Architecture des Systèmes d' Information
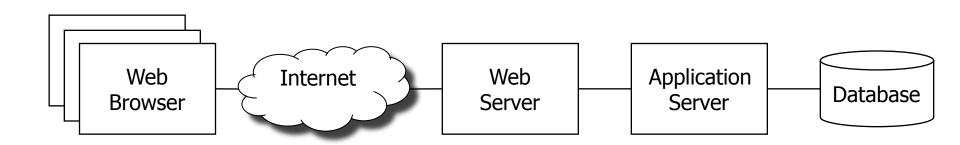
Enterprise JAVA Beans
(EJB)

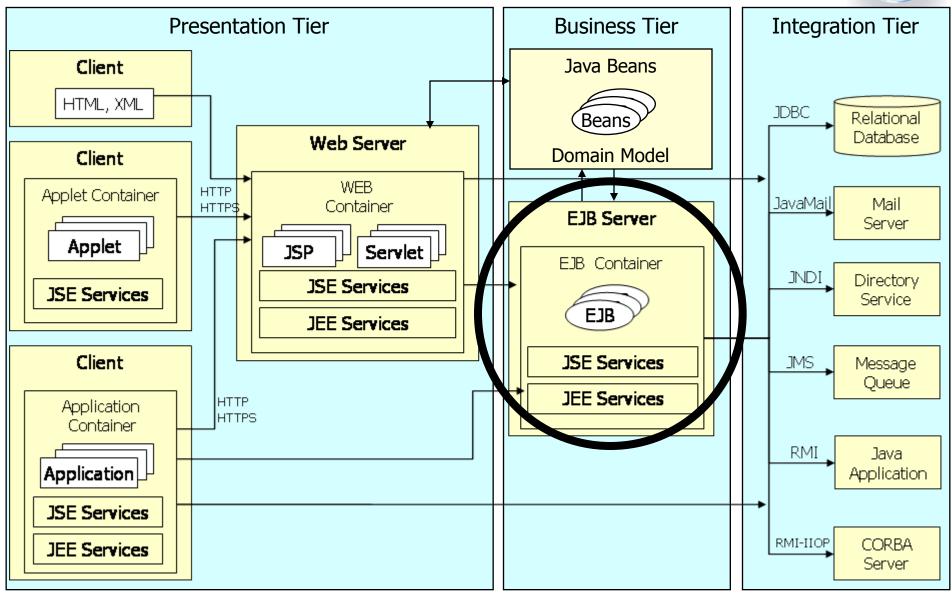**Traduction en cours**

WEB context

Web Browser → Internet → Web Server → Application Server → Database

JEE JSE and EJB

Web Server

Web Browser — Internet — Web Server — Application Server — Database

Client ←→ Web ←→ Application ←→ (database)

