



Autodesk and Open Source

Geoff Zeiss
Director of Technology



INTERGEO®

Conference and trade fair for geodesy,
geoinformation and landmanagement
Bremen, September 30th to October 2nd, 2008



Image courtesy of Magna Steyr Design

- Autodesk and Open Source
- Business opportunities in Utilities:
Interoperability, Aging Workforce

Autodesk and Open Source



Open Standards





Geospatial Standards

Open Geospatial Consortium

- Simple Feature Specification (SFS)
- Geographic Markup Language (GML)
- OGC Web Services
 - WMS
 - WFS
 - ...

Standards create fertile ground for open source

Standards

C, C++

POSIX

HTTP

SQL, ODBC

SMTP, POP

.Net

Open Source Projects

Gnu C, C++ compiler

GNU/Linux, BSD, ...

Apache Web Server

MySQL, PostGreSQL,...

Sendmail, etc.

Mono

Commoditization: Apache Foundation

- **NCSA HTTP Server and the Apache Group**
- **Challenge: commercializing the web**
- **IBM supported creation of the Apache Foundation**
- **Result: Apache Web Server** - Running on over 70% of the world's web servers.

Autodesk: Web mapping should be open source

- Web mapping is commoditized
- Widely-recognized geospatial standards
- Less complex than desktop applications
- Successful open source community around *MapServer*

Formation of the Open Source Geospatial Foundation

- **Autodesk joined forces with the open source geospatial community**

- U-Minnesota MapServer, GDAL, GRASS, GeoTools, MapBender, OSSIM, DM Solutions Group, ...

- **Supported establishment of a foundation**

- To support the ongoing development of open web mapping technologies

- **Contributed code**

- *MapGuide Open Source*
- *FDO*
- **CS-MAP** (*Mentor Software coordinate system technology*
<http://trac.osgeo.org/csmapi/>)

Autodesk Contributions to OSGEO



MapGuide Open Source
Web Mapping Platform



mapguide.osgeo.org

FDO
Data Access Technology



fdo.osgeo.org

- 3 Autodesk contributions
- Community contributions
- Unlocking Spatial data access and democratizing coordinate system library

Coordinate System
Library

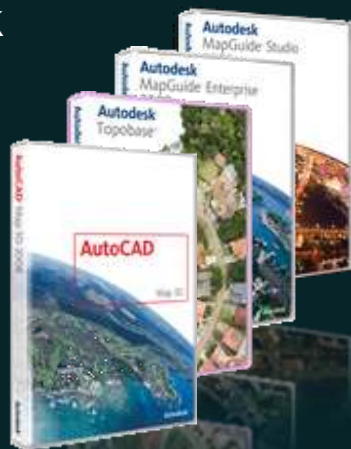


metacrs.osgeo.org

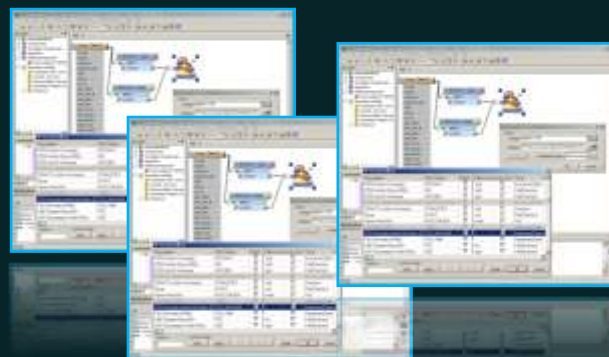
- Free Source Code
- Free Documentation
- Multiple APIs: .Net, C++, PHP, Java

FDO: Geospatial Data Access Technology

Autodesk Products






3rd Party Solutions



Autodesk Certified Providers

Providers from 3rd Party & Open Source

Providers supporting multiple formats	Autodesk Certified Providers			Providers from 3rd Party & Open Source		
	ODBC	Raster	ArcSDE®	 150+ vector and raster formats	OGR	 25+ raster formats
	MS Access, Excel and Oracle	15+ raster formats	Oracle and SQL-Server		25+ vector formats	25+ raster formats
Providers supporting single format	SDF	Microsoft SQL Server 2005	Microsoft SQL Server 2008	PostGIS	ORACLE	Microsoft SQL Server 2005
	SHP	ORACLE	GE Energy Smallworld	SuperMap	IBM Informix Dynamic Server	KML
	WMS					
	WFS					

