

IT'S TIME FOR THE RESOLUTION

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```
! could not resolve the bundles:  
[that.awesome.library.i.found-1.0.0  
org.osgi.framework.BundleException: Unable to resolve  
that.awesome.library.i.found [1](R 1.0): missing  
requirement [that.awesome.library.i.found [1](R 1.0)]  
osgi.wiring.package;  
(&(osgi.wiring.package=some.exotic.package) (version>=1.0.0)  
(!(version>=2.0.0)))  
Unresolved requirements: [[that.awesome.library.i.found  
[1](R 1.0)] osgi.wiring.package;  
(&(osgi.wiring.package=some.exotic.package) (version>=1.0.0)  
(!(version>=2.0.0))]]
```

WHEN DO YOU RESOLVE?

WHEN DO YOU RESOLVE?

AT RUNTIME?

WHEN DO YOU RESOLVE?

AT RUNTIME?

AT LAUNCH TIME?

WHEN DO YOU RESOLVE?

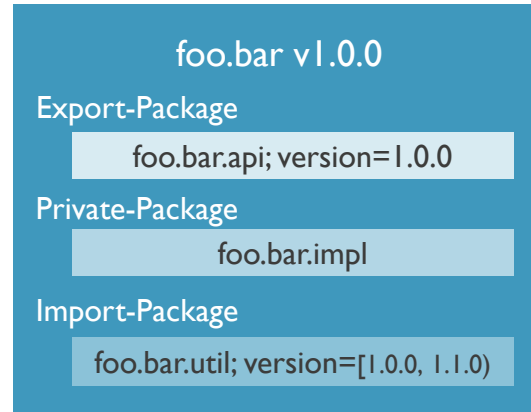
AT RUNTIME?

AT LAUNCH TIME?

AT DEVELOPMENT TIME?

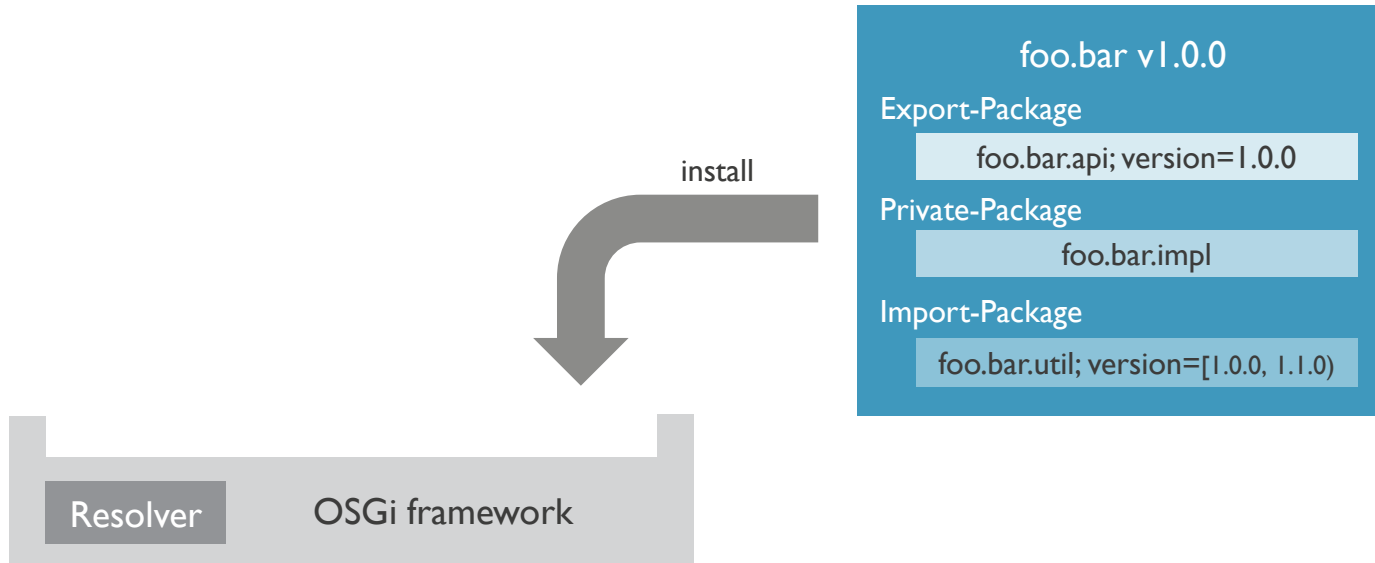
OSGI BUNDLES AND PACKAGES

RESOLVING IMPORT-PACKAGES



