



# Autodesk Infrastructure Map Server 二次开发从入门到精通(1)

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Developer Consultant





- 杜长宇(Daniel Du)

- 多年软件开发及GIS工作经验
- Autodesk Developer Network开发顾问
- 主要支持下列产品API
  - Autodesk Infrastructure Map Server
  - Map 3D
  - Civil 3D
- 关注云计算和移动计算相关技术



# 日程安排

- 基础知识
- 站点服务
- 资源服务
- 层及地图操作
- 图形和渲染服务
- 要素服务
- 与其他系统集成
- Fusion Viewer API介绍

# 关于术语

- 大陆地区与港澳台地区对某些术语的说法不同，会尽量列出英文名称，以便统一
- Feature                      要素
- Feature Source      要素源
- Layer                      图层
- ...

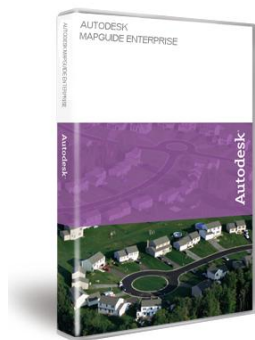
# AIMS的演进历程

- 1995 Argus Technologies, 加拿大
- 1996 Autodesk Inc. 收购
- 2002 MapGuide 6.5
- 2004 开始重新架构MapGuide Open Source
- 2004 FDO(Feature Data Object)
- 2006 MapGuide代码开源发布到OSGeo
- 2006 FDO Open Source

# AIMS的演进历程

-->----->----->----->时光飞逝----->----->----->----->

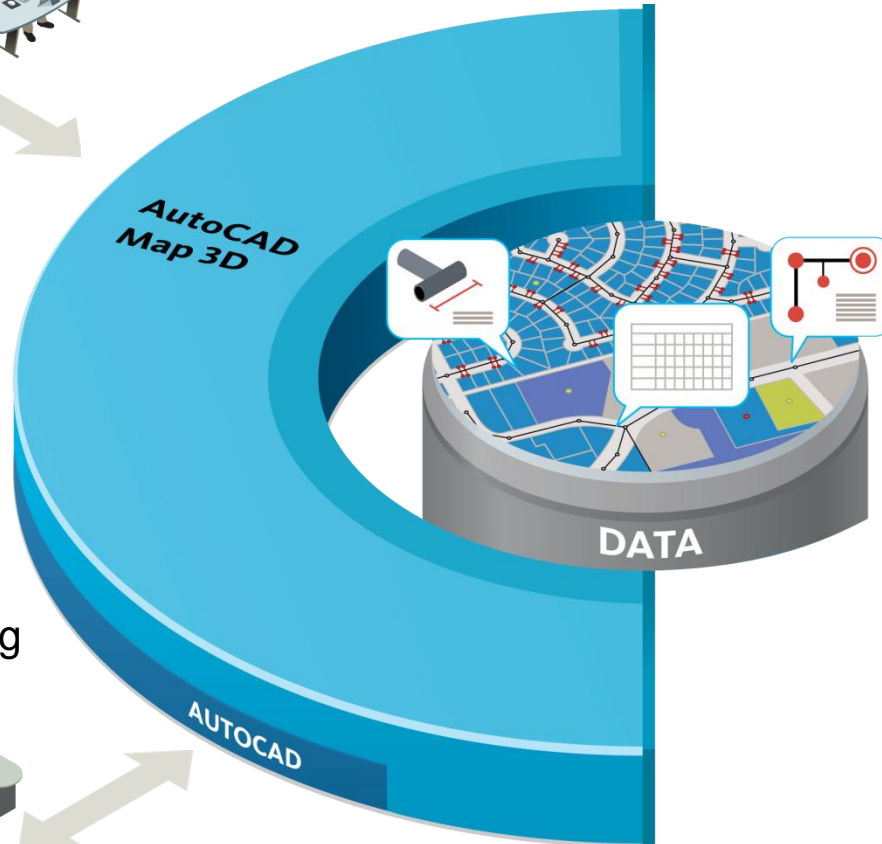
- MapGuide Open Source 1.0 ~ ~ ~ ~ 2.4(Current)
- MapGuide Enterprise 2007/2008/2009/2010/2011
- 更名为Autodesk Infrastructure Map Server 2012 ~ 2013
  - 和面向具体行业的Topobase 整合



# •Autodesk Infrastructure Solutions

- Planning

- GIS



- Engineering

- CAD



# •Autodesk Infrastructure Solutions

- Planning
- GIS

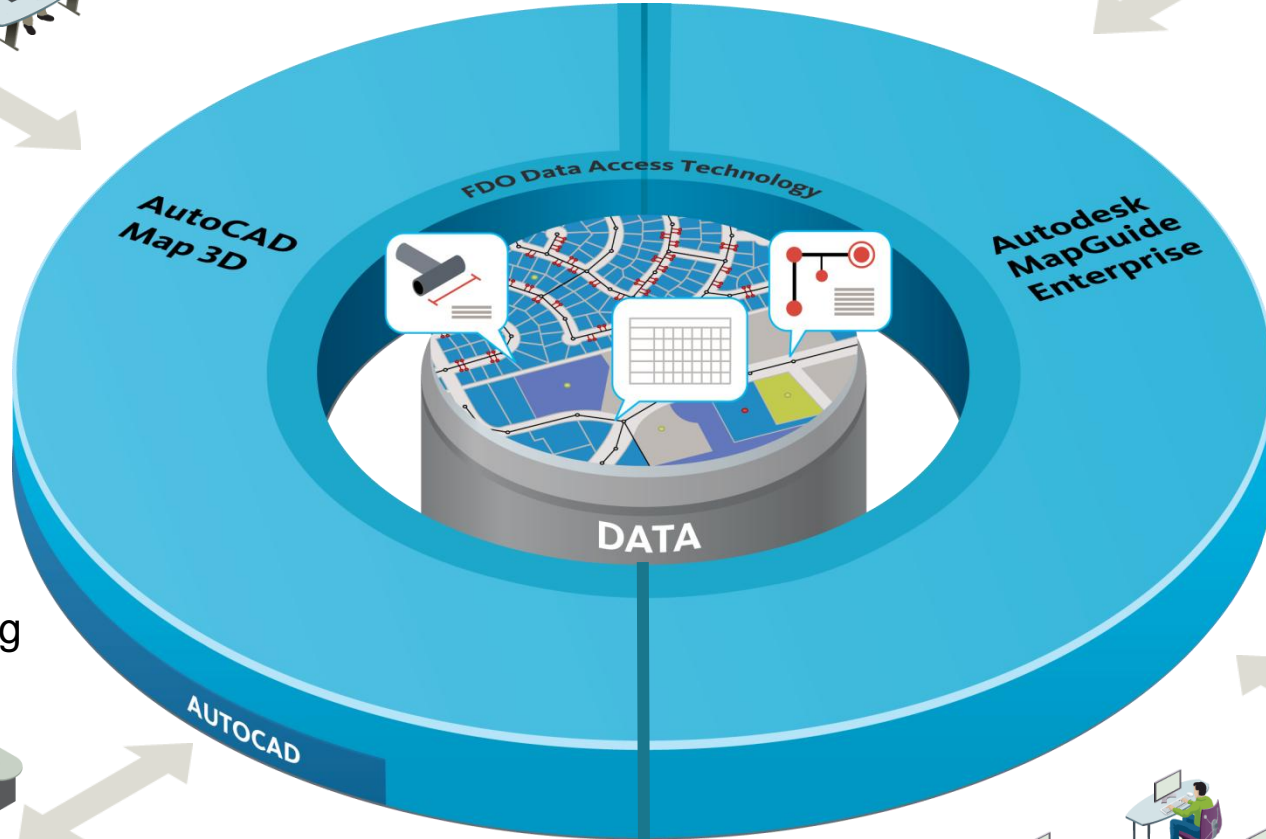
- Solution Modules for
- Infrastructure Management

