [=====>] Cloning http://code.dianpingoa.com/arch/phoenix-maven-config.git

SLF4J: Failed to load class "org.slf4j.impl.StaticLoggerBinder".
SLF4J: Defaulting to no-operation (NOP) logger implementation
SLF4J: See http://www.slf4j.org/codes.html#StaticLoggerBinder for further details.
jar:file:/Users/marsqing/.m2/repository/com/dianping/maven/plugins/phoenix-maven-plugin/0.2.5-SNAPSHOT/phoenix-maven-plugin-0.2.5-SNAPSHOT.jar!/webapp
[INFO] target dir: /Users/marsqing/Projects/tmp/phoenix-maven-tmp
[INFO] target projectes: user-web
[INFO] -----
[INFO] Generating phoenix workspace...
[INFO] -----
[INFO] -----
[INFO] Generating phoenix container...
[INFO] -----
[INFO] -----
[INFO] Checking out project user-web(repo:http://192.168.8.45:81/svn/dianping/dianping/user/trunk/user-web/)...
[INFO] -----
[INFO] [=====>] Checking out http://192.168.8.45:81/svn/dianping/dianping/user/trunk/user-web/

[INFO] -----
[INFO] Generating phoenix workspace misc files...
[INFO] -----
[INFO] -----
[INFO] Generating runtime resources...
[INFO] -----
[phoenix-container]2013-10-29 16:54:19,473 INFO [BizServerContextVisitor 39] found web project in /Users/marsqing/Projects/tmp/phoenix-maven-tmp/user-web
[INFO] -----
[INFO] All done. Cheers~
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 41.185s
[INFO] Finished at: Tue Oct 29 16:54:22 CST 2013
[INFO] Final Memory: 13M/81M
[INFO] -----
```

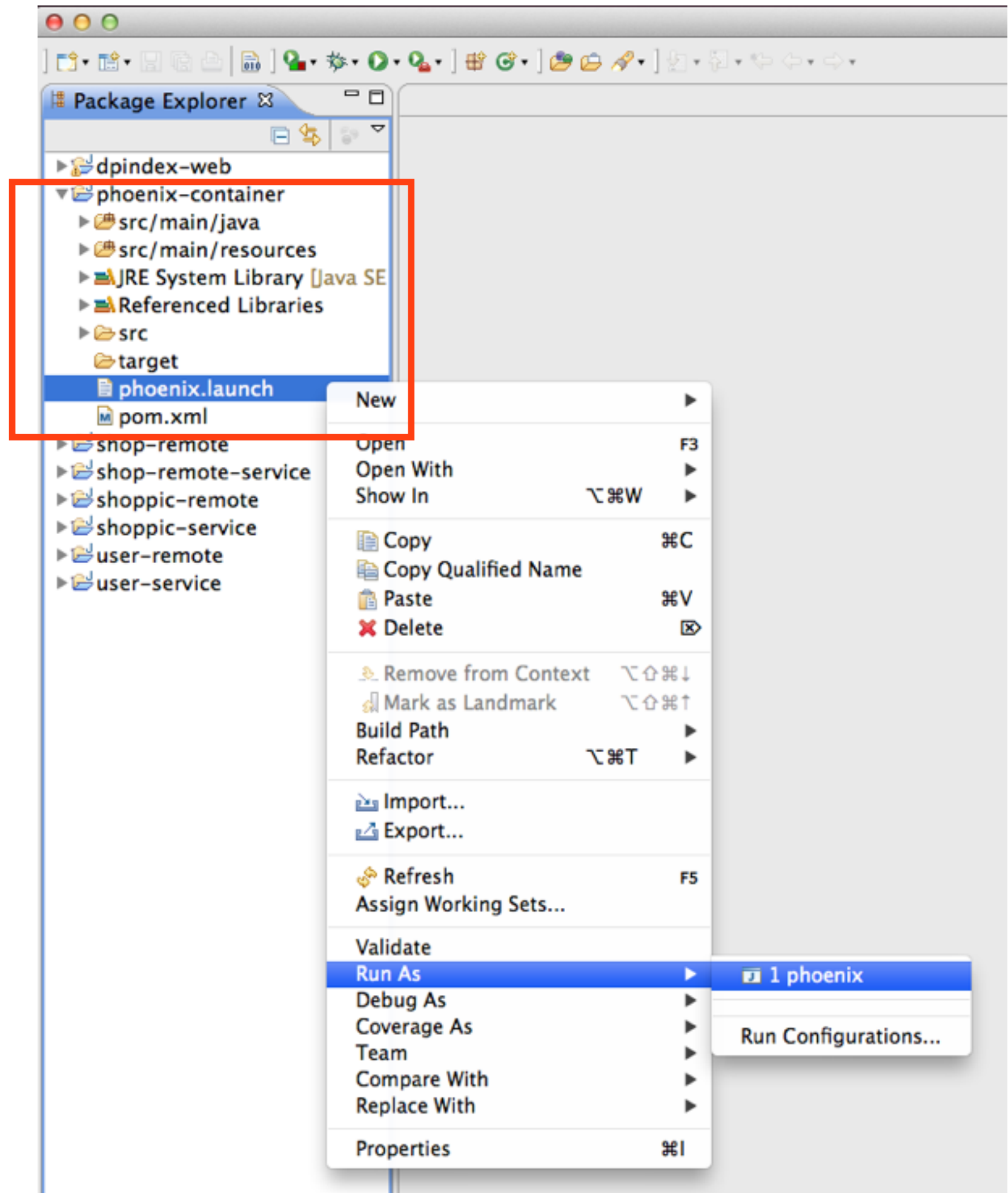

Import into IDE

Step 3



Launch

Step 4





The Benefits

Focus

Less Frustration

```
keep('calm', function(){  
  keep('coding');  
});
```


Rapid environment setup
More business-focused ideas

hackathon

More pull request

More community contribution



✓ **Able to merge**

These branches can be
automatically merged

Send pull request



Quick involvement
Keep passionate

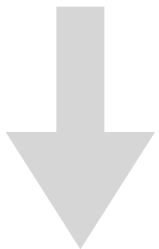


How?



