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Enabling Grids for
E-science in Europe

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Exercise 5

Lifetime Management: Maintain service registration

How to Build a Grid Service Using GT3

- Overview of Grid Services and GT3

- Build a Grid Service

  - Overview
  - 1. Deployment: Stand Up a FileShare Service
  - 2. Naming: Share Files using Identifiers
  - 3. Inspection: Add Service Data
  - 4. Virtual Organization: Register with a Community Index
  - **5. Lifetime Management: Maintain service registration**
  - 6. Discovery: Find a File
  - 7. GT3 Security: Share Files Securely

  Time permitting:

  - 8. Transience: Create and Destroy FileShares

- Publish your Grid Service: The GTR

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Overview of Tutorial Content

4. *Virtual Organization:* **Register your service with a community index service**

Tutorial Index

Client

5. *Lifetime Mgmt:* **Maintain service registration**

2. *Service Naming:* **Share files using identifiers**

FileShare

1. *Deployment:* **Stand up a FileShare service on your laptop**

3. *Inspection:* **Add service data to your service**
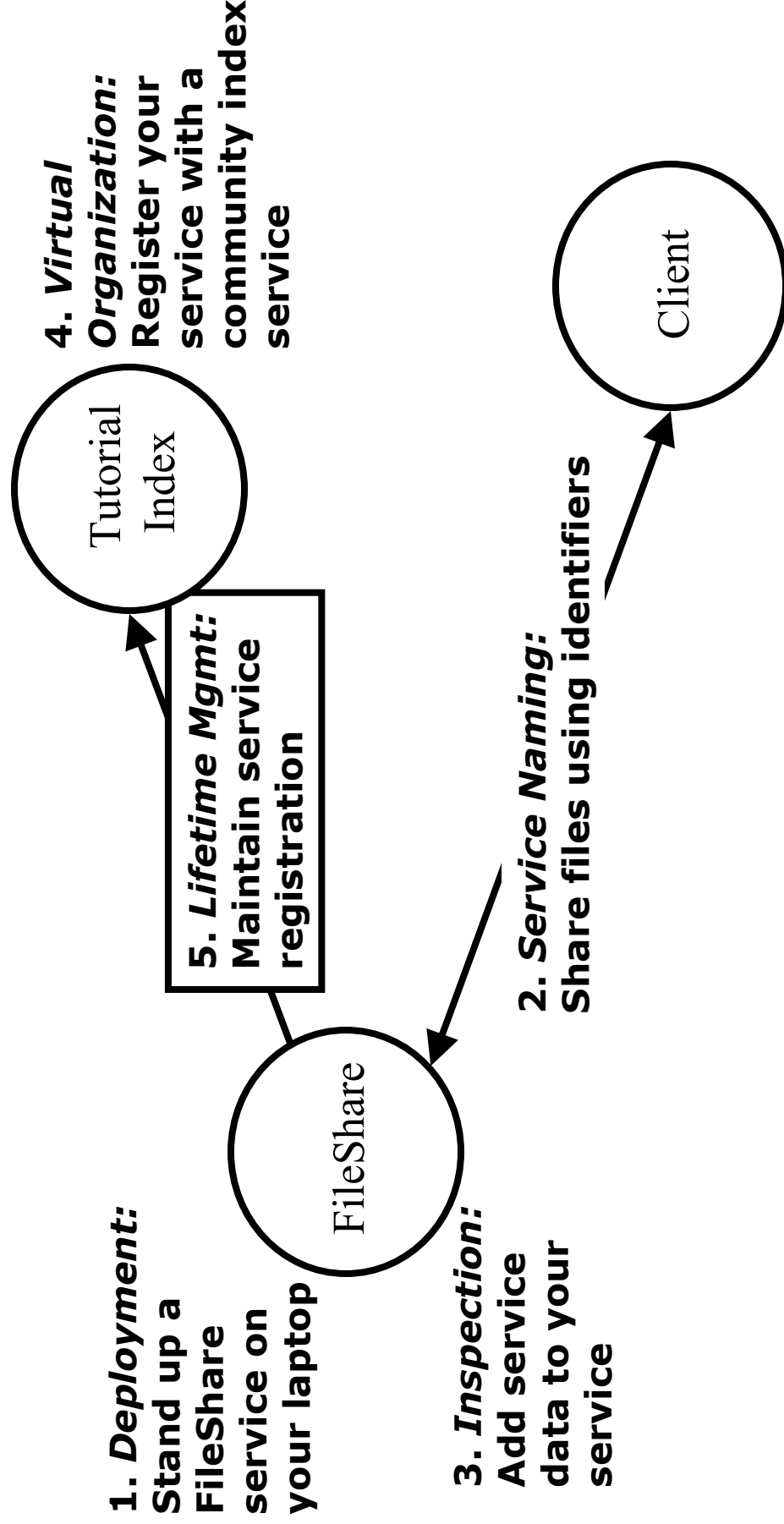
Soft state