- Operation

- Public Web Client

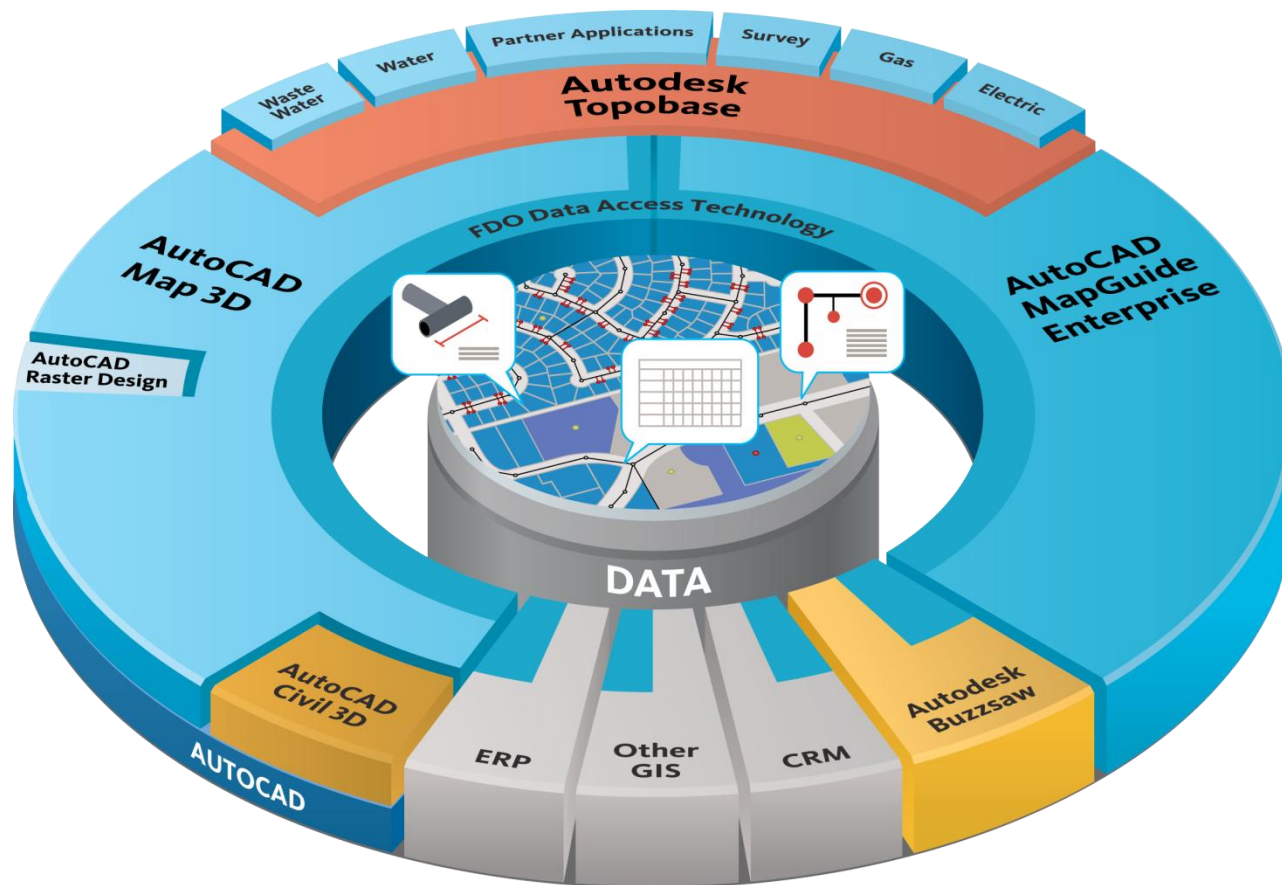
- Business

- Applications





# •Autodesk Infrastructure Solutions



# FDO 数据访问技术

- 访问各种流行的数据格式和Web服务
- 直接访问，无需转换

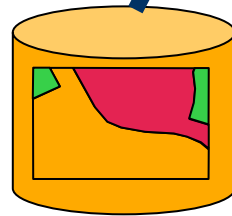
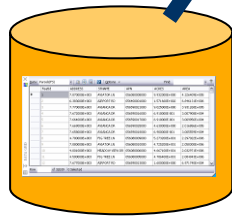
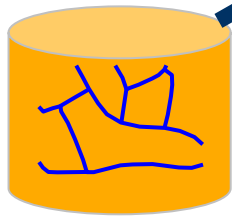
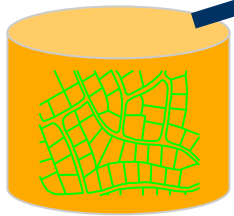
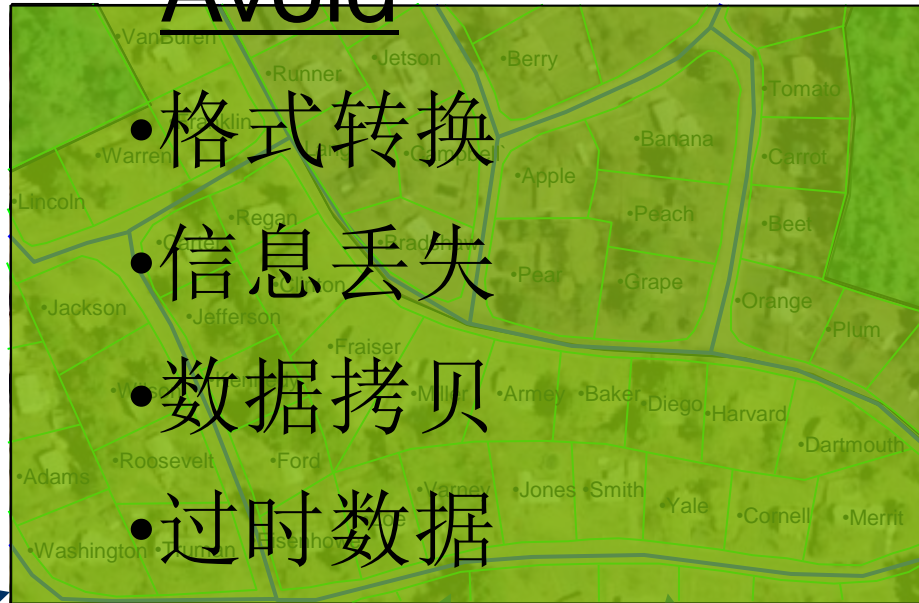
•Avoid

•格式转换

•信息丢失

•数据拷贝

•过时数据



•Parcel data from Oracle® databases

•Utility data from an SDF file

•Property data from Microsoft® SQL Server™

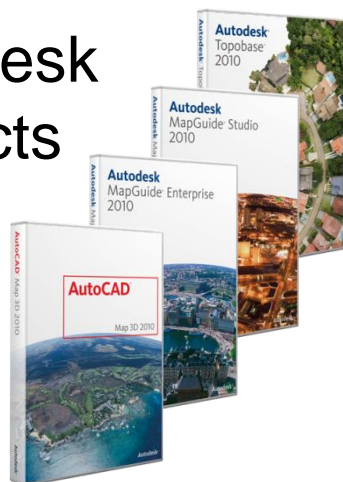
•Zoning data ESRI® ArcSDE®  
•ESRI SHP file

•Aerial photos

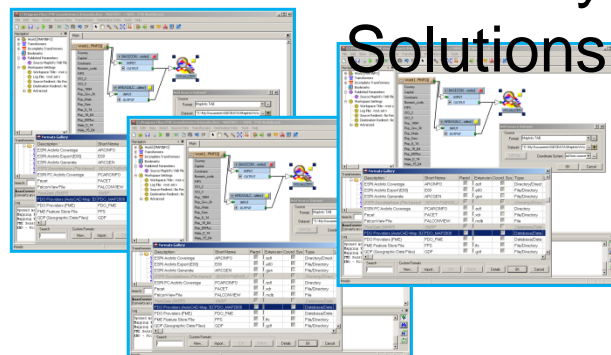
•OGC WMS  
•OGC WFS

# FDO Data Access Technology

## •Autodesk Products



## •Third-Party Solutions



## •Autodesk Certified Providers

## •Providers from 3<sup>rd</sup> Party & Open Source

multiple  
formats

•ODBC

•MS Access®, Excel®, and Oracle

•Raster

•15+ raster formats

**ArcSDE**

•Oracle and SQL-Server



•150+ vector and raster formats

•OGR

•25+ vector formats



•25+ raster formats

single  
format

•SDF

•SHP

•WMS

•WFS

Microsoft® SQL Server®2005

**ORACLE**

MySQL

Microsoft® SQL Server®2008

•GE Energy Smallworld

PostGIS

•SuperMap

**ORACLE**

**IBM** formix Dynamic

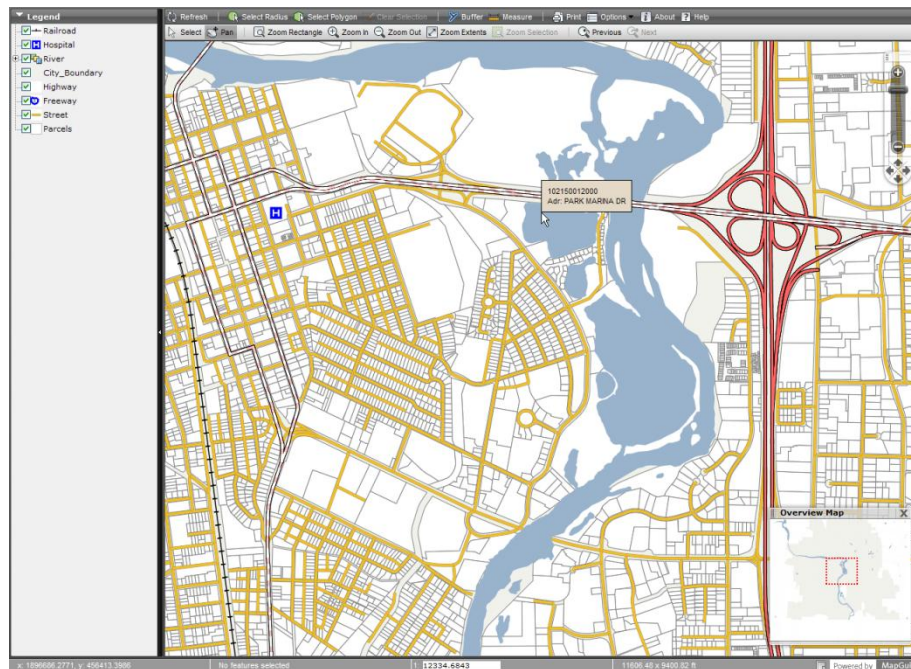
Microsoft® SQL Server®2005

•KML

•不断扩充中...