System is

Parts+Interconnection+Purpose



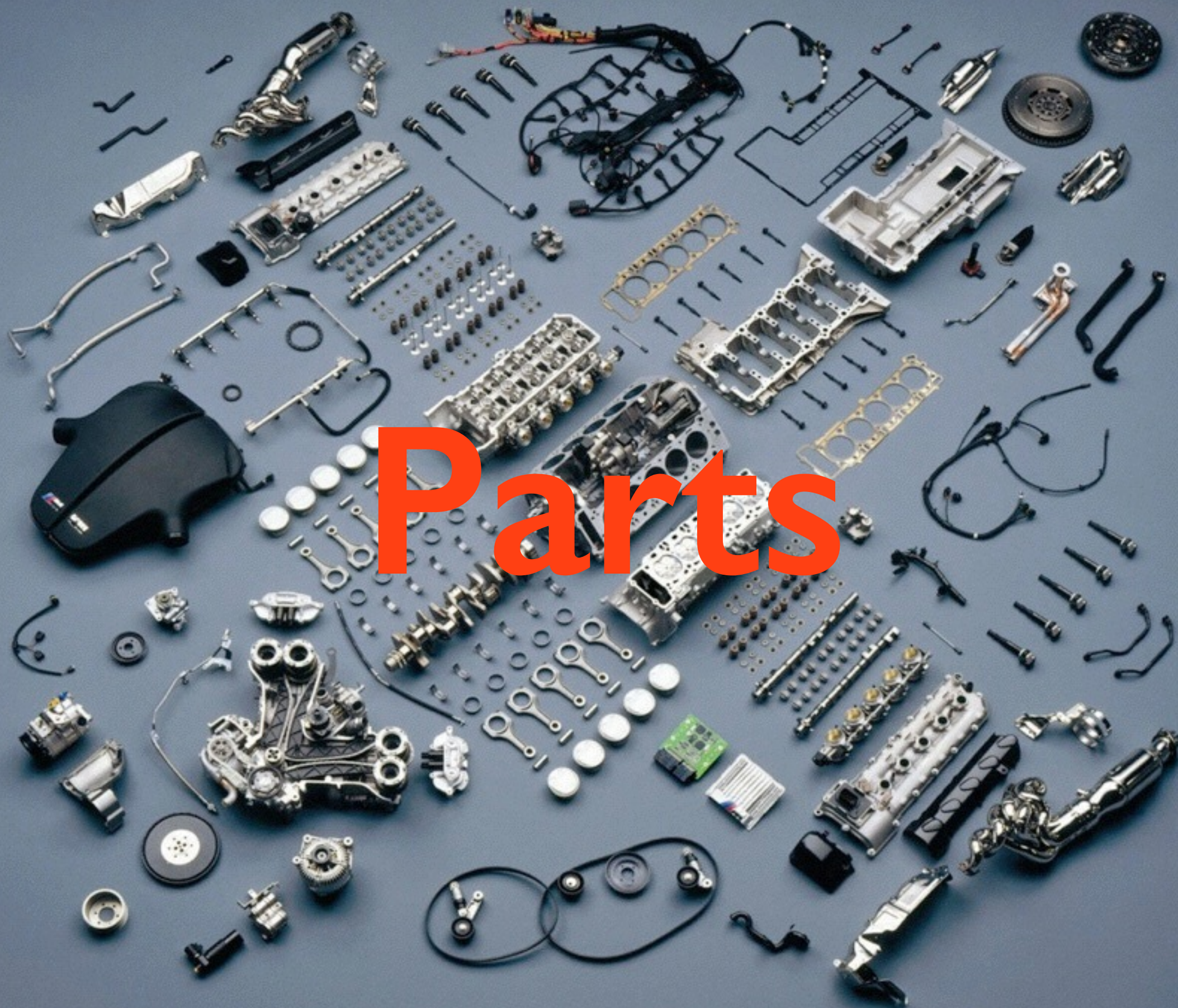
source code
Mysql, MQ...



socket



function as a whole



Parts

Fetching Parts



All in Git

source code, binary, data

easy access

version control

incremental update

What to Fetch

Projects Chosen

Dependent SOA Service Projects

Branching Strategy

Distribute via Maven Plugin

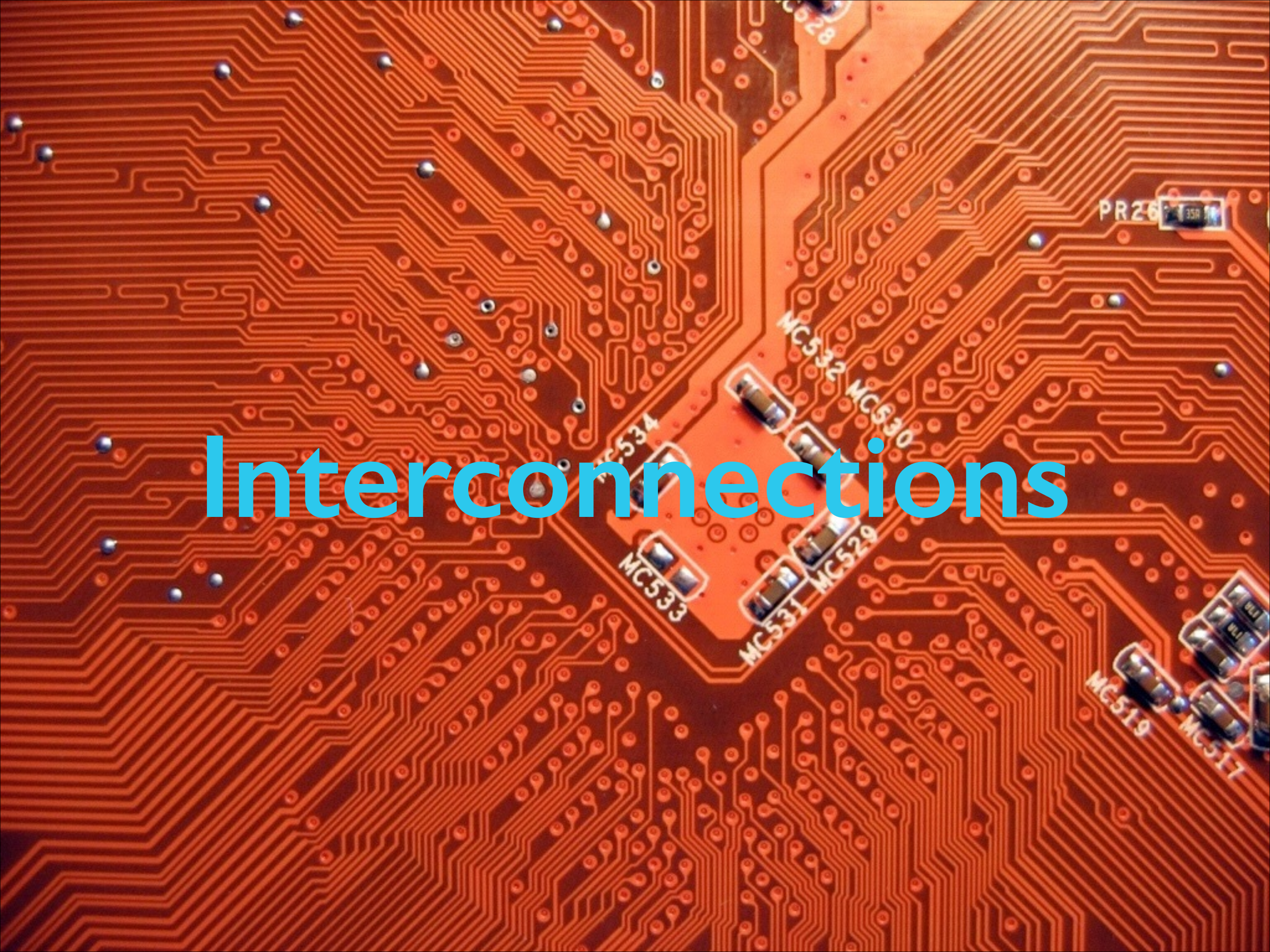


Reuse maven repository

Zero setup

