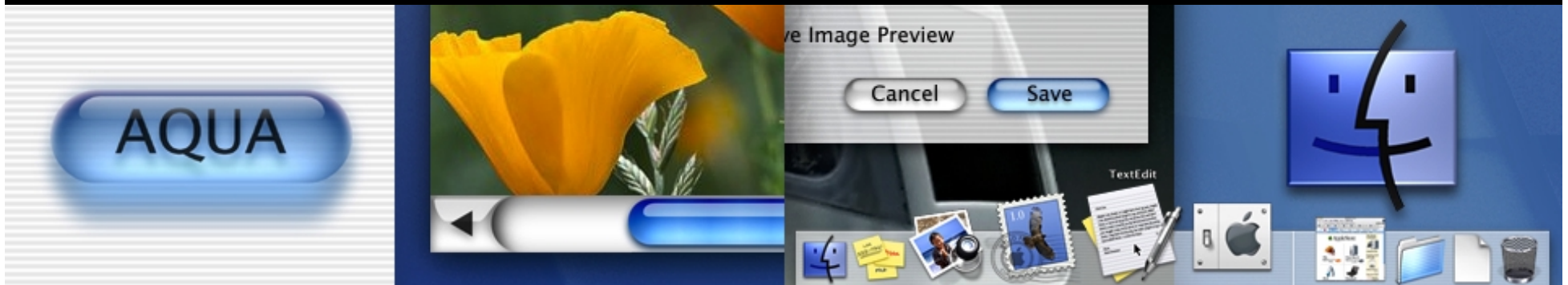




Session 407

WebObjects: EJB

Making the Best of a Bad Thing



Rory Lydon
WebObjects Tools Manager

Agenda

- Introduction
- What Is EJB?
- WebObjects versus EJB
- WebObjects and EJB
- Q&A



What Is EJB?

- Over 300 pages
- Part of J2EE
- An impressive marketing achievement
- “The death of EOF”



Specifics

“The EJB Container Provider (Container Provider for short) . . .”



Specifics

“The EJB server must also provide a container for the enterprise beans, which is called an EJB container.”



Specifics

“The Enterprise JavaBeans architecture is an architecture for component-based distributed computing.”



Specifics

“The Enterprise JavaBeans architecture is an architecture for component-based distributed computing.”



What Is a Component?

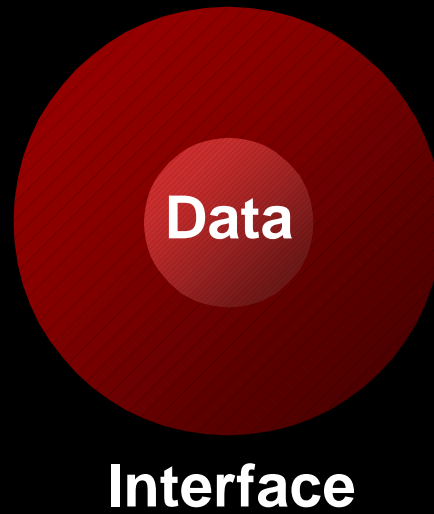
- “More than an object”
- Composable
- Portable



What Is an Object?



What Is an Object?



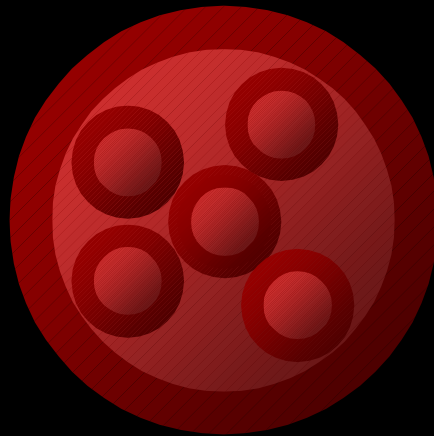
What Is an Object?



What Is an Object?



What Is an Object?



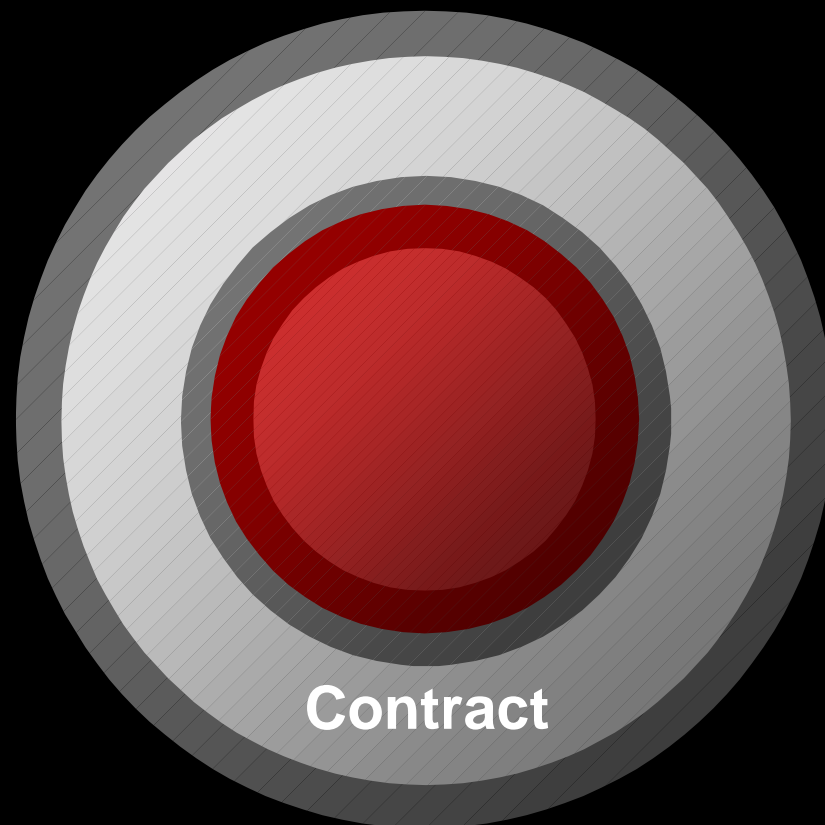
Interface



“More than an Object”



"More than an Object"

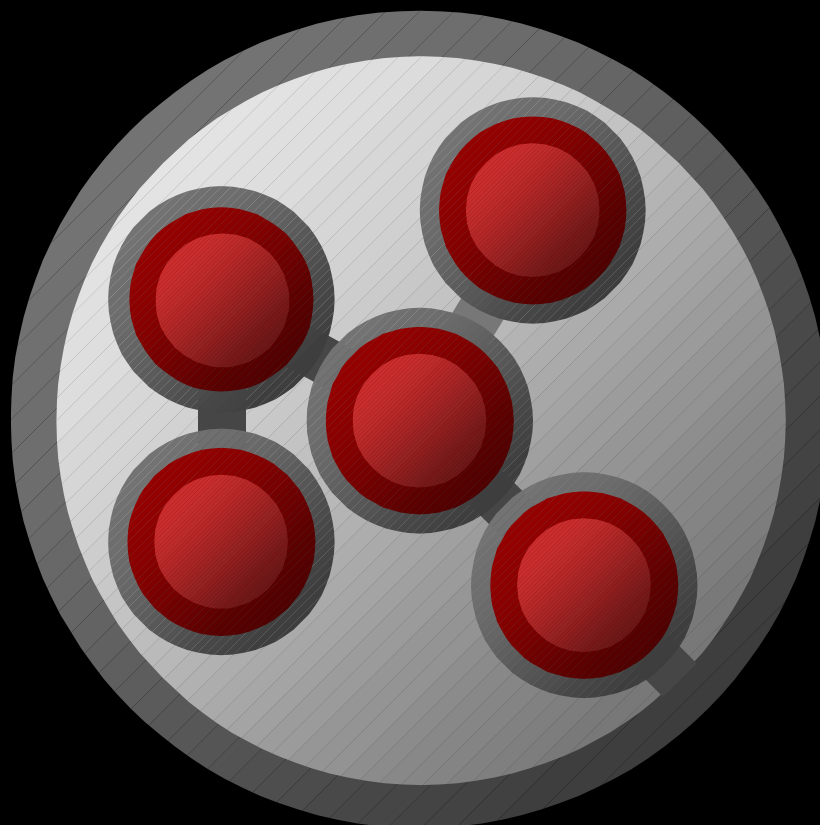


Contract

Habitat



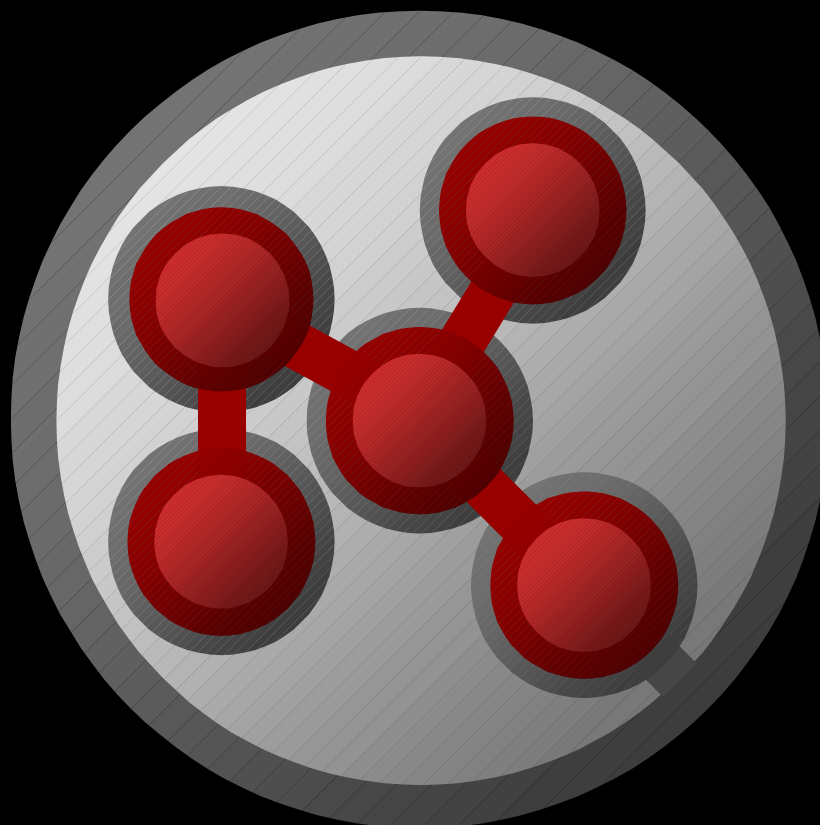
Composable



Habitat



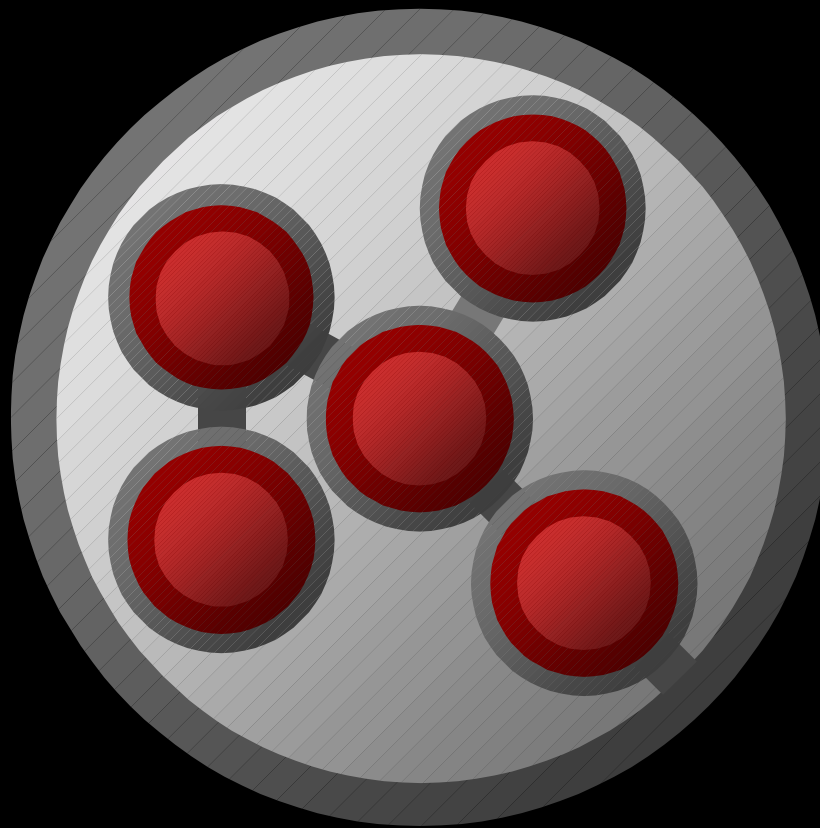
Composable



Habitat



Portable



Habitat'



What Is a Component?

- “More than an object”
- Composable
- Portable



What Is a Component?

- A well-designed object that works

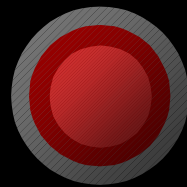


Specifics

“The Enterprise JavaBeans architecture is an architecture for component-based distributed computing.”



What Is EJB?

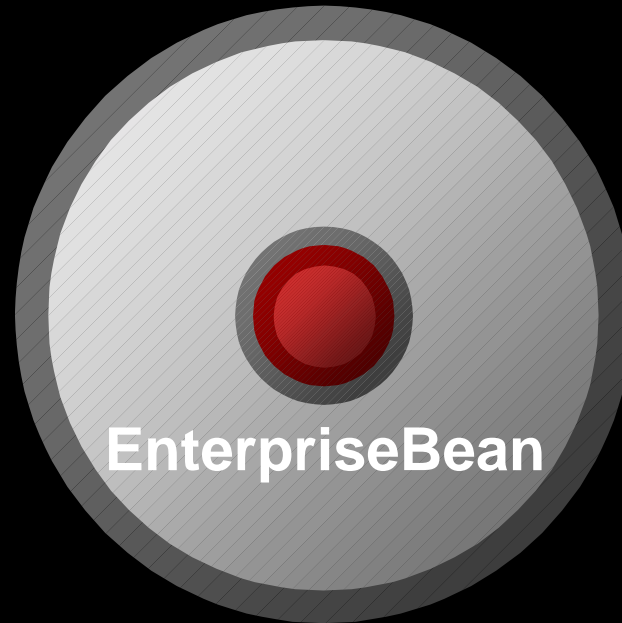


EnterpriseBean



What Is EJB?