HTTP
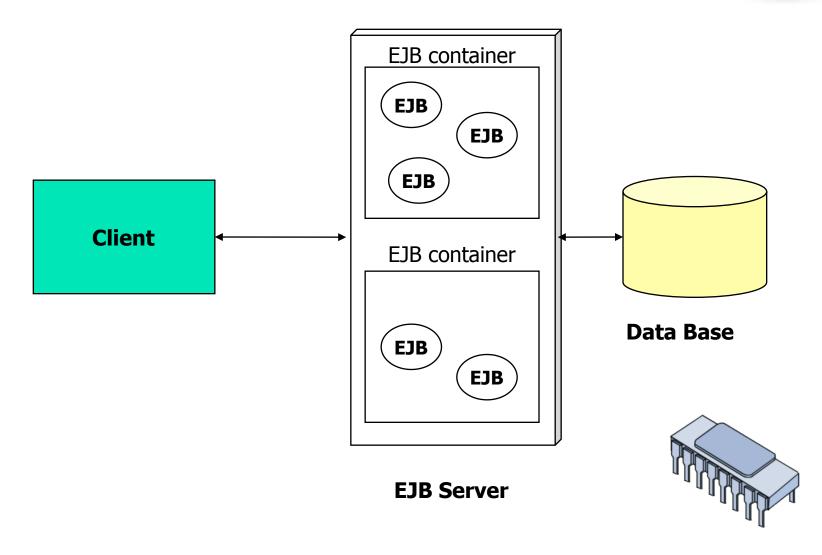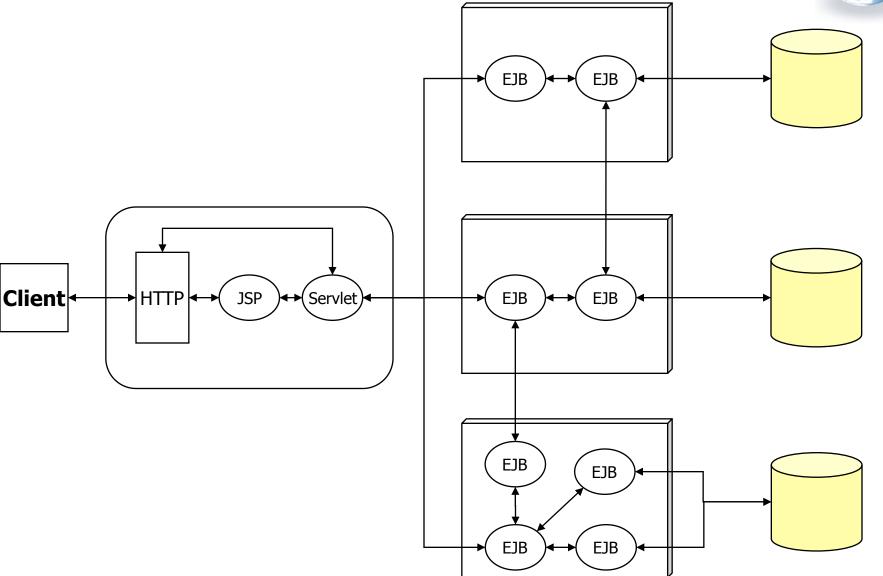
EJB server, EJB container

Distributed Application Server
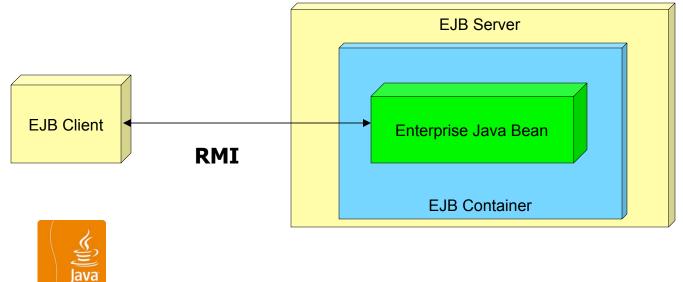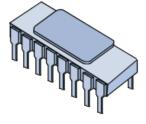
Distributed Application Server

Enterprise JAVA Beans (EJB)