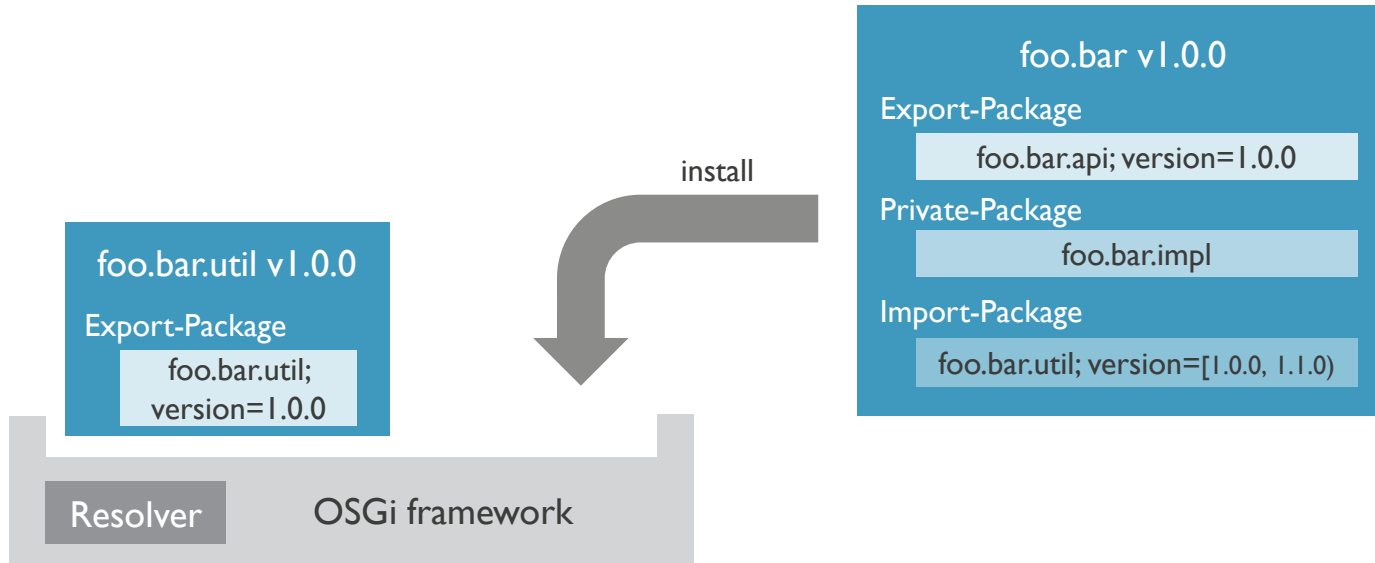
OSGI BUNDLES AND PACKAGES

RESOLVING IMPORT-PACKAGES

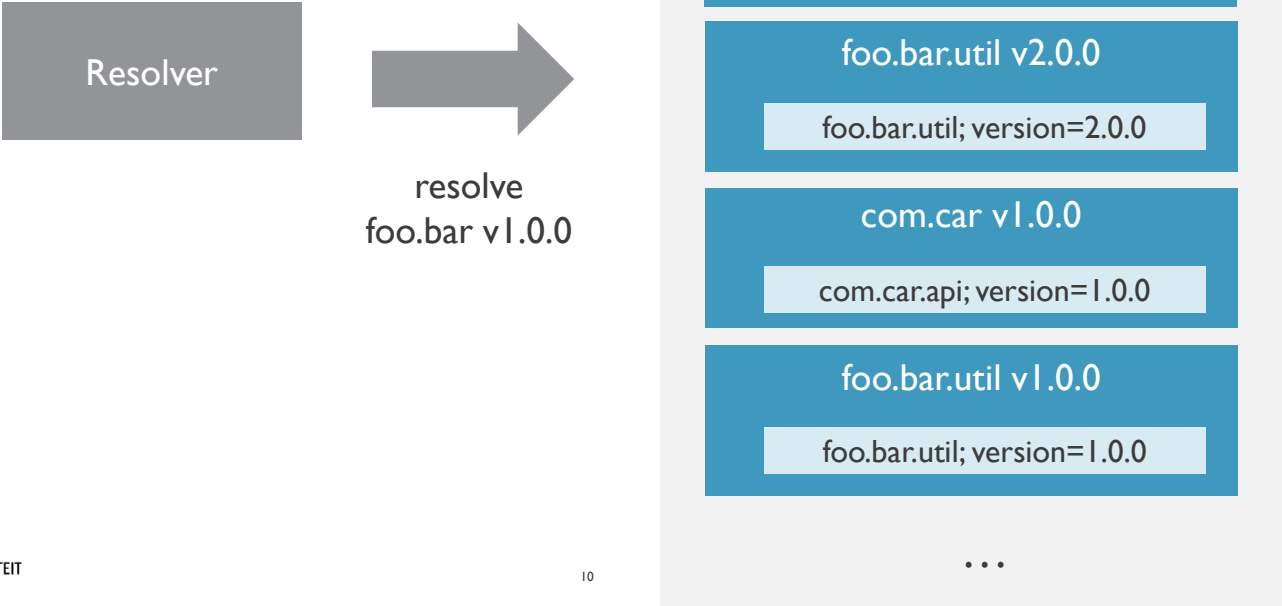


OSGI BUNDLES AND PACKAGES

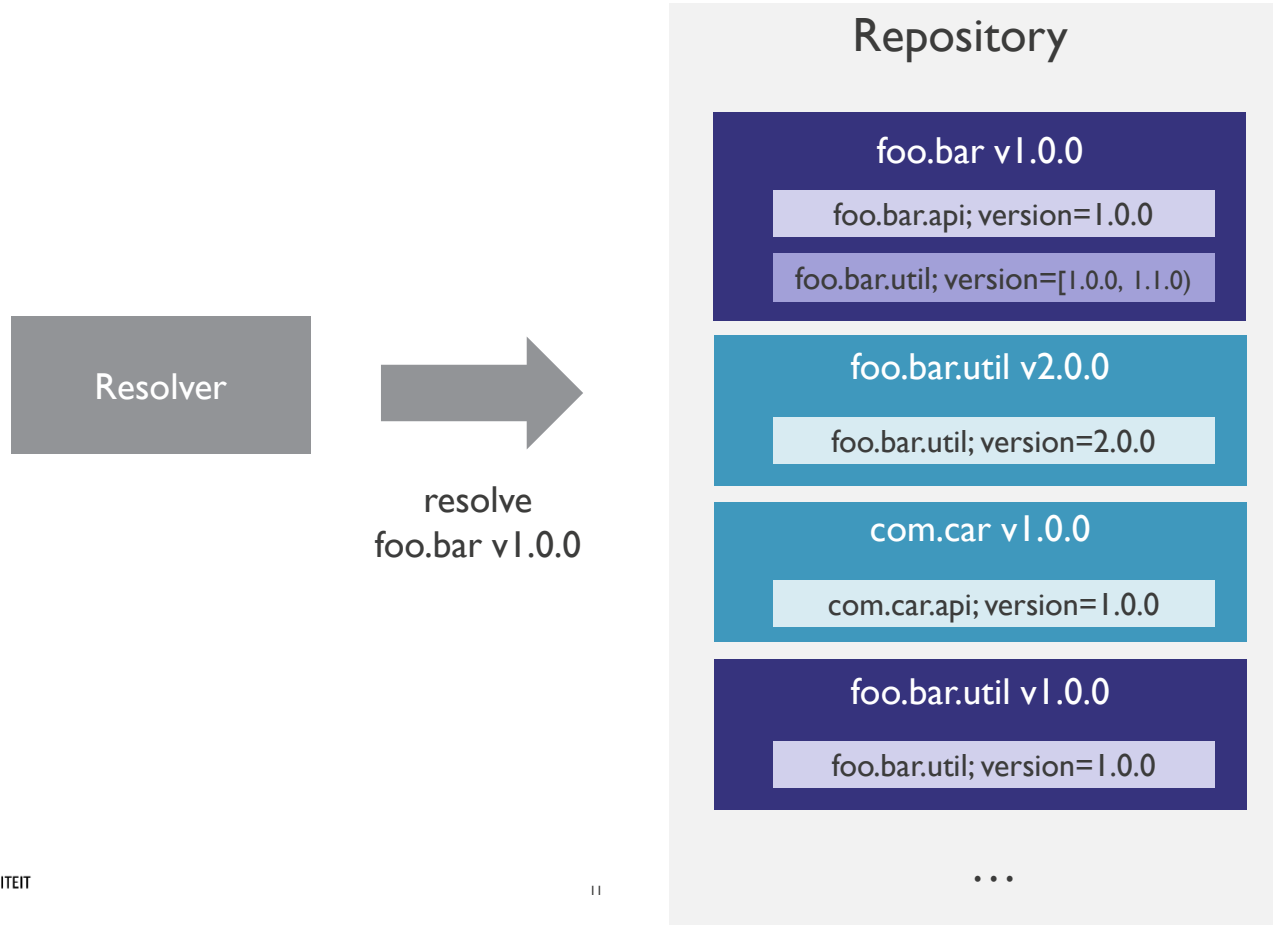
RESOLVING IMPORT-PACKAGES



RESOLVING AGAINST A REPOSITORY



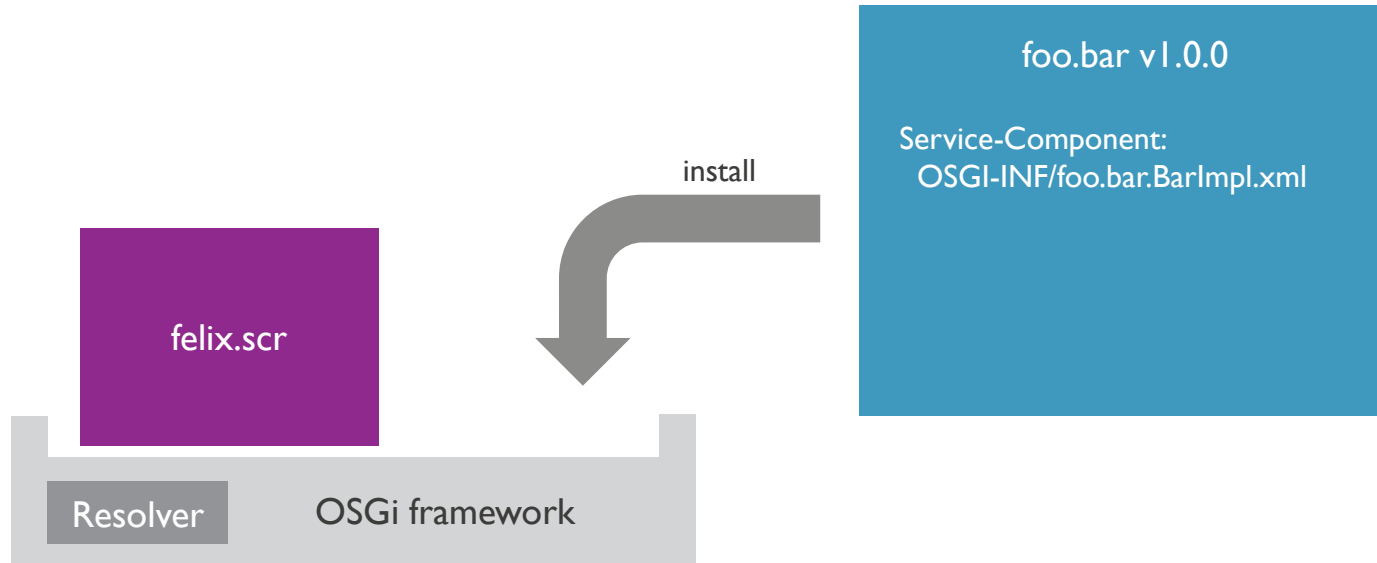
RESOLVING AGAINST A REPOSITORY



RESOLVING PACKAGES

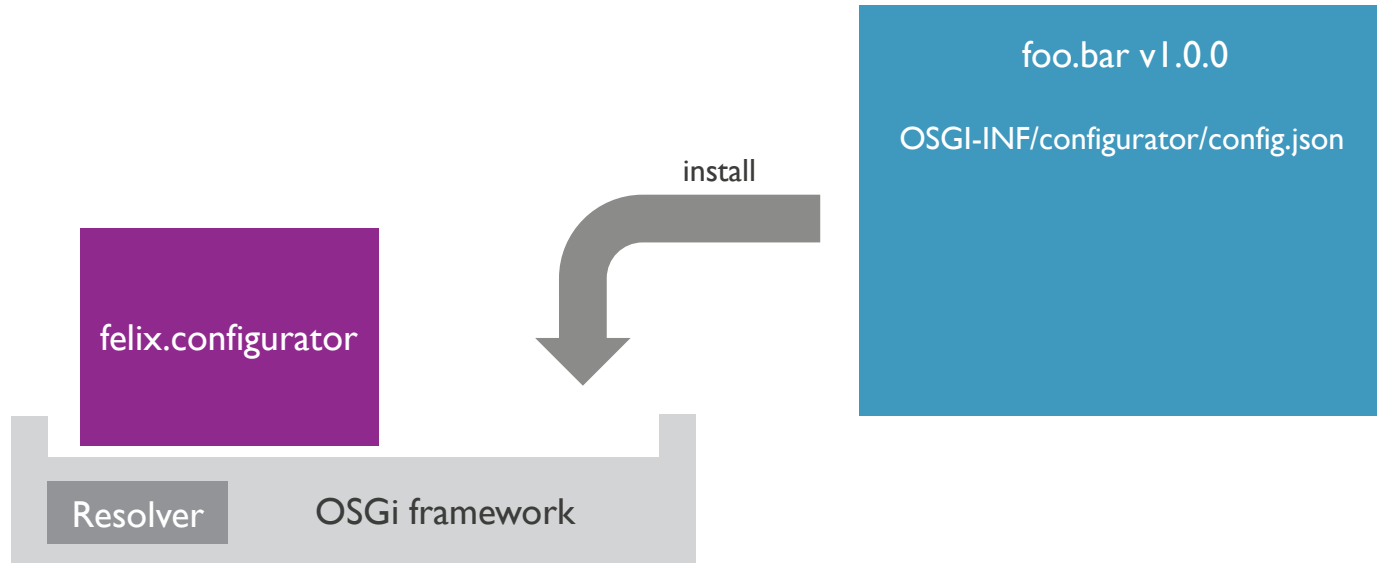
OSGI EXTENDERS

DO STUFF ON BEHALF OF ANOTHER BUNDLE



OSGI EXTENDERS