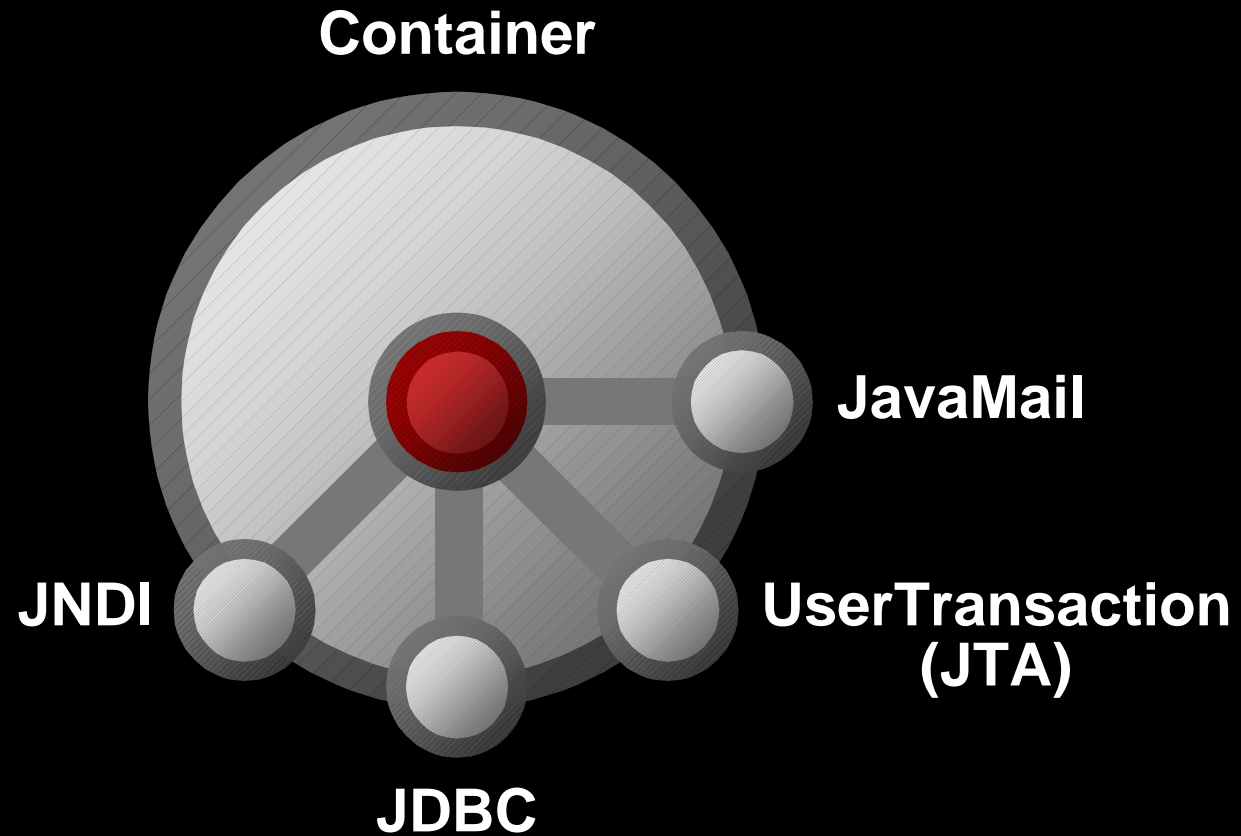
Container



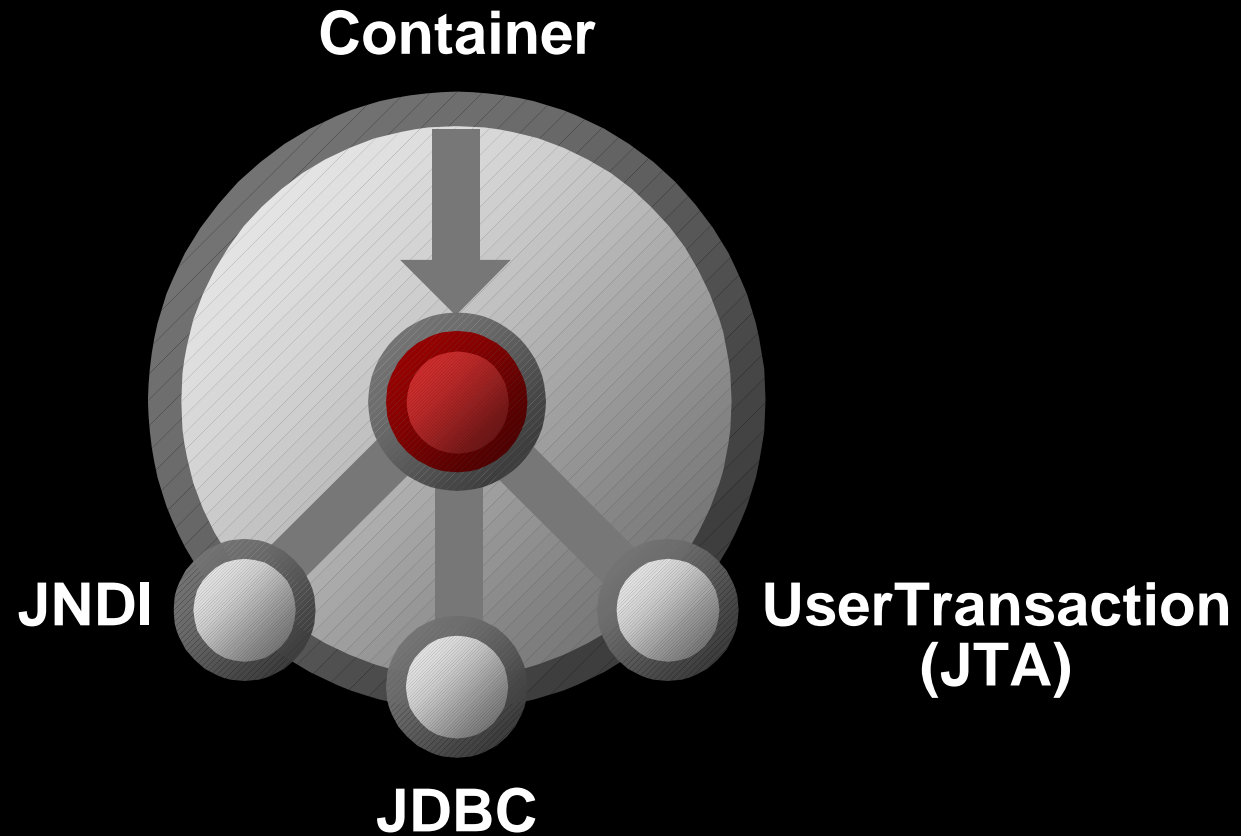
EnterpriseBean



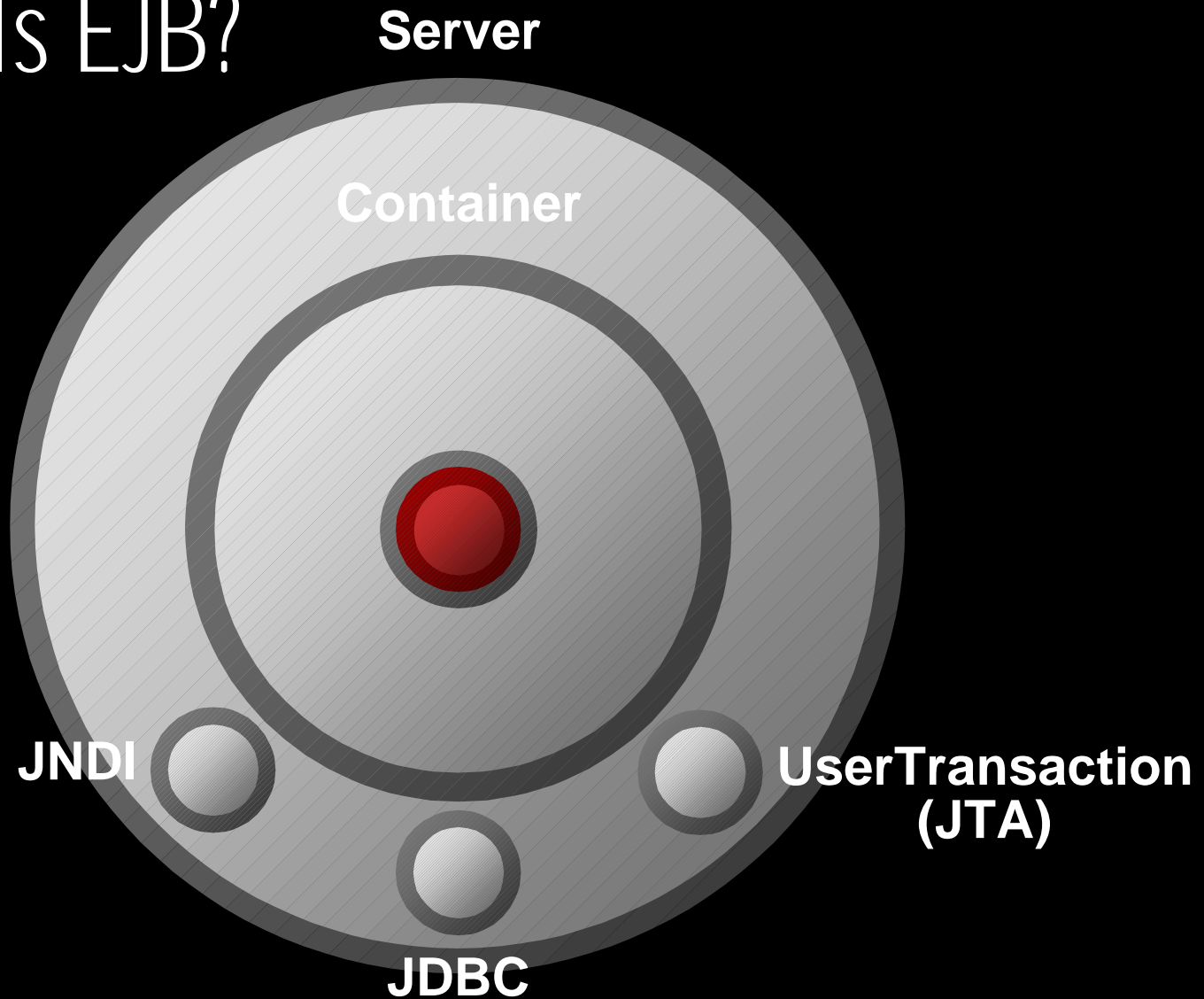
What Is EJB?



What Is EJB?

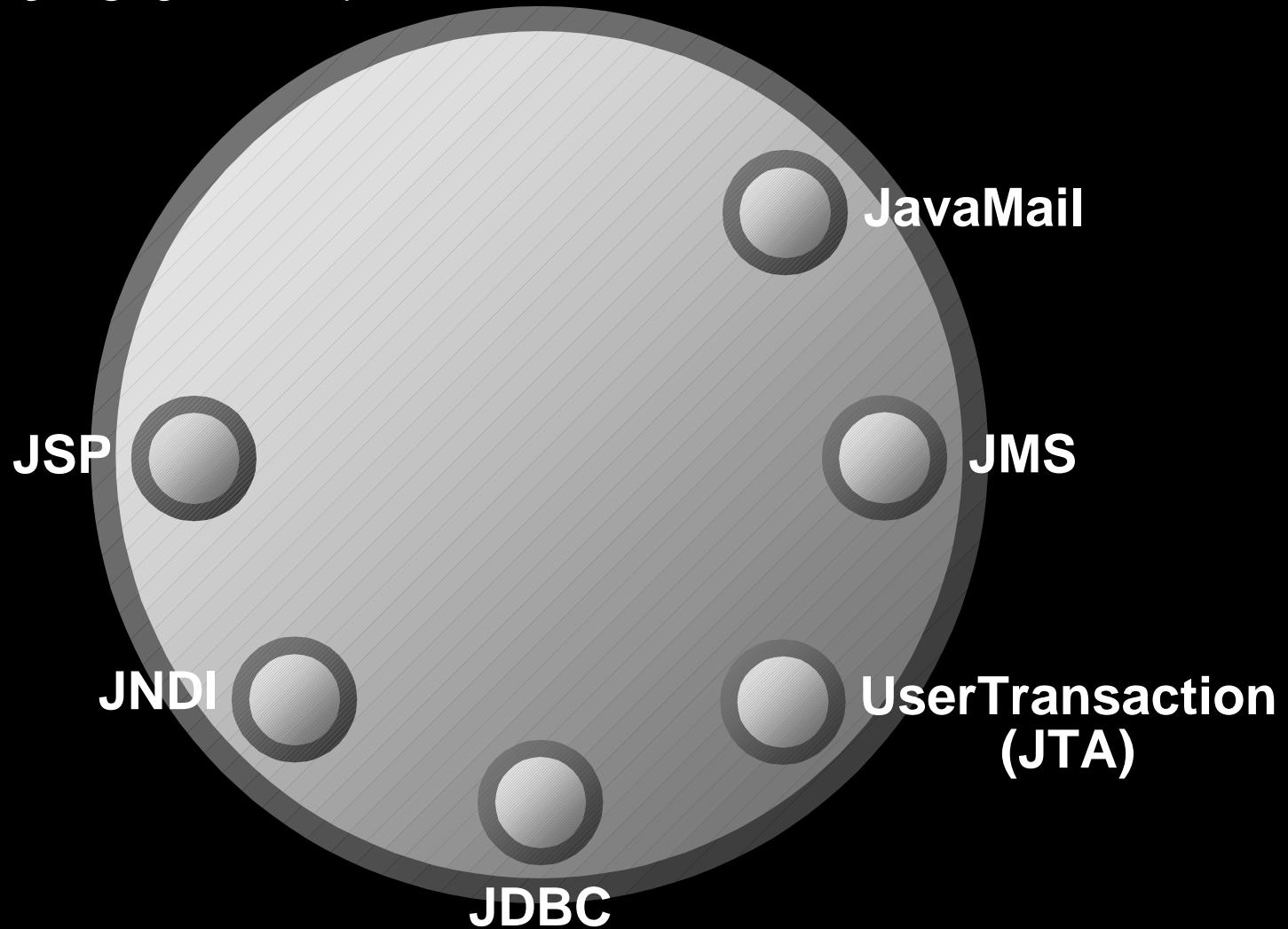


What Is EJB?

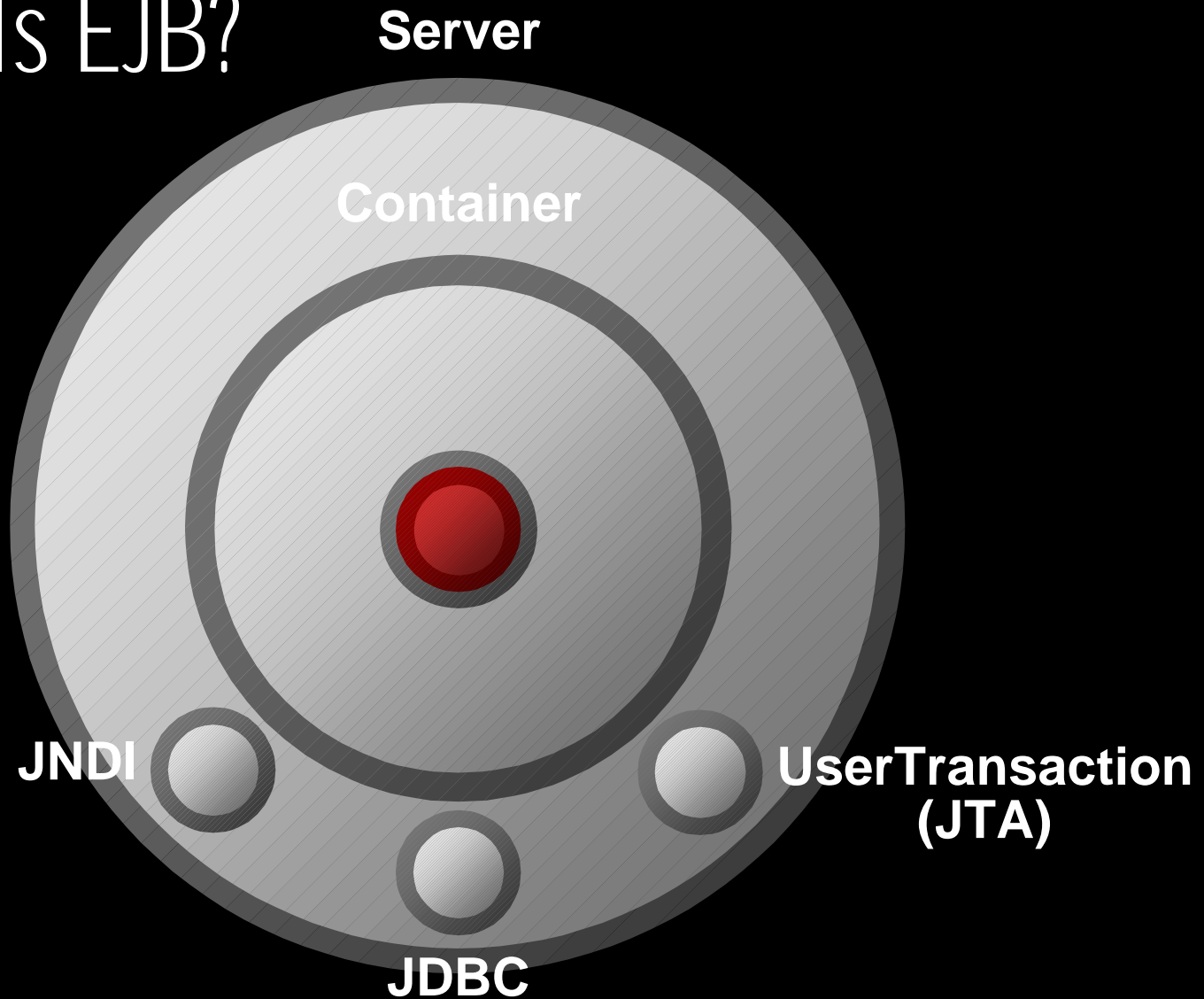


What Is J2EE?

Server

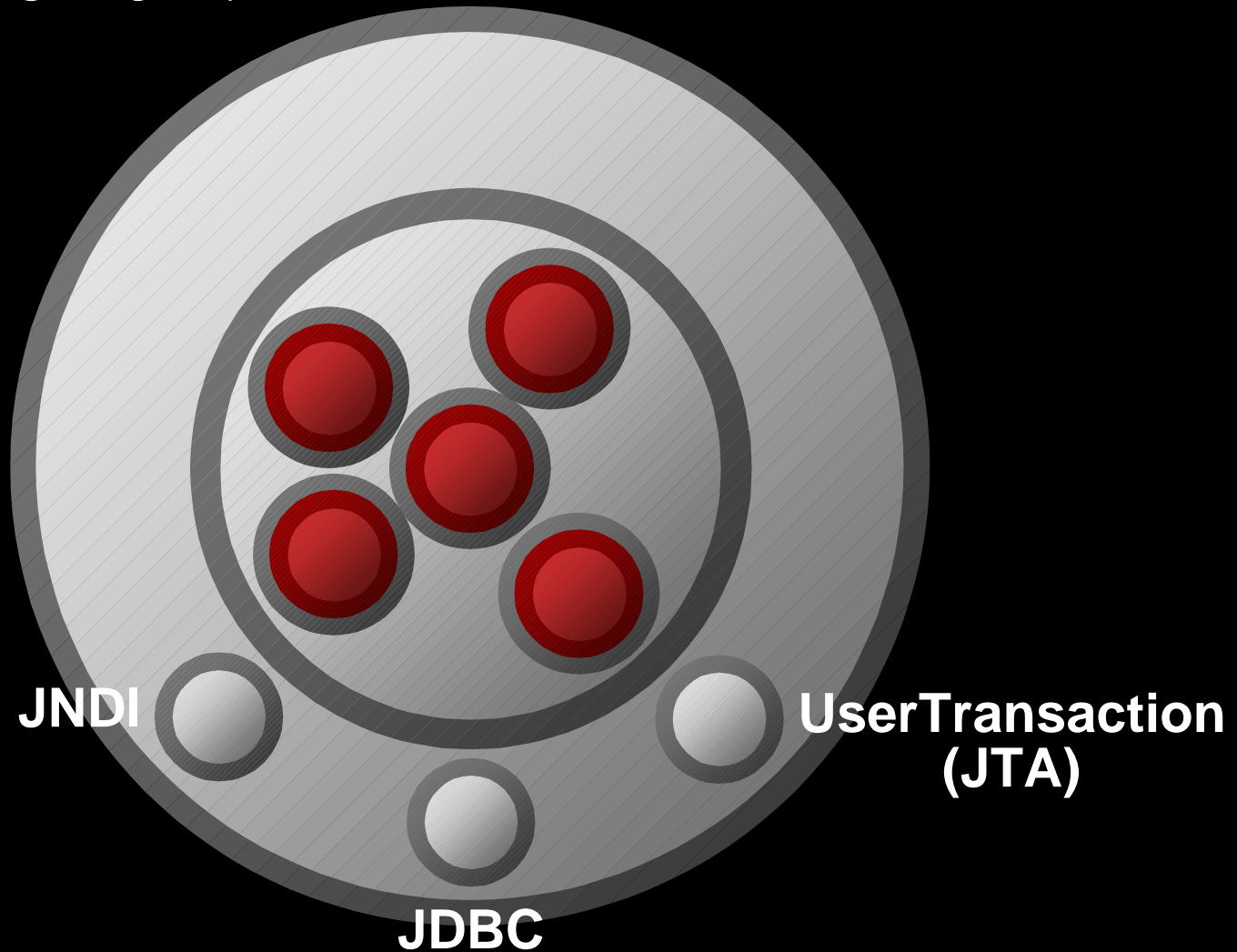


What Is EJB?



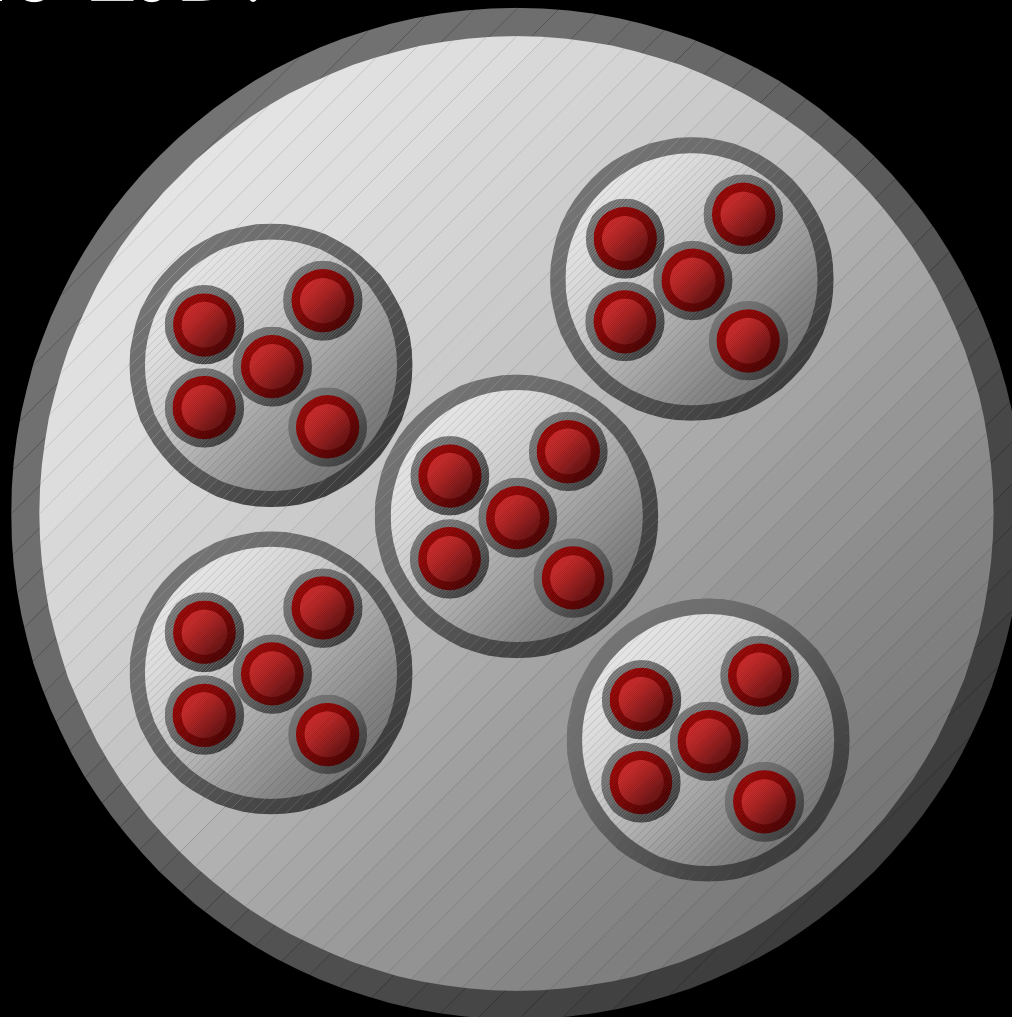
What Is EJB?

Server



What Is EJB?

Server



Specifics

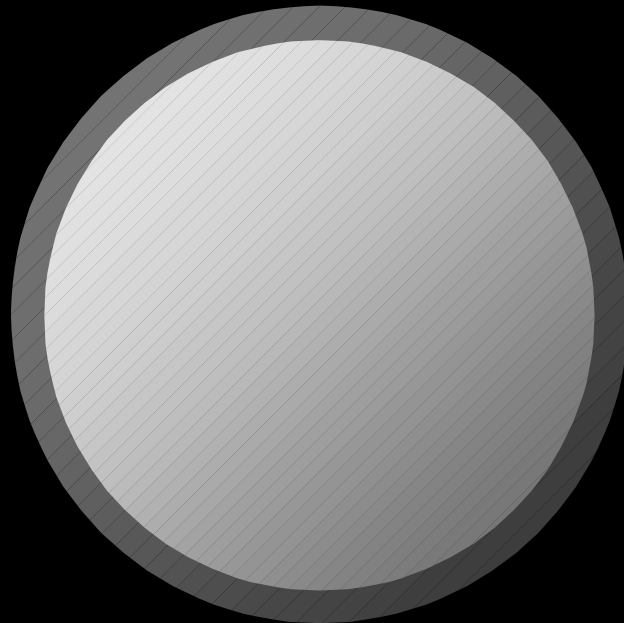
“The Enterprise JavaBeans architecture is an architecture for component-based distributed computing.”



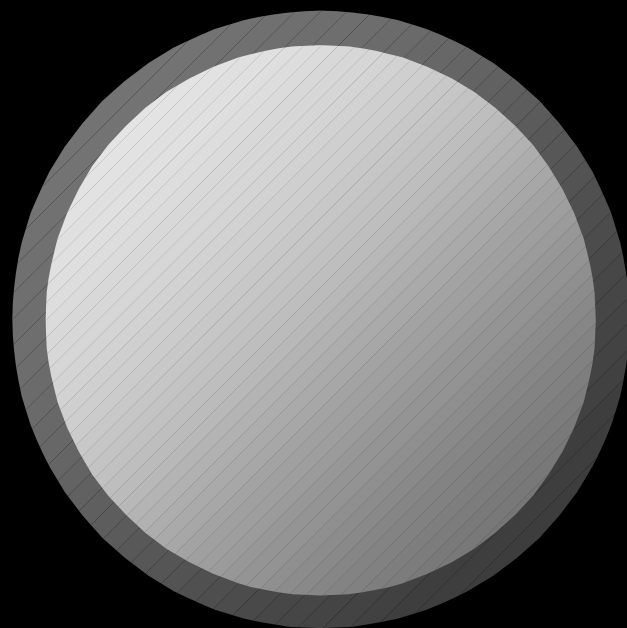
What Is Distribution?



