Purchase, Play, and Upgrade Data for Video Game Players

Data at a Glance:

Observation Window: Aug 2013 - Jan 2016

Data are collected from a major sports video game series and track ~60,000 players over multiple versions of the game:

- Player Session Data: Individual game session records across multiple game consoles and game modes

- Purchase Data: Game acquisition and additional enhancement feature purchases

- Survey Data: Player recommendations and free-text responses submitted through an e-mail survey

WEBINAR WILL BEGIN SHORTLY

Presentation recording and slide deck will be made available via wcai.wharton.upenn.edu by Monday, March 22, 2016

Submit your proposal by **Monday, April 4th, 2016**. Learn more at http://wcai.wharton.upenn.edu/research

KNOWLEDGE FOR ACTION

Purchase, Play, and Upgrade Data for Video Game Players

A WCAI Research Opportunity

March 18th, 2016

Introductions

Debbie Shapiro
Associate Research Director,
WCAI

Brandon Krakowsky
Research Director,
WCAI

Colleen O'Neill
Executive Director,
WCAI

Elea Feit
Senior Fellow, WCAI
Assistant Professor of Marketing, Drexel University

Scott Allen
Manager of Advanced Analytics,
Data Sponsor

Whipple Neely
Director of Data Science, Data Sponsor

Zach Anderson
VP Marketing Science and Analytics,
Data Sponsor

Electronic Arts, Inc.

The World's Largest Video Game Publisher

Our Studios

As well as…

Visceral

Criterion

Motive Studios

PopCap

Capital Games

Fire Monkeys

Chillingo

And many more…

EA Contacts

Scott Allen – Main point of contact for all inquiries about WCAI project for EA
Manager, Data Science, Player Scoring and Insights

W. Whipple Neely
Director, Data Science

Zach Anderson
Vice President, Global Insights and Analytics

A Few Operational Notes

This webinar is intended for researchers & scholars. It should not be published or presented without permission from WCAI.

Questions about our research program or for press inquiries:
wcai-research@wharton.upenn.edu

To get access to the data, research teams must submit a proposal to WCAI and the sponsor for approval. More details at the end of this presentation.

A Note on the Sponsor

This research opportunity is sponsored by a Leading American Video Game Company.

- Awarded research teams will be introduced directly to the company

- Sponsor must **not** be named in any publication or presentation

- Data will be de-identified

About the Game

This dataset describes the purchase, play, and upgrade data for individual players of a major sports video game series.

- A new version of the game is released annually

- Players purchase the game in a store or online through their computer or game console

- Players upgrade to new versions as they are released

- Players choose the game mode they wish to play in for each session

- Players optionally purchase card packs to enhance their experience

- Players complete customer satisfaction surveys

Brandon purchases the game on his Xbox 360. He plays a brief session in Game Mode A.

Brandon purchases the game on his Xbox 360. He plays a brief session in Game Mode A.

A few days later he plays for a longer session and tries out Game Mode B and Game Mode C.

Brandon purchases the game on his Xbox 360. He plays a brief session in Game Mode A.

A few days later he plays for a longer session and tries out Game Mode B and Game Mode C.

He continues playing this version of the game, in various modes, on his Xbox 360.

Then we observe that Brandon started playing on his PS4.

Then we observe that Brandon started playing on his PS4**.**

He then appears to **upgrade** to **the latest version of the game** on his **new console**.

He continues to play the game, and then we see that he makes a purchase to use in Game Mode D.

After some time with the new game version on his new platform, he shares his feedback about the game through an e-mailed survey.

About the Data

- Six Cohorts of approx. 10k unique players each

- Cohorts defined by first game version purchased

Game Version 11   Game Version 12   Game Version 13   Game Version 14   Game Version 15   Game Version 16

About the Data

- Six Cohorts of approx. 10k unique players each

- Cohorts defined by first game version purchased

Game Version 11	Game Version 12	Game Version 13	Game Version 14	Game Version 15	Game Version 16