# 什么是AIMS/MapGuide ?

- 基于网络的地图发布平台，可用于在线GIS程序开发
- GIS程序的事务逻辑执行于服务器端
- 相对MapGuide 6.x产品重新设计，采用三层架构，同时易于开发和使用的
- 2种授权
  - 开源, 遵循LGPL协议
  - 商业版本



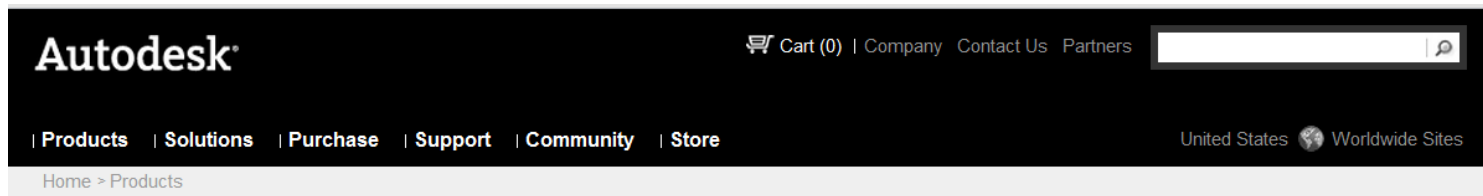


# Autodesk Infrastructure Map Server概览

- 以高效低成本的web方式扩大受众而实现地理信息价值的最大化
- 使用简单易用的编辑工具如灵活网页布局模版和Widget搭建Web 2.0风格的地图站点
- 强大的开发工具 使得您可以自由的利用强大的API和灵活的开发平台创建自定义的空间应用程序。
- 有庞大开发社区驱动的开源版本提供的快速创新使得进入门槛更低
- 容易的部署和维护健壮的可扩展的基于WEB的GIS应用

# 产品主页

<http://www.autodesk.com/infrastructuremapserver>



## Autodesk Infrastructure Map Server

[Share](#)

[Product Trial](#)

[Customer Showcase](#)



### Publish & Share GIS Maps

Autodesk® Infrastructure Map Server software is web-based GIS mapping software that helps planning and engineering professionals publish and share CAD, GIS maps, and asset information quickly and cost-effectively on the web. Web-based dashboards and reports help stakeholders access, visualize, and coordinate enterprise data with workers in the field, operations and customer service personnel, and the public.

- **GeoREST**—Repurpose existing server and Feature Data Objects (FDO) data using a RESTful web services protocol.
- **Publish a single DWG or multiple drawings**—Gain greater visual data fidelity of DWG™ files without conversion.
- **WMS & WFS publishing**—Simplify GIS maps with an OGC WMS & WFS publishing interface.
- **Preconfigured templates**—Publish sites quickly with a variety of programming options (JavaScript®, .NET, PHP, and Java®).
- **Open source developer community**—Further enhance sites with access to formats, such as widgets, technology mash-ups, and new data access.
- **Mobile viewer**—Use this browser application with most mobile platforms, including Google Android™-based smart phones and Apple® iPhone® and iPad® mobile digital devices.

### Try or Buy

[Free Trial](#)

[Locate a Reseller](#)

### Special Offers

#### Experience BIM in the Cloud



Autodesk® BIM 360 TM - the next generation of BIM for anyone, anywhere, at any time.

[Learn More](#)

# 产品下载及安装

- <http://www.autodesk.com/infrastructuremapserver> 下载 AIMS 试用版
- ADN 用户可以登录 ADN 网站获取序列号激活码
- 或者 OSGeo 网站下载开源版
  - <http://mapguide.osgeo.org/download>
- 安装 AIMS，请看这两个 blog：
  - <http://adndevblog.typepad.com/infrastructure/2012/07/installing-autodesk-infrastructure-map-server-2013-step-by-step-on-windows-server-2008.html>
  - <http://adndevblog.typepad.com/infrastructure/2012/04/install-autodesk-infrastructure-map-server-2013-step-by-step.html>

# 企业版 vs. 开源版本

## MapGuide 开源版本

- MapGuide 平台的基本内容
- 遵循 LGPL 协议的自由软件

## AIMS

- 包含开源版本的所有内容
- 面向行业的行业模型和专业模块
- 移动设备的MobileViewer
- 包含Autodesk提供的FDO模块
- 通过 QA质量测试和支持平台的认证
- 在其平台上开发才可获得ADN技术支持（不支持开源版）

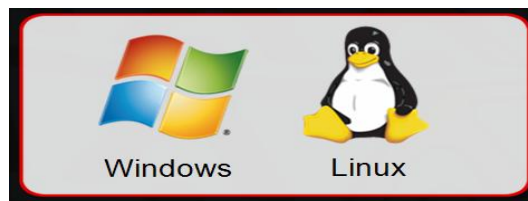




# 技术特征

- 支持Linux 和 Windows
- 3种 API: .NET, Java, 和PHP
- 通过FDO访问多种数据源
- AJAX Viewer / Fusion Viewer /
- 服务器端执行事务逻辑
- 基于网络的站点管理工具
- MapGuide Studio

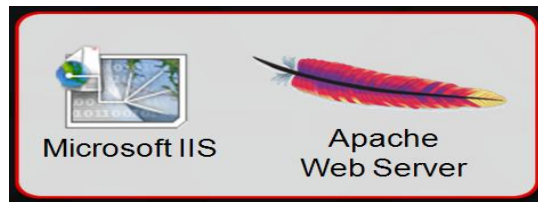
## •Deploy on



## •Develop with...



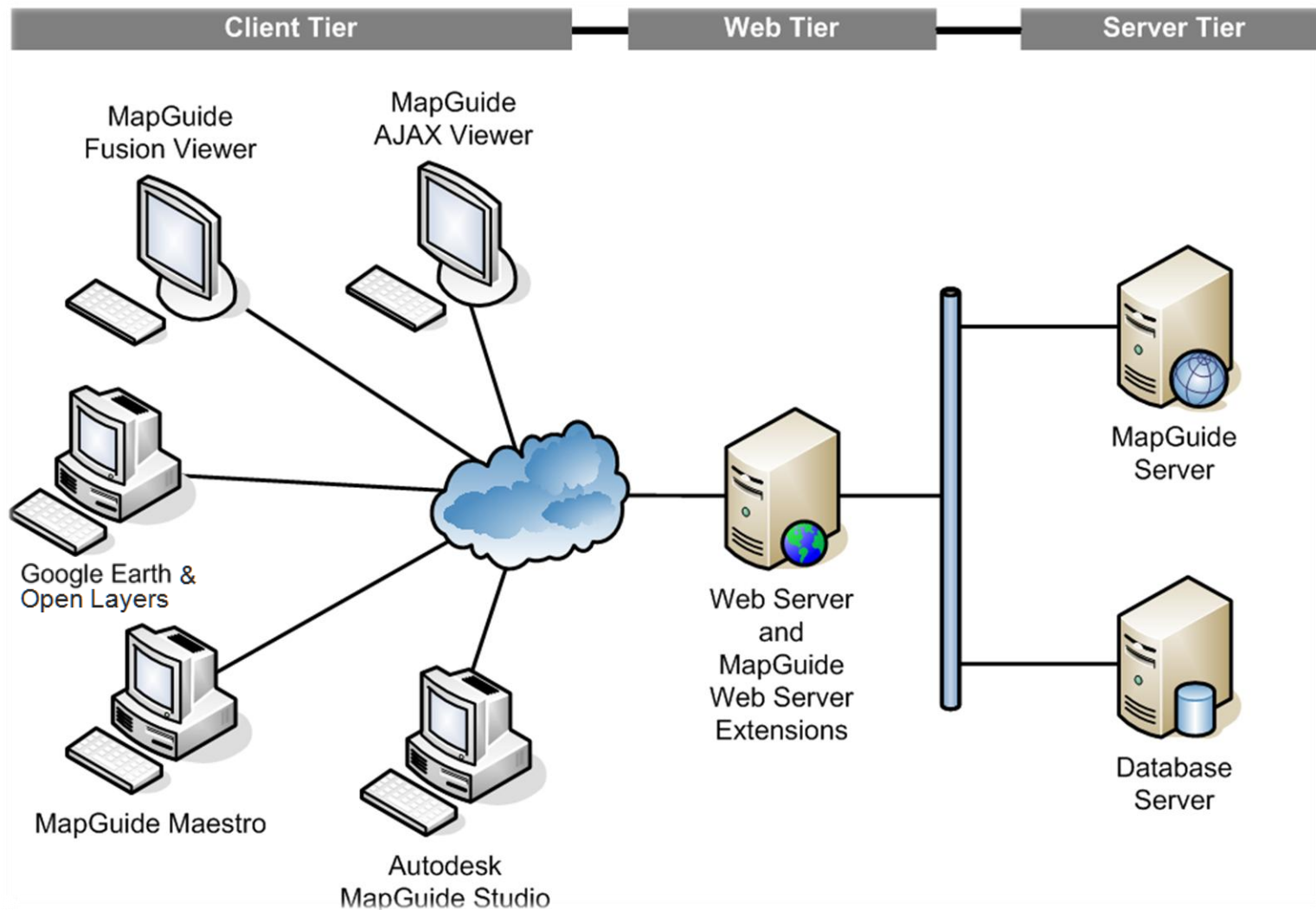
## •Serve with...



