



Thai Law Enforcement Agency Optimizes Investigations with Big Data Solution

Overview

Country or Region: Thailand

Industry: Government—Police agency

Customer Profile

Established under Thailand's Ministry of Justice, the Department of Special Investigation (DSI) is a national law enforcement agency dedicated to stopping serious criminal activity.

Business Situation

To reduce manual investigation processes, DSI wanted better tools for mining large sets of structured and unstructured data from multiple sources.

Solution

DSI implemented a Microsoft Big Data Solution that uses business intelligence tools in Microsoft SQL Server 2012 with Apache Hadoop technology, the Hive open-source data warehouse system, and Microsoft SharePoint Server 2010.

Benefits

- Improved efficiency of investigating officers
- Cut investigation time from two years to 15 days
- Gained platform for future optimization

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Police Colonel Yannaphon Youngyuen, Department of Special Investigation, Ministry of Justice, Thailand

Established to handle major criminal investigations, the Department of Special Investigation (DSI) in Thailand, needed better tools for mining large sets of structured and unstructured data. To improve investigation processes and reduce manual procedures, DSI implemented a Microsoft Big Data solution based on Microsoft SQL Server 2012 and Apache Hadoop software. Investigating officers work more efficiently with self-service business intelligence (BI) tools. And with better BI and data management capabilities, the agency has improved accuracy and shortened the time to investigate criminal cases from two years to 15 days. Next, DSI plans to expand its use of the solution and implement its own private cloud to manage the security of confidential data.





Situation

Established by Thailand's Ministry of Justice in 2002, the department of Special Investigations (DSI) handles serious criminal activity and coordinates with private and public-sector agencies in Thailand and overseas. Based in Bangkok, Thailand, DSI collects and maintains large volumes of data to support its activities. To improve investigations and reduce manual procedures, the agency wanted better business intelligence (BI) and data-mining tools.

The agency's large data sets included more than 1 million records gathered from multiple sources in both structured and unstructured formats, such as images, videos, and documents. "It was very difficult to mine through the data, and the results were too broad with unclear targets," says Police Colonel Yannaphon Youngyuen, Deputy Director of the Department of Special Investigation, Ministry of Justice, Thailand. "This often forced us to send personnel to the actual crime scenes, which cost us a lot of time and money."

DSI collaborates and shares information with other agencies to monitor suspected persons and transactions in real time. The tracked information includes telephone calls, financial transactions and passports records. However, to search data for important tips, officers needed to create specialized queries. Instead, "We wanted a system that could automatically notify us of any suspicious persons or activities, like when there are many foreign criminals pouring into Thailand and all travel to the same location, or when there is a noticeably large sum of money being transferred in the country," says Yannaphon. "If we had a system that notifies us about this, we could implement proactive measures to prevent crimes from happening."

DSI sought a solution it could use to search for data faster and more accurately and automatically screen for suspected persons and transactions. It wanted to improve ongoing investigations into existing criminal activity and prevent new crimes from occurring.

Solution

DSI decided to adopt the Microsoft Big Data solution. The agency teamed up with HP, which provided servers for testing, and Betimes Solutions which helped with implementation.

The solution includes Microsoft SQL Server 2012 Enterprise data management software, which DSI relies on for importing and analyzing huge volumes of structured and unstructured data from multiple sources. For easier data mining, the solution also includes Apache Hadoop software, an open-source platform that DSI uses to store large volumes of unstructured data. Metadata is stored in the Hives data warehouse system. The new solution runs on the Windows Server 2008 R2 Enterprise operating system.

"We were very lucky to receive cooperation from both Microsoft and Betimes Solutions to test Microsoft Big Data," says Yannaphon. "We already had Microsoft SQL Server in place, so this project was like an extension of our previous system."

DSI is taking advantage of enhanced BI capabilities such as Microsoft SQL Server 2012 Power View, an interactive data visualization and exploration tool in SQL Server 2012 Reporting Services that launches in Microsoft SharePoint Server 2010. DSI uses the feature to present reports to high-ranking officers that include analysis details and an executive summary of each case monitored. In addition to images and tables, the reports can include

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helpful visual features such as graphs plotted on an axis that show statistics of criminal cases over a period of time.

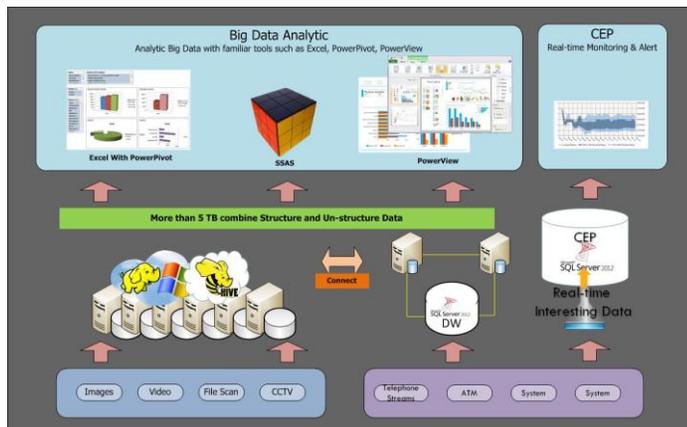
The agency is taking advantage of the Complex Event Processing (CEP) feature in Microsoft SQL Server 2012 to generate automatic notifications of suspicious incidents according to predefined sets of conditions. The filtered data can include phone records, financial transactions, or other real-time data from diverse sources. In addition to triggering alerts, the filtered data can also be worked with using BI tools such as SQL Server 2012 Power View and SQL Server 2012 PowerPivot for Microsoft Excel spreadsheet software. PowerPivot for Excel is a feature in Microsoft SQL Server 2012 Analysis Services.

Improved Efficiency of Investigating Officers

The solution’s improved speed and efficiency reduces the need for officers to search and read hard-copy documents for information. “By using SQL Server 2012, we solved our earlier problems with investigations and inquiries,” says Yannaphon. “It’s a complete solution that provides full services from databases to reporting tools for management.”

In addition, investigating officers can produce and summarize their own reports without IT help, which also speeds results. Yannaphon says, “SQL Server 2012 optimizes the investigation and inquiry processes in terms of speed and accuracy and removes the limitations imposed by working with a large volume of data.”

Microsoft Big Data solution



Cut Investigation Time from Two Years to 15 Days

In the initial test phase, DSI imported records from 250 closed cases to simulate a large volume of investigative data. Then the agency created a battery of tests and searches to evaluate performance. The solution quickly narrowed down a list of suspects that accurately matched the offenders arrested in the actual crimes. “With the traditional approach, it took two years to search for tips and gather and analyze data,” says Yannaphon. “With the Microsoft Big Data solution, it took only 15 days. This reassured us that implementing the system would increase the accuracy of our results while saving officers time.”

Benefits

Thailand’s Department of Special Investigation is improving the efficiency of its criminal investigations and gaining significantly faster search results. It plans to apply the solution to current and future investigation.

Gained Platform for Future Optimization

DSI plans to expand the solution to solve ongoing criminal cases to expedite and optimize investigation and inquiry processes. DSI is also planning to implement a private cloud to manage the security of the system, which stores highly confidential data.



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For more information about Betimes Solution products and services, call 0-2741-4952-4 or visit the website at:

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For more information about Thailand Department of Special Investigation products and services, call 0-2831-9888 or visit the website at:

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