52° NORTH WPS FRAMEWORK WITH ARCGIS GEOPROCESSING SUPPORT - OPEN SOURCE SOLUTION MEETS CLOSED SOURCE SOFTWARE

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52°North

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I have a dream…

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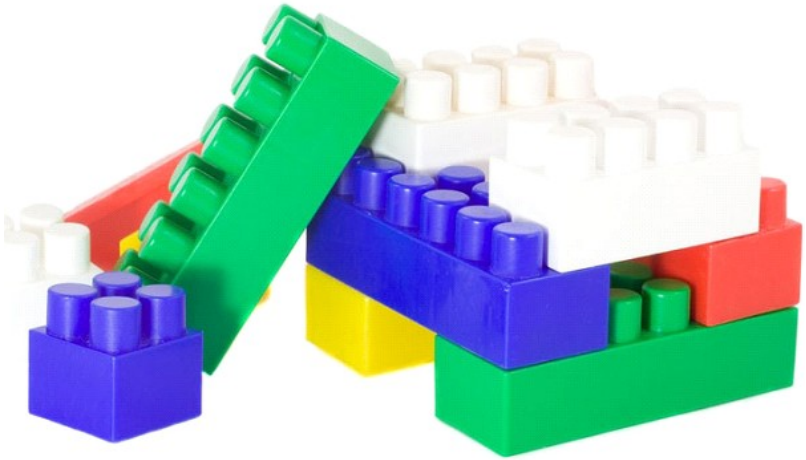
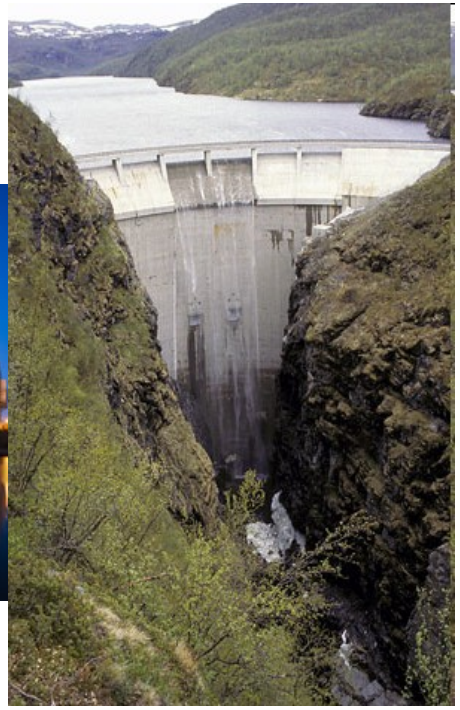
Ubiquitious Geoprocessing





