FÓRUM Padrões OGC

OGC®

Making location count.

MundoGEO

#connect

LatinAmerica 2012

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Introduction to distributed computing and Web services

Web Services

Internet (2010)

250 millions websites

80 millions domain.com

30 billions new pictures on Facebook

Clients

Protocols

source: http://www.mccampbellglobal.com/Our-Services.html

Unique Resource Identifiers (URIs)

* Uniform Resource Identifier
    * Unique string identifying a resource (websites, pictures in Facebook etc..)
* Uniform Resource Name
    * Name of the resource with in a namespace
    * It is a URI
* Uniform Resource Locator
    * How to find the resource (what you type on your browser)
    * It is a URI

Uniform Resource Locator (URL)

http://portal.opengeospatial.org/files/?artifact_id=27810

Parts:

* protocol (http, ftp, news)
* host name (portal.opengeospatial.org)
* port (usually 80 but many on 8080)
* directory path to the resource
* resource name
* parameters and values (after ?) artifact_id=27810

HTTP

❋ Hypertext Transport Protocol

❋ Language of the Web

❋ Protocol used for communication between web browsers and web servers

HTTP GET

- retrieve a URL from the server
- simple page request
- run a server (CGI program)
- run a CGI with arguments attached to the URL

HTTP POST

* preferred method for forms processing

* run a program

* parameterized data in sysin

* better handles security and privacy

HTTP PUT

- Transfer a file from a client to a server. For example:
    - Publishing a page
    - Editing a page in a server

HTTP HEAD

- Requests URLs header only
- Useful to synchronize data

HTTP Request

* Send from client to server
* HTTP Header + URL
* Header is used by the browser to send the following information:
    * content type (mime type)
    * content length
    * user agent (browser issuing request)
    * content types user agent can handle

HTTP Reponse

* Send by sever to client in response of the HTTP Request
* Header + Body Content
* Status Codes:
    * 200 OK
    * 201 created
    * 202 accepted
    * 401 unauthorized
    * 403 forbidden
    * 404 not found

….

HTTP GET

```
http://www.example.com/wfsserver?service=wfs&
    version=1.1.0&request=GetCapabilities
```

HTTP GET – Easy to pass parameters and values

```
http://www.example.com/wfsserver?
    service=wfs&
    version=1.1.0&
    request=GetCapabilities
```

HTTP POST

```
     <?xml version="1.0"?>
          <wfs:GetCapabilities
              service="WFS"
              version="1.0.0"

              xmlns:wfs="http://www.opengis.net/wfs"
              xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance"
              xsi:schemaLocation="http://www.opengis.net/wfs
                          http://schemas.opengis.net
                                  wfs/1.0.0/WFS-basic.xsd"
     />
```