DO STUFF ON BEHALF OF ANOTHER BUNDLE



REQUIREMENTS AND CAPABILITIES

Requirement

- Something the bundle needs
 - Namespace
 - Directives (i.e. a filter)

Capability

- Something the bundle offers
 - Namespace
 - Attributes (i.e. key-value pairs)

REQUIREMENTS AND CAPABILITIES

Requirement

- Something the bundle needs
 - Namespace
 - Directives (i.e. a filter)

```
osgi.wiring.package;  
filter:="(&(osgi.wiring.package=foo.bar.util)(ve  
rsion>=1.0.0)(!(version>=2.0.0)))"
```

```
osgi.extender;  
filter:="(&(osgi.extender=osgi.component)(ve  
rsion>=1.4.0)(!(version>=2.0.0)))"
```

Capability

- Something the bundle offers
 - Namespace
 - Attributes (i.e. key-value pairs)

```
osgi.wiring.package;  
osgi.wiring.package="foo.bar.util"  
version="1.0.0"
```

```
osgi.extender;  
osgi.extender="osgi.component"
```


RESOLVING CAPABILITIES AND REQUIREMENTS

OSGI SERVICES

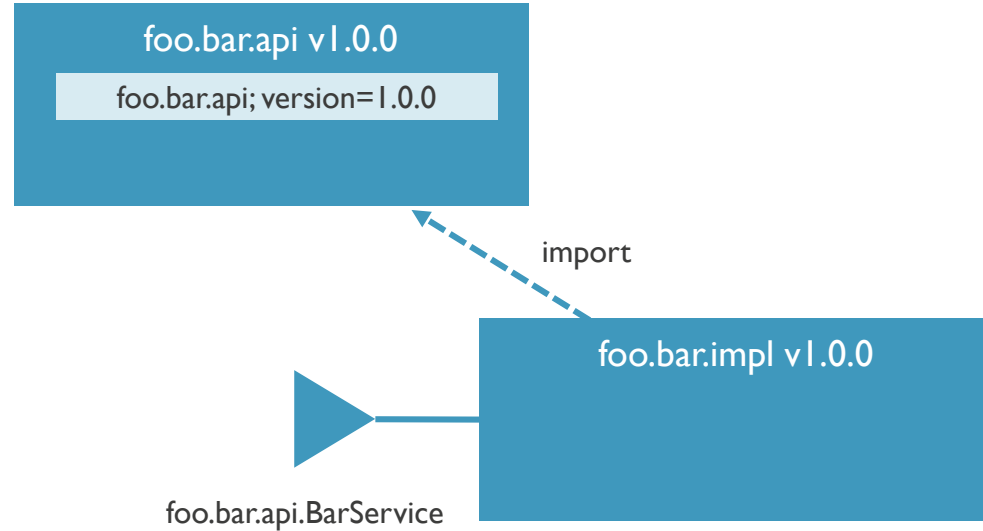
REQUIRE AN OSGI SERVICE

foo.bar.api v1.0.0