Reinvent the Wheel

Swiss Knife

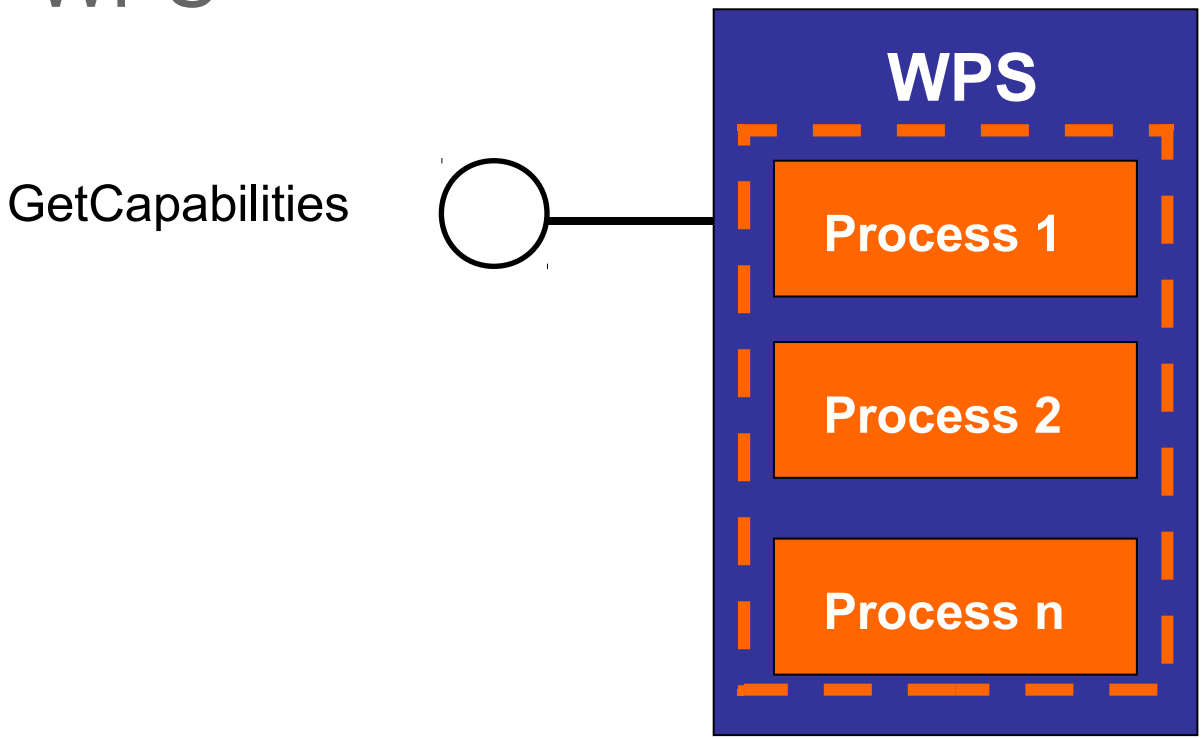
542 GIS Functions

Dark Side

Ubiquitious Geoprocessing

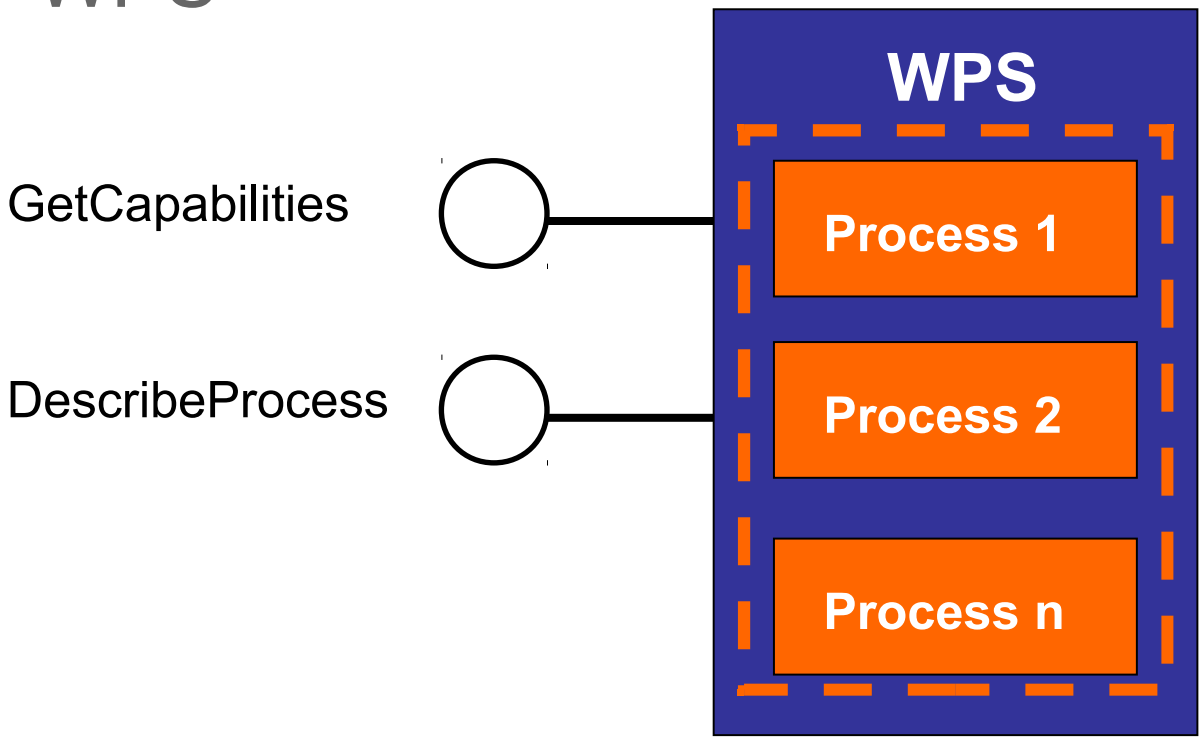
WPS

- WPS



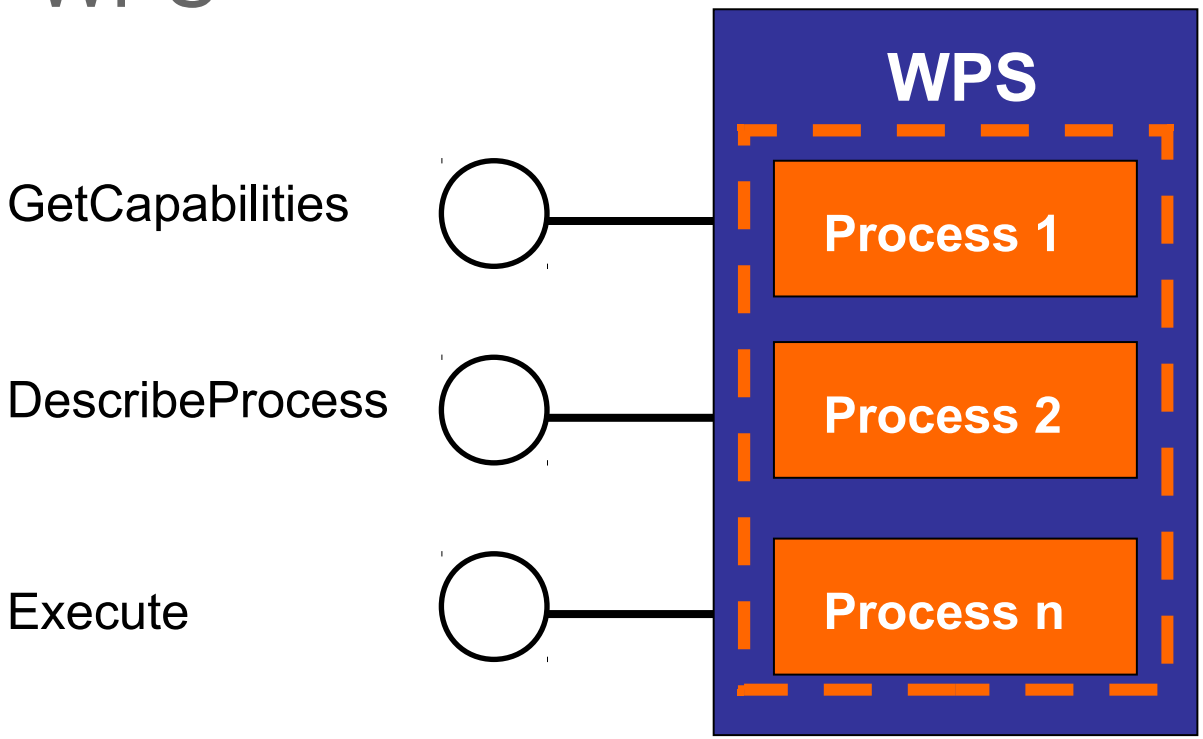
WPS

- WPS

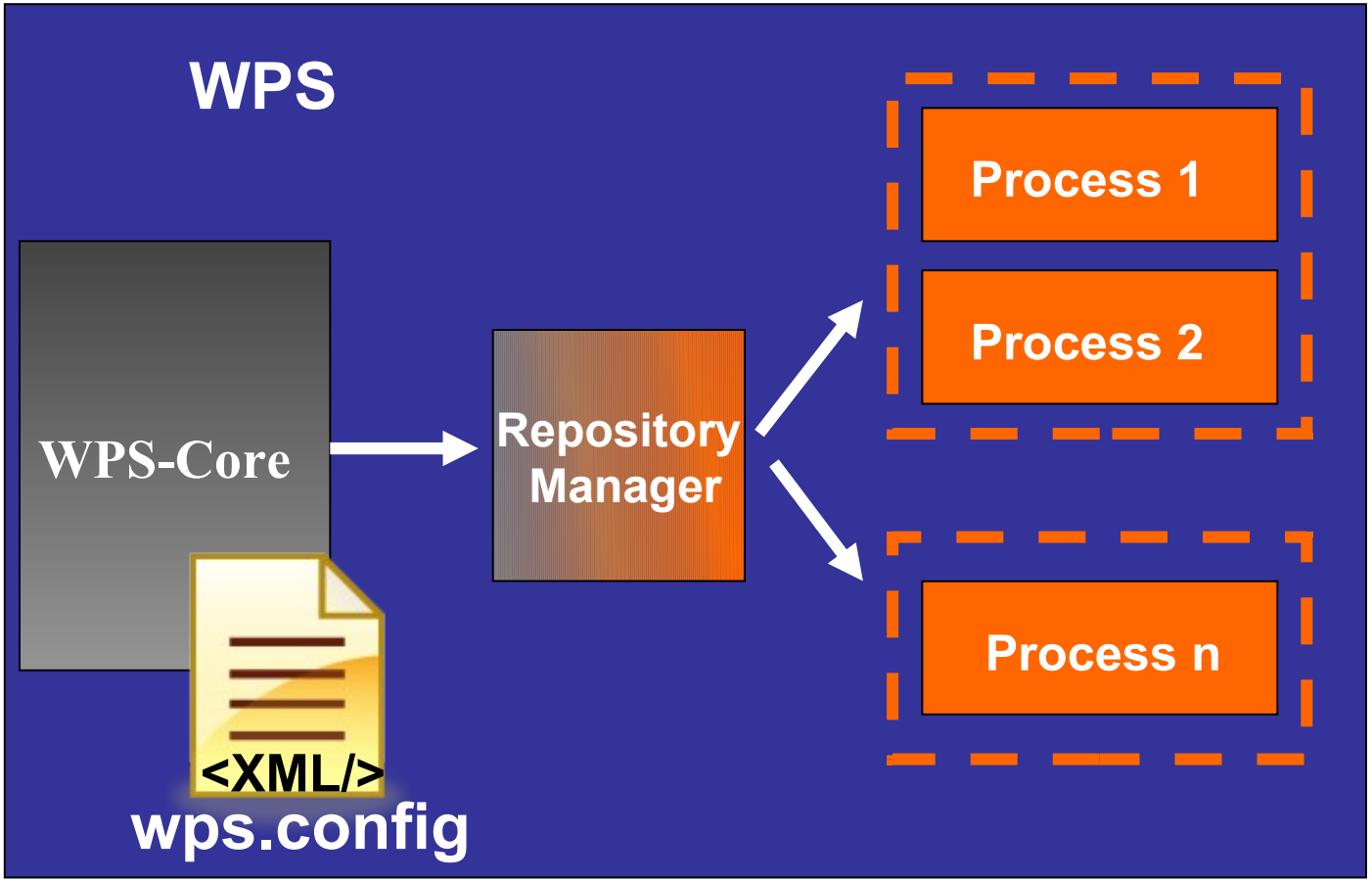

WPS
GetCapabilities
DescribeProcess
Process 1
Process 2
Process n

WPS

