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E-science in Europe

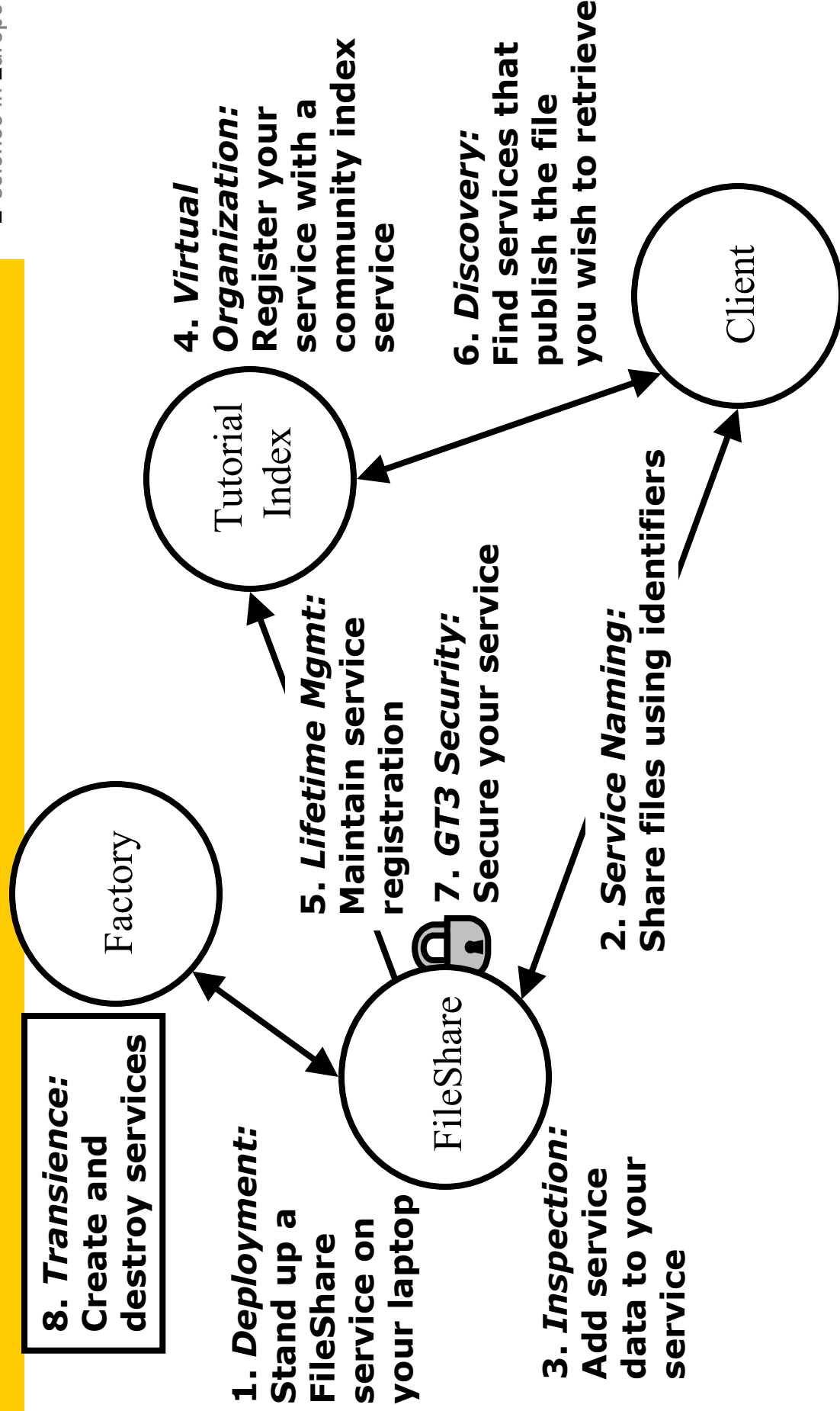
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## Exercise 8



