sif : SOA in practice

Service-Oriented Architecture

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1 Motivation

- Medical (and other) researchers often have significant amounts of data collected over a period of years that they would like to provide access to in real-time: to improve patient care; to act as a training resource; to achieve ‘bigger and better research’; to ‘realise assets’
- On the other side of the equation, such researchers often wish to ‘get at’ large data sources in real-time
- The facilitation of secure data access, sharing and integration across organisational boundaries is essential in both cases
- These issues are, of course, also relevant in many other contexts

2 Project aims

The main aim of GIMI is to develop a generic, dependable middleware layer capable of:

1. (in the short term) supporting data sharing across disparate sources to facilitate healthcare research, delivery, and training;
2. (in the medium term) facilitating data access via dynamic, fine-grained access control mechanisms
3. (in the longer-term) interfacing with technological solutions deployed within the NHS

The technology development is being validated via three applications

3 Abstraction

- Issues pertaining to secure transfer and data federation are abstracted from the end user
- The middleware is agnostic to the kind of data that is shared; furthermore, it is agnostic to what is done to that data
- Via a ‘plug-in’ mechanism, domain specialists develop applications to access and manipulate remotely held data
- We aim to facilitate technology-agnosticism via data-agnosticism

4 Interoperability

- We assume that legacy systems have integral value: there are no pre-conceived schemas, ontologies or interfaces that render legacy data incompatible
- It is the applications and communities that determine compatibility
- It is our view that lower level interoperability should be achieved via the use of open standards; higher level—or semantic—interoperability should be achieved on an application-by-application, or domain-by-domain basis
- The aim is to facilitate ‘bottom-up’—rather than ‘top-down’—virtual organisations

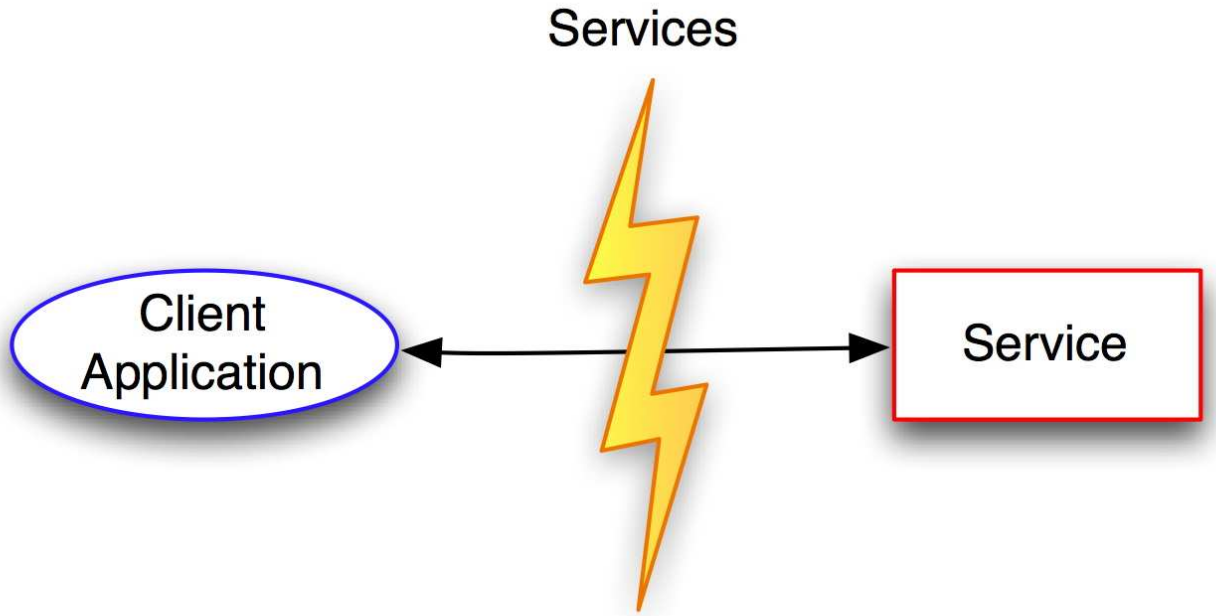
5 Technology – Now

- Apache Tomcat + Sun Java Web Services Development Pack
- Apache Web Server w/ Web Dav
- Apache Derby
- XACML

