Open spatial data platform for visualization and analytics of geospatial data

Bill Simpson-Young
Director, Engineering and Technology Development, NICTA.
Co-founder, Terria.

About this presentation

1. What is NICTA?
2. The Australian National Map initiative
3. TerriaJS™ software
4. Applications using TerriaJS™
5. The future of Terria™
1. What is NICTA?
What is NICTA?

- Australia’s Centre of Excellence in ICT Research
- Labs in Sydney, Canberra, Melbourne, Brisbane
- 750 people - 450 staff, 300 PhD students
- 22 partner universities
- Funded by Australian and state governments and industry plus contributions from universities
What do we do?

- Research Excellence in ICT
  - ~600 research papers per year
- Engaged with industry and government
  - Collaborative projects
  - Contract R&D and independent advice
  - Licensing of technology (mostly software)
  - Spinning out companies (~4 per year)
- International engagement
  - Collaboration and contracts
  - Research exchanges and student internships
- R&D areas
  - Machine learning
  - Computer vision
  - Optimisation
  - Mobile systems
  - Software systems
2. The Australian National Map initiative
Rationale for the National Map

• Initiative of Australian Government for:
  – Easy access to authoritative spatial data
  – Facilitate opening of data by federal/state/local govt
  – Open framework of spatial data for innovation

More users using data services

More data services available
1. Authoritative data services
2. Multi-custodian (GA, BoM, ABS, etc)
3. Direct live access from data custodian
4. Multi-jurisdiction (Federal, State, Local)
5. Open data (direct from data.gov.au etc)
6. Open protocols and data formats
7. Vendor neutral at back end (no vendor lock-in)
8. Vendor neutral at front end (browser)
9. Open source software
10. Platform for commercial, community and agency innovation
Vision: An open national map

National Map in-browser software

Govt open data directory

Map imagery
Tile map server

Elevation data
Terrain server

Australian govt agency data services

GA data
ABS data
BoM data

State govt data services

State data

Other data and services

Value-add commercial and community services (analytics, visualisations, mashups)

Internet

Tablet

Web browser

Data.gov.au
From talk at Locate15 conference by Tim Neal, Australian Dept of Communications
National Map: Current data services

– Federal Government
  • Department of Communications
  • Geoscience Australia
  • Bureau of Meteorology
  • Australian Bureau of Statistics
  • Department of Environment
  • Australian Taxation Office
  • And more…

– State governments
  • All are either available on nationalmap.gov.au or in progress

– Local councils
  • Data from many are available (via data.gov.au)
  • More soon …
National Map demo

http://nationalmap.gov.au
3. TerriaJS™ software
Architectures: In-browser

- **The Australian National Map**
  - **TerriaJS:**
    - Data collection navigation/search
    - Connects to services: OGC, ESRI, GME, etc
    - Data loading: URL, drag & drop
    - Data formats: Geojson, KML, CSV, etc

- **Cesium:**
  - 3D map display

- **Leaflet:**
  - 2D map display

- **WebGL support**
  - Browser (eg Chrome, Firefox, Internet Explorer, Safari) on desktop and mobile

- **Canvas support**
TerriaJS Features

- Supports all major browsers (Chrome, Firefox, Safari, IE9 and later)
- 3D or 2D views (3D for Chrome, Firefox, Safari, IE 11)
- Open Geospatial Consortium (OGC) standards (WMS, WFS, etc)
- Interoperability with GIS back-end services (eg ESRI, MapInfo, Google Maps Engine, Geoserver, etc)
- Support for spreadsheet data (in CSV files) with points, region codes (such as postal codes, country codes, etc)
- Time-based data and time-based imagery
- User searching of data catalogues
- Integration with CKAN for automated access to open data catalogues
- User can add their own data sets by drag & drop on the browser
- Sharing of map views by email or web
- Maps embeddable in websites
4. Applications using TerriaJS™
Customised federated maps

Australian Renewable Energy Mapping Infrastructure (for Aust Govt)

National Environmental Information Infrastructure (for Aust Govt)

Global Risk Map (for UNEPFI and PSI)
Custom applications

Groundwater monitoring
(for South Australian Government)

Groundwater assessment
(for NSW Government)
5. The future of Terria™
Terria™ Predictive spatial analytics

- For use on a TerriaJS™ maps

Spatial detailing

Spatial community discovery

And much more…
Terria™ services

1. Custom Terria™ maps
   – Federated web-based spatial data exploration
   – For countries, companies and others

2. Custom applications using Terria™
   – Experience in spatial data applications
     (especially environment, resources, energy)

3. Predictive spatial analytics using Terria™
   – Eg environment, resources, demography
Talk to us at booth 42
Hear more about our spatial analytics tomorrow:
  3pm in Big Data Analytics session (Peter Leihn)
Extra slides
Third-party applications using TerriaJS
Example of third party innovation

- Propeller Aero (Sydney)
- UAV-based 3D model generation for surveying
Example of third party innovation

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Example of third-party innovation

- Earthproject.io - global planning system

Showing Ebola data