

GEOINFORMACIJSKI SUSTAVI

Internet GIS

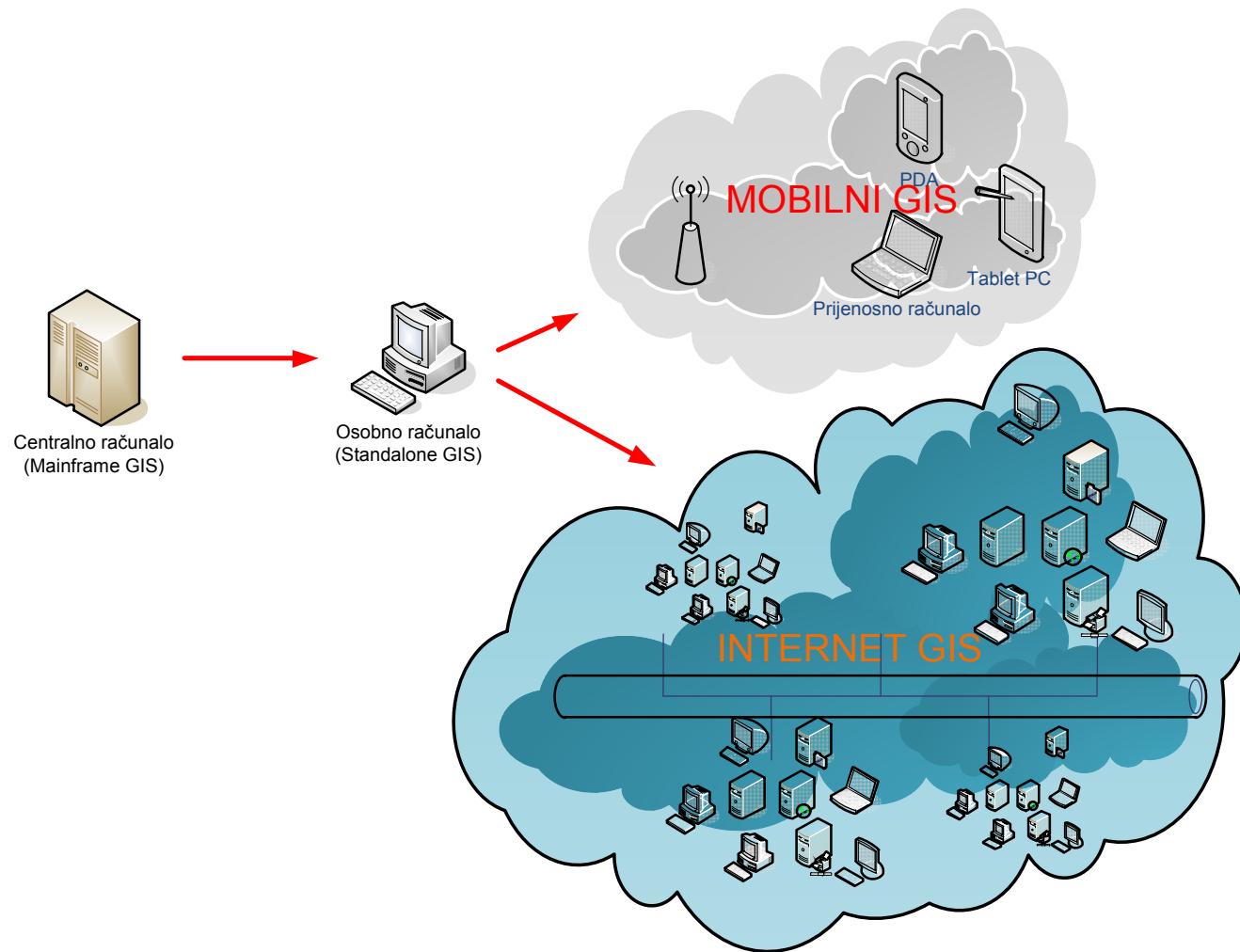
Utjecaj Interneta

2

- Tri najvažnija utjecaja na GIS:
 - dostupnost podataka
 - pristup podacima i prijenos podataka
 - rasprostranjenost prostornih informacija
 - rezultati GIS analiza i prostorne informacija dostupne većem broju korisnika; direktni pristup podacima, pretraživanje, upiti bez GIS softvera
 - udaljeno modeliranje i procesiranje
 - dostupnost i mogućnost izvođenja GIS analiza i prikazivanje rezultata bilo gdje na Internetu

Evolucija hardvera – evolucija GISa

3



Arhitekture GISa

4

- Tradicionalna GIS arhitektura
- Klijent/poslužitelj GIS arhitektura
- Distribuirani GI servisi

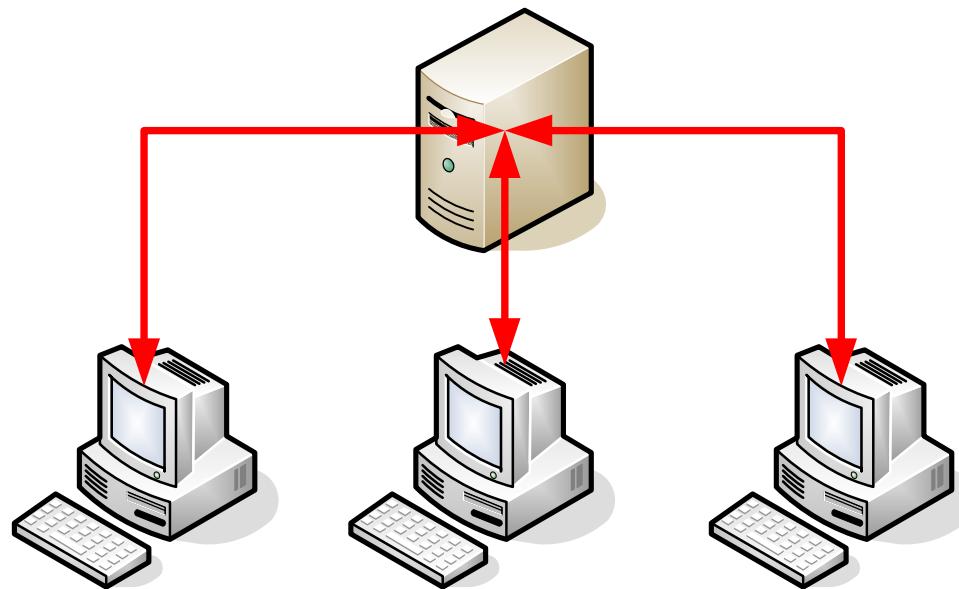
Tradicionalna GIS arhitektura

5



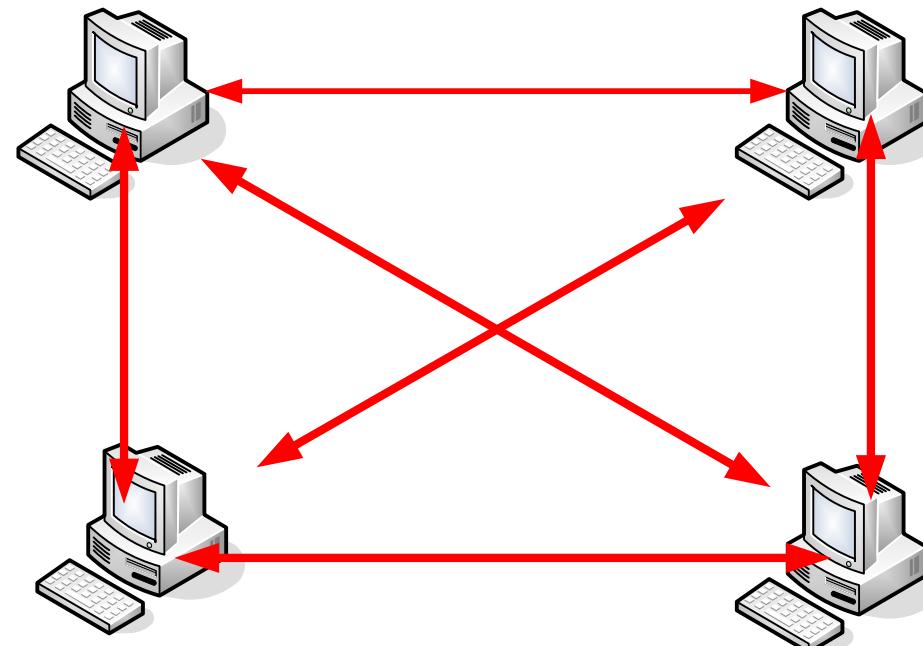
Klijent/poslužitelj arhitektura

6



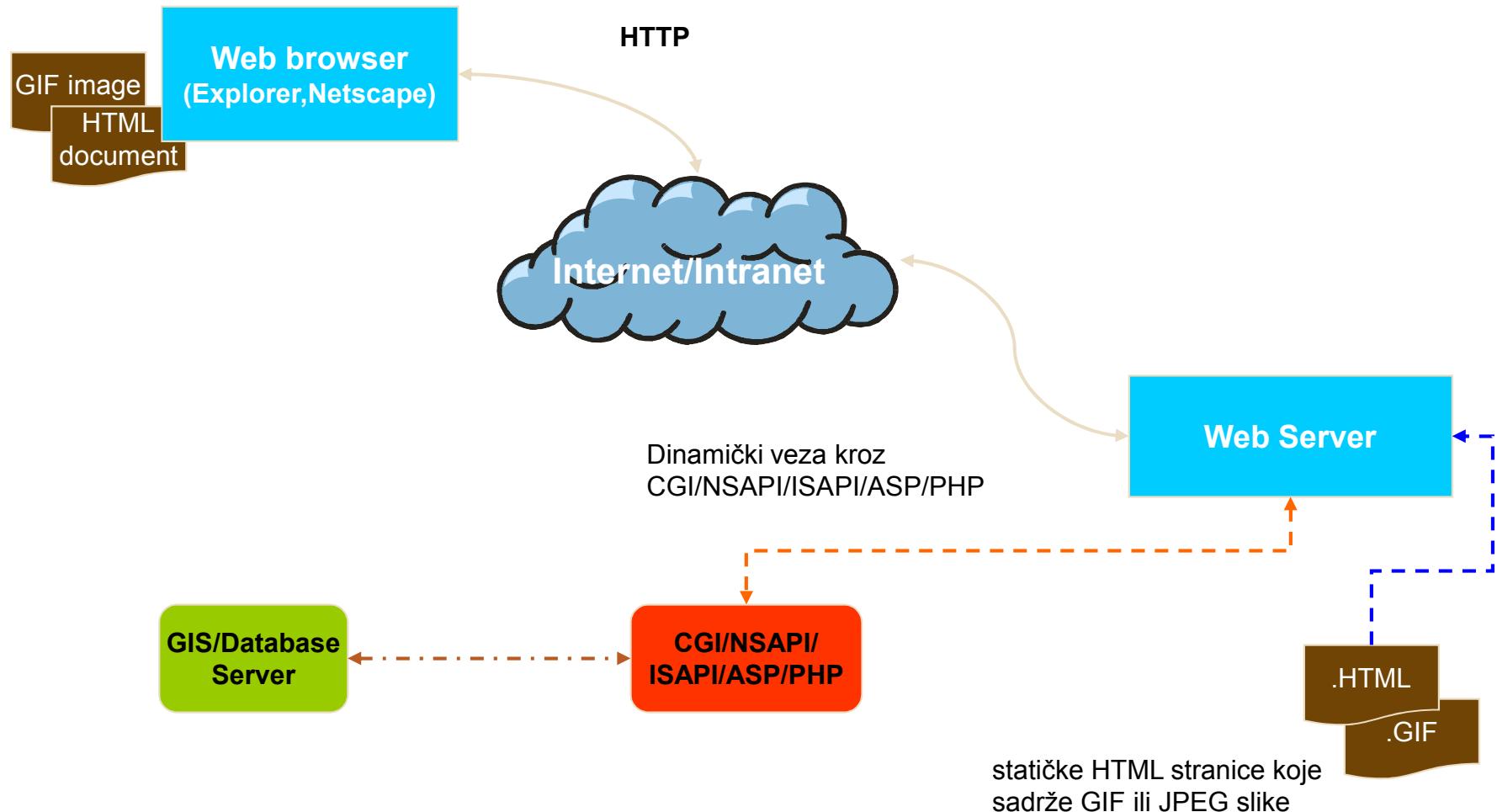
Distribuirani GI servisi

7

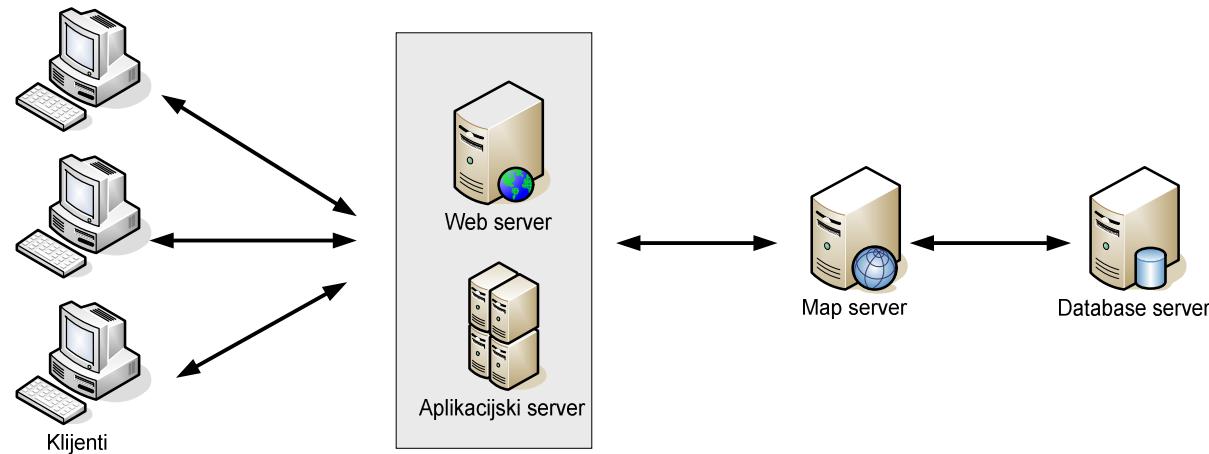


Tradicionalni prikaz prostornih podataka na Internetu

8



Osnovne komponente Internet GIS-a



- Klijenti**
- Web server s aplikacijskim serverom**
- Map server**
- Database server**

Organizacije

10

- Open Geospatial Consortium, Inc.
 - standardi
 - specifikacija
 - povezanost s ISO
- Open Source Geospatial Foundation
 - neprofitna organizacija
 - “inkubator” za zajednicu otvorenih geoinformacijskih sustava