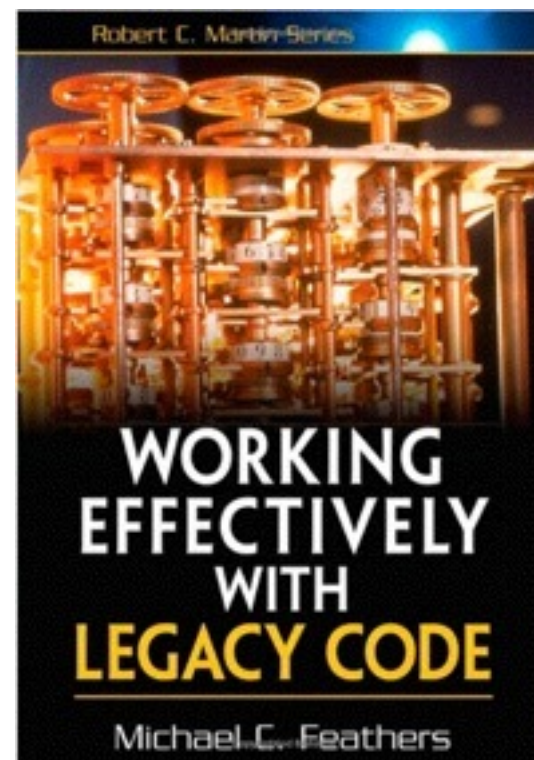
Easy update

Interconnections



Alter behavior without editing in that place

Seam+Enabling Point



Seam

A seam is a place where you can alter behavior in your program without editing in that place.

修改点

Enabling Point

Every seam has an enabling point, a place where you can make the decision to use one behavior or another.

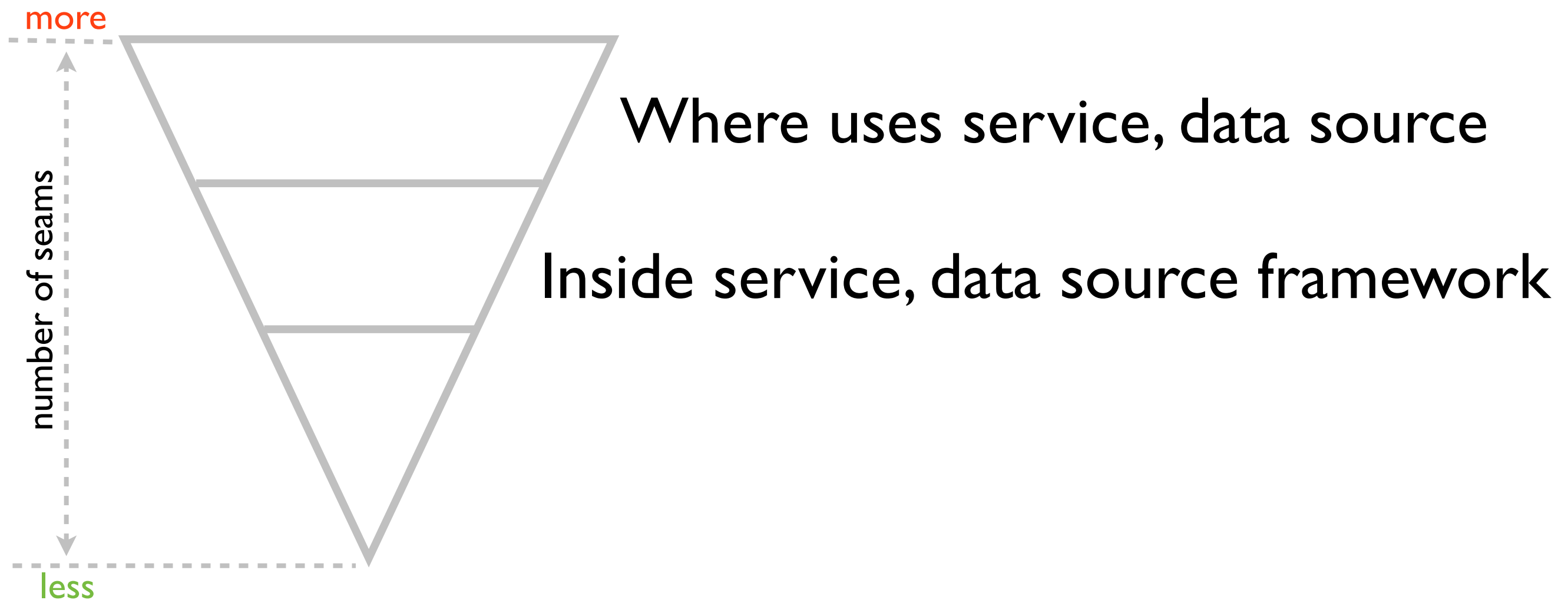
非侵入修改的机制

Preprocessing Seam

Link Seam

Object Seam

Where is the Seam?