- **Game Versions Purchased**

- **Enhancement Pack Purchases**

About the Data (cont.)
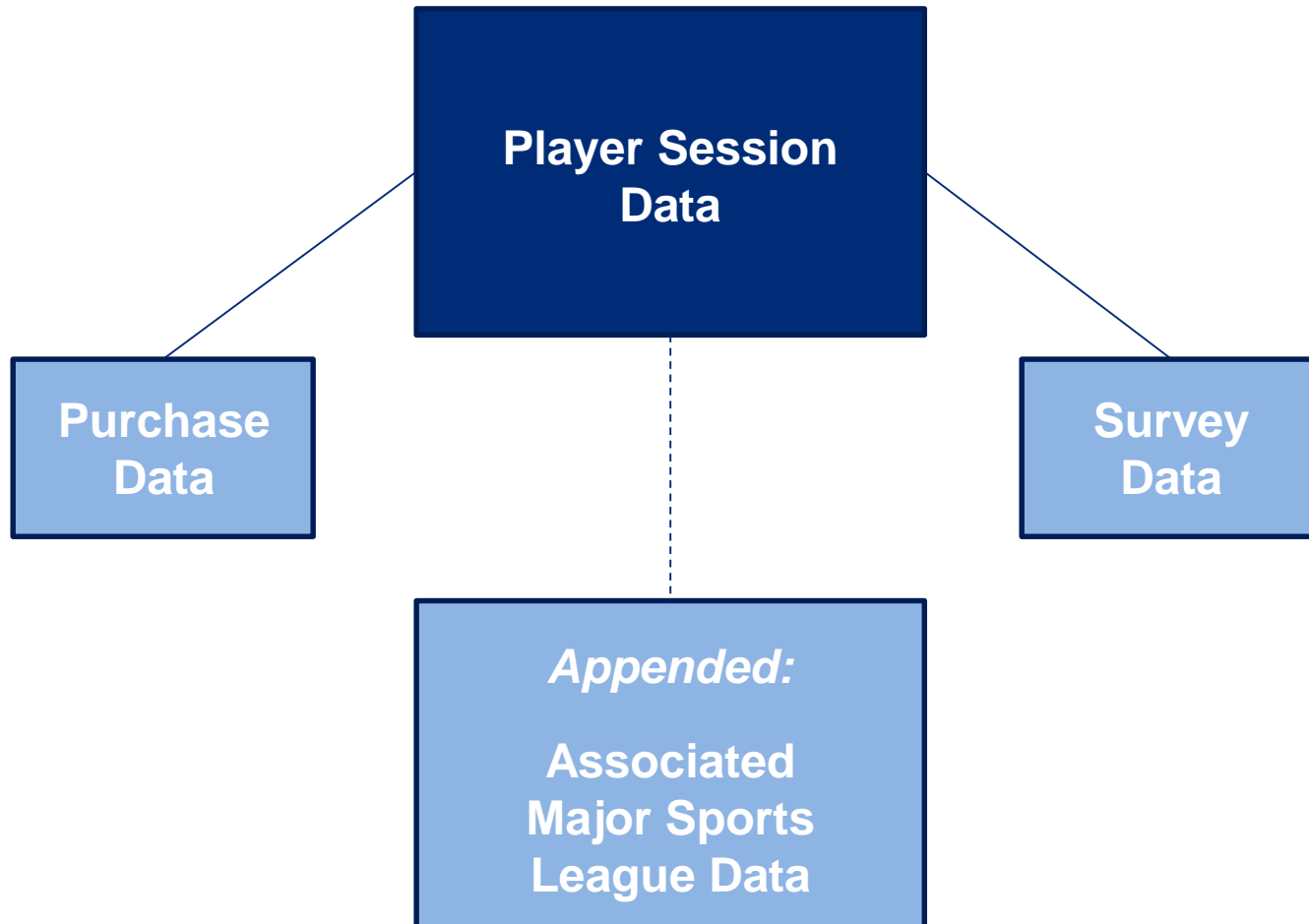
Observation Window: August 2013 – January 2016

- **Game Play Session Data**

- **Available for players who purchased/upgraded to Game Versions 14, 15, or 16**