## •Browse with...



# 系统架构



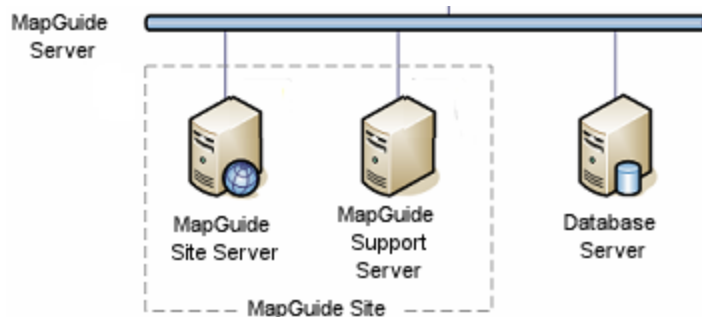
# 服务器层

## MapGuide 站点

- 一系列用于处理客户端请求的服务器的集合
- 对开发者和用户来说是同一对象

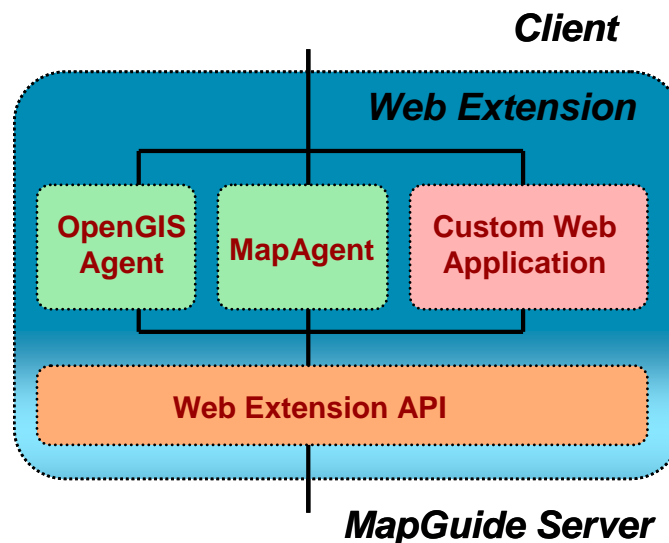
## MapGuide 服务器

- Site Server — 站点服务器
- 由MapGuide站点管理器负责管理



# 网络层

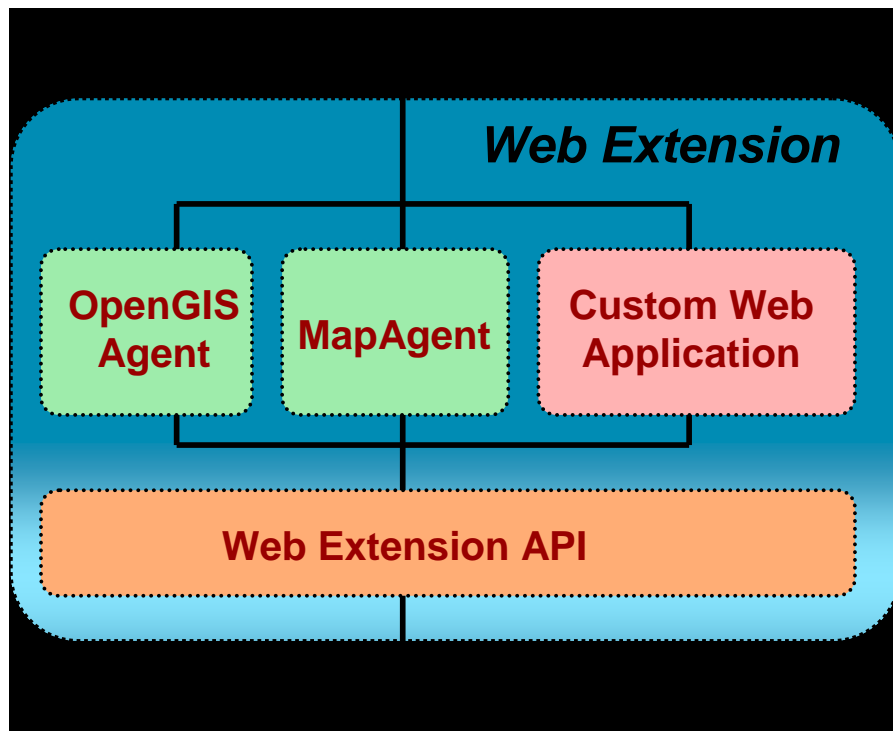
- 网络扩展（Web extension）：一个定制的接口，可以通过该接口以web方式访问MapGuide 服务
- 3种 API： .NET, Java和 PHP
- 地图代理（MapAgent）：用于访问GIS服务的通道
- OpenGIS 代理：用于访问 WMS 和 WFS 格式.
- 定制的网络程序：集成 GIS 事务逻辑.
- 网络层运行在支持服务器或程序服务器上，例如Apache, IIS, Tomcat等





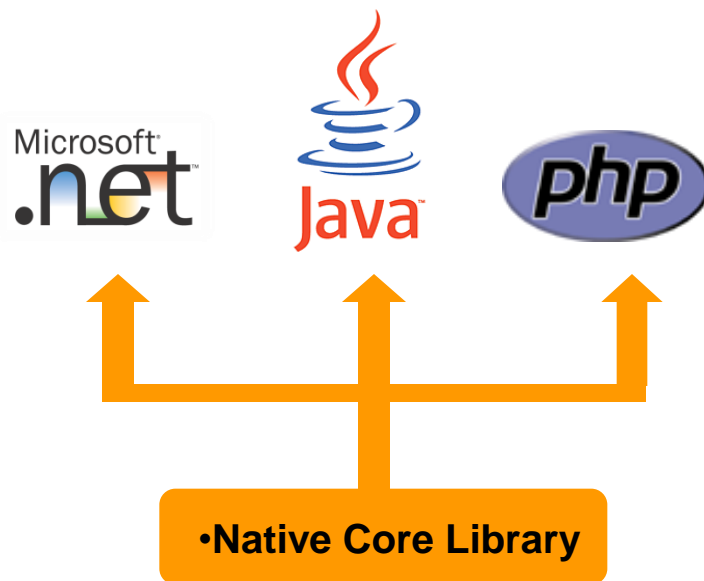
# 地图代理（MapAgent）

- 访问MapGuide服务的通道
- 是客户端和MapGuid服务器之间的通道
- 定制地图应用程序处理GIS事务逻辑



# MapGuide APIs

- MapGuide 由 3 种API:
  - Java
  - .NET
  - PHP
- 3种API都是封装自同一底层核心库
- Java 和 PHP 都支持 Windows 和 Linux.
- .NET 仅支持 Windows.
- 执行效率取决于具体语言在网络层执行效率.

