Caesars Entertainment Corporation

Show Me The Money Turbocharged Tableau with GPU Database



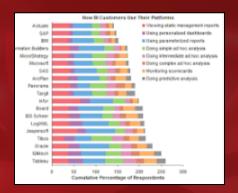
About Me

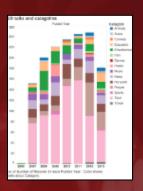


Gene Lee

Gene Lee is SVP, Chief Analytics Officer for Caesars Entertainment. The Caesars Analytics department employs over 100 employees supporting Data Logistics, Business Intelligence, Advanced Analytics, Marketing, VIP, Gaming, Food and Beverage, Labor, Retail, Hospitality and Caesars Interactive Real-Money Gaming functional areas. Sample project scope ranges from recurring Slot-tech service reports to "secret sauce" Advanced Analytics statistical modeling to drive the Marketing Total Rewards engine to self-discovery Tableau Dashboards for Senior Executives. Gene holds an Applied Math in Computer Science Bachelors degree from the University of California, Berkeley and an MBA from Yale School of Management.

Gene's favorite tableau visualization is the stacked bar graph.





Agenda



- Caesars Entertainment
- Caesars Tableau Journey
- Caesars Kinetica Use Case
- Q&A

CEC is the Largest Gaming Company in the World



52 casinos across 13 US states and 6 countries

#1 and #2 market share in almost every US market

Over 60 million Total Rewards customers

#1 global publisher in the social casino-style games



A Portfolio of Winning Brands





Analytics is deeply embedded into Caesars DNA



Talent, data, tools and commitment from our CEO

"The Caesars Entertainment's analytics team is the most talent-rich and data-driven group we have ever worked with. Combining that analytics talent with your unusually rich data, Caesars Entertainment is very enviably situated."

- Steve Levitt, author Freakonomics and Superfreakonomics





"I don't want to act on hunches or on intuition, I want to gather evidence and think through a problem rigorously. That has served the company very well, not only in terms of good decisions, but also in avoiding situations where it was wise not to act."

- Gary Loveman, Former CEO, Chairman of Board

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Tableau at Caesars Today – Q3 2017



High Sustained Adoption across Enterprise

- Over 200 views in production
- 1500 views daily with increasing trends
- Users range from employees in the field to Senior Management Team

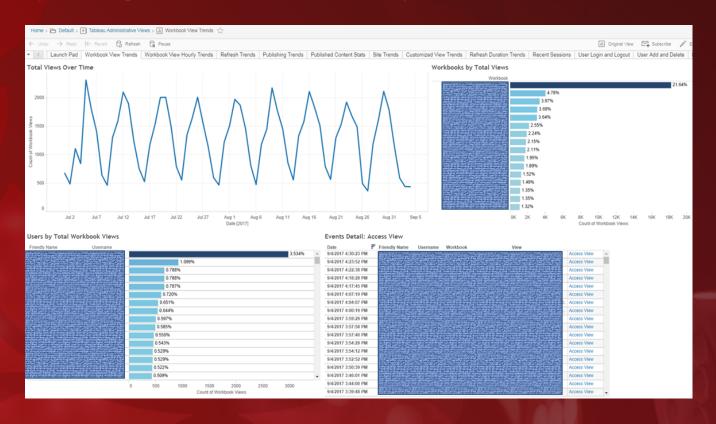


Tableau at Caesars – 2015 to present



Executive Dashboards rolled out (representative sample)

- What is and how confident can we be with current Finance Forecast?
- How are daily accounting metrics performing (cuts across time / region / filter exceptions)?
- How are labor efficiency metrics performing (labor data merged with POS data)?
- How are marketing efficiency trends performing (cut across time / region / segment)?

Revenue Management Dashboards (representative sample)

- How is my property/market pacing in room nights/revenue vs STLY?
- How are my rates trending vs competitors? Any weird /incorrect public rate loads?
- What is and how confident can we be with current forecast by channel by stay period?

Marketing Dashboards (representative sample)

- How are various segments performing (cuts across time/region/demographic/behavior)?
- How are key marketing initiatives tracking/performing?
- Explore segment elasticities (historic changes in interventions vs changes in play)?
- Expense Exposure Insights (forward looking expectation on marketing expense)?

Tableau at Caesars – 2015 to present



VIP Dashboards rolled out (representative sample)

- Securely manage host book performance in real-time how am I performing vs benchmark?
- Who/when of my book is arriving at my hotel in real-time?

Gaming Dashboards (representative sample)

- Any interesting insights on structural gaming hold shifts across various segments?
- Slot machine exceptions reporting

Food & Beverage / Retail / Labor Dashboards (representative sample)

- Heat map (when are certain outlets busy / not busy)?
- Performance ranking by outlet (which outlets rank highest by difference metrics)?
- Item Pricing Insights (any item pricing opportunities)?

Tableau at Caesars – 2017 – Need More Power



Dashboards are slow when drilling into large datasets

• Over 2 minutes for initial dashboard load based on dataset covering 50 million records

Test alternative set ups to improve performance

- On Premise Teradata, Microsoft SQL Server, Yellowbrick
- Software MemSQL, Kinetica
- Cloud Amazon, Microsoft, Google

Key Considerations

- Can solution improve performance to under 10 secs per load, per click
- Relatively Cheap Cost—one time cost plus on-going support and maintenance cost
- Existing Security framework hold (Tableau Server On Premise, Microsoft AD, Firewall)
- Align with Caesars IT architecture and long-term roadmap
- Scalability how easy is it to expand as data scope increases
- Reliability how often does it crash and we need to open a help ticket to fix
- Minimal Commitment what if new cheaper / faster technology disrupts in 12 months?
- Machine Learning model performance (bonus)

Tableau at Caesars – 2017 – Kinetica



Why we chose Kinetica

- Can solution improve performance to under 10 secs per load, per click
 5 seconds to load, 5 seconds to refresh based on new filters, among fastest solutions
- Relatively Cheap Cost—one time cost plus on-going support and maintenance cost Within budget, cheaper than on-premise databases
- Existing Security framework hold (Tableau Server On Premise, Microsoft AD, Firewall)

 Works with IT Security requirements, plus have row level security built in to dashboards
- Align with Caesars IT architecture and long-term roadmap
 Aligns with direction of migration to Cloud
- Scalability how easy is it to expand as data scope increases

 Helpful tech support, showed how easy it is to migrate to/from Kinetica
- Reliability how often does it crash and we need to open a help ticket to fix Hasn't crashed since we launched in July, dependent on Google Infrastructure
- Minimal Commitment what if new cheaper / faster technology disrupts in 12 months?
 12 month commitment sufficient to support needs over next 12 months
- Machine Learning model performance (bonus)
 GPU Virtual machines powering existing Machine Learning (TensorFlow), added bonus