EJB Server

EJB Client

Enterprise Java Bean

EJB Container

RMI

EJB IDL : Java Interface

RMI

EJB Client

EJB Server

Home

Remote

RMI

EJB Container

Enterprise Java Bean

EJB container

RMI

EJB Client

Home

RMI

Remote

EJB Server

Enterprise Java Bean

EJB Container

Transaction

Data Base
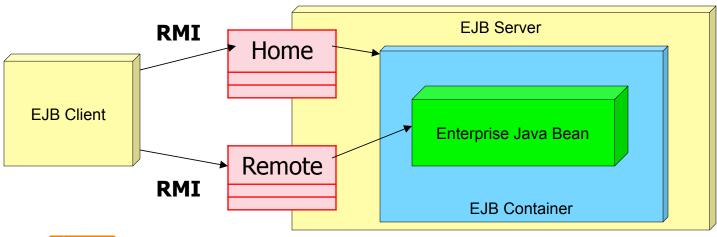
Persistance
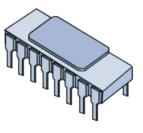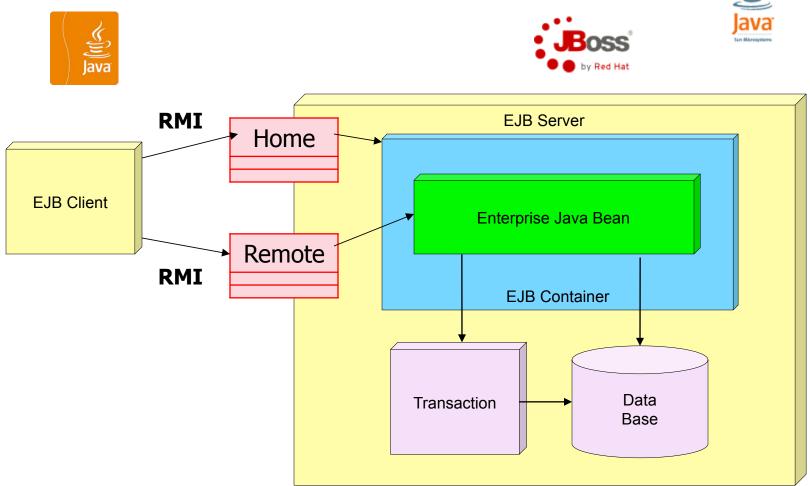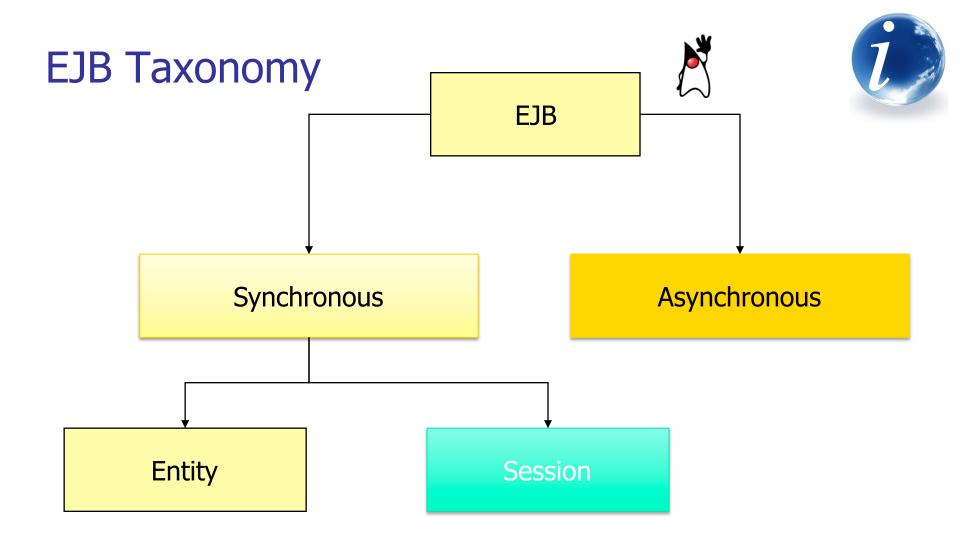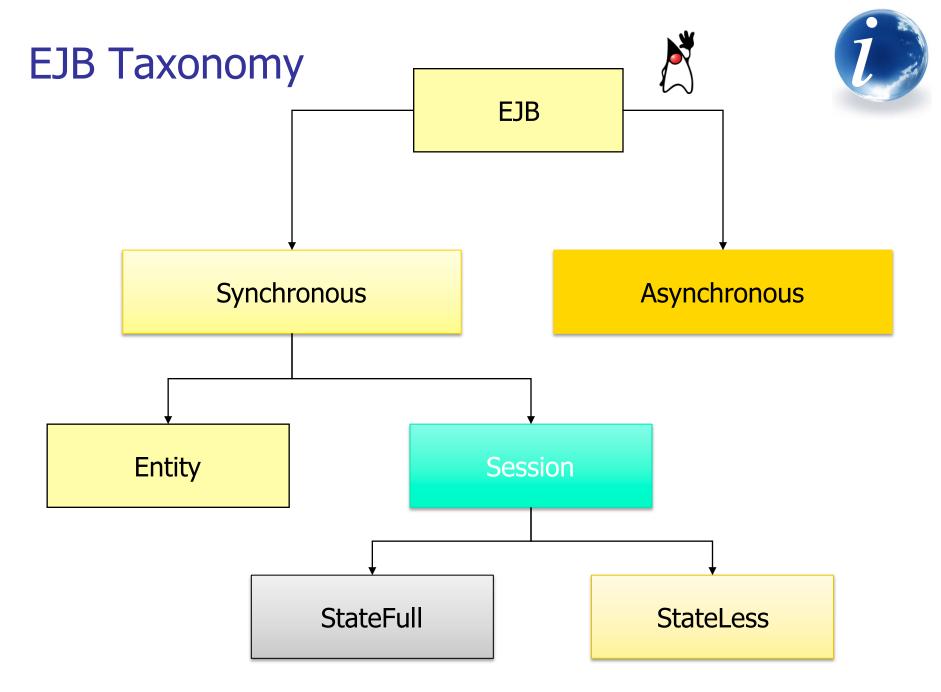
EJB communication protocol