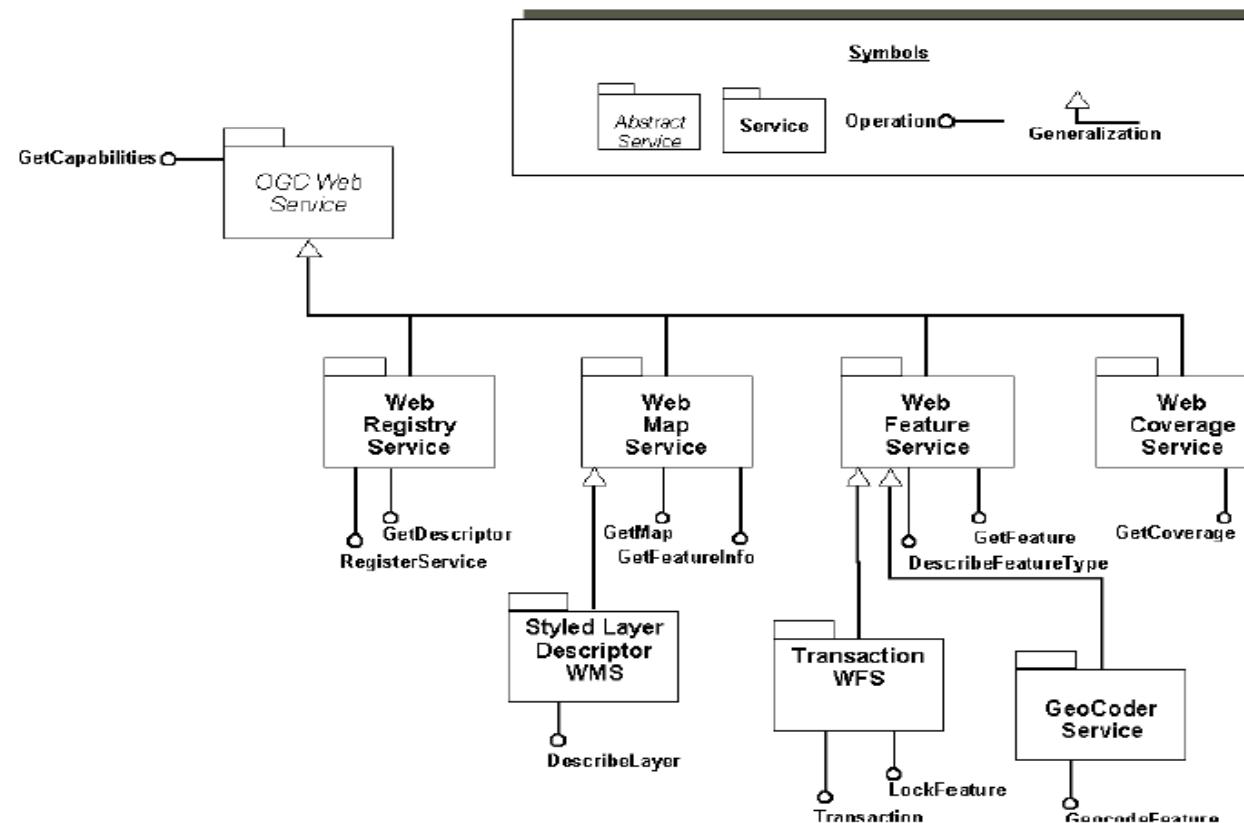
Open Geospatial Consortium

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- OpenGIS Consortium do 2004. godine
- OpenGIS® postaje brand za specifikacije i dokumente u području interoperabilnosti geoinformacijskih sustava
- <http://www.geospatial.org>
- značajnije specifikacije
 - GML (Geography Markup Language)
 - WMS (Web Map Service)
 - WFS (Web Feature Service)
 - Abstract Specifications: Simple Features

Open Geospatial Consortium

□ <http://www.opengeospatial.org>

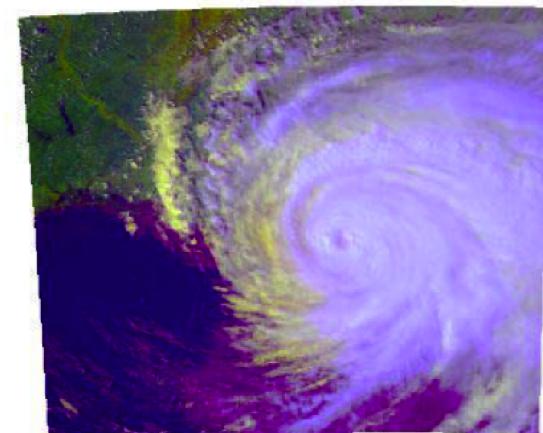


OGC WMS

13

- WMS – Web Map Service
- prikazuje georefenciranu kartu na temelju upita u PNG, GIF, JPEG formatima
- standardni zahtjevi
 - GetCapabilities: vraća parametre WMS-a i raspoložive slojeve
 - GetMap: prema odgovarajućim parametrima prikazuje kartu
- dodatni zahtjevi
 - GetFeatureInfo
 - DescribeLayer
 - GetLegendGraphic

http://a-map-co.com/mapserver.cgi?VERSION=1.1.0&REQUEST=GetMap&SRS=EPSG:4326&BBOX=-97.105,24.913,78.794,36.358&WIDTH=560&HEIGHT=350&LAYERS=AVHRR-09-27&STYLES=&FORMAT=image/png&BGCOLOR=0xFFFFFFFF&TRANSPARENT=TRUE&EXCEPTIONS=application/vnd.ogc.se_inimage



OGC WFS

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- WFS – Web Feature Service
- XML/GML
- transakcije, upiti, rad s podacima



Open Source Geospatial Foundation

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The Open Source Geospatial Foundation...
Created to support and build the highest-quality open source geospatial software. Our goal is to encourage the use and collaborative development of community-led projects. Join us by signing up to our mailing lists or check out the [Getting Started](#) page to become more involved.

<http://jutarni.emailnews.eu/go/h9nofwm/rdyaf9yl>
[Kliknite da slijedite vezu](#)



FOSS4G 2010
Barcelona
Free and Open Source Software
for Geospatial CONFERENCE
SEP 6th-9th



Support OSGeo
Make A Donation
Any Amount



OSGeo Projects
Web Mapping
deegree
geomajas
GeoServer ◆
Mapbender
MapBuilder
MapFish ◆
MapGuide Open Source
MapServer
OpenLayers

Desktop Applications
GRASS GIS
OSSIM
Quantum GIS
gvSIG ◆

Geospatial Libraries

OSGeo Foundation

- [Home](#)
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- [FAQ](#)
- [Sponsors](#)
- [Sponsor OSGeo](#)
- [Incubator](#)
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- [Service Providers](#)
- [Journal](#)
- [Sol Katz Award](#)
- [Local Chapters](#)
- [Spotlights](#)
- [Gallery](#)
- [Live DVD](#)

Language

- English
- Български
- 简体中文
- Deutsch
- Français
- Indonesian
- Italiano
- 日本語
- 한국어
- Nederlandse

News

2010-11 Geomajas Graduates OSGeo
-22 Incubation

2010-11 deegree now available in version 3.0
-17

2010-11 2010 Charter Member Selection
-12

2010-11 2009 Annual Report Available - OSGeo
-03 Journal Volume 7

[| Submit News](#) [more](#)

Upcoming events

GIS-IDEAS: The International Conference on GeoInformatics for Spatial
2010-12-08 -Infrastructure Development in Earth & Allied Sciences

[| Submit Upcoming Events](#)

Stay Informed, Get Involved

- Stay informed by subscribing to our [announcements e-mail list](#).
- Get involved by subscribing to our [discussion e-mail list](#).
- Start contributing by following the instructions on the [Getting Started](#) page.

Otvoreni geoinformacijski sustavi

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- veliki broj (više od 300) dostupno na web stranicama
<http://www.freegis.org>
- GRASS - <http://grass.zvne.fer.hr>
- Quantum GIS - <http://www.qgis.org>
- MapGuide OpenSource – <http://mapguide.osgeo.org>
- Mapserver – <http://mapserver.osgeo.org>
- GeoServer – <http://geoserver.org>

MapGuide Open Source

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The screenshot shows a MapGuide Viewer interface with a map of Croatia. The map displays several layers, including administrative boundaries, rivers, and specific areas highlighted in green and yellow. A legend on the left identifies these layers. The right side of the interface contains a 'Command List' pane with links to various map operations like Buffer, Clear Selection, Copy, Get Printable Page, and Initial Center and Scale.

Layers

- Zagrebacka
- Gradovi_RH
- RH
 - CESTE
 - PRUGE
 - RUEKE
 - granica
 - hr
- Gradovi_van_RH
- Parkovi
 - Planinarski_Domovi
 - Nacionalni_Parkovi
 - Parkovi_Prirode

Properties

None Selected

MapGuide Viewer Command List

This list displays commands that may be available on the toolbar, in right-click menus, or in the task pane of MapGuide Viewer. For an overview, see [Understanding MapGuide Viewer](#).

Buffer
Use this command to create a buffer zone around a selected set of features. For more information, see [Buffering](#).

Clear Selection
Clears all features currently selected.

Copy
Copies the current view of the map to the clipboard as a Windows Metafile.

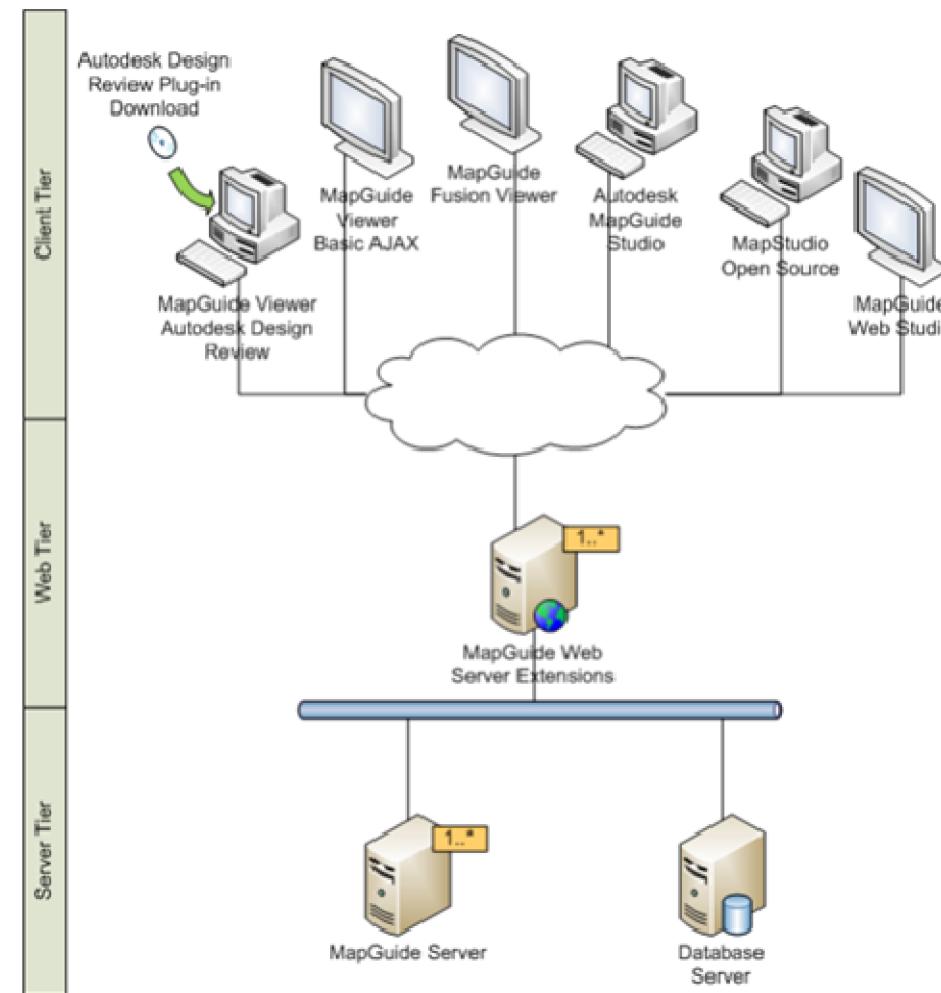
Get Printable Page
In the AJAX Viewer, this command opens a dialog box for choosing layout options, which leads to the creation of a new browser page that you can print with the browser Print command.

Initial Center and Scale
Zooms to the initial extents set for the web application.

X: 17.173921, Y: 45.102265 (Degree) 0 feature selected 1: 1172520 138.80 x 136.10 (mi) Powered by MapGuide

Autodesk Mapguide Enterprise/ Mapguide Open Source

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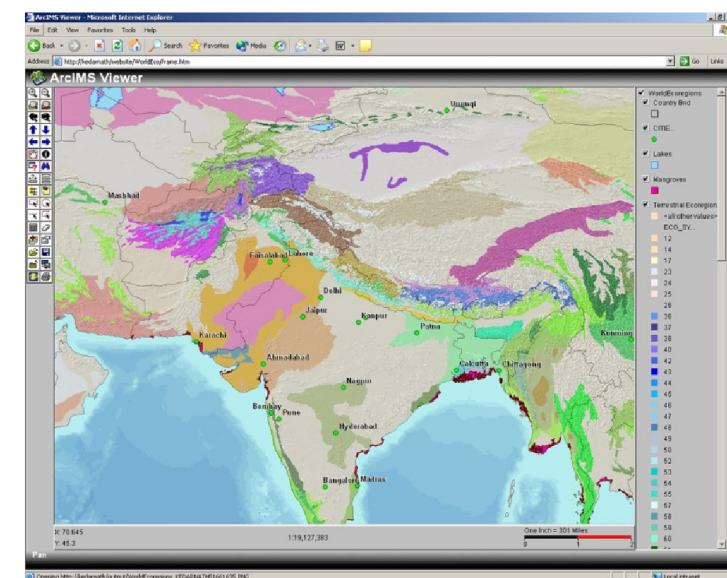
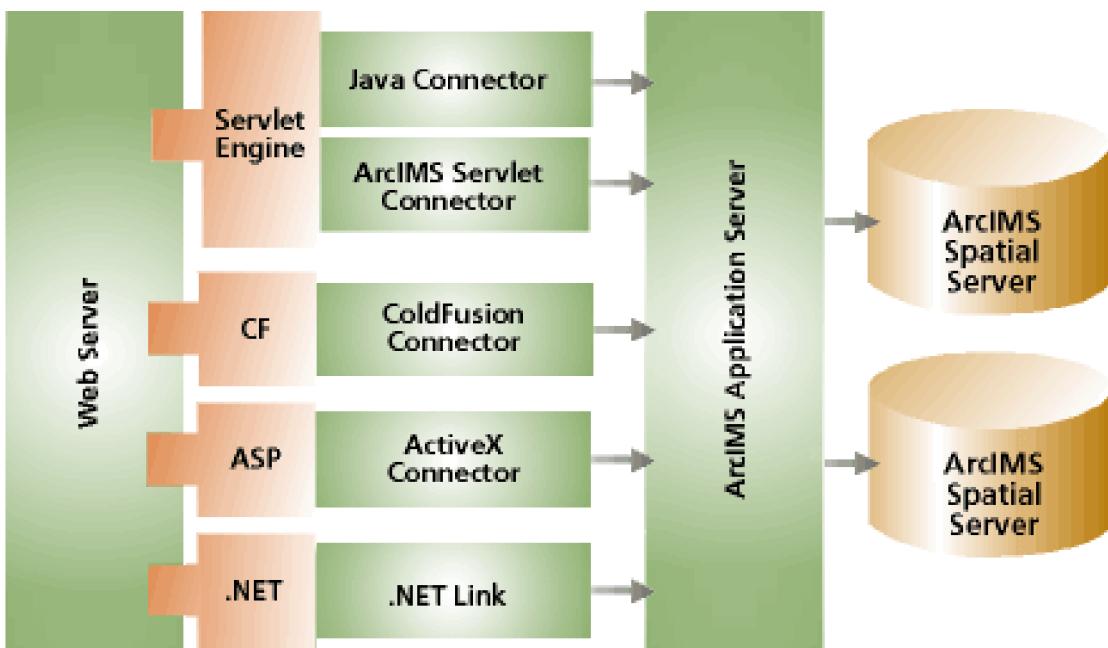
Klijenti

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- Web 1.0
 - jednostavni HTML
 - dinamički HTML
 - ActiveX/plug-in
 - Java applet
- Web 2.0
 - AJAX (Asynchronous Javascript and XML)

