



Doubling Down on Entertainment Marketing with Intel® Xeon® Processors

Caesars Entertainment uses Intel® technology to reach a new demographic group and process more than 3 million records per hour



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– Rizwan Patel,
IT Director,
Caesars Entertainment

Technology leadership is one of the reasons Caesars Entertainment has become the world's most geographically diversified casino-entertainment company, with resorts and casinos on three continents. The organization is well known for its innovative application of data to improve the customer experience. But with younger customers spending more money on non-gaming activities, Caesars needed a system capable of handling a new, expanded set of customer data for hotels, shows, and shopping venues.

Challenges

- **Improve customer segmentation** for more effective marketing campaigns
- **Expand analysis** to include unstructured and semi-structured data
- **Accelerate processing** for analytics and marketing campaign management

Solution

- **Implement a new environment** using Cloudera Enterprise, Cloudera's Distribution Including Apache Hadoop* (CDH*) running on the Intel® Xeon® processor E5 family

Technology Results

- **Reduces processing time** for key jobs from six hours to 45 minutes
- **Expands capacity** to more than 3 million records processed per hour
- **Enables fine-grained segmentation** to improve marketing results
- **Improves security** for meeting Payment Card Industry (PCI) and other security standards

Business Value

- **Faster, better analysis** of all data types for creating and delivering personalized marketing
- **Ability to reach a new generation** of customers and win their loyalty, ultimately driving revenue

Creating a New Engine for Marketing Success

At Caesars Entertainment, demographic and behavioral data is vital to the organization's successful marketing. Caesars traditionally identifies customer segments and creates specific marketing campaigns tailored to each of those segments, called “shelf campaigns.” Caesars had been using a Teradata* system to process its marketing campaigns based primarily on gaming data. As gaming became less of a focus and other resort activities became more important—especially for a new, younger demographic—Caesars needed to analyze new, high-variety data sets. Also, the original segments were not generating enough return on customer offers.



“We wanted to target a much more fine-grained segmentation to improve marketing results,” says Rizwan Patel, IT director at Caesars. “We were also moving into new areas such as online social gaming, which involved unstructured and semi-structured data that our existing system was less effective at handling. We wanted to create a whole new analytics engine for this large-scale, multi-variety data, and it made sense to do that on the Hadoop platform.”

Choosing the Right Solution

After evaluating several vendors and implementations of Hadoop, Caesars IT decided to go with CDH on Intel® architecture. “Given that we already worked with Dell as one of our suppliers for Intel gear, we went with the Dell reference architecture, including the PowerEdge® R720 and the R720XD with the Intel Xeon processor E5-2640 at 2.5 gigahertz,” says Patel. “We used the Intel Xeon processor E5 family across our new environment because it gives us the performance and memory we need for big data processing.”

The Hadoop environment at Caesars includes 112 of the new servers running Red Hat Enterprise Linux® and CDH. “We chose the Cloudera Enterprise CDH platform because it gives us a single, massively scalable system where we can run a variety of workloads and analytics,” says Patel. “Also, Cloudera and Intel have worked together to optimize data processing workloads at the silicon level and deliver faster insights.”

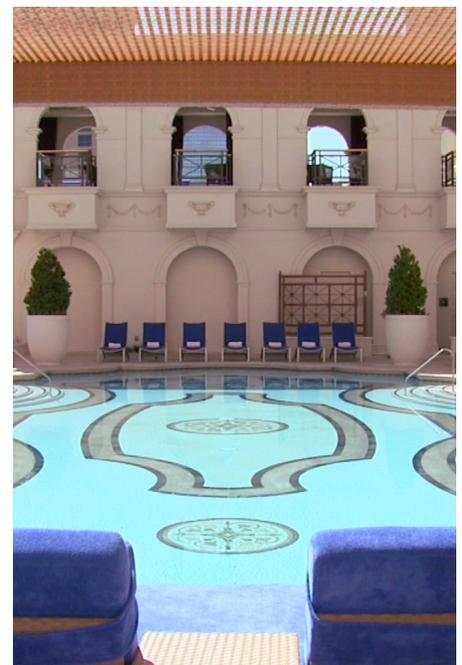
Reducing Processing Time from Six Hours to 45 Minutes