- We need a mechanism to clean up old/unwanted state

- A service group has an remove operation, but this is not enough. For example, what happens if a service dies without removing itself?

- All of our state has a limited lifetime. If a service is still alive and wants to remain registered, it must keep indicating its interest in that state.
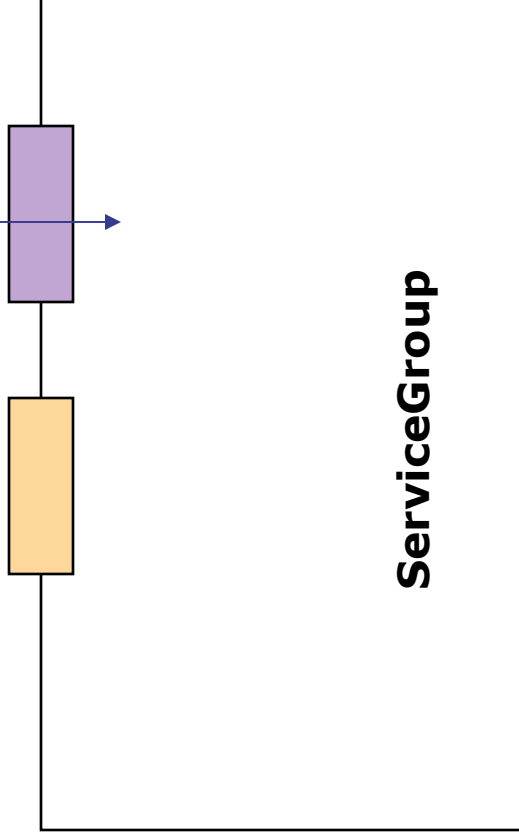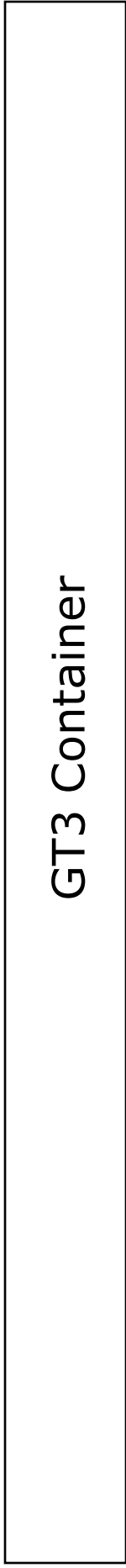
Lifetime Management