Vertical Industry Sectors

Open Source Adoption

- Government
 - Research and development
 - Utilities
 - Land management
 - Military
 - Municipal government
 - Commercial
 - Utilities
 - Telecommunications
 - Financial (Banks)
- High
 - Insignificant
 - Insignificant
 - High
 - Low
 - Insignificant, but growing
 - Significant (Mobile and Back-office)
 - Significant (Back Office)

Perceived Benefits of Open Standards and Open Source

Open Standards

- **Increased security**
- Interoperability
- Avoid vendor lock-in
- Supports best of breed procurement
- Encourages competition
- Lowers cost

Open Source

- **Security**
- Standards-compliant
- Flexibility and agility
- Quality
- Lower risk
- Reduced cost



Takeways

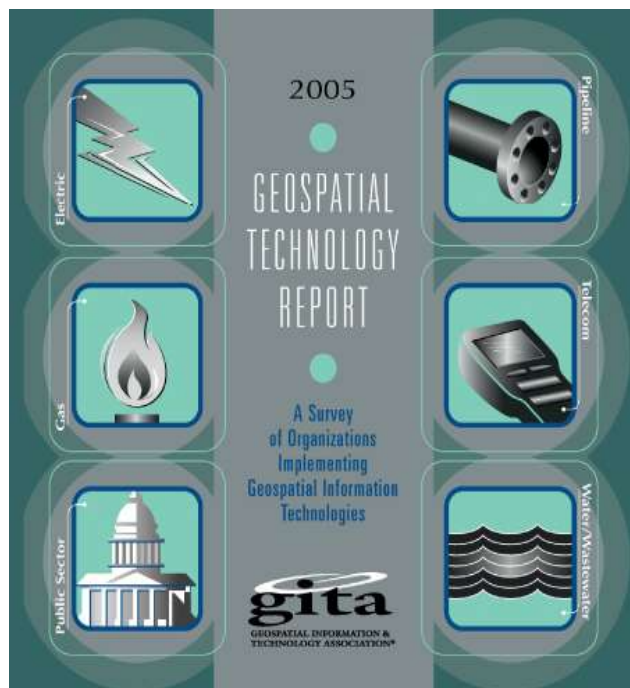
- Open source is ubiquitous in DoD
 - Ex. Aegis Weapon Systems 30% open source
- Accepted wisdom in DoD that open source is more secure
 - Founded on Eric Raymond's "many eyeballs" hypothesis
- Open source software has been recognized as COTS
 - Levels the playing field
- In the near future, DoD procurement guidelines could be
 1. Open source
 2. If not OS, then proprietary
 3. If not proprietary, then build it yourself

Challenge in Utilities: Interoperability and the Aging Workforce



Challenge: Interoperability

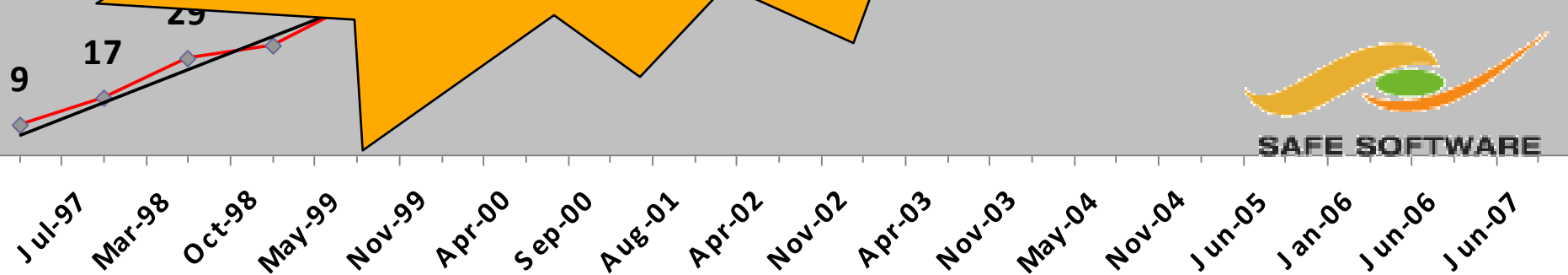
GITA Annual Technology Survey



Year	Number of utilities surveyed	Proportion with more than one GIS
2002	187	NA
2003-2004	204	1/3 - 1/2
2005	294	60%
2006	386	70%