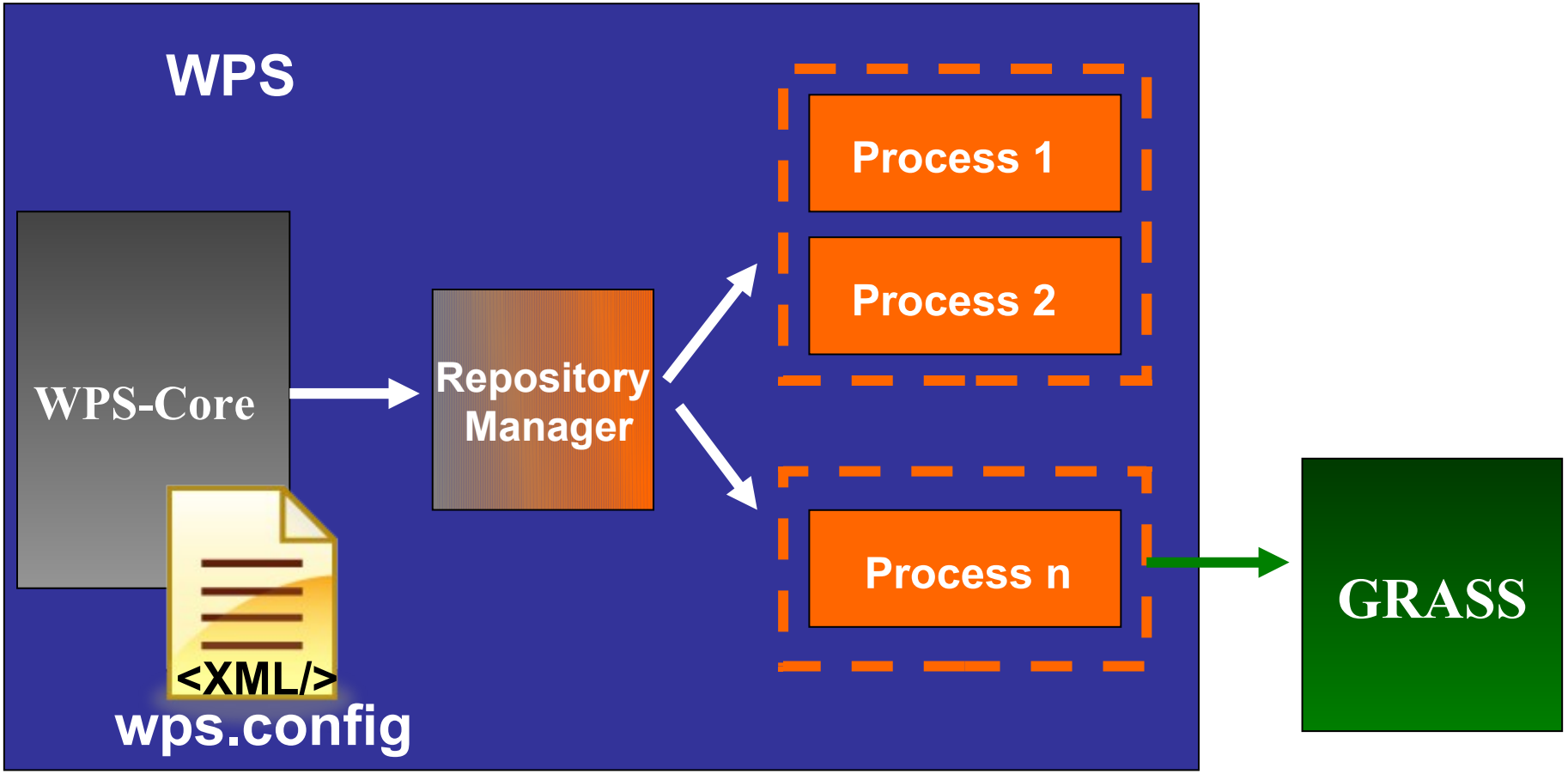
- WPS


WPS
GetCapabilities
DescribeProcess
Execute
Process 1
Process 2
Process n

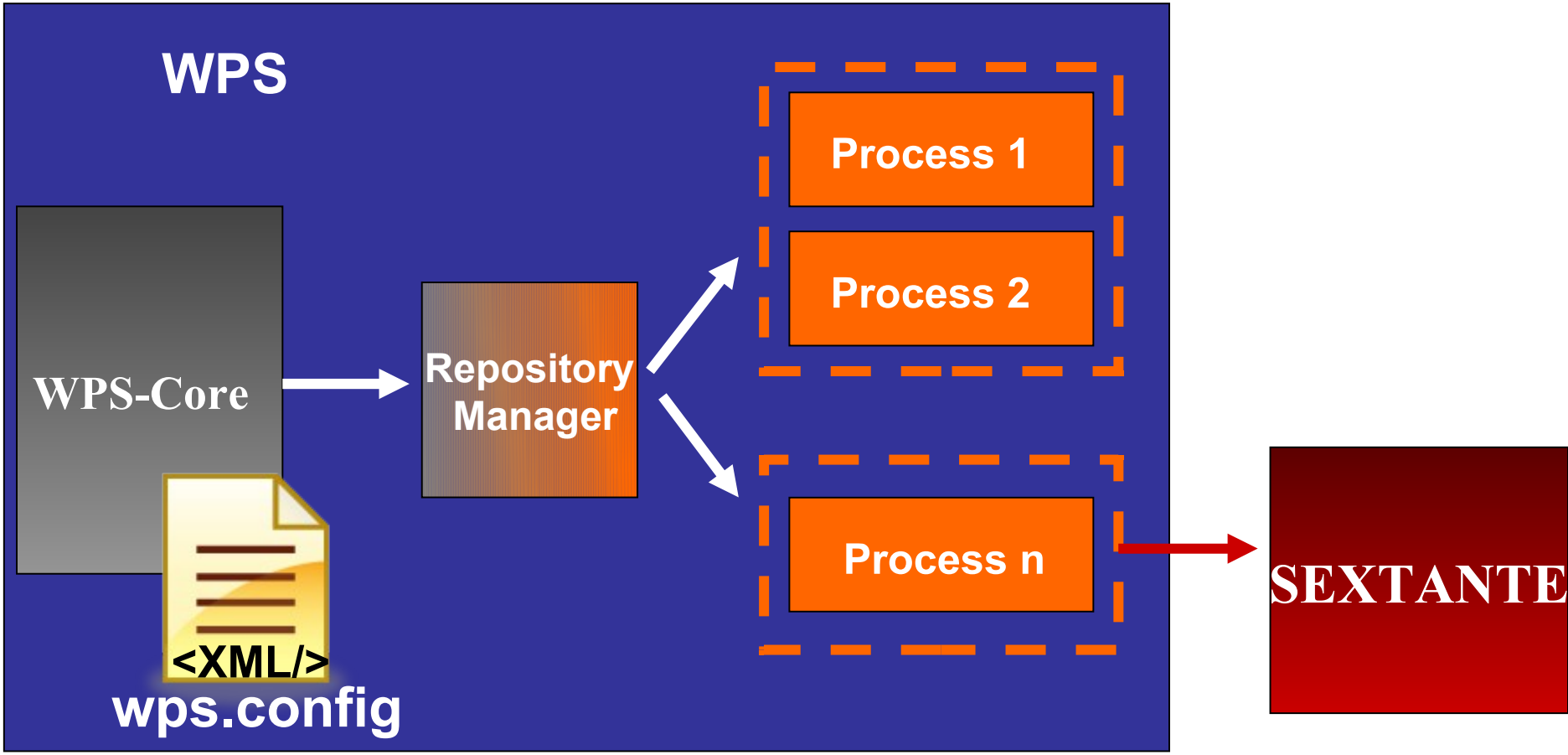
Repository Concept



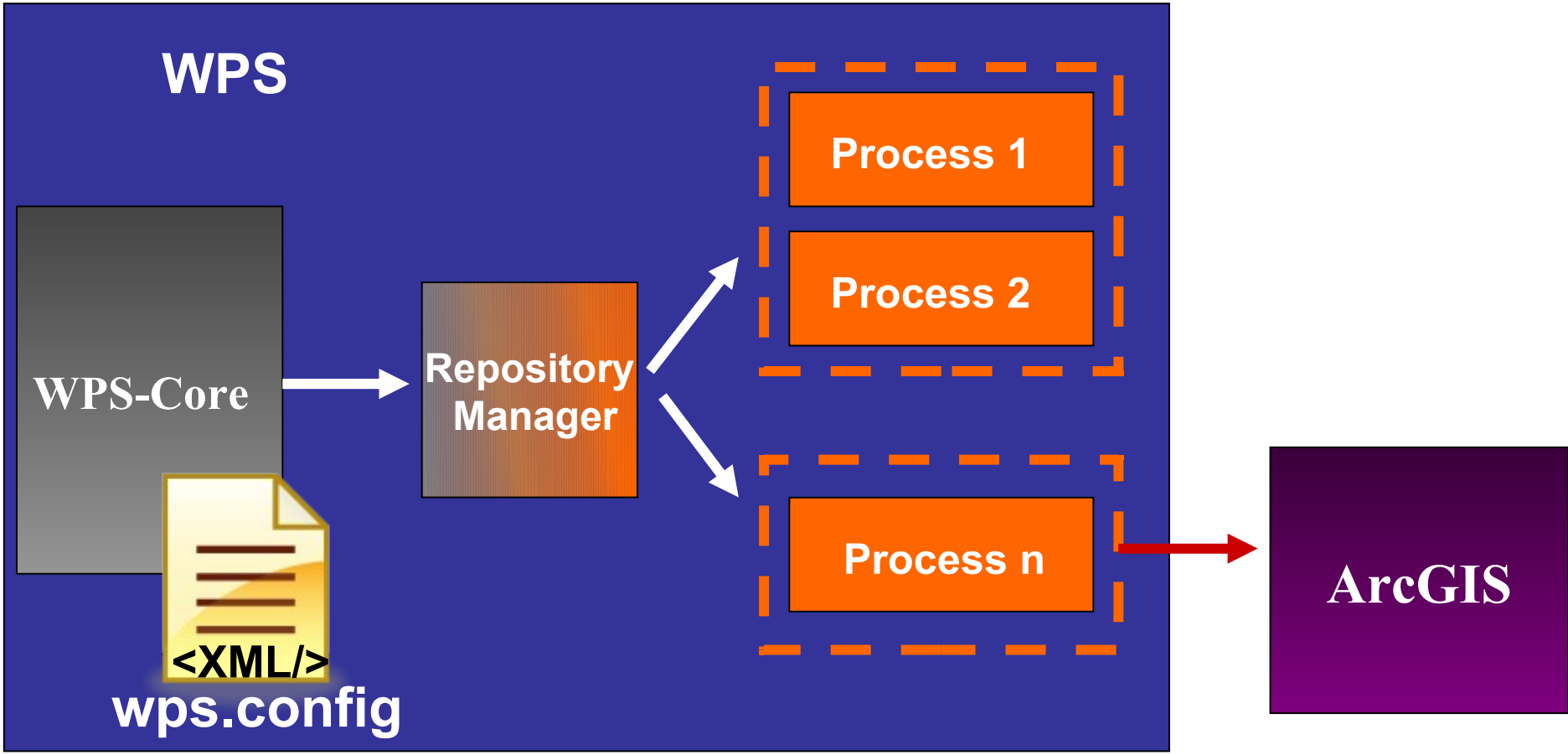
Repository Concept



Repository Concept



Repository Concept



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Connect to a Backend