Data Structure
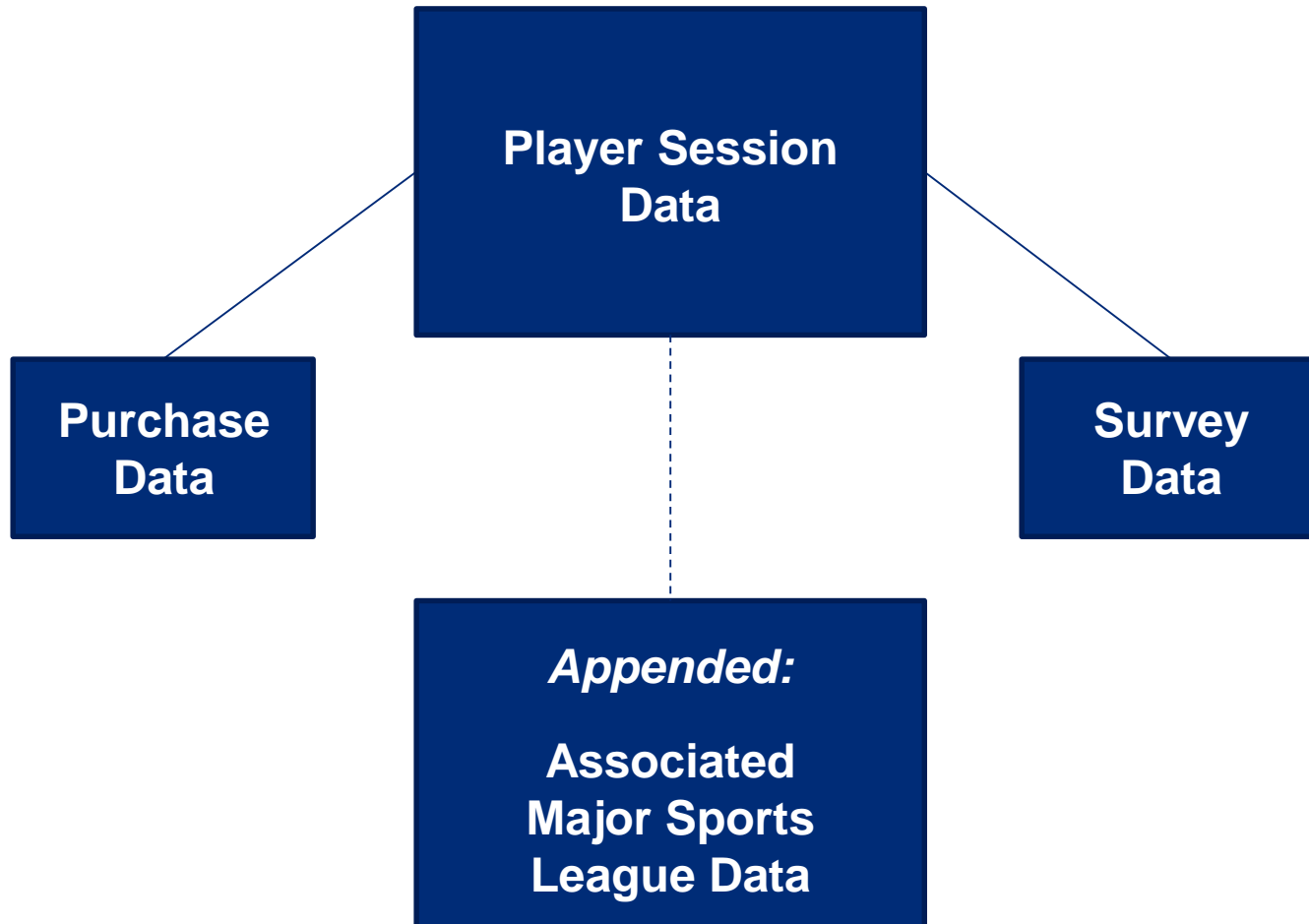
Observation Window: August 2013 – January 2016

Data Structure

**Observation Window:** August 2013 – January 2016

Player Session Data

Over 1.6 million unique game sessions across multiple versions of the game

- Unique ID for every player

- Version of the game in which the session occurred

- Game mode (44 distinct modes)

- Game type (multi-player vs. single-player)