Challenge: Interoperability

**Perhaps we need a
Format Non-
Proliferation Treaty!**





Aging Workforce

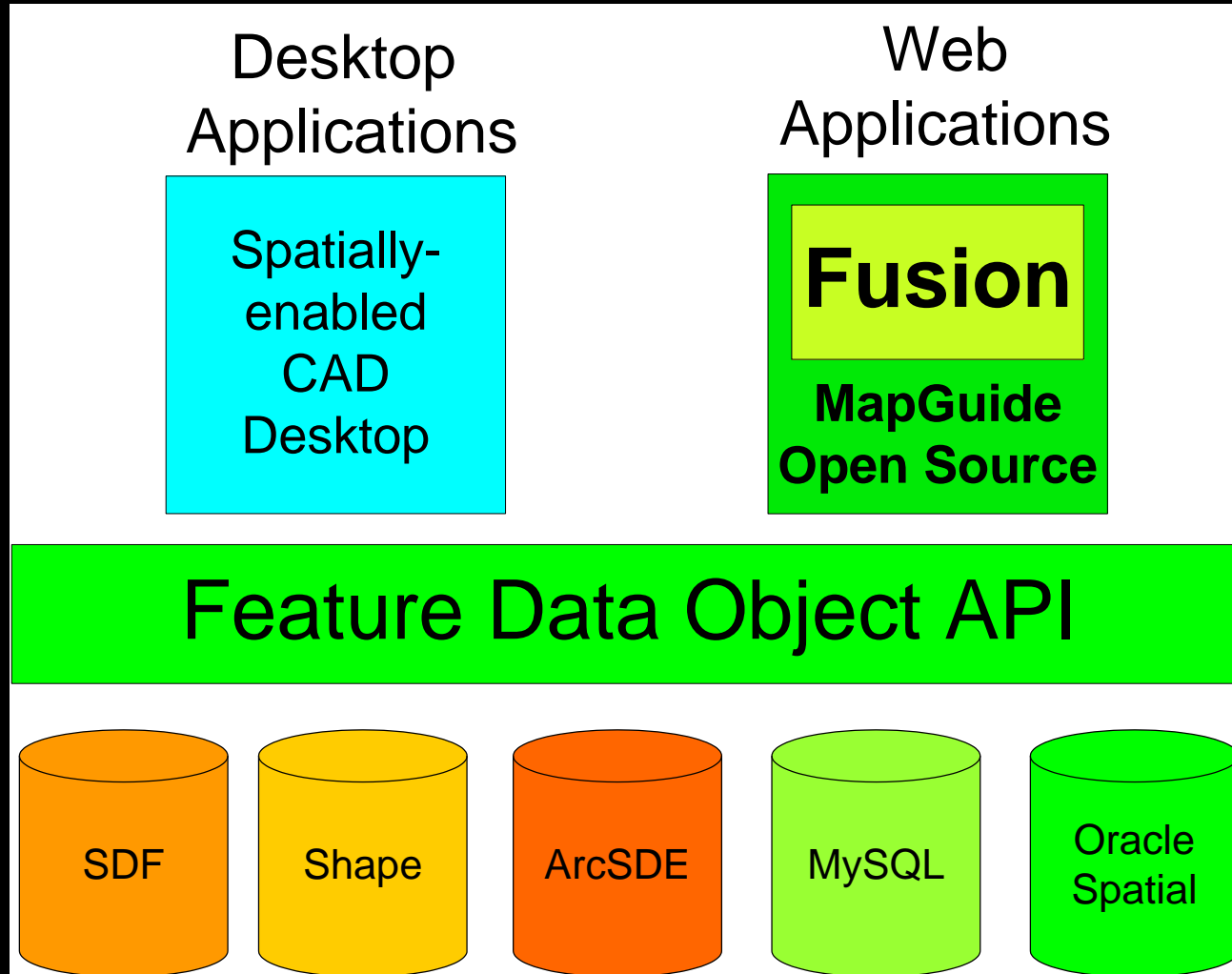
- Average age of utility workers is close to 50
- By 2010, as many as 60 percent of today's experienced utility workers will retire.

Study by American Public Power Assn

- 20 % decline in productivity forecasted

Study by Booz Allen

Open Source Mapping Platform for Data Sharing



What is Web 2.0 ?

