

TDWI BI EXECUTIVE SUMMIT

Actionable Analytics at Zynga: Leveraging Big Data to Make Online Games More Fun and Social

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connecting the world through games

Actionable Analytics at Zynga

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Mafia Wars



Treasure Isle

YoVille

zynga poker

Zynga Background

Leader in Online Social Games



Mission

The Most Fun Way to
Connect with Your Friends

What are the 'metrics that matter' for these?

Social Gaming

Built on social networks – Facebook, MySpace

facebook

myspace®
a place for friends

- Invite your friends to play with you
Synchronous or Asynchronous play
Cooperative or Competitive play



zynga®

Social Gaming

Virtual Goods – Functional, Decorative, Microtransactions



By the Numbers

Users

- 10's of millions play every day
- 100M+ play every month
- Zero to 20M players in 36 days

Data

- 10's of billions of rows every day
- Multiple TB's daily
- 100's of TB total

ARCHITECTURE



- Game servers in the cloud
- Open source in the middle
 - Scribe, Esper, Nagios / Munin, Memcached
- Two 100+ node Vertica warehouses
 - Deploying a graph database
- SQL, Tableau, R front end
- Most metrics available via streaming
- All data available in warehouse 10 minutes after event occurs

- Issues
 - Storage is cheap, but at hundred of terabytes...
 - Processing time
 - Query performance
 - Have seen near linear scalability with MPP databases
- Our solutions
 - Capture fine grained data
 - Use sampling for analysis by the masses
 - But that restricts some analyses we want to do
 - Use mirror platform for analysis by trained analysts
 - Aggregate older data in our largest tables

- Issues
 - New types of data being introduced weekly
 - Games do two releases weekly
 - Updating schema isn't feasible
- Our solution
 - Store standardized data in predefined tables
 - Store non-standard data in key-value pairs in a generic table

PHILOSOPHIES



1. Success Requires Art + Science

Lots of Expensive Creative People
+ Whiteboards
- Metrics
= FAIL



This is true in all businesses



- Art + Science, instead of Art vs Science
- Art: Generate the game idea
- Science: Find out if it's good
 - Test and analyze
- Actionable: Impacts who we hire
 - Optimal studio manager profile
 - Optimal analyst profile

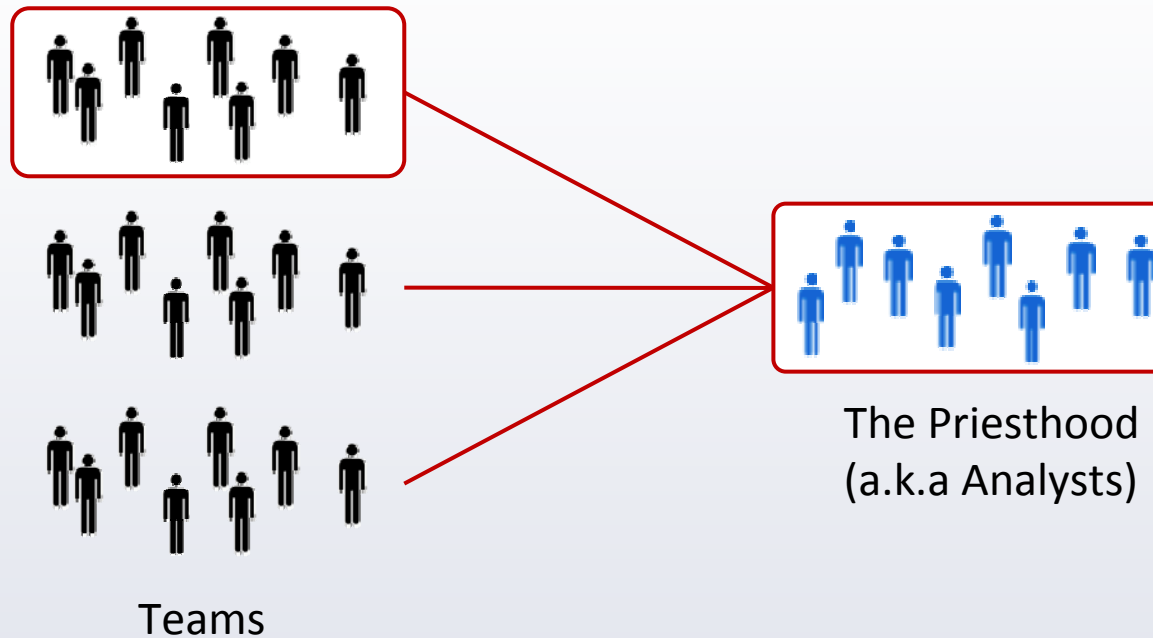
- Hippo: Not enough science
- “In absence of data, the Hippo wins”
- HiPPO = Highest Paid Person’s Opinion