Encodings

< XML />

Operation

- Call to an object
- Has a name
- Specificies parameters

Interface

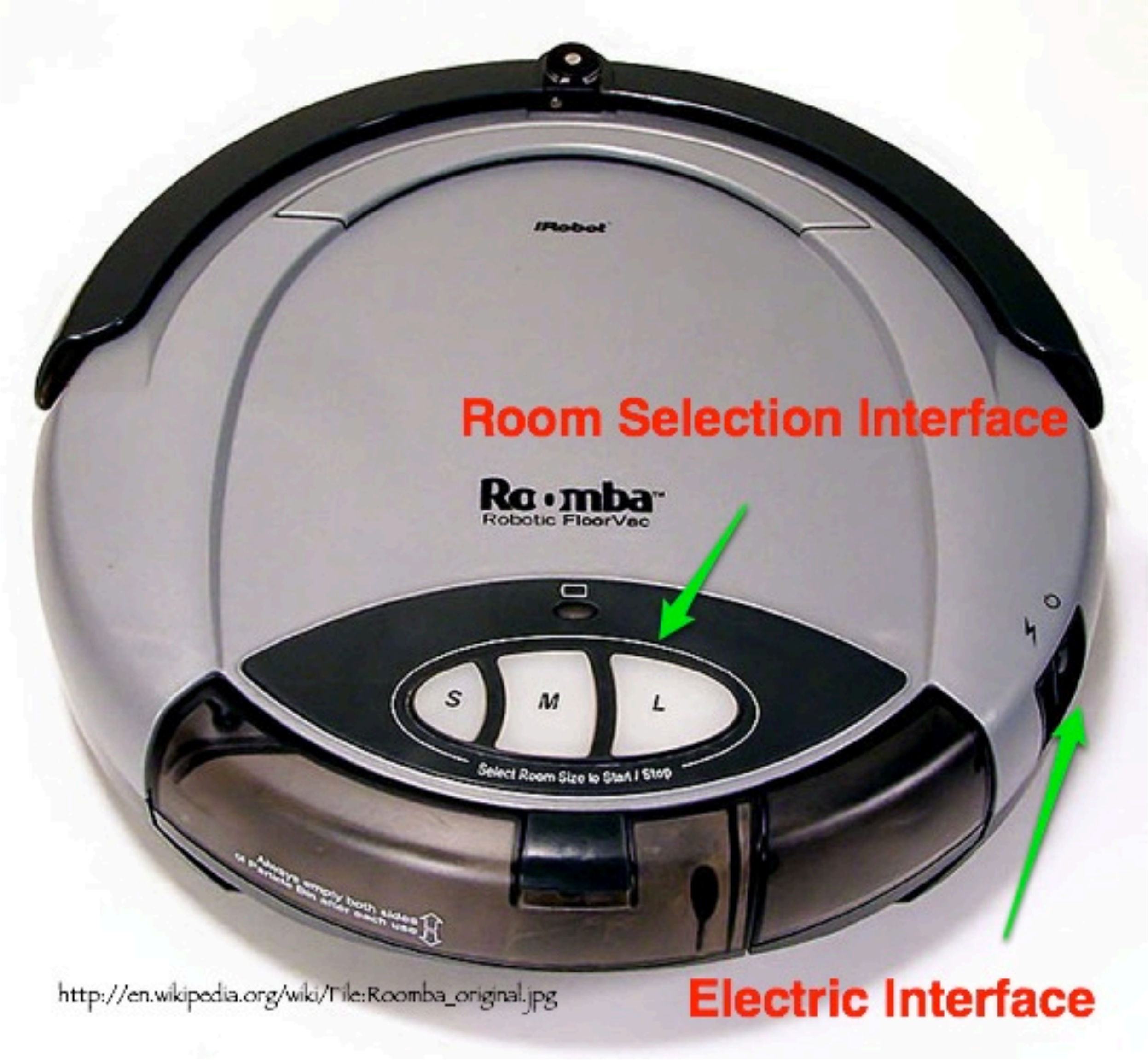
- Set of operations
- Characterizes the behavior of an entity
- Build on protocols

Service

iRobot
Roomba™
Robotic FloorVac
S
M
L
Select Room Size to Start / Stop
Always empty both sides of Particle Bin after each use

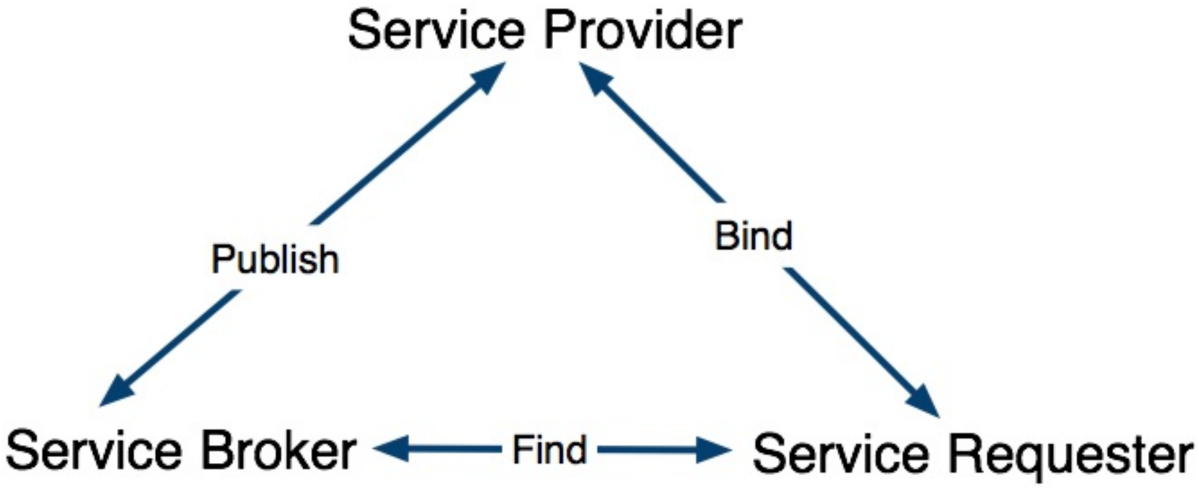
http://en.wikipedia.org/wiki/File:Roomba_original.jpg

Service has interfaces. An Interface has operations.


Room Selection Interface
iRobot
Roomba™
Robotic FloorVac
S
M
L
Select Room Size to Start / Stop
Always empty both sides of Particle Bin after each use
Electric Interface

http://en.wikipedia.org/wiki/File:Roomba_original.jpg

OGC Web Services


Service Provider
Publish
Bind
Service Broker
Find
Service Requester