foo.bar.api; version=1.0.0

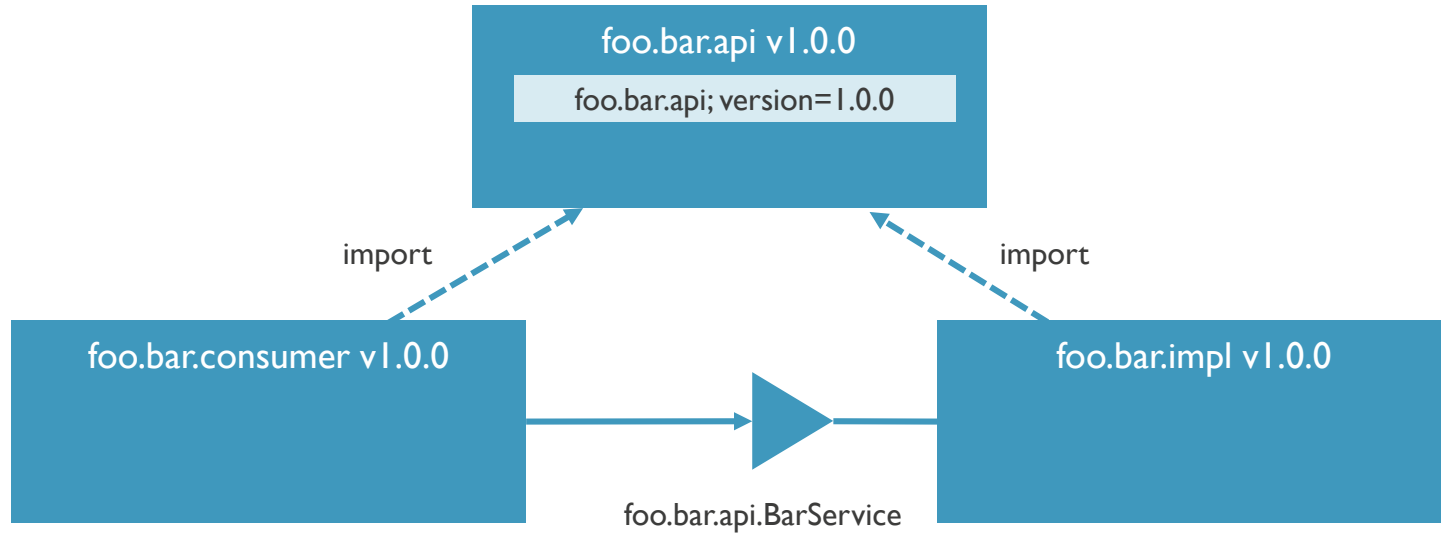
OSGI SERVICES

REQUIRE AN OSGI SERVICE



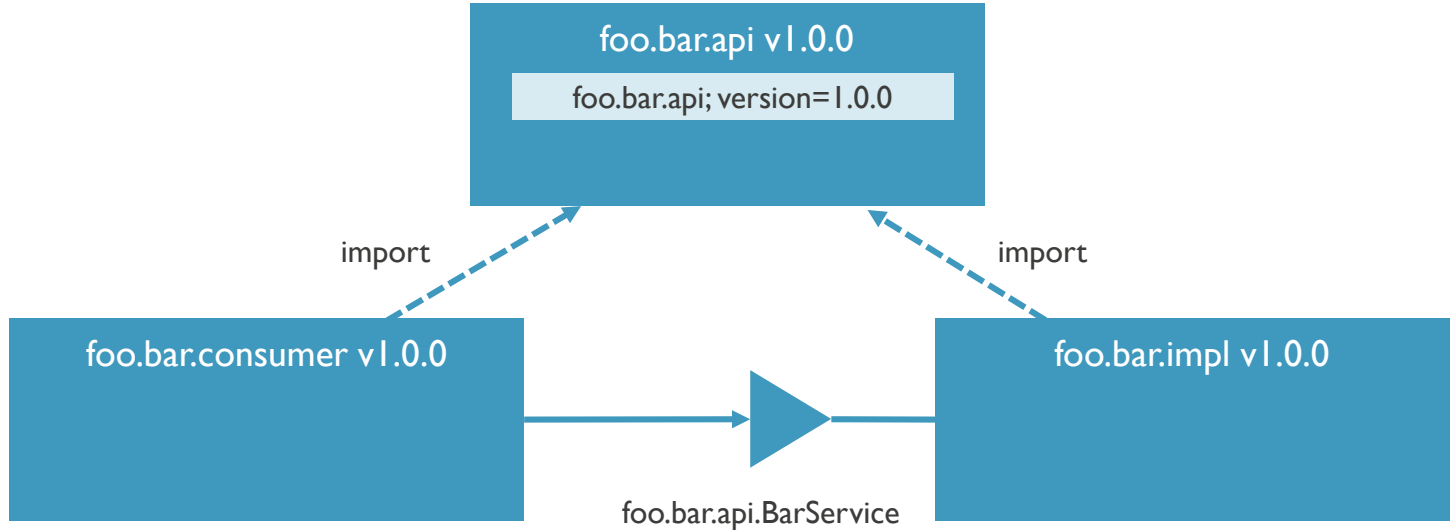
OSGI SERVICES

REQUIRE AN OSGI SERVICE



OSGI SERVICES

REQUIRE AN OSGI SERVICE

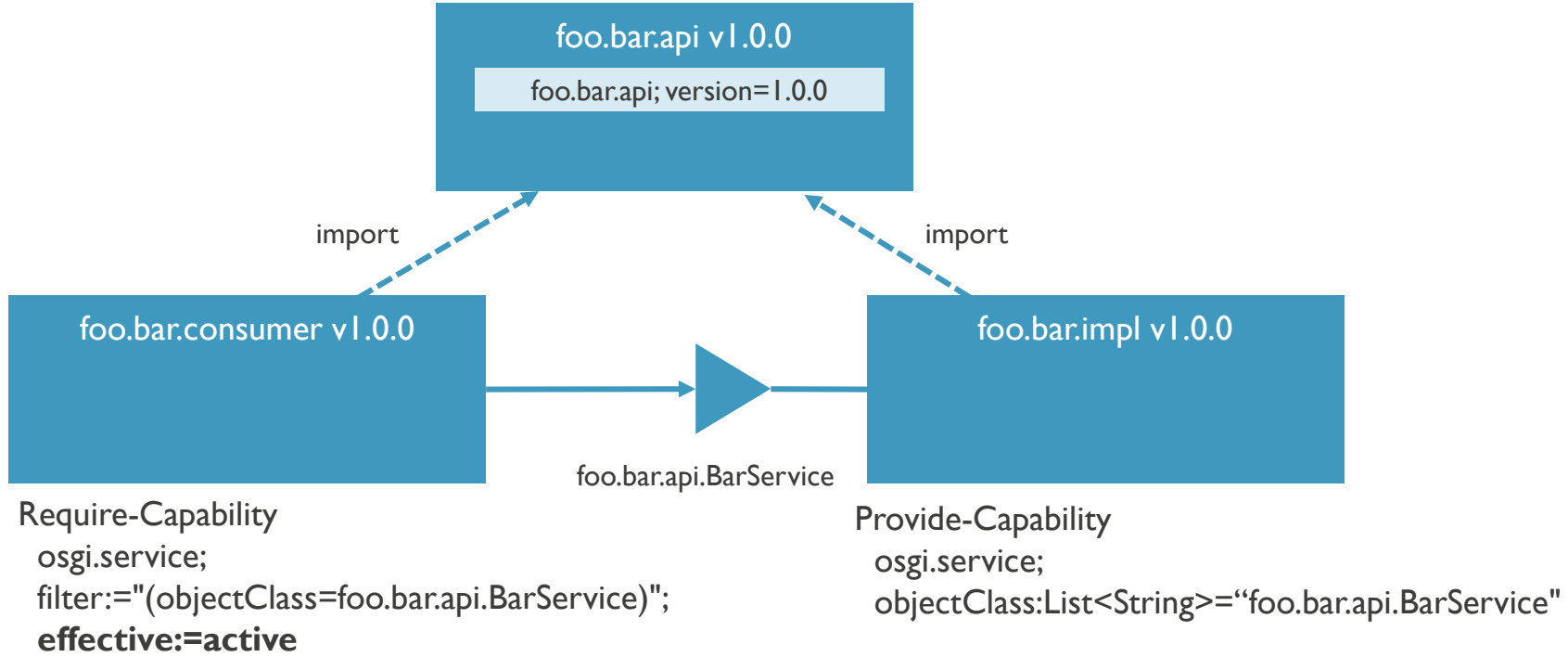


Require-Capability
osgi.service;
filter:="(objectClass=foo.bar.api.BarService)";
effective:=active

Provide-Capability
osgi.service;
objectClass:List<String>="foo.bar.api.BarService"

OSGI SERVICES