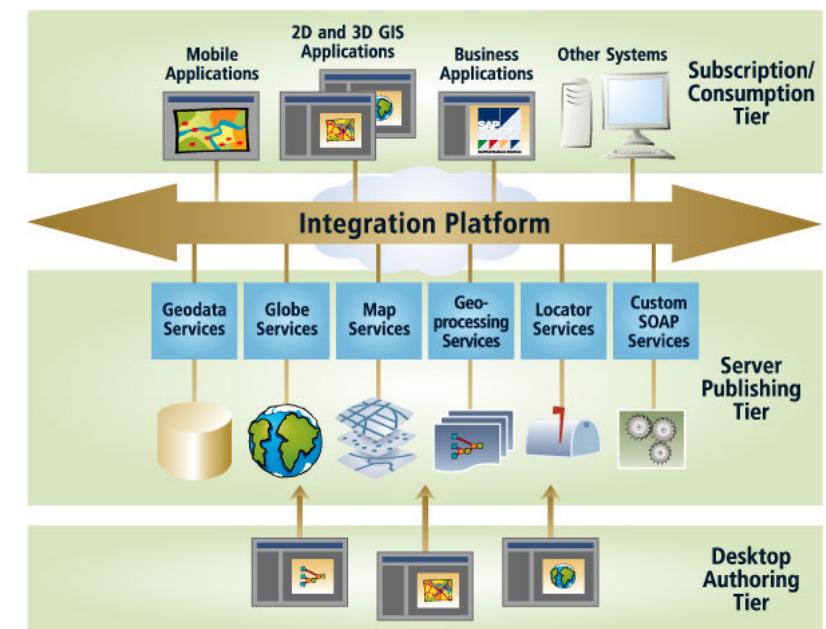
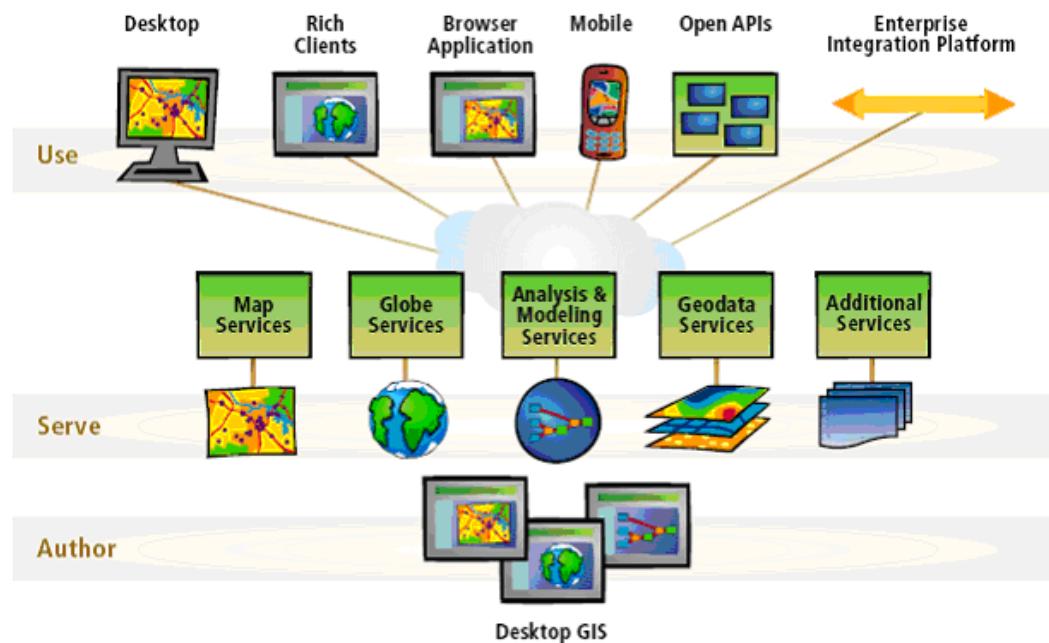
ESRI ArcIMS

20



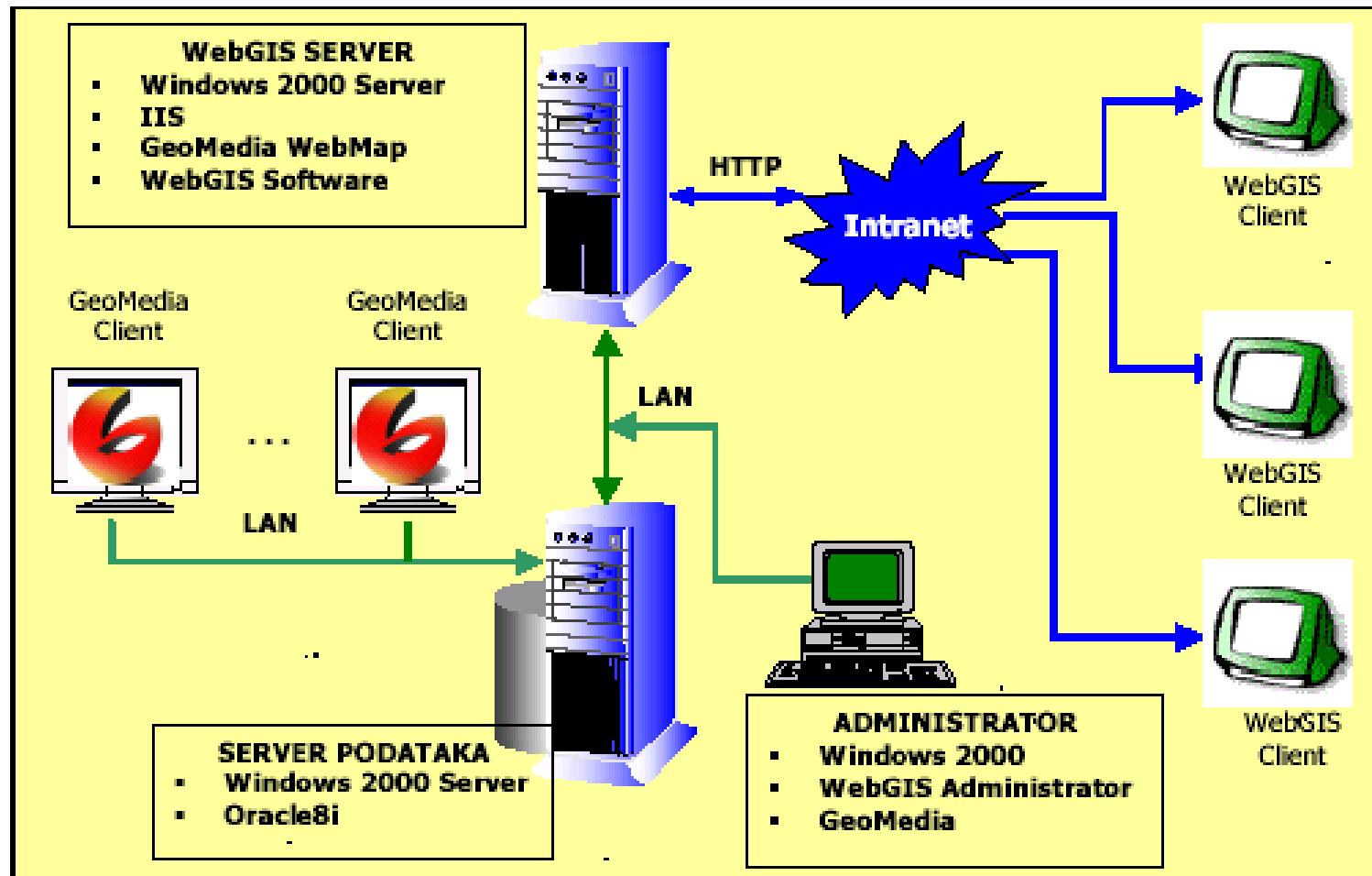
ArcGIS server

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Intergraph Geomedia Webmap / Webmap Professional

22



Prednosti WebGIS-a

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- jeftiniji od tradicionalnog GIS-a
- standardna konfiguracija računala za pristup Internetu
- potreban je samo browser (besplatno!)
- distribuiran (Internet/Intranet)
- nema potrebe za skupim i dugotrajnim školovanjem
- jednostavan za uporabu

Potencijalni korisnici WebGIS-a

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- poduzeća organizirana na principu centrale s više podružnica (uprave cesta, željeznica, banke, CARNet)
- povremeni i nestručni korisnici (turizam)
- potreba za pregledavanjem prostornih podataka u kratkom vremenu i s terena (komunalne organizacije)
- učenje geografije i GIS-a (srednje škole, fakulteti, stručne organizacije)

Pitanja & Diskusija

25



GEOINFORMACIJSKI SUSTAVI

Internet GIS servisi

Internet GIS servisi

2

□ dvije skupine servisa

□ potreban samo Internet preglednik

- Yahoo – Yahoo Maps (<http://maps.yahoo.com>)
- Google – Google Maps (<http://maps.google.com>)
- Bing – Bing Maps (<http://www.bing.com/maps/>)
- Michelin – (<http://www.viamichelin.com>)
- HAK – (<http://www.hak.hr>)

□ lokalno instalirane aplikacije

- Google Earth – (<http://earth.google.com>)
- NASA World Wind – (<http://worldwind.arc.nasa.gov/>)
- ESRI ArcGIS Explorer –
(<http://www.esri.com/software/arcgis/explorer/index.html>)

Google Maps

3

- usluga Web mapiranja
- nije GIS (no, razlika se smanjuje)
- <http://maps.google.com>
- drag & drop pomicanje karte
- 20 razina uvećanja
 - površine različite važnosti ->
različita razina detalja

Detalji...

4

□ Slonovi u Tunisu



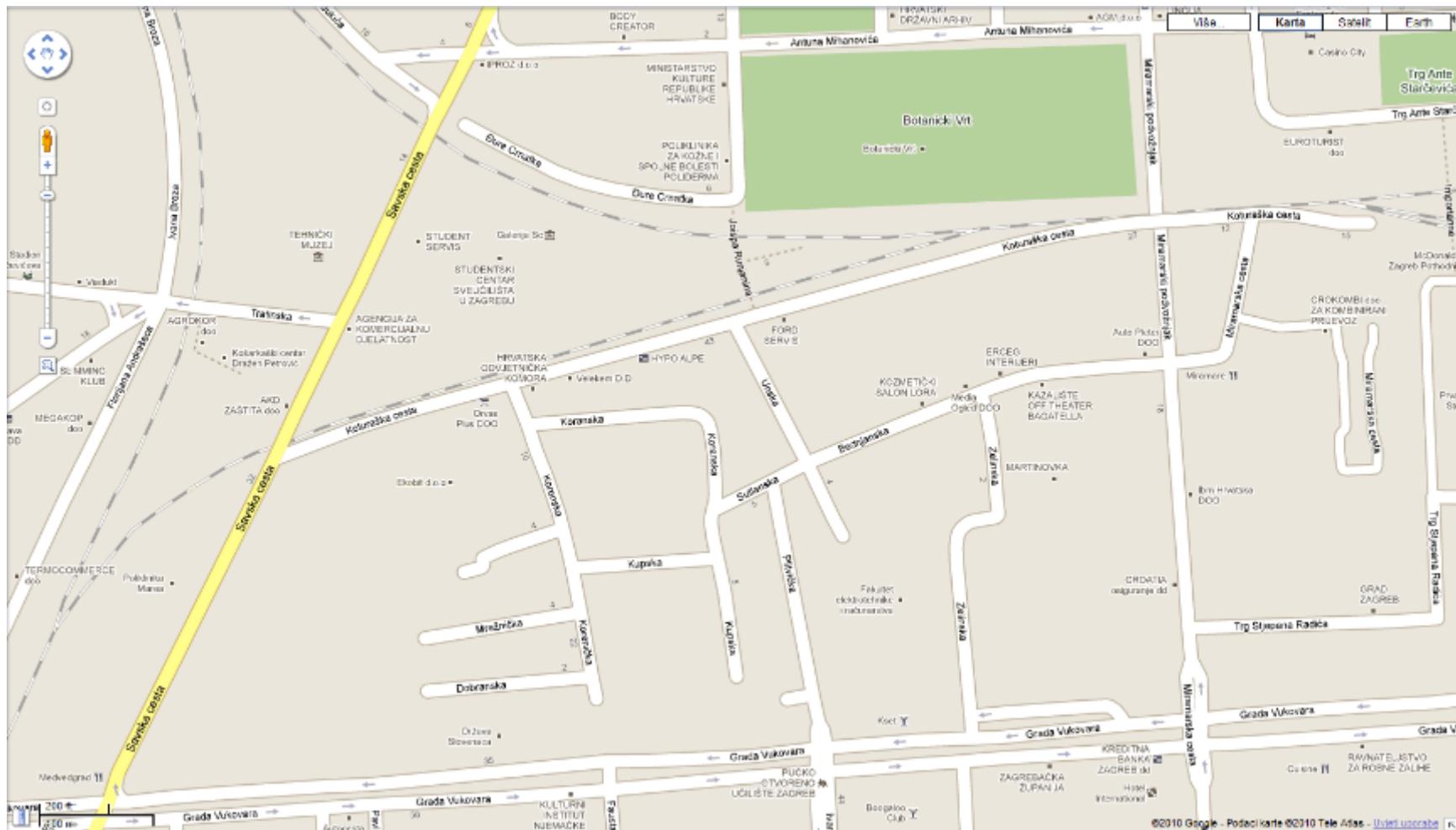
Google Karte (Maps)

5

- 2D pregled, s različitim pogledima:
 - Karta (Map)
 - Satelit (Satellite)
 - Earth (Google Earth plugin)
 - Street View
 - Promet (Traffic)

Google Karte – Karta

6



©2010 Google - Podaci karte ©2010 Tele Atlas - [Uvod u orografske karte](#)

Google Karte – Satelit

7



Google Karte – Earth

8



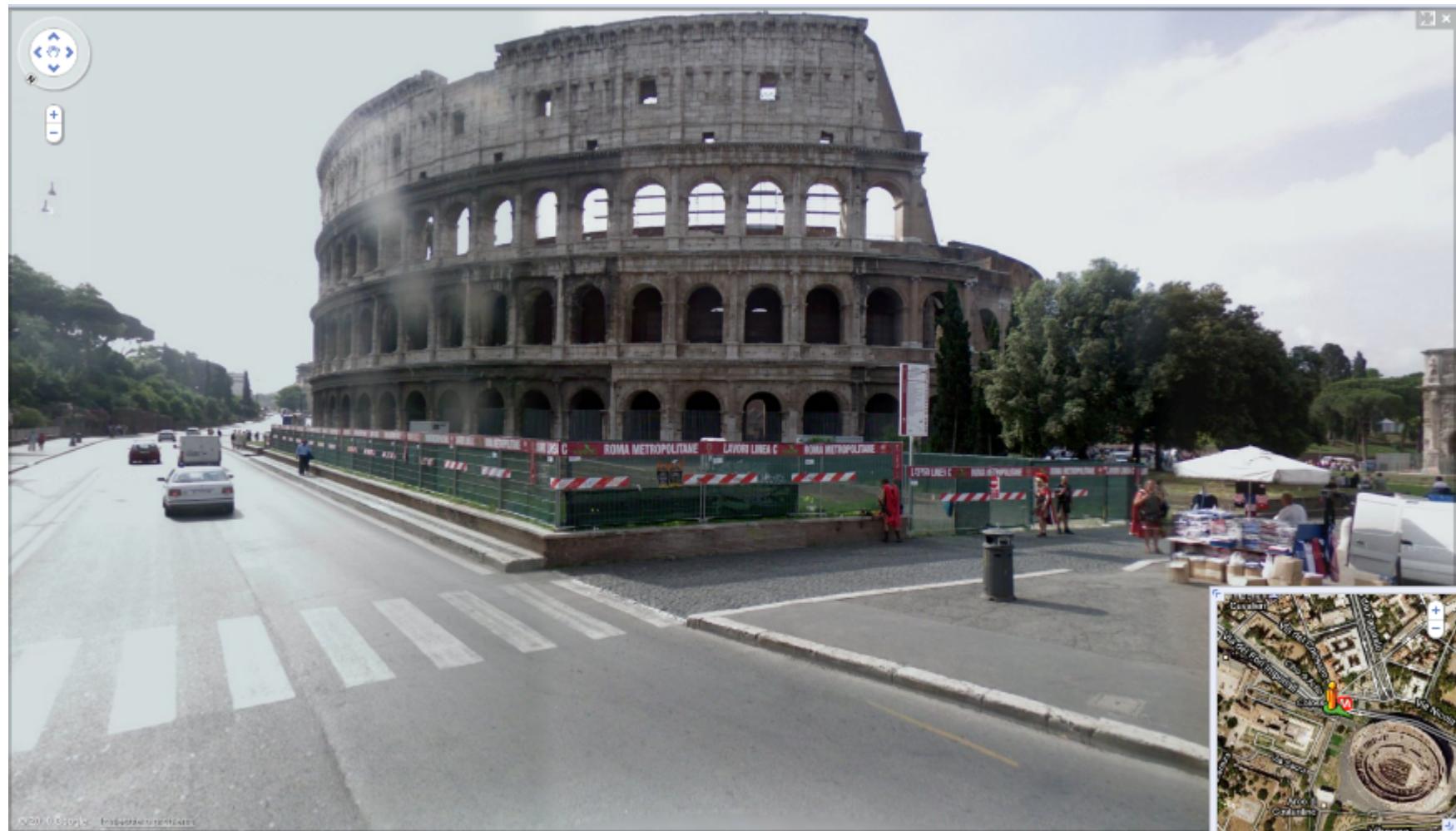
Google Karte – 3D zgrade u Earth pogledu

