EclipseRT Virgo & OSGi

By Christopher Frost

springsource
A division of vmware

Agenda

- What is OSGi & OSGi basics
- Gemini & Virgo at Eclipse
- A tour of Virgo
- Current Status
- How can I get started?

Bundles Bundles Bundles

- OSGi is a Module System
- Many adopters including a lot of Eclipse projects
- Defined by the OSGi Alliance
- A Bundle, a Jar file, a single module
- The Bundle Manifest defines the imports/exports

Services

- A Bundle can export and consume services
- This happens dynamically at runtime
- Managed by a Service Registry

- A service is a Java Object with some properties
- The Whiteboard pattern

What is Virgo?

- "Dynamic Enterprise Application Platform"
- Based on SpringSource dm Server 2.0
- Objectives:
  - Better OSGi platform
  - Servlets & Migration of Java EE apps
  - Modular and extensible

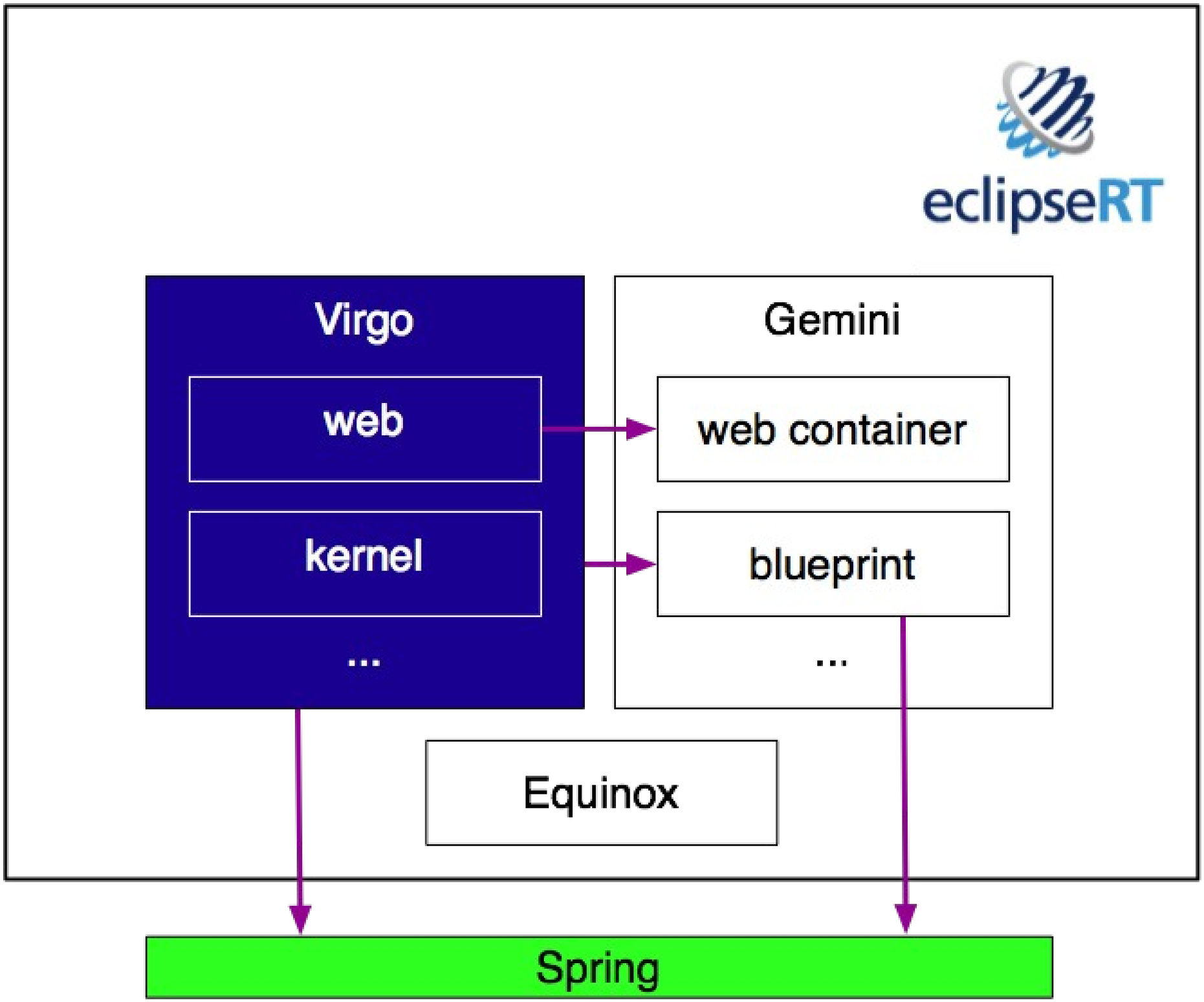
What is Gemini?

- “Enterprise Modules Project”
- A collection of OSGi spec implementations
- Aims to provide a single authoritative collection
- Main contributors are SpringSource and Oracle