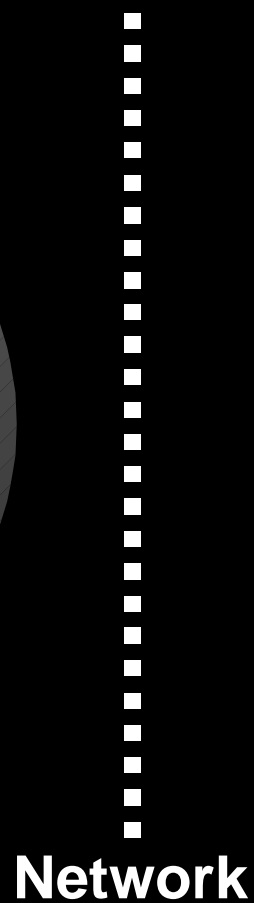
What Is Distribution?



What Is Distribution?



“Server”

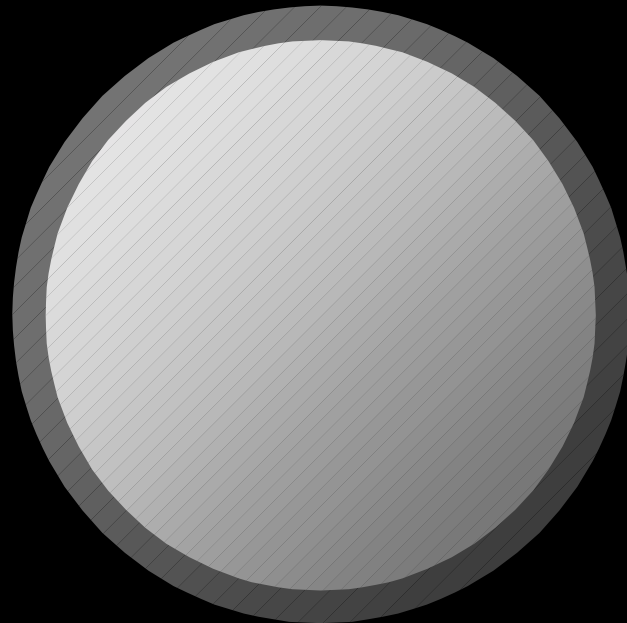


Network

“Client”



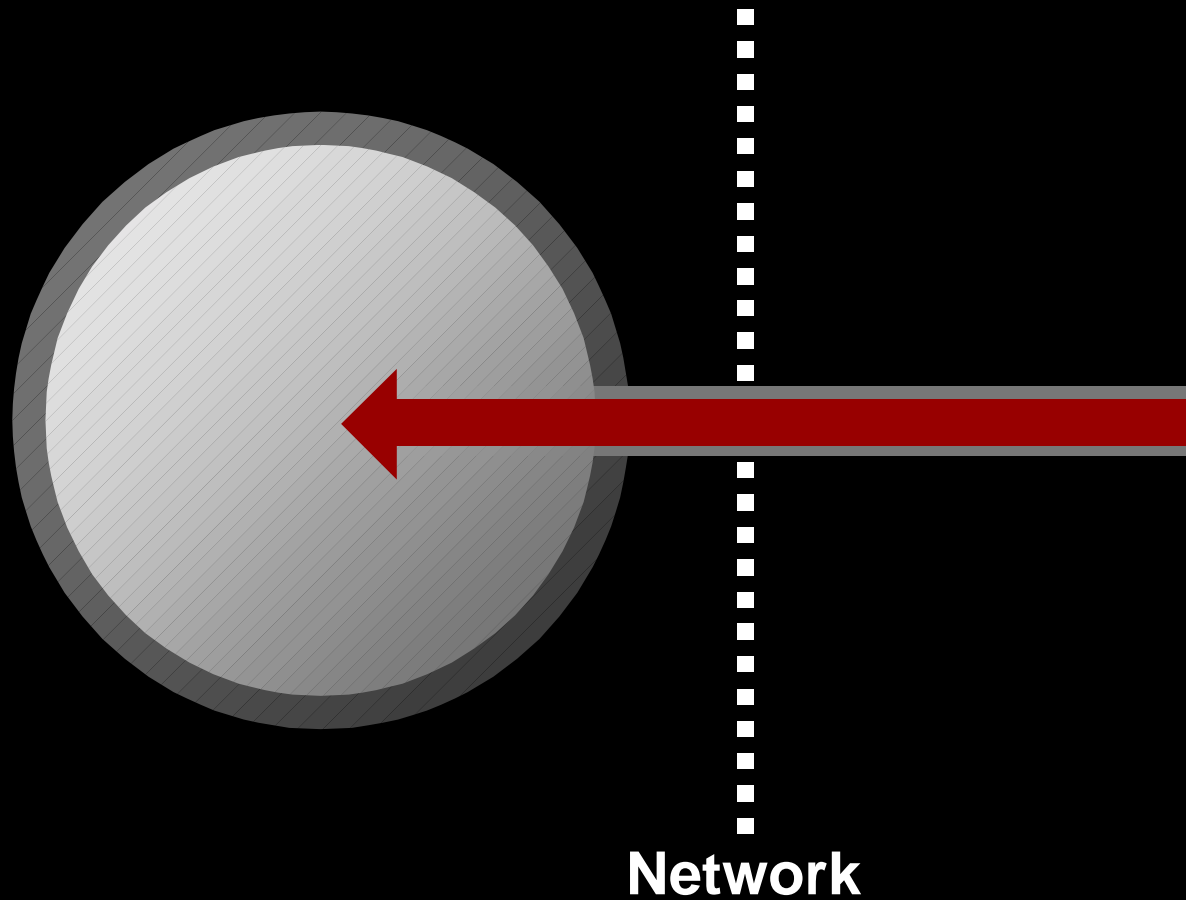
What Is Distribution?



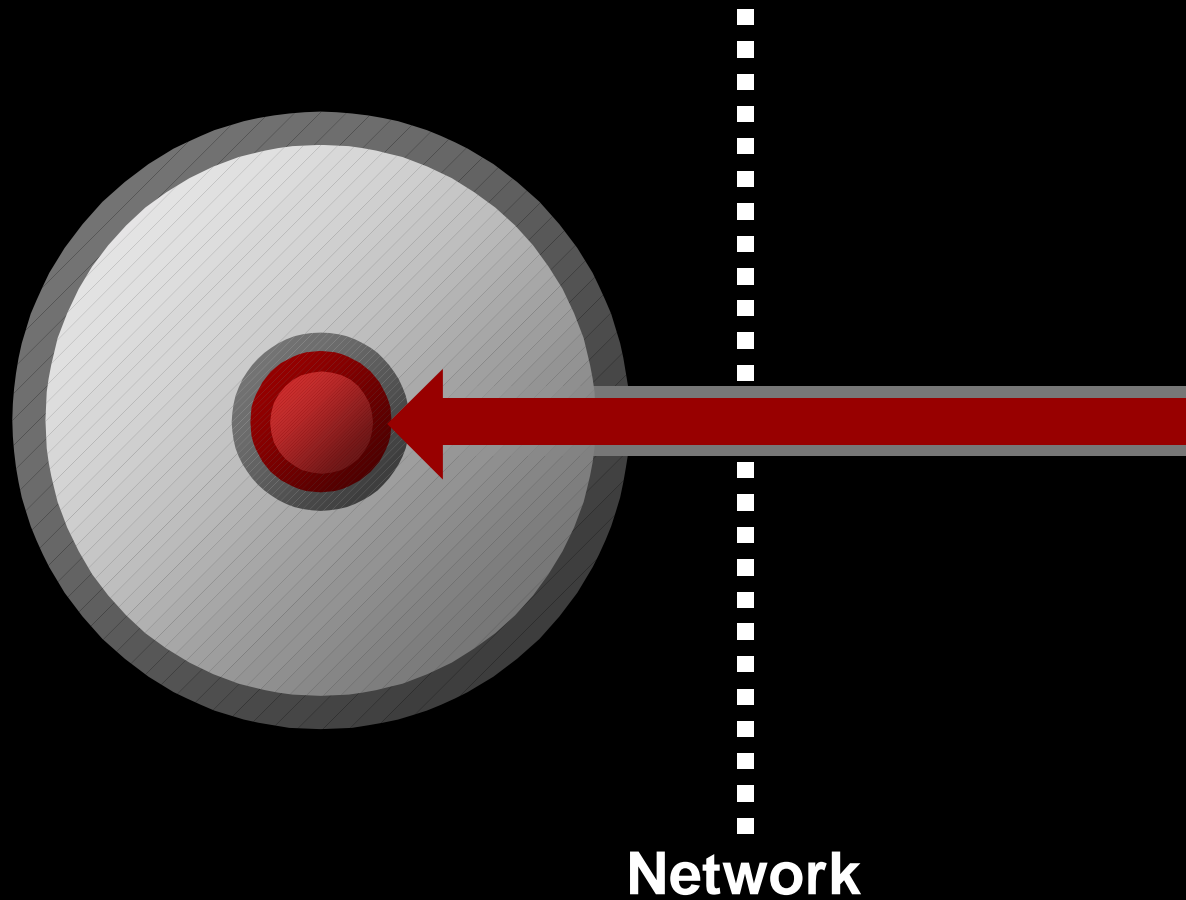
Network



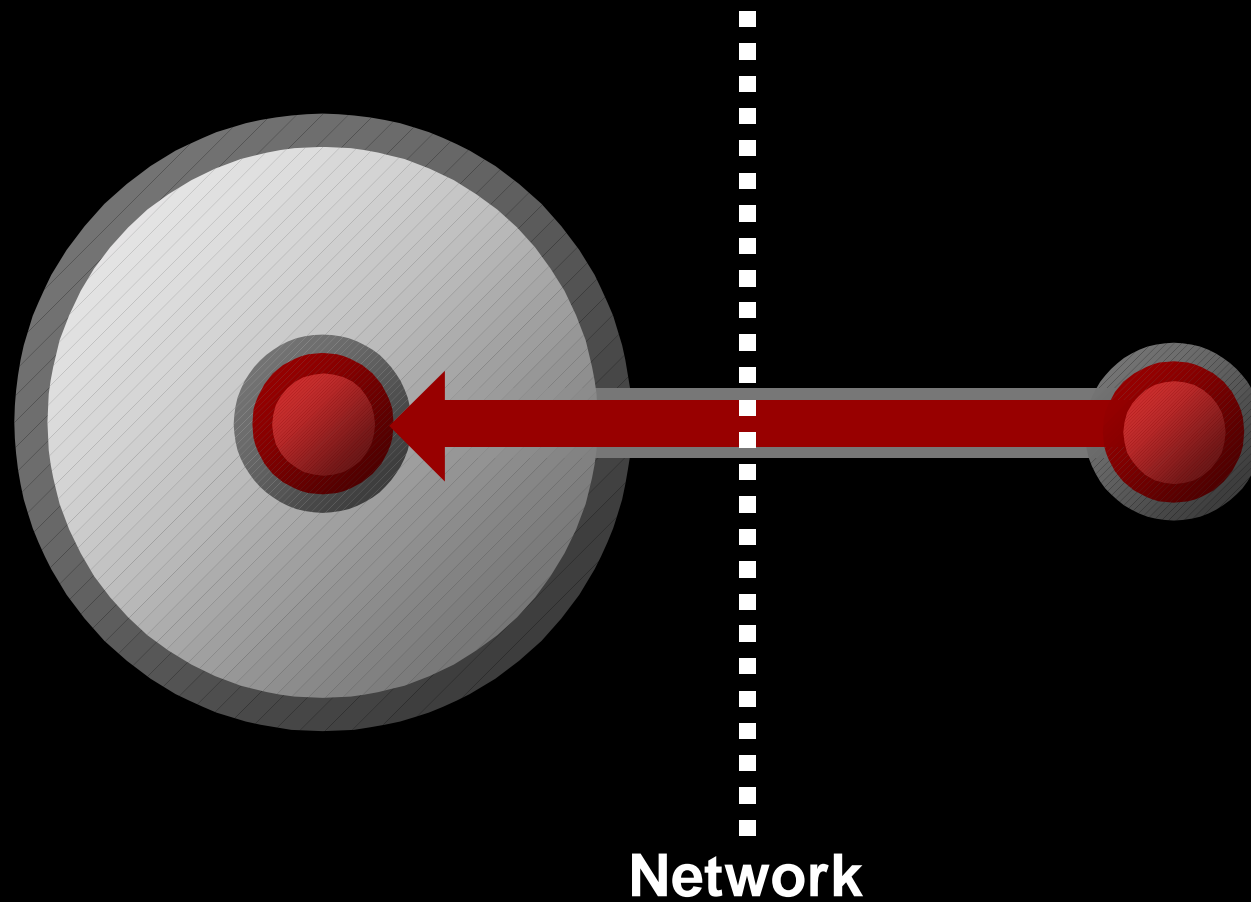
What Is Distribution?



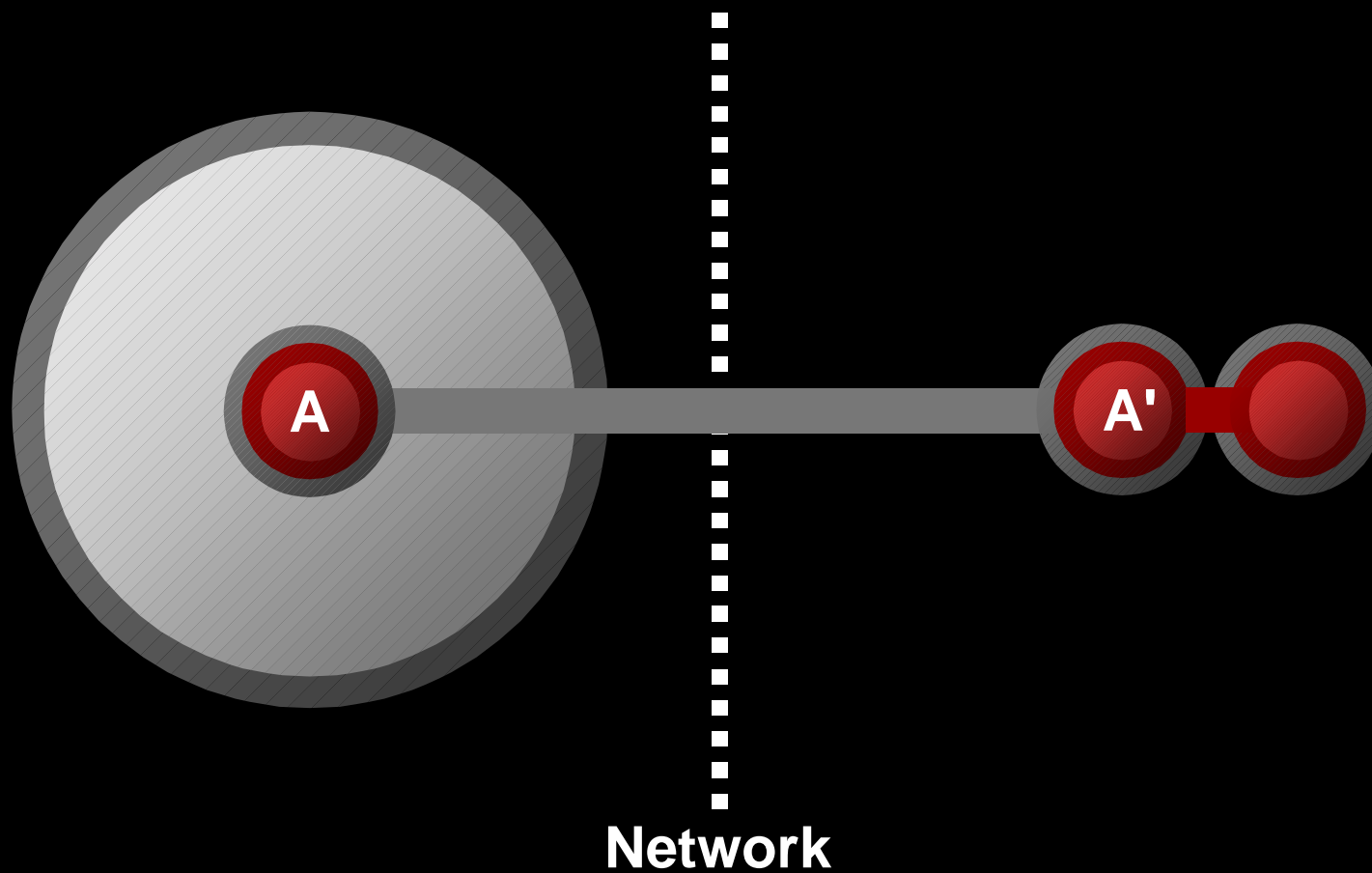
What Is Distribution?



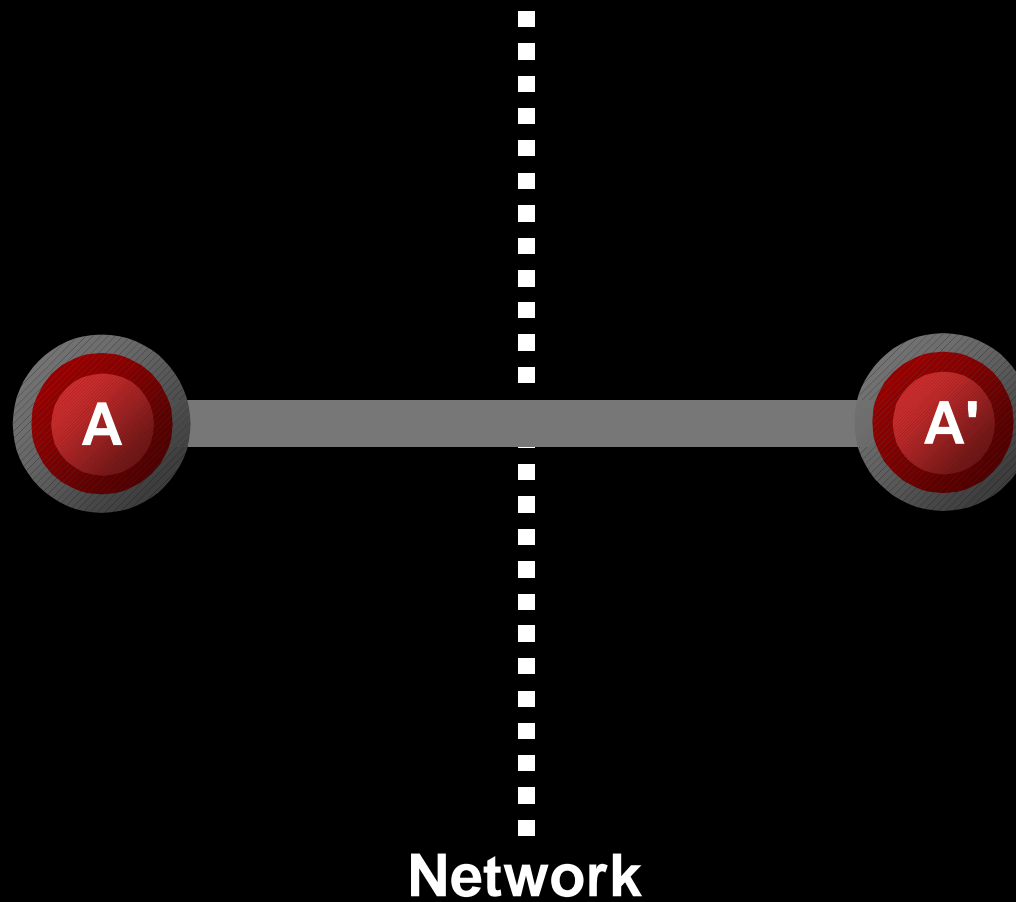
What Is Distribution?