9



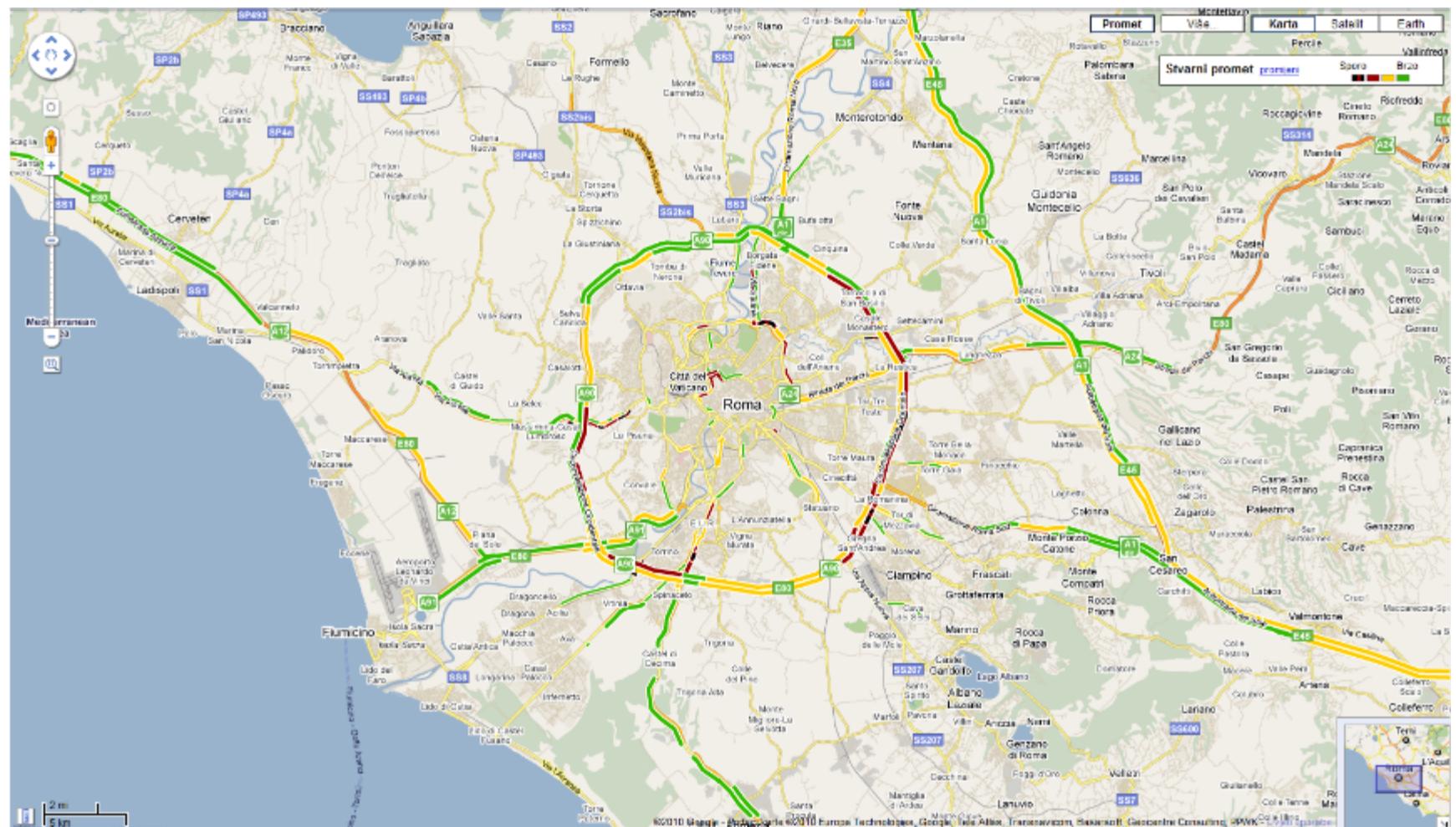
Google Karte – Street View

10



Google Karte – Promet

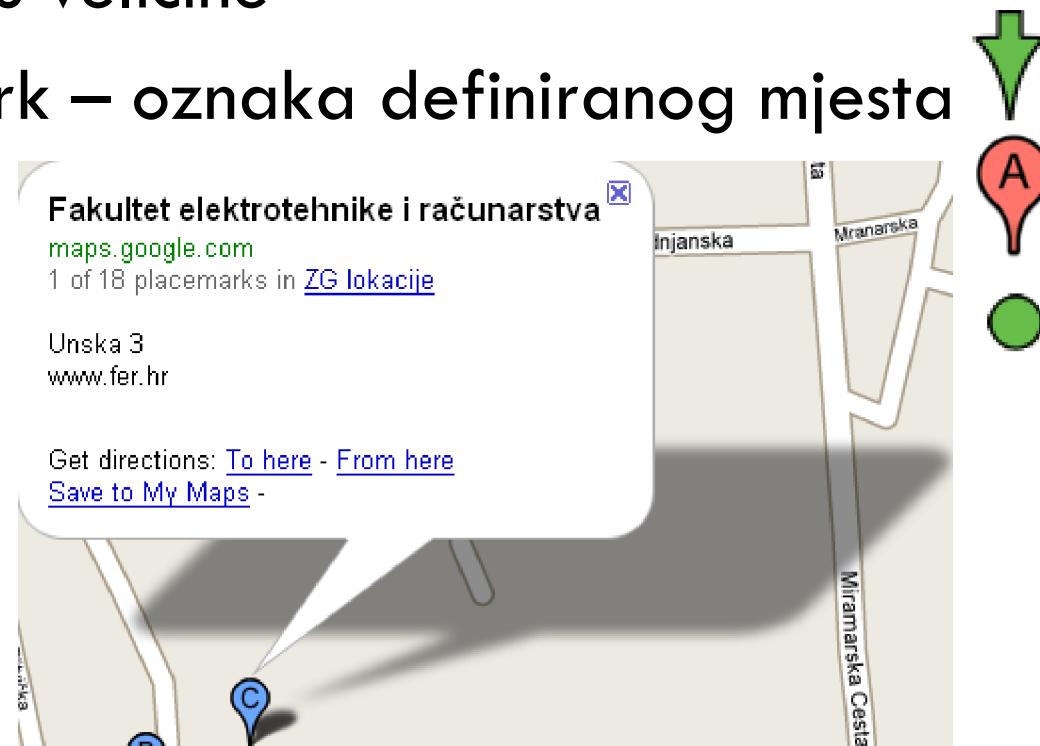
11



Glavni elementi prikaza

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- karta
- mjerilo
- slider za promjenu veličine
- marker/placemark – oznaka definiranog mјesta
- info prozor – detaljniji opis



Kako radi Google Maps I

13

- satelitske i avionske snimke
- karta Zemlje podijeljena na slike – pločice (*tiles*) – dimenzija 256×256 px
- kartu na razini uvećanja N predstavlja 4^N pločica
 - razina $0 \rightarrow 4^0 = 1$
 - razina 18 (naseljeni gradovi)
 $\rightarrow 4^{18} \approx 69 * 10^9$
- svaka pločica ima poznate “susjede”
 - olakšava drag & drop pomicanje po karti



Kako radi Google Maps II

14

- Web aplikacija
 - strana poslužitelja
 - strana klijenta – preglednika Weba
- Programska podrška:
 - HTML – prikaz elemenata Web stranice
 - JavaScript – dinamika Web stranice
 - npr. prikaz markera na određenom mjestu
 - HTML DOM – model Web dokumenta
 - jednoznačno označavanje HTML elemenata
 - XML – oblik podataka pogodan za prijenos
- Web standardi, podržani u pregledniku
 - nisu potrebni dodaci (npr. Flash...)

Kako radi Google Maps III

15

- zašto za prijenos podataka nije potrebno osvježavanje cijele stranice (*Refresh*)?
 - verzija 1: JavaScript metoda XMLHttpRequest (temelj AJAX aplikacija)
 - ne koristi se za Google Maps
 - **verzija 2:** skriveni HTML <IFRAME> element pomoću kojeg se poslužitelju šalju HTTP upiti
 - odgovor je u XML obliku, kojeg se parsira JavaScriptom

Što raditi s Google Maps? I

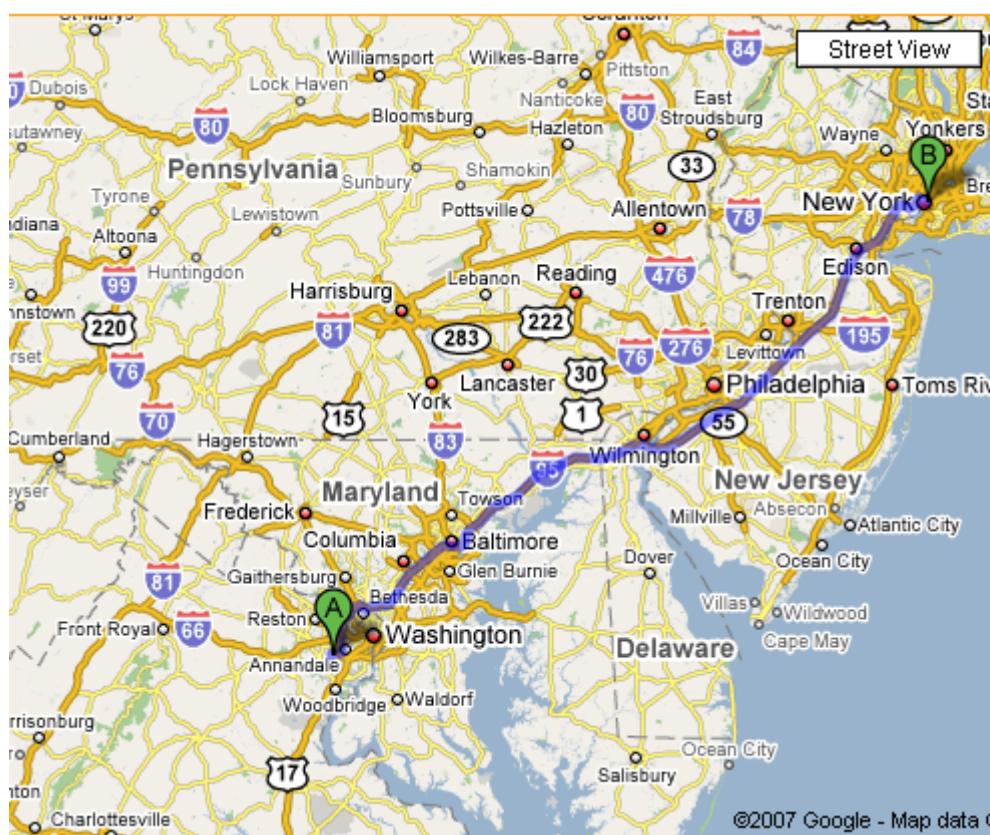
16

- pretraživanje
 - po adresi (npr. “unska, zagreb”)
 - po geolokaciji (g. širina, g. dužina)
 - po nazivu pojma (npr. “fer, zagreb”)
 - po djelatnostima (npr. “pizzeria, zagreb”)
- tko je unio podatke?
 - izvorno s Google Mapsa
 - zajednica korisnika (My Maps)

Što raditi s Google Maps? II

17

□ planiranje puta



Search Results My Maps

Avoid highways [Get reverse directions](#)

A From: Maryland [Edit](#)

B Drive: 246 mi – about 4 hours 22 mins
up to 5 hours 40 mins in traffic

1. Head **north** on **Bromyard Ct** 344 ft
toward **Lake Braddock Dr**
2. Turn **left** at **Lake Braddock Dr** 0.1 mi
3. Turn **right** at **Olley Ln** 0.3 mi
4. Turn **right** at **Guinea Rd** 0.1 mi
5. Turn **right** at **Braddock Rd/VA-620 E** 2.7 mi
6. Take the ramp onto **Capital Beltway/I-495 N** 26.8 mi
Entering Maryland
7. Take exit 27 to merge onto **I-95 N** 93.9 mi
toward **Baltimore**
Partial toll road
Entering Delaware

Što raditi s Google Maps? III

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- My Maps - personalizacija karte
- dodavanje vlastitih područja
 - mjesto (*placemark*)
 - linija (*line*)
 - oblik (*shape*)
- podjela područja u grupe

[Search Results](#) [My Maps](#)

[Save to My Maps](#)

Studentski domovi

15 views - Public

Created on Jun 29 - Updated < 1 minute ago

By [Ivana](#)

[Rate this map](#) - [Write a comment](#)



[Studom Cvjetno naselje](#)



[Studom Sava](#)



[Cvjetno naselje - FER](#)

Kako najbrže pješice od studentskog doma

My Maps – primjer linije

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My Maps – podaci

20

- dodatne informacije o području
- HTML oblikovanje u info prozoru:
 - slika objekta / mesta
 - film (npr. ugrađeni YouTube isječak)
- uvoz podataka u formatu KML, KMZ ili GeoRSS
- izvoz podataka u KML
- kompatibilnost s programom Google Earth

My Maps – suradnja I

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- informacije mogu biti:
 - javne (*public*) – svi korisnici mogu pretraživati naše lokacije
 - privatne (*unlisted*) – lokacije dostupne putem posebno kreiranog URL-a
 - osobe kojima pošaljete URL mogu pregledavati lokacije
 - primjer URL-a:
<http://maps.google.com/maps/ms?ie=UTF&msa=0&msid=15121170950699847138.000441584f7b0b0fac51f>
- **suradnja i dijeljenje** znanja čini svijet **boljim!** ☺

My Maps – suradnja II

22

- moguće uputiti poziv na suradnju drugim korisnicima
- po želiji, svi moći uredjivati našu mapu

Invite collaborators

Invite people as collaborators

Separate email addresses with commas

Message:

I've shared a map with you called GIS test:
<http://maps.google.com/maps/ms?ie=UTF&msa=0&msid=115121170950699847138.000441584f7b0b0fac51f>

Manage collaborators

Advanced Permissions

Only the owner may change these settings

Collaborators may invite others

Allow anyone to edit this map

Google Maps API

23

- **API** = Application Programming Interface
 - dobro definirano sučelje za komunikaciju među programima
 - sučelje za prilagodbu i ugradnju sustava Google Maps na drugim Web stranicama
 - JavaScript metode
 - <http://code.google.com/apis/maps/>

Google Maps API

24

- stvaranje vlastitih aplikacija temeljenih na podacima i uslugama Google Mapsa
- besplatan
 - čak i na komercijalnim Web sjedištima
 - Web stranica koja koristi API mora biti **javno dostupna bez naplate**
 - autentifikacija korisnika je dozvoljena, ako je jednostavno i besplatno otvoriti korisnički račun
 - neka ograničenja (<50 000 upita dnevno za geokodiranje)
- postoji i Google Maps for Enterprise

Kako početi s API-jem

25

- za korištenje API-ja potreban je ključ
 - vezan je za korijenski URL Web sjedišta
 - API neće raditi na stranicama koje nisu unutar navedenog sjedišta
 - dobivanje ključa:
 - obavezna prijava na Google (Google Account)
 - <http://code.google.com/apis/maps/signup.html>
 - primjer ključa:
ABEIAAAABWIDERJMLEat5pKrPHiwvJxStynum13X3q7OIuK-h6n3SRzaMGBQBsCyOj3QnPPerm1ENnAEGPjcsfQ

API “Hello World”

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```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 strict//EN"  
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">  
<html xmlns="http://www.w3.org/1999/xhtml">  
  <head>  
    <meta http-equiv="content-type" content="text/html; charset=utf-8"/>  
    <title>Google Maps JavaScript API Example</title>  
    <script src="http://maps.google.com/maps?file=api&v=2.1.1" type="text/javascript"></script>  
    <script type="text/javascript">  
      //<![CDATA[<br/>  
      function load() {  
        if (GBrowserIsCompatible()) {  
          var map = new GMap2(document.getElementById("map"));  
          map.setCenter(new GLatLng(45.805559,15.973949), 13);  
        }  
      }  
  