REQUIRE AN OSGI SERVICE



RESOLVING SERVICES

DECLARING REQUIREMENTS AND CAPABILITIES

USE BUNDLE ANNOTATIONS

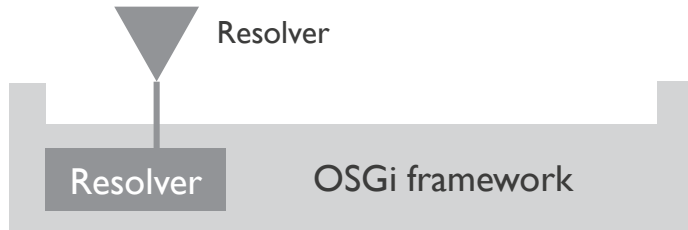
```
@Capability (namespace="your.name.space",  
            name="foo",    version="1.0.0")
```

```
@Requirement (namespace="your.name.space",  
               filter="(name=foo) ")
```


DECLARING REQUIREMENTS AND CAPABILITIES WITH BUNDLE ANNOTATIONS

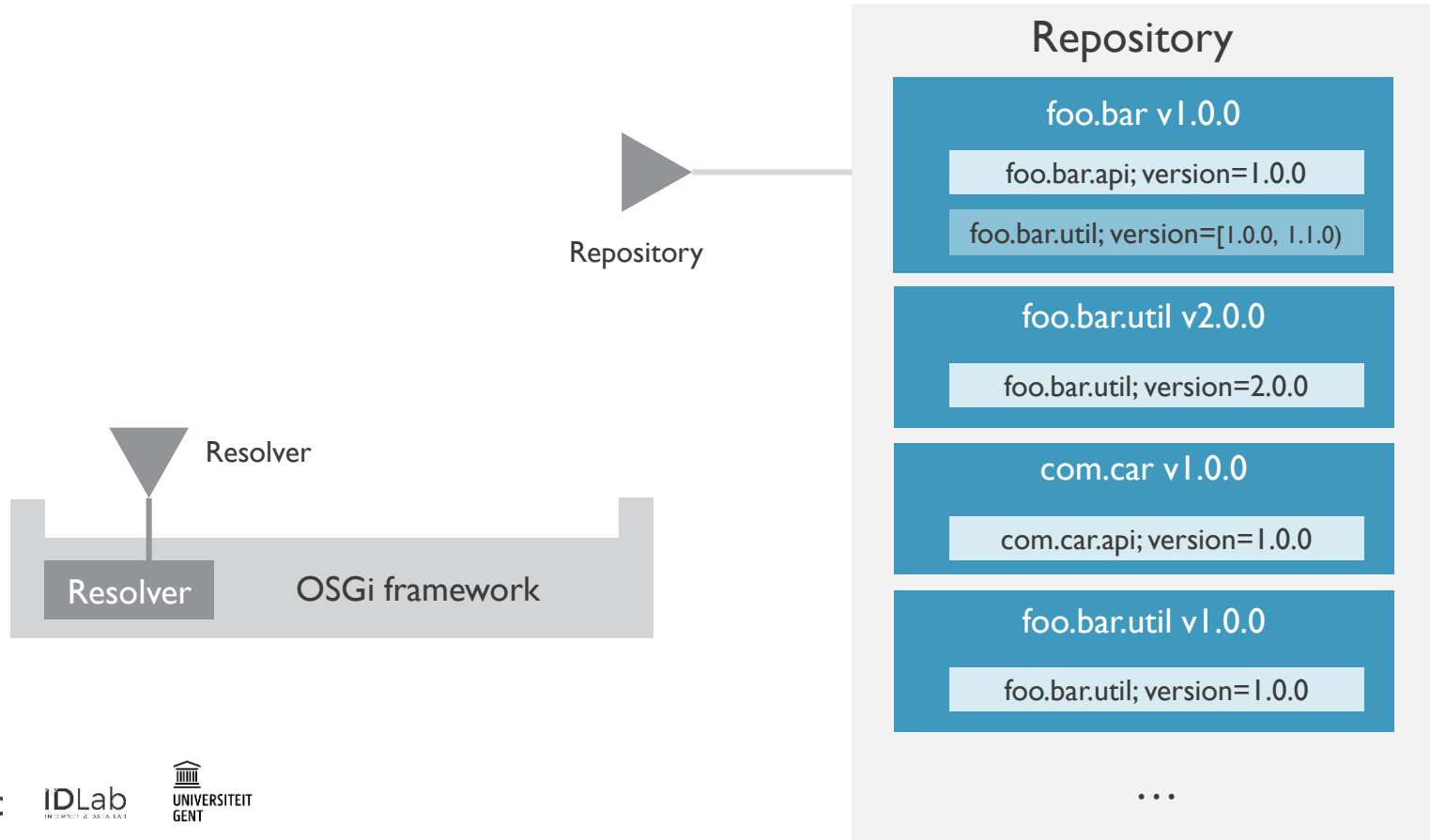
SO WHAT ABOUT INSTALLING AT RUNTIME?