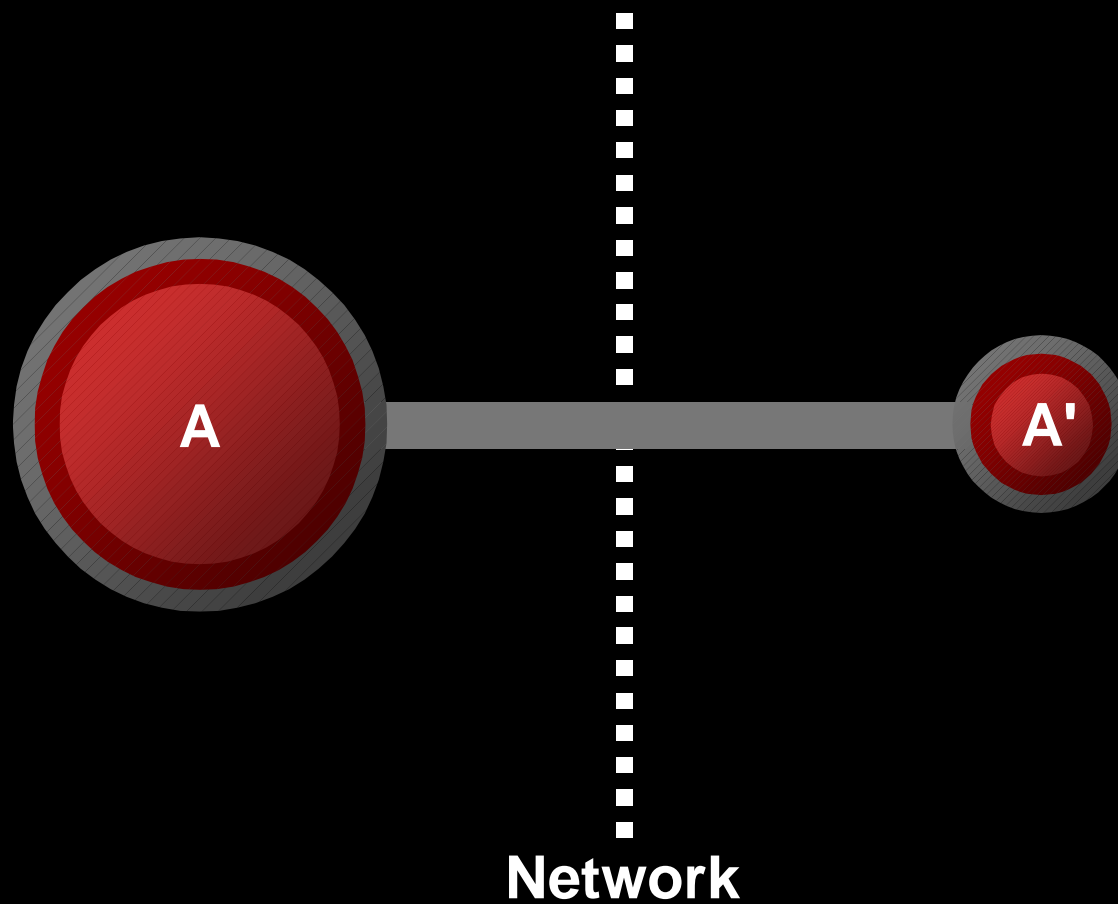
What Is Distribution?



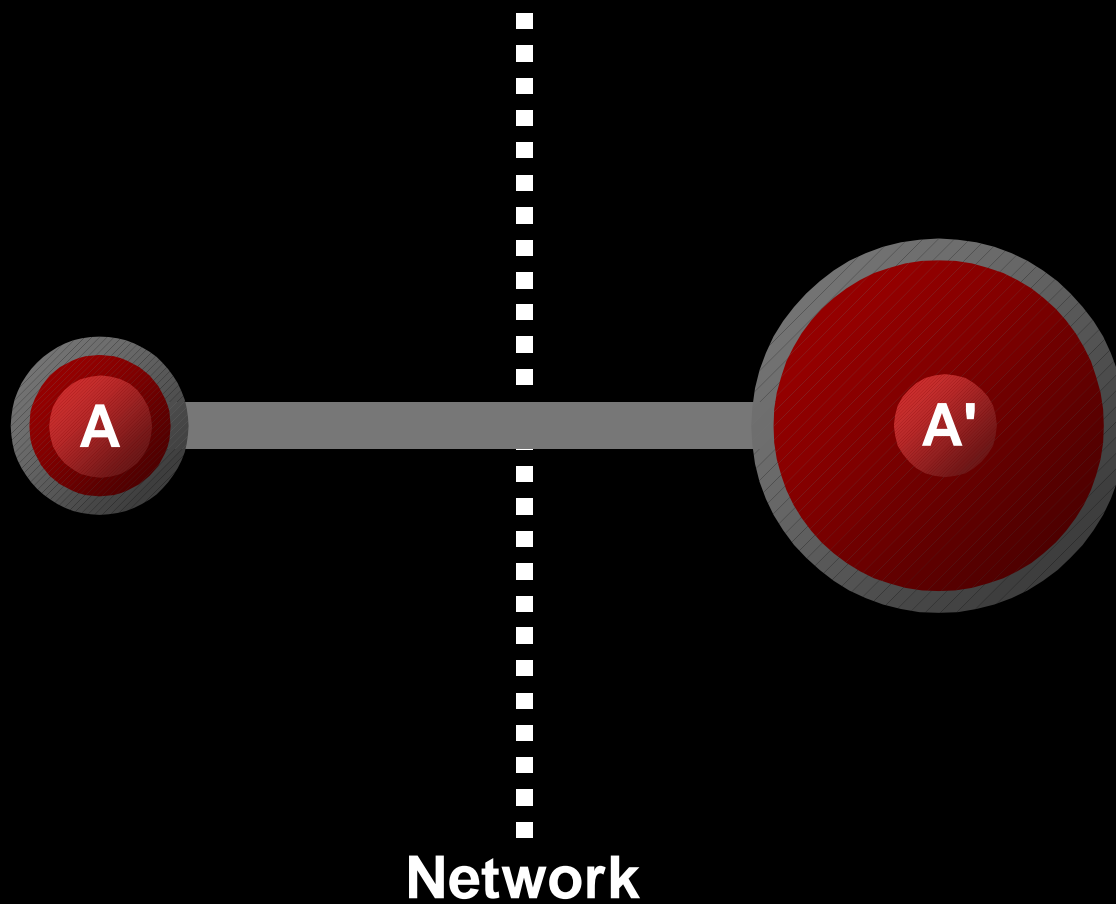
What Is Distribution?



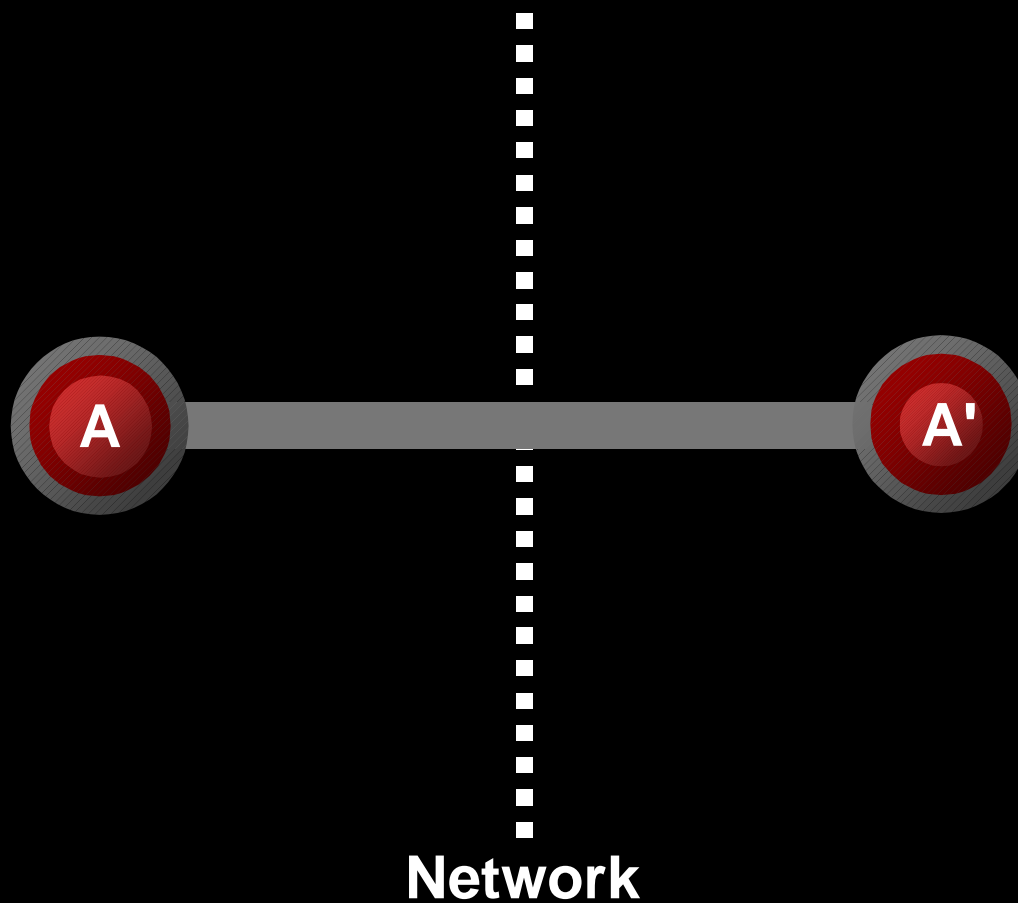
What Is Distribution?



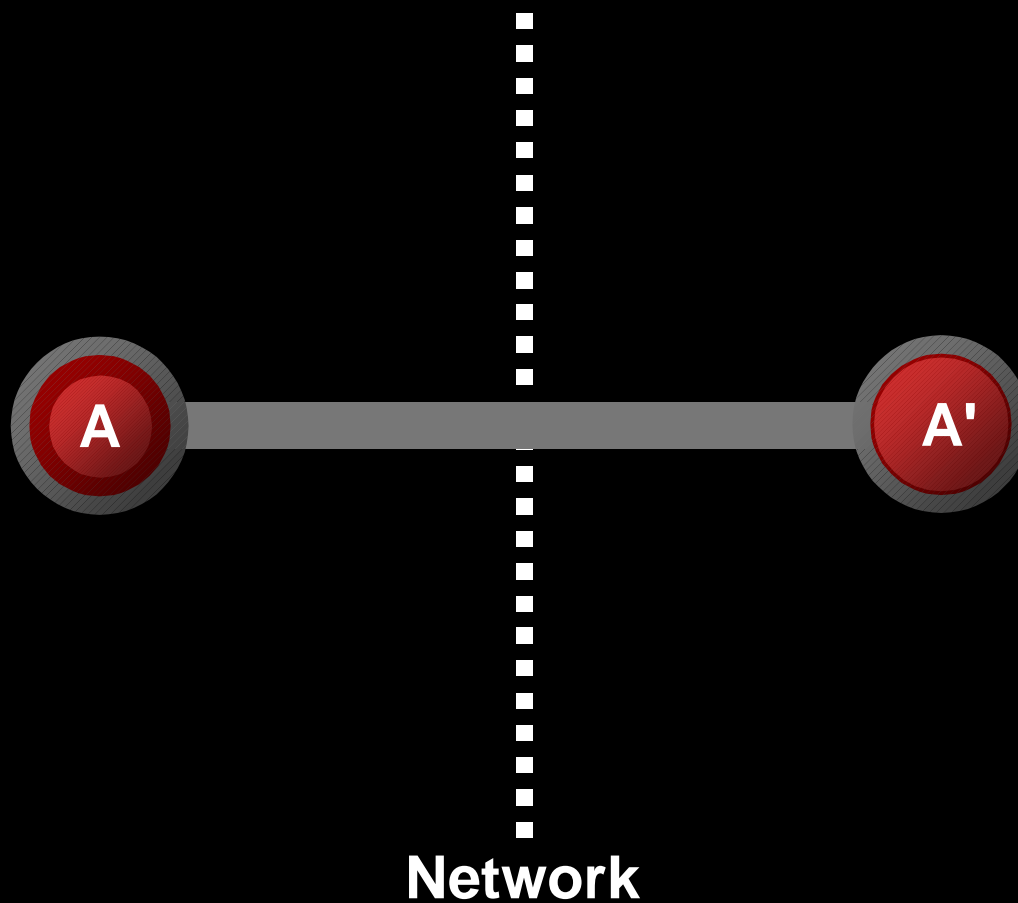
What Is Distribution?



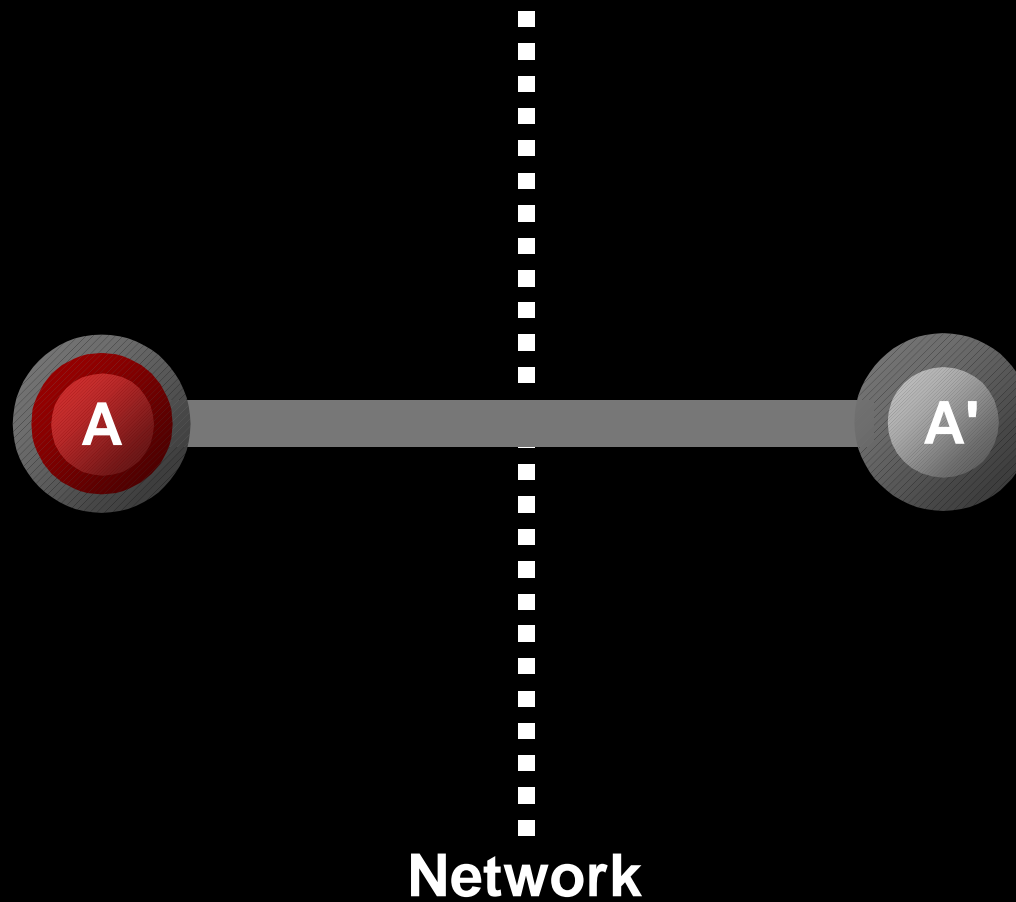
What Is Distribution?



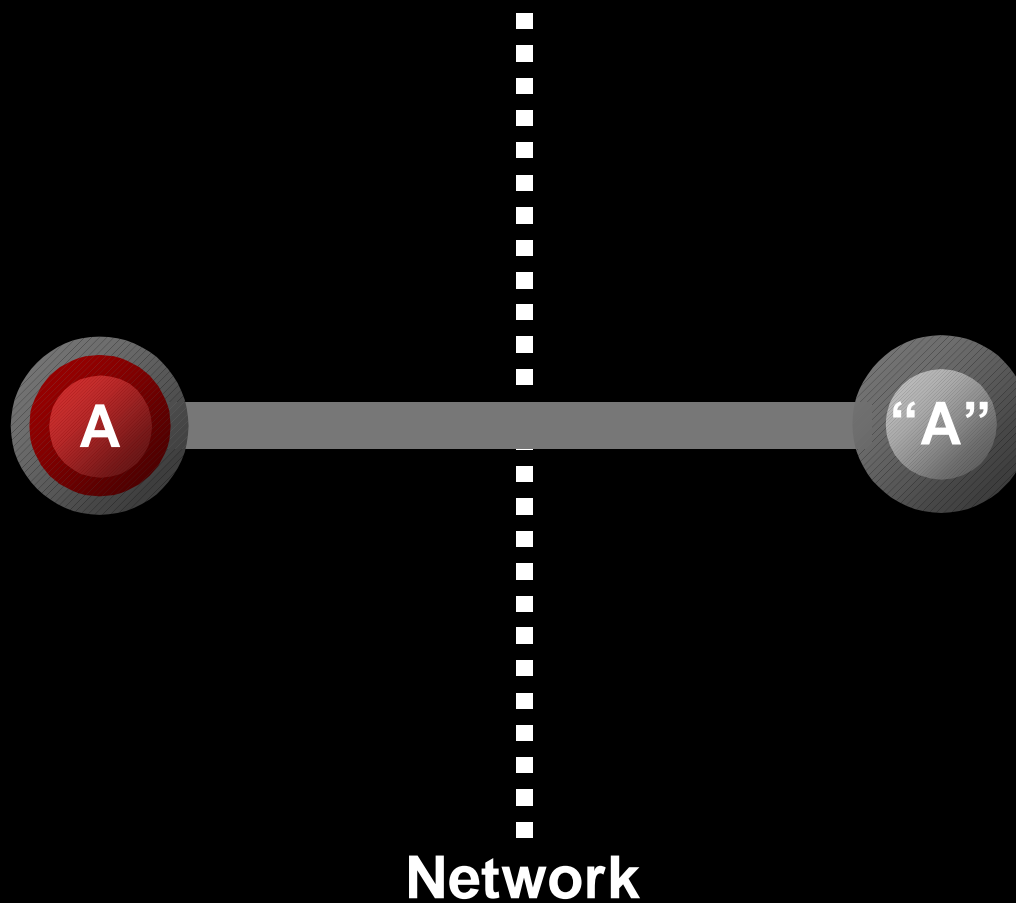
What Is Distribution?



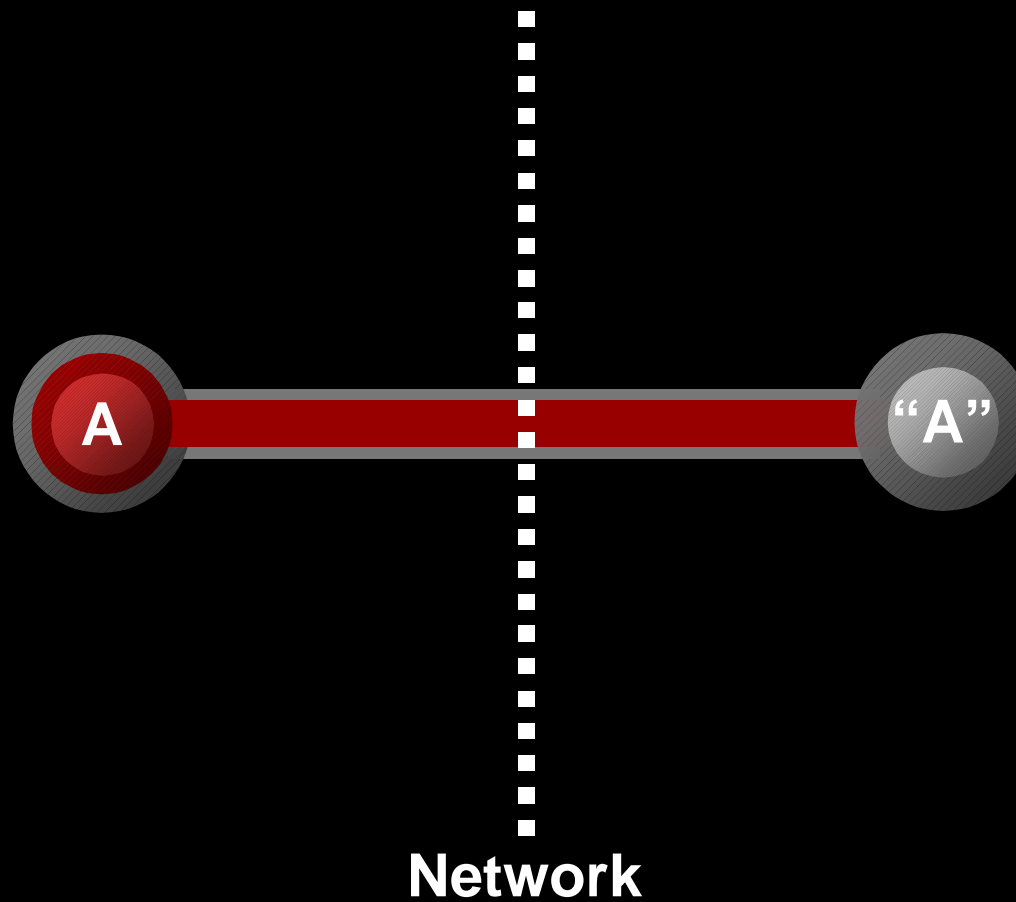
What Is Distribution?



