Exercise 6

Discovery: Find a File

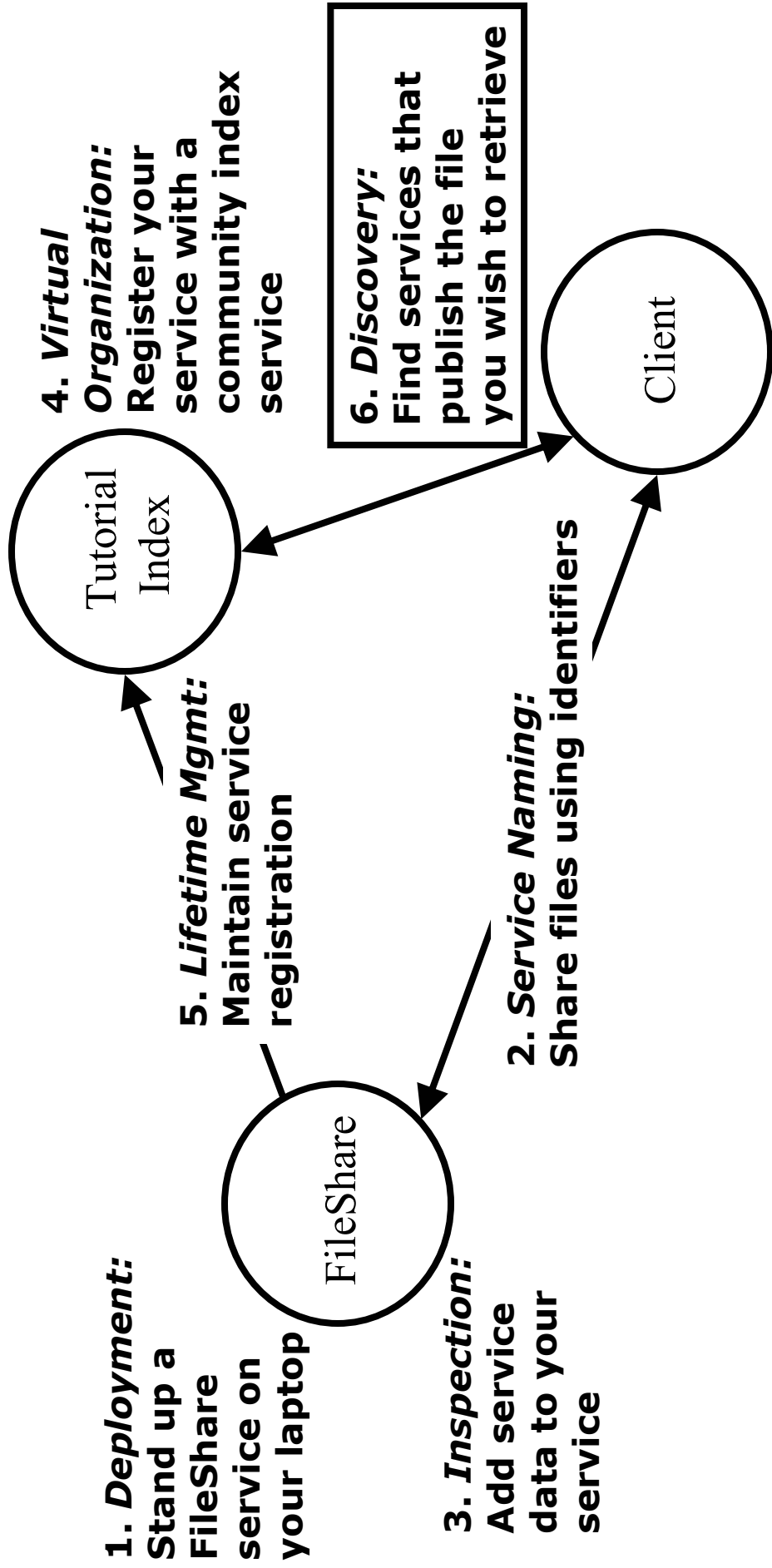**eGee**

Enabling Grids for E-science in Europe

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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

Exercise 6: Discovery

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

6. *Discovery:* Find services that publish the file you wish to retrieve

Tutorial Index

Client

FileShare

5. *Lifetime Mgmt:* Maintain service registration

2. *Service Naming:* Share files using identifiers

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

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

What is Discovery?

- We want to find a service that has some property

- In our case, a person wants to find a service that is sharing a particular filename ('haggis.txt')

- The Tutorial Index knows about of all the services and which files are available

- We can search the Tutorial Index for the service that is publishing 'haggis.txt'

- The identification of the service(s) meeting our criteria is called Discovery

Implementation Details

- The Tutorial Index publishes all of the information it has as service data (an SDE called ogsi:entry)

- We can use standard service data querying methods for accessing the Tutorial Index's data

- However, our ogsi:entry will contain a large amount of data; it will be necessary to search inside of the SDE to find the data we need

Searching Inside an SDE

- To search the SDE data we can use a GT3-specific query mechanism that allows us to assemble an XPath query

  An XPath overview in two bullets:

  - XPath is a convenient query language for searching XML documents

  - XPath queries are formed by identifying a route to the desired data

We shall provide you with an XPath query to search the SDE of the Tutorial Index…

Searching the SDE of the Tutorial Index

- We can find the service that is sharing 'haggis.txt' by delivering the following XPath query to the Tutorial Index:

/ogsi:entry[ogsi:content/ns1:serviceDataValues/fs:FileList/item/fs:filename= 'haggis.txt']/ogsi:memberServiceLocator

A human translation of this syntax:

"Select all the services that have a filename of 'haggis.txt' in their FileList SDE, and then return the locators to those services"

What Attendees Should Do

- Create a uniquely-named file in $GLOBUS_LOCATION

- Use the GetFileIndex client to perform an XPath query against the tutorial Index to retrieve the newly created file

- Use GetFileIndex to retrieve a file from your neighbor

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Exercise 6 Review

- The Indexing Service Group provides a way to discover services based on SDEs

- The IndexingServiceGroup aggregates the SDEs of services registering to it

- Because SDEs are XML, GT3 allows XPath queries for searching and retrieving SDEs