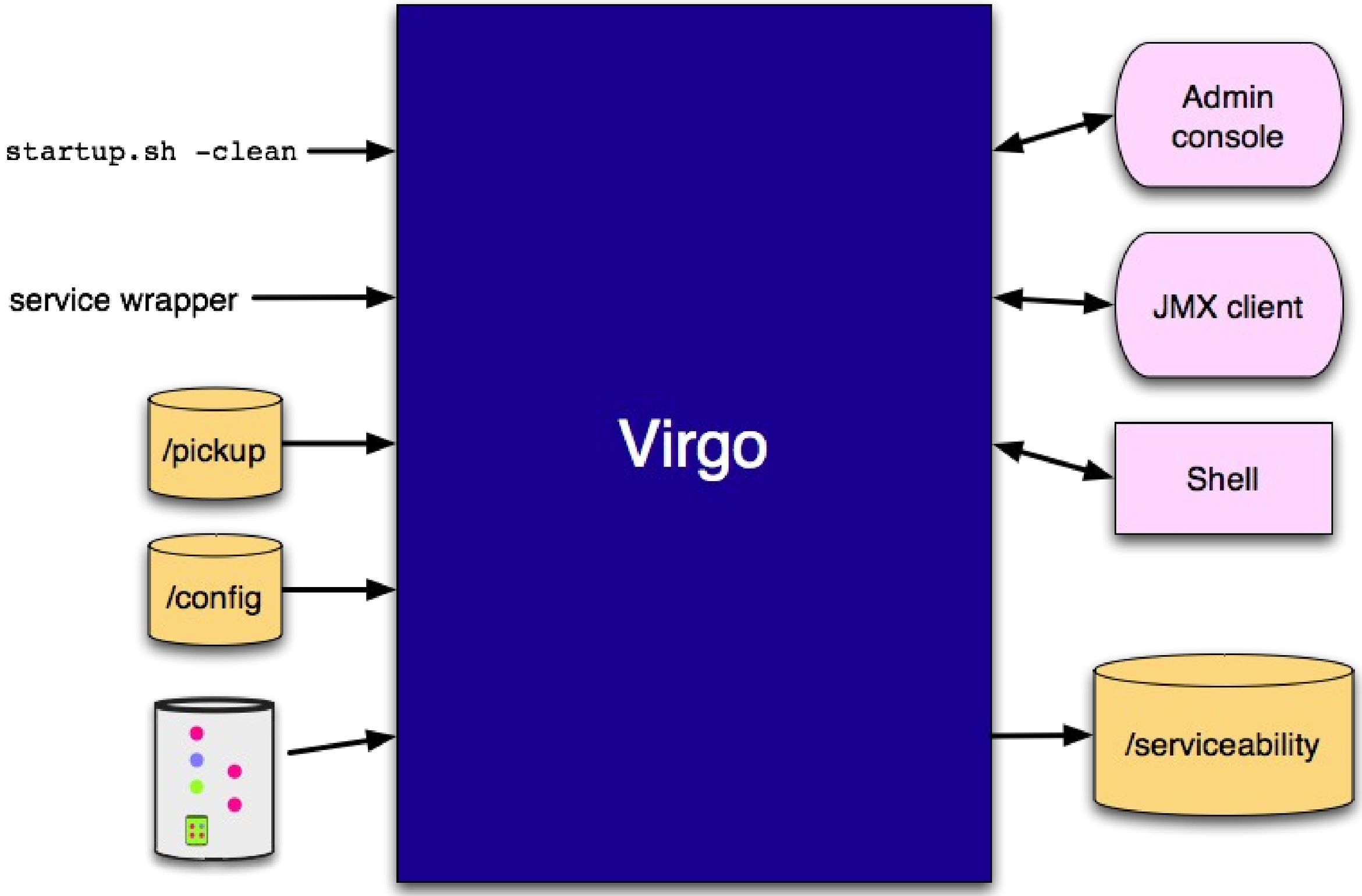
Problems Virgo Solves

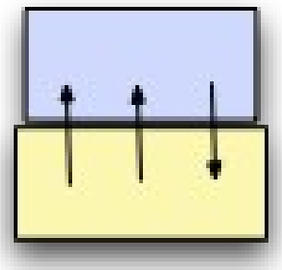
- Groups bundles into manageable units
- Enables the use of existing open source libraries
  - TCCL, LTW, implicit package use
- Provisions from repositories
- Extensive diagnostics
  - resolution failure, deadlock, delayed services