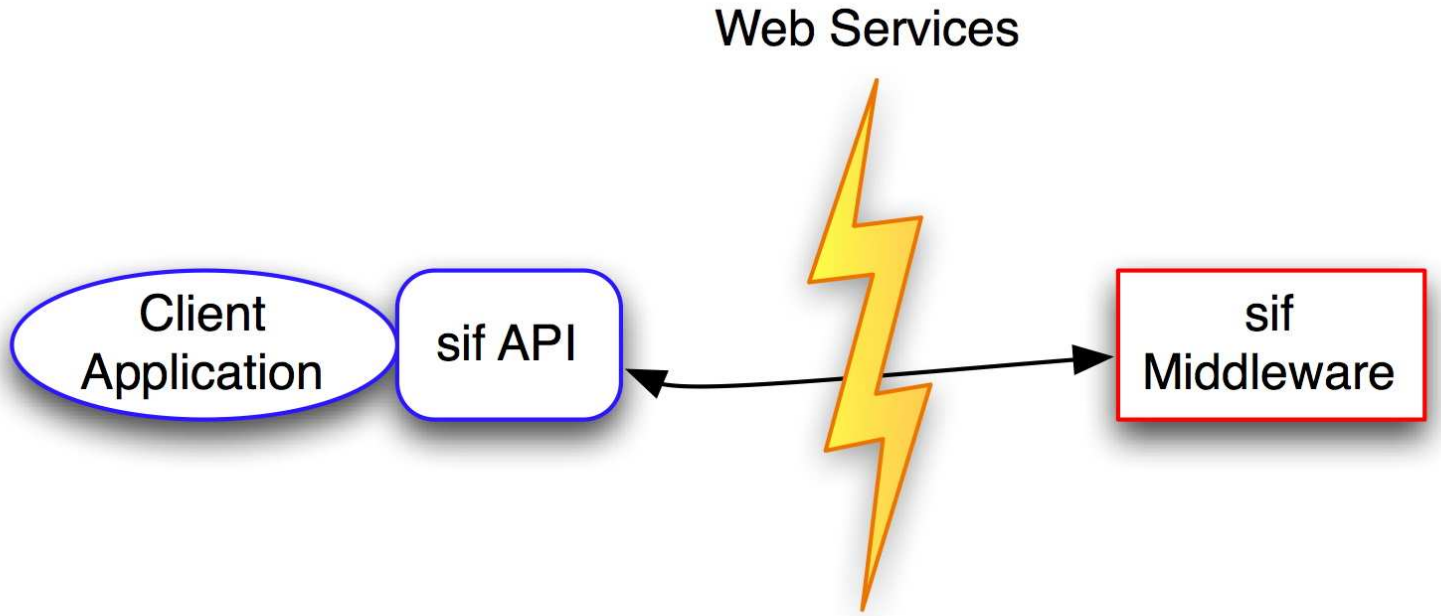
6 Technology – Future

- Glassfish V3
- Embedded Apache Derby
- OSGi