# Exercise 8: Transience



# Transience

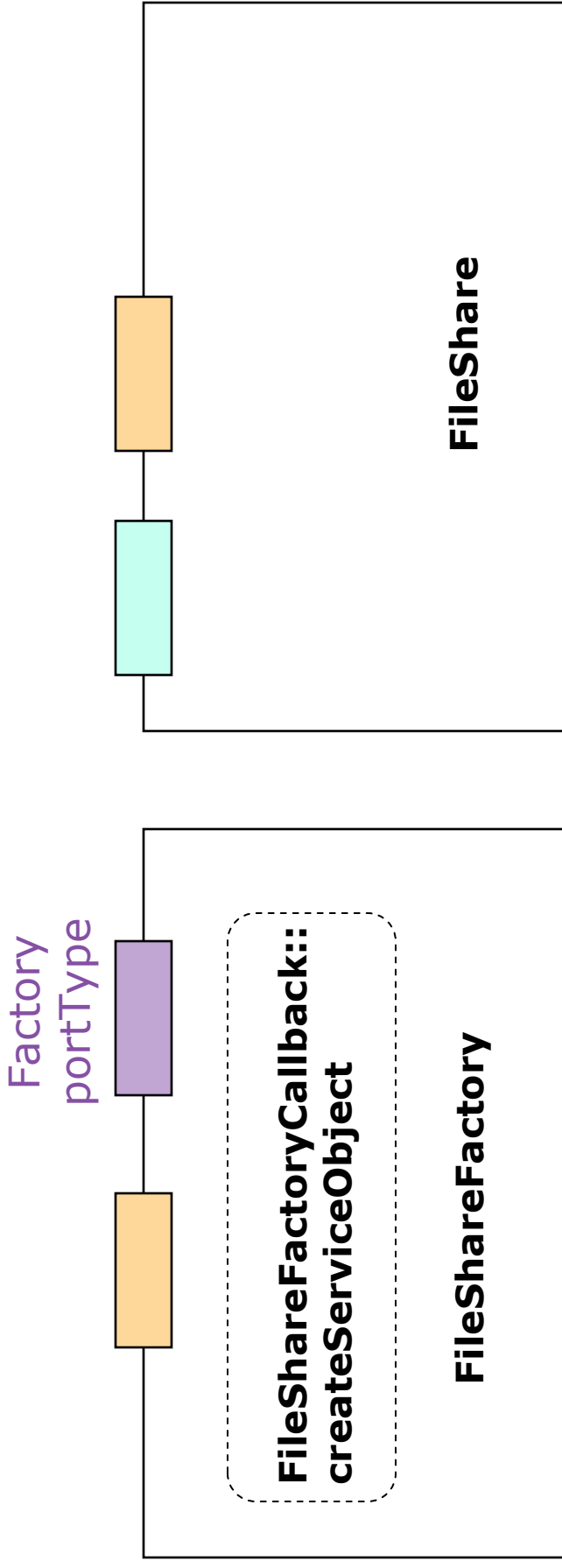
- FileShare is persistent, with one instance running whenever the container is running
- However, OGSI services can be transient
  - Transience allows for the dynamic creation and destruction of services
- OGSI includes a Factory pattern in order to support service transience