- RMI = RPC (Remote Procedure Call)

- Remote Method Invocation =>

    - Remote JVM.

EJB Taxonomy

```
                        ┌─────────────┐
              ┌─────────│     EJB     │─────────┐
              │         └─────────────┘         │
              ▼                                 ▼
    ┌──────────────────┐              ┌──────────────────┐
    │   Synchronous    │              │   Asynchronous   │
    └──────────────────┘              └──────────────────┘
         │        │
    ┌────┘        └────┐
    ▼                  ▼
┌─────────┐      ┌─────────┐
│ Entity  │      │ Session │
└─────────┘      └─────────┘
```

EJB Taxonomy

```
                    ┌─────────────┐
                    │     EJB     │
                    └─────────────┘
            ┌───────────┴───────────────┐
            ▼                           ▼
    ┌───────────────┐           ┌───────────────┐
    │  Synchronous  │           │  Asynchronous │
    └───────────────┘           └───────────────┘
        ┌───┴────────────┐
        ▼                ▼
    ┌─────────┐     ┌─────────┐
    │  Entity │     │ Session │
    └─────────┘     └─────────┘
                    ┌───┴──────────┐
                    ▼              ▼
              ┌───────────┐  ┌───────────┐
              │ StateFull │  │ StateLess │
              └───────────┘  └───────────┘
```
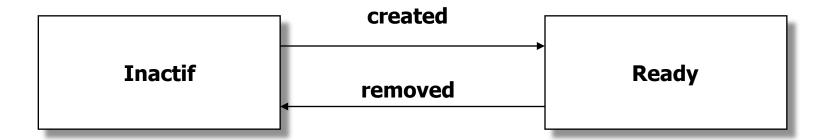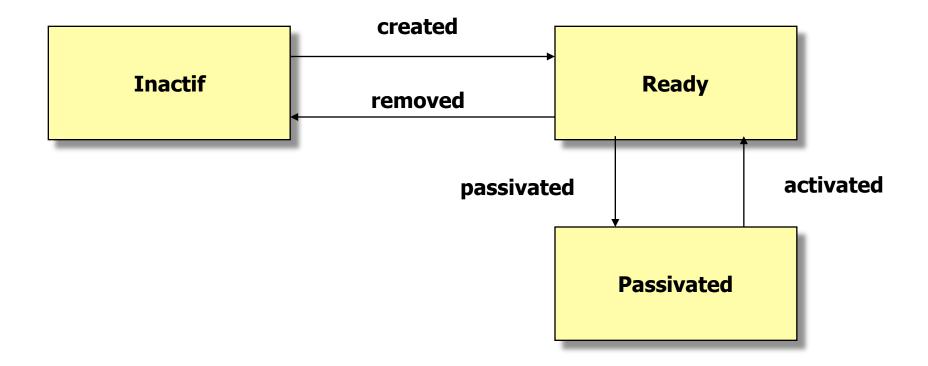
States of a stateless session bean