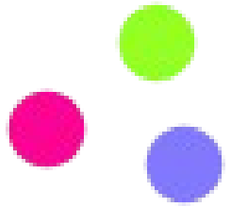
Virgo and EclipseRT



Virgo Externals







Artifacts

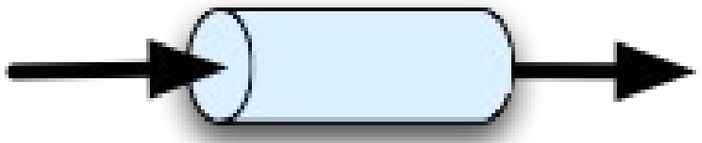
Regions

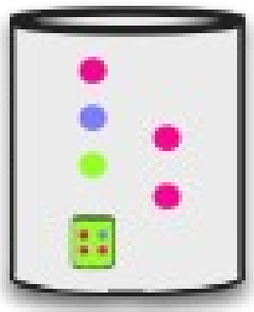
Virgo
Concepts

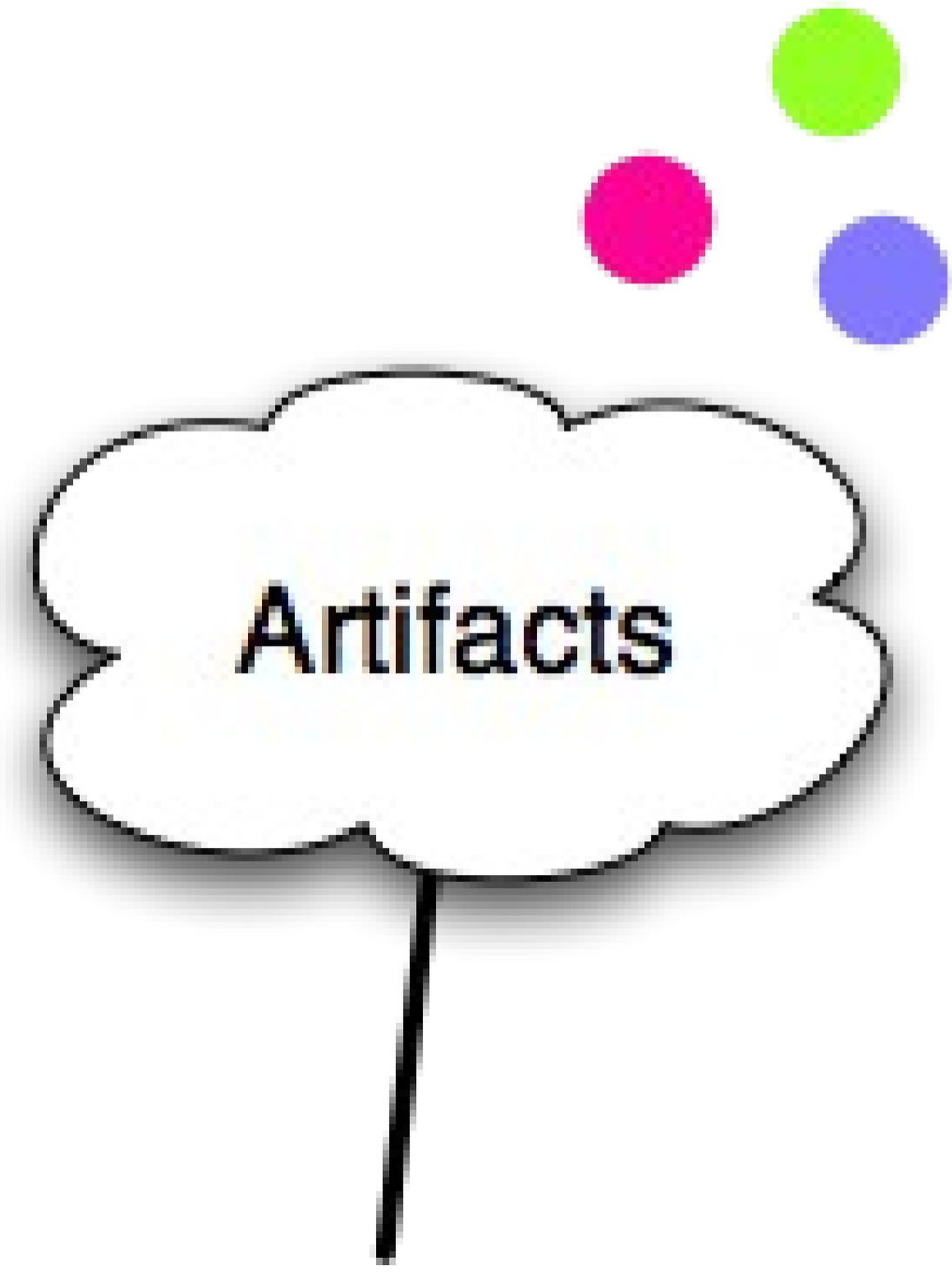
Plans

Pipelines

Repositories