- XACML

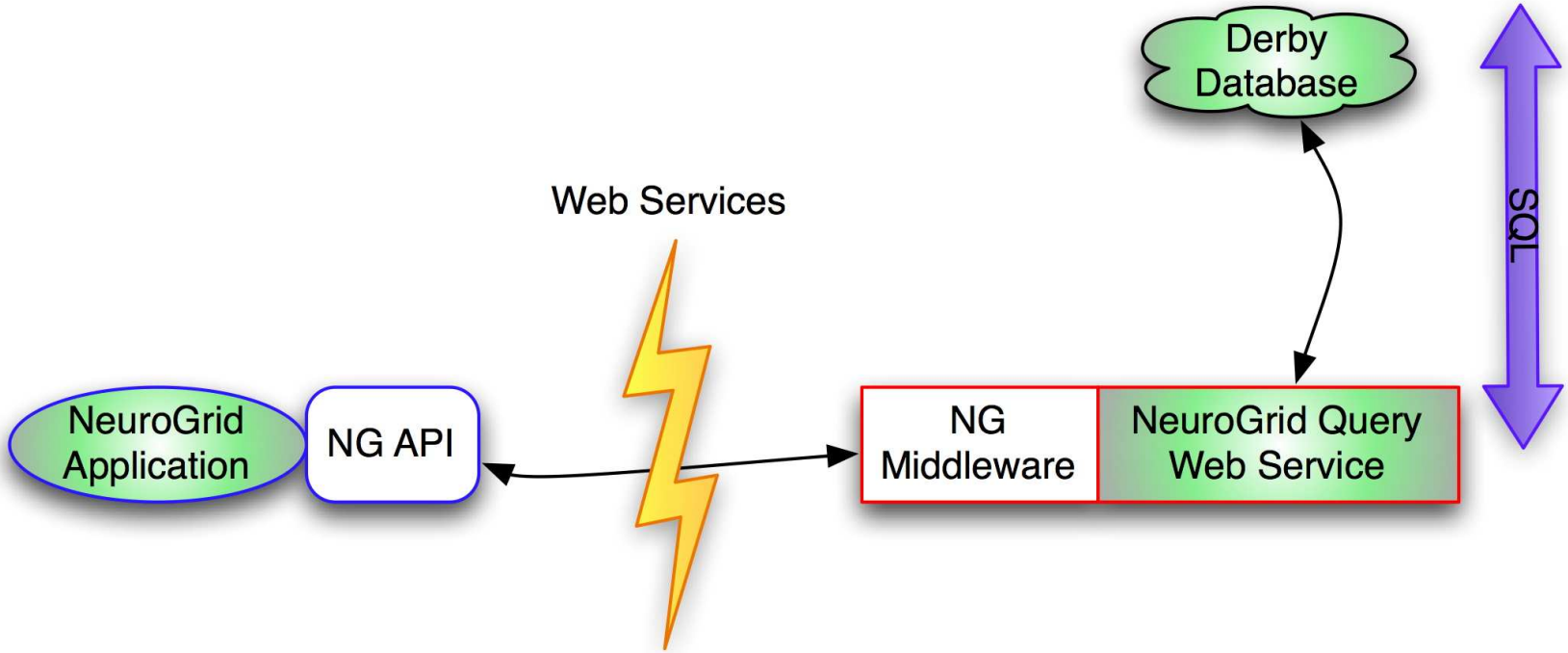
7 First steps



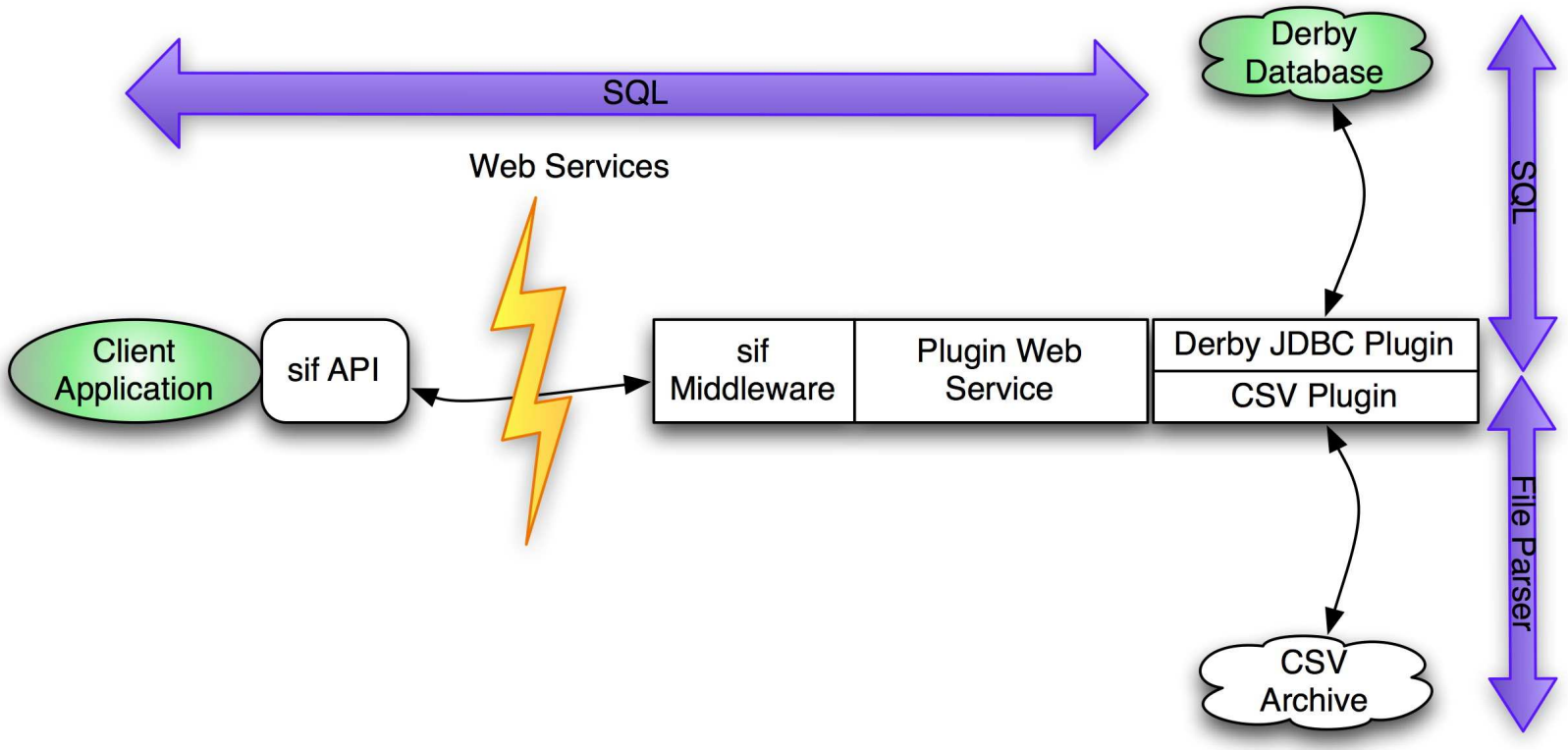