Where is the Enabling Point?

Preprocessing Seam

Link Seam -----▶ classpath **Javaagent**

Object Seam

transform class
Javaagent

DSL



Byteteman

Byteyman

Event--Method entry, exit,
invode another method...

Condition--Whether to trigger action

Action--Hack the return value, fields,
arguments, local variables...

The Seam -- Inside service framework

Service Routing Table

The Enabling Point -- Javaagent(Bytebuddy)

Hack service routing table

Service Routing Table	
service name	service provider
...	...
loginService	192.168.1.1:2000
...	...

```
RULE Inject rerouted service table
CLASS com.dianping. [REDACTED]
METHOD initializeService
HELPER com.dianping.phoenix.BytemanServiceDataLoader
AT INVOKE setServiceRoutingTable
IF true
DO
    $this.pts.putAll(loadReroutedServiceTable("^router-.*\\.xml"));
ENDRULE
```

Reroute and inject

Re-Routing Service

Parts | **Fetch** service source

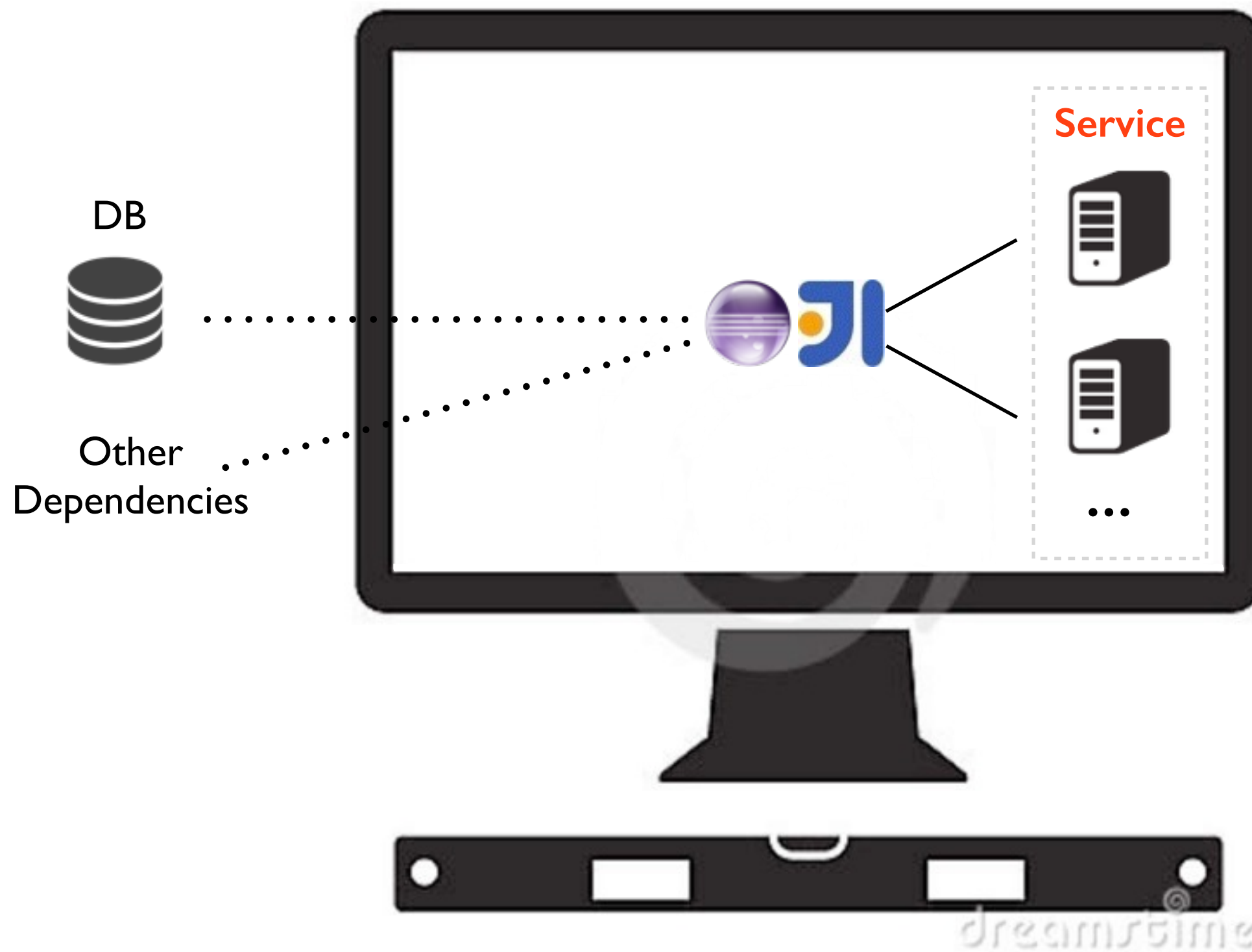
Inter
connection 2.1 **Scan** and determine route

2.2 **Inject** to service framework via byteman

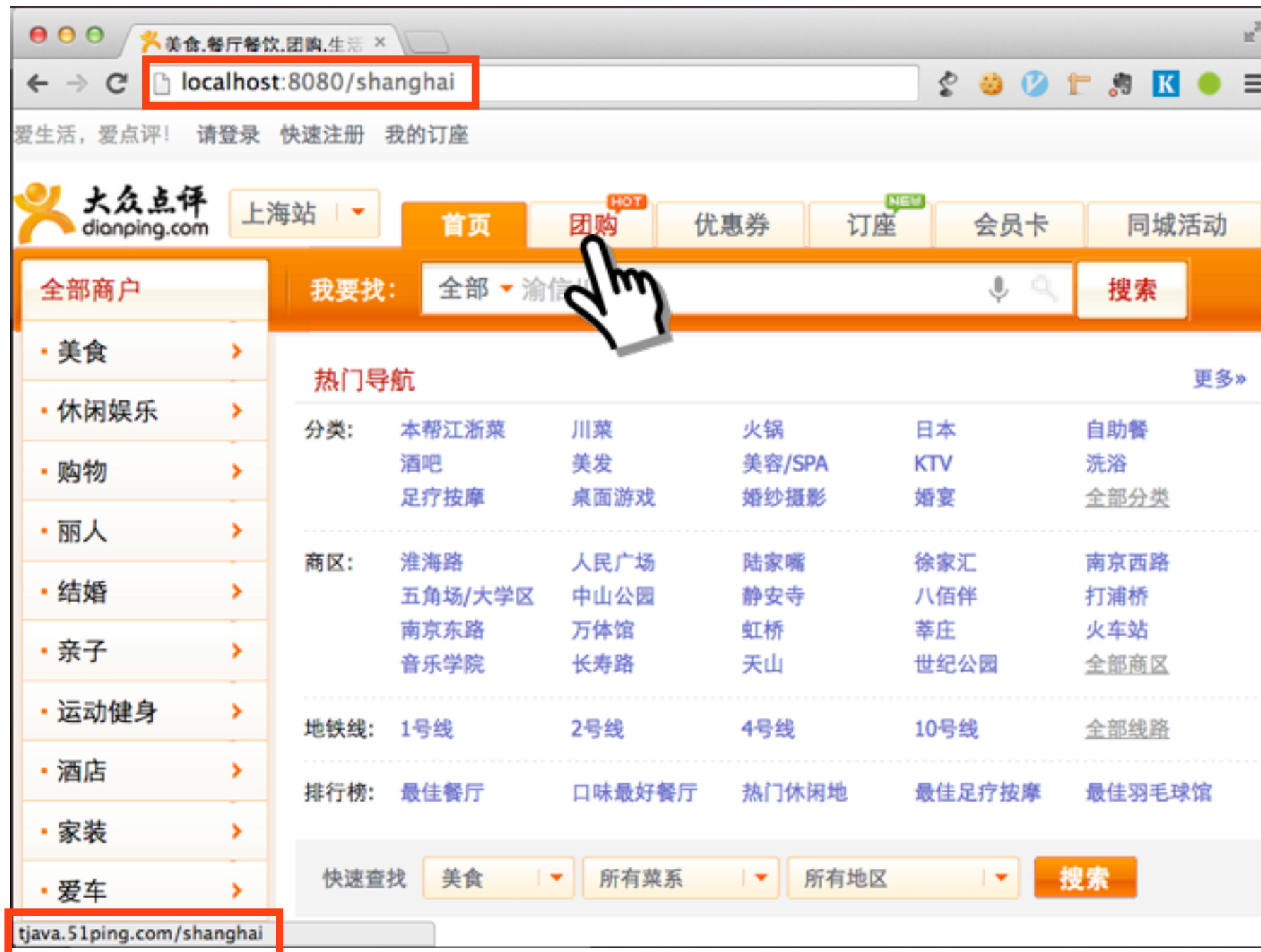
Seam

Enabling
Point

Service Localized



Another Interconnection



Manage Hyperlink



A screenshot of a web browser's source code view. The address bar shows 'view-source:localhost:8080/shanghai'. The code is displayed with line numbers 309 and 310 on the left. Line 309 contains the closing body tag `</body>`. Line 310 contains the closing HTML tag `</html>` followed by a script tag `<script src="/phoenix-router.js"></script>`. The script tag is highlighted with an orange rectangular border.

