

# GOVERNMENT OF BRITISH COLUMBIA IMPROVES SERVICES WITH OPEN SOURCE



## SOFTWARE AND SERVICES

Red Hat® OpenShift  
Container Platform

Red Hat Enterprise Linux®

Red Hat CloudForms

Red Hat Gluster Storage

Red Hat JBoss® Fuse

Red Hat Consulting

The Government of British Columbia needed to develop innovative public services faster to meet evolving demand and improve its user experience. The province established the BC Developers' Exchange to take advantage of the innovation of private sector technology companies and entrepreneurs by supporting collaboration using open source tools, such as online code repository GitHub and enterprise software from Red Hat. As a result, the province can support agile, collaborative development following a DevOps approach, create and update services faster, and balance innovation with security requirements.



## PUBLIC SECTOR

**27,000** EMPLOYEES  
**4.5 MILLION** RESIDENTS

*"We really think it's the right way for governments to work. Creating in the open, taking advantage of open source technologies, is the best way to engage your citizens and employees and work with the technology sector. It's about getting better software and working with people in a more natural way."*

TODD WILSON  
DEVOPS PRODUCT DIRECTOR,  
BC DEVELOPERS' EXCHANGE

## BENEFITS

- Established support for open collaboration with vendors, private sector technology companies, and citizens to create better government services and IT solutions
- Improved development and deployment efficiency through DevOps and Red Hat's flexible, agile software solutions
- Gained balance between open source innovation and government security requirements



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## **EVOLVING SERVICE DEVELOPMENT TO MEET MODERN DEMANDS**

As consumers increasingly expect seamless, easy digital experiences, governments are seeking to make their digital services faster and easier to use.

The Government of British Columbia offers public services that include healthcare, education, transportation, justice administration, and natural resource management. The province sought to improve its user experience, but its datacenter infrastructure was too slow and fragmented to offer the necessary speed and development capabilities. Basic web server access could take 3-4 months, resulting in a 4-6 month time frame just to launch a project.

"We got a lot of complaints about how long and difficult it was to get a virtual server," said Ian Bailey, assistant deputy minister of technology services for the Office of the Chief Information Officer for the Government of British Columbia. "So we went looking for ways to escape that friction and delay. We want to offer what you'd expect from a modern service provider, that same kind of convenience, but with security behind it."

The province decided to tap the potential of the private sector to improve its IT environment and, in turn, its public-facing services. "Public sector doesn't always know what's valuable, and industry isn't always informed about available resources," said Peter Watkins, co-founder and executive director of the BC Developers' Exchange. "We have a vibrant tech industry and thought, 'What if we could give private sector developers access to the problems we haven't solved yet?'"

## **BUILDING A FOUNDATION FOR OPEN SOURCE COLLABORATION**

The BC Developers' Exchange was created to be a forum for collaboration between the public sector and innovative private sector organizations and entrepreneurs, based on an open source foundation. The Developers' Exchange offers the private sector access to public sector digital assets, such as application programming interfaces (APIs) and smaller, working instances of the province's IT systems. The province supports this initiative with open source solutions, including hosting code on GitHub, a web-based repository.

"Innovative developers use GitHub and open source," said Todd Wilson, DevOps product director of the BC Developers' Exchange. "So rather than try to invite people into the walls of government, we decided to go outside the walls and join them."

These open source solutions include enterprise products from Red Hat, a trusted partner through the province's long-time use of Red Hat Enterprise Linux. The province deployed Red Hat OpenShift Container Platform as the foundation for the Developers' Exchange.

"We were just going to run Docker containers, but we got some advice that we could be heading into a swamp. We have 22 different departments and a hundred different teams. How would we manage all that?" said Watkins. "Red Hat OpenShift Container Platform is comprehensive, easy to use, and supported."

By also connecting Red Hat CloudForms—a management tool built into Red Hat OpenShift Container Platform—to its Microsoft Azure and Amazon Web Services (AWS) instances, the province gained in-depth infrastructure visibility and governance. In addition, Red Hat Gluster Storage offers resilient data backup and persistent storage for containers, applications, PostgreSQL, Jenkins, messaging, logging, and metrics. Red Hat JBoss Fuse was deployed to manage API and data access and integrate legacy systems.

With help from Red Hat Consulting, the province installed a full production build in its datacenter – running a mix of physical servers and virtual machines (VMs) – in just three weeks. Twenty projects and 13 developer teams now use the software, with a growing waiting list. As a result of this successful transition to open source, the province was named 2017 Red Hat Innovation Award winner for the open source way.

