APACHE felix

http://www.apache.org/

FOSDEM '09
FREE AND OPEN SOURCE SOFTWARE DEVELOPERS' EUROPEAN MEETING

Dynamic Deployment with Apache Felix

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agenda

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- crash course OSGi
- deployment admin
- resource processors

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history of OSGi

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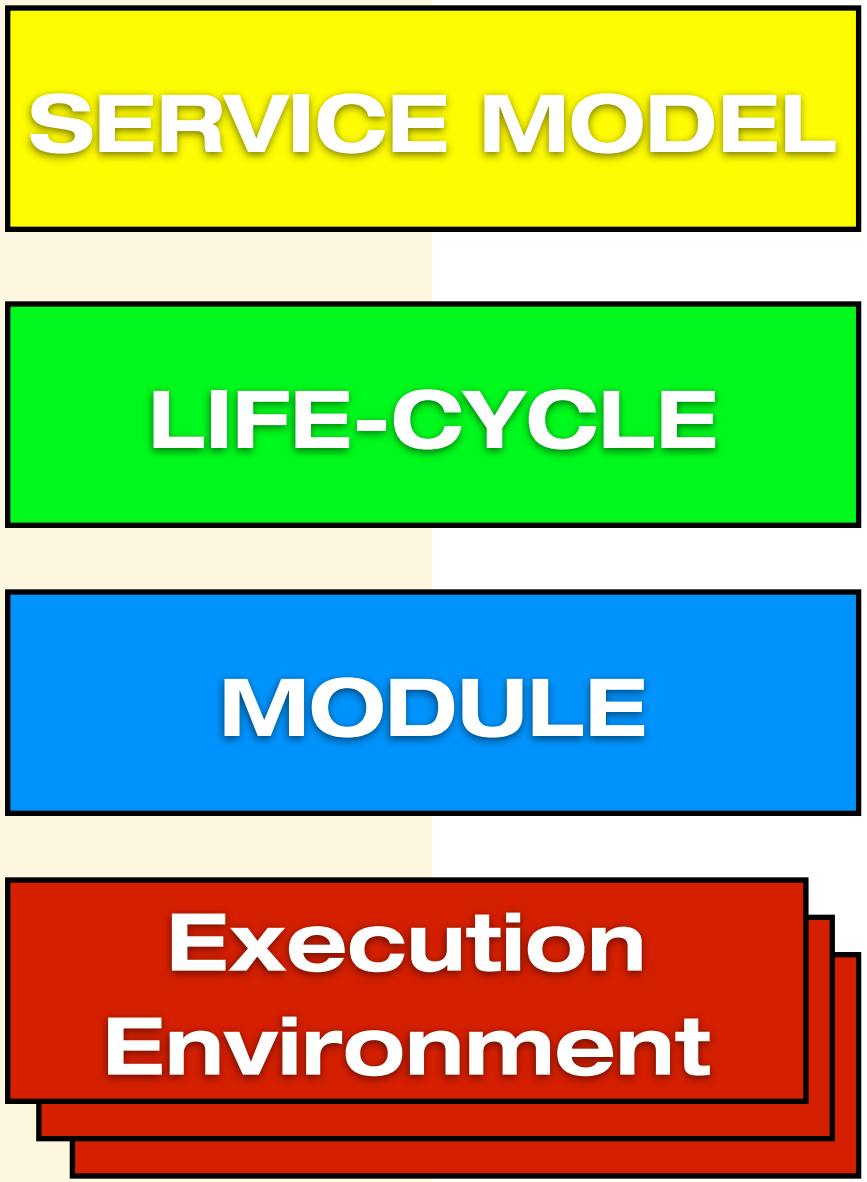
- started in 1999 as a solution for home gateways
- maintained by OSGi alliance
- nowadays described as "the dynamic module system for Java™"
- apache felix is one of a couple of open source implementations