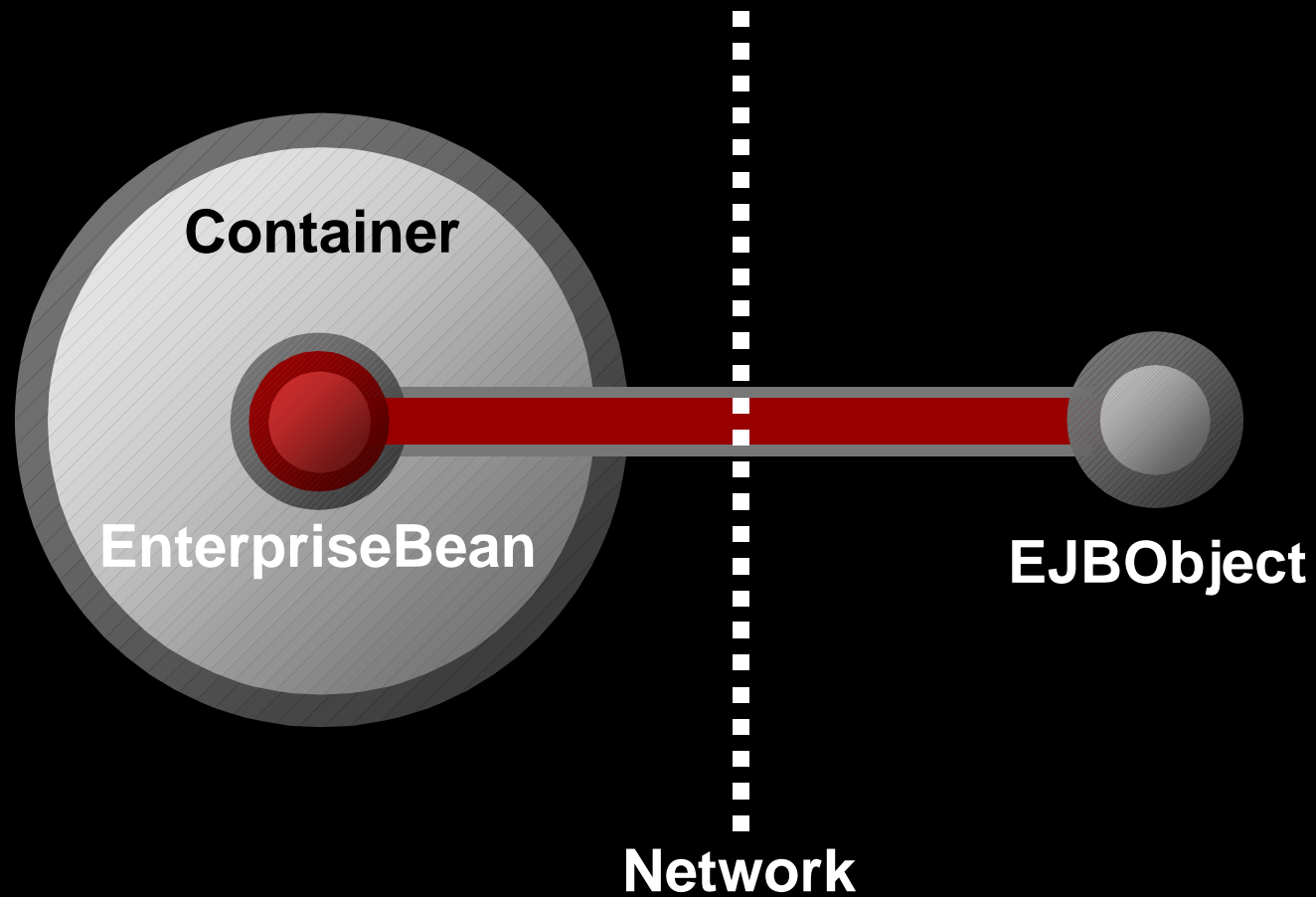
What Is "Distribution?"



What Is "Distribution?"



What Is EJB?



Specifics

“Every method call to an entity object via the remote and home interface is potentially a remote call.



Specifics

“Every method call to an entity object via the remote and home interface is potentially a remote call. Even if the calling and called entity bean are collocated in the same JVM, the call must go through the container, which must create copies of all the parameters that are passed through the interface by value (i.e., all parameters that do not extend the `java.rmi.Remote` interface).



Specifics

“Every method call to an entity object via the remote and home interface is potentially a remote call. Even if the calling and called entity bean are collocated in the same JVM, the call must go through the container, which must create copies of all the parameters that are passed through the interface by value (i.e., all parameters that do not extend the `java.rmi.Remote` interface). The container is also required to check security and apply the declarative transaction attribute on the inter-component calls. The overhead of an inter-component call will likely be prohibitive for object interactions that are too fine-grained.”



Specifics

“The Enterprise JavaBeans architecture is an architecture for component-based distributed computing.”