(registration provider)
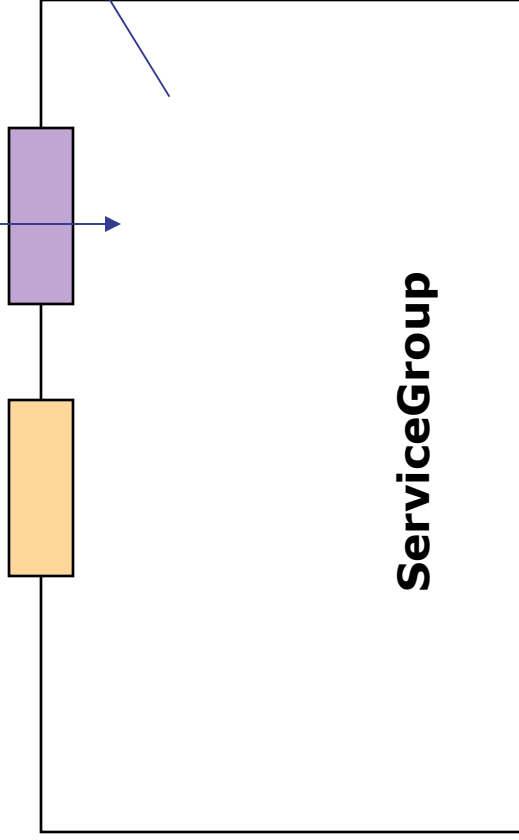
FileShare

add

ServiceGroup
Registration
portType

ServiceGroup

GT3 Container

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Lifetime Management

(registration provider)

FileShare

add

ServiceGroup Registration portType

GridService portType
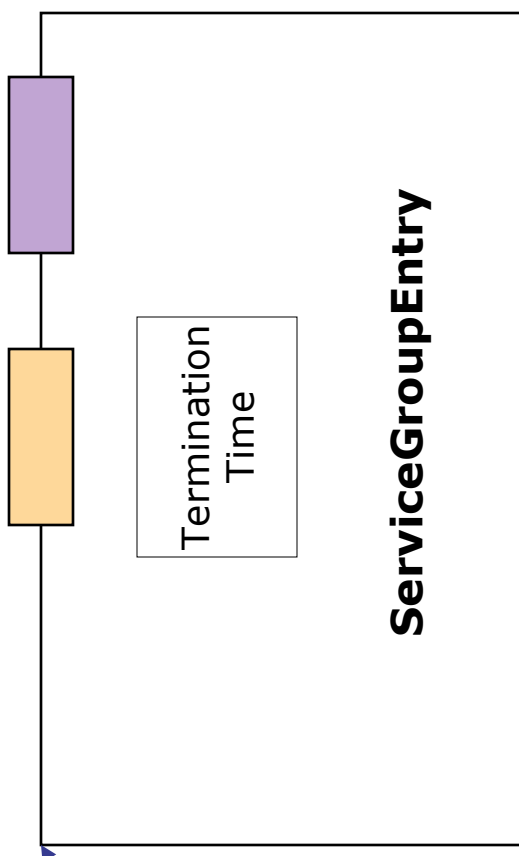
Termination Time

ServiceGroup

ServiceGroupEntry

GT3 Container

Lifetime Management

FileShare

<ServiceGroupEntry GSH>

GridService
portType

Termination
Time

ServiceGroupEntry

ServiceGroup

GT3 Container

Lifetime Management

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FileShare

(registration provider)