- Game console that the session took place on

- Date & time of activity

- Duration of the session
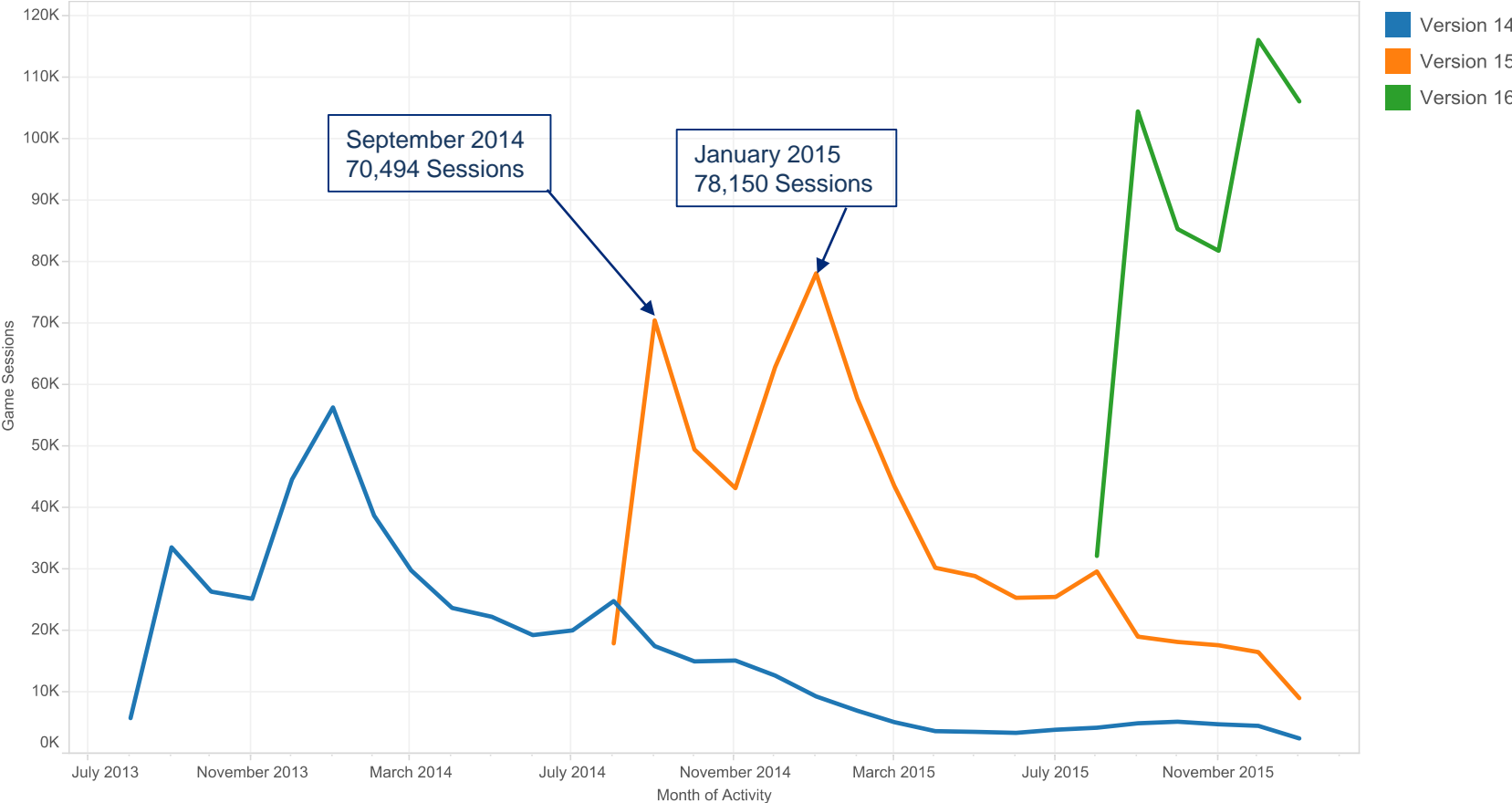
Observation Window: August 2013 – January 2016