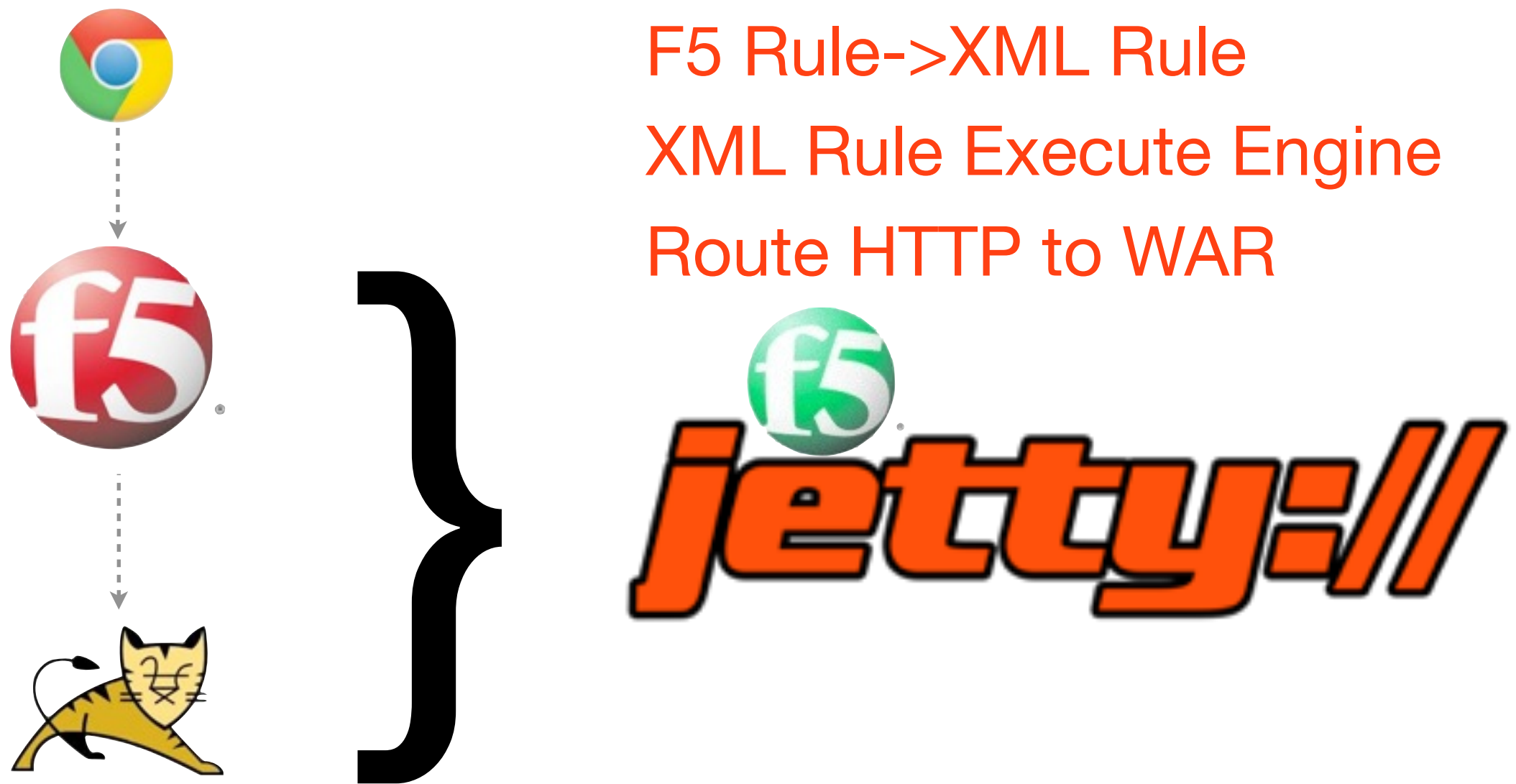
```
309 </body>
310 </html><script src="/phoenix-router.js"></script>
```

Intercept all hyperlink

Change href to localhost

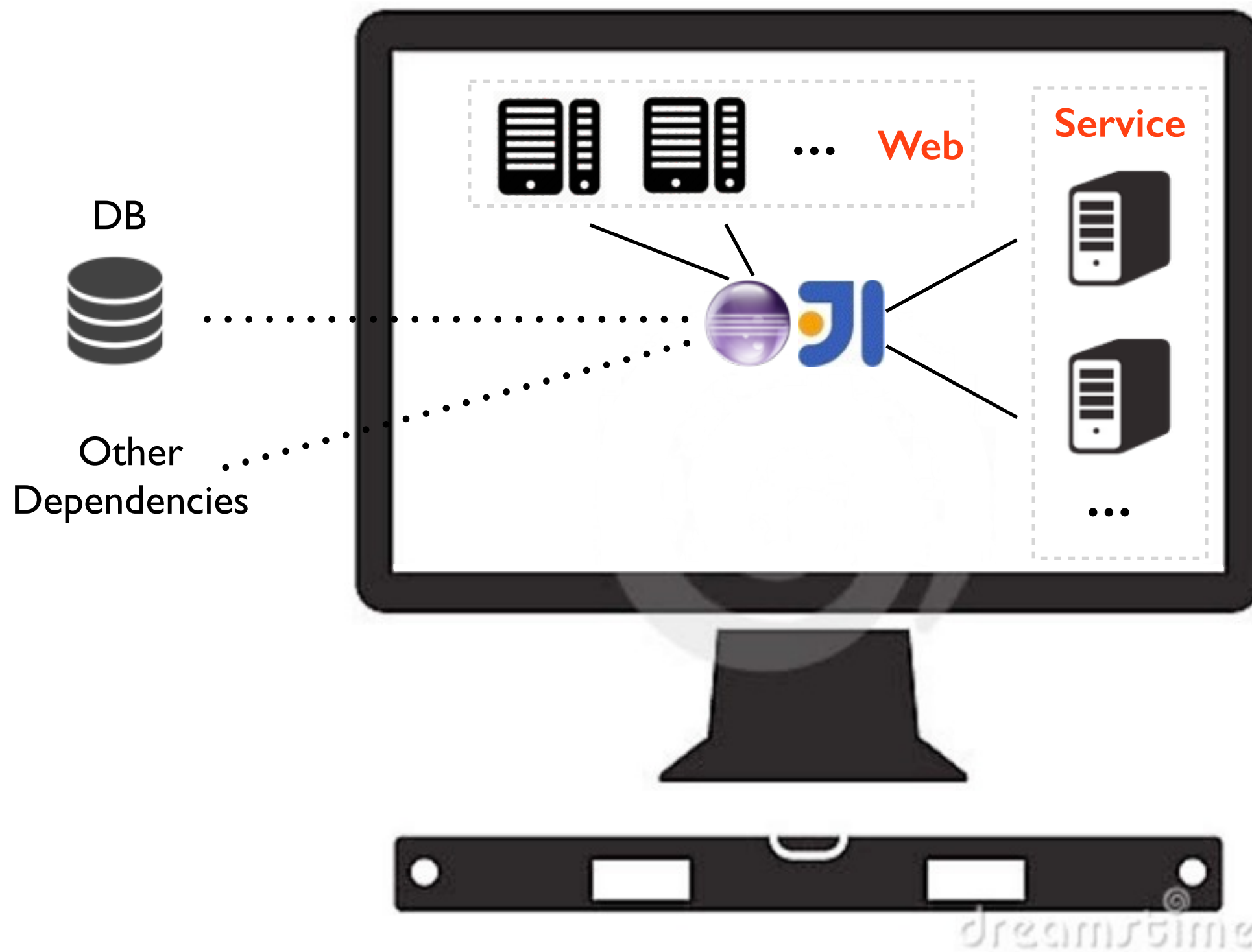
Proxy to localhost or other

Software Emulated F5



Context path conflict or cross domain