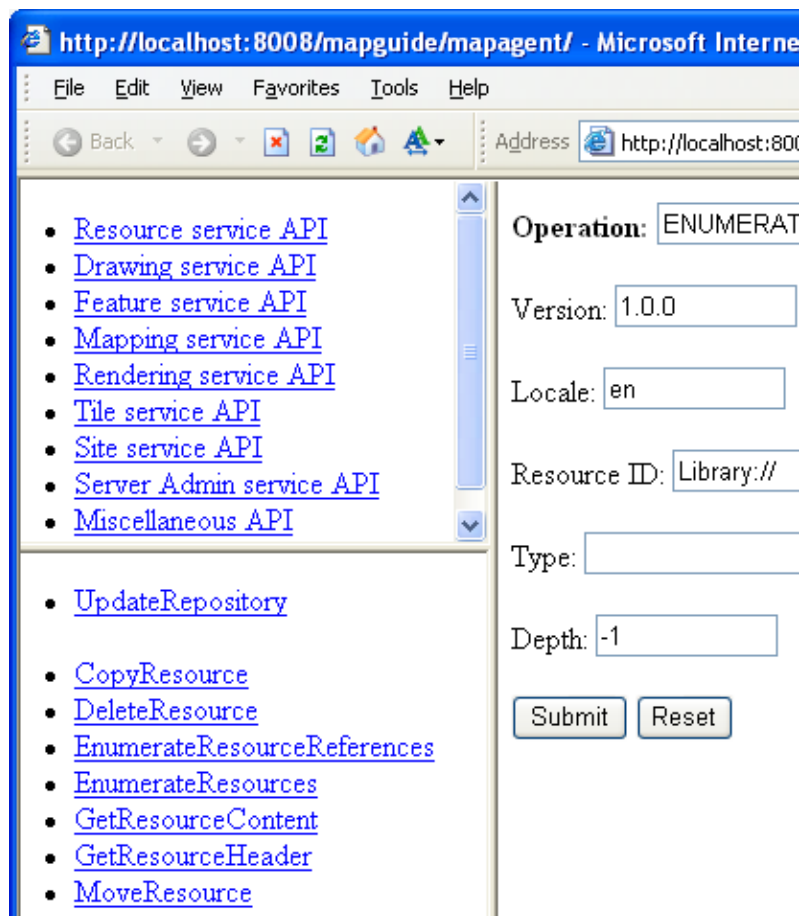


# 地图代理测试页面

- 可以通过地图代理（MapAgent）测试页面快速的测试Server端API
- API通过服务类型组织
- 没有开发需求.
- 它使用 mapagent.fcgi, 该文件同样被地图浏览器使用

- URL:

`http://localhost/mapserver2012/mapagent/index.html`



# OpenGIS 代理

- MapGuide 和 OpenGIS-兼容
- 访问 WMS 和 WFS 服务
- 没有开发要求
- 借助站点管理器 易于配置



## MapGuide Site Administrator

[About](#) | [Logout](#)

### Configure WMS

Save

Cancel

#### General Properties

Name:

Title:

Abstract:

Fees:

Access constraints:

Keywords:

Server name:

Script name:



# MapGuide Viewer

- 开箱即用功能.
  - Pan/Zoom/Distance/buffer/Attribution information display...
- 缺省没有编程要求.
- 2种选择:

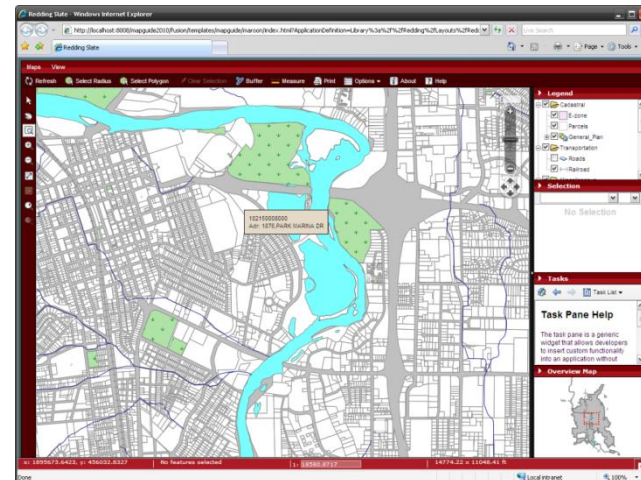
## AJAX Viewer

- 基于HTML, JavaScript, and XML
- 无需ActiveX control
- 无需下载

## Fusion Viewer

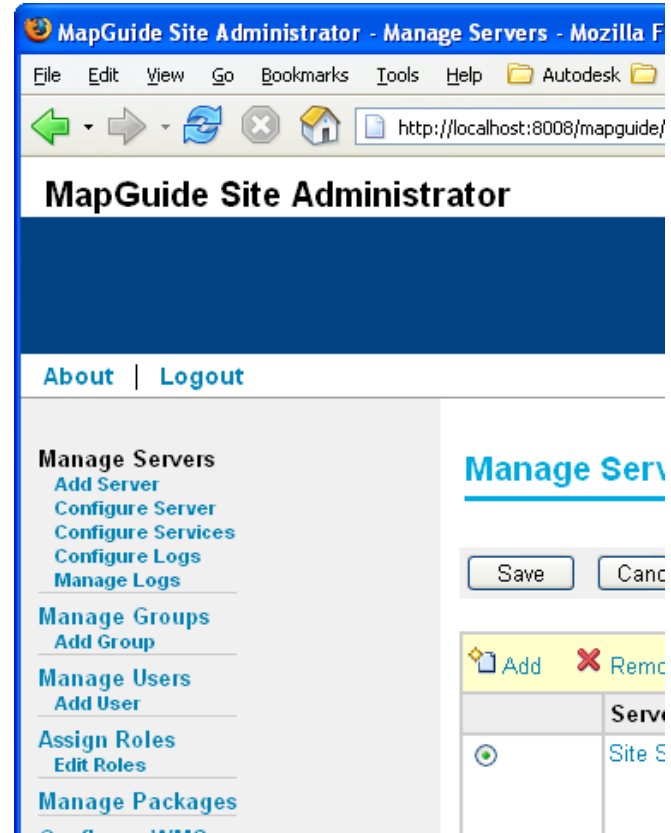
- 基于 AJAX technology
- Widgets提供强大的功能
- 多个模版
- Out of box experience
- 可定制

另外: iViewer / GeoREST



# MapGuide 站点管理器 (Site Administrator)

- 基于web的管理工具
- 管理站点和服务
- 管理服务
- 管理用户
- 监视运行状态
- 查看服务日志



# 主要服务配置

- 一般属性
  - 连接超时
  - 连接时间间隔
- 连接属性
  - 最大连接数量
  - 端口设定
  - 队列大小
  - 线程池大小

Connection timeout (seconds):	120
Connection timer interval (seconds):	60
Service registration timer interval (seconds):	60

## Administrative Connection Properties

Maximum connections:	20
Port:	2800
Queue size:	10
Thread pool size:	5

## Client Connection Properties

Maximum connections:	100
Port:	2801
Queue size:	20
Thread pool size:	10

# 主要服务配置

## 站点服务：

- 会话超时
- 会话时间间隔

## 要素服务

- 数据连接池
- 连接池大小
- 数据缓存大小

## 分块服务

- 分块缓存路径

Site Service	
Session timeout (seconds):	1200
Session timer interval (seconds):	400

Feature Service	
Data connection pool enabled:	<input checked="" type="checkbox"/>
Data connection pool size:	100
Data connection timeout:	600
Data connection timer interval:	60
Data cache size:	100

Tile Service	
Tile cache path:	C:/Program Files/Autodesk/IV

Resource Service	
Data file trash folder:	Trash/
Library data file folder:	C:/Program Files/Autodesk/IV
Library repository folder:	C:/Program Files/Autodesk/IV
Session data file folder:	C:/Program Files/Autodesk/IV
Session repository folder:	C:/Program Files/Autodesk/IV
Site repository folder:	C:/Program Files/Autodesk/IV
Resource schema folder:	C:/Program Files/Autodesk/IV

# 数据包管理

## 加载数据包

- 数据包可以加载到服务器
- 复制 \*.mgp 文件到服务器安装目录的package 文件夹，点击 Load Package 连接

## 创建数据包

- 在服务器上的数据存储可以打包并加载到其他站点上
- 指定文件夹名称，例如 //Exercise/Layouts
- 在指定路径下的所有数据将被打包输出

### Make Package

You can package a section of this site repository and store [Configure Packages directory](#).





Folder name (e.g. //<root\_folder>/<folder1>):

Resulting package name:

Make

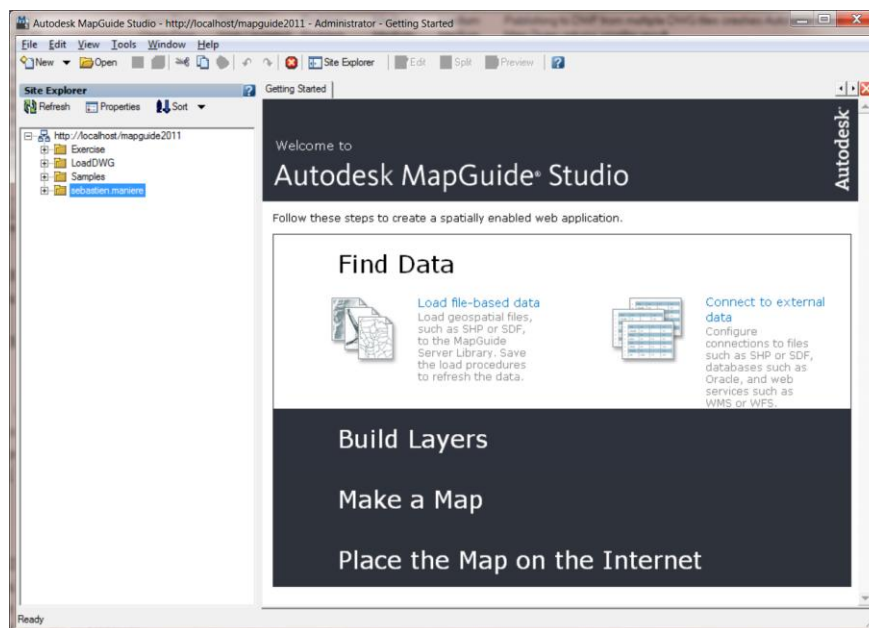
### Load Package

Packaged resources or data in the package folder can be lo [Configure Packages directory](#).