requestTerminationAfter

GridService
portType

Termination
Time
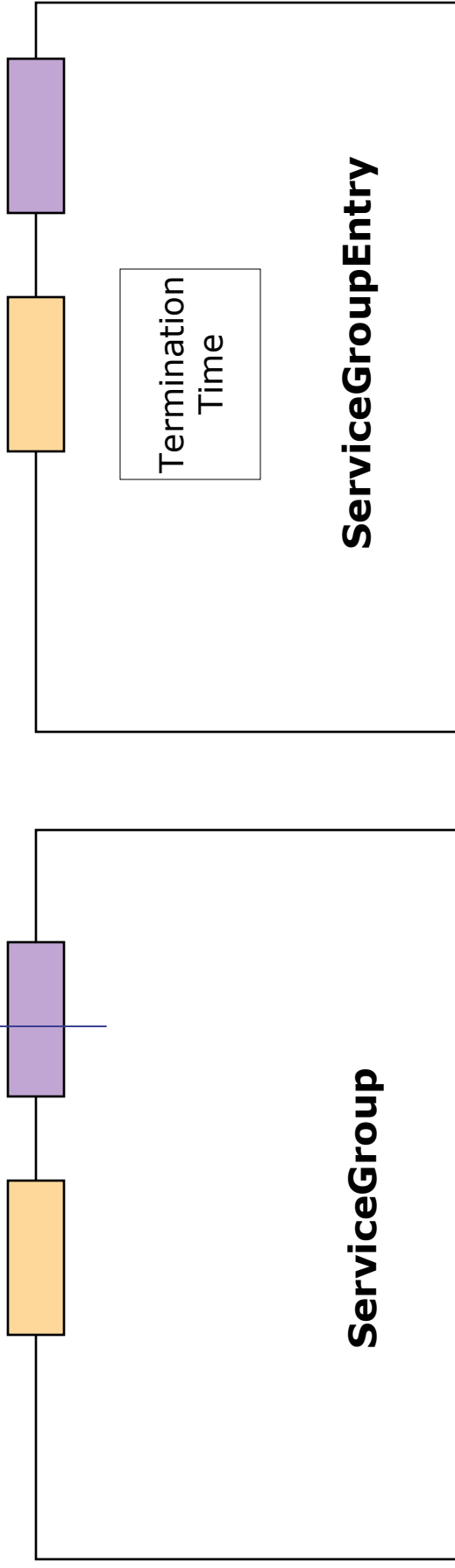
ServiceGroupEntry

ServiceGroup
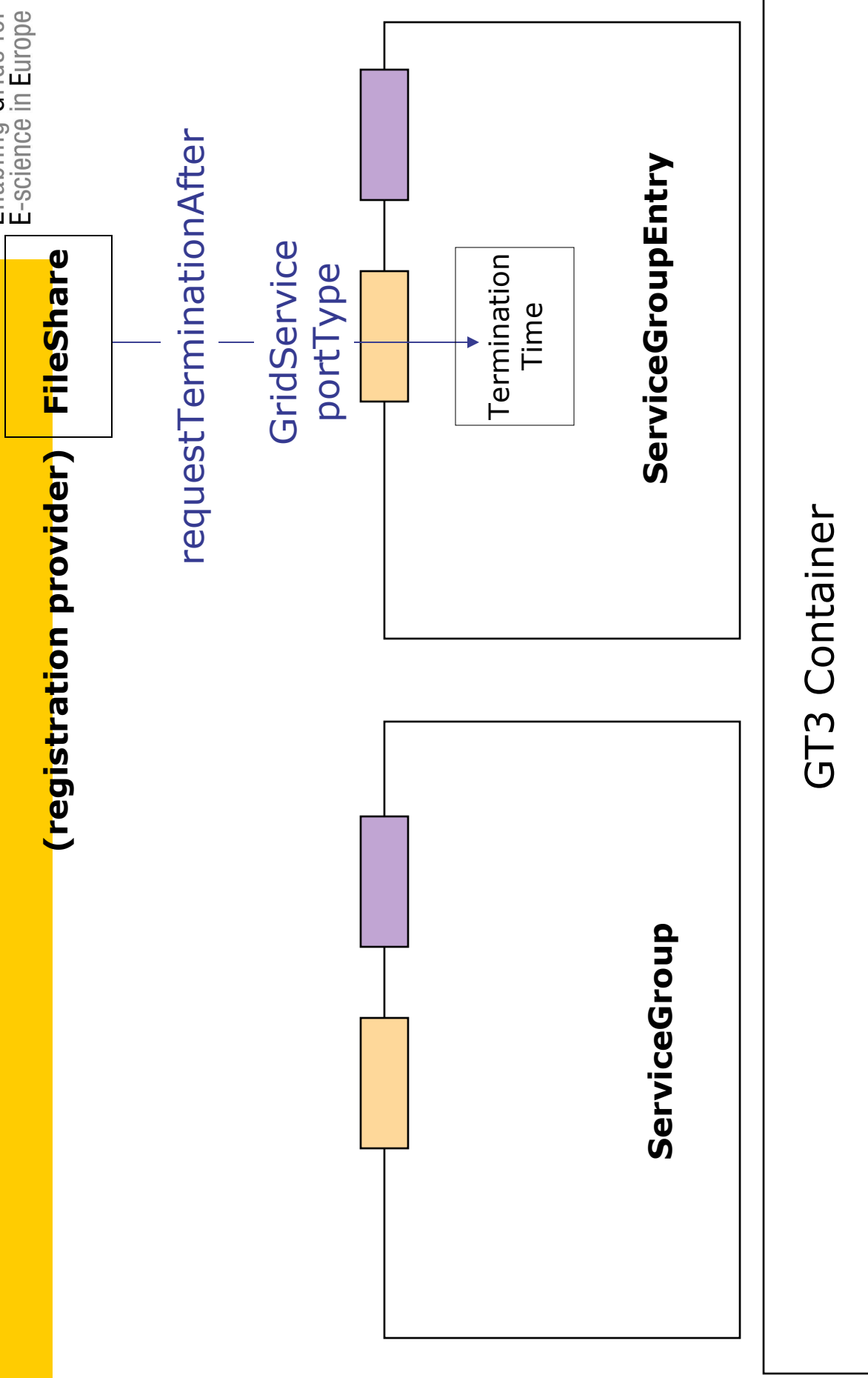
GT3 Container

Lifetime Management

FileShare

(registration provider)

requestTerminationAfter

GridService portType

Termination Time

ServiceGroupEntry

ServiceGroup

GT3 Container