With Cloudera and Intel® processor-based servers, jobs that used to take six hours can now be processed in 45 minutes, enabling Caesars to segment campaigns more closely and change them more often than before. “We alter the types of segmentation we do on a weekly basis to improve the benefit we get from these campaigns,” explains Patel. “We have a much tighter feedback cycle for identifying the most successful campaigns and fine-tuning our offers to improve results for specific segments. Today, we are processing more than 3 million records per hour, which would have been very difficult to do on other platforms.”

Analyzing a Wider Variety of Data Types

The new environment enables Caesars to process more data types, including unstructured and semi-structured data, reflecting the diverse communications channels used by today’s customers. “Younger customers are likely to prefer smart phones or tablets, and our new mobile app allows them to use their mobile devices to obtain rates and make reservations. That data is sent to the Hadoop environment for analysis in real time, where we currently use it to fine-tune our operations. In the future, we can use this data to tailor mobile responses and offers on the fly based on factors like the customer’s preferences and location.”

Another new use case applies emotion detection tools and sentiment analysis to call center audio recordings. “By combining this information with other existing data, we can better understand how to enhance the customer experience,” says Patel.





Intel® Xeon® processor performance and memory capacity help Caesars enhance the customer experience



With the multi-data capabilities of the new platform, Caesars has information that's more relevant to the demographic and individual, which benefits both the customer and the company. "Sometimes we have unsold inventory for a show. This platform helps us identify people who would appreciate knowing about the availability," says Patel. "At the same time, it allows us to predict the percentage of those people who will accept the offer, so that we don't overbook."

Increasing Web Sales Conversion

Hadoop has introduced new avenues to analyze Web clickstream data generated by existing and potential customers. "We associate each of our customers with a unique ID, which allows us to associate and interact with them as individuals," notes Patel. "If one of our existing customers visits the site and looks at a particular room and rate several times without making a reservation, the next time he or she visits the site, a special offer or rate can be generated in real time to convert the visit to a sale."

Caesars can also pull non-gaming spend, point-of-sale terminal data, and retail data into the Cloudera platform to find out where customers are spending most of their money with the company. "If a customer is spending primarily at one location, then the marketing team might generate an offer to another location to incentivize new products and services offered by Caesars," says Patel.

Safeguarding Valuable Data

Deploying CDH on Intel architecture has helped the IT team improve data security and safeguard sensitive data in the new environment. "Engineers at Intel and Cloudera jointly developed encryption and other capabilities to protect data in a CDH deployment without compromising performance," says Patel. "We are using more and more of those features, most recently the ability to provide fine-grained access control down to the table and field level to ensure people see only the data they are authorized to see. We need to comply with Payment Card Industry security standards as well as other regulations, and the collaborative work by Intel and Cloudera helps us ensure data is properly secured."

Lessons Learned

The Caesars IT team emphasizes the importance of early support from top management when implementing a Hadoop environment. "Our Hadoop journey started with the CMO and CTO urging a few of us to start looking at Hadoop," says Rizwan Patel, IT director. "When it comes to implementation, it is also essential to select use cases that solve real business problems. That way, you have the backing of the company to do what it takes to make sure the use case is successful."

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Prioritizing New Use Cases for the Future

Caesars' Cloudera and Intel implementation is a powerful tool, but there are limited resources available for new projects. Caesars has tackled this issue through a system of prioritization. "We have a cross-functional team—including Analytics, Gaming, Marketing, and IT—that meets quarterly to

prioritize and select use cases for implementation," Patel says. "We have identified a large number of use cases ranging from social media monitoring to adaptive pricing that the team can consider. If we hadn't implemented CDH running on Intel architecture here, most of those use cases would not have seen the light of day."

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