Web 1.0

DoubleClick
Ofoto
Akamai
mp3.com
Britannica Online
personal websites
Evite
Domain name speculation
Page views
Screen scraping
Publishing
Content management systems
Directories (taxonomy)
Stickiness

Web 2.0

Google AdSense
Flickr
BitTorrent
Napster
Wikipedia
blogging
upcoming.org and EVDB
search engine optimization
cost per click
web services
Participation
wikis
tagging ("folksonomy")
syndication

Source: Tim O'Reilly "What is Web 2.0?"

San Francisco Urban Forests - Windows Internet Explorer

http://216.103.100.65/mapguide/SFTrees/index2.aspx

San Francisco Urban Forests

This website wants to run the following add-on: "MSXML 5.0" from "Microsoft Corporation". If you trust the website and the add-on and want to allow it to run, click here...

San Francisco Urban Forests

A collaboration between the City of San Francisco's Bureau of Urban Forestry and Friends of the Urban Forest.

Layers

- Supervisor Dist - 2002
- Elevation
- Streets
- Soils
- Parcels
- Water
- Parks
- City Blocks
- SF_Orthos
- Trees
- Curbs

Properties

Name	Value
FROM_ST	
STREET	
ST_TYPE	

Search for Address:

Number:

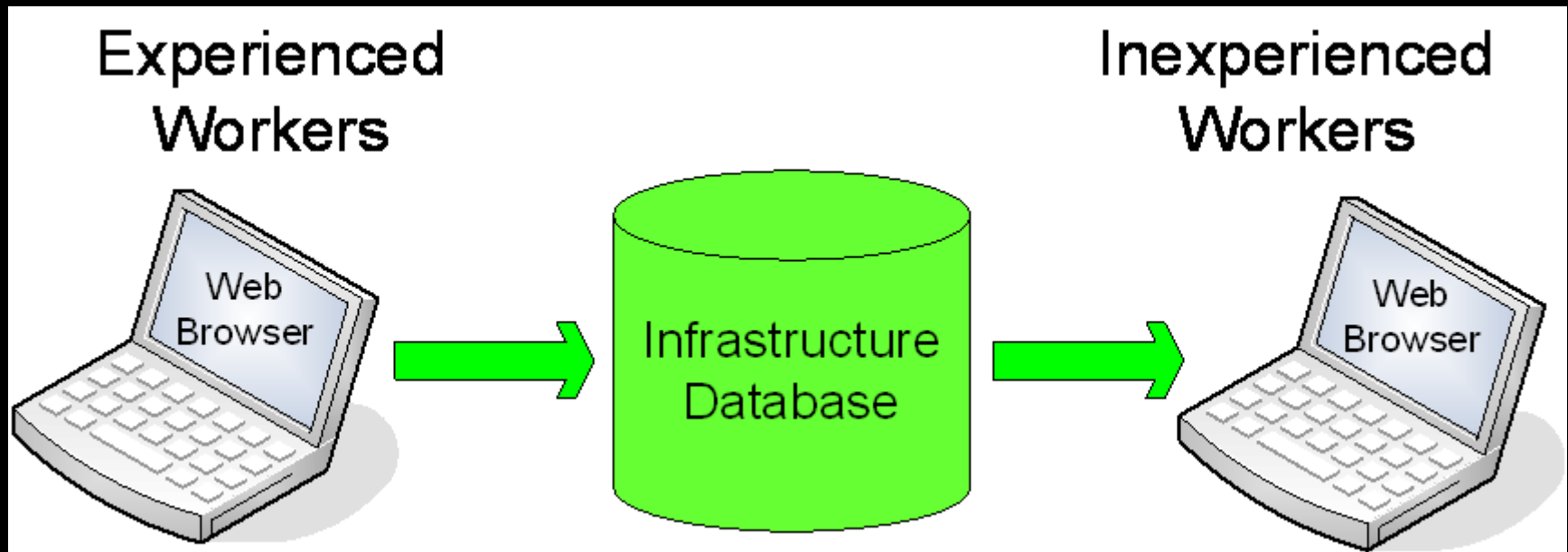
Name:

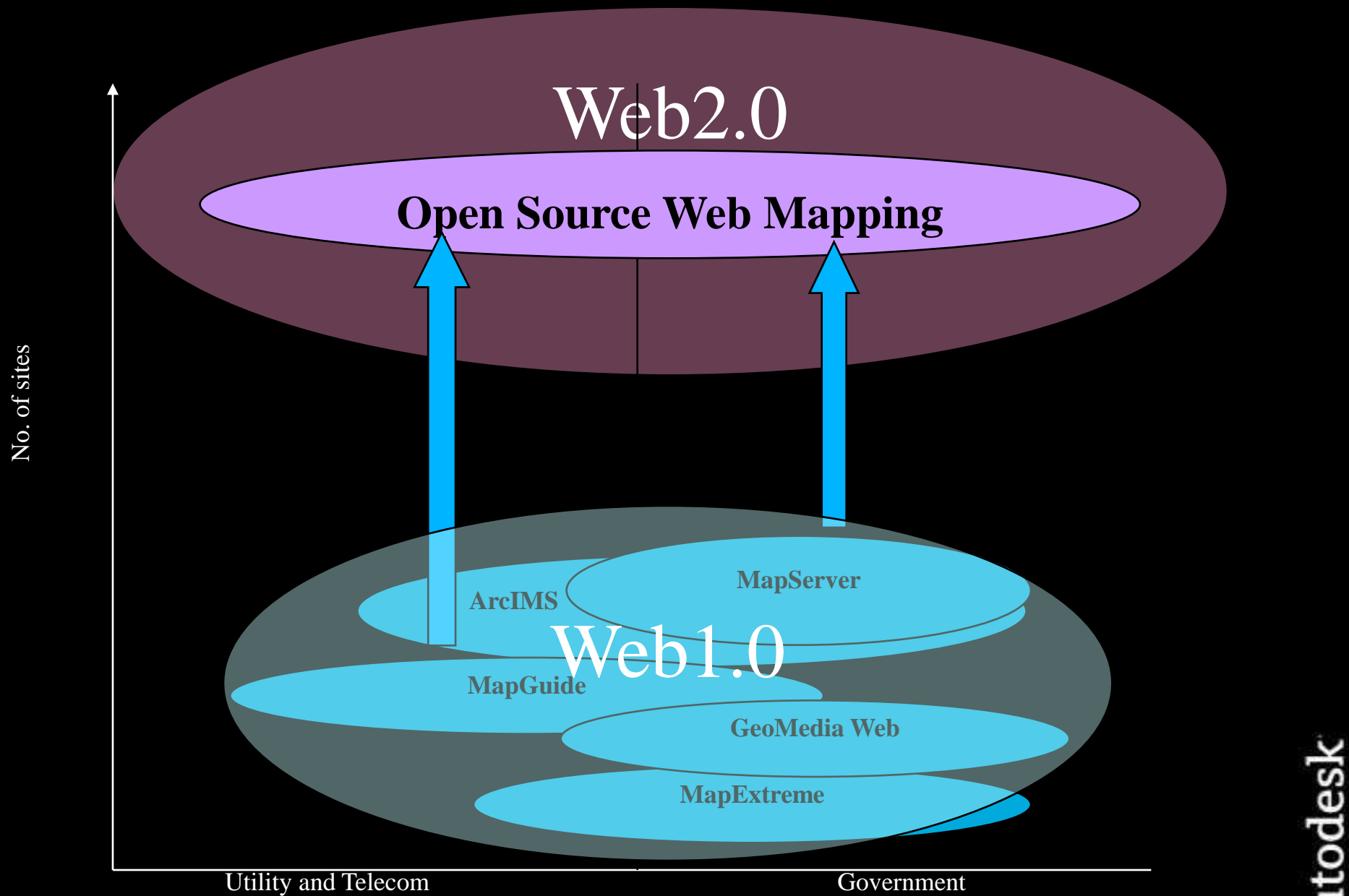
Type:

ID	FROM_ST	STREET	ST_TYPE
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18992	3030	FRANKLIN	ST
18993	3040	FRANKLIN	ST
18994	3050	FRANKLIN	ST
18995	3060	FRANKLIN	ST
18997	3044	FRANKLIN	ST
18998	3044	FRANKLIN	ST
18999	3044	FRANKLIN	ST
19000	3044	FRANKLIN	ST
19001	3044	FRANKLIN	ST

1 2 3 4

Web 2.0 Enables Sharing Information





Summary

- **Open source is good at commodity software**
- **Web mapping is commoditized**
- **FDO provides an open source platform for data sharing and user provided content.**



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Designing for a sustainable future



Autodesk