1. Update WPS Metadata
2. Create Process Metadata
3. Route inputs/outputs

Update Service Metadata

- Creation of ProcessDescriptions

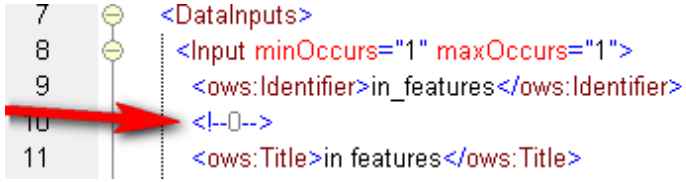
  →Identifier=GP Name

  e.g. Buffer_Analysis

ProcessDescriptions

- Map ArcGIS to inputs
- Annotate it

→Keep ArcGIS Order

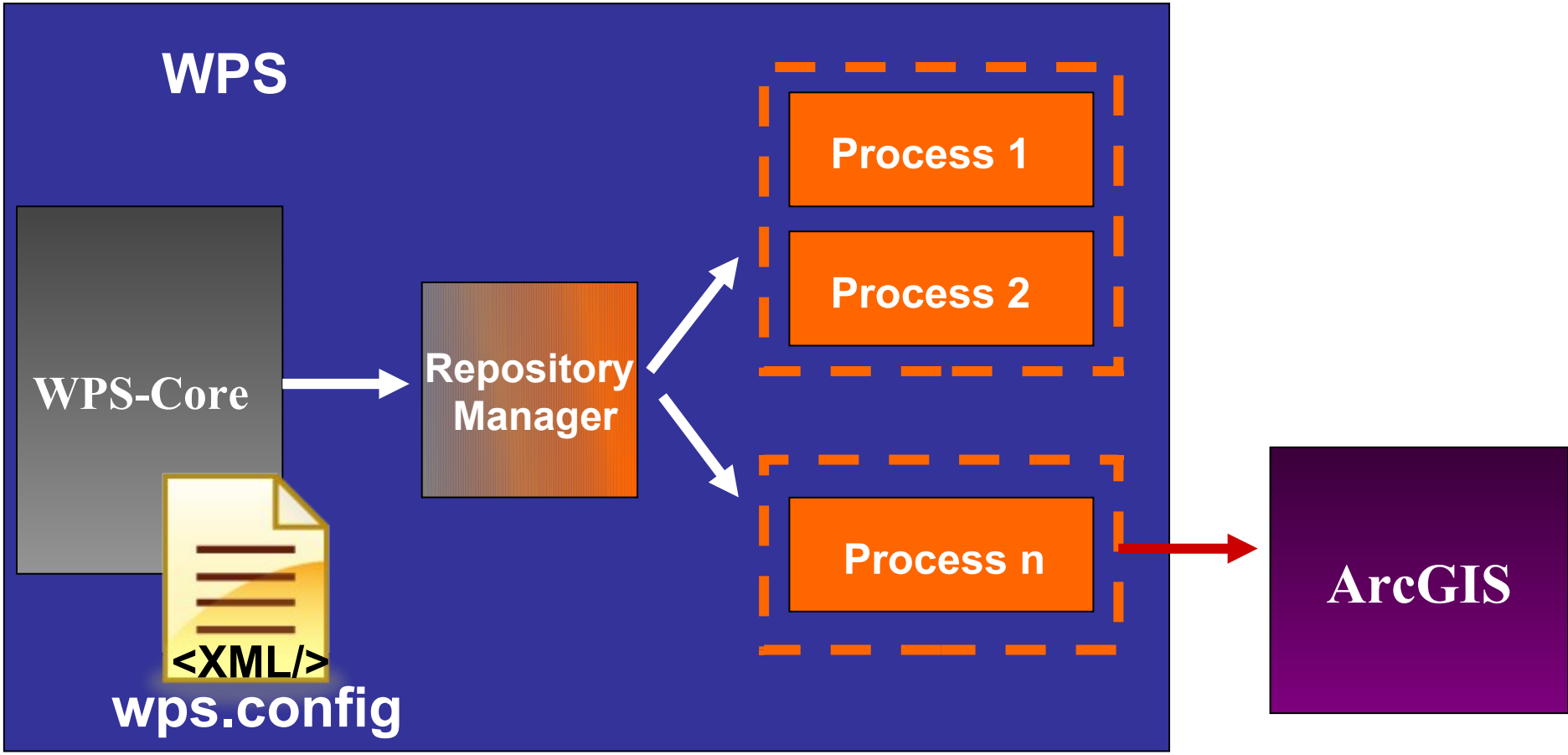


