Using Data to Drive Government Efficiency and Innovation

Introduction

As the volume, velocity, and variety of government data continues to grow, federal agencies increasingly look to advanced data analytics to enable more informed decision-making. Understanding and acting on insights derived from government data resources has the potential to support these agency objectives as never before. The positive outcomes are as varied as the agencies that generate them—from expedited passport processing and enhanced highway safety to improvements in critical infrastructure protection and expanded capabilities to detect fraud in social services payments.

Data analysis is recognized as an essential tool for predicting diverse government requirements—from trends in citizen benefits, to cyber threat detection, to defense vulnerability studies and collaborative data sharing between citizens and agencies. Agencies routinely use data to evaluate processes and eliminate costly inefficiencies in supply chains, and discover insights into daily operations. In summary, the ability to mine extremely large data sets with robust analytical platforms and tools provides public sector professionals with an unsurpassed capability to uncover and address a wide array of federal management concerns.

Addressing this new, data-driven management approach, Cloudera delivers a secure data platform that enables real-time decision-making and a 360-degree picture of agency data to help manage, analyze, protect, and share information assets for better governing. In this environment, government agencies increasingly are able to employ solutions that harness data across all channels and provide better visibility into the business of government.

Providing Better Citizen Service

Citizen expectations for accessible, timely, and accurate government information and services continue to grow, despite downward pressure on many agency budgets. Given these competing demands, agencies seek solutions that are flexible and affordable, and that make the most of their data resources. By analyzing user data, agencies can detect patterns in citizen requests and results that can be used to guide planning and future decision-making. By connecting government data silos, agency processes can be streamlined and improved for optimized service delivery. Travel visas can be vetted and issued more efficiently, approval for children's supplemental nutrition programs can be accelerated, and aid can be distributed and tracked quickly in response to natural and man-made disasters.

Streamlined and integrated data analysis capabilities make it possible to deliver the right services to qualified citizens at the right time by identifying gaps and yielding actionable insights. Cloudera's comprehensive data platform replaces data silos with seamless data integration and the ability to audit specific processes and outcomes. With these advanced capabilities, agencies are equipped to provide each citizen with a timely, accurate, and personalized customer experience.

Defending the Homeland

According to the Homeland Security Research Corporation,[MT1] big data and analytics in homeland security promises to be an $11 billion industry by 2022. Much of that market growth stems from an increase in streaming data from smartphones, wearables, and other devices that provide data that must be ingested and analyzed. The combined missions of the U.S. Department of Homeland Security and the first responder community require actions at the local, regional, and national levels. Key focus areas include intelligence gathering, detailed analysis, and threat assessment that can be used to develop insights into behavioral patterns to assist agency threat detection and mitigation.

As the world is evermore connected by digital technologies, the use of big data and data analytics by homeland security and public safety organizations is increasing. Not only does this trend create new opportunities for data collection and storage, it also introduces new options for intelligence processing, exploitation, dissemination, and analysis. Data analytics technologies enhance the investigative capabilities for homeland security and public safety professionals, including crime prevention, antiterrorism activities, cybersecurity, disaster and mass incident management, and development of emergency readiness capabilities.

Preventing Waste, Fraud, and Abuse

With increased data analysis, agencies are more capable of detecting fraud, waste, and abuse of federal funding, benefits programs, and other citizen services. Data sharing across federal and state government boundaries can illuminate potential fraudulent activity that may be missed when data silos persist. Sharing data seamlessly provides a significant opportunity for agencies to become more effective in combating systemic and pervasive abuse of public resources. In addition, having sophisticated analytical capabilities that deliver insights from structured and unstructured data through an intuitive, user-friendly interface enables analysts to perform investigations by combining diverse data types.

1 http://www.marketwired.com/press-release/big-data-data-analytics-homeland-security-public-safety-is-forecast-reach-11b-2022-according-2181511.htm

Cloudera is actively engaged with many government organizations that rely on its big data platform as a cost-effective method to store diverse data types to support a deeper understanding of where resources are being allocated and used. With the Cloudera platform, government professionals can look beyond the "as-is" state to forecast future fraud, waste, and abuse scenarios by blending predictive analytics technologies with near-real-time data ingest. This technique requires tools that enable individuals to provision new data sets without significant IT intervention, combining unstructured and traditional data to conduct analysis that is predictive, agile, and proactive.

Protecting Government Data While Providing Secure Sharing

The Federal Government is responsible for data protection, ensuring the integrity of Personally Identifiable Information (PII), Protected Healthcare Information (PHI), and sensitive data connected to national security interests. Agencies must have reliable and advanced methods to identify and mitigate potential threats to the information they collect, store, and share.

Cloudera empowers cybersecurity professionals to secure their enterprises proactively by accelerating threat detection, investigation, and response through machine learning and complete enterprise visibility. With the ability to correlate and analyze data from multiple sources in real time, government organizations can evolve from reactive to proactive data defense, while dramatically increasing their proficiency in new threat identification. Cloudera's cybersecurity solution, based on Apache Spot, enables anomaly detection and comprehensive access across all enterprise data using an open, scalable platform. Docker provides an abstraction layer for Cloudera's Navigator Encrypt and the Key Trustee Server, allowing the exchange of dockerized applications so they can be run but not seen, modified, or tampered with.

Instrumenting Government

As more government processes are automated and data-producing sensors are embedded in billions of devices across the public sector, organizations need to plan for ingesting, storing, and analyzing the significant data generated by these new devices. Federal, state, and local governments manage vehicles, roads, buildings, utilities, mass transit, medical facilities, environmental monitoring programs, and so much more. The data collected by these Internet of Things (IoT) devices can provide valuable information, but the data variety and volume often impact an agency's overall data management strategy.

Cloudera offers a data management platform that is optimized for the scale and complexity that IoT presents. By designing a comprehensive data strategy at the outset, agencies can take advantage of IoT network connectivity and tremendous data output. This capability results in improved product and service efficiency reflected in the services they deliver, from highway monitoring and public transit system efficiency to improved patient care and targeted supply chain tracking for war fighters.

The Future of Government Analytics—What's Next?

As federal agencies continue to focus on extracting sustained value from enterprise data through advanced analytics, they are improving the speed and accuracy of decisions, which translates into faster response to citizen requests. The results include fewer wasted resources and enhanced cybersecurity fueled by rapid threat detection.

Achieving these advances requires access to tools and strategies that create a comprehensive view of opportunities for improvement as well as the consequences of choices made. Real-time and historical data analysis is required to plan for long-term mission accomplishment, and to support everyday decision-making. With Cloudera, agency professionals are able to:

- Employ data analysis platforms and tools to determine how to best support citizen needs, and change course as indicated by real-time trend analysis
- Gain visibility into their enterprise data to better protect against waste, fraud, and abuse of government resources
- Efficiently manage facilities by understanding energy and maintenance costs through sensor data and Internet of Things–connected devices
- Enhance threat detection through improved access to all data and through machine learning designed to better detect patterns of deceit

Available as open source software, the Cloudera platform makes advanced capabilities available to public and private sector institutions worldwide. By employing an open source approach, federal agencies have the opportunity to realize significant and positive changes in how they provide services and protection for all citizens.

For more information on how Cloudera supports the public sector, please visit: http://www.cloudera.com/solutions/publicsector.html

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