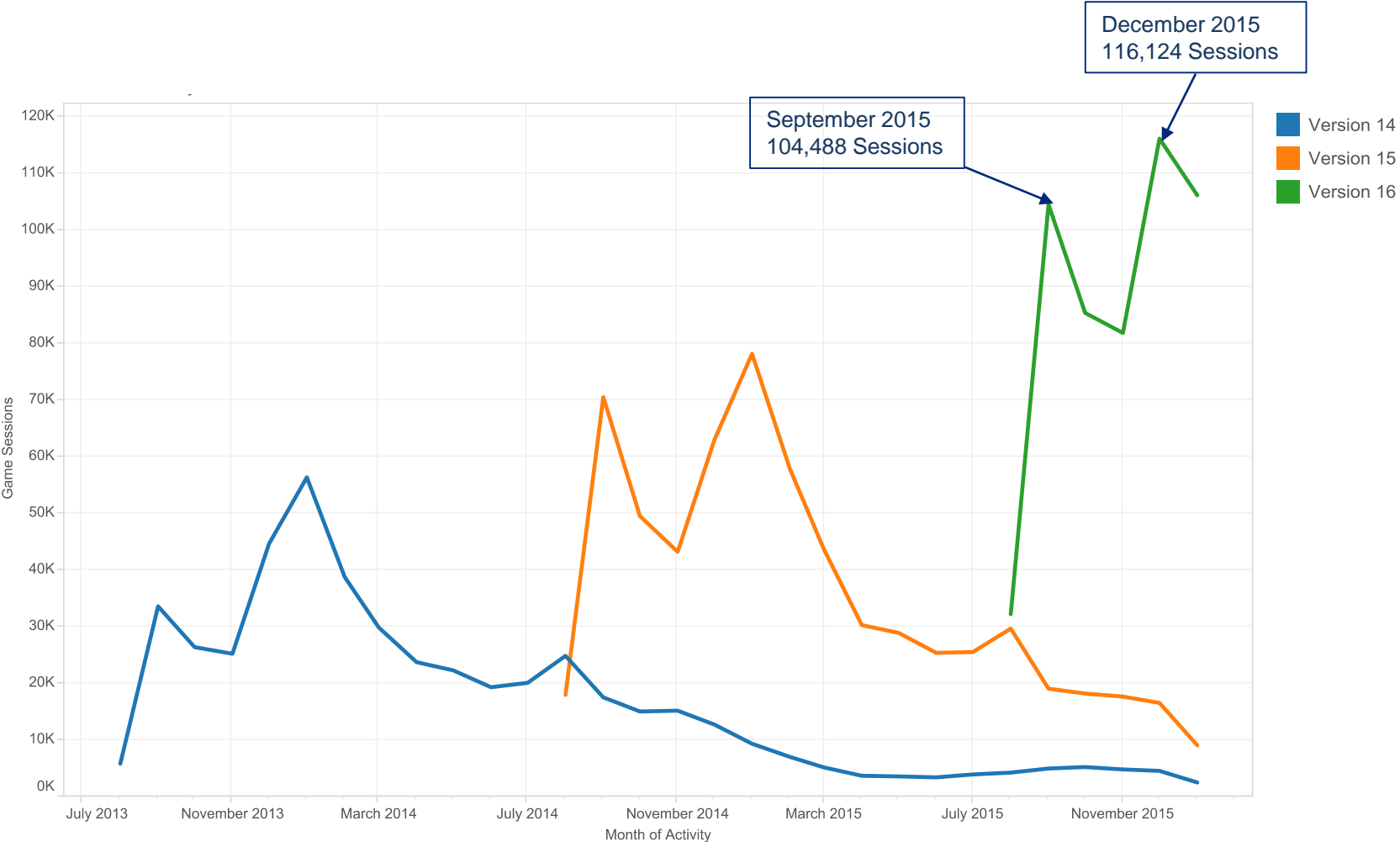
Sessions Over Time By Game Version
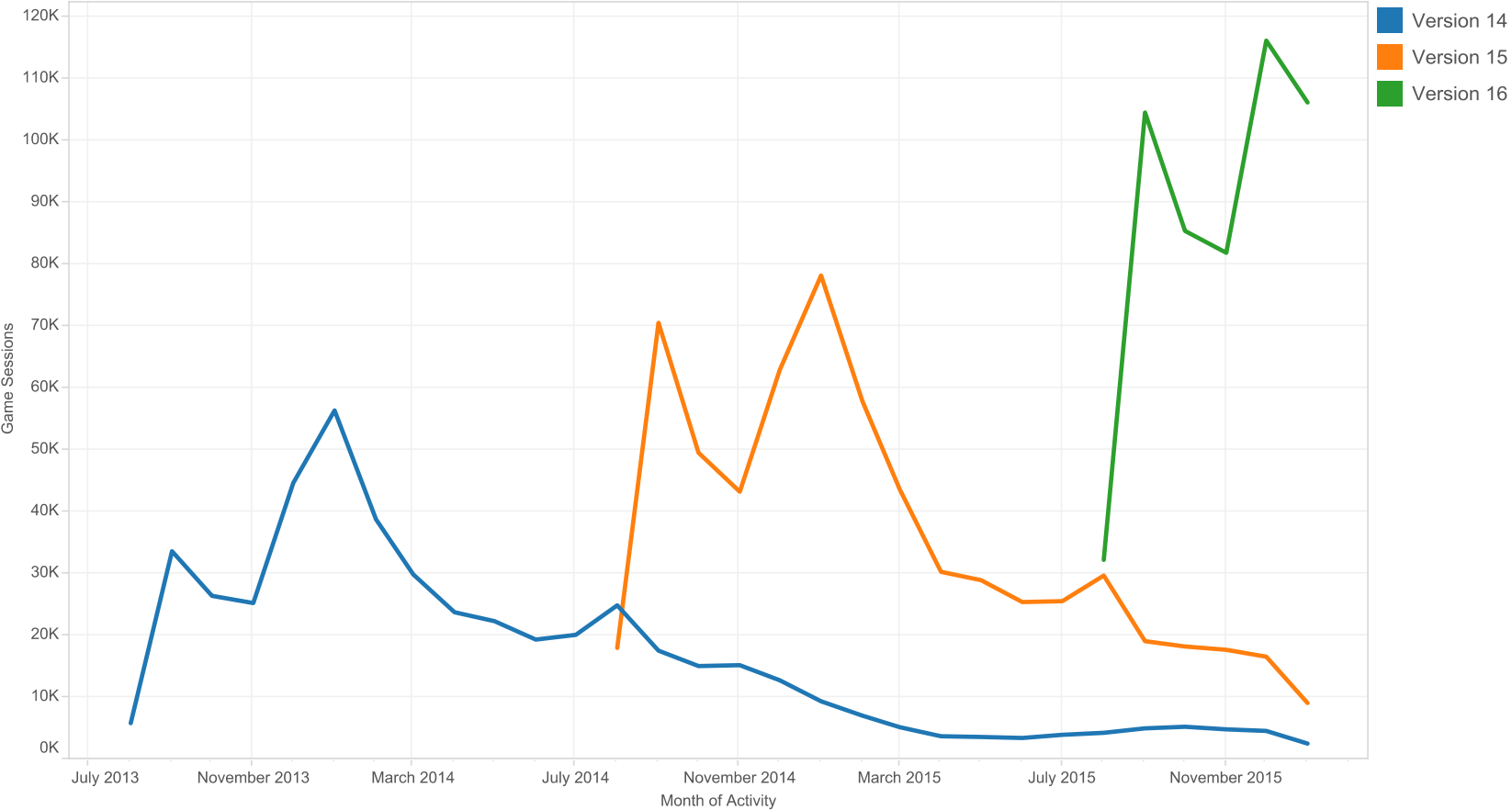
Sessions Over Time By Game Version