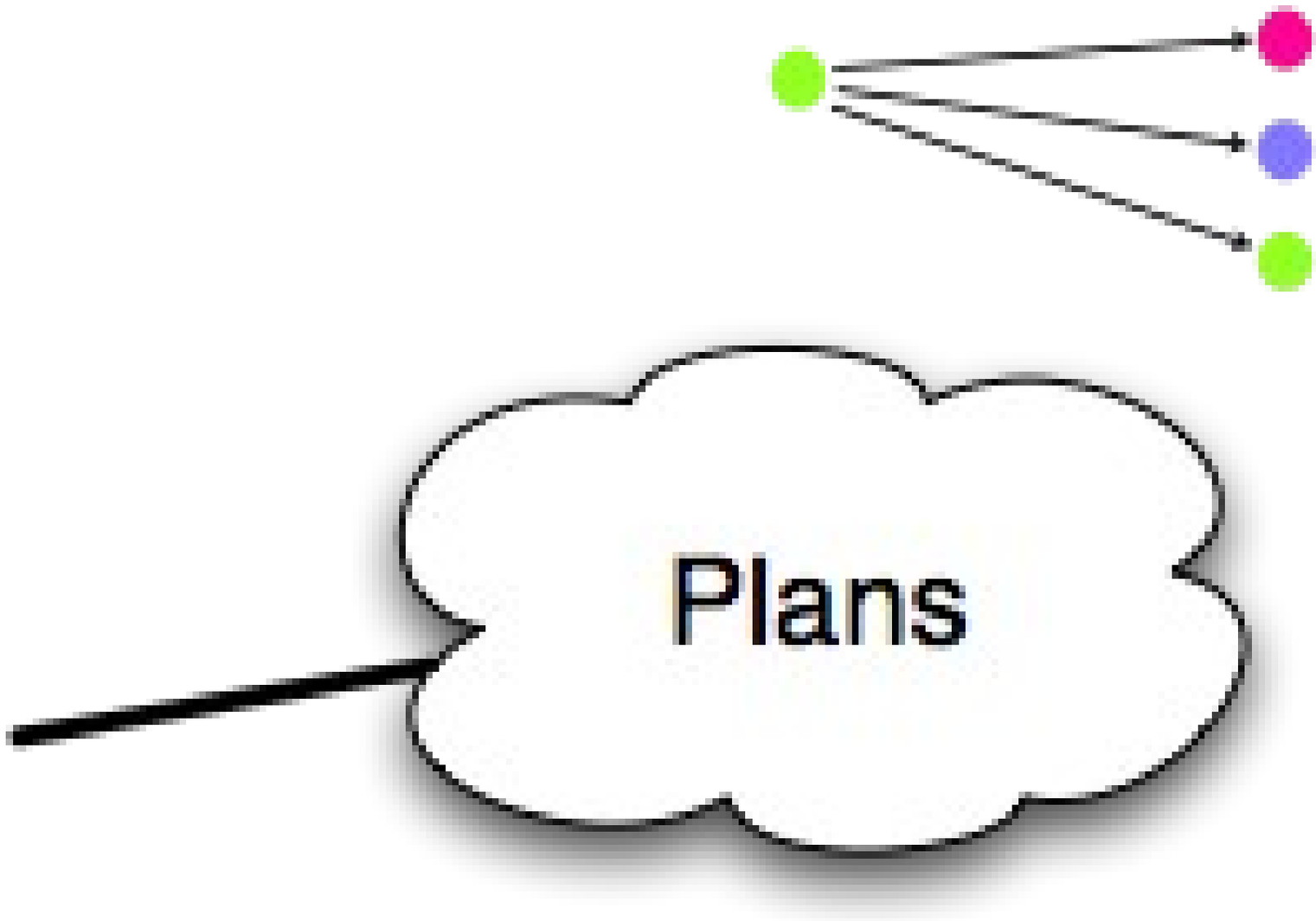





Artifacts

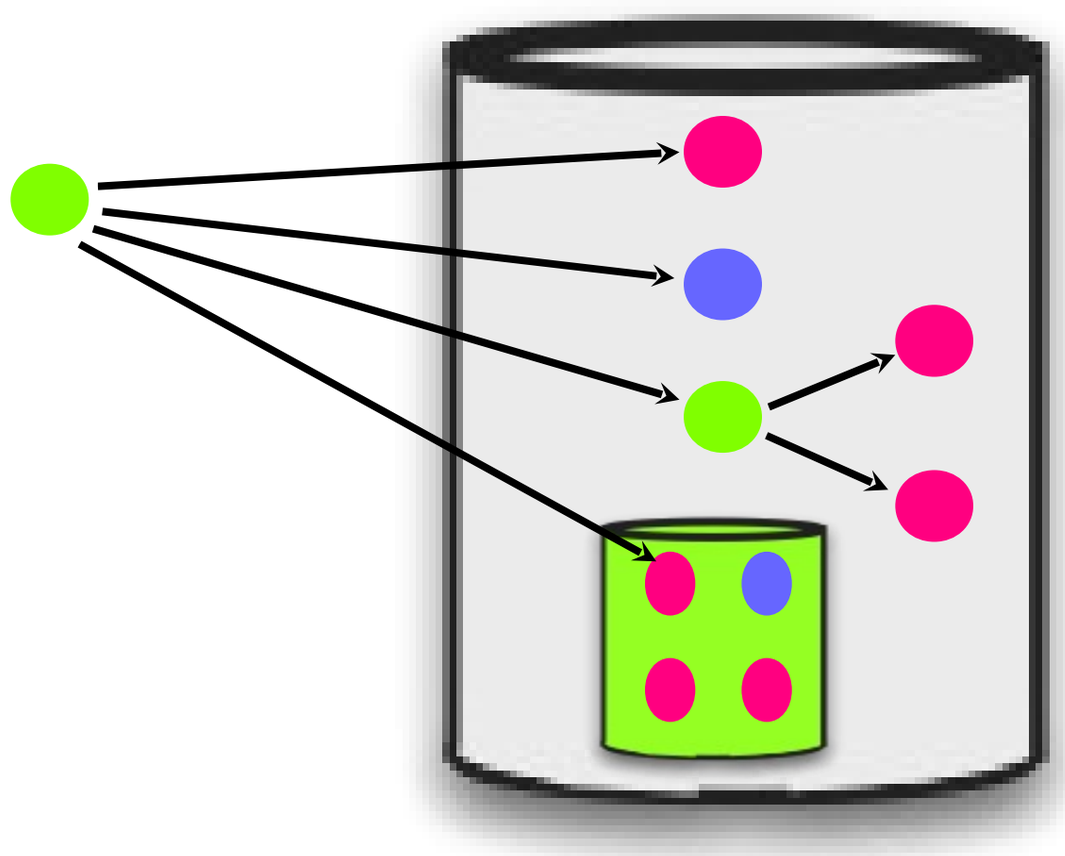
Artifacts

- Identified by type, name, version
- Types:
  - bundle - OSGi bundle
  - configuration - properties file
  - plan - list of artifacts
  - par – container of artifacts