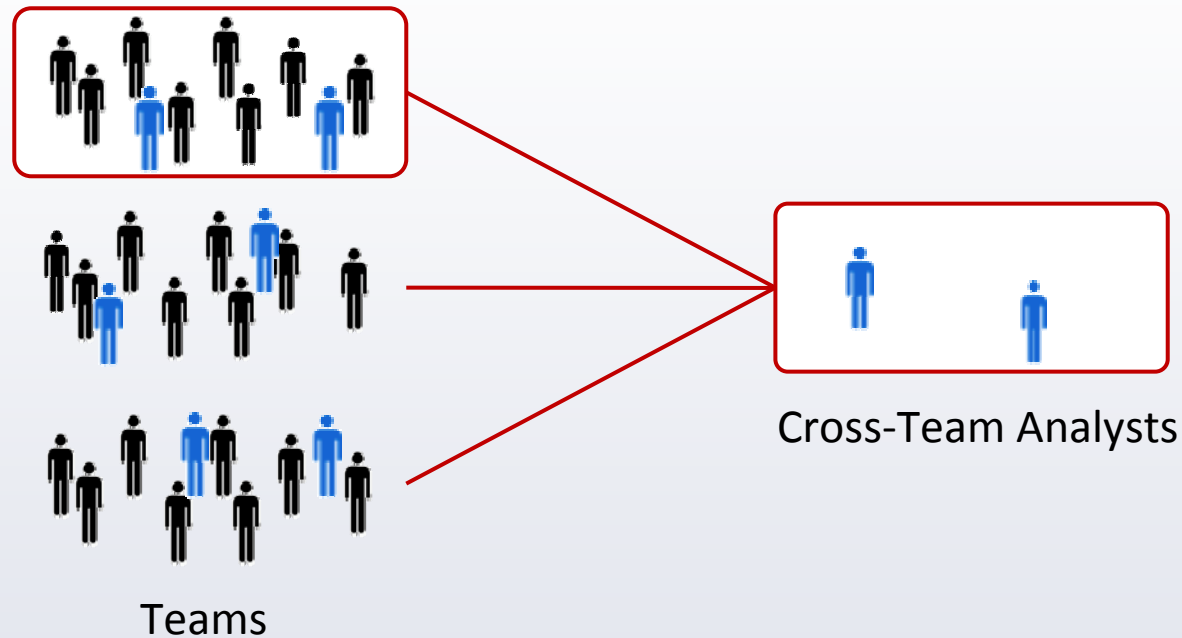
- Groundhog: Too much science
- Perfection without heart
 - Phil and Rita in Groundhog Day
- Arrive at a local maximum, but miss breakthroughs
 - A/B testing has limits



- Provide widespread access to data and insights
 - Open up as much data access as possible
 - 30% of Zynga employees directly access our analytical system weekly
 - Publish results: Zynga Insight Notes
- Provide widespread access to expertise
- Organization structure matters. A lot.



- “Not my problem”
- Mostly reactive
- It’s like having a Quality division



- Team specific domain experience shortens analysis cycles
- Massive opportunities to be proactive
- Daily scrums with all analysts are critical for insight sharing

- Set goals and compensation based on impact, not insights
 - Great insights that lead to no change in behavior = no value
- Previous goals
 - “Provide insights to improve user retention”
- Current goals
 - “Improve user retention by 10%”
- Share goals of team you’re embedded in

- OK. Let's also pay our salespeople based on their efforts.
 - Spent a lot of time in the field
 - Gave great presentations
 - Answered questions really well
 - Always had the latest collateral
 - Those darn customers just wouldn't buy! Not my fault...
- Requires a unique skills profile for an analyst
 - Analysis skills + Sales skills + Marketing skills
 - Go on 'sales calls' internally
 - Market your successes to other teams

- Providing answers is not the goal
 - It's not even that hard
 - And it sets you up to be reactive
- Focus on providing the right questions
 - E.g. What are the “metrics that matter”?
 - What will move the needle?
 - My most useful question: “So what?”
- Puts higher value on business skills versus PhD in statistics

PHASES OF IMPACT



1. Reporting and Analysis

- Reporting
 - Reactive, but still necessary
- Analysis
 - Proactive
 - Prioritized in alignment with company goals
 - Published (over and over, via multiple channels)
- Most companies I've been with stop here

2. Impact Game Design – Even More Proactive

- We have the ability to see what happened
- So, run experiments and then see what happened
 - Lots of them. Most will fail.
 - Built experimentation platform to manage experiments
 - Studios build MVP to test (Minimum Viable Product)
- Reminder: A/B testing has its limits
 - Like sandpaper – you can use it to smooth out details, but it's hard to create anything with it
 - It gets you the last 20% of value

CLOSING THOUGHTS



How Important is Technology to Success?

Two technology buckets: Focused on Answers vs Questions

- Providing Answers
 - Questions are generally known
 - Environment is more structured
 - Primary focus is on efficiency
 - Schema can be optimized
 - Use SQL
- Providing Questions
 - Environment is less structured, more exploratory
 - Primary focus is on flexibility
 - Need programmatic flexibility
 - Use NoSQL technology such as Hadoop

How Important is Technology to Success?

Where would you rather be?

- Company 1
 - Ultra fast, super flexible technology
 - Only a few people think about whether their metrics really matter
 - Limited ability to act on insights
- Company 2
 - A few MySQL databases on old servers, plus Excel
 - Everyone thinks about how to measure impact
 - Analysis helps define the company's direction and products

Key Driver of Success

Analytical success is tied
to a company mindset,
not a technology feature set



Define your philosophies
Focus on delivering impact



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