## **STREAMLINING INNOVATION FOR ALL CONTRIBUTORS**

### **SUPPORT FOR OPEN COLLABORATION AND DEVOPS**

The Developers' Exchange offers co-design sessions, meetups, and other outreach events to connect the province's private sector technology community with public sector needs. At these events, companies can learn about Code With Us, the procurement process that streamlines how the government works with developers and acquires software.

"The Developers' Exchange removes a lot of the friction of getting experts in the private sector to help solve the business problems of government," said Bailey. "Any developer can download our source code and start working on it, without any access challenges."

One example of success is a highway camera project for the Ministry of Transportation and Infrastructure. The department's online highway camera streams were used by news outlets and shared elsewhere. After creating an open API to offer information on accidents other road events, a local software firm used this API to develop a mobile app with additional features, such as location-based camera access.

Private citizens can now access project information in real time and easily provide feedback. For example, some projects by the Environmental Assessment Office require public comment to be collected. Previously, it published PDFs online that were quickly outdated. To improve this experience, the department created an interactive web portal that offers up-to-date information on its assessments and a method for citizens to comment directly.

"Our program areas can confidently go out, talk to people and discover their needs, and make things better," said Watkins. "And we can shape our opportunities so that developers can contribute. It's a major shift in how we improve our services."

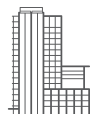
A multidisciplinary, DevOps approach lets the province's nontechnical teams better participate in the creation of IT-based services. The Ministry of Transportation, Ministry of Justice, and Ministry of the Environment all use the same code base. "With a DevOps approach, it's a smoother, automated process to move from development to test to production," said Bailey.

### **MORE EFFICIENT DEVELOPMENT AND DEPLOYMENT**

Previously, development was a resource- and time-consuming process. "We typically only acquire solutions through a government procurement process that can often take years," said Watkins.

With agile DevOps methods and a stable open source foundation, the province can more rapidly create and launch services.

"Teams would be ready to go but have to wait three months for VMs," said Wilson. "We've reduced those three months to less than a day. The bottleneck is completely removed."

**CUSTOMER CASE STUDY** Government of British Columbia improves services with open source**ABOUT RED HAT**

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to provide reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

**NORTH AMERICA**  
1 888 REDHAT1

**EUROPE, MIDDLE EAST,  
AND AFRICA**  
00800 7334 2835  
europa@redhat.com

**ASIA PACIFIC**  
+65 6490 4200  
apac@redhat.com

**LATIN AMERICA**  
+54 11 4329 7300  
info-latam@redhat.com



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As a result, the province and private sector developers can work together more efficiently. For example, the Ministry of Transportation and Infrastructure rapidly developed a school bus inspection tracking service using Red Hat OpenShift Container Platform. Previously, the department had to wait 8-12 months just to receive proofs of concept, but this application was built and launched in just eight weeks.

**ENTERPRISE-GRADE SECURITY**

With Red Hat solutions, the province can meet strict data sovereignty laws and protect sensitive data while providing information and resources to developers. Red Hat OpenShift Container Platform provides cloud computing without the risks of off-premise solutions.

"Developers are offered best practices to avoid workarounds that will potentially lead to security issues," said Wilson. "We can share our backlog of work items and our code publicly, but keep our data private. We can offer the cloud Software-as-a-Service experience developers are used to, but in our local datacenter," said Wilson.

**CHAMPIONING OPEN SOURCE POSSIBILITIES**

Working with private sector developers and Red Hat has created new possibilities for the province, and other jurisdictions are seeing the value of collaborative development.

"We really think it's the right way for governments to work. Creating in the open, taking advantage of open source technologies, is the best way to engage citizens, employees, and the technology sector. It's about getting better software and working with people in a more natural way," said Wilson. "Red Hat has set the stage for our success. It's been a refreshing way to relate to a vendor. It feels much more like a partnership."

The province is now planning a public sector data analytics initiative to solve challenges, such as housing supply, through the Developers' Exchange and a coding challenge on GitHub.

"There's a world of possibilities available to entrepreneurs and startups when they have access to the right types of resources from the public service," said Watkins.

**ABOUT THE GOVERNMENT OF BRITISH COLUMBIA**

The Government of B.C. provides a wide range of services to the citizens, businesses, and visitors to British Columbia. With over 26,000 employees, it is the largest employer in the province.