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# JSON SOA-based Client/Server Application Development

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## Overview


- SOA on the web
- Service Method Description for defining services
- Dojo based approach to SOA

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## SOA-Based Client/Server Model

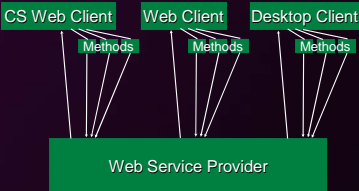
- Distribution of Processing
- User response latency
- Programming model
- Vector of attack
- State management on server vs client
- Offline capabilities
- Interoperability



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## Service Oriented Architecture on the Web



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## Service Mapping Description

- JSON-based service definition structure
- Defines
  - Transport
  - Parameters
  - Expected Response
  - Description
- Clients can use an SMD to build methods to auto-connect to endpoints

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## Service Types

- REST
  - JSONP
  - Plain GET
  - Full read/write (PUT, POST, DELETE)
- RPC
  - JSON-RPC
- Different URL forms
  - /path/id
  - ?name=value

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## Dojo Includes SMDs for major web services

- SMDs for third party services
  - Wikipedia
  - Yahoo
  - Wikipedia
- Web services can advertise their services

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## Dojo Support for SOA

Services + Data



## Services

Services + Data



## Dojo Data

Services + Data



## Example of Service Auto-Generation

```
var services = new dojo.rpc.Service("/mySMD");  
or  
var services = new dojo.rpc.Service({  
  transport:"RST",  
  services:{  
    newsService:{...}  
  }  
});  
services.newsService({query:"dojo"}.  
  addCallback(function(returnValue) {  
    alert("A news item: " + returnValue[0]);  
  }  
});
```

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## ServiceStore

- Adapts web services to dojo.data API
- Plug services directly into widgets
- Supports lazy loading

[http://archive.dojotoolkit.org/nightly/dojotoolkit/dojo/grid/tests/test\\_yahoo\\_search.html](http://archive.dojotoolkit.org/nightly/dojotoolkit/dojo/grid/tests/test_yahoo_search.html)  
<http://www.sitepen.com/blog/2008/06/25/web-service-data-store/>

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## Read/Write (Real) REST Services

- Full REST Services can plugin for full read/write ORM-style functionality:
  - GET - query and get by id
  - PUT - update an object
  - POST - create an object
  - DELETE - delete an object



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## JsonRestStore

- Full Read/Write API
  - Create,
  - Read/Query,
  - Update
  - Delete
- Standards Based (HTTP compliant)

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## JsonRestStore

- Lazy loading
- JSON Referencing
- Transactional
- Offline Support

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## Push/Comet

- Open Protocols for Comet
  - Bayeux
  - XMPP
  - REST Channels



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## Bayeux

- Service Negotiation
- Publish/Subscribe Protocol

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## REST Channels

- REST Based Push Protocol
- Based on HTTP standard semantics

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## HTTP Channels (REST Channels over HTTP)

```
HTTP/1.1 200 OK
X-Event: PUT
Content-Location: /foo/bar

New content of /foo/bar
```

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## REST Channels in JSON

```
{
  "event": "put"
  "source": "/foo/bar"
  "content": "New content of /foo/bar"
}
```

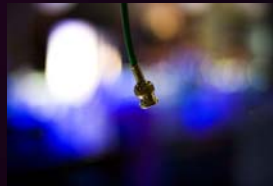
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## Offline + REST

- REST + Thin Server = Easy Offline
- Dojo's support for Offline SOA Applications



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## Security in SOA

- Security clearly distinct from UI code
- Assume users are directly accessing services
- Improved isolation of security



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## Characteristics of good client/server application

- Clean Web API
- Interchangeability
- Presentation on the client
- Business logic on the server

<http://www.sitepen.com/blog/2008/07/18/clientserver-model-on-the-web/>

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## Dojo's SOA

- Service auto configuration
- Integration into Dojo Data model
- Full REST interaction support
- Comet and Offline capabilities
- All based on standards, easy to switch to something else

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My other presentations

- Applied JSON: REST, Ajax Databases
- Secure Mashups
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