# Factory

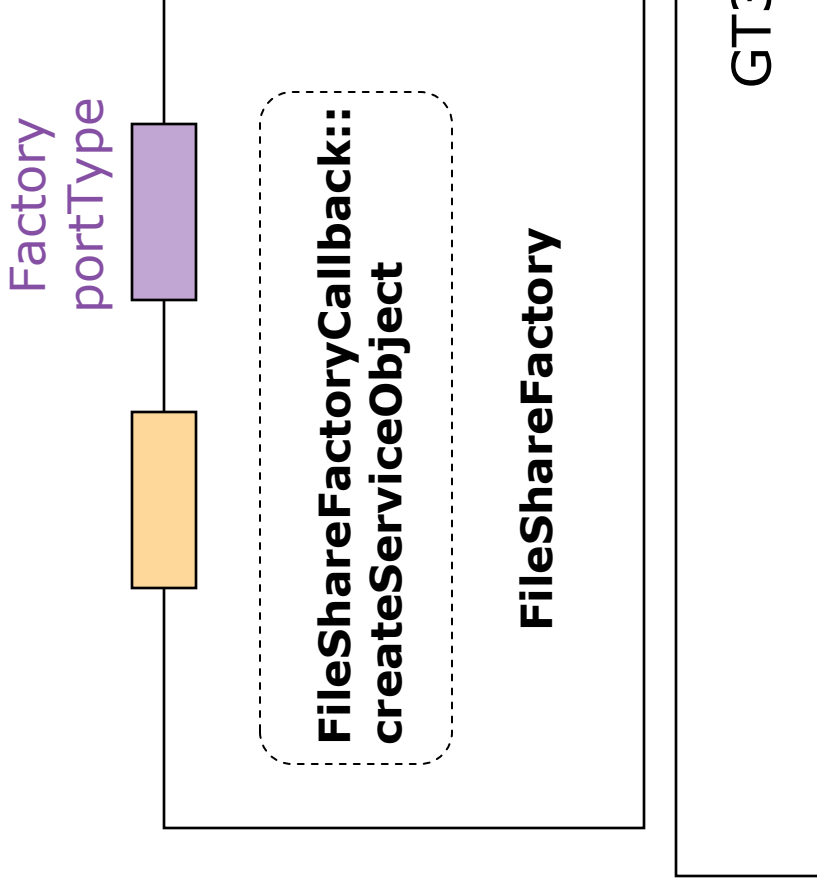
- The OGSi Factory portType supports a createService operation
  - As a result a new service is created
- FactoryProvider is the GT3 implementation of the OGSi portType; it defines a createService