      //]]>  
    </script>  
  </head>  
  <body onload="load()" onunload="GUnload()">  
    <div id="map" style="width: 500px; height: 300px">  
    </div>  
  </body>  
</html>
```

The diagram consists of three blue rounded rectangular boxes with arrows pointing from them to specific parts of the code. The top box points to the script tag that includes the Google Maps API. The middle box points to the 'setCenter' method call within the 'load()' function. The bottom box points to the 'style' attribute of the 'div' element.

Inicijalizacija karte,
povezivanje s dijelom Web
stranice id="map"

Stavljanje sredine prikaza
na koordinate FER-a, uz
zoom prikaza 13

Postavljanje karte na
željeno mjesto na stranici.
Definiranje veličine karte.

API “Hello World”

27



Što API može?

28

- velika razina prilagodbi svih elemenata
- odabir tipa pregleda mape
 - normal
 - satellite
 - hybrid
- prilagodba kontrola
 - koje kontrole trebaju biti prikazane?
 - pozicioniranje
 - promjena izgleda
- postavljanje razine uvećavanja

Što API može?

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- markeri – označavanje lokacija
 - postavljanje markera
 - promjena izgleda ikone
 - interaktivnost (prijeđaz ili klik mišem)
- linije i poligoni
 - nizovi ravnih segmenata na karti
 - promjena boje, širine, izgleda linija

Što API može?

30

- slojevi pločica (*tile overlay*)
 - definiranje vlastitog seta pločica preko karte
 - postavljanje određene slike na neko mjesto na karti
- info prozori
 - dodatne informacije “u balončićima” na zahtjev
 - potpuno prilagođivi

Što API može?

31

- geokodiranje
- prikaz KML i GeoRSS podataka
- parsiranje korisnički definiranih XML dokumenata i njihov prikaz
- prikaz stanja u prometu i uputa za vožnju
 - samo za podržane lokacije

Geokodiranje

32

- pretvaranje adrese lokacije u geografske koordinate
- geokodiranje kroz JavaScript API
 - GClientGeocoder.getLatLang
- geokodiranje HTTP zahtjevom
 - <http://maps.google.com/maps/geo?>
 - q = zahtjev
 - key = ključ API-ja
 - output = oblik podataka

Geokodiranje

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- <http://maps.google.com/maps/geo?q=zagreb,+croatia&output=xml&key=ABQIBAA>
- KML oblik