APACHE felix framework layers

http://www.apache.org/



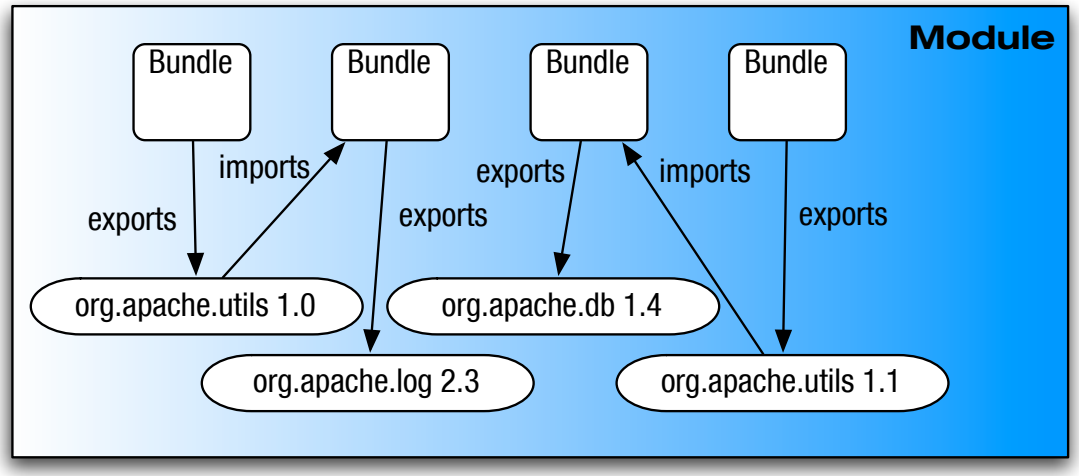
L3 publish/find/bind service model to decouple bundles

L2 independent life-cycle of bundles without JVM restarts

L1 a module (or bundle) uses classes from other bundles in a controlled way

L0 well defined profiles that define the environment in which bundles can work

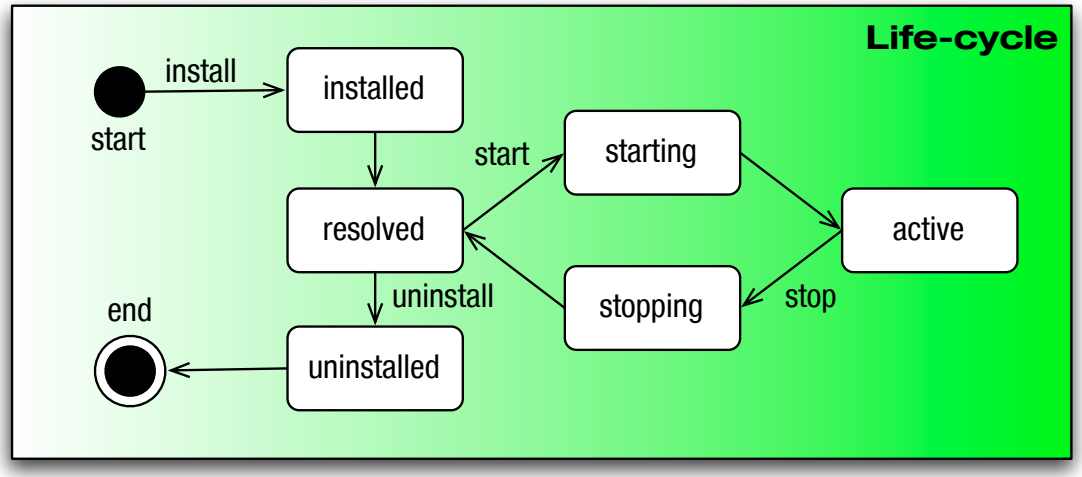
module layer



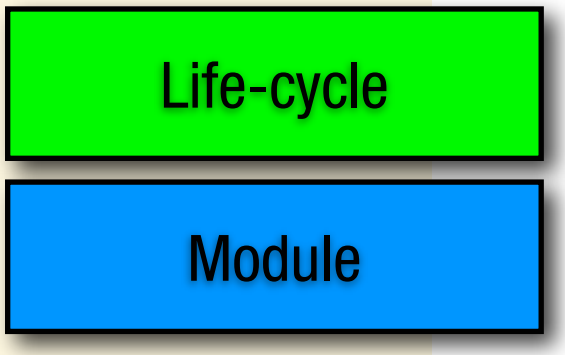
- unit of deployment is the bundle, a JAR
- metadata in the manifest
- share only your "interface" packages
- automatic wiring based on version ranges

Module

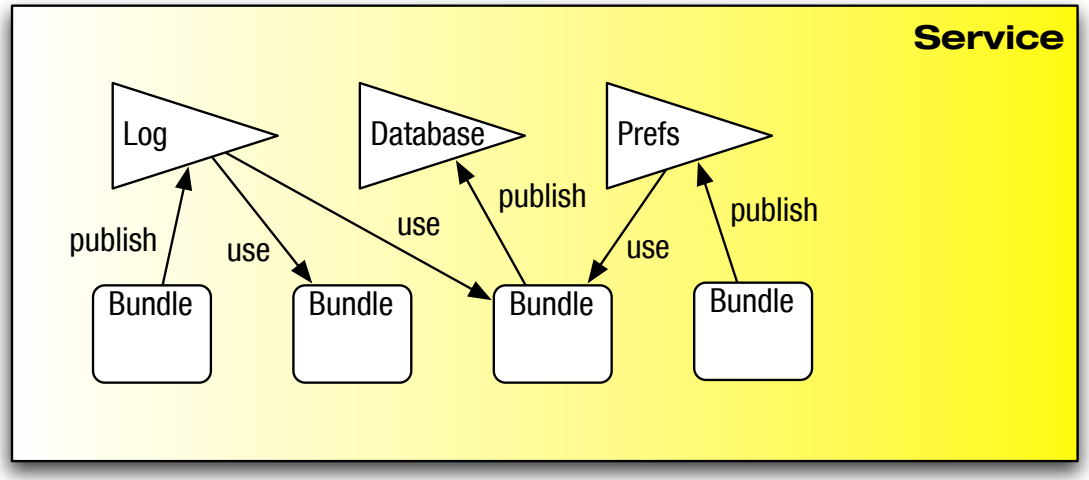
life-cycle layer



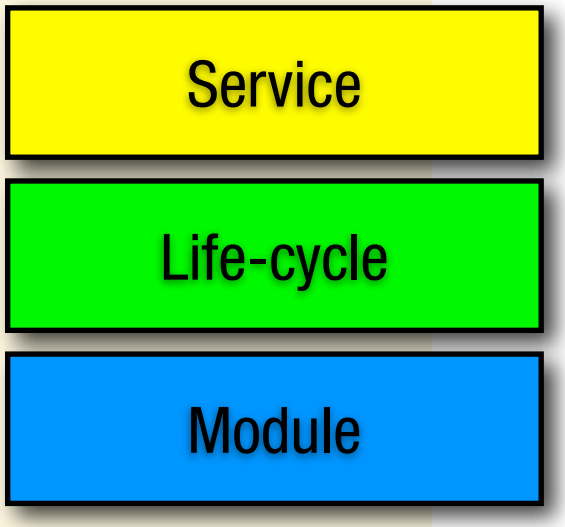
- managed life cycle for each bundle
- allows updates of existing bundles

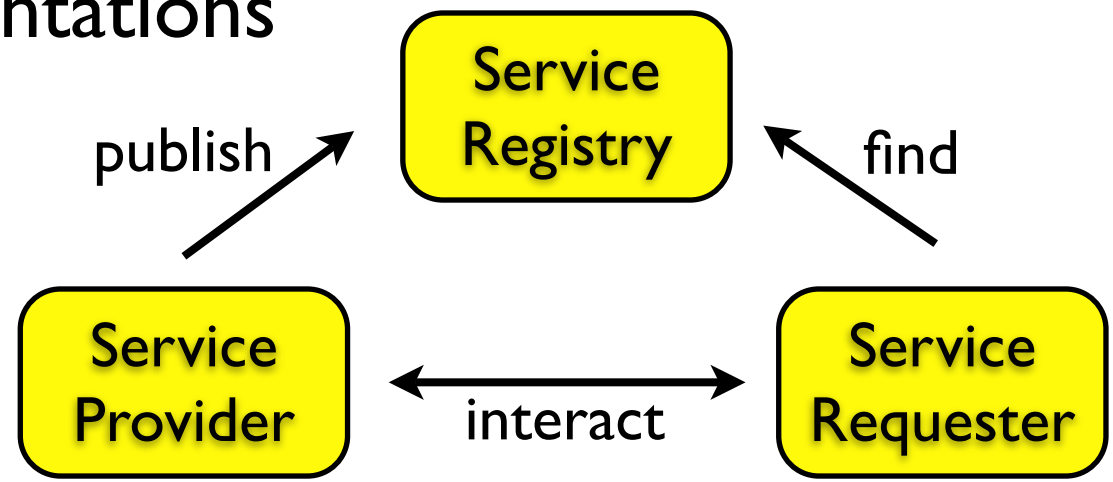


service layer



- service interfaces allow bundles to interact by binding interfaces, not implementations





APACHE felix deployment in OSGi

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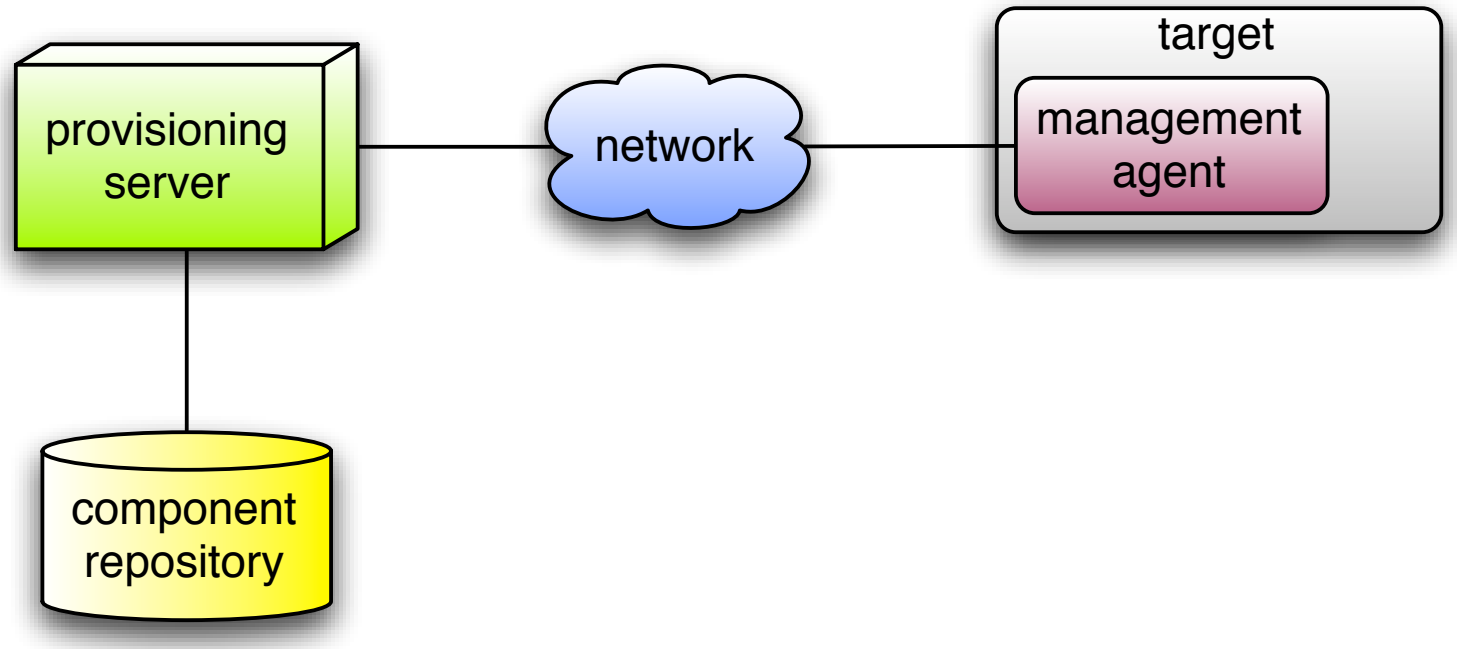
- specification describes roles:
  - provisioning server
  - component repository
  - management agent



APACHE felix deployment admin

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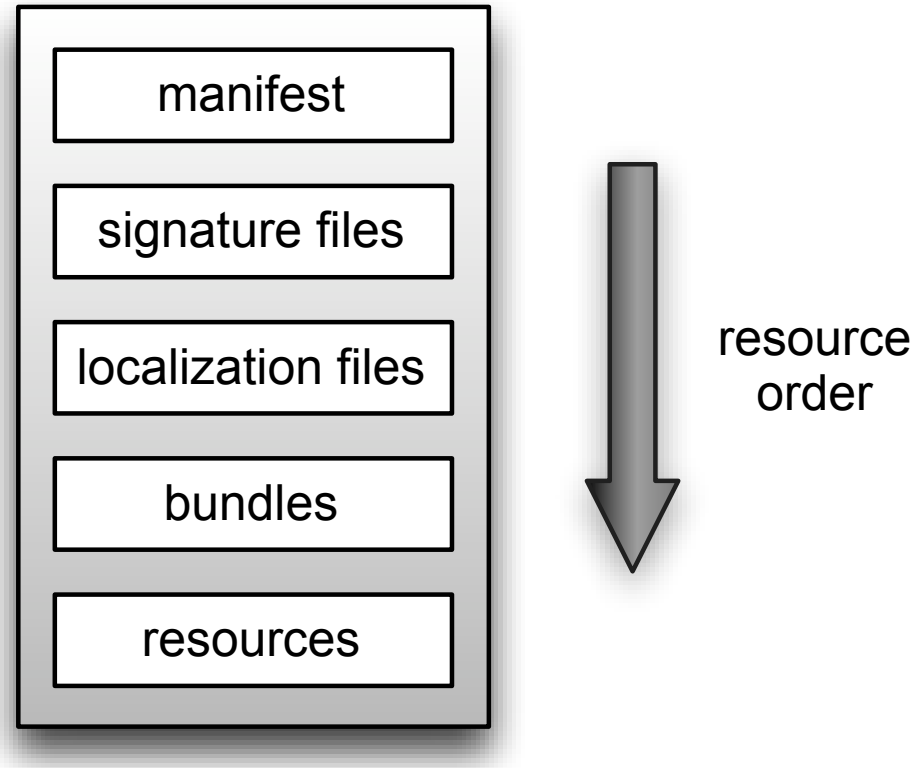
- major part of management agent
- deployment packages
  - versioned set of artifacts
  - transactional install/update
  - fix packages provide deltas
  - signing make them secure
  - extensible through processors

package format

- resources are ordered so they can be streamed
- fix packages only contain the deltas



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resource processors

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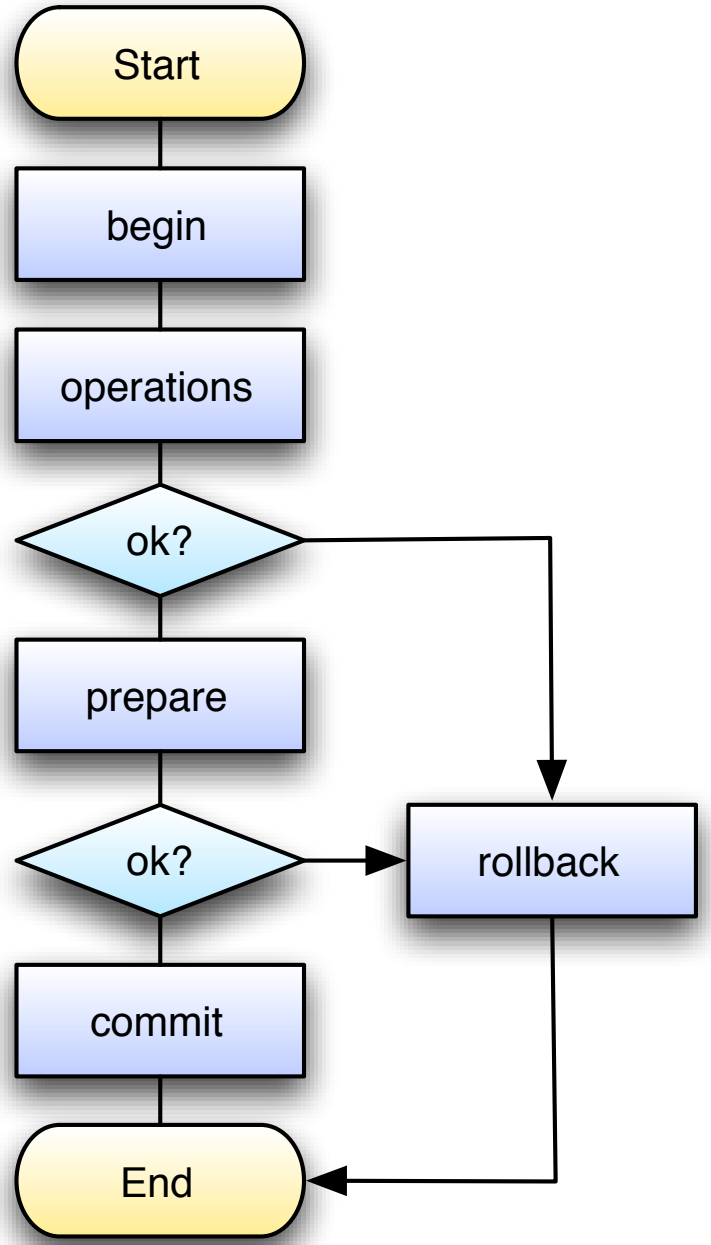
- each type of resource, identified by its mime type, has its own processor
- processors are bundles that are included in the deployment package
- support for bundles is built-in
- auto configuration defines a format for Configuration Admin settings

transaction state



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wrapping it up

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- deployment admin makes updates of more than one bundle transactional
- resources and processors allow you to distribute a lot more than just OSGi components
- for a demo of deployment packages in action, contact me