SessionBean versus EntityBean



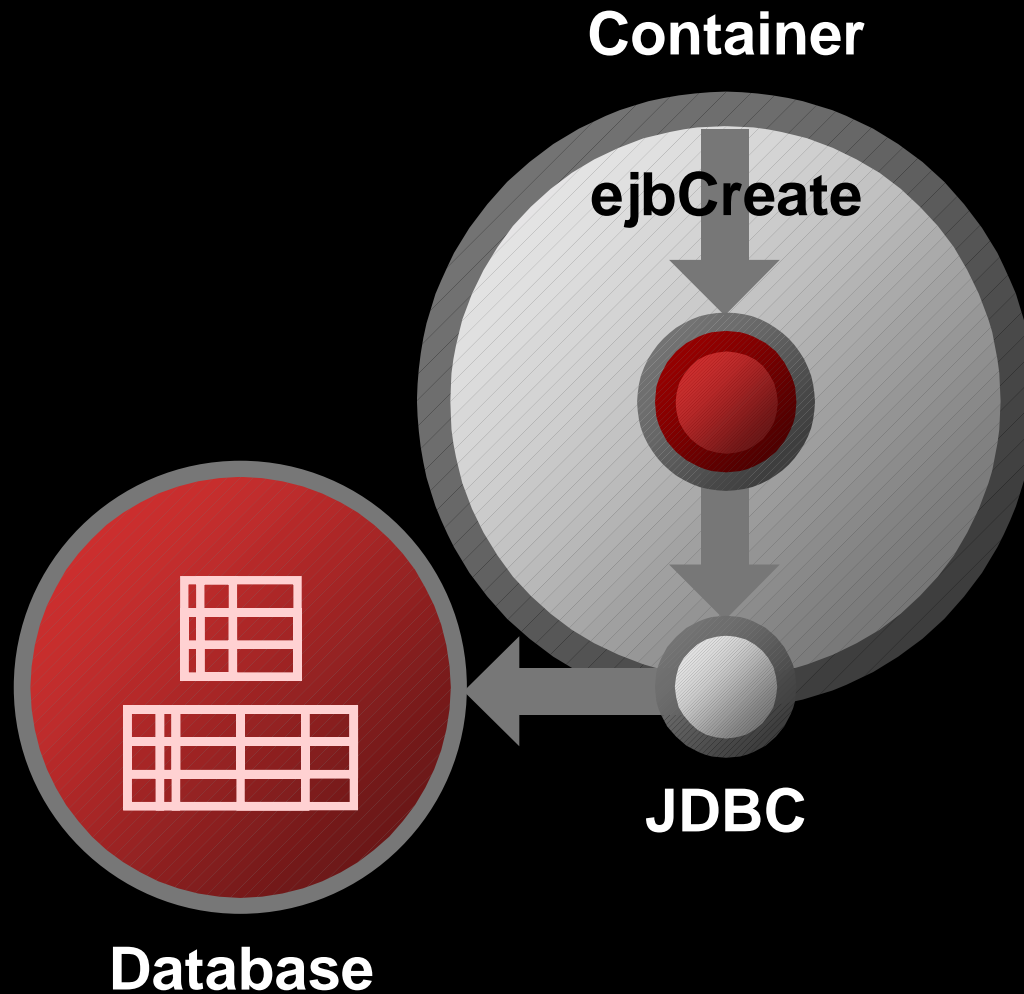
Persistence



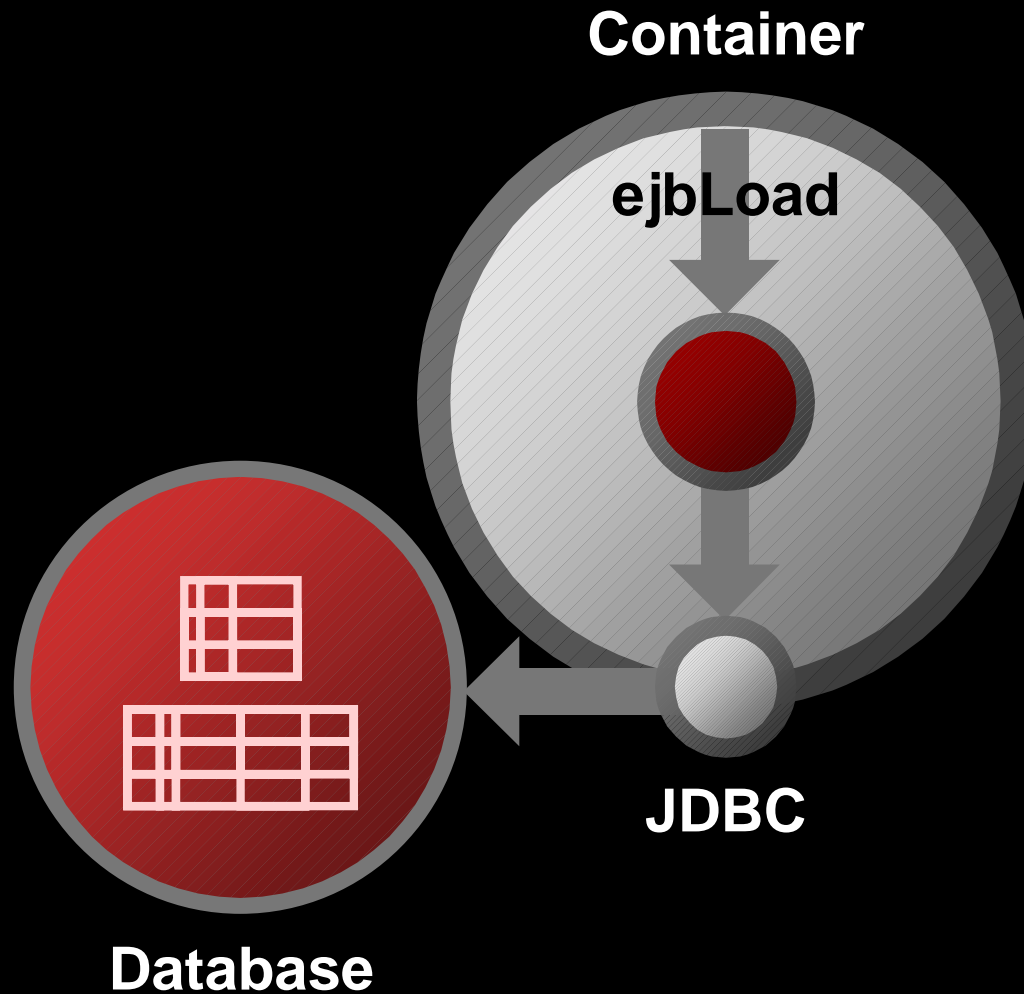
Bean-managed Persistence



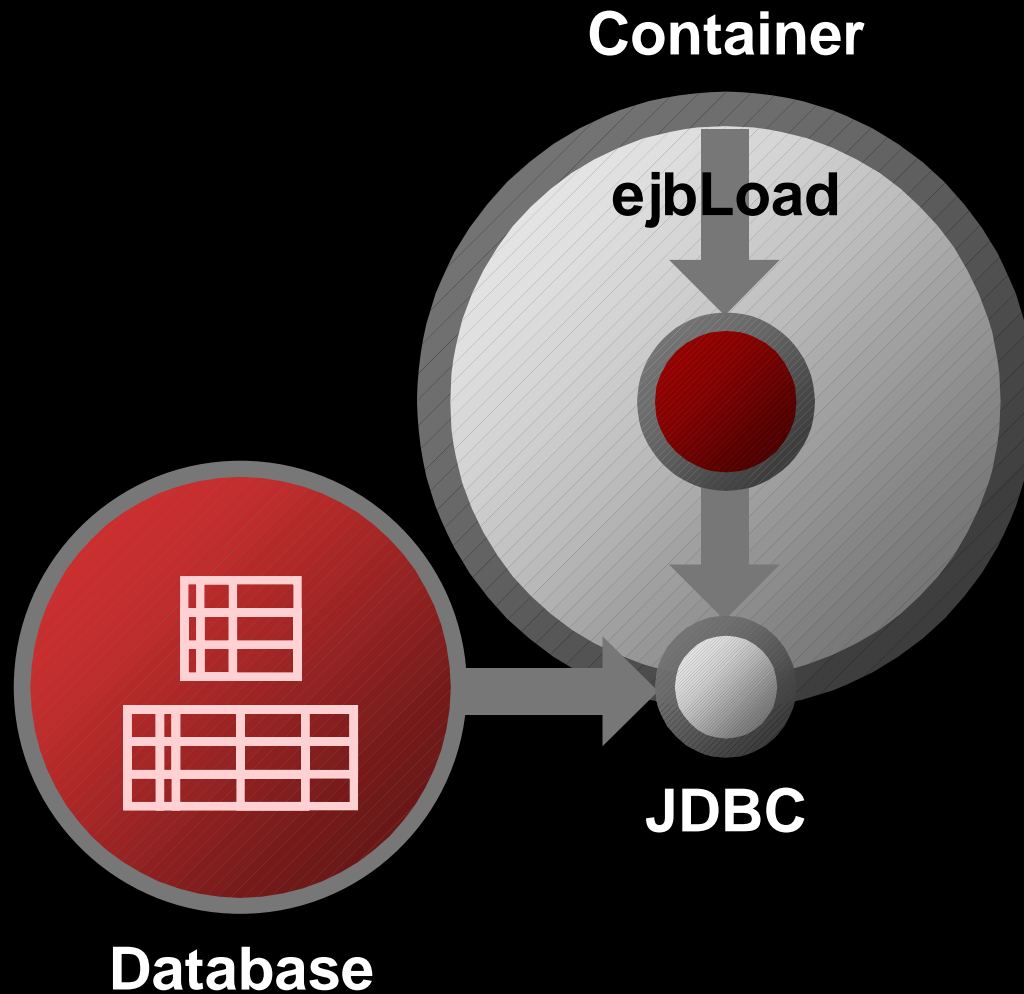
Bean-managed Persistence



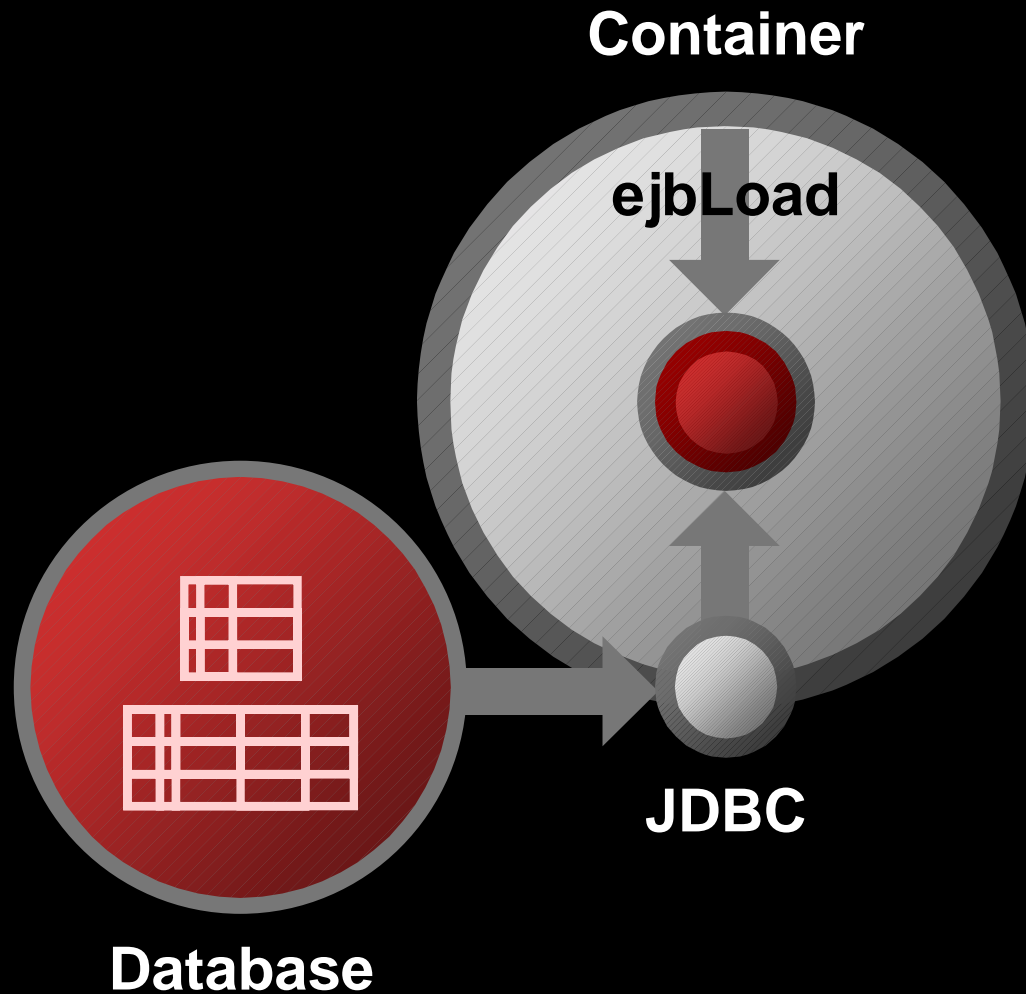
Bean-managed Persistence



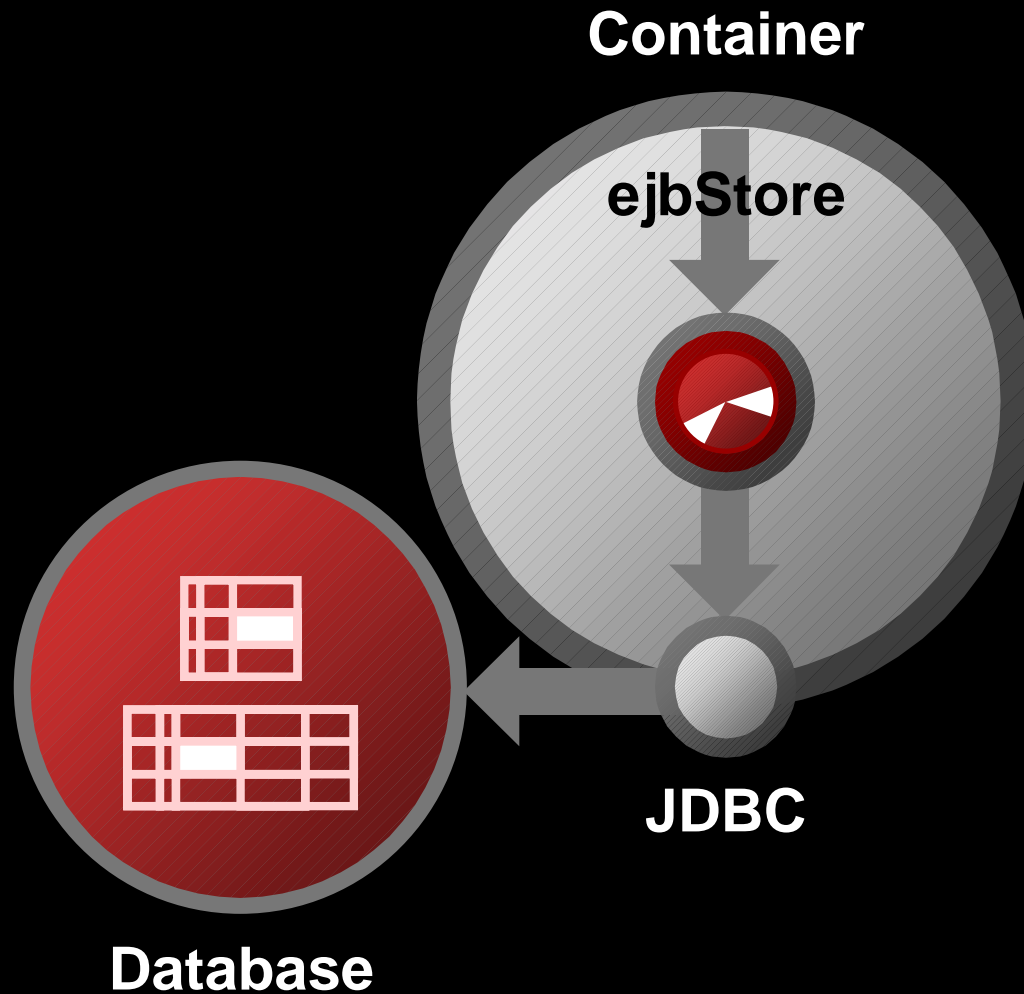
Bean-managed Persistence



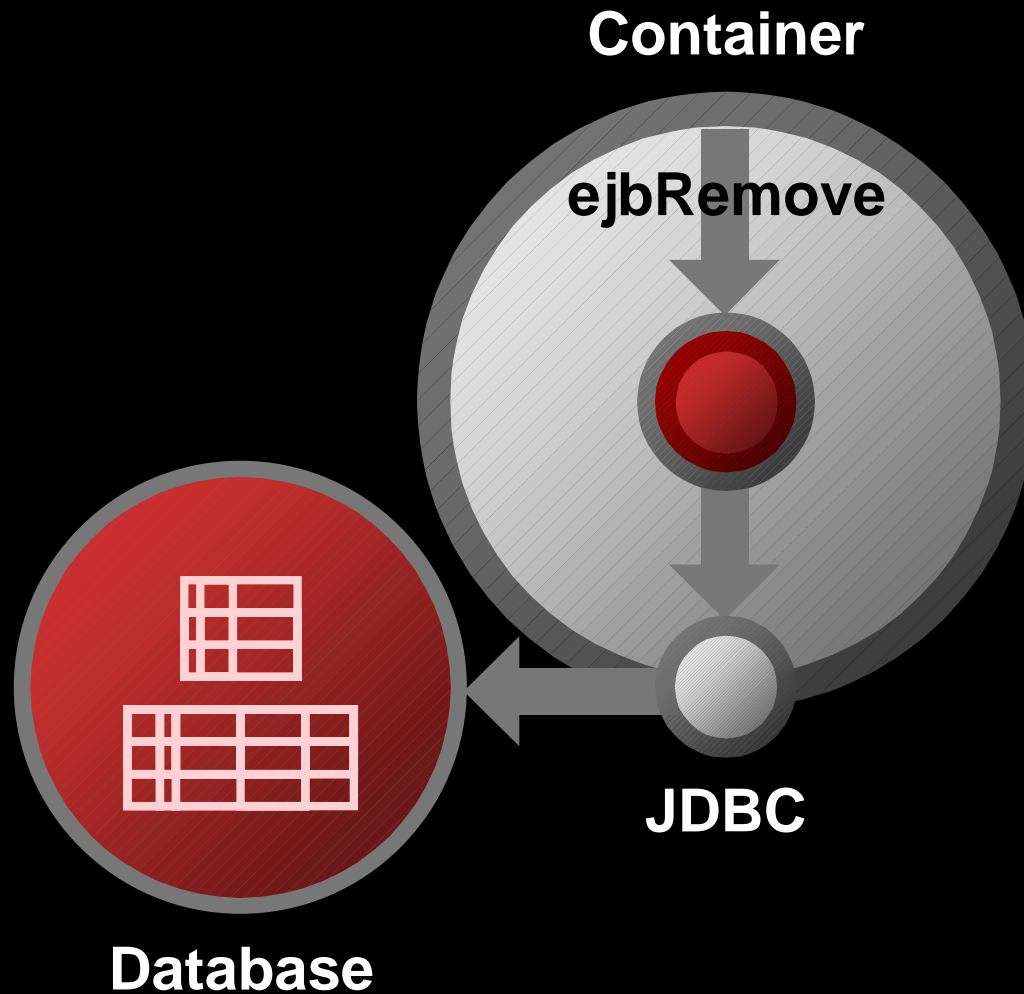
Bean-managed Persistence



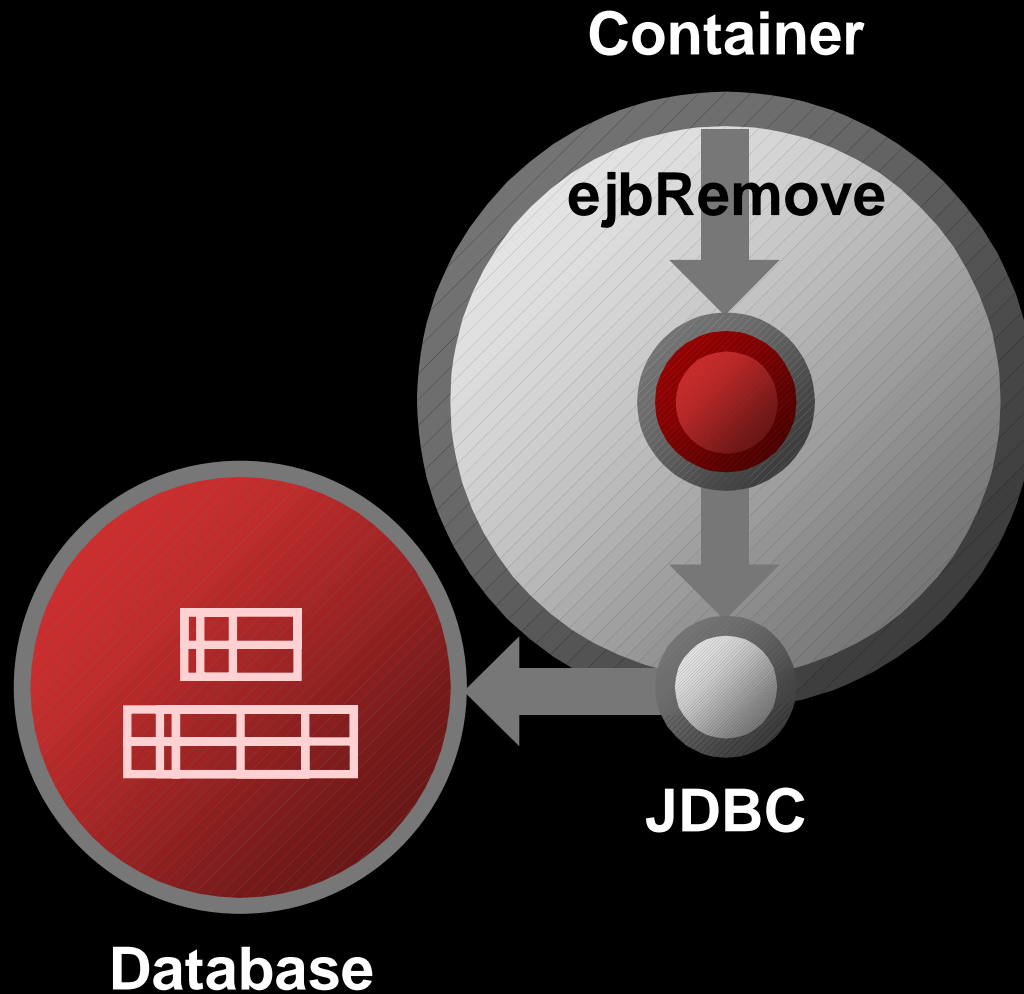
Bean-managed Persistence



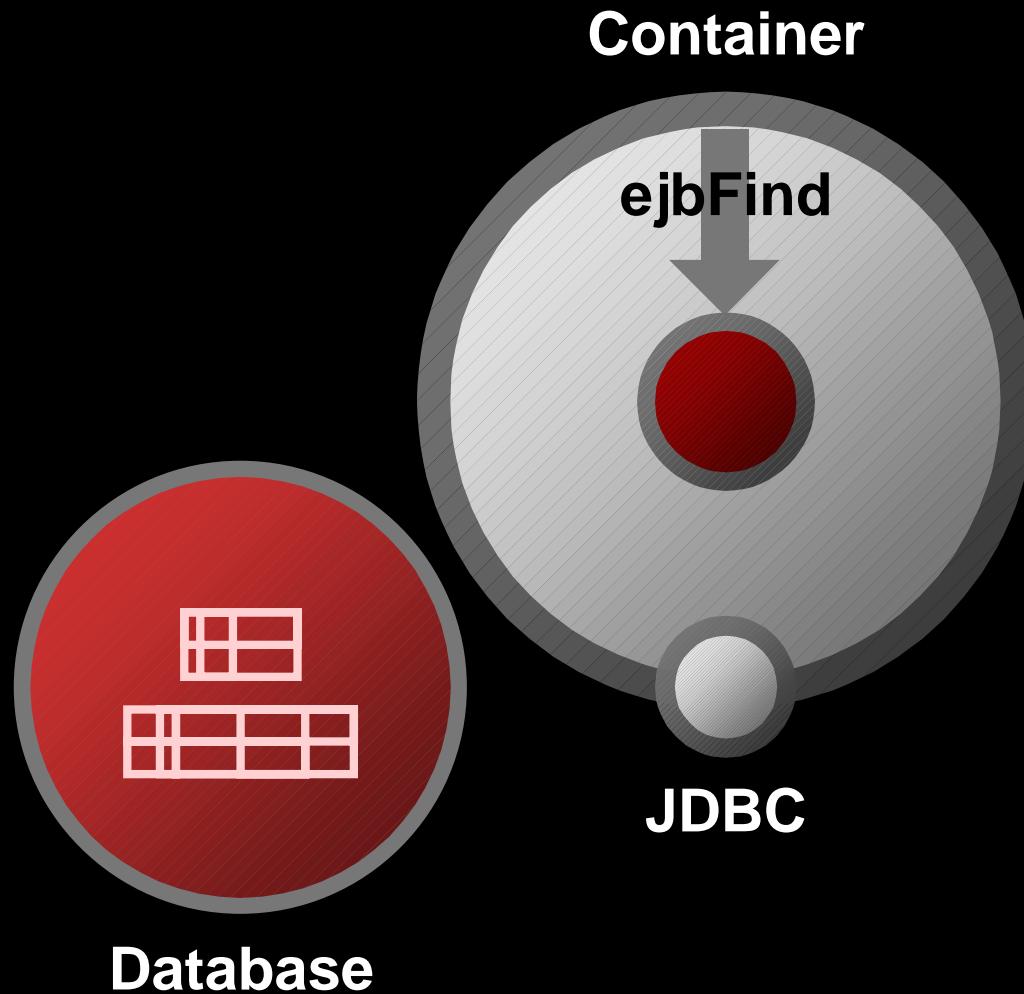
Bean-managed Persistence



Bean-managed Persistence



Bean-managed Persistence



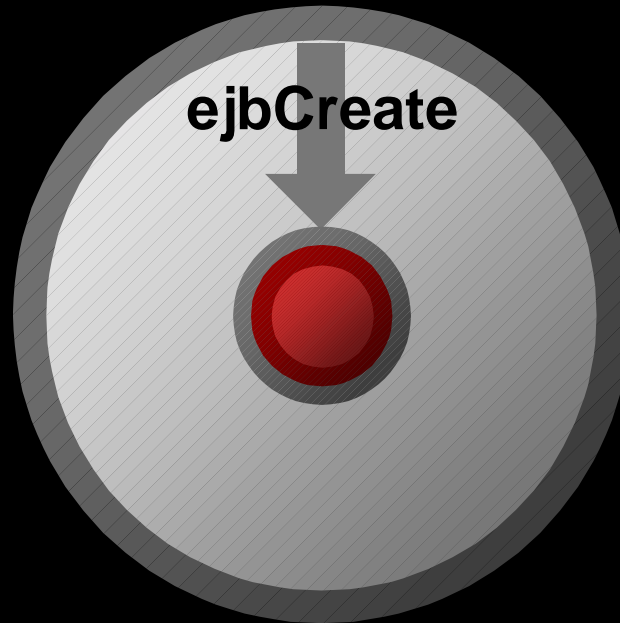
Specifics

“This EJB specification does not define the architecture for data access objects or strategies.”



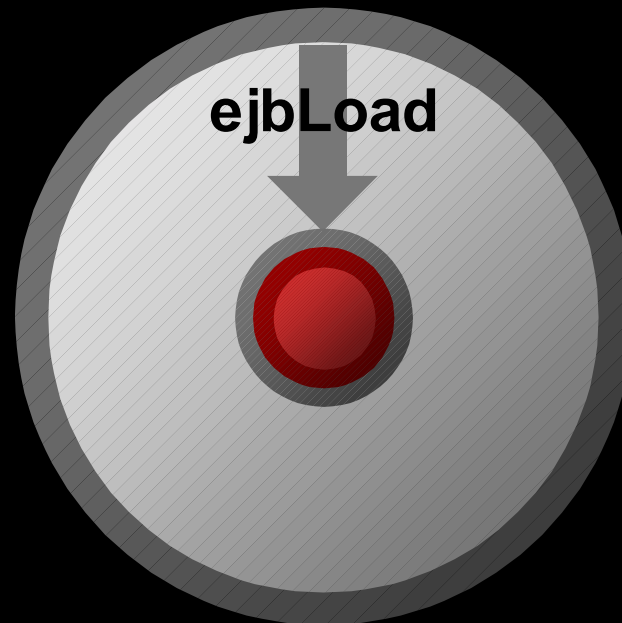
Container-managed Persistence

Container



Container-managed Persistence

Container



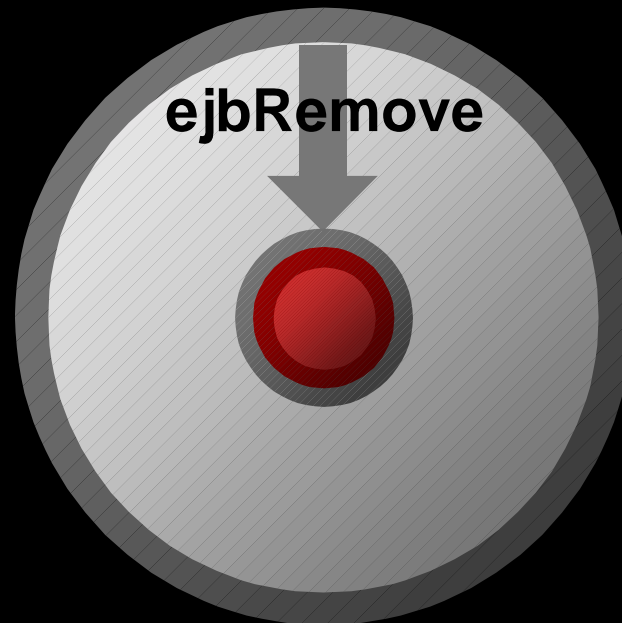
Container-managed Persistence

Container



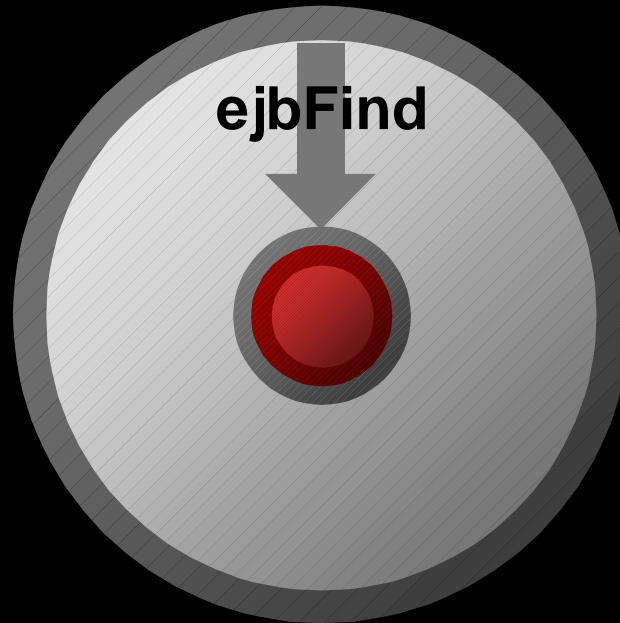
Container-managed Persistence

Container

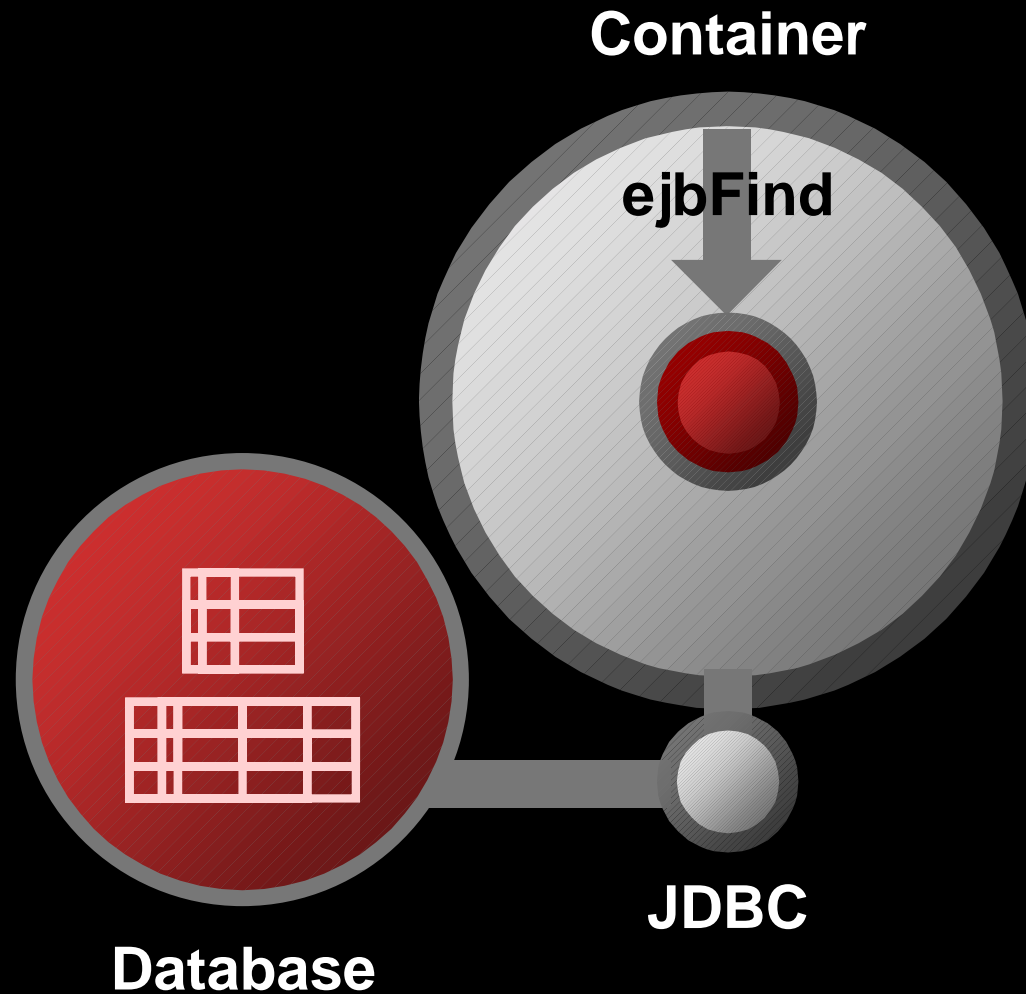


Container-managed Persistence

Container



Container-managed Persistence



Specifics

“The disadvantage [of container-managed persistence] is that sophisticated tools must be used at deployment time to map the entity bean’s fields to a data source.



Specifics

“The disadvantage [of container-managed persistence] is that sophisticated tools must be used at deployment time to map the entity bean’s fields to a data source. These tools and containers are typically specific to each data source.



Specifics

“If the Bean Provider expects that the container-managed fields will be mapped to database fields, he should provide mapping instructions to the Deployer [for realization] by the data access classes generated by the container provider’s tools.



Specifics

“If the Bean Provider expects that the container-managed fields will be mapped to database fields, he should provide mapping instructions to the Deployer [for realization] by the data access classes generated by the container provider’s tools. Because entity beans are typically coarse-grained objects, the content of the container-managed fields may be stored in multiple rows, possibly spread across multiple database tables.



Specifics

“If the Bean Provider expects that the container-managed fields will be mapped to database fields, he should provide mapping instructions to the Deployer [for realization] by the data access classes generated by the container provider’s tools. Because entity beans are typically coarse-grained objects, the content of the container-managed fields may be stored in multiple rows, possibly spread across multiple database tables. These mapping techniques are beyond the scope of the EJB specification, and do not have to be supported by an EJB compliant container.”



Specifics

“Because a compliant EJB Container is not required to provide any support for mapping the container-managed fields to a database schema, a Bean Provider of entity beans that need a particular mapping to an underlying database schema instead should use bean-managed persistence.



Specifics

“Because a compliant EJB Container is not required to provide any support for mapping the container-managed fields to a database schema, a Bean Provider of entity beans that need a particular mapping to an underlying database schema instead should use bean-managed persistence.

An entity bean designer who runs into the limitations of the container-managed persistence should use bean-managed persistence instead.”