```
<km1>
  <Response>
    <name>zagreb, croatia</name>
    <Status>
      <code>200</code>
      <request>geocode</request>
    </Status>
    <Placemark id="p1">
      <address>Zagreb, Hrvatska</address>
      <AddressDetails Accuracy="4">
        <Country>
          <CountryNameCode>HR</CountryNameCode>
          <AdministrativeArea>
            <SubAdministrativeArea>
              <SubAdministrativeAreaName>
                Grad Zagreb
              </SubAdministrativeAreaName>
            <Locality>
              <LocalityName>
                Zagreb
              </LocalityName>
            </Locality>
          </SubAdministrativeArea>
        </AdministrativeArea>
      </Country>
    </AddressDetails>
    <Point>
      <coordinates>15.960530,45.796950,0</coordinates>
    </Point>
  </Placemark>
</Response>
</km1>
```

Maps API: Primjene

35

[Prikaz svih lokacija na karti ili satelitskoj snimci]

□ <http://lociraj.net>

Lociraj.net (C) 2007

[Bankomati](#)

- [OTP](#)
Zelinska 4, ZagrebPoslovница Zagreb 1
- [Raiffeisen](#)
Koranska 2, ZagrebEPH
- [Splitska banka](#)
Ulica grada Vukovara 70, Zagreb

[Banke](#)

- [Imex Banka](#)
Bedrijnska 14, Zagreb
- [OTP](#)
Zelinska 4, Zagreb
- [Raiffeisen](#)
Ulica grada Vukovara 37b, Zagreb

[Benzinske stanice](#)

- [INA](#)
Kranjčevićeva bb, Zagreb
- [INA](#)
Miramarska cesta bb, Zagreb
- [INA](#)
Ulica grada Vukovara bb, Zagreb

[Save to My Maps](#)

Bankomati:

[View in Google Earth](#) [Print](#) [Send](#) [Link to this page](#)

[Map](#) [Satellite](#) [Terrain](#)

Show labels

©2007 Google. Imagens ©2007 DigitalGlobe, CNES/Spot Image, Map data ©2007 AND - Terms of Use

Maps API: Primjene

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□ <http://www.cromart.com>

Početna / Prodaja / Grad Zagreb / Zagreb - Zapad

Grad Zagreb Zagreb - Zapad Svo mjesto/naselje Svi objekti Sve cijene Prikaži

Prikaži: Zadnje unešene Stranica 1 od 12 Slijedeća >> >>>

Upišite naziv ulice: Prikaži na mapi

Infrastruktura Mapa Satelit Kombinirana

Info Opis

Ogrizovićeva, Trešnjevka

Tip: Stan
Ukupna cijena: 230.000 EUR
Broj soba: 3
Površina prostora: 100m²
[stranica sa detaljima](#)

 Trešnjevka
Ogrizovićeva
100m²
230.000 EUR
[detalji](#) | [prikaži na mapi](#)

 Trešnjevka
Tratinčka ulica
84m²
201.600 EUR
[detalji](#) | [prikaži na mapi](#)

 Gajnice
Gajnice
24m²
53.000 EUR
[detalji](#) | [prikaži na mapi](#)
CONTINENTAL - NEKRETNINE d.o.o.

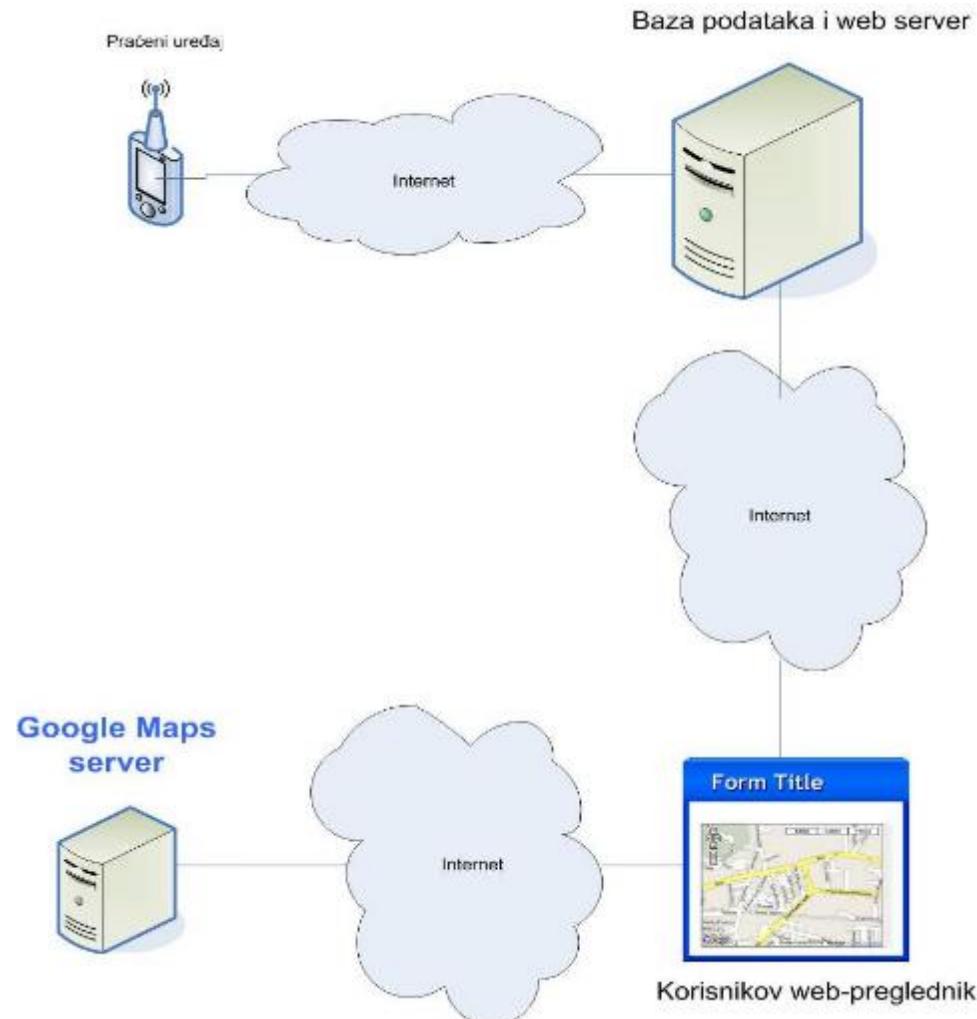
 Trešnjevka
Hrgovčić
106m²
222.600 EUR





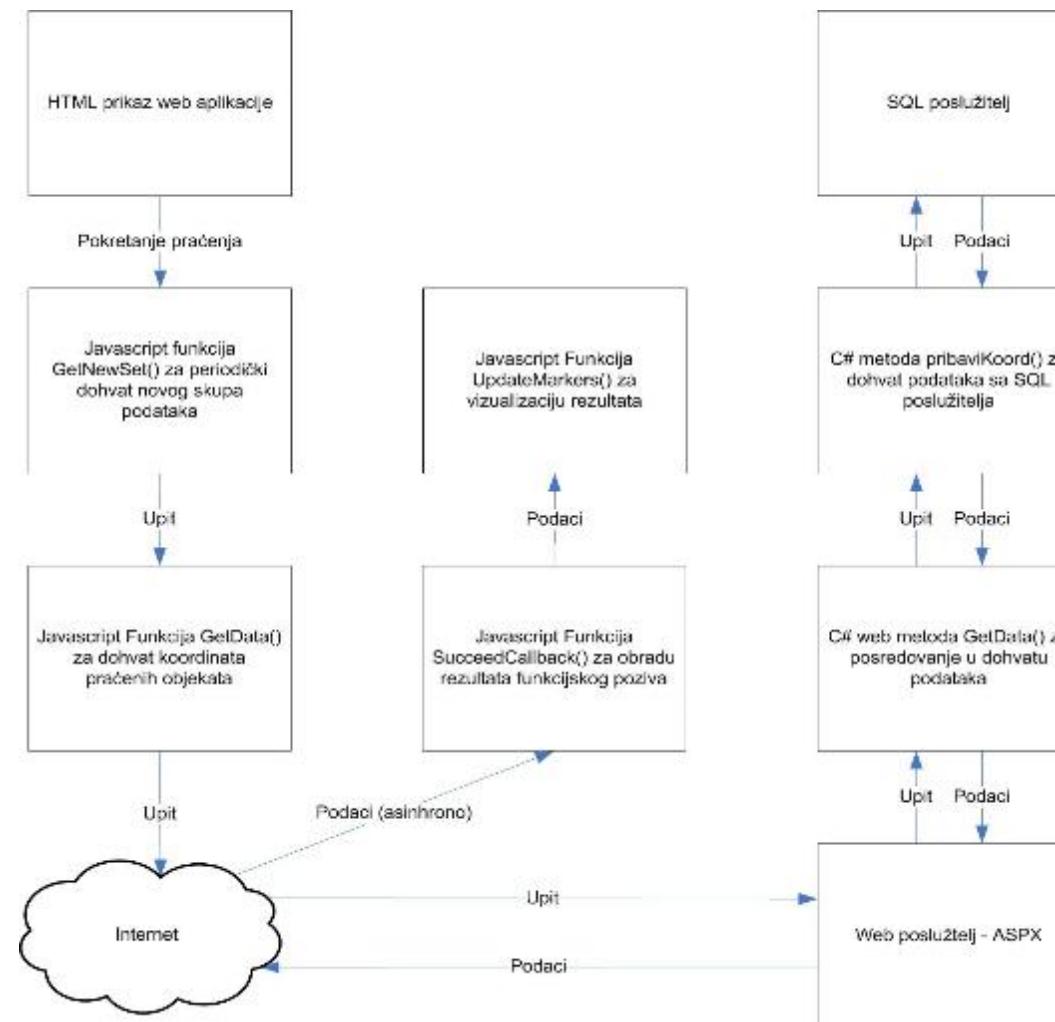

Primjer diplomski – Google Maps tracking (1)

37



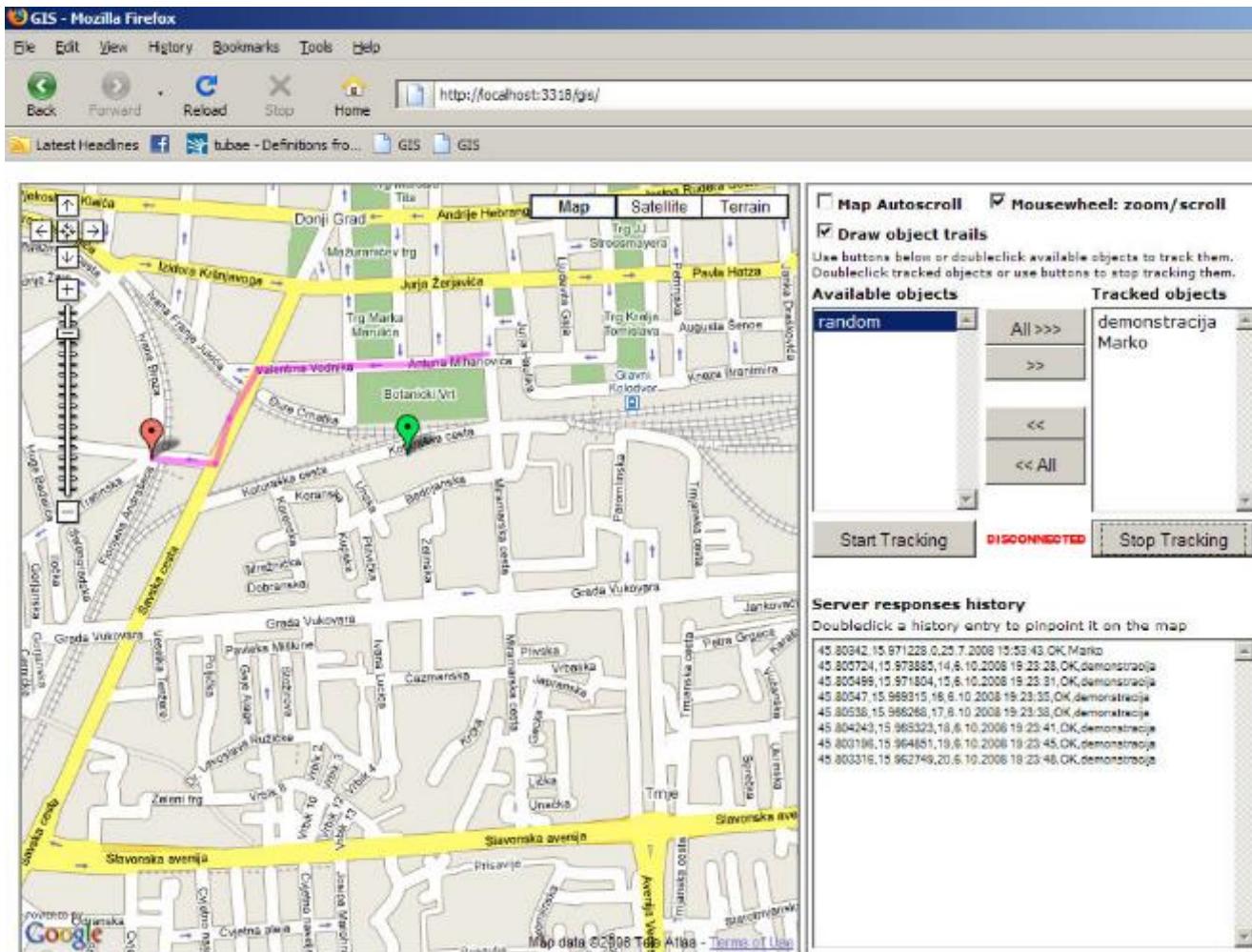
Primjer diplomski – Google Maps tracking (2)

38



Primjer diplomski – Google Maps tracking (3)

39



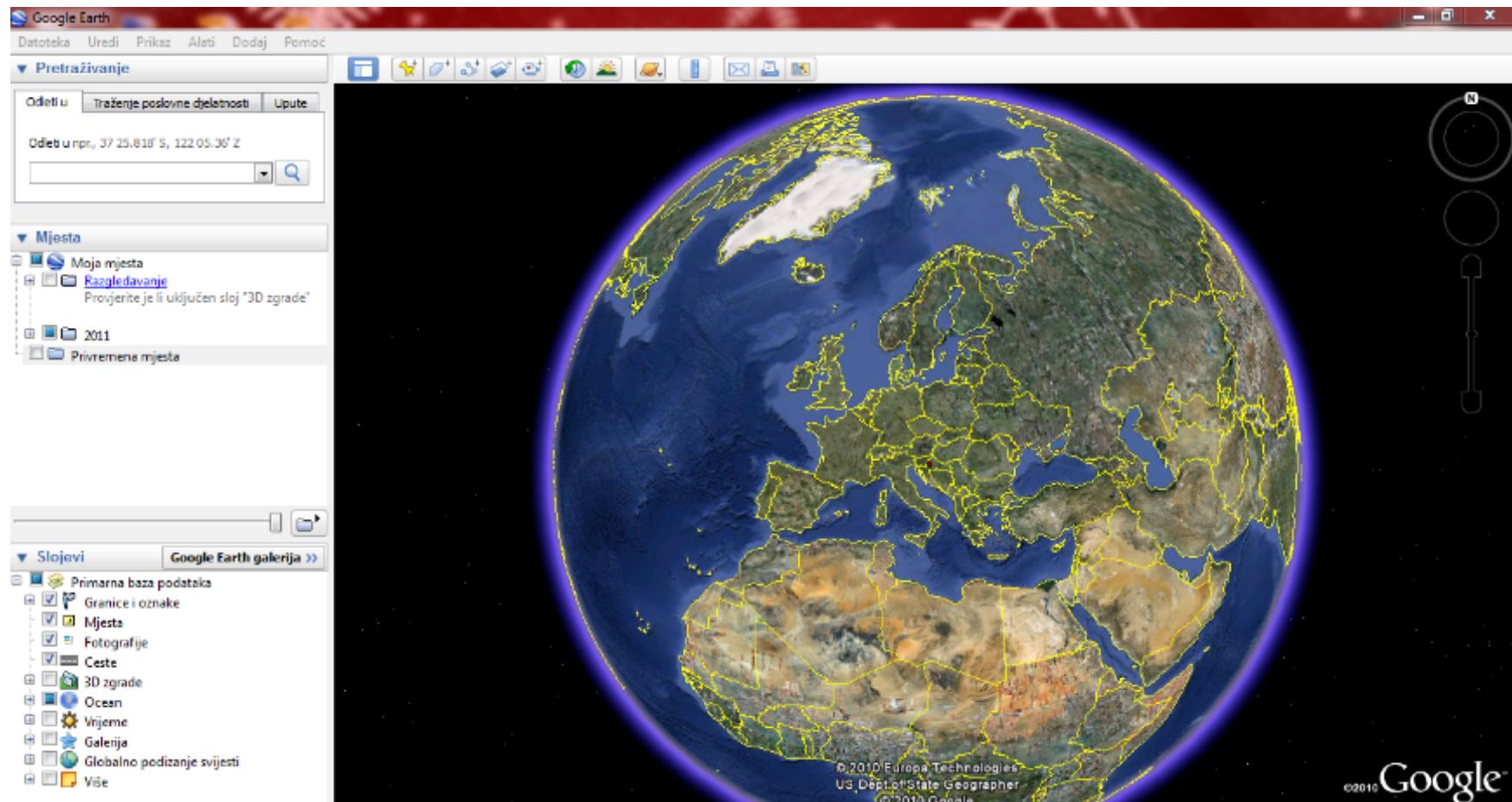
Google Earth

40

- virtualni globus – 3D prikaz
 - veća sloboda kretanja
- *standalone* program
 - potrebna (brza!) veza na Internet
- originalno napravljen od tvrtke Keyhole
- ista baza fotografija kao i kod Google Mapsa