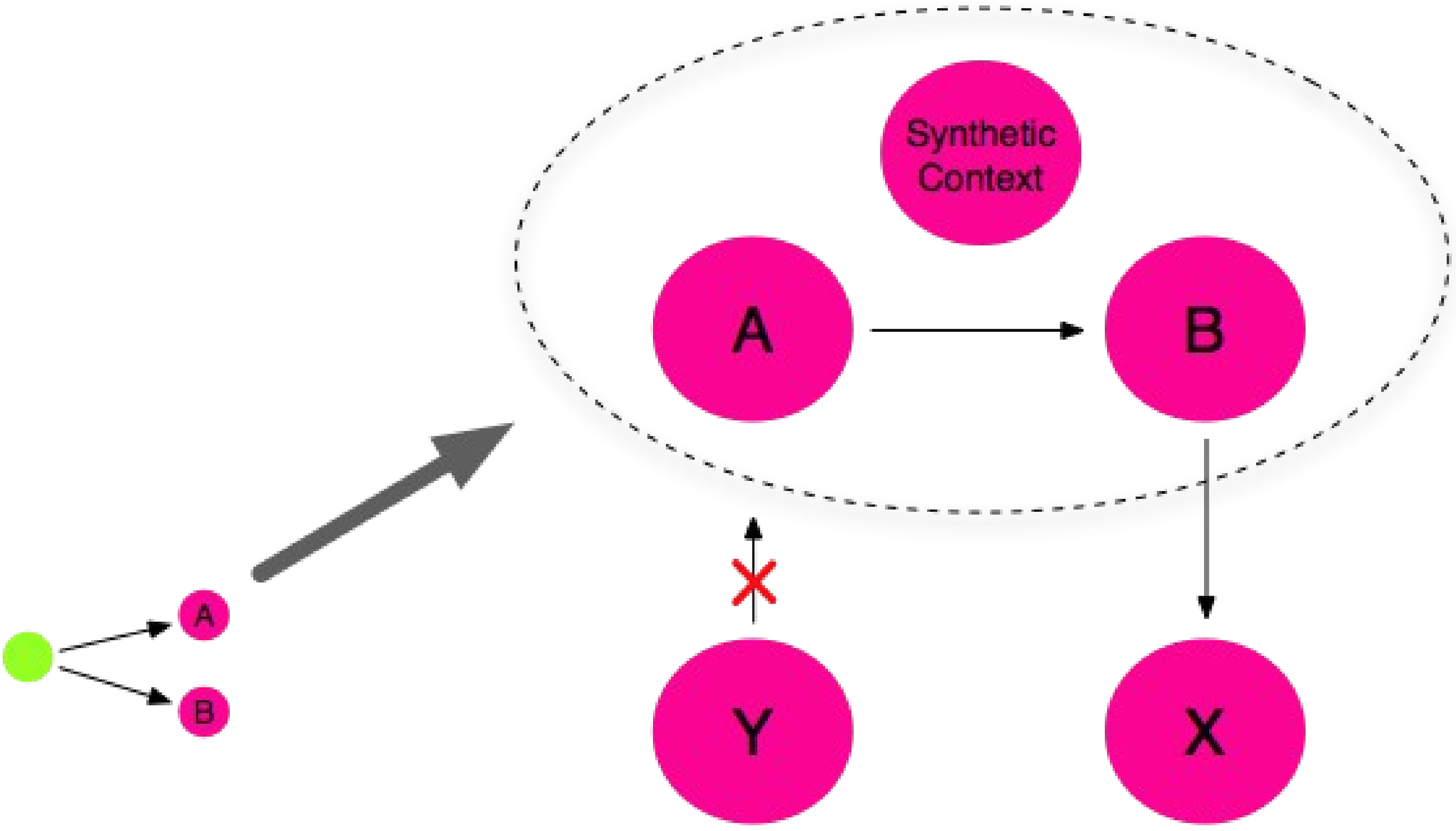

Plans

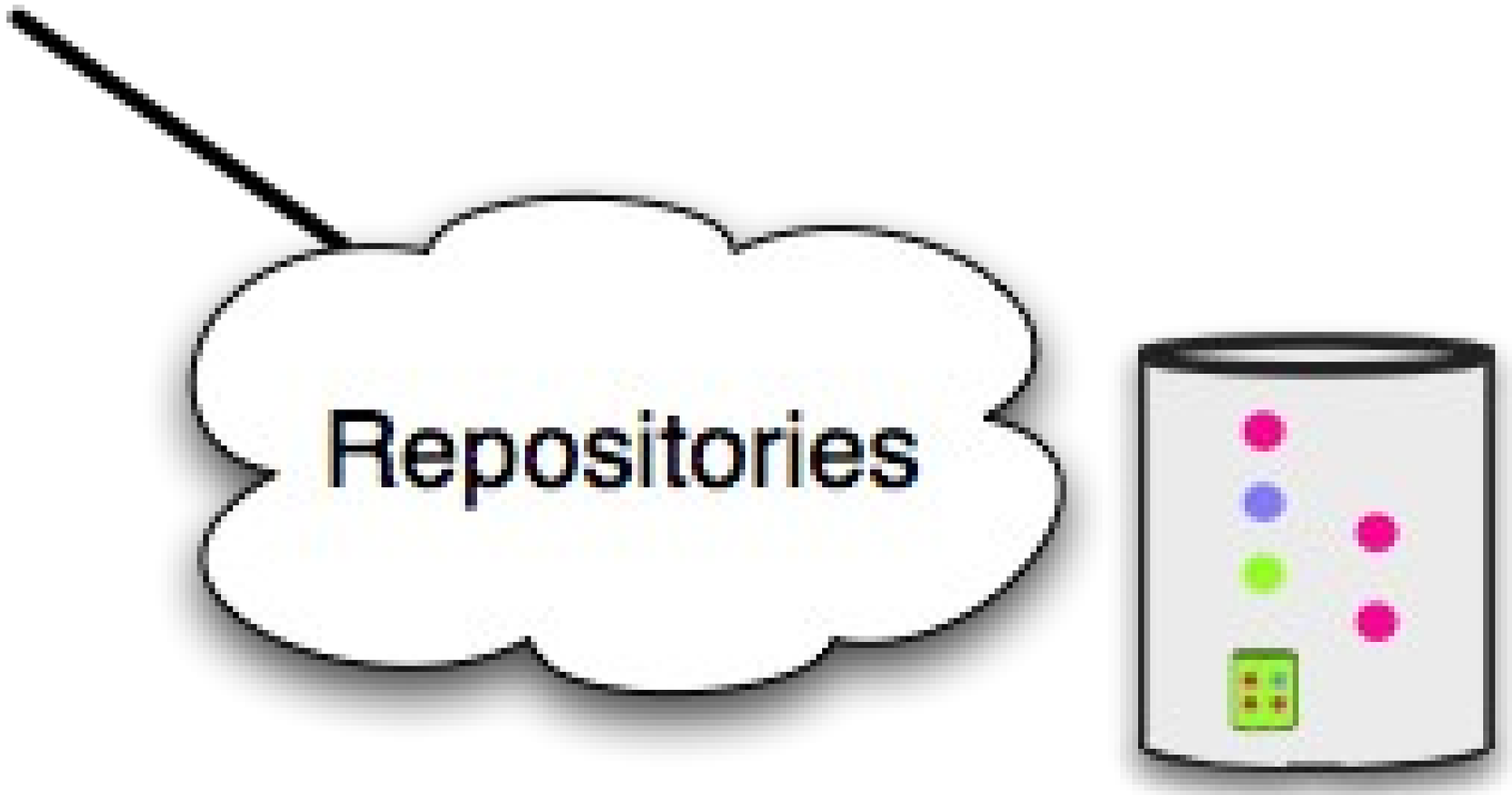
Plans

- XML
- List artifacts by type, name, version range
- Scoping
- Atomicity
- PARs
  - Contain artifacts
  - Scoped, atomic