Sessions Over Time By Game Version

Sessions Over Time By Game Version

December 2015
116,124 Sessions

September 2015
104,488 Sessions
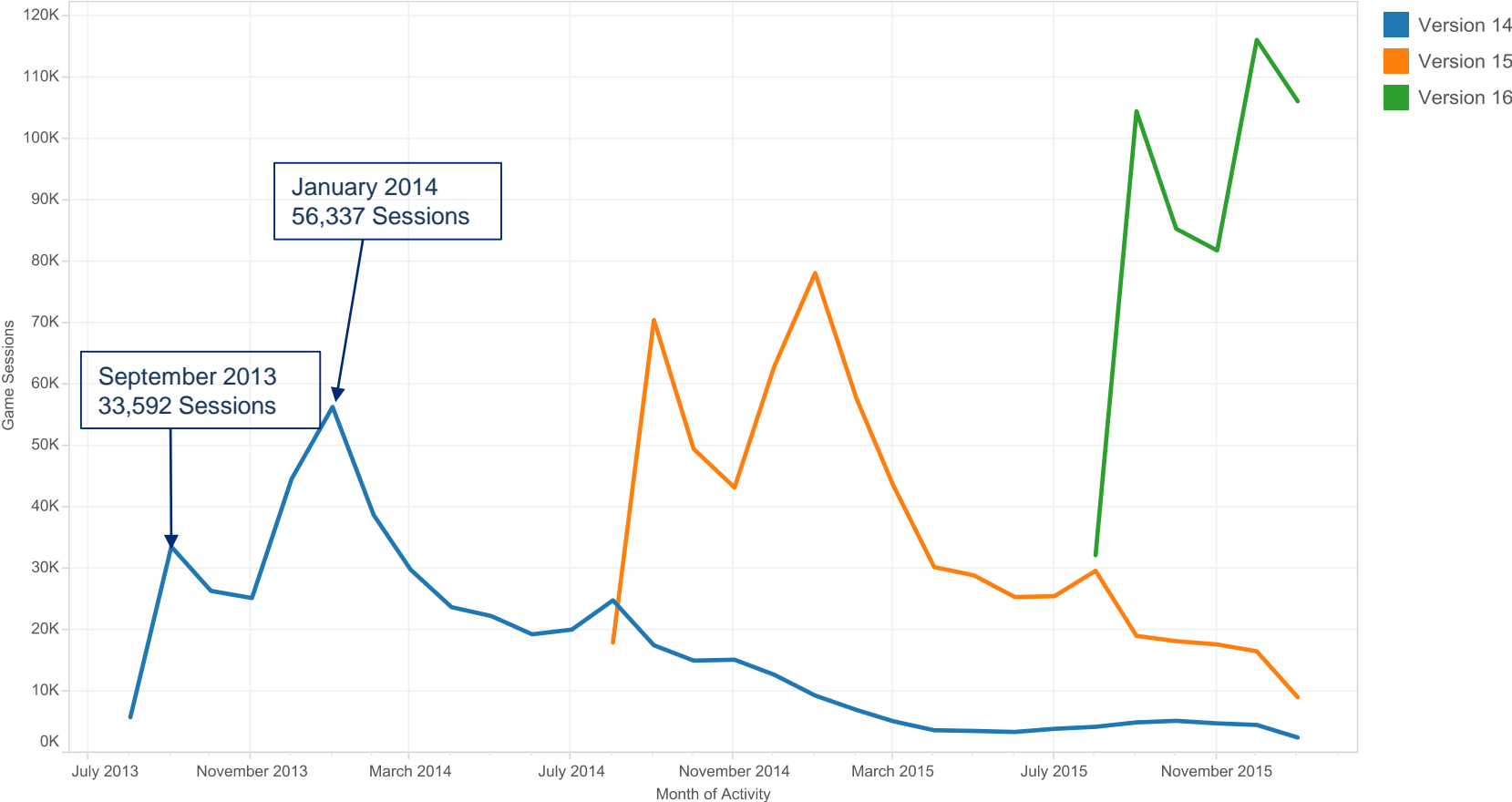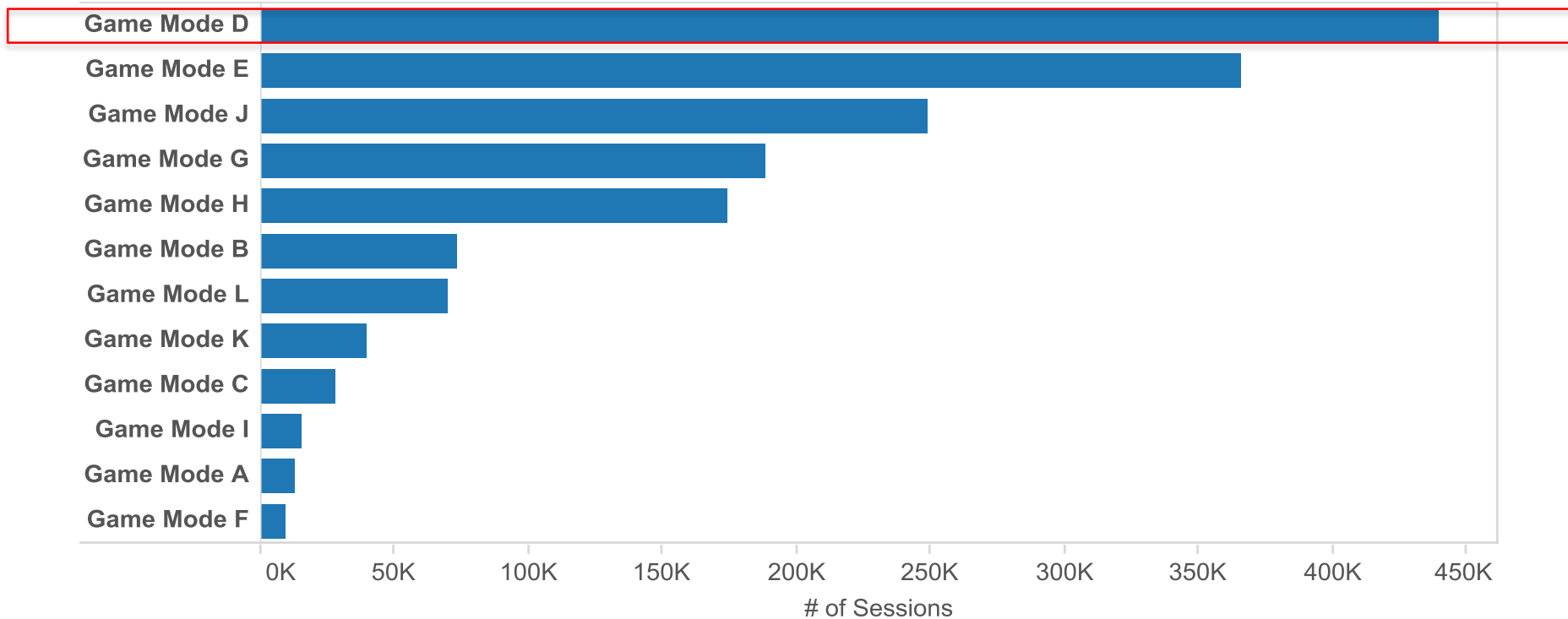
Version 14
Version 15
Version 16