Agenda

- Introduction
- What Is EJB?
- WebObjects versus EJB
- WebObjects and EJB
- Q&A

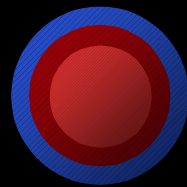


Agenda

- Introduction
- What Is EJB?
- WebObjects versus EJB
- WebObjects and EJB
- Q&A



WebObjects "Contract"

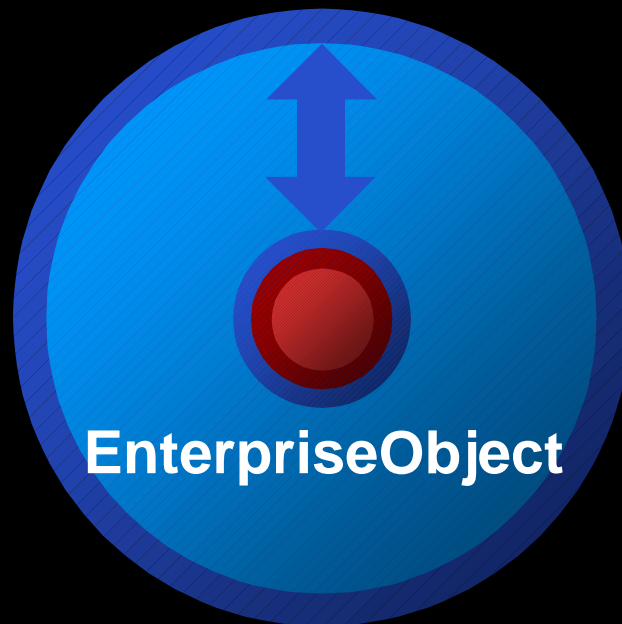


EnterpriseObject



WebObjects "Contract"

EditingContext

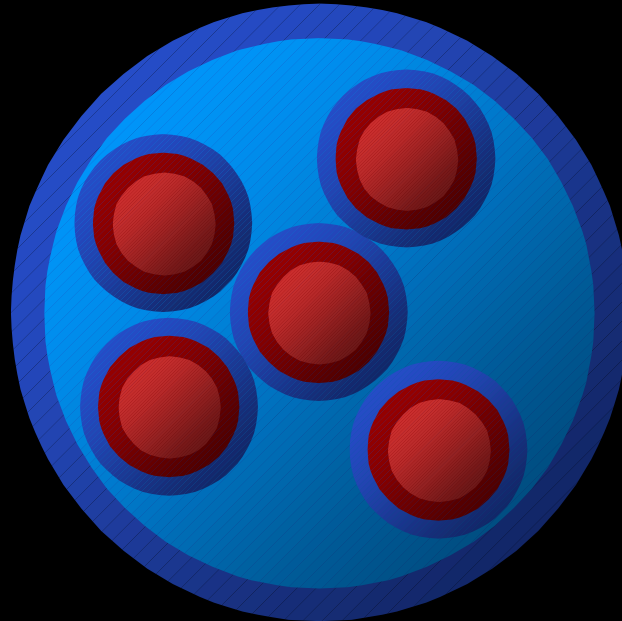


EnterpriseObject

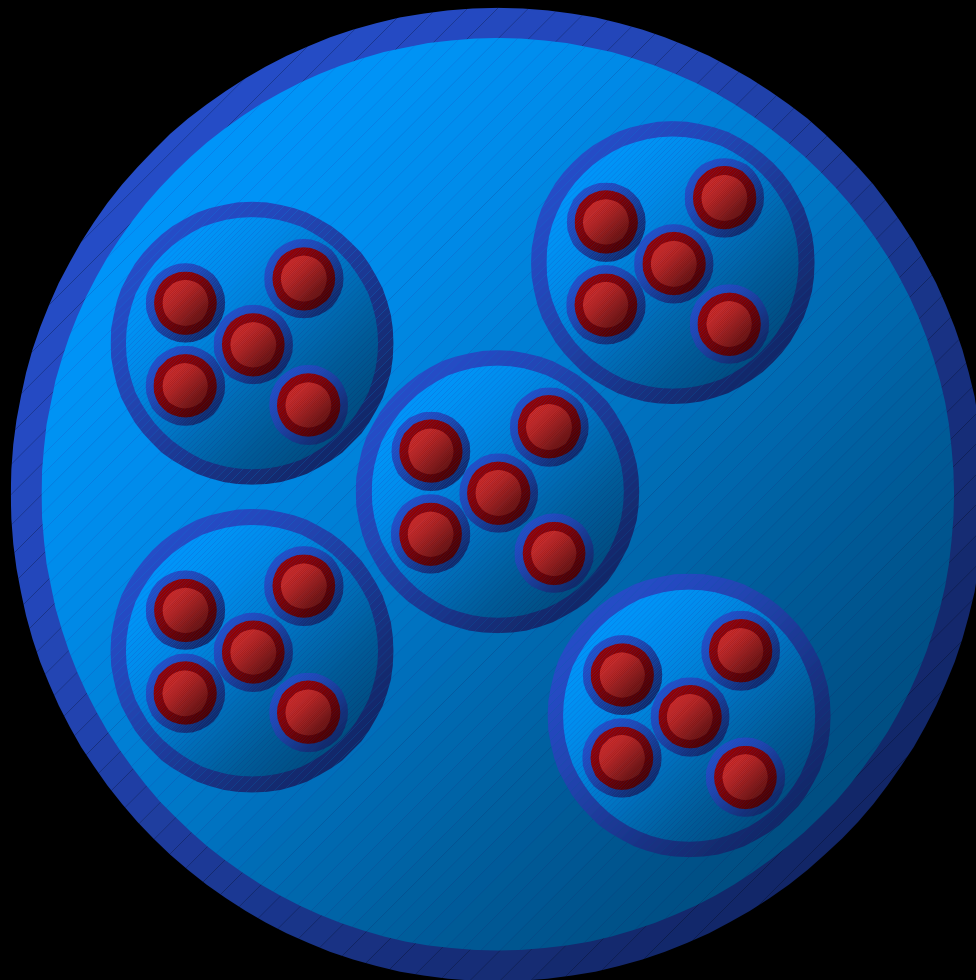


WebObjects "Contract"

EditingContext



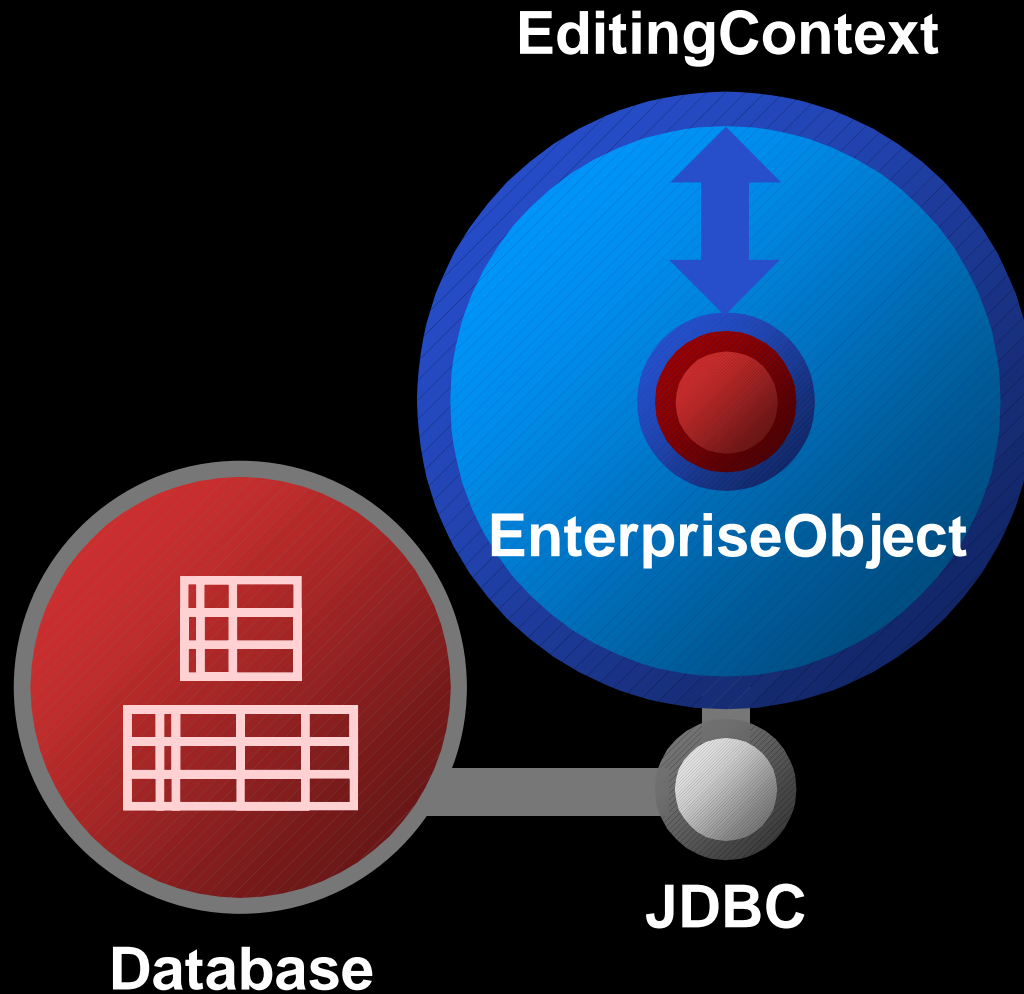
WebObjects "Contract"