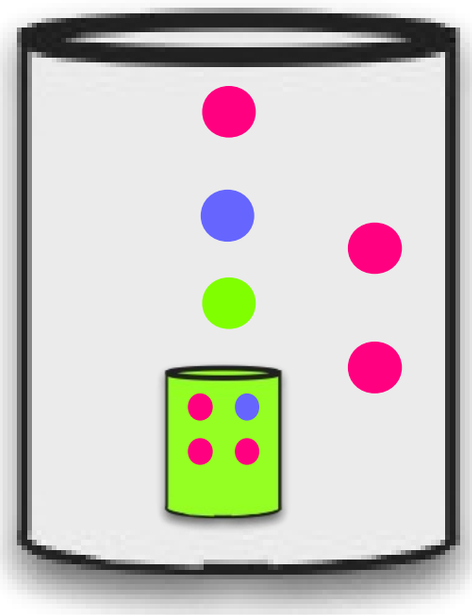
Scoping



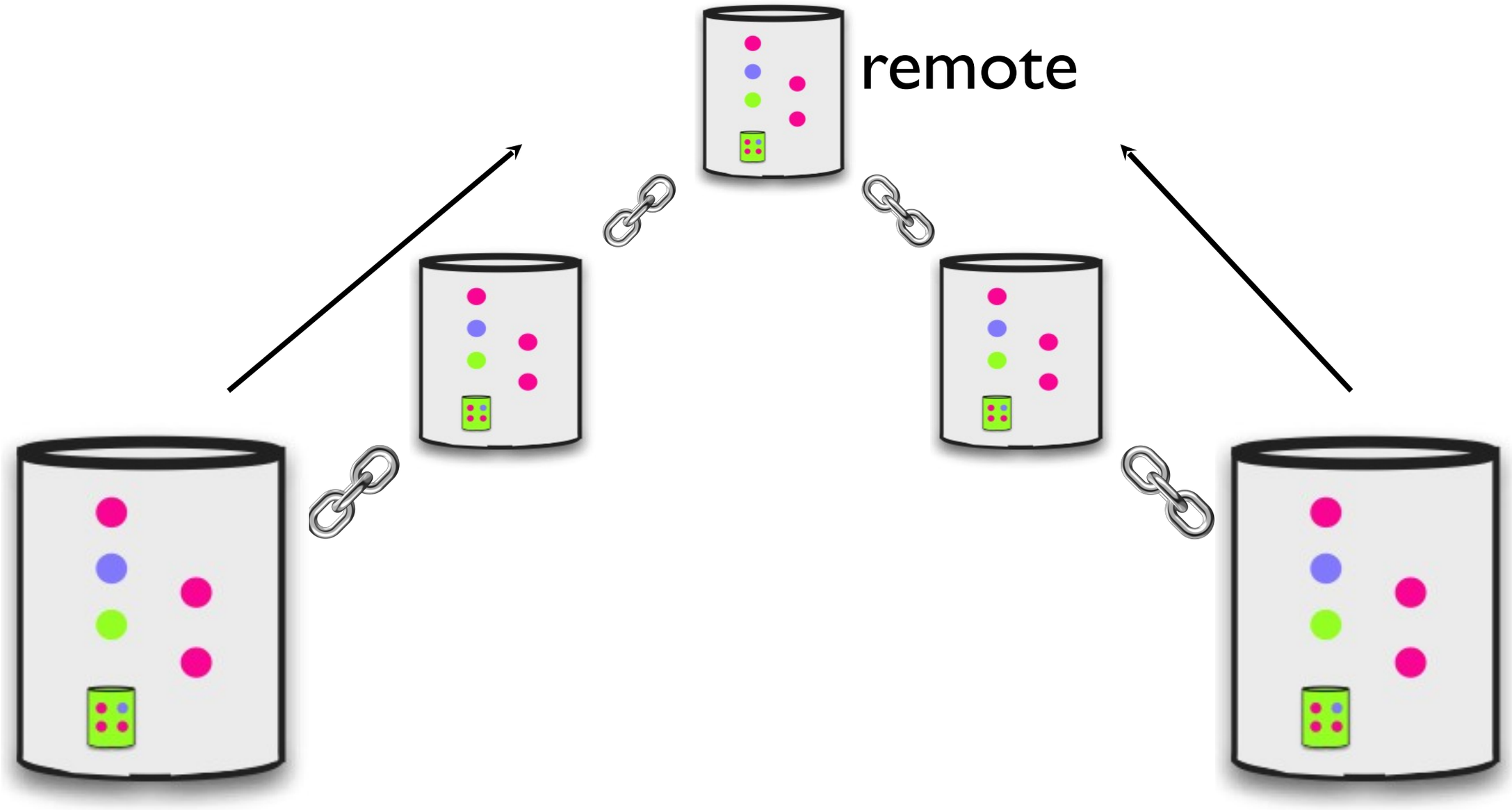

Repositories

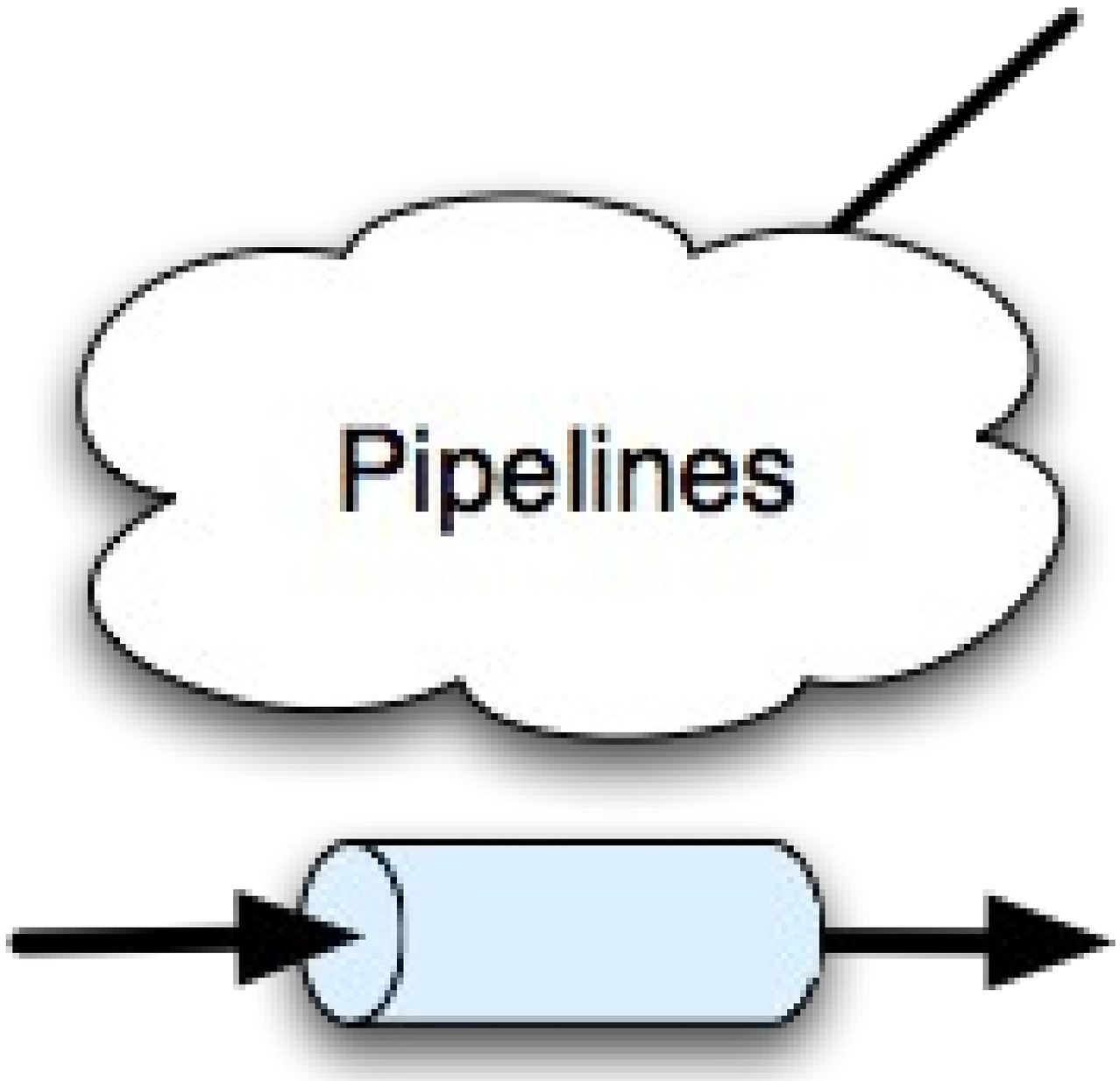
Repositories

- Artifacts indexed by type, name, version
- Supports queries e.g. by version range
- Repository types:
  - External
  - Watched
  - Remote
- Repositories may be chained