| Inactif | created ⟶ ⟵ removed | Ready |

States of a statefull session bean

Inactif → created → Ready

Ready → removed → Inactif

Ready → passivated → Passivated

Passivated → activated → Ready
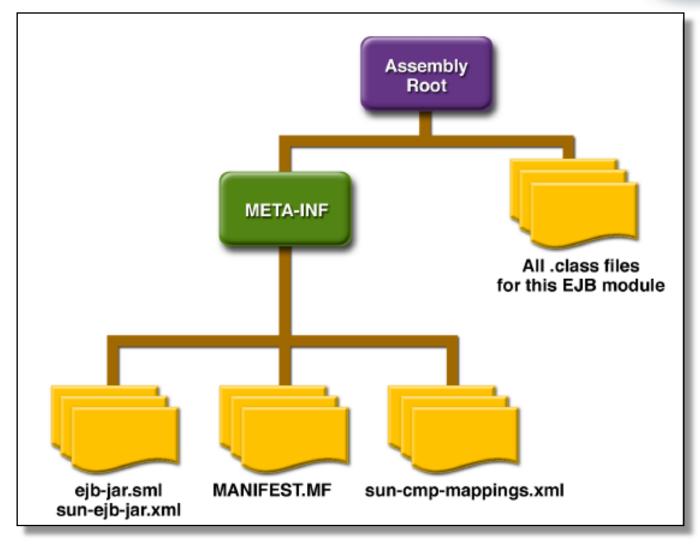
Structure of an Enterprise Bean JAR

EJB versions

EJB 1.x

Client		Remote

EJB 2.x

Client		Remote Local

EJB 3.x
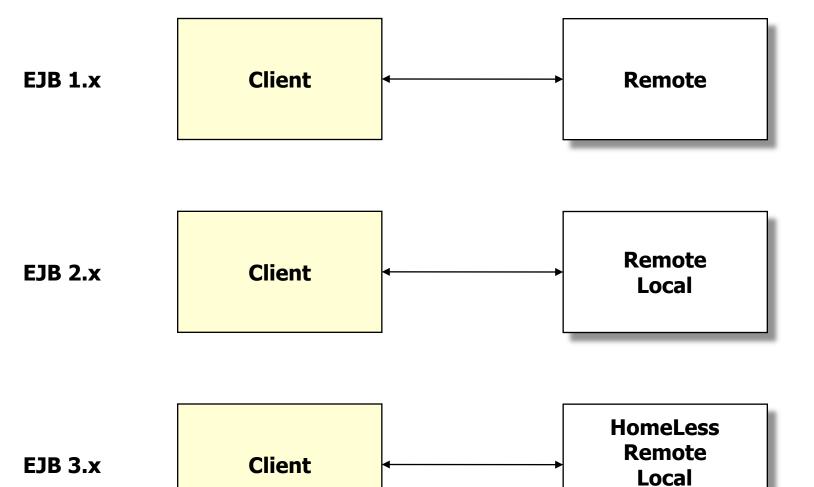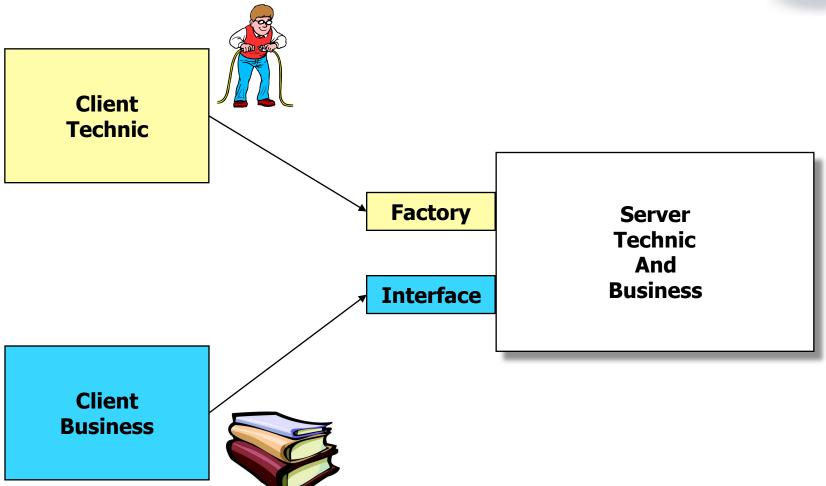
Client		HomeLess Remote Local Annotation

