

## GT3 Toolkit Core: Grid Service Container Framework

1. Based on OGSi primitives and protocols
2. Built on top of WS technology
3. Some features: introspection, soft-state management (lease based server side state), notification, discovery, logging, security, management and administration of services, service data
4. Development environment, auto generation of components
5. Runtime environment:
  - OGSA: Open Grid Service Architecture (Components)
  - OGSI: Open Grid Services Infrastructure (specification) (interfaces)
  - GT3: Open source implementation of OGSi**Opportunity: other implementations of OGSi**
6. A grid service is a service compliant with OGSi and which exposes itself through Web Services Description Language (WSDL) interface.
7. GS = WS + OGSi-compliant
8. GT3 Core Architecture:
  - Hosting environment
  - Grid service container
  - WS engine
  - OGSI Ref Implementation Security Infrastructure
  - System level services: Remote procedure call, etc.
  - Base services: Program execution, data management, information services
  - User-defined services
9. Container:
  - All the services and primitives interact with run-time environment called the "container"
  - Container shields the application from specific run-time settings, deployment details (we know about it from J2EE)
  - Gars are deployable units. Can be deployed on a container on mills or or cerf or on the trailer one!**Opportunity: EJB container extension to host grid services?**
10. OGSi primitives: standard interfaces for GridService, Factory, Notification (source and Sink), HandleResolver etc.
11. Security infrastructure: Transport-level and message-level security; Core security is Java Authentication and Authorization Based (JAAS). For transport level: httpg: protocol based on GSI is provided.
12. Virtual Hosting Environment Framework: A grid service is typically hosted in the same container as its factory. It is possible to distribute grid services to a number of remote containers: to satisfy a QoS requirement; migration should be transparent to clients. Architecture should simplify firewall traversal. Support provided by routing handlers, redirector, reference and handler rewriters,

redirection exception API; Sample scenario is provided in the paper.

**Opportunity: Discover application models that can exploit /thrive on this Virtual Hosting concept.**

13. Programming Model: two alternatives; Grid Service Base or Operation providers. Implementation vs delegation model; lets go through Figure 2; service programming model
14. Service callback and factory callback

Lets look at some code now: [Developer's Guide](#)

[SotoMayer's Tutorial](#)