Service and Web Localized



Purpose

START

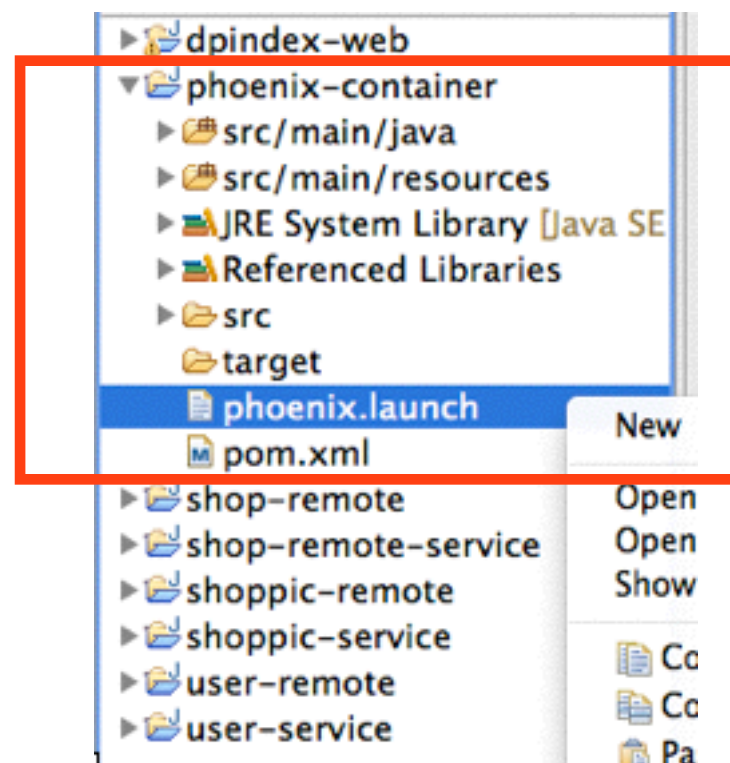


ENGINE

Bootstrap It

All projects are WAR

Add a container project to bootstrap all projects



jetty://

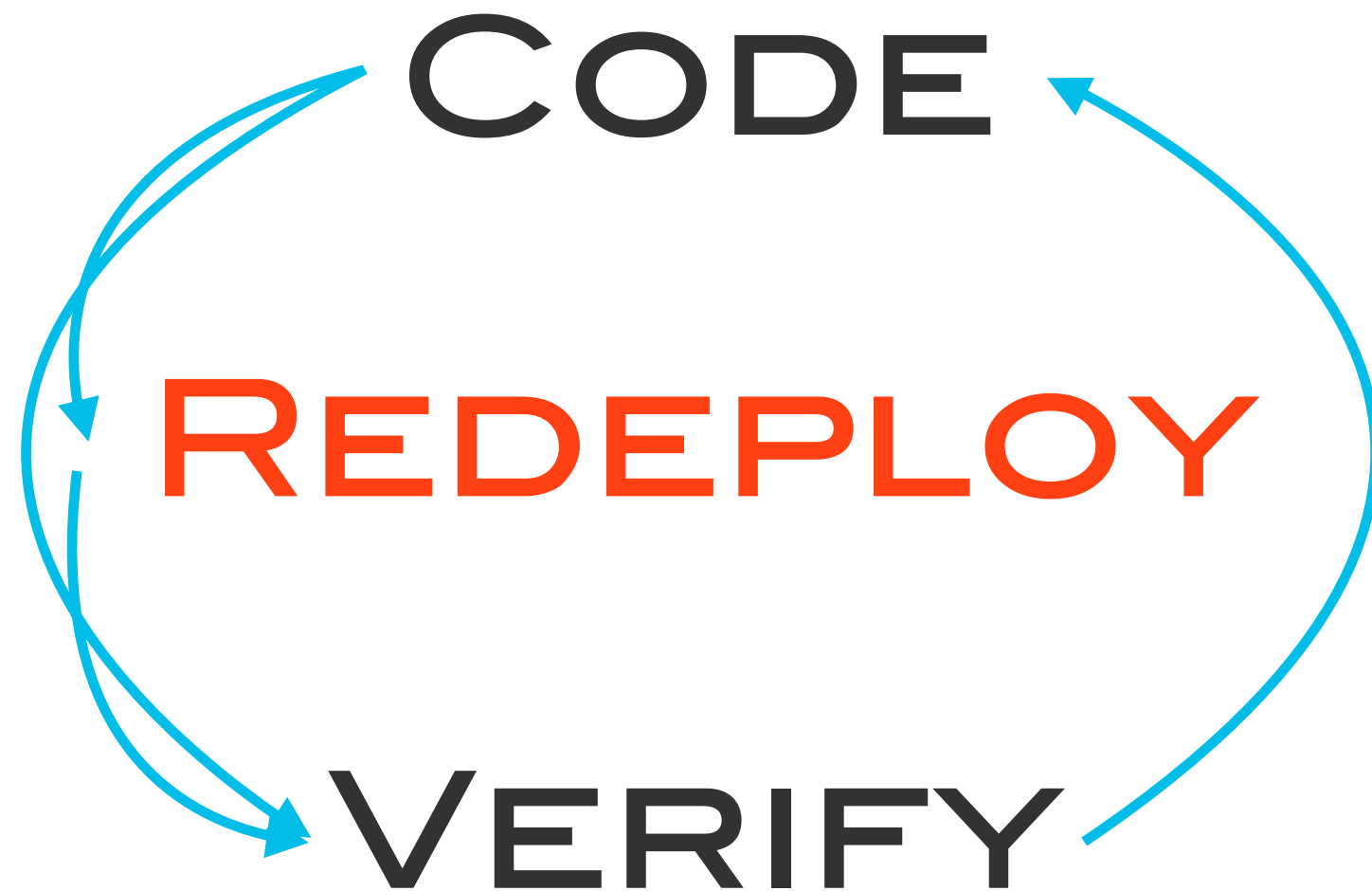
No IDE Plugin

Hot Re-deploy Matters!