Separation of concerns
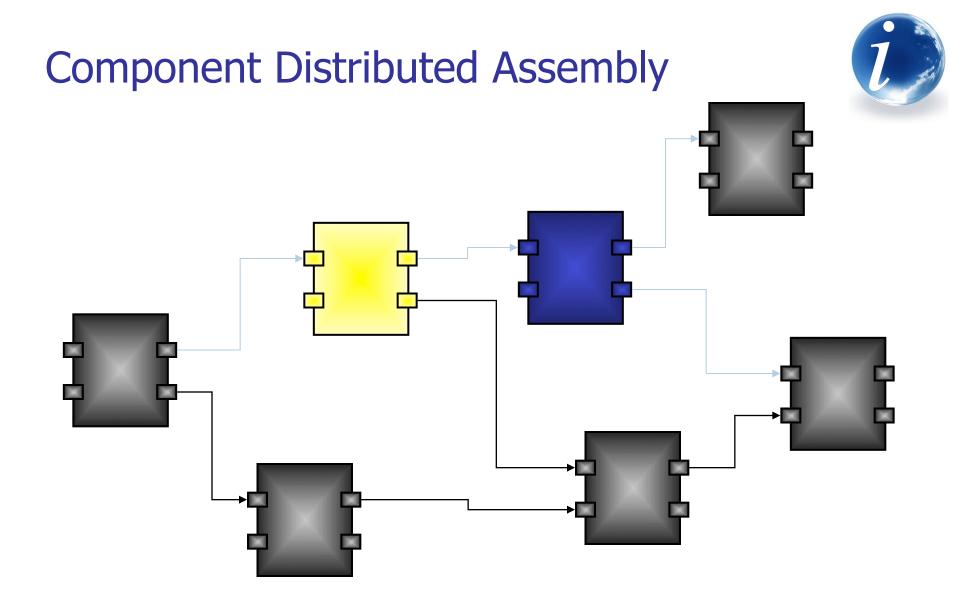
Client Technic

Factory

Server Technic And Business

Interface

Client Business

EJB IDL : Java Interface

EJB Client

Home

EJB Server
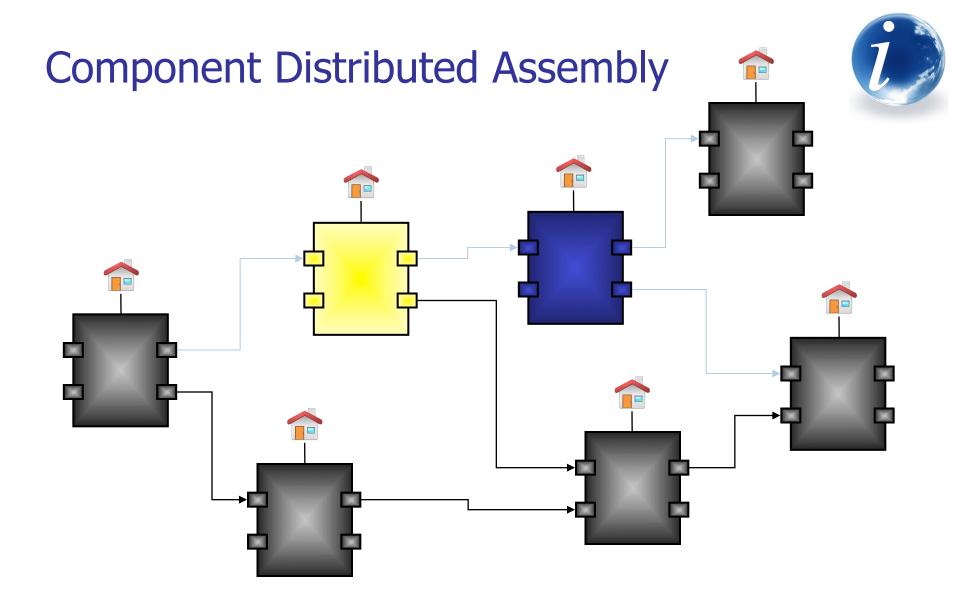
Remote

Enterprise Java Bean