 Load Package  View Log  Delete	
	Package Name
	Sheboygan.mgp

# Autodesk Infrastructure Studio

- MapGuide开源版本和企业版本的地图创建工具，没有单独安装程序随AIMS安装。
- 加载地图数据源(Data Source)
- 创建特征样式(Style)和主题(Theme)
- 将图层(Layer)嵌入到地图中
- 管理浏览器中的网页布局(Web Layout)
- 简化地图创建和发布
- 开源的替代产品Maestro

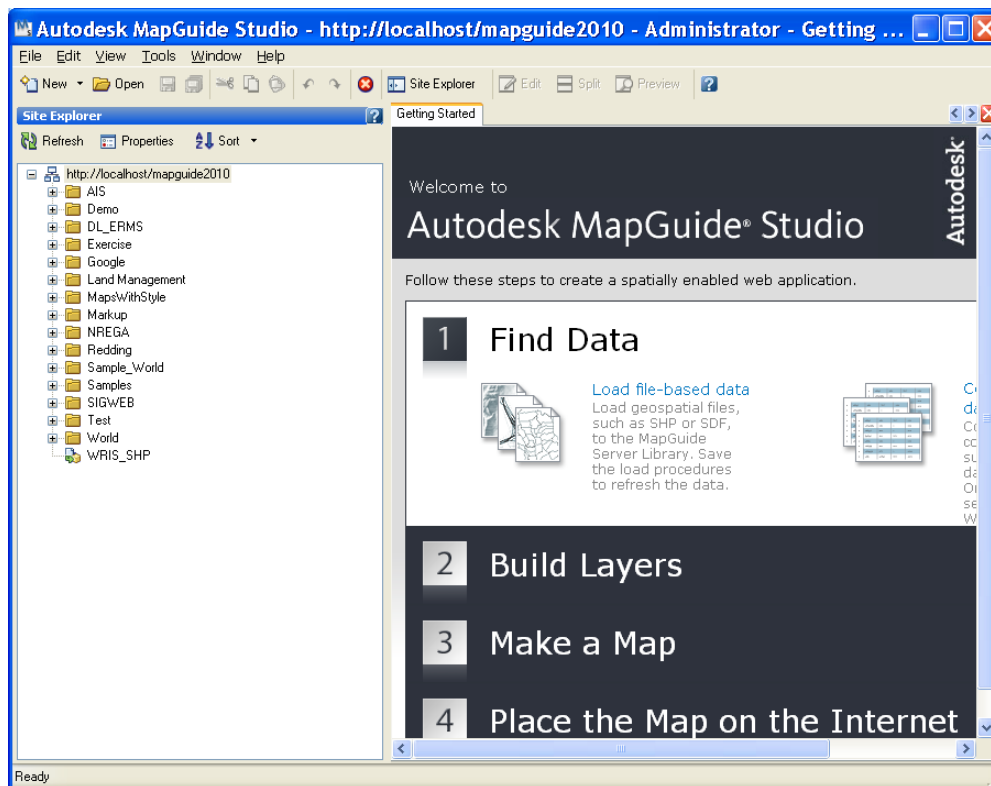




# Infrastructure Studio演示

关键内容:

- 加载过程
- 数据连接
- 图层
- 地图
- 地图布局
- 打印布局
- 样式库



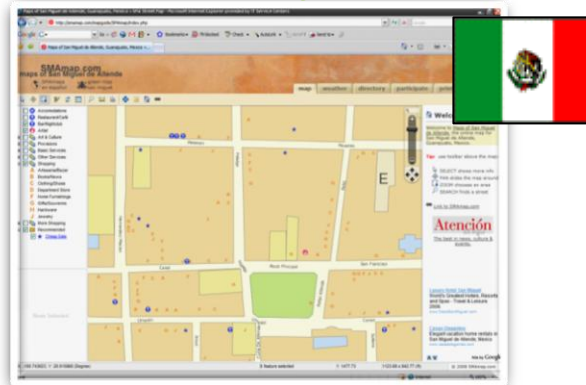
# MapGuide Enterprise Customers

## *Some Example Public Websites...*

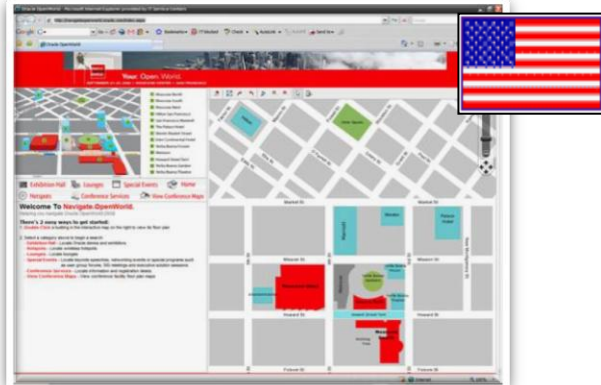
### •Singapore Public Transport



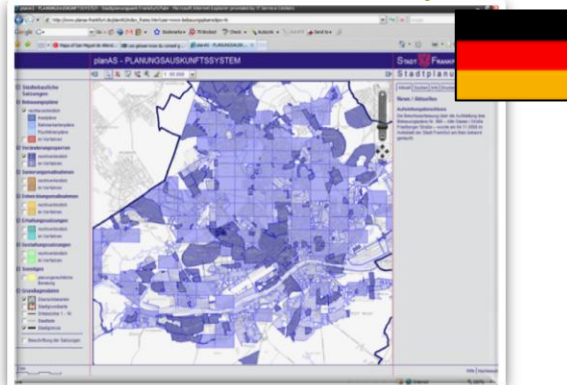
### •Maps of San Miguel de Allende



### •Oracle OpenWorld Navigator



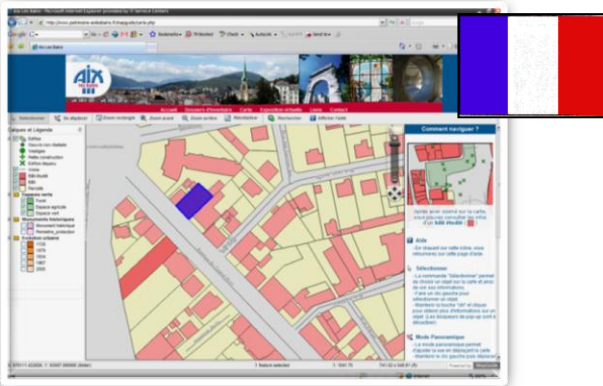
### •Frankfurt am Main – City Planning



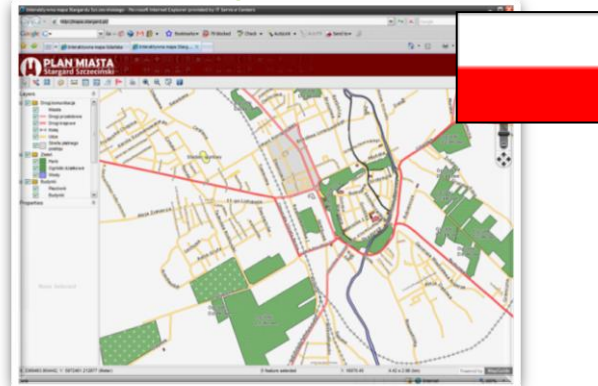
# MapGuide Enterprise Customers

## *Some Example Public Websites...*

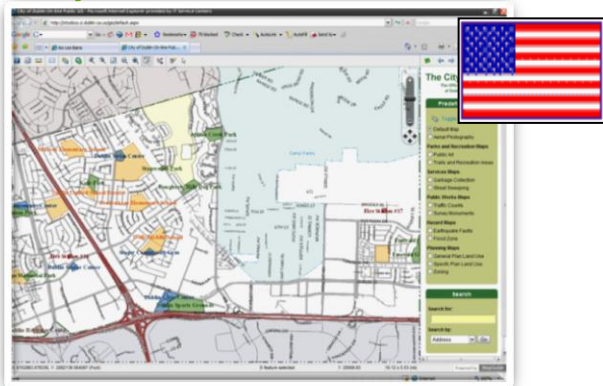
### • Aix les Bains



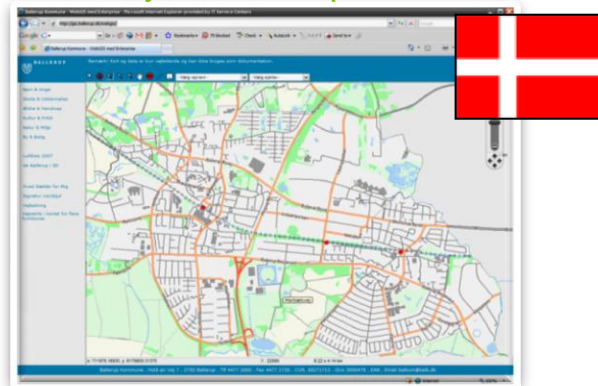
### • City of Stargard Szczeciński



### • City of Dublin, CA



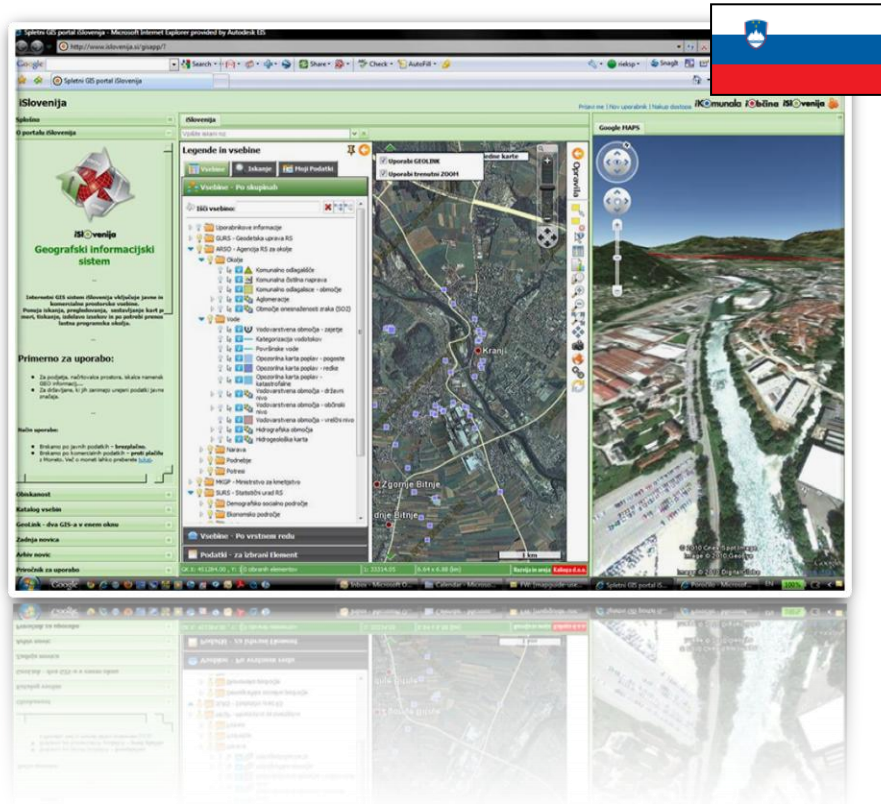
### • County of Ballerup



# Google Integration Examples

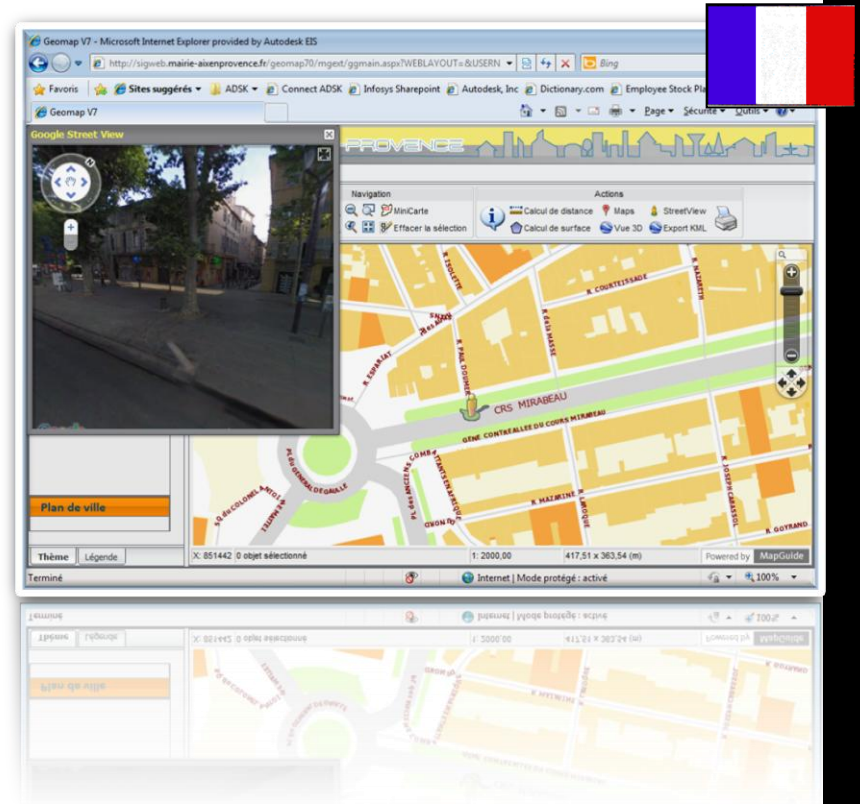
## • iSlovenia GIS Portal

## • Side-by-side maps from MGE and Google



## • Aix-en-Provence

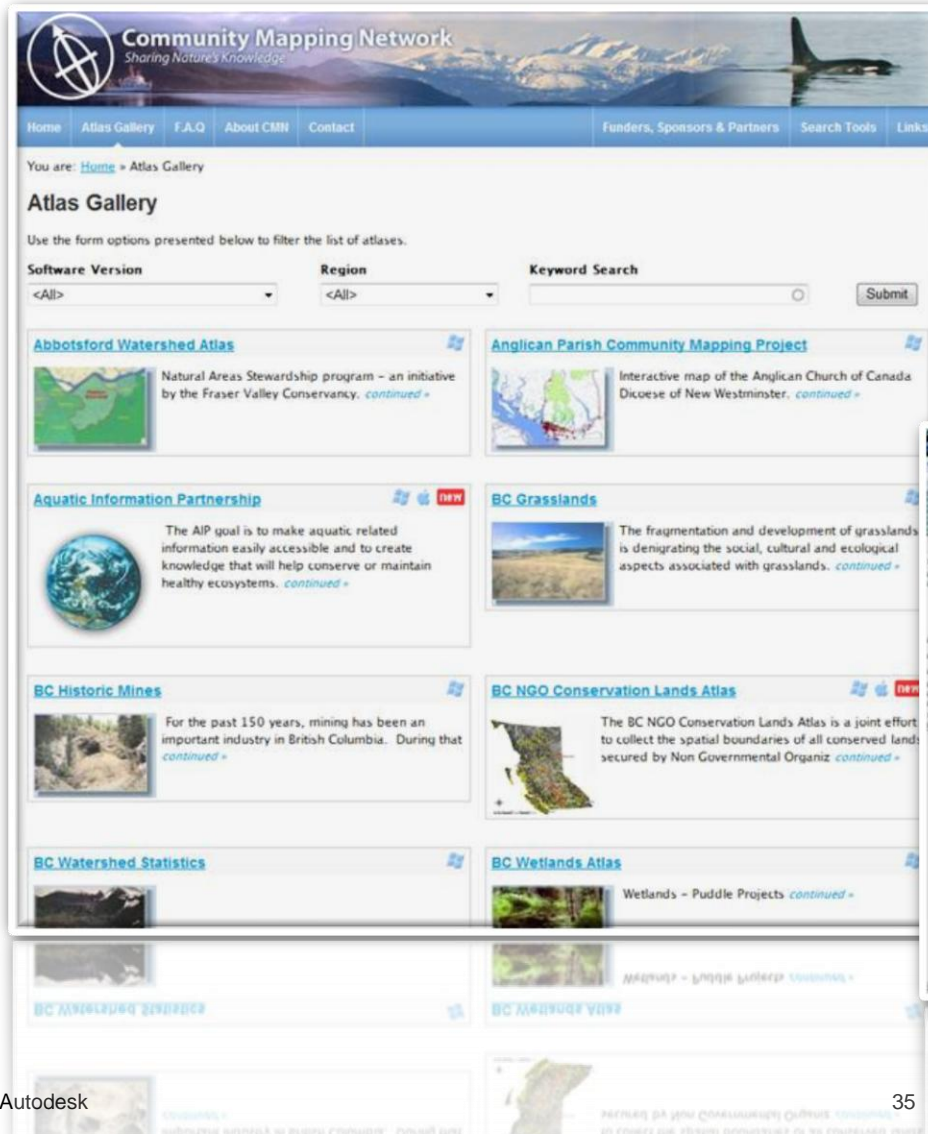
## • Integration of Google StreetView



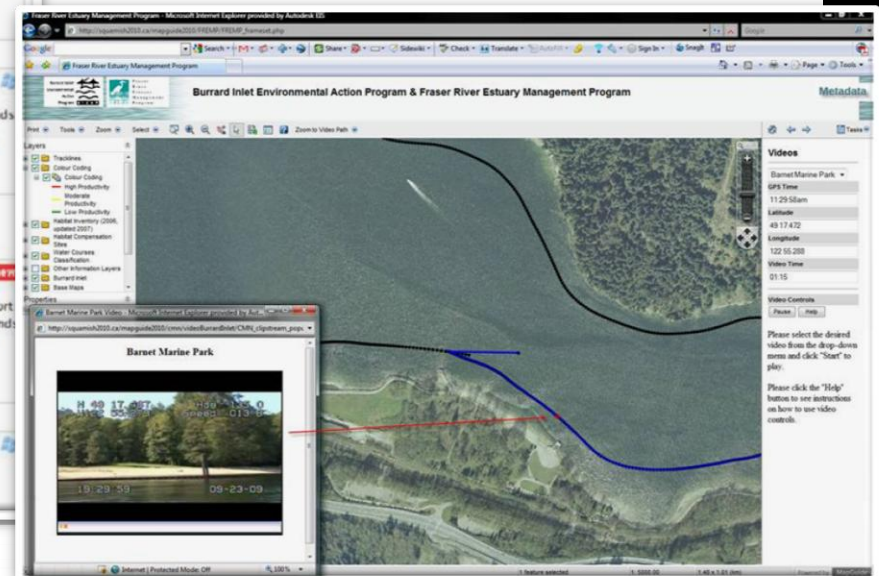


# Sharing Nature's Knowledge

## Community Mapping Network



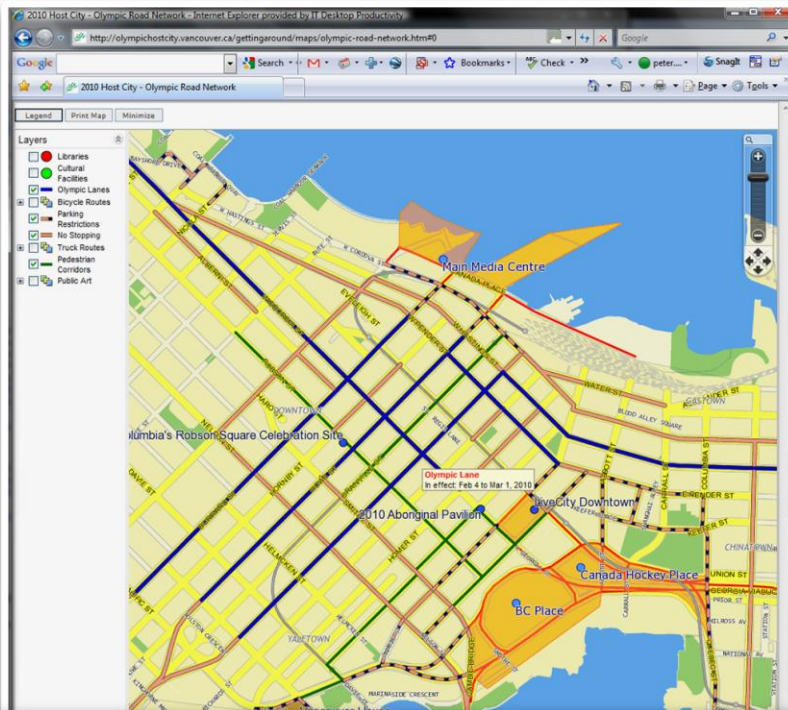
- 22 MapGuide Enterprise
- [http://cmnbc.ca/atlas\\_gallery](http://cmnbc.ca/atlas_gallery)



# City of Vancouver: Olympic HostCity



*Continuing the legacy of VanMap...*



Configuration	4 x MapGuide Enterprise 2010 Server configuration w/load balancing
User base	Unlimited – Winter Olympics 2010 visitors
Hits/day	Peak at 7,500 hits/day
Solution	<ul style="list-style-type: none"> <li>• <a href="#">Olympic Road Network</a></li> <li>• <a href="#">Cycling Map</a></li> <li>• <a href="#">2010 Olympic and Paralympic Venue Map</a></li> <li>• <a href="#">Civic Theatres Map</a></li> <li>• <a href="#">Public Art Map</a></li> <li>• <a href="#">Goods Movement in 2010</a></li> </ul>





# Blogs

- <http://www.cnblogs.com/junqilian>



The screenshot shows a blog page with a blue sky background. The title is '峻祁连. Look at The Earth' and the subtitle is 'MapGuide OpenSource/Enterprise, AutoCAD Map 3D, Civil 3D, and more...'. On the left, there is a language selection dropdown and a disclaimer section. The disclaimer states that the blog's content is the author's personal view and not an official statement of the company they serve. On the right, there is a navigation bar with links like '博客园', '首页', '社区', etc., and a '置顶随笔' (Pinned Essay) section. The pinned essay is titled '[置顶][晒应用,得礼品]晒晒我的MapGuide/Map 3D应用' and discusses the development of MapGuide/Map 3D applications.

www.cnblogs.com

## 峻祁连. Look at The Earth

MapGuide OpenSource/Enterprise, AutoCAD Map 3D, Civil 3D, and more...

Select Language ▼

Powered by Google™ Translate

MapGuide 开发者网络  
Developer Network

NewMGDN.com

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### 置顶随笔

