ServiceGlobe: Distributing E-Services Across the Internet

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What is ServiceGlobe?

- Platform for mobile e-services/Web services
- Implemented in Java Release 2
- Based on standards (XML, SOAP, UDDI,...)

Features:
- Services are mobile code
- Dynamic deployment of services
- Supports development of flexible and reliable services
- Security system
- Transaction system
Basic Components of ServiceGlobe

- **Service Host**: standard Internet server additionally running the ServiceGlobe runtime engine
- **Code Repository**: storage for executables of services which are loaded on demand
- **Adaptor**: service used to integrate existing services or applications into ServiceGlobe
- **Simple Service**: service not using any other service
- **Composite Service**: higher-value service assembled from other services (called basis services)
- **UDDI Server**: used to store metadata about services
- **External/Internal Service**: Service not provided/provided by ServiceGlobe itself
Demonstrated Features

- **Dynamic Service Selection**
  - Runtime selection of services using UDDI’s notion of a tModel → ‘calling tModels’ instead of ‘calling services’
  - Several modes: one/some/all
  - Modes are customizable using constraints
  - Flexible and reliable service execution

- **Runtime Service Loading**
  - Dynamic distribution of services to service hosts at runtime
  - Runtime security system to deal with security issues of mobile code
  - Enables load balancing and parallelization
  - Flexible and reliable service execution
The E-Procurement Scenario

- Usage of a restricted tire dealer scenario to ease the understanding of the demonstration
- Task: purchase tires and employ a forwarding agency for delivery
- Details:
  - Invite offers from available tire dealers
  - Invite offers for the delivery of tires
  - Calculate cheapest combined offer
  - Place purchase orders
- Task is split into two services:
  - tire purchasing service
  - negotiator service
  - pushing negotiator services to service hosts close to tire dealers
  - all negotiator services are executed in parallel
Graphical Representation of the Services

Tire Purchasing Service:
- get bindings of tire dealers
- fork (tire dealer bindings)
- ask for service hosts near tire dealer (manual optimization)
- execute negotiator on service host
- wait for results
- sort results by price
- conclude contracts with participants

Negotiator Service:
- get offer from tire dealer
- fork (forwarding agency bindings)
- get offer from forwarding agency
- wait for results
- calculate total costs
- determine cheapest offers

concluded
Execution of the Services

Client

UDDI Repository

Dynamic Service Selection

Tire Purchasing

Service Host

Dynamic Service Selection

Runtime Service Loading

Code Repository

Negotiator

Tire Dealer

External Service

Forwarding Agency

External Service

Tire Dealer

External Service

Forwarding Agency

Negotiator
Thank you for your Attention!