method for service instance creation

# Implementing the Factory Pattern

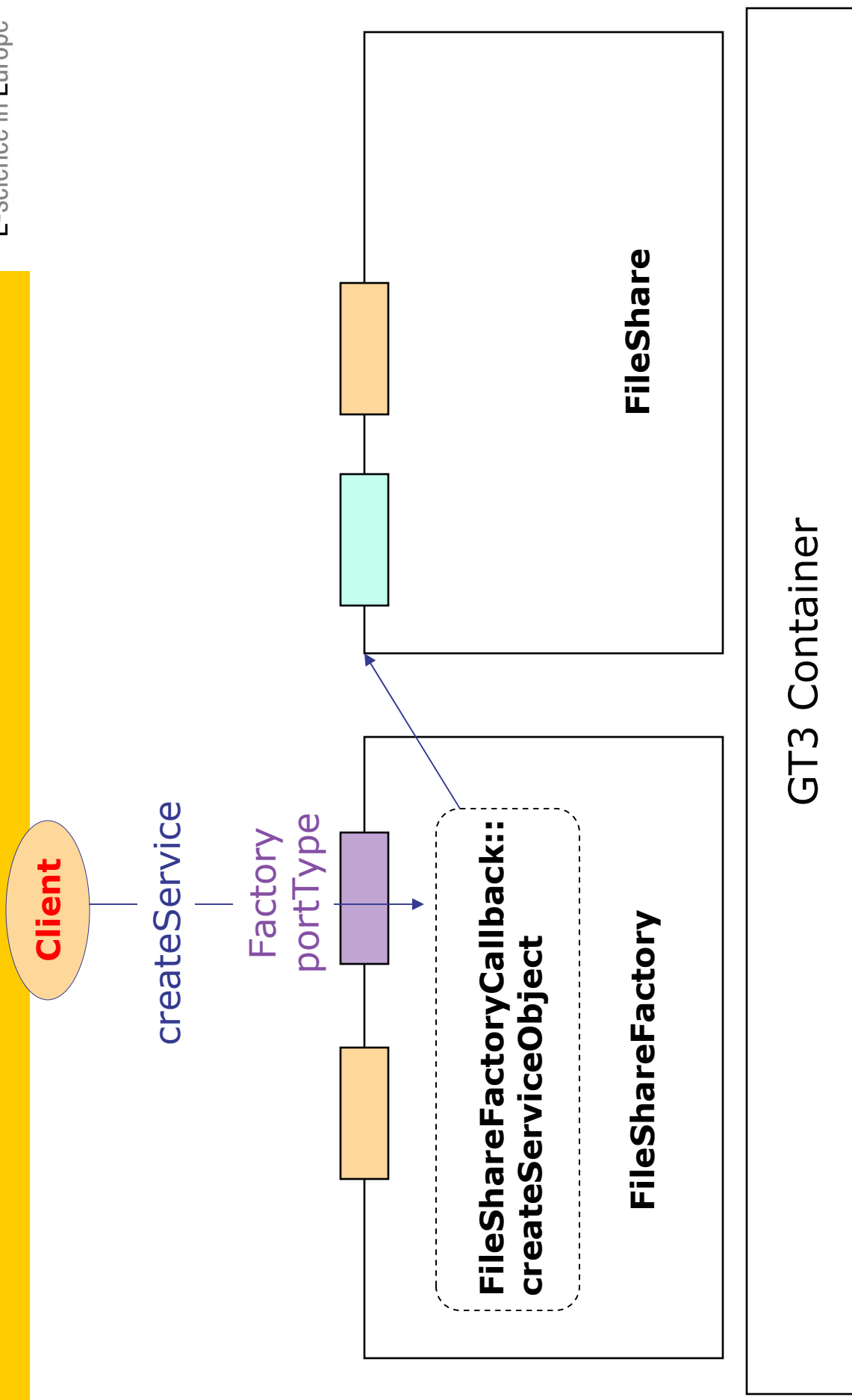
Create a FileShareFactoryCallback class that includes an createServiceObject method which knows how to instantiate a FileShare