- mogućnost promjene kuta gledanja

Google Earth

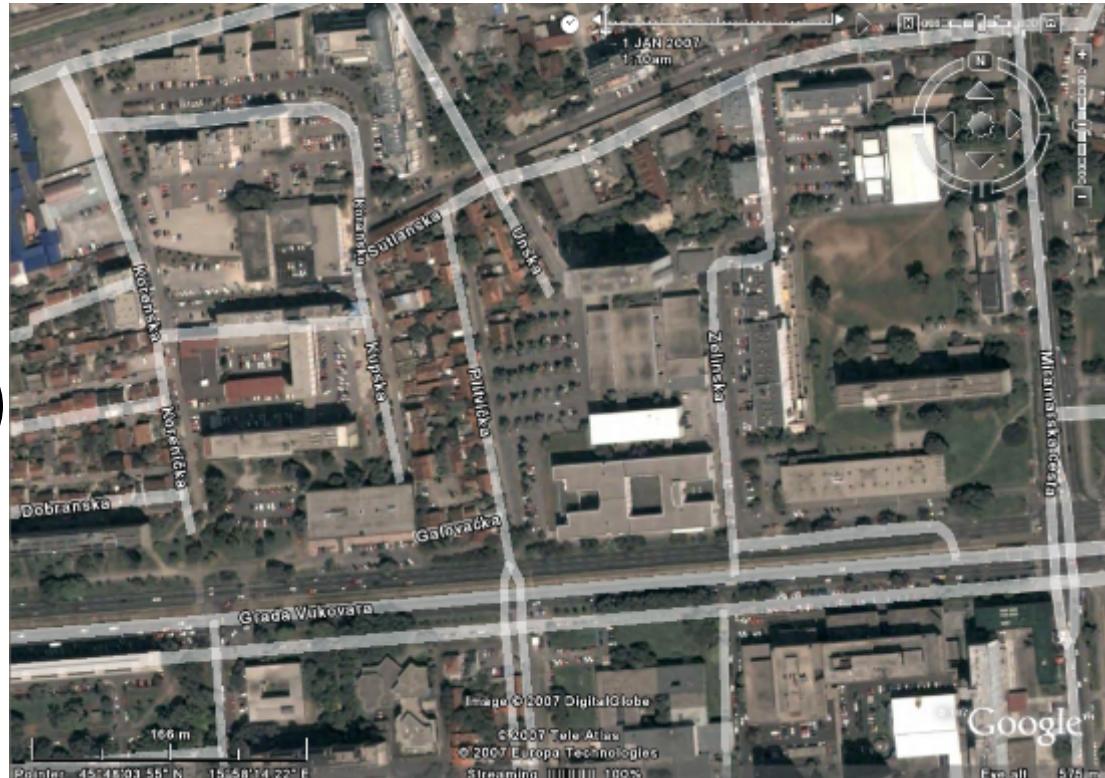
41



Google Earth

42

- slojevi podataka
(layers)
nadograđuju
osnovne snimke
 - granice i nazivi
(Borders and Labels)
 - ceste (Roads)
 - vremenske prilike
(Weather)
 - dodatni izvori
podataka
(YouTube, Flickr...)



Kako radi Google Earth?

43

- implementacija je zahtjevna i komplikirana
 - ogroman broj slika
 - velika kvaliteta
 - neprimjetan prijenos s Interneta
- posebni zaštićeni istraživački patenti
- s Interneta se preuzima i prikazuje samo mali, potreban dio slika
- pomicanje slike uzrokuje zahtjev za novim sadržajem

3D pogled

44

- slike snimane satelitom ili avionom
 - 2D
- podrška za modeliranje 3D objekata
 - Google SketchUp
- mnoge poznate zgrade imaju mogućnost 3D prikaza

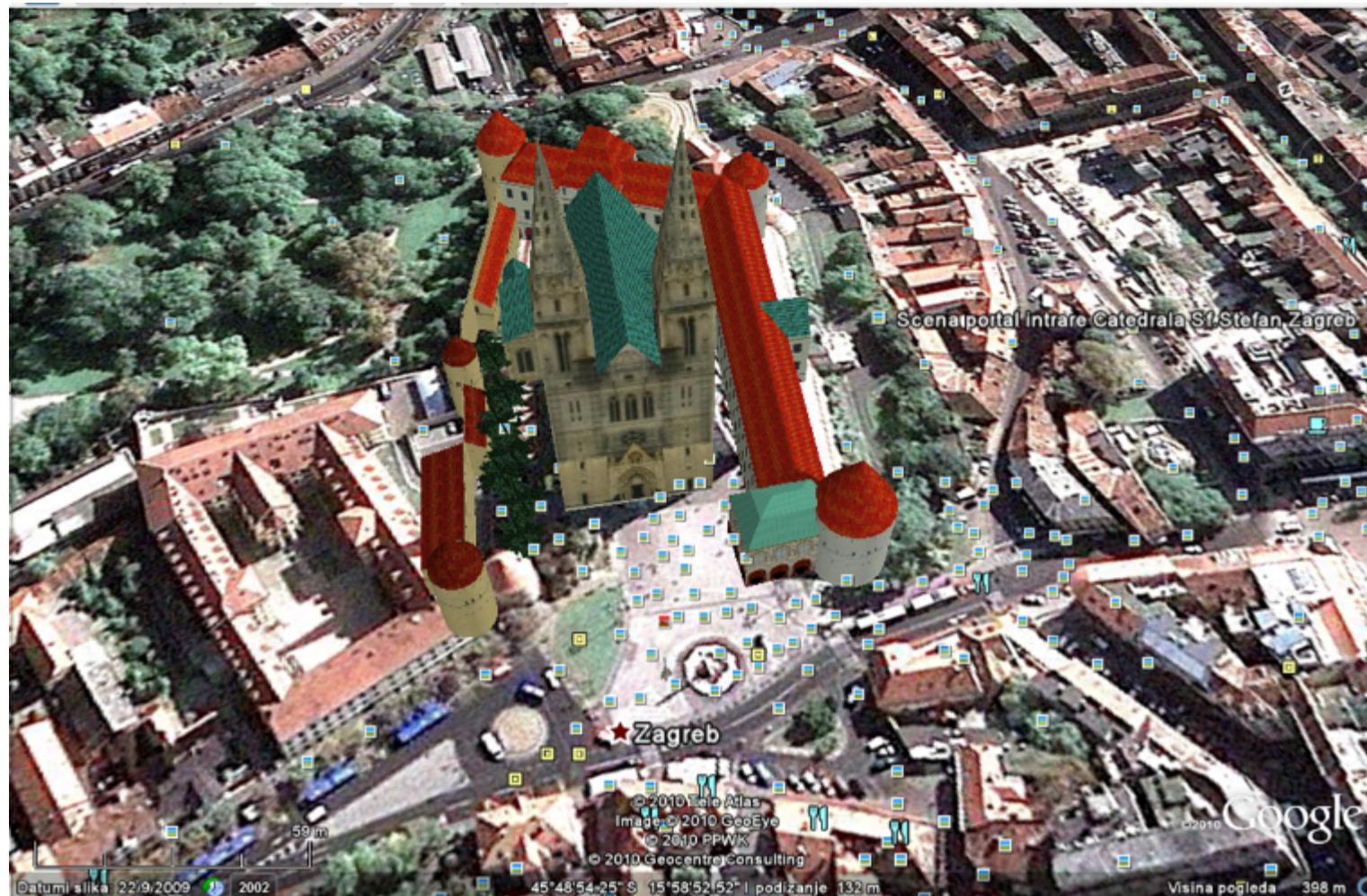
2D pogled

45



3D pogled

46



Google Earth verzije

47

- Google Earth
 - besplatna
 - i više nego dovoljna za prosječnog korisnika
- Google Earth Plus
 - \$20 godišnje
 - GPS podrška, CSV format unosa podataka
- Google Earth Pro
 - \$400 godišnje
 - dodatne GIS mogućnosti
 - veća kvaliteta ispisa
- Google Earth Enterprise
 - serverska rješenja

Korisnički podaci - GeoWeb

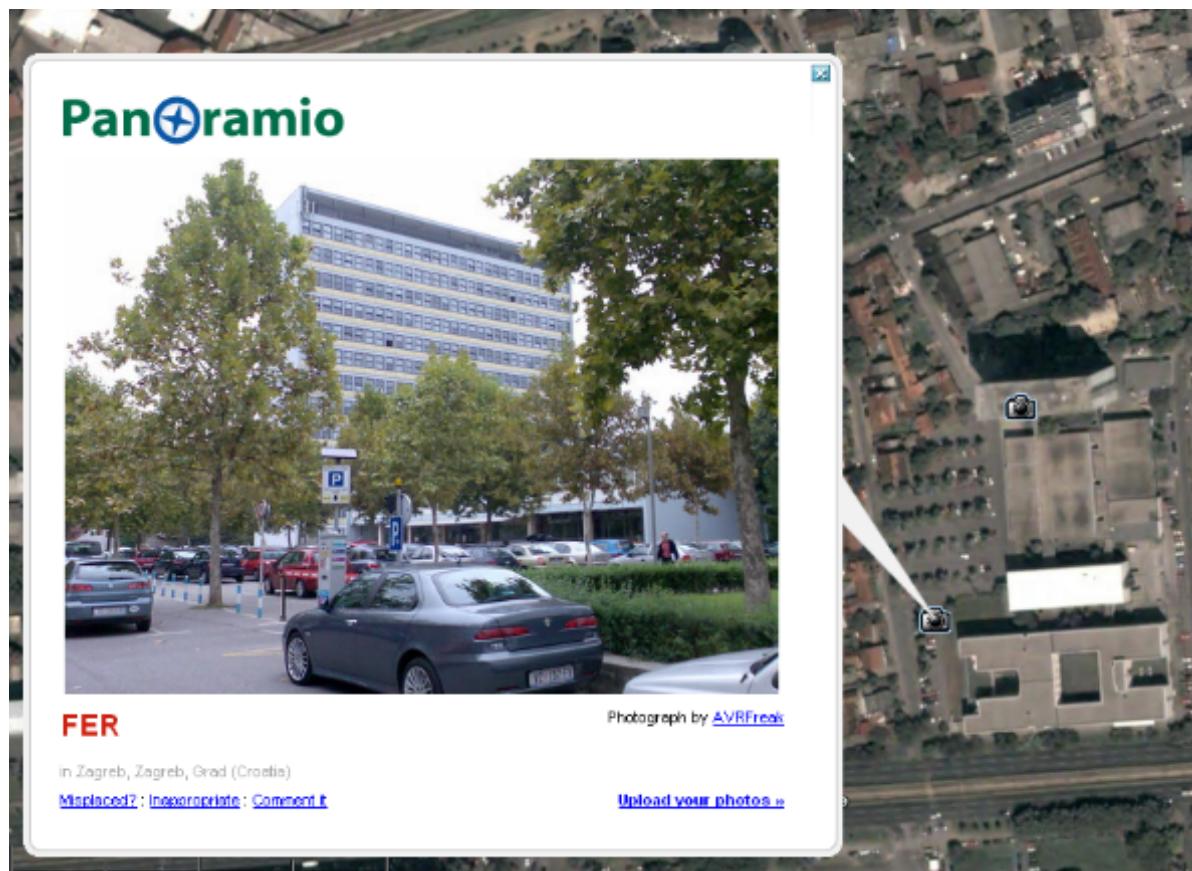
48

- velika snaga sustava Google Earth/Maps
- informacije vezane za geografsku lokaciju
- povezivanje s drugim izvorima informacija
 - Wikipedia
 - Panoramio
 - YouTube
 - ...

GeoWeb - Panoramio

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- fotografija s određene lokacije



GeoWeb - Wikipedia

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□ članak o određenoj lokaciji

The screenshot shows a Wikipedia article titled "Dražen Petrović Basketball Hall". The page includes the Wikipedia logo, a navigation menu with links like Main Page, Current events, and Help, and a brief description of the arena. Below the text is a satellite map showing the arena's location.

Dražen Petrović Basketball Hall

Main Page | Current events | Help
Community Portal | Recent changes | Contact Wikipedia
Featured content | Random article

Dražen Petrović Basketball Hall ([Croatian](#): košarkaški centar dražen petrović or *Dvorana Dražen Petrović*) is an [Indoor sporting arena](#) in [Zagreb, Croatia](#). It serves as the home court for the [basketball club KK Cibona](#).

It was built in [1987](#) and was known as the [Cibona Sports Center](#). In [1993](#) it was renamed after [NBA](#) player and [Hall of Famer Dražen Petrović](#), a former Cibona star. He died earlier that year from a car accident, cutting his career short.

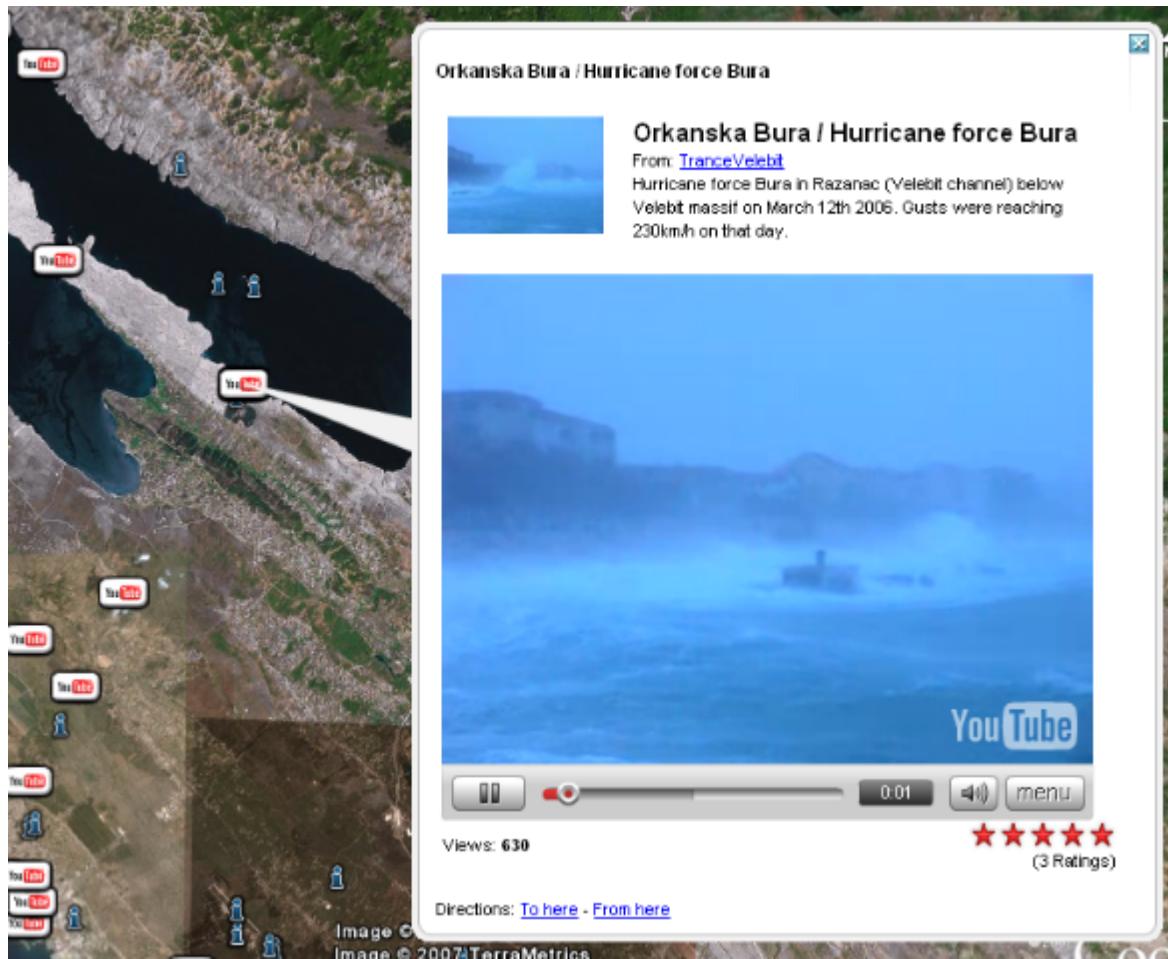
The arena has a [seating capacity](#) of 5,400.

[Full Article](#)

All text is available under the terms of the [GNU Free Documentation License](#).

GeoWeb - YouTube

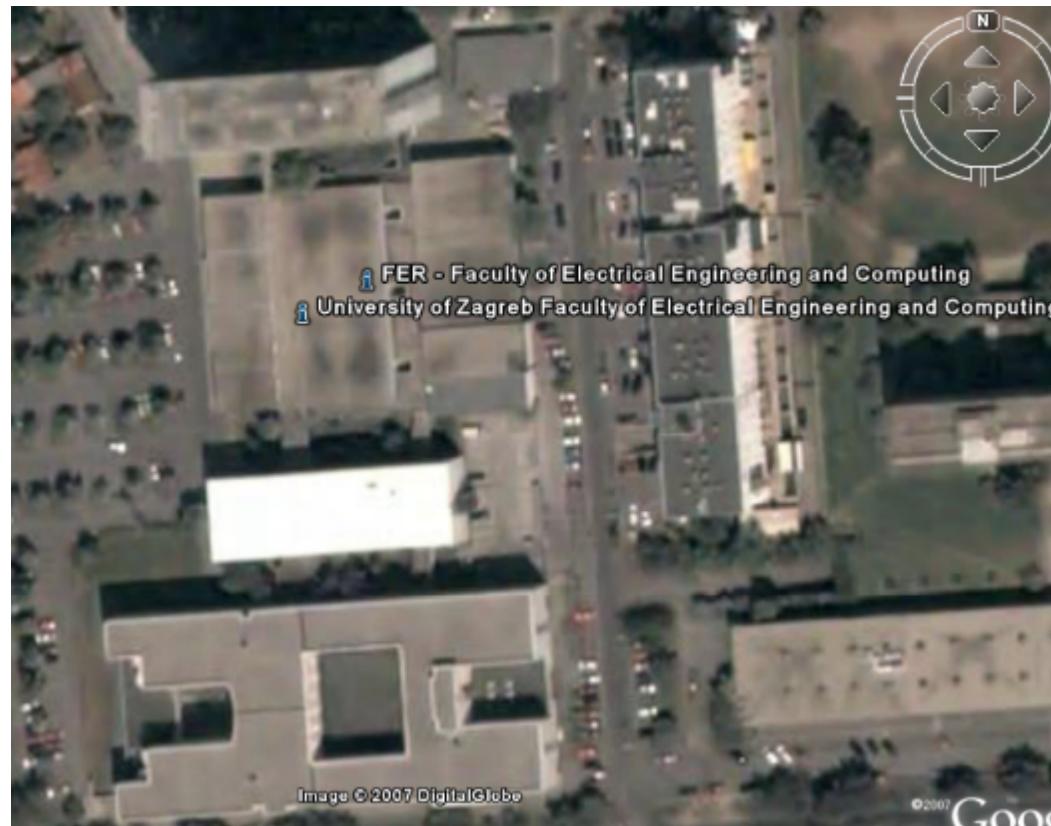
51



Google Earth Community

52

□ informacije



KML

53

- Keyhole Markup Language
- temelj je XML (eXtensible Markup Language)
 - elementi i atributi, hijerarhijski odnos

