

# Using Grassroots, Standards-Based GIS to Support Cross-Jurisdictional Activities

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# Agenda

- ▶ Why We Share GIS Data
- ▶ Approaches to Sharing and Distributing Spatial Data
- ▶ Use Case: Access Controlled OGC Web Services
- ▶ Future: OS Community Contribution, Local Implementations

# Why We Share Spatial Data

- ▶ Reduce burden of data development and maintenance
- ▶ Reduce need for data collection
- ▶ Simplify cross-jurisdictional map-centric activities
- ▶ Improved decision-making with broader informational picture
- ▶ Shared data often leads to shared ideas and collaboration
- ▶ Mandate or perceived mandate

# How We Share Spatial Data: *Downloads*

	+	-
Custodian:	Short hardware demand Need not supply tools	No control of data post-download e.g. Google Parcels, etc.
User:	Control of data Sense of ownership Apply chosen tools	No built in tools No auto updates May need to transform No visuals, metadata Must store data

# How We Share Spatial Data

## Downloads – City of Vancouver Example

City of Vancouver

Search  
Help

Residents Business Visitors Jobs with the City Services Departments City Projects Pay & Purchase Online

Open data home

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**Get the data**

Data catalogue

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**About the data**

Data formats

Data updates

Terms of use

Feedback

### Data catalogue

Name	<a href="#">CSV/XLS</a>	<a href="#">DWG</a>	<a href="#">KML</a>	<a href="#">SHP</a>	<a href="#">ECW</a>	<a href="#">Mr SID</a>
C						
<a href="#">Community Centres</a>	✓		✓			
<a href="#">Contour</a>				✓		
D						
<a href="#">Drinking fountains</a>						
F						
<a href="#">Facet grid boundaries</a>						
<a href="#">Fire Halls</a>						
G						
<a href="#">Garbage collection schedule zones</a>						
L						
<a href="#">Land (cadastral)</a>						
<a href="#">Libraries</a>						
<a href="#">Local area boundary data</a>						
M						
<a href="#">Municipal Election Results</a>						
O						
<a href="#">Orthophoto imagery</a>						

**Data updates**

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### Data catalogue

#### Parks data

Data custodian	Board of Parks and Recreation
Data currency comments	Data taken from Park Board site in July 2009.
Data set description	This data file provides the name and address of the parks in Vancouver along with their latitude and longitude.
Data accuracy comments	This data is as accurate as the data on the Parks and Recreation site. Latitude and longitude are for a point in the park.
Attributes	Name, address and latitude and longitude.
Websites for further information	<ul style="list-style-type: none"> <li><a href="http://vancouver.ca/parks/parks/index.htm">http://vancouver.ca/parks/parks/index.htm</a></li> </ul>
Projection	Latitude, longitude, NAD 83 (CSRS)

# How We Share Spatial Data

## *Public Geo-Viewers*

Custodian:

+

Control of data  
Control of tools  
Variable access control

-

Regular hardware demand  
Must supply app

User:

Auto updates  
Built in tools  
No data storage

No control of data  
Limited to session

# How We Share Spatial Data

## *OGC Web Services*

Custodian:

+

Control of data  
Many OGC servers

-

Regular h/w demand  
Maintain W\*S server  
**No access control**

User:

Control of querying  
Control of rendering  
Auto updates  
Wide array of viewers  
No data storage

No control of data  
No sense of ownership  
Must supply tools

# Spatial Data Sharing Methods and Cross-Jurisdictional Activities

## ► Downloads

- Leads to storage duplication
- Issues with data synchronicity

## ► Viewers

- Can't integrate data from different sources
- Limits compiling broad informational picture

## ► OGC Web Services

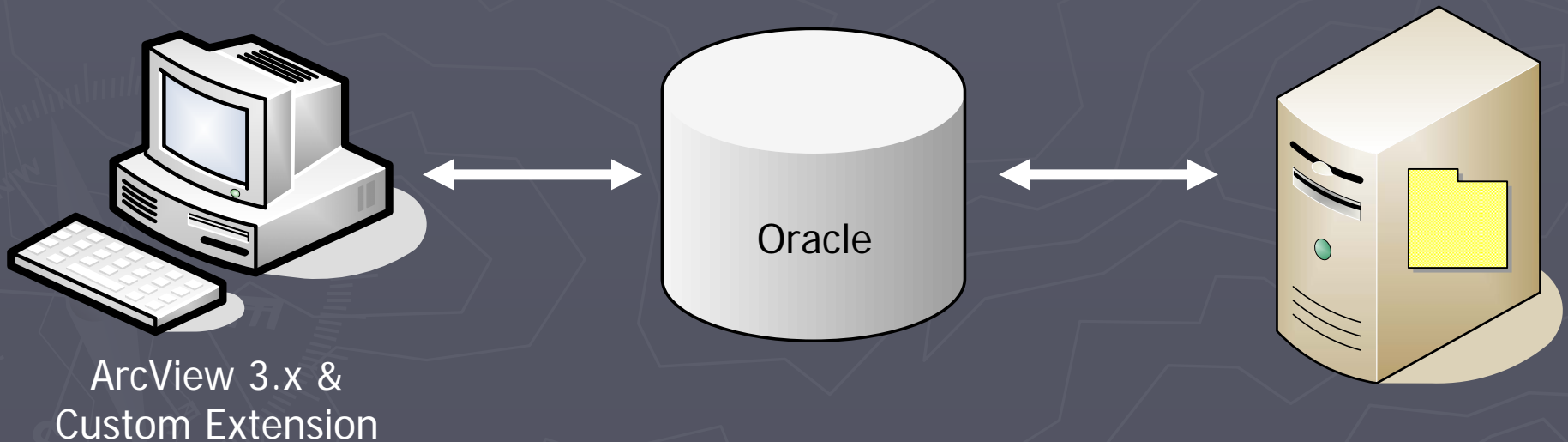
- Users can integrate variable sources, allowing unlimited informational picture
- No storage necessary
- **Not perfect, but since they are standards-based, community enhancements are achievable**