→Generic Delegation Mechanism

→Add more process descriptions/own models

→No Programming

Repository Concept



ArcGIS Binding

- Options
  - Web Service Interface
  - ArcObjects

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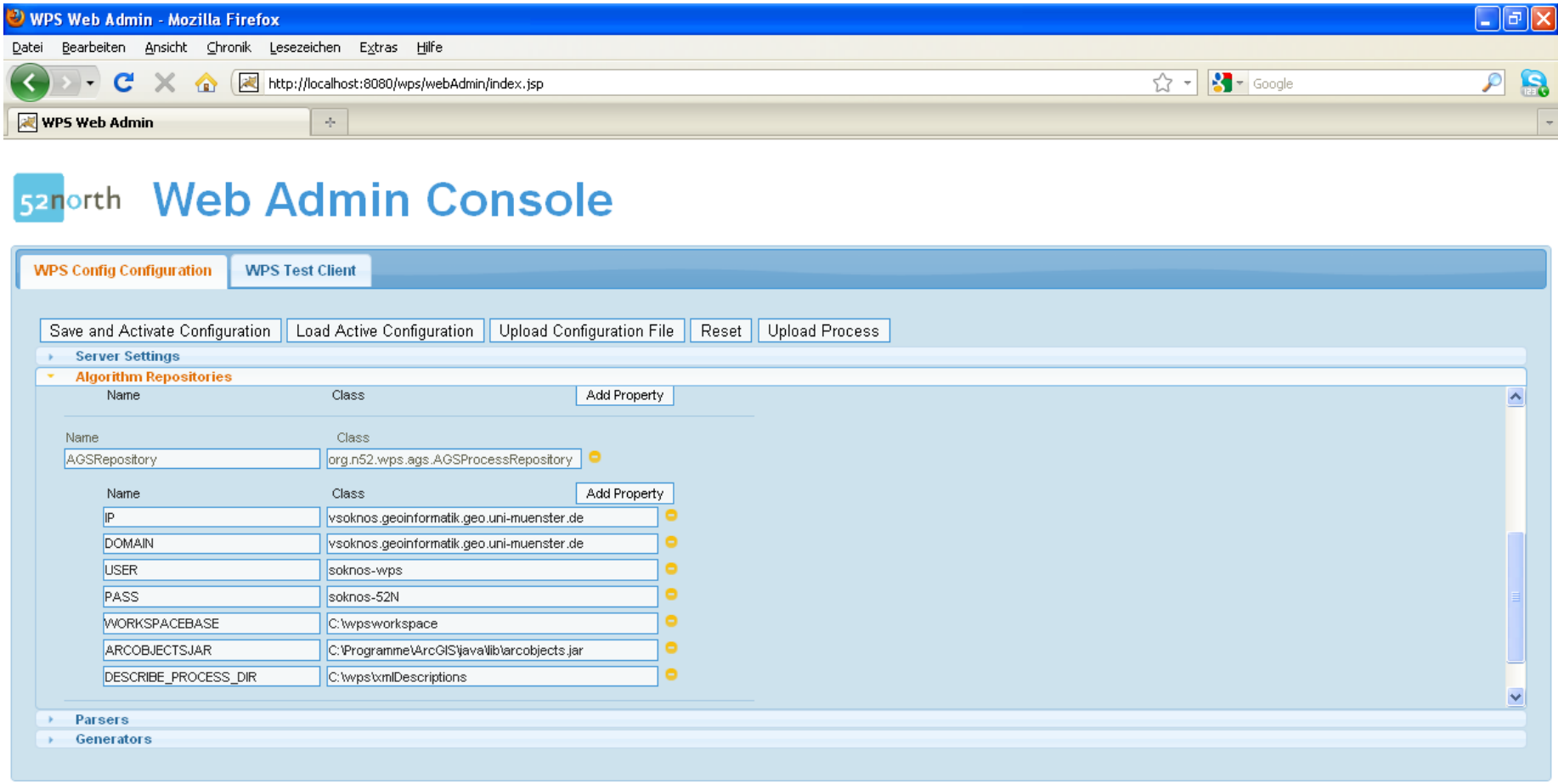
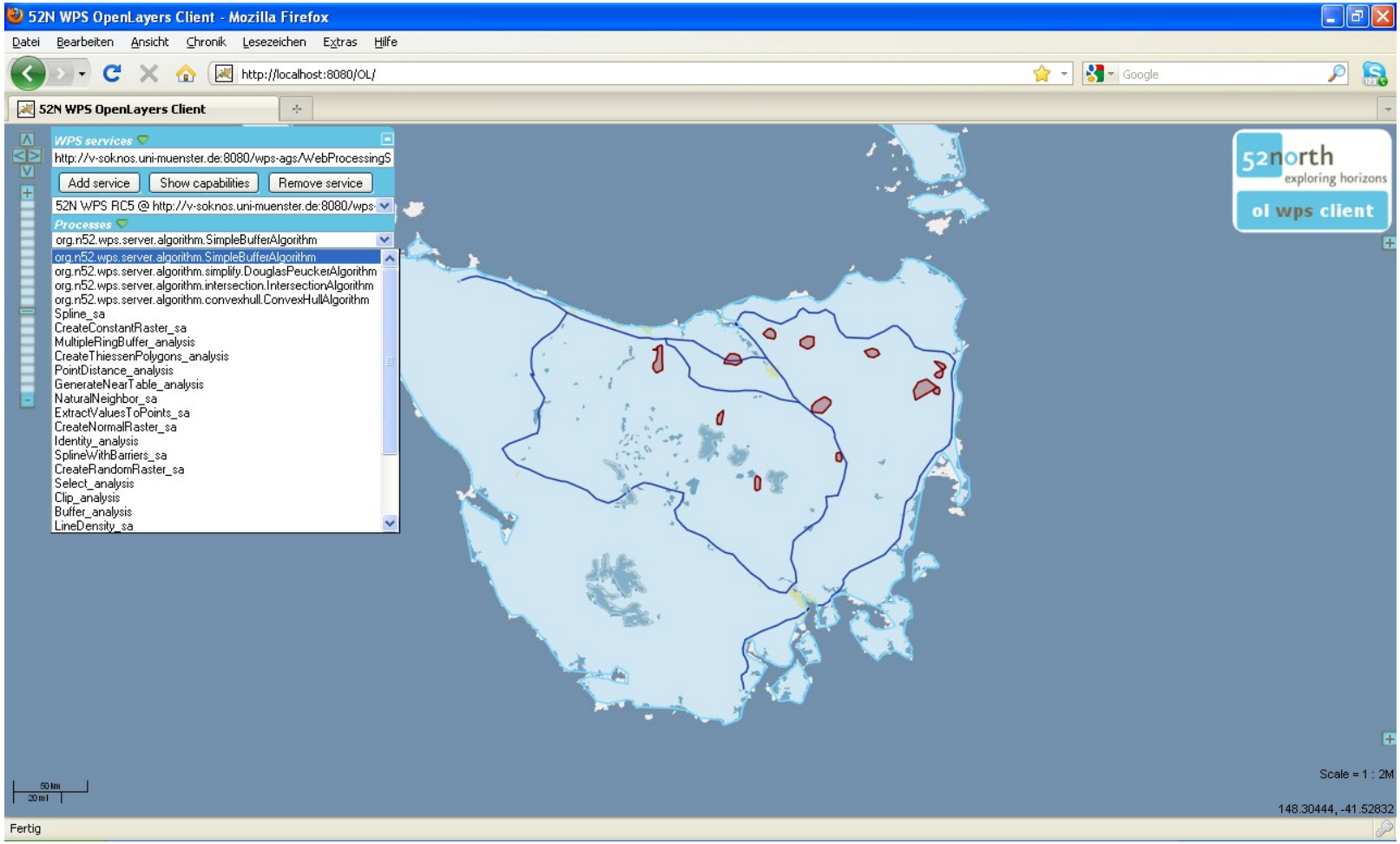
WPS in Action


WPS Web Admin - Mozilla Firefox
Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe
http://localhost:8080/wps/webAdmin/index.jsp
WPS Web Admin
52north Web Admin Console
WPS Config Configuration
WPS Test Client
Save and Activate Configuration
Load Active Configuration
Upload Configuration File
Reset
Upload Process
Server Settings
Algorithm Repositories
Name
Class
Add Property
AGSRepository
org.n52.wps.ags.AGSProcessRepository
IP
vsoknos.geoinformatik.geo.uni-muenster.de
DOMAIN
vsoknos.geoinformatik.geo.uni-muenster.de
USER
soknos-wps
PASS
soknos-52N
WORKSPACEBASE
C:\wpsworkspace
ARCOBJECTSJAR
C:\Programme\ArcGIS\java\lib\arcobjects.jar
DESCRIBE_PROCESS_DIR
C:\wps\xmlDescriptions
Parsers
Generators