Game Modes

Modes provide different options for how players will interact with the game.

- 44 distinct modes

- Some Examples include:
  - A mode to train specific areas
  - A mode to play head to head
  - A mode to coach your own franchise
  - A mode to watch highlights of other games
  - A mode where each player builds their own team

- In one game mode only, the optionally purchased card packs can be used to enhance the game

Sessions By Game Mode

All enhancement purchases are used in Game Mode D.

*Game modes have been changed and grouped into 12 main modes by WCAI.
*Details will be available to awarded researchers.

Sneak Peek: Session Data

We can see which version of the game Brandon is playing, as well as his game mode.

Plays "Game Version 14"

Plays "Game Mode A"

userID	Title	Activity_Date	Duration_Seconds	Game_Mode_Desc	Game_Type_Desc	Platform_Code
CSCVCCXDXD.	Game Version 14	2013-09-02	3263.0000	Game Mode C	Single-player	XBOX360
CDADADLEIE.	Game Version 14	2013-09-02	11287.0000	Game Mode A	Multi-player	XBOX360
CDADADLEIE.	Game Version 14	2013-09-04	2853.0000	Game Mode A	Multi-player	XBOX360
CDADADLEIE.	Game Version 14	2013-09-06	34619.0000	Game Mode B	Multi-player	XBOX360
CDADADLEIE.	Game Version 14	2013-09-07	8209.0000	Game Mode C	Multi-player	XBOX360
CDADADLEIE.	Game Version 14	2013-09-08	13278.0000	Game Mode C	Multi-player	XBOX360

Plays "Game Mode B"
Plays "Game Mode C"

*Game titles and game modes have been changed. Details will be available to awarded researchers.

Sneak Peek: Session Data

We can also see when Brandon changes his game console or game version.

Upgrades to "Game Version 15"

Upgrades to PS4

userID	Title	Activity_Date	Duration_Seconds	Game_Mode_Desc	Game_Type_Desc	Platform_Code
CDCVAYEDYE.	Game Version 14	2015-09-09	1659.0000	Game Mode F	Multi-player	XBOX One
CDADADLEIE.	Game Version 14	2015-09-13	63728.0000	Game Mode A	Multi-player	XBOX360
CDADADLEIE.	Game Version 14	2015-09-14	98320.0000	Game Mode A	Multi-player	PS4
CDADADLEIE.	Game Version 15	2015-09-17	5271.0000	Game Mode D	Multi-player	PS4

Plays "Game Mode D"

*Game titles and game modes have been changed. Details will be available to awarded researchers.