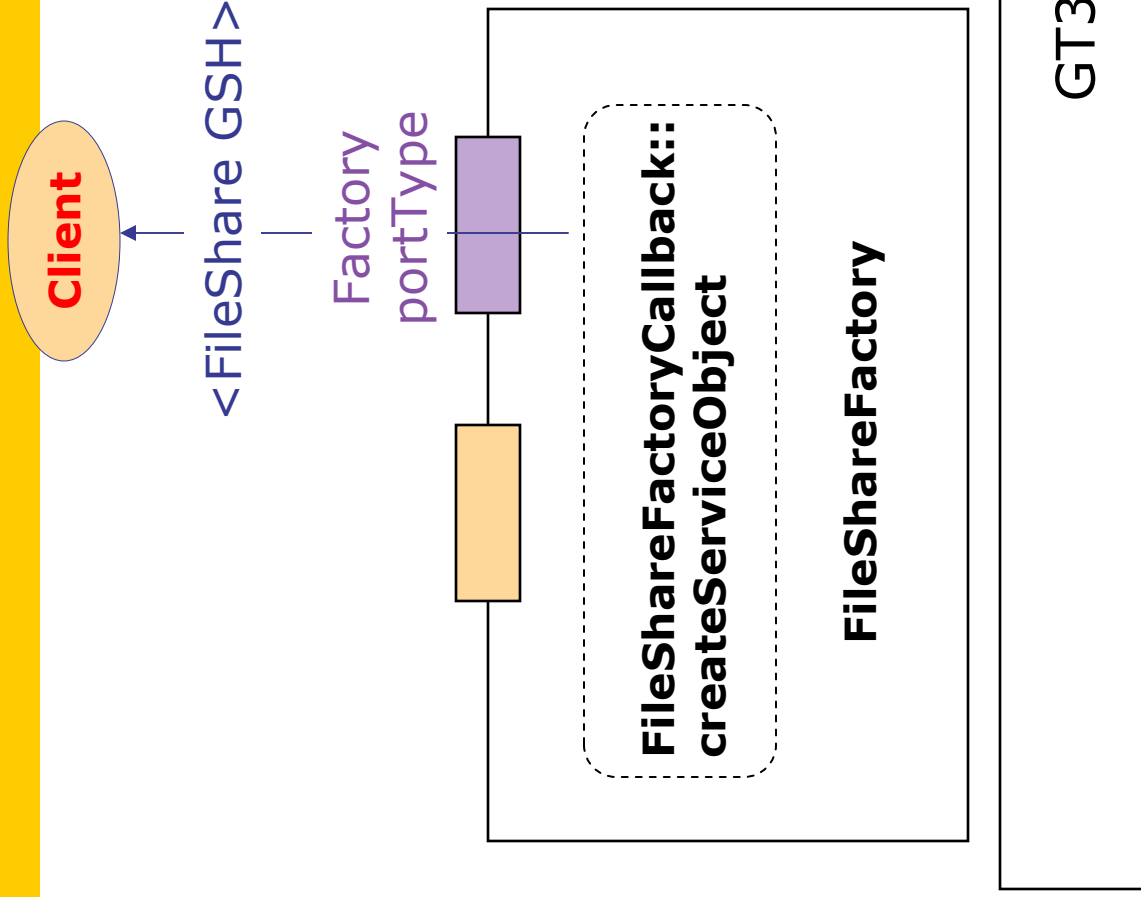
# The Factory Pattern Runtime



# The Factory Pattern Runtime

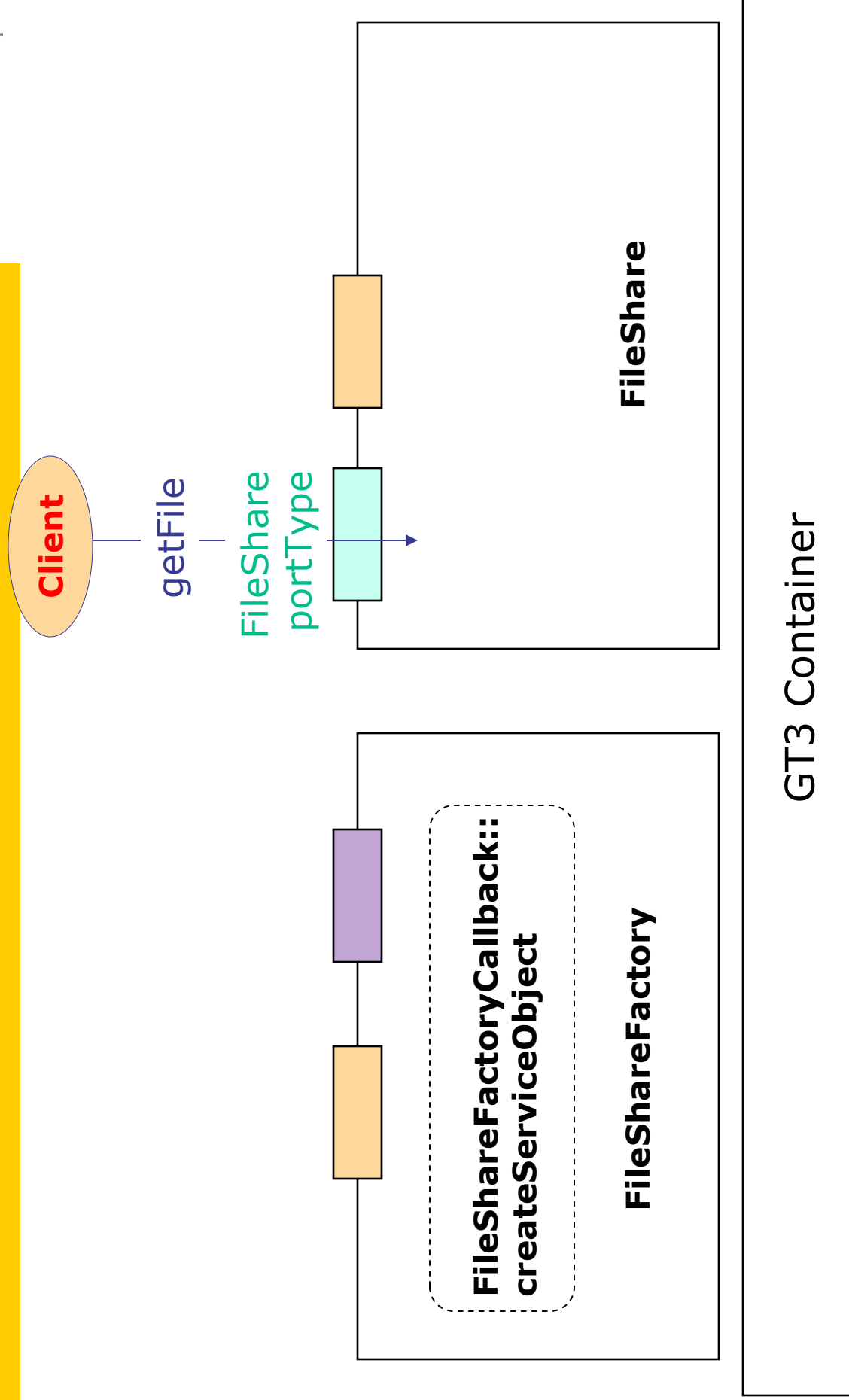


# The Factory Pattern Runtime



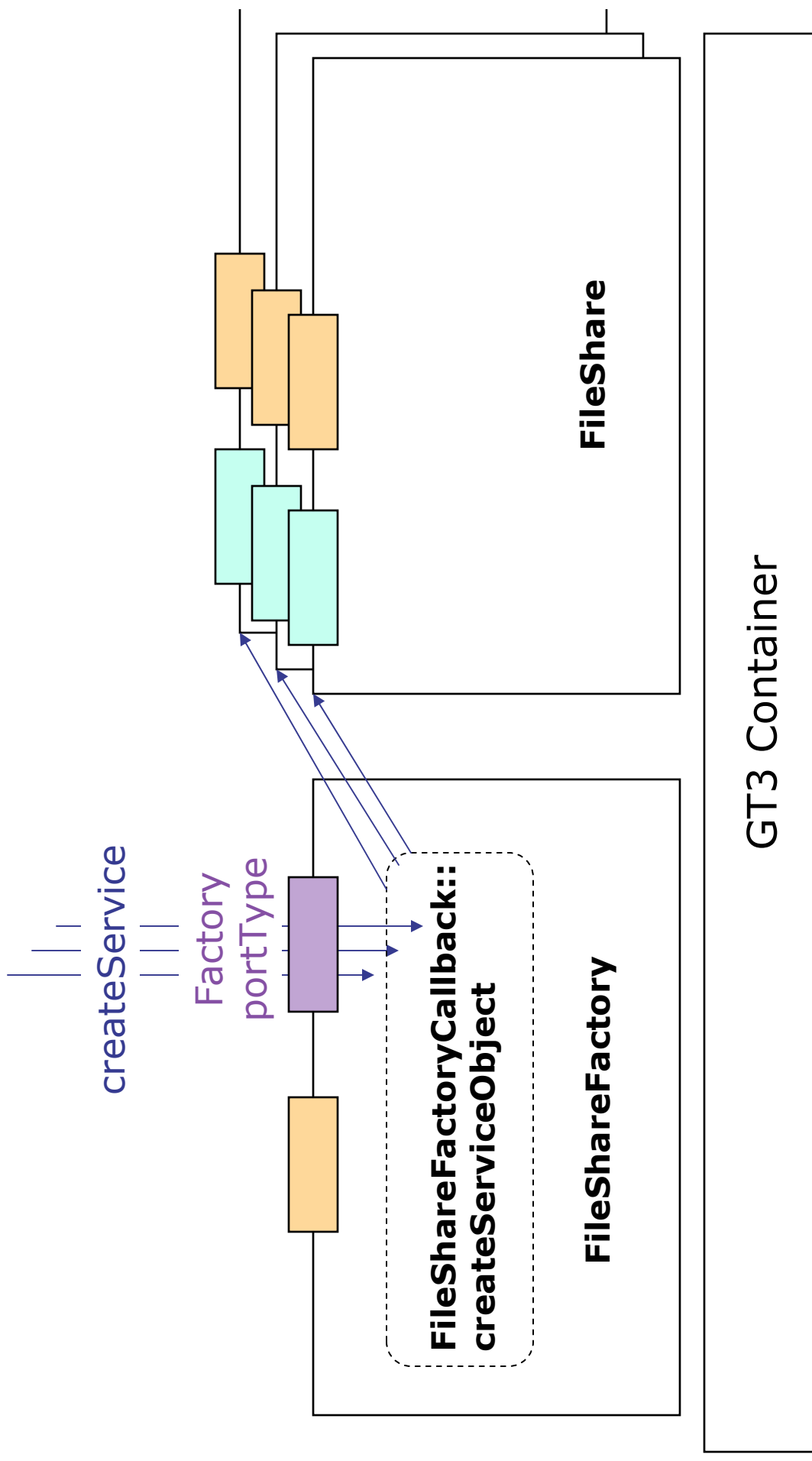


# The Factory Pattern Runtime



GT3 Container

# The Factory Pattern Runtime



# Factory Operation Provider

- The FactoryProvider operation provider accepts a single parameter: “factoryCallback”
- factoryCallback should be a java class supporting a “createServiceObject” method
  - responsible for creating the service

# GT3 Notification Factory Implementation

- We won't need to write the code for the factory
  - `org.gridforum.ogsi.NotificationFactory`
- We also don't have to write the WSDL
  - `schema/ogsi/ogsi_notification_factory_service.wsdl`
- The code we need to write is the class used by the factory callback

# Additional WSDO Parameters for Factories

- Factories get two sets of parameters
  - One for them for the factory itself
  - One for the services it creates
- Parameters for created service are prefixed with “instance-”
  - `<parameter name="instance-name" value="File Share Service"/>`
  - `<parameter name="name" value="File Share Factory"/>`

# Creating Services From a Factory

- Now we have an extra step before running our client
  - The "createService" method on the File Share Service Factory creates a new FileShare, returning the GSH of the FileShare service
- With the GSH, we can invoke the rest of our operations as usual
- Our service will have a termination time set by the factory
  - The default lifetime for the GT3 Factory implementation is infinity; this default may be overridden
  - If the service has an expiration time, the lifetime must be updated to avoid it being recycled

