

# Cloud mapping brings government services down to earth

## Nova Scotia improves health services delivery and engages citizens in conservation efforts through web maps

“Cloud computing” has been one of the hottest tech buzz words since early 2000. It refers to hosted services delivered over the internet. Many services are now available in the cloud: you can send email, store data, collaborate with groups on the same document, or augment your physical servers with additional processing power from cloud computing services. Web mapping technology has similarly evolved. From paper maps to digital maps on desktops and servers, maps have moved to the cloud – making it easier to create intelligent web maps, analyze and share information with more users, and increase collaboration.

Nova Scotia, the most populous province in Atlantic Canada with nearly one million residents, has adopted cloud mapping with remarkable results. They incorporated a cloud mapping application with their collaboration software to create a secure portal that consolidates information from provincial health organizations. This allows them to view and share this data through an intelligent web map, enabling them to effectively coordinate health services across the province. As well, they’ve increased citizen engagement in conservation efforts by communicating information via a public, interactive online map.

### Mapping the Way to a Healthier Province

Nova Scotia boasts of an exemplary healthcare system focused on innovation and sustainability. Their emergency health services system is internationally

recognized as a leader in the provision of pre-hospital care. The province’s use of collaborative emergency centres to provide round-the-clock emergency care in rural areas is also gaining wide-ranging attention.

The Department of Health and Wellness coordinates health services across the province. Using a cloud-based mapping service, they mapped all healthcare facilities across the province; everything from hospitals to nursing homes and paramedic bases, which are all represented as points on the map. The points are not just simple pins, but intelligent features that contain attributes stored in the cloud, which can be analyzed using geo-analytics. This enables the department to pan and zoom around the map and easily identify gaps in services and programs, both across the entire province or within specific areas.

“The mapping function included with this tool allows us to visualize coverage and get regular, province-wide status updates,” said Oleg Mikaelov, Senior Project Manager, EHealth Solutions, Nova Scotia Department of Health and Wellness.

All groups that offer services included on the map have access to the portal and can update their information when it changes. This includes the IWK, a regional maternity and children’s hospital, along with nine district health authorities, 811 telehealth, and the emergency paramedic service.

“It allows us to not only share data easily, but also, understand patterns and relationships that are difficult to detect in charts

and spreadsheets,” said Mikaelov. “Maps make it possible to communicate simple or complex concepts based on a common operating view.”

### Preparing for the Unexpected

In August 2013, a natural gas line rupture prompted an evacuation in downtown Halifax, and mapping technology was leveraged to coordinate response. “The mapping database allowed us to assess the evacuation zone for impacted health facilities early on,” said Andy Boutilier, Manager of Operational Readiness, Department of Health and Wellness.

The department can also use the integrated software to shift services between facilities when needed. For example, the Nova Scotia Hospital in Dartmouth provides a laundry service for other facilities in the province. If it were to lose power, planners could use a map view to identify the facilities that may be impacted. When a service is cancelled or reduced, this information can be updated quickly and reflected on the map. All users, including emergency planners, can subscribe to alerts



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and be notified of status changes almost as soon as they happen.

## Protecting Natural Spaces

The cloud has also played a central role in facilitating collaboration and communication for Nova Scotia's ambitious "Our Parks & Protected Areas Plan." One of the first of its kind in Canada, the plan updates the province's park system to ensure long-term sustainability, while increasing legally protected landmass to at least 12 percent by 2015.

To help define the plan, the Department of Environment invited people from across the province to attend a series of public consultations. Because it's a province-wide initiative, enormous amounts of geographic information must be publicly shared during consultations. As such, the department looked for a mapping solution that was flexible and affordable, and would allow even non-mapping experts within the organization to edit and share data.

They opted for a cloud-based mapping solution, that allows them to communicate both hosted data and data stored behind the department's firewall with consultation participants and other members of the public.

"The cloud platform is ideal because our data changes frequently and it provides the flexibility to edit data on the fly, even for those with little mapping training," said Peter Labor, Director, Protected Areas and Ecosystems, Department of Environment. "We've eliminated many steps that are typically involved when serving up large amounts of information. Data that could take days to update and make available can now be updated within 1/2 hour."

## Platform for Public Consultations

Data is stored in the cloud and made available through an intuitive, easy-to-use

web map <[www.novascotia.ca/parksand-protectedareas/plan/interactive-map](http://www.novascotia.ca/parksand-protectedareas/plan/interactive-map)>. Users can access detailed information on any of the existing or proposed protected areas across the province. By clicking on a particular site, they can pull up an information sheet on the area and print out a paper map. The level of detail provided allows users to get quick answers to questions such as: Which roads are included or not included in the protected area? On which side of the lake does the boundary fall?

Layers can be turned on and off, and users can choose how they view their data through a variety of basemaps. Feedback can then be submitted through a web-enabled form and distributed to staff at the department. Because the feedback often contains personal contact information, it is fed back to the government server and stored behind the firewall.

"During public consultations, we used to collate data from a variety of sources including phone calls, letters, and emails, which was very time-consuming," said Labor. "Now, we leverage the cloud platform as a gateway for users to submit their comments via an interactive web-based form that feeds directly into our consultation database. This allows us to access a single stream of feedback that's immediately actionable."

The web map can be leveraged in the privacy of a resident's home, on mobile devices, and on laptops available at the live consultation sessions. Layers are added and subtracted to facilitate the discussion, and maps can be printed for further debate.

The Department of Environment also created an internal map for use on iPads. It allows staff to access sensitive data layers such as endangered species and wilderness camps, to answer questions during public discussions. As data security is a common concern when using cloud solutions, the

department activated security features in the mapping platform to restrict data access to a specific group of users.

The department facilitated 17 consultations across the province. The plan was revised based on public feedback and then reflected on the web map so that the public could view how their input affected the overall plan. The web map has proved so successful that the department is currently looking into developing a permanent portal that will provide ongoing updates regarding protected areas.

## Cloud Mapping's Silver Lining

Governments increasingly embrace cloud mapping technology for its numerous benefits. It eliminates the need to invest in hardware or install software, reducing IT maintenance costs. Since the solution only requires internet access, it's easier to share information across the organization and with the public, using any web-enabled device. Users create a web map once and share it with numerous people who access the map from any device, including tablets and smartphones. This offers incredible flexibility and allows for easier collaboration, between employees who work in and outside the office, across government agencies, and between government and the public.

As Nova Scotia's example shows, web maps open up many opportunities to improve planning and decision making using real-time data; efficiently disseminate and gather information from the public; and support more timely updates of important data. Web maps help bring government programs and services down to earth: one doesn't need to be a mapping expert to use web maps, making them important tools for engaging citizens. *MW*

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