QUESTIONS

Data Structure
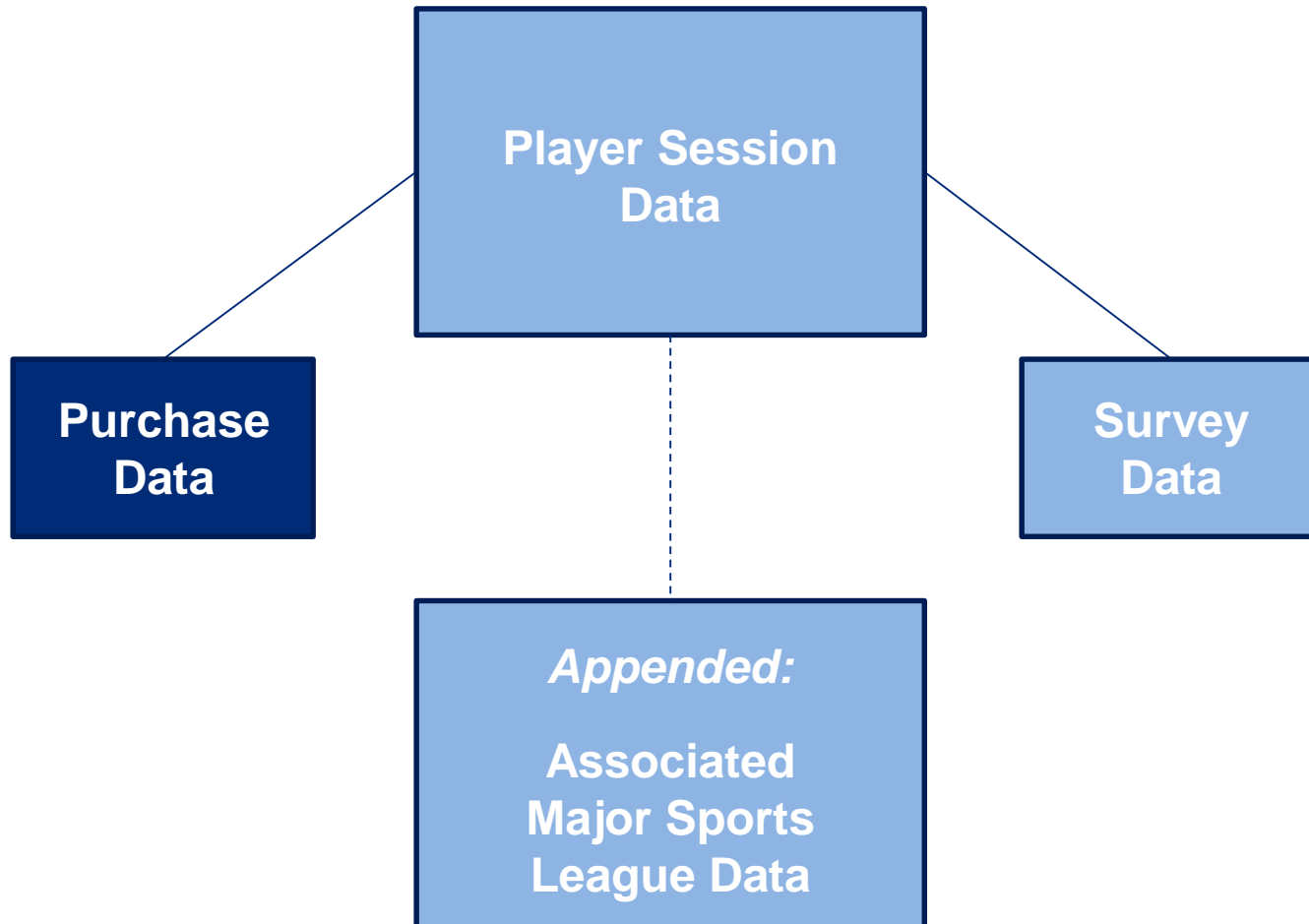
Observation Window: August 2013 – January 2016

Purchase Data

Over 90,000 Activations of New Game Purchases

- Unique ID for every player

- Date of activation

- Version of the Game purchased

*Purchase date and transaction amount are not available in the dataset.

Sneak Peek: Purchase Data

We can see every time Brandon activates a new version of the game.

Activates new versions of the game

userID	Grant_Title	Grant_Date
CAACSCSELC.	Game Version 14	2013-12-28
CDADADLEIE.	Game Version 11	2010-11-15
CDADADLEIE.	Game Version 12	2011-09-01
CDADADLEIE.	Game Version 13	2012-08-27
CDADADLEIE.	Game Version 14	2013-08-26
CDADADLEIE.	Game Version 15	2015-09-17

*Game titles have been changed. Details will be available to awarded researchers.

Purchase Data (cont.)

Players can optionally purchase enhancement features such as:

– Aesthetic Packs

– Team of the Week

– Bronze, Silver, and Gold Player Packs

Purchase Data (cont.)

Over 46,000 purchase incidences of enhancement packs for Game Mode D

- Unique ID for every player

- Date & Time of purchase

- Version of the Game used during purchase

- Game Console used to make purchase

Observation Window: August 2013 – January 2016

Sneak Peek: Purchase Data

We can also see when Brandon makes enhancement purchases.

Purchases coins for Game Mode D

| userID	Title	Platform_Code	Purchase_Timestamp
CDYLVIXIYV.	Game Version 14	XBOX360	2015-09-16 20:18:00
CDADADLEIE.	Game Version 15	PS4	2015-09-17 14:33:00
CDADADLEIE.	Game Version 15	PS4	2015-09-17 14:37:00
CDADADLEIE.	Game Version 15	PS4	2015-09-17 23:17:00
CDADADLEIE.	Game Version 15	PS4	2015-09-18 00:37:00
CDADADLEIE.	Game Version 15	PS4	2015-09-18 00:38:00

*Purchase amounts and content are not available in the dataset.

*Game titles have been changed. Details will be available to awarded researchers.