USE THE REPOSITORY AND RESOLVER SERVICES



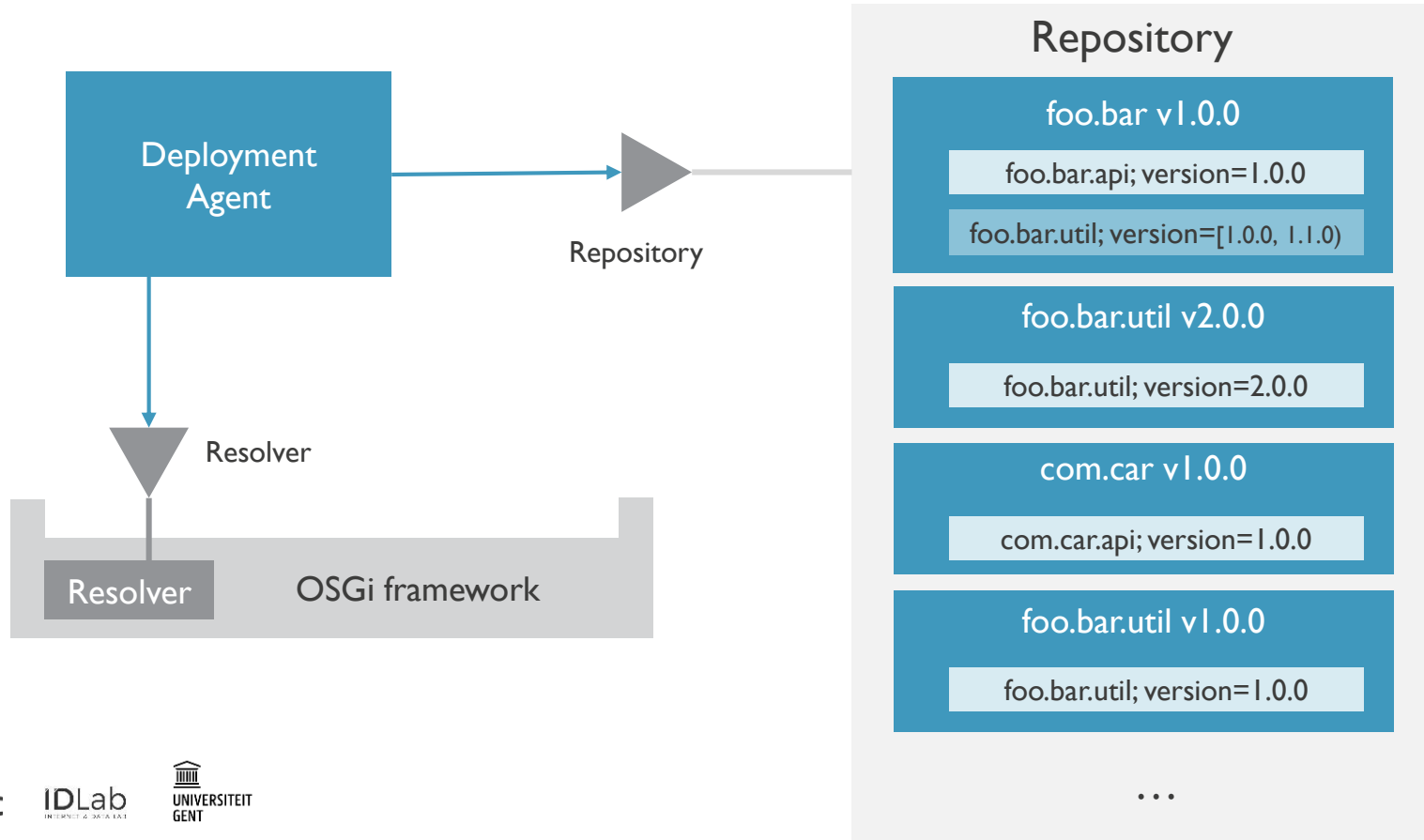
SO WHAT ABOUT INSTALLING AT RUNTIME?

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SO WHAT ABOUT INSTALLING AT RUNTIME?

USE THE REPOSITORY AND RESOLVER SERVICES



RESOLVER SERVICE

- **Resolver**

```
Map<Resource, List<Wire>> resolve(ResolveContext context)  
throws ResolutionException
```

- **ResolveContext**

```
Collection<Resource> getMandatoryResources()  
what to resolve?
```

```
List<Capability> findProviders(Requirement requirement)  
where to find capabilities to resolve it?
```

RESOLVING AT RUNTIME

CONCLUSION

- Resolving is a gain, not a pain
- Resolve early and often
- Curate your repositories
- Use the (BND) tooling



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embracing a better life