EJB Container

EJB IDL : Java Interface

Component Distributed Assembly
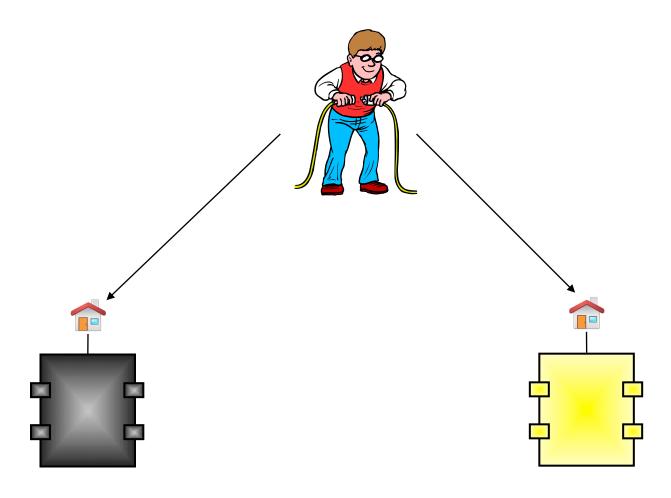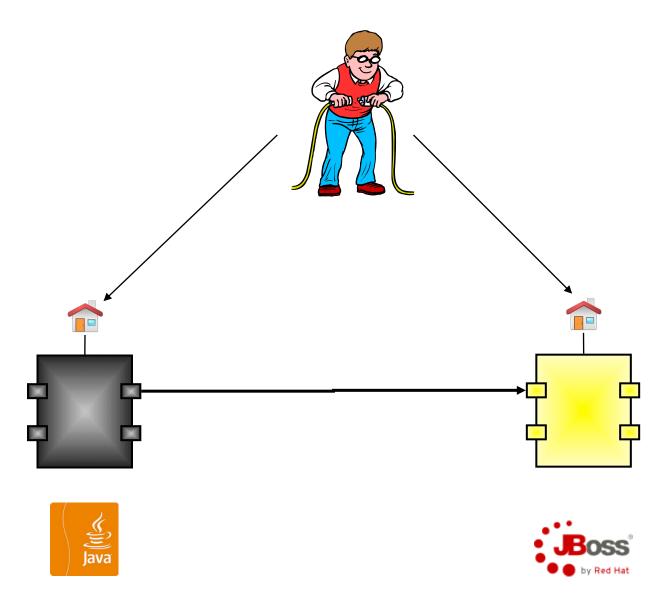
Component Distributed Assembly

Home and assembly

Home and assembly

Packaging Assembly Deployement Tools