# What Attendees Should Do

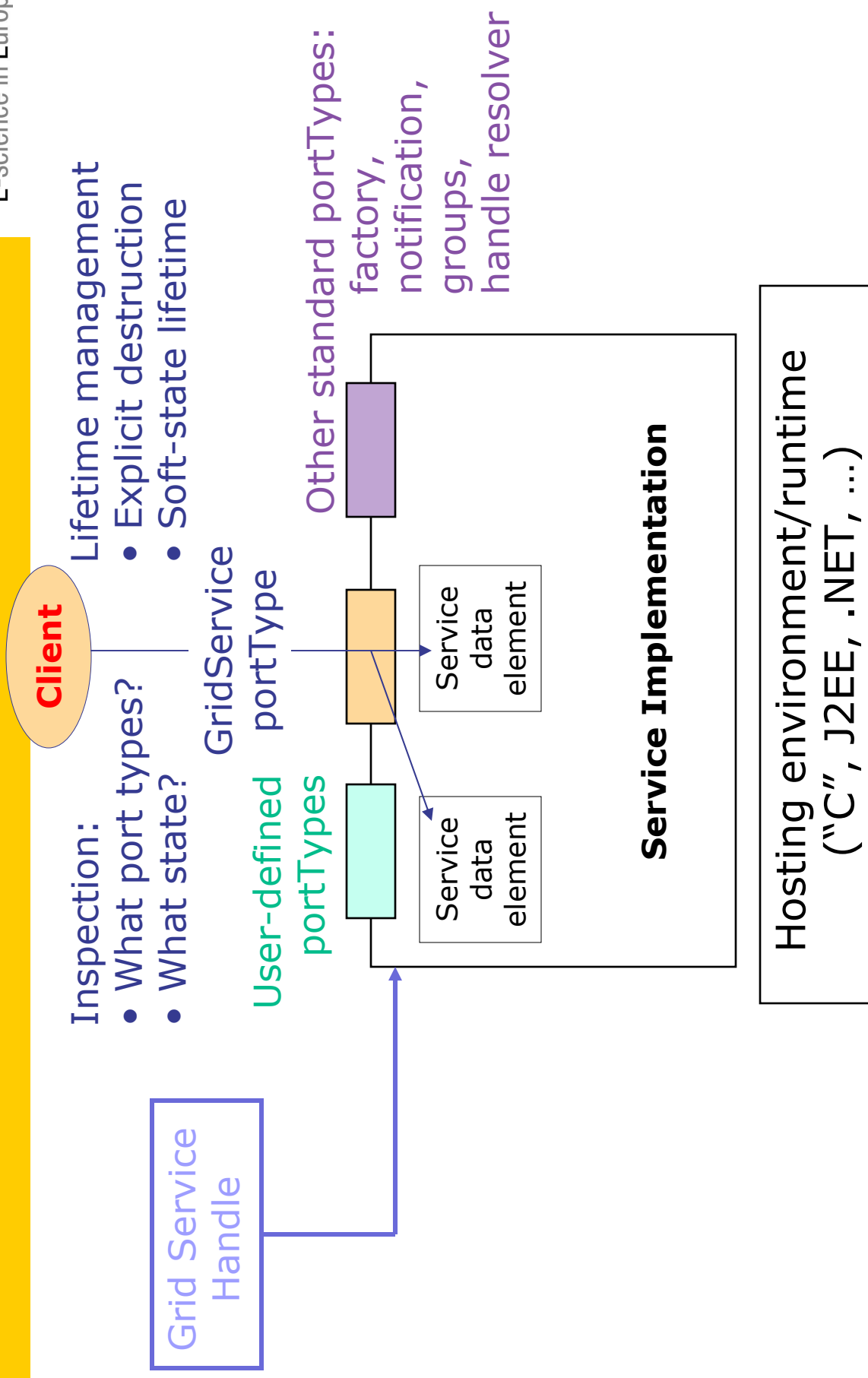
- Modify the WSDD to create a factory
- Use the CreateFileShare client to construct a FileShare service for a particular directory
- Retrieve a file from the newly-created service
- Attempt to connect to a neighbor's factory
- Retrieve from a neighbor's created service via the Index client

# What Attendees Should See

- Services created by the factory behave like ordinary FileShare services
- Can have separate security settings for factories and the services they create
  - Our factories have “self” authorization
  - The FileShare services they create have “none” authorization



# The OGSI Grid Service



# Implementation Basics

## Runtime Environment

- A Grid Service advertises its capabilities via a well-defined remote interface
- The implementation of a Grid Service is separated from its definition
- A Grid Service is deployed in a runtime environment

Interface

Implementation

Runtime env

# Implementation Basics

## The Five Steps

1. Create the interface
2. Write the implementation
3. Write the deployment descriptor
4. Build the service, creating a GAR
5. Deploy into the runtime environment

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# Bibliography

A Web-based GT3 “Build a Grid Service” tutorial  
<http://www.casa-sotomayor.net/gt3-tutorial/>

GT3 documentation page  
<http://www-unix.globus.org/toolkit/documentation.html>

Globus Alliance publications page  
<http://www.globus.org/research/papers.html>

A definition: What is the Grid? *I. Foster, July 2002*  
<http://www-fp.mcs.anl.gov/~foster/Articles/WhatIsTheGrid.pdf>