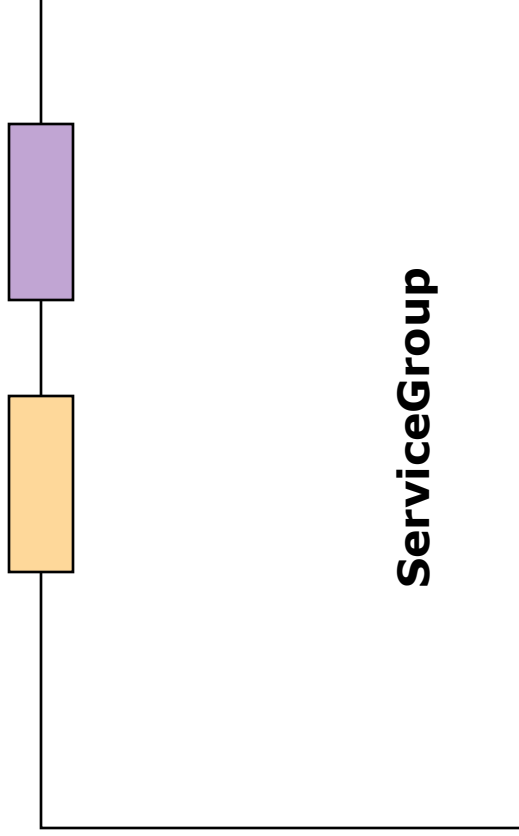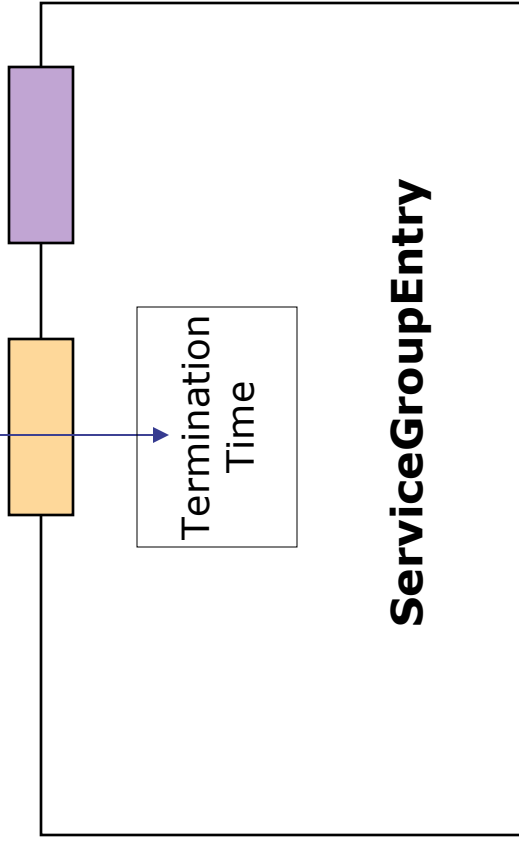
Example of soft-state lifetime management:
The ServiceGroupEntry goes away if the FileShare service disappears

SDE Attributes

- SDEs can contain OGSI-defined attributes describing quality/lifetime of the data they contain

  - goodFrom: start of validity
  - goodUntil: end of validity
  - availUntil: Will be purged after this time