Veikkaus Raises Its Game Using Pentaho Data Integration

Managed by the Finnish Ministry of Education, Veikkaus is Finland's national, government-owned betting agency and holds the country's exclusive legal betting license on lotteries and sports betting. The agency offers high-quality gaming entertainment reliably and responsibly, producing more than EUR 10 million of lottery revenue every week. Veikkaus contributes all proceeds to the Finnish Ministry of Education and Culture, which are then used to fund arts, sports, science, and youth projects. 2015 was another successful year, with revenues of EUR 2.09 billion and record-high profits of EUR 537.1 million.

More than a long-established gaming company, Veikkaus plays a meaningful role in Finnish society. Core principles are instilled to maintain a positive gaming culture including 'small-stakes' betting, distributing honest odds information and not allowing people to play on credit. Veikkaus is currently merging with Fintoto (horseracing) and RAY (slots and casino) into a single state-owned entity in order to further reduce gaming's social harms. At the same time, Finland is passing a new law ensuring that gaming revenue is used for the public good. The merged company will become Finland's largest consumer company and on-line store, and likely to be Finland's fourth largest company overall in terms of profits.

THE CHALLENGE

With the explosive growth of online gaming in Finland (up 260% in 2013 to over €900 million), Veikkaus needed to accelerate the flow of data through its pipeline and get a 360° real-time view of the gamers to improve customer experience. The game data Veikkaus' system was loading from sales terminals and the Internet every day was taking up to two days to reach marketing. This meant marketing could not react to player behavior fast enough to do things like welcome its new loyalty customers or publish relevant, contextual marketing services to drive additional sales. The gaming cycle is daily and weekly, so loyalty customers should be getting reminders to play one-two days before the game day. This was proving impossible due to the complexity in Veikkaus' data pipeline: high volume, velocity and the need to blend structured and unstructured data. With

ABOUT VEIKKAUS
- Finland's national lottery
- EUR10 million+ weekly revenue
- Proceeds fundarts, sports, science, and youth projects
- Currently merging with Fintoto (horseracing) andRAY (slots and casino) to become Finland's largest consumer company and on-line store
- www.veikkaus.fi

the planned merger, there was a need to build a future-proof data backbone to accommodate all the data from Fintoto, RAY and Veikkaus.

THE GOALS

To address these data challenges, Veikkaus set a goal to gain a wider, more detailed, real-time view of its business by blending structured and unstructured big data sources in a single platform. It wanted a modern, future-proof IT architecture that could make data available for analytics in near real-time. Veikkaus set a standard for 100 percent data accuracy, as it sought to use its data for financial reporting, compliance and marketing purposes.

THE SOLUTION

Veikkaus turned to Finnish big data analytics consultancy High Information Systems (Hi-IS) for support in meeting these goals. Hi-IS recommended and helped Veikkaus to rebuild its Enterprise Data Warehouse (EDW) using Pentaho Data Integration (PDI) to manage and prepare all the data running through its pipeline. Several technologies are integrated with PDI to comprise the data architecture, including Cloudera's Enterprise Apache Hadoop distribution and Flume for streaming log and event data into Hadoop. The architecture also includes the HP Vertica SQL database,

which enables fast queries on big data sets, and Apache Kafka's high-throughput, distributed messaging system.

The system ingests data from Veikkaus' gaming system data in XML/JSON format along with relational database sources and text file reports. In a typical day more than two million Kafka messages are loaded from the gaming system alone. In the next stage, Cloudera's Flume moves the Kafka data into Hadoop and HP Vertica. Finally, all of the XML files are transformed to fit into a SQL database.

Pentaho Data Integration processes more than 200 messages per second, which is the maximum speed that messages arrive ahead of the weekly lottery raffle. When migrating from the old system, Veikkaus sometimes sent more than 600 million rows in a single data flow, which PDI was able to load in less than 20 hours.

Migrating such a complex data landscape to a modern, fast, scalable architecture has been a huge achievement as Reni Waegelein, CIO, Veikkaus, explained: "Our source system data is among the most complicated that our very experienced data integration consultants have ever worked with. Pentaho has helped us to achieve near-real time, 24/7 data processing on blended structured and XML big data, which is a major step forward."

Veikkaus also turned to Pentaho for professional services to help the company achieve the most from its new system. After its team of ten developers gained some initial experience, Pentaho provided them with additional training in the WEKA data mining technology and other areas. Since Veikkaus' IT team was building a completely new, modern architecture, the company also engaged Pentaho's enterprise architecture team to audit the system and identify areas to fine tune it for optimal performance.

IMPACT AND BENEFIT
In every area of the business, the new system is truly helping Veikkaus raise its game. Just after going live, Veikkaus' new data architecture started delivering benefits across sales, marketing, finance and R&D. Instead of taking data two days to reach marketing, the feeds arrive in near real-time. This allows marketing to send personalized offers to at least a million registered loyalty customers every week ahead of the lottery, boosting sales and the customer experience. In future, Veikkaus plans to increase personalization, tapping into Cloudera Hadoop data to improve game development and pricing in line with customer expectations.

WHY PENTAHO
- Modern, future-proof architecture based on open standards
- Tight integration with Cloudera's Hadoop distribution and other big data technologies
- Professional services to support and enable development team

SOLUTIONS
- Pentaho Data Integration
- Pentaho Data Mining (based on Weka project)
- Pentaho Services

RESULTS
- PDI played a crucial role in transforming and modernizing their EDW into a highly complex data landscape
- 100% accuracy means data can be used for financial reporting and compliance
- Near real-time data flow enables marketing to provide personalized offers to one million registered customers every week, improving sales and customer experience

For the first time, the business can really trust their data, as Reni Waegelein explains, "Since we also use our customer sales data for financial reporting and compliance, we made the architectural decision that our data had to be 100 percent accurate. This means our marketing team, for example, has total confidence in the data it's using to create personalized customer offers and experiences.

The new system also helps Veikkaus maintain a positive gaming culture. Using Pentaho Data Mining, Veikkaus constantly monitors for gamblers whose patterns indicate they may be at risk for developing a gambling addiction. To those customers, Veikkaus e.g. ceases all marketing activities.

Looking to the future, Veikkaus' system will provide the IT backbone for the merged company with Fintoto and RAY, expected to be complete in January 2017. It is already working to combine all the data from the three companies this year, including information from Finland's 20,000 VLTs (video lottery terminals).

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