8 sif – Basic



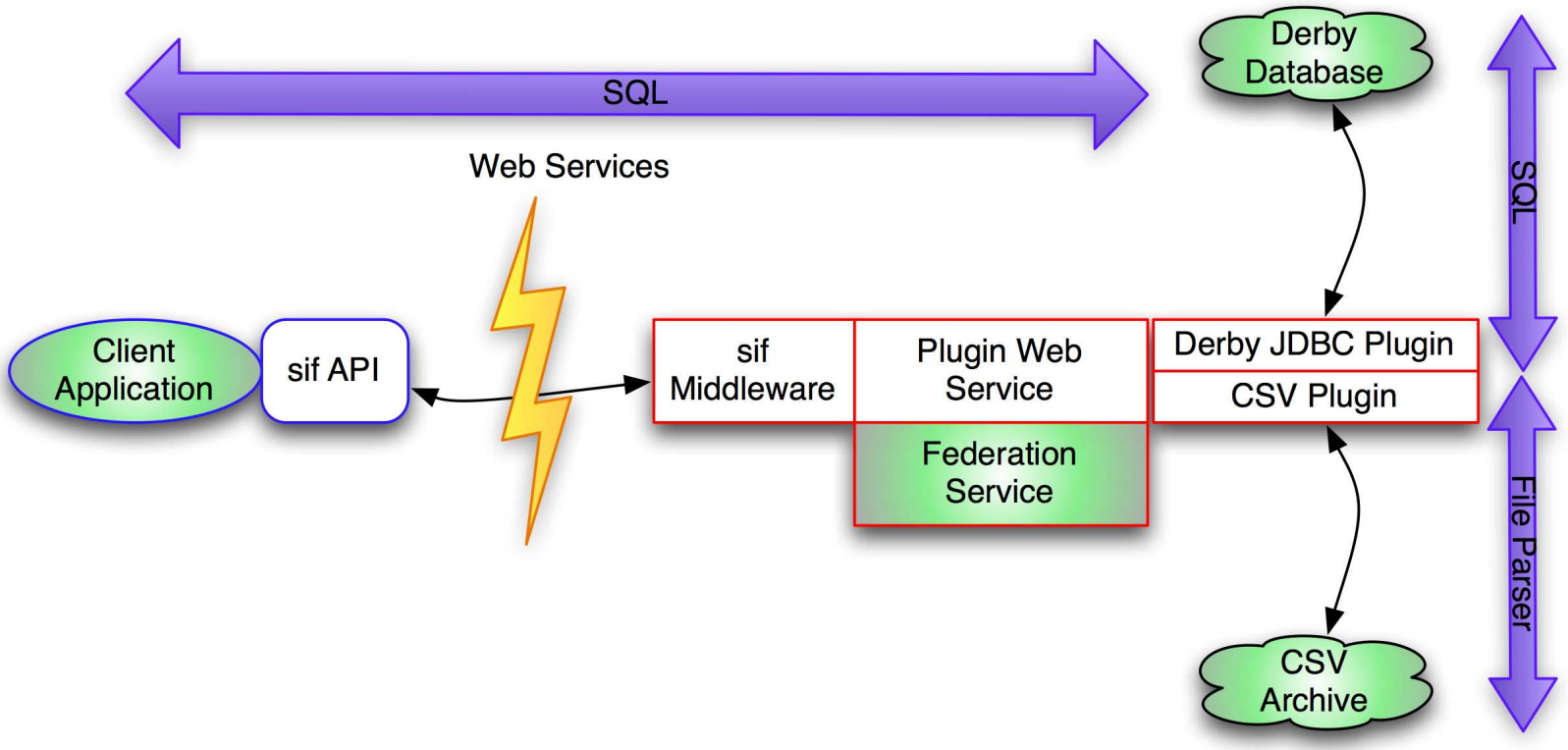
9 sif – Data Access



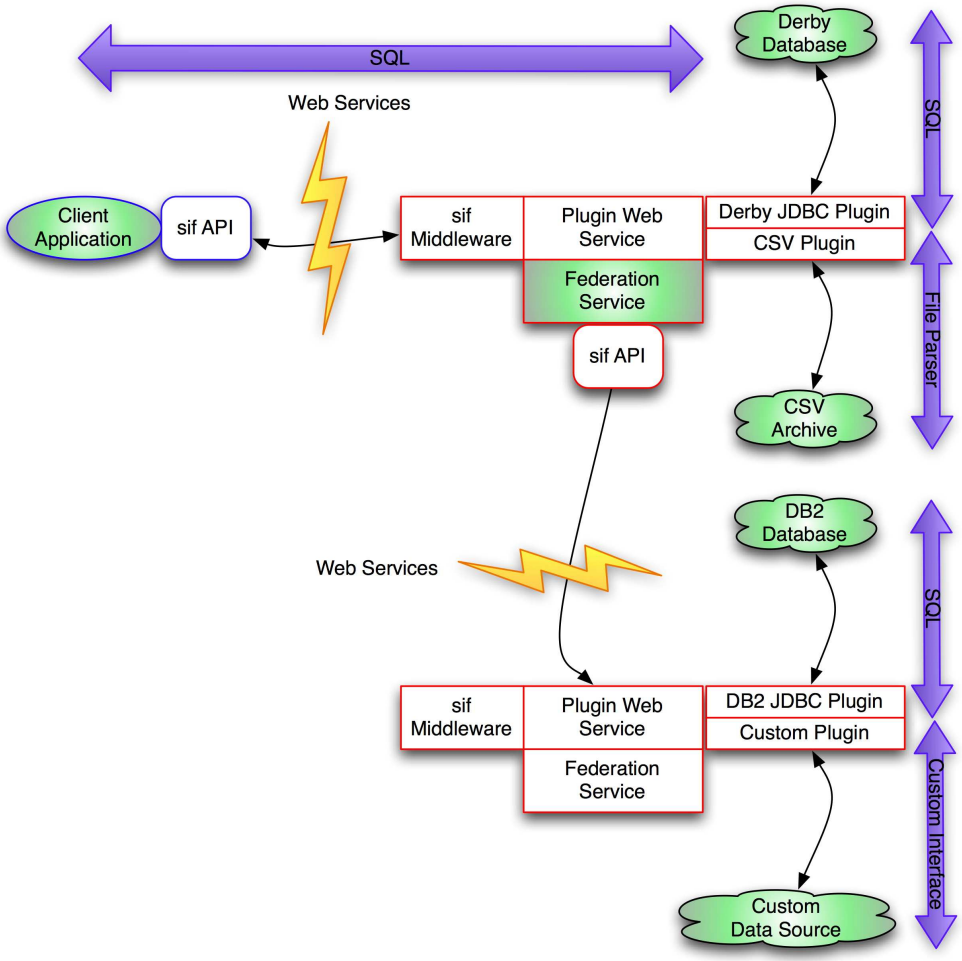