# Use Case: OWS Security and Tracking

- ▶ US Army Corps of Engineers (USACE)
  - Omaha District
  - GIS users cover seven state area north and west of Omaha
  - Maintain multiple terabytes of raster and vector data
- ▶ USACE Request:
  - Control access and monitor usage of WMS, WFS and WCS services

# OWS Security and Tracking

- ▶ Traditionally, central server, heavy client model



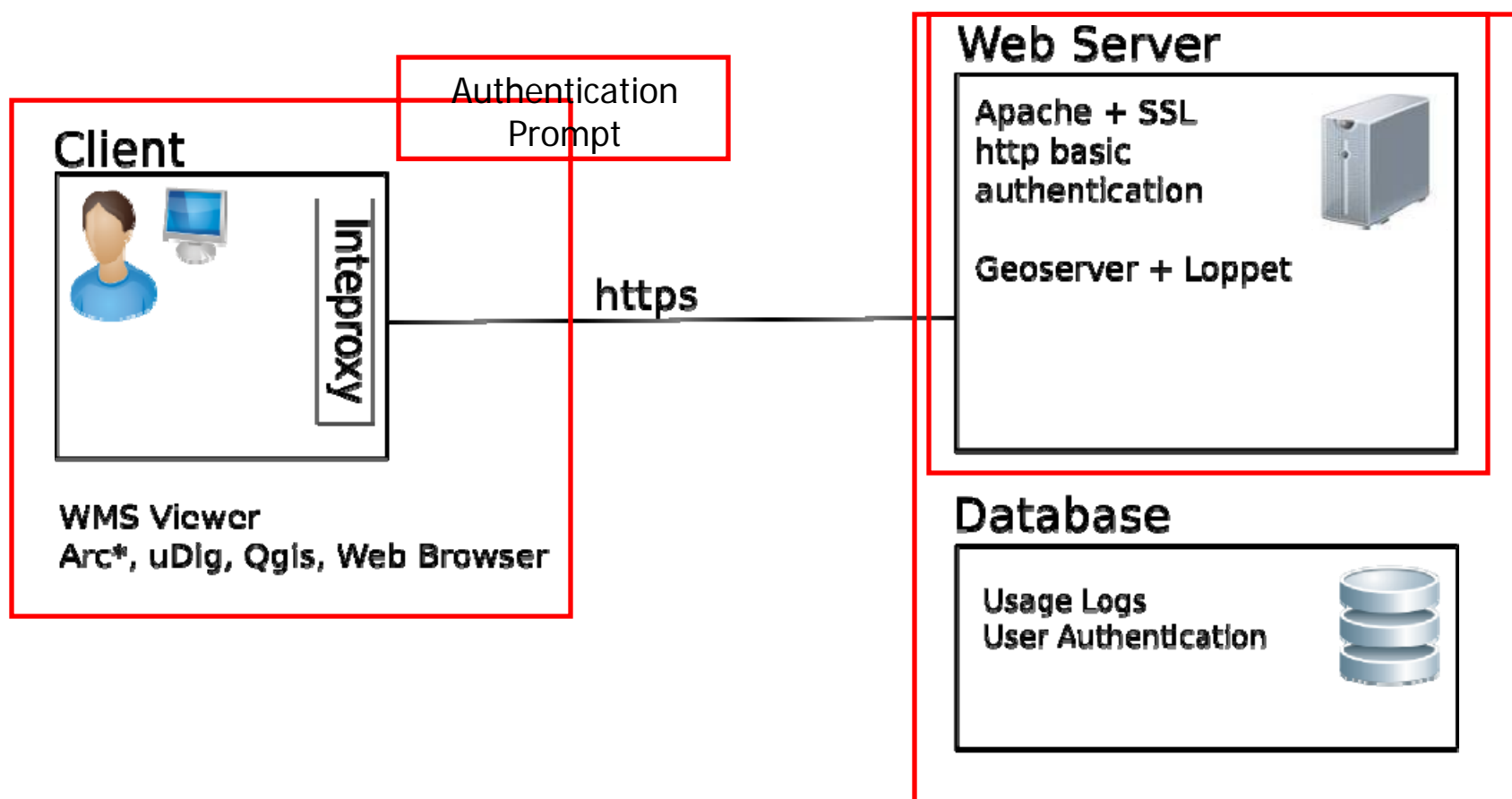
# OWS Security and Tracking

- ▶ Currently, central server, thin client model
- ▶ Apache + SSL + Basic Authentication
- ▶ Extended GeoServer with Loppet
- ▶ Utilized InteProxy for client https proxy
  - (<http://inteproxy.wald.intevation.org>)

# OWS Security and Tracking

- ▶ Loppet is a Geoserver extension that modifies Geoserver's Acegi configuration to replace property files with an RDBMS
- ▶ The Geoserver code does not need to be modified directly; Loppet objects are injected into Geoserver according to the Spring XML file in its default package
- ▶ per-layer security
- ▶ logging to layer access

# OWS Security and Tracking



Loppet is a Geoserver extension that modifies Geoserver's Acegi configuration to replace property files with an RDBMS and log authentication events.

# OWS Security and Tracking *Future*

- ▶ Implement in USACE public access
- ▶ Contribute Loppet back to open source GeoServer Community
- ▶ Explore and assist with local and state implementations

Comments/Questions?