```
<Placemark id="p1">
  <address>Zagreb, Hrvatska</address>
  <AddressDetails Accuracy="4">
    [...]
  </AddressDetails>
  <Point>
    <coordinates>15.960530,45.796950,0</coordinates>
  </Point>
</Placemark>
```

KML

54

- format zapisa geografskih podataka
 - g. širina i dužina (WGS84)
 - 2D i 3D mape
 - lokacije, poligoni, 3D modeli
 - animacije odnosa među podacima
- KMZ – sažeti (zipped) KML

KML

55

- OGC *best practice*
 - Open Geospatial Consortium
 - preporuka za format razmjene podataka
 - Working Draft
- KML podrška:
 - Google Maps, Earth, Mobile
 - Microsoft Virtual Earth
 - Live Search Maps
 - Yahoo Pipes
 - ESRI podrška (djelomična)

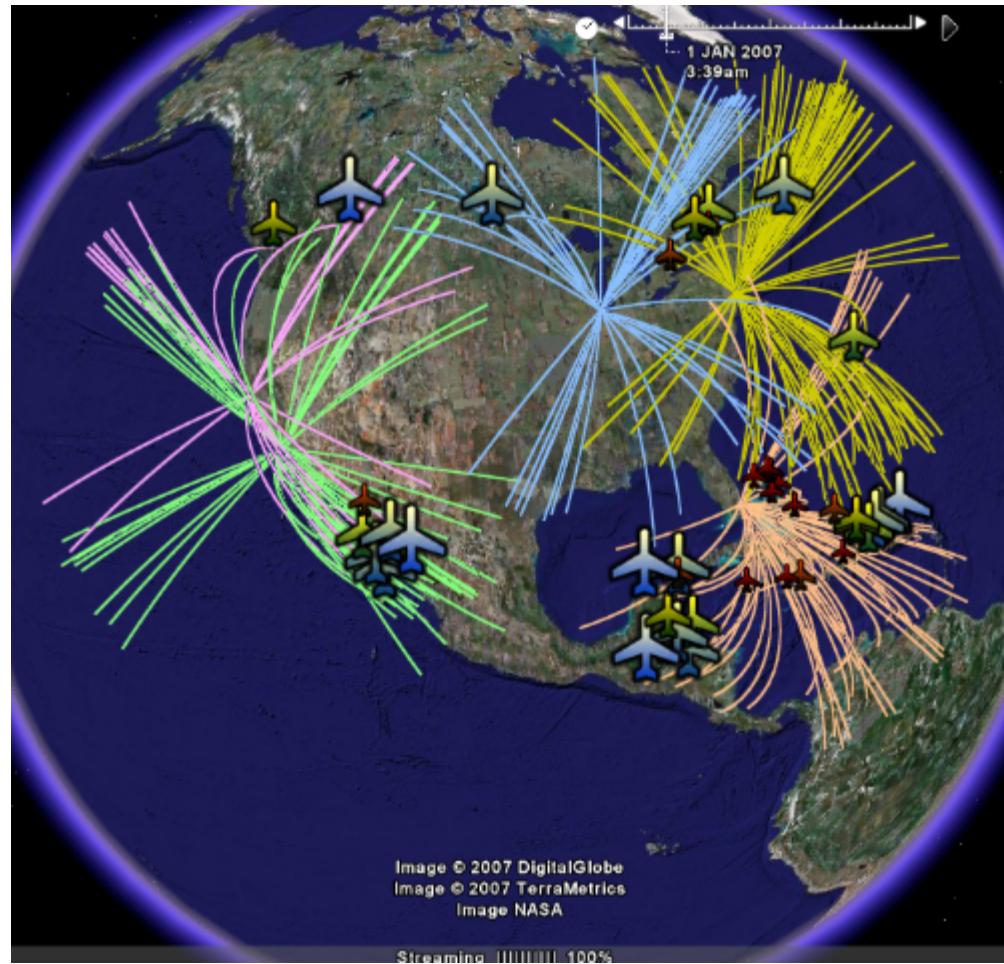
KML galerija

56

- [International Flights Animation](#)
- [Night Lights of the World](#)
- [Daily MODIS Satellite images](#)
- [Real-time earthquakes](#)

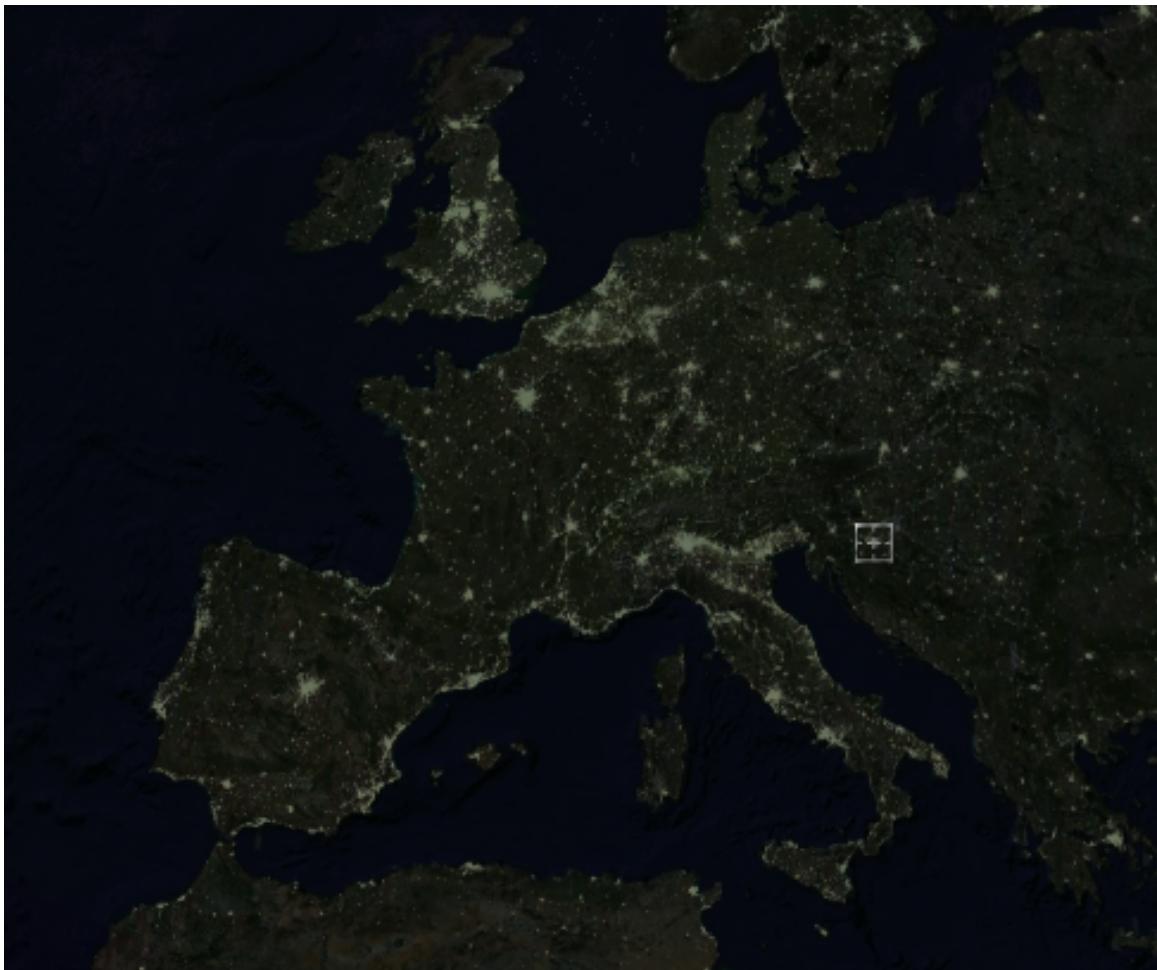
International Flights Animation

57



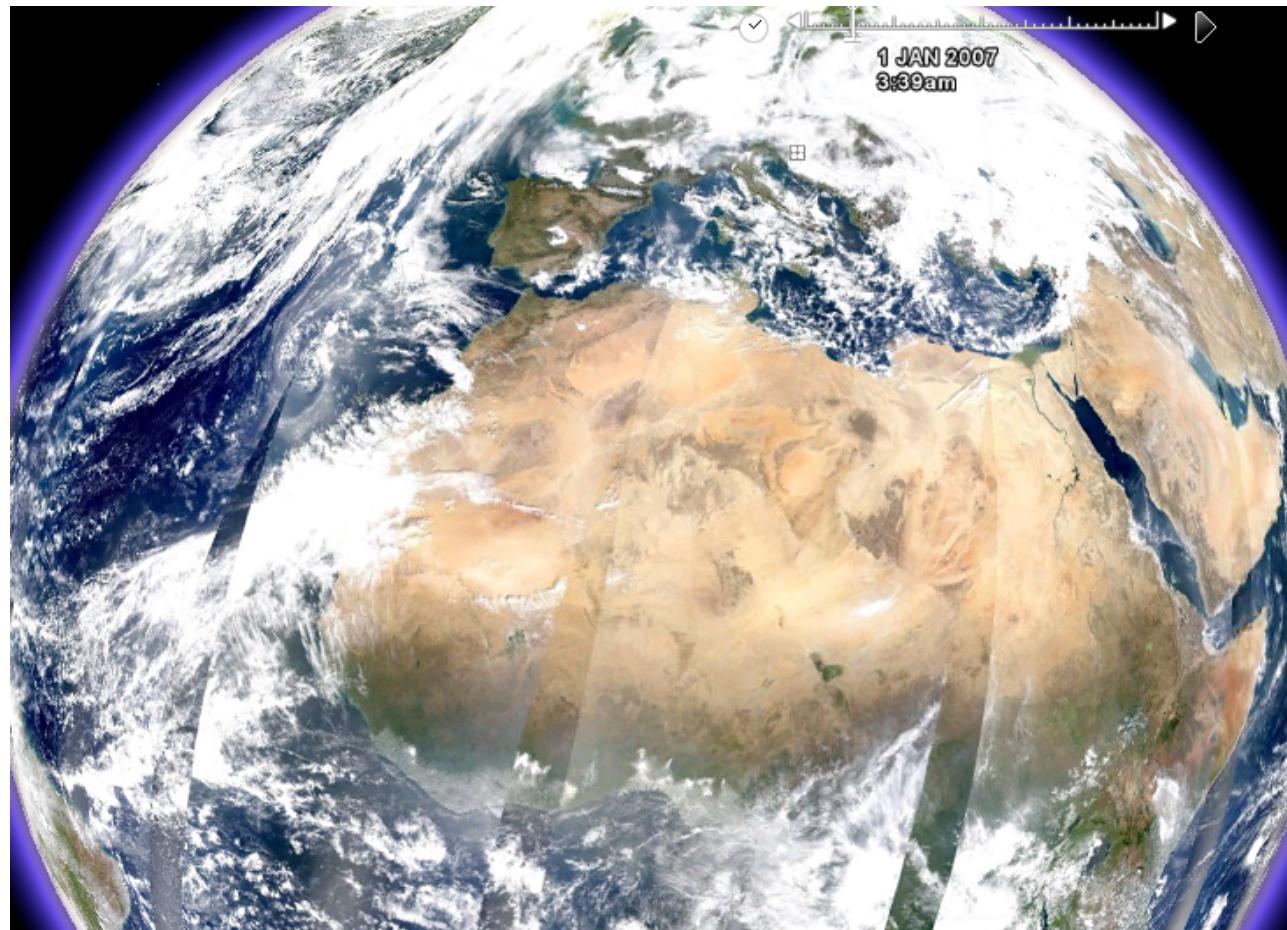
Night Lights of the World

58



Daily MODIS Satellite images

59



Real-time earthquakes

60



Google Earth i GPS

61

- Google Earth Plus
- izravno povezivanje s GPS-om
- prikaz trenutne lokacije, kreiranje puta i izvoz
- unos prijeđenog puta iz GPS-a u Google Earth

Google Earth ili Maps?

62

- ovisi ☺
- Google Earth ima neke dodatne mogućnosti (3D, GPS, animacije...)
- Google Maps – Web aplikacija
- velik dio podataka i usluga je isti

Ovdje nije kraj...

63

- Google Maps for Mobile
- Google Sky
- Google Mars

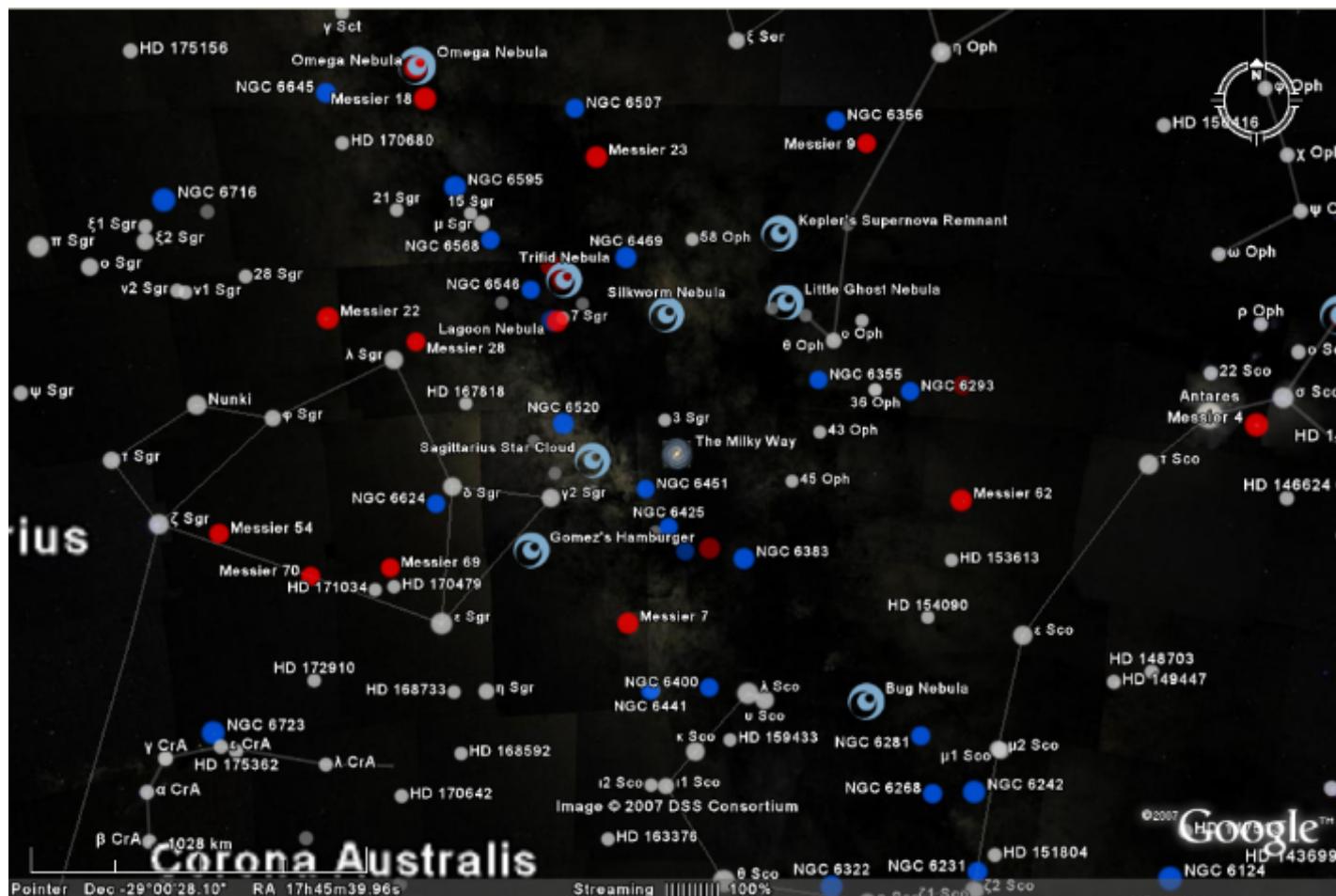
Google Maps/Google Earth for Mobile

64



Google Sky

65



Google Mars

66

[Link to this page](#)

Search results for **mountains**

Found 118 matches
[Limit results](#) to current region [glossary](#)

 [Arsia Mons Mosaic](#)
NASA Mars Odyssey / THEMIS article

 [Small Volcano in Terra Cimmeria](#)
NASA Mars Odyssey / THEMIS article

Regions Mountains Plains Canyons Ridges Dunes Craters

mountains Search [About Google Mars](#)

A mosaic of images from the visible portion of the spectrum

Elevation Visible Infrared

Article: [Arsia Mons Mosaic](#)
Source: NASA Mars Odyssey / THEMIS
Date: 2005/06/13
Location: 10S, 120W

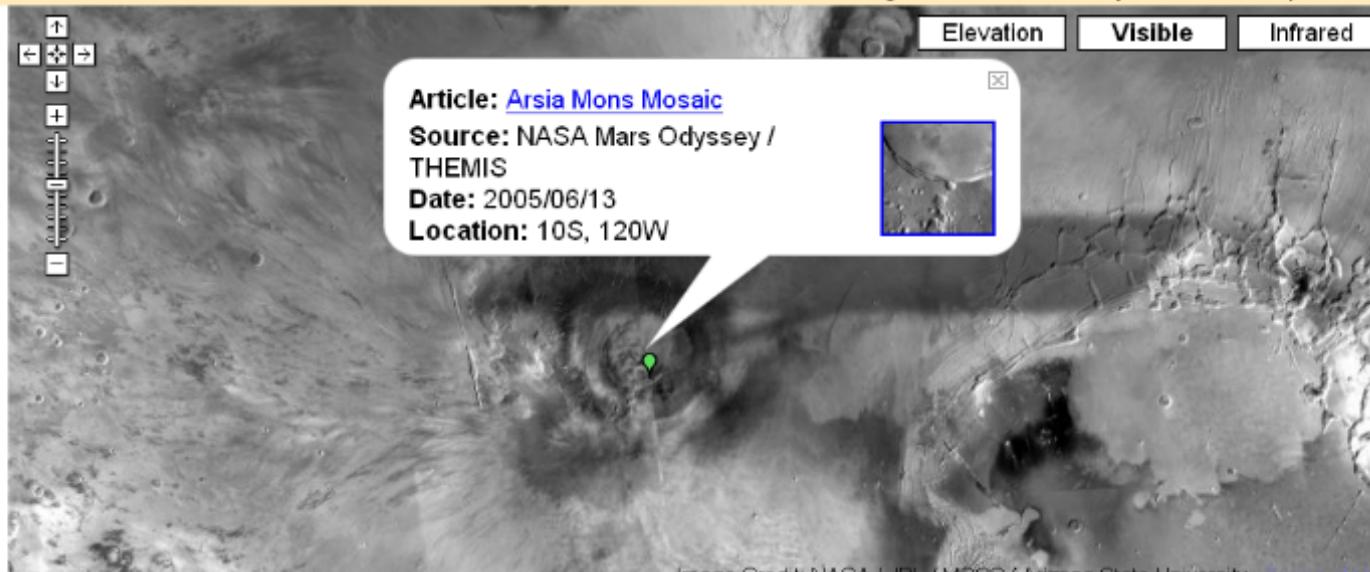


Image Credit: NASA / JPL / MSSS / Arizona State University - [Terms of Use](#)

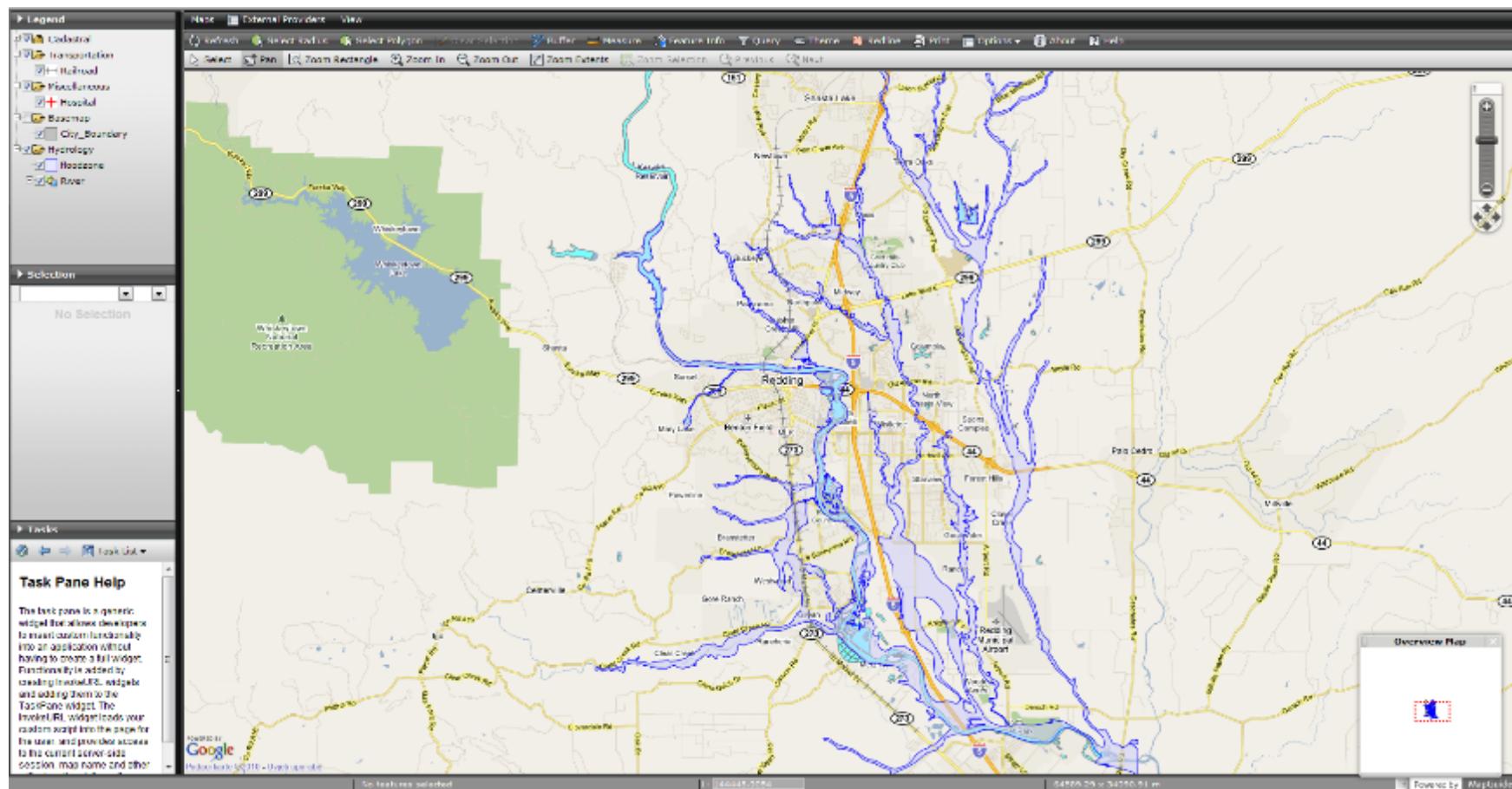
Dodatni linkovi

67

- As simple as possible, but no simpler (kako radi Google Maps)
 - <http://blog.grimpoteuthis.org/2005/02/mapping-google.html>
- Google Developers Days US – Maps API Introduction (47:20)
 - <http://www.youtube.com/watch?v=hYB0mn5zh2c>
- Official Google Maps API Blog
 - <http://googlemapsapi.blogspot.com/>

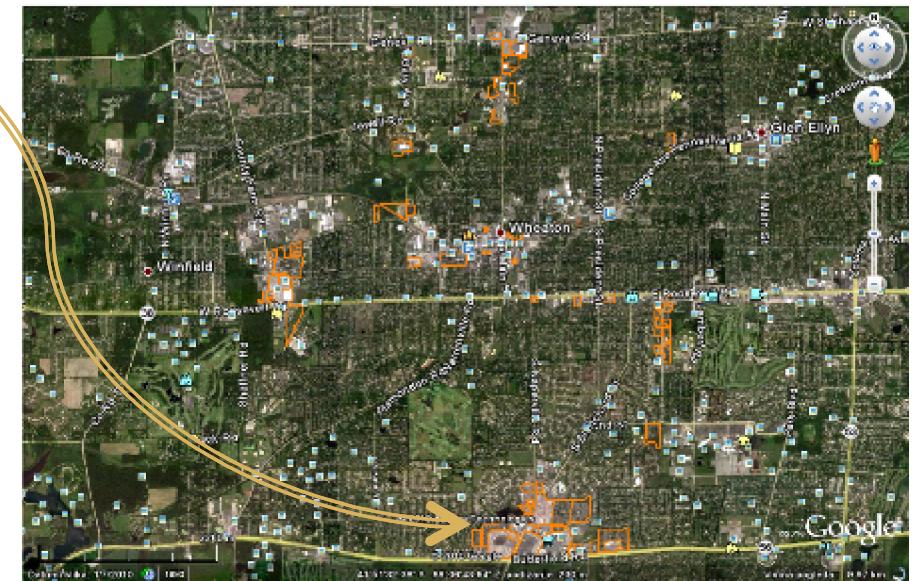
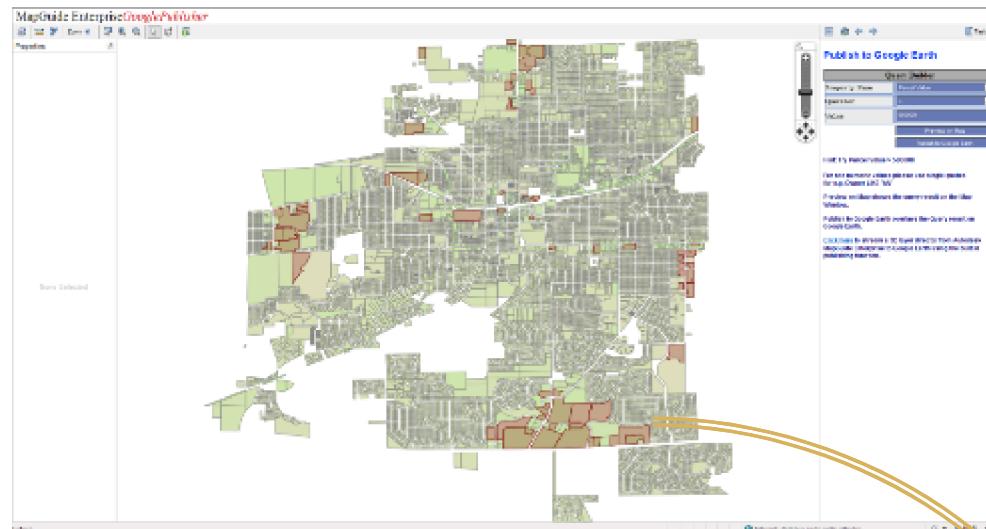
Integracija MapGuide i Google Maps

68



Integracija MapGuide i Google Earth

69



Pitanja ?

70