10 sif – Pluggable Data Access



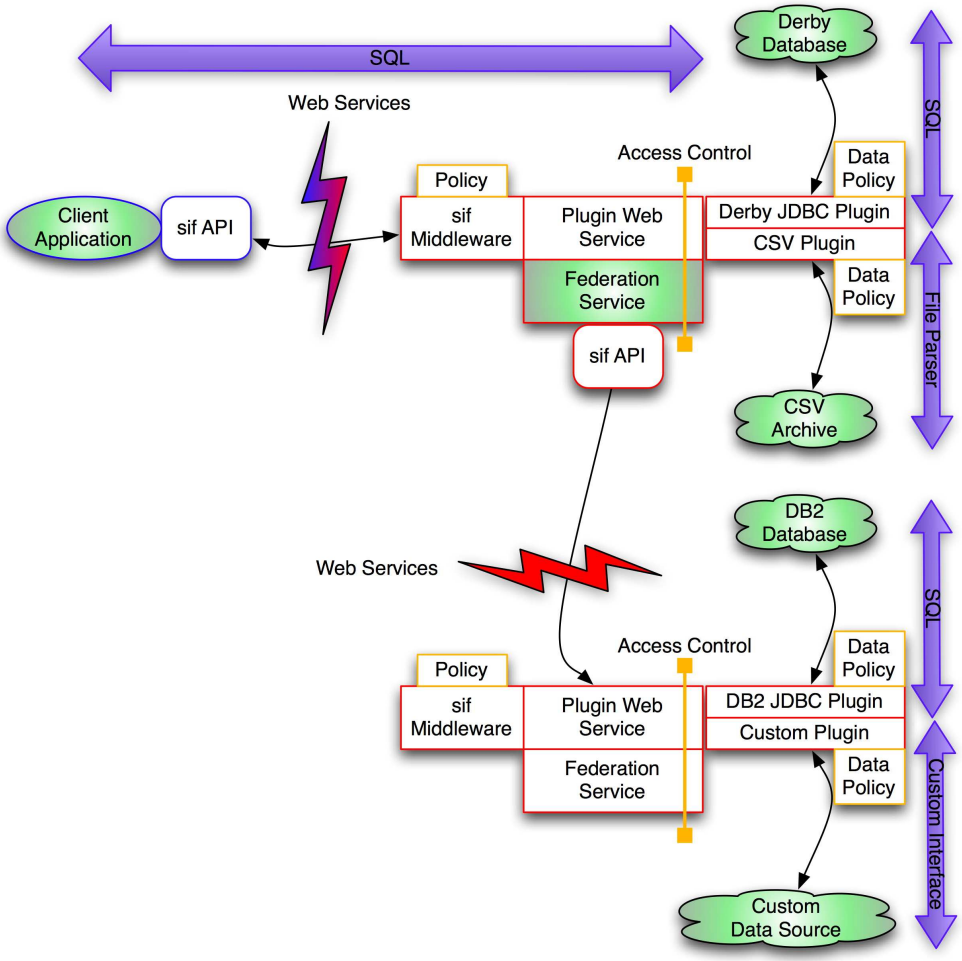
11 sif – Federated Data Access



12 sif – Federated Data Access in a Distributed System



13 sif – The whole system (sort of)



14 plugin