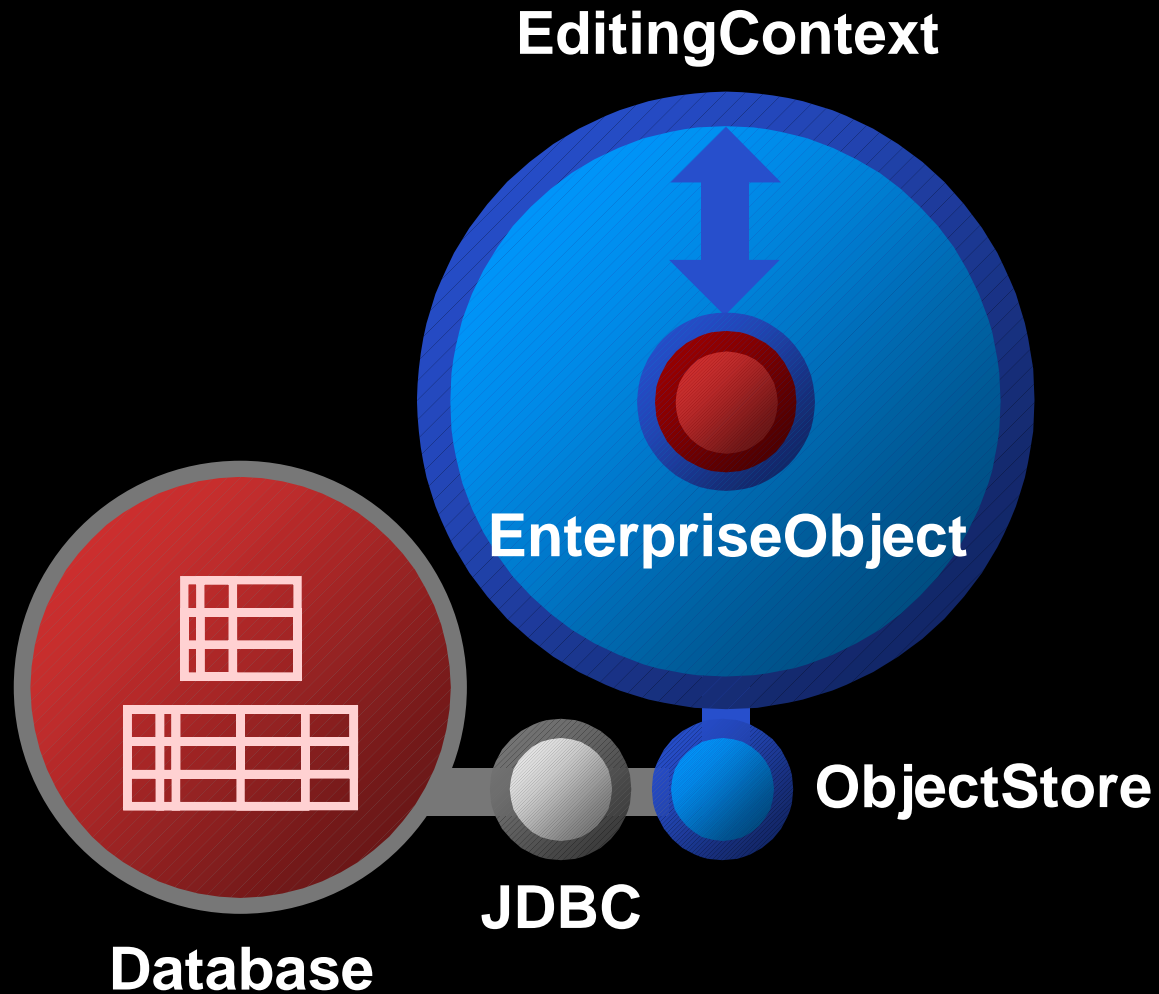
WebObjects Application



WebObjects Persistence

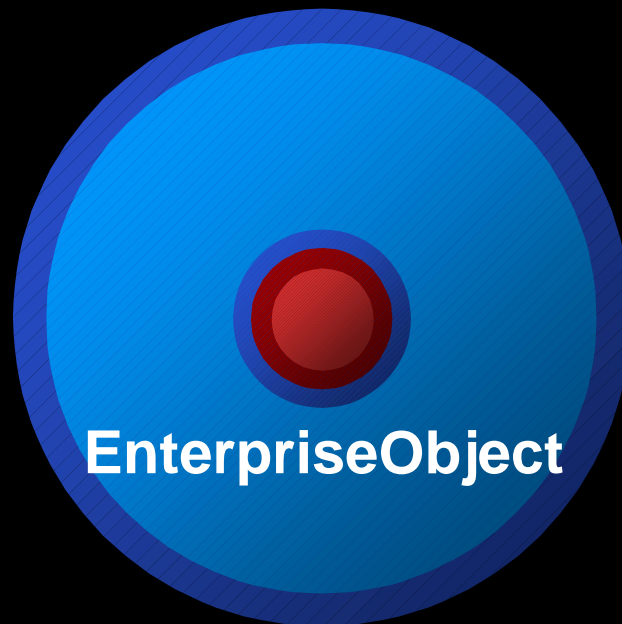


WebObjects Persistence



WebObjects Distribution

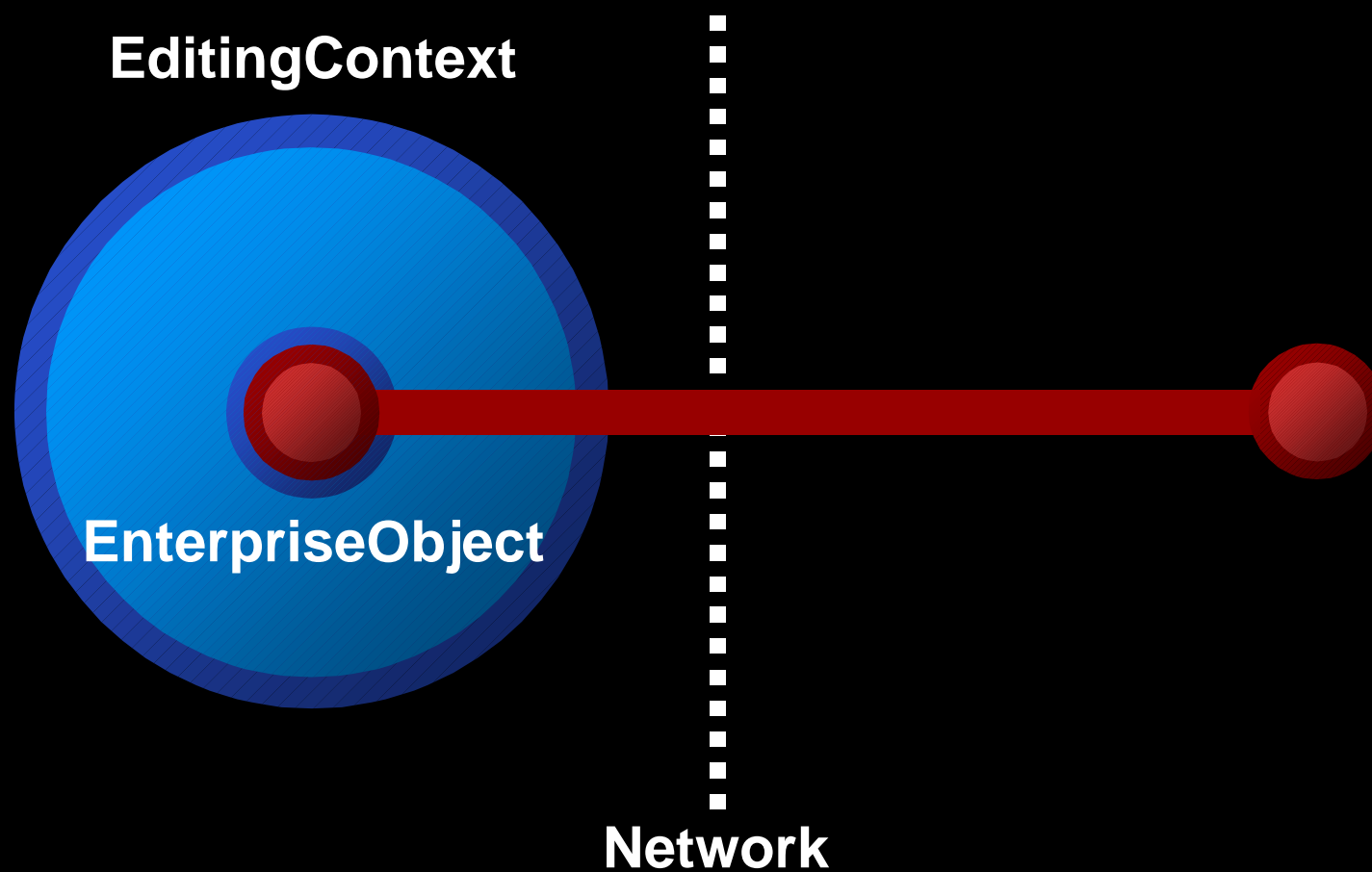
EditingContext



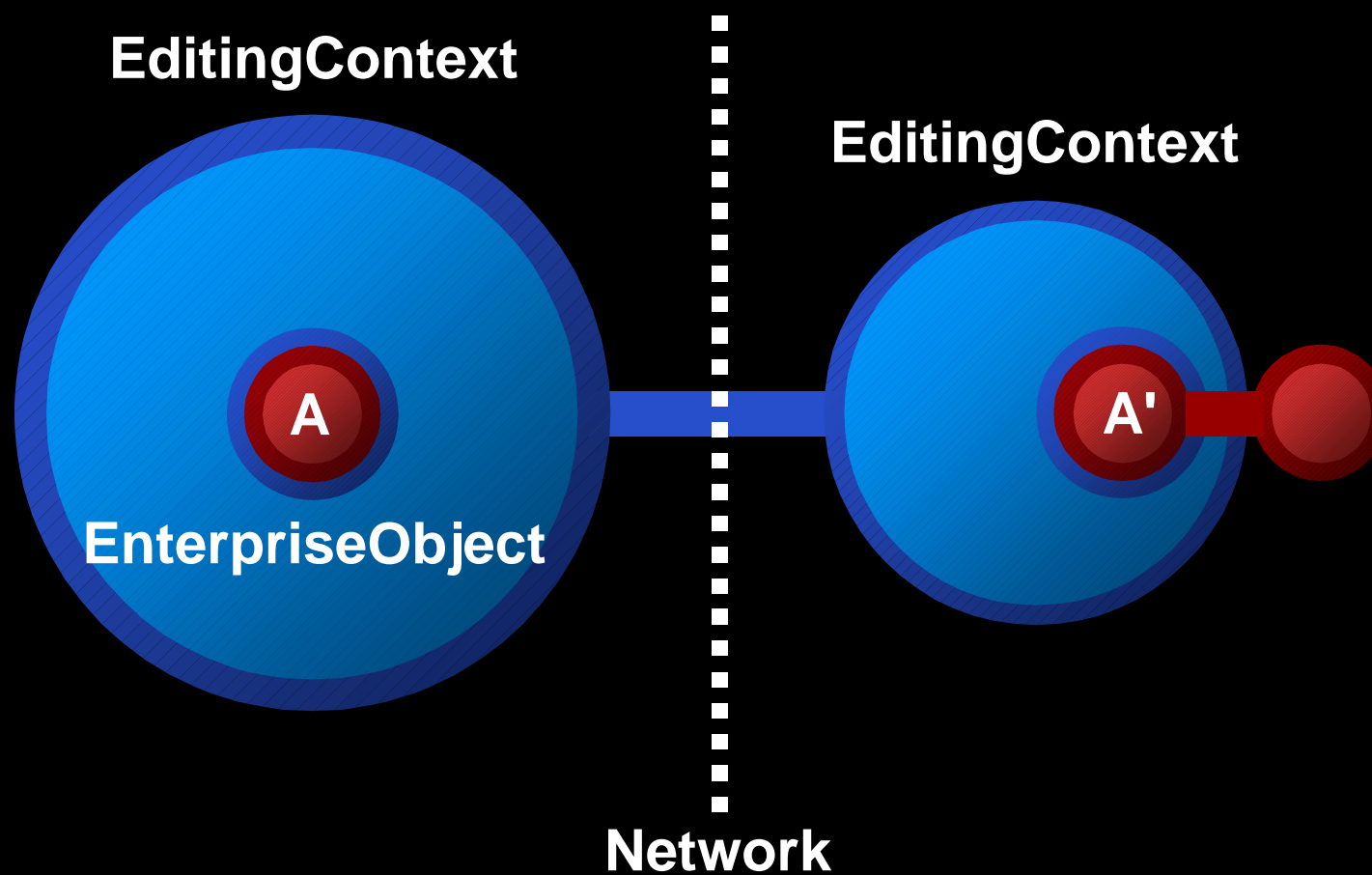
EnterpriseObject



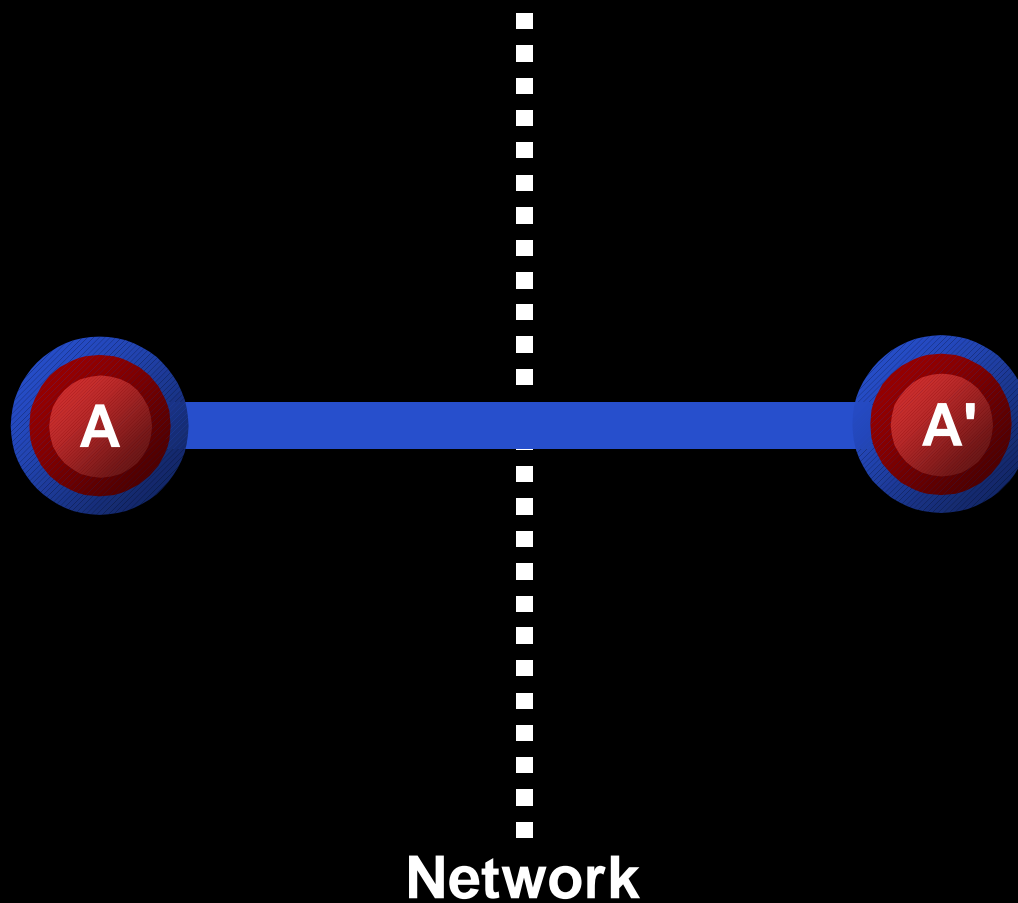
WebObjects Distribution



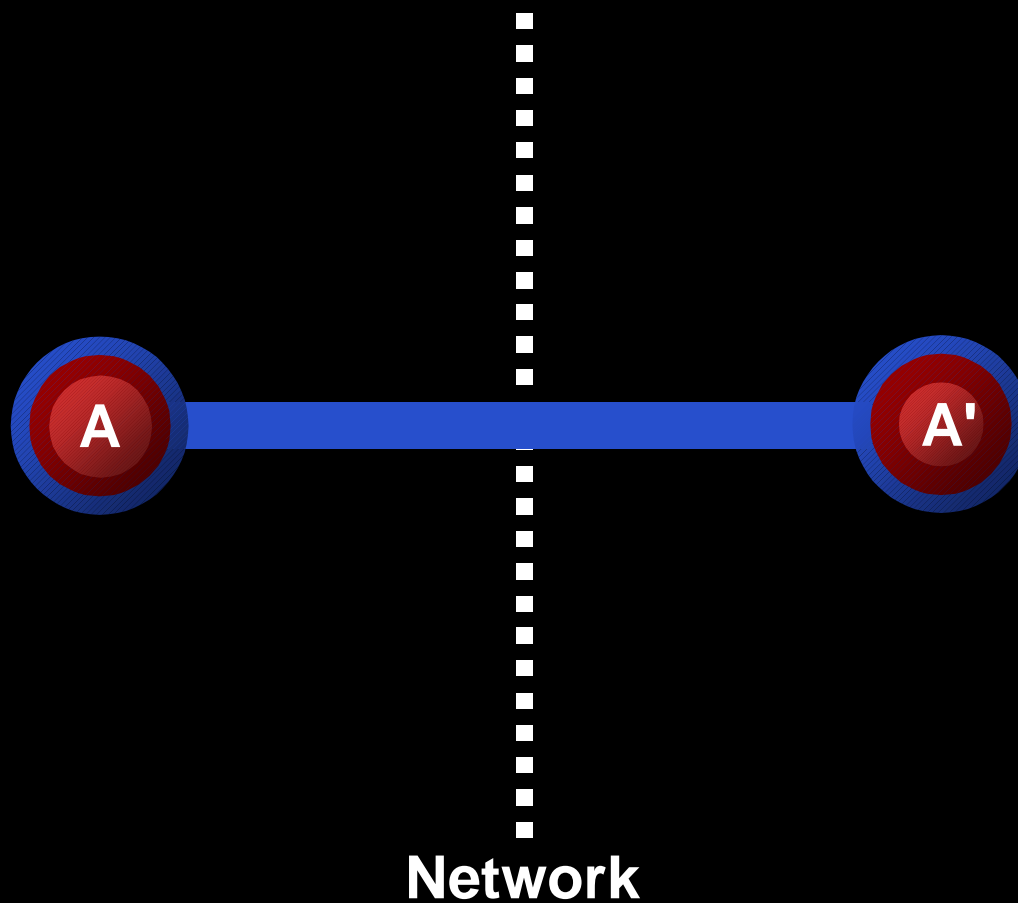
WebObjects Distribution



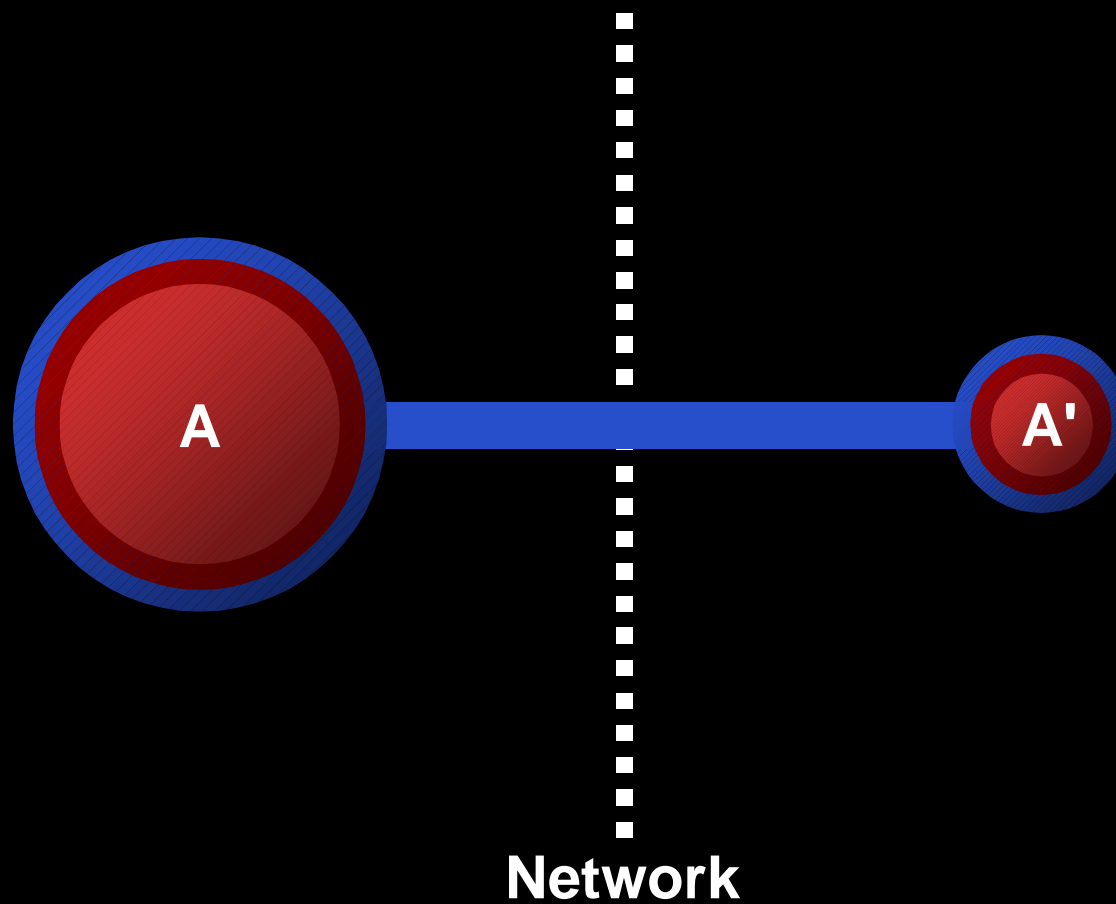
What Is Distribution?



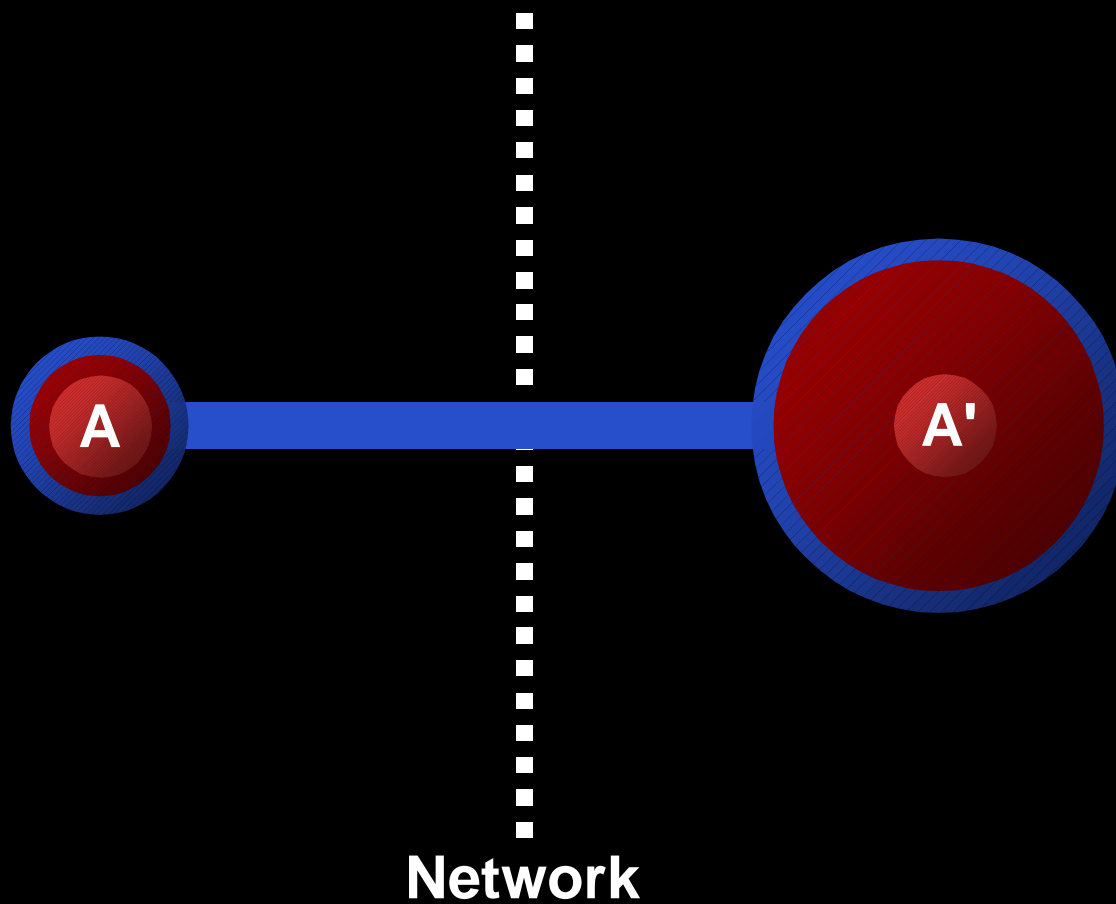
What Is Distribution?



What Is Distribution?



What Is Distribution?



Agenda

- Introduction
- What Is EJB?
- WebObjects versus EJB
- WebObjects and EJB
- Q&A

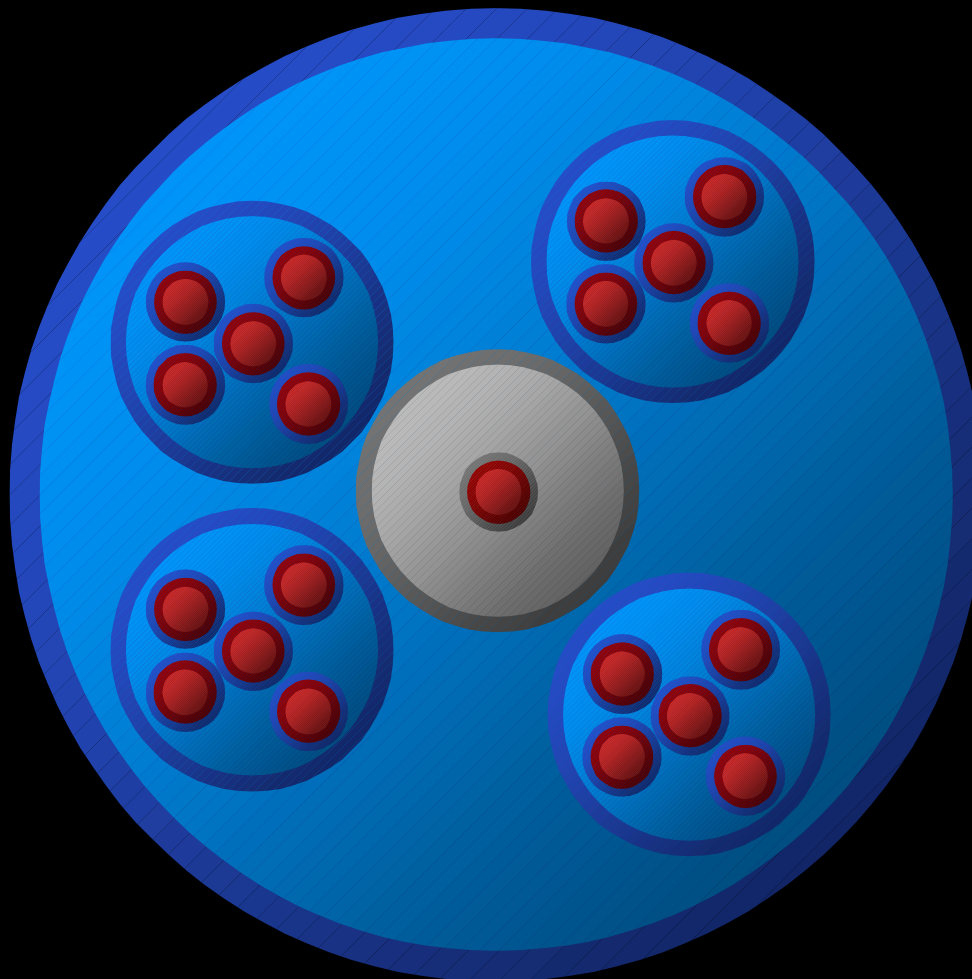


Agenda

- Introduction
- What Is EJB?
- WebObjects versus EJB
- WebObjects and EJB
- Q&A



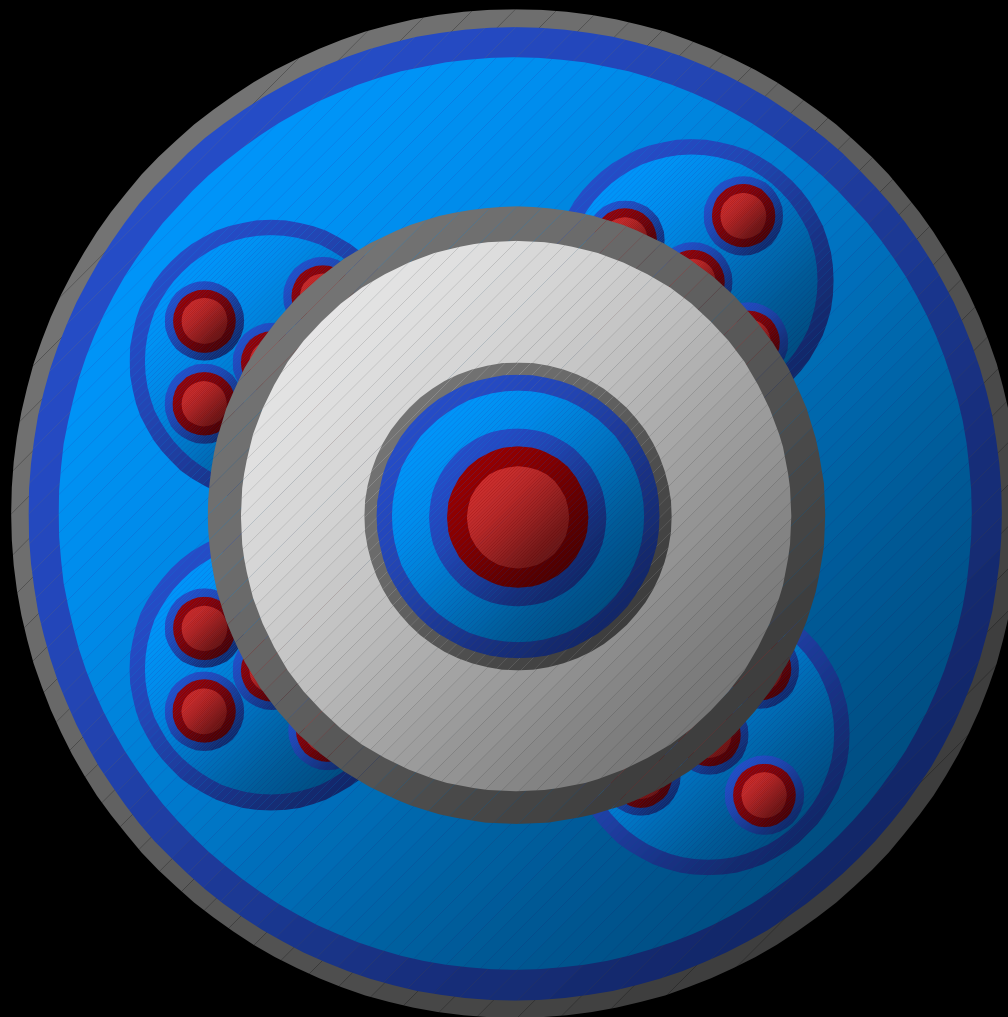
WebObjects and EJB



WebObjects Application



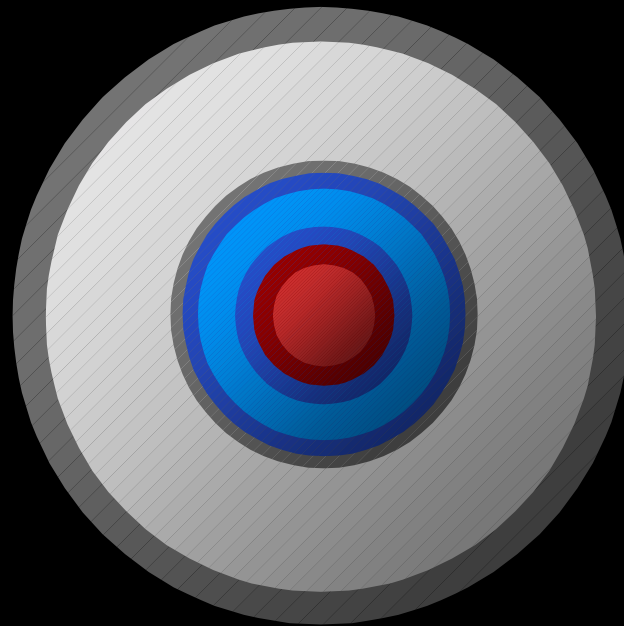
WebObjects and EJB



WebObjects EJB Server



WebObjects and EJB



Container'



Goals

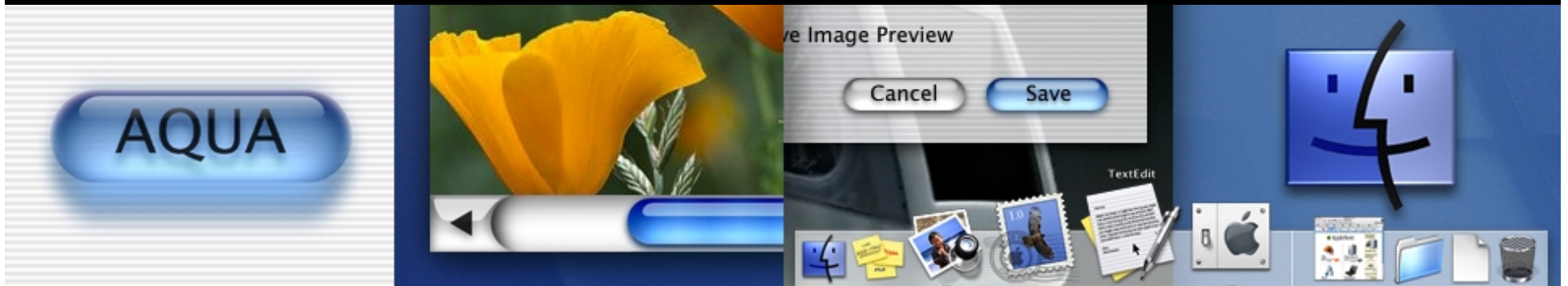
- A container
- EnterpriseObjects as EntityBeans
- Exportable WebObjects EJBs





Session 407

Q&A



Who to Contact

Rory Lydon

Tools Manager

WebObjects Engineering

rory@apple.com



Who to Contact

Rory Lydon

Tools Manager

WebObjects Engineering

rory@apple.com

webobjects_ejb@group.apple.com





WWDC

Worldwide Developers Conference 2000



Think different.