**Everytime you redeploy,
God kills a kitten.**

Please, think of the kittens. - JRebel





Enter estimates below and see how much money & time you can save

Number of developers

300

Developer hourly cost

10

USD

Average turnaround time [?]

2

minutes

Average amount of app. restarts / hour

4

CALCULATE NOW



Based on your input, JRebel will save...

38 mins per developer per day

1140.0 weeks of development time per year

480,000 USD in reduced waste

JRebel pays for itself in 57.6 day(s)

START OVER

监视.class文件

有更新则redefineClasses

获取Instrumentation

PhoenixClassLoader+javaagent

← → ↻ docs.oracle.com/javase/6/docs/api/java/lang/instrument/Instrumentation.html

redefineClasses

```
void redefineClasses(ClassDefinition... definitions)  
    throws ClassNotFoundException,  
           UnmodifiableClassException
```

Redefine the supplied set of classes using the supplied class files.



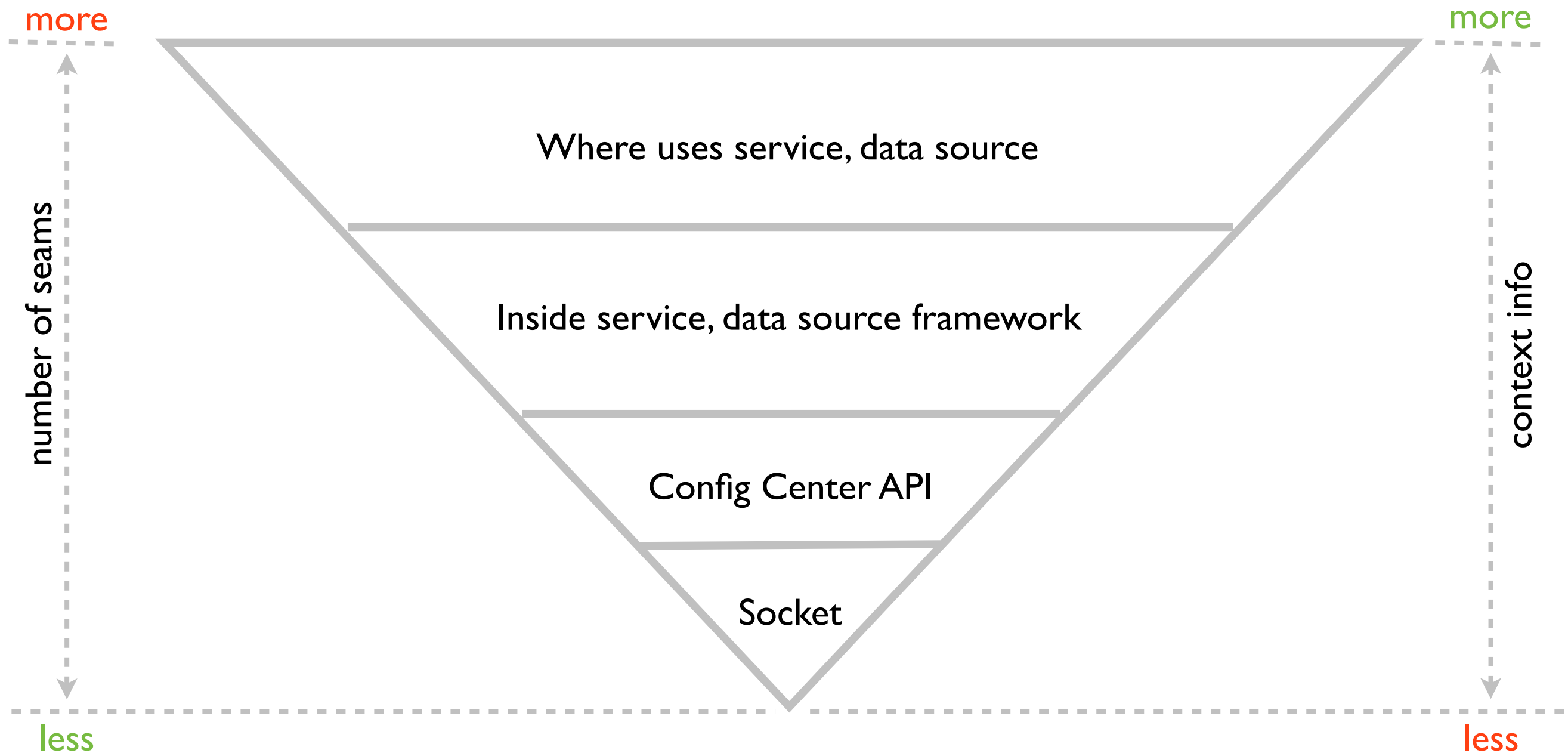
Java EE Support	JRebel	JVM Hot Swap
Time to reload	< 1s	< 1s
No memory leak	✓	✓
Changes to Class structure		?
Changes to method bodies	✓	✓
Adding/removing Methods	✓	✗
Adding/removing constructors	✓	✗
Adding/removing fields	✓	✗
Adding/removing classes	✓	✗
Adding/removing annotations	✓	✗
Changing static field value	✓	✗
Adding/removing enum values	✓	✗
Changing interfaces	✓	✗
Replacing superclass	✗	✗
Adding/removing implemented interfaces	✗	✗

What about DB?

The General Idea

1. Fetch parts(source, binary, data...)
2. Scan and determine interconnection
3. Find the **seam** to inject interconnection
4. Inject interconnection via **enabling point**
5. Bootstrap it

Where is the Seam?



What's next?

Localize DB

Thanks!
Questions?