WPS-AGS


52N WPS OpenLayers Client - Mozilla Firefox
Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe
http://localhost:8080/OL/
52N WPS OpenLayers Client
WPS services
http://v-soknos.uni-muenster.de:8080/wps-ags/WebProcessingS
Add service
Show capabilities
Remove service
52N WPS RC5 @ http://v-soknos.uni-muenster.de:8080/wps
Processes
org.n52.wps.server.algorithm.SimpleBufferAlgorithm
org.n52.wps.server.algorithm.SimpleBufferAlgorithm
org.n52.wps.server.algorithm.simplify.DouglasPeuckerAlgorithm
org.n52.wps.server.algorithm.intersection.IntersectionAlgorithm
org.n52.wps.server.algorithm.convexhull.ConvexHullAlgorithm
Spline_sa
CreateConstantRaster_sa
MultipleRingBuffer_analysis
CreateThiessenPolygons_analysis
PointDistance_analysis
GenerateNearTable_analysis
NaturalNeighbor_sa
ExtractValuesToPoints_sa
CreateNormalRaster_sa
Identity_analysis
SplineWithBarriers_sa
CreateRandomRaster_sa
Select_analysis
Clip_analysis
Buffer_analysis
LineDensity_sa
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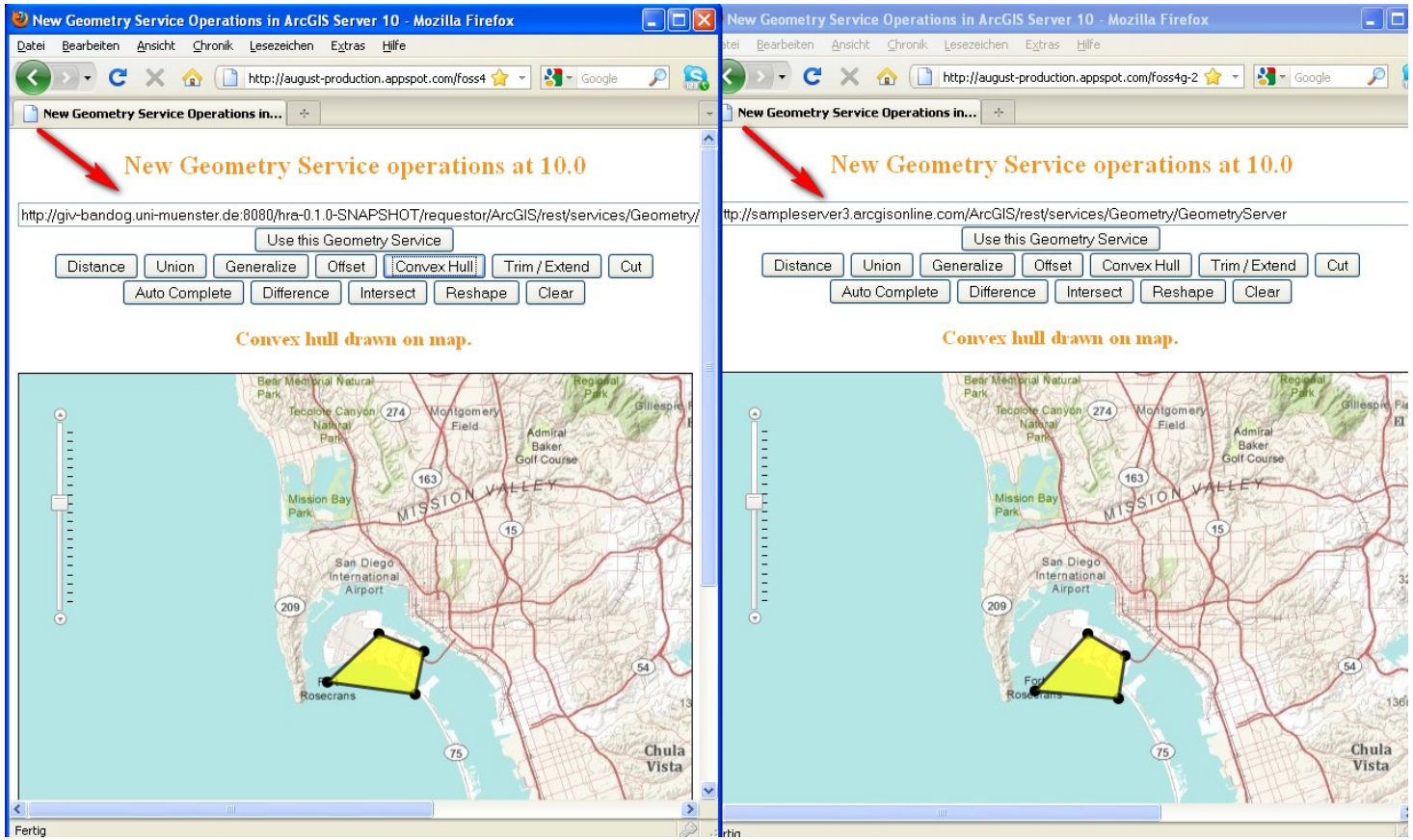
ol wps client
Scale = 1 : 2M
148.30444, -41.52832
Fertig

ESRI-REST API



WPS-AGS in action

- Video

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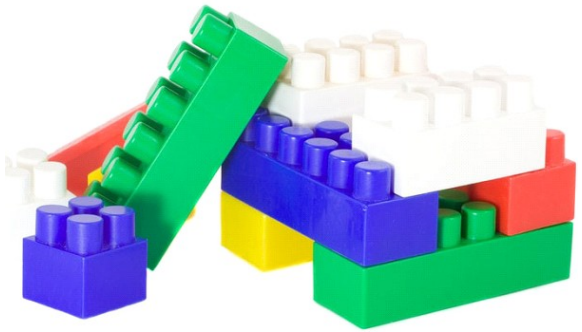
Summary

- Combination of OpenSource/Closed Source
- Works in both directions
- Easy to configure
  - →No Programming
- Runs out of the box
- Extensible
  - →own models
- Reliable Processes

Future Work

- Update Mechanism
  → Moving Code Paradigm
- Cloud ready