#### [置顶][晒应用,得礼品]晒晒我的MapGuide/Map 3D应用

MapGuide Open Source推出以来已经得到了长足的发展, 除了本身的功能不断增强和完善, 基MapGuide/Map 3D开发的应用, 可惜都是国外的。难道中国就没有吗? 肯定有! 我们中国人这么常遗憾的事。


于是我有一个想法, 咱们也来晒一晒我们的MapGuide/Map 3D应用, 可以包括以下几个部分:

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项目实施公司名称或个人

# Blogs

- <http://adndevblog.typepad.com/infrastructure/>



## Infrastructure Modeling DevBlog

The resource for software developers working with Civil 3D, Map 3D and AIMS and other Autodesk Infrastructure Modeling technology.

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### IM DEVBLOGGERS

[Daniel Du](#)  
[Partha Sarkar](#)  
[Gopinath Taget](#)  
[Marat Mirgaleev](#)

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### APRIL 2012

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### AUTODESK BLOGS

**ADN DevBlog - AutoCAD**  
Our DevBlog for AutoCAD and other platform technology APIs.

**ADN DevBlog - Infrastructure Modeling**  
Our DevBlog for Infrastructure Modeling technology APIs.

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### Daniel Du

04/18/2012

## Activate hyperlink by double click in Ajax viewer of AIMS 2013

By [Daniel Du](#)

As you know, it is possible to set up a hyper link for features, and open a link by ctrl+click. For those who does not know, you can open a layer by double clicking the layer from Site Explorer of Infrastructure Studio, and click the ... button to set a hyperlink expression for "URL activated for feature":



With this setting, user can activate an URL by clicking one feature while pressing CTRL key.

But many users, especially users who are used to MapGuide 6.5, are willing to change this behavior to double click, it is possible? The answer is yes. here is a [thread](#) on MapGuide Open Source discussion group,, and it applies to AIMS 2013 as well. I presume it works for other versions of MapGuide Enterprise or AIMS with or without minor changes.

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### SEARCH

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### RECENT POSTS

**COM References on Civil 3D 2013**

**Using SampleElevations() in AutoCAD Civil 3D 2013 .NET API**

**Activate hyperlink by double click in Ajax viewer of AIMS 2013**

**Toggle visibility of Layer in Fusion does not work?**

**Make full use of tooltip in Autodesk Infrastructure Map**

# 在线资源

- Autodesk MapGuide® Enterprise  
[www.autodesk.com/mapguideenterprise](http://www.autodesk.com/mapguideenterprise)
- MapGuide Best Practices Wiki  
<http://sandbox.mapguide.com>
- Demo Galleries  
<http://enterprise.mapguide.com/>  
<http://mapguide.osgeo.org/livegallery.html>
- Autodesk MapGuide论坛
- <http://forums.autodesk.com/t5/Autodesk-MapGuide-Enterprise/bd-p/234>
- MapGuide Open Source开发者论坛
- <http://osgeo-org.1560.n6.nabble.com/MapGuide-Users-f4182607.html>







Thank You !  
Questions ?

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