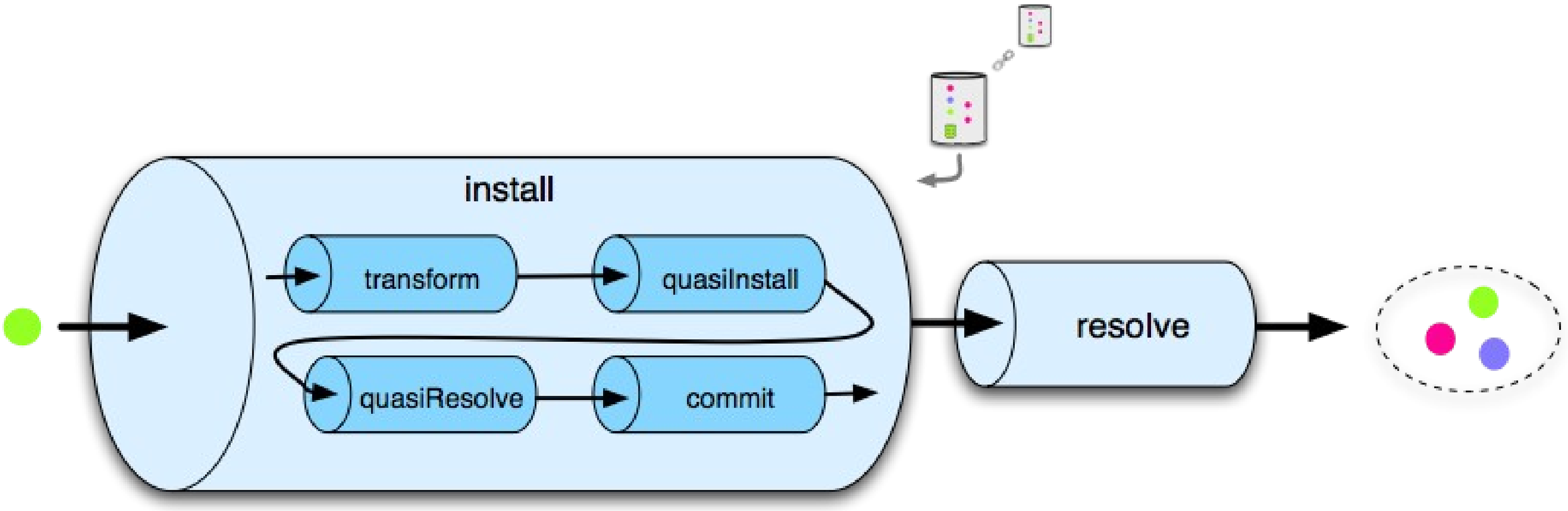


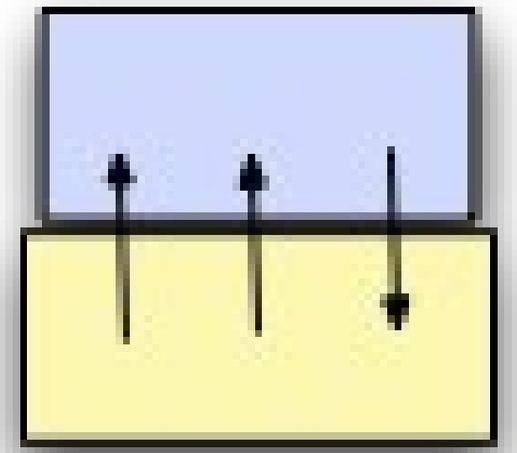
Repository Chaining




Pipelines

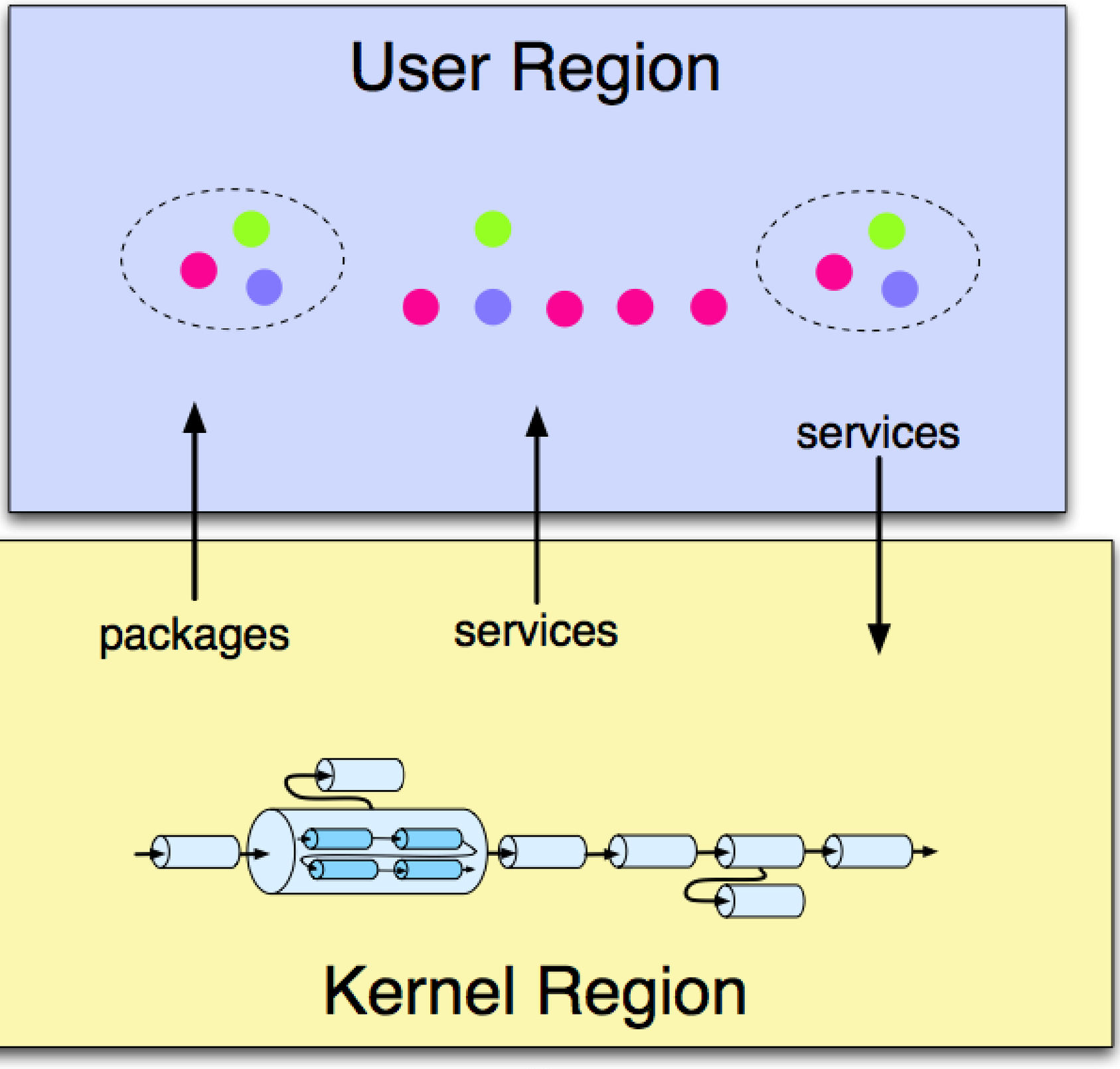
Pipelines


install
transform
quasiInstall
quasiResolve
commit
resolve



Regions

Regions



How can I get started?

VIRGO from eclipseRT

Getting Started

- Tech Demo later today (5)
- Pre-req: Java 6
- Download & unzip
- bin/startup.sh or bin\startup.bat
- drop WAR files or bundles into pickup dir

Then What?

- Read documentation
  - User Guide
    - Programmer Guide
    - Getting Started Guide
- Join the community
- http://wiki.eclipse.org/Virgo/Community

Roles

- Casual user
- Expert user
- Contributor
- Committer

VIRGO from eclipseRT

Committer Skills

- Know or willing to learn:
  - Clean architecture & code
  - Unit and Integration testing
  - Concurrency
  - (Deep) OSGi understanding
  - git, ant, ivy, etc.

Work Areas

- Developer docs & wiki
- Jetty adapter
- Regions and nested frameworks
- p2 integration
- More server types

Current Status

- Adding the last code into Eclipse GIT
- IP scrutiny progressing well
- Most repos can be checked out and built
- Virgo Nightly Builds available
- Baseline release is coming soon

Further Information

- http://www.eclipse.org/virgo
- http://wiki.eclipse.org/Virgo/Community
- #VirgoRT twitter
- Download dm Server 2.0.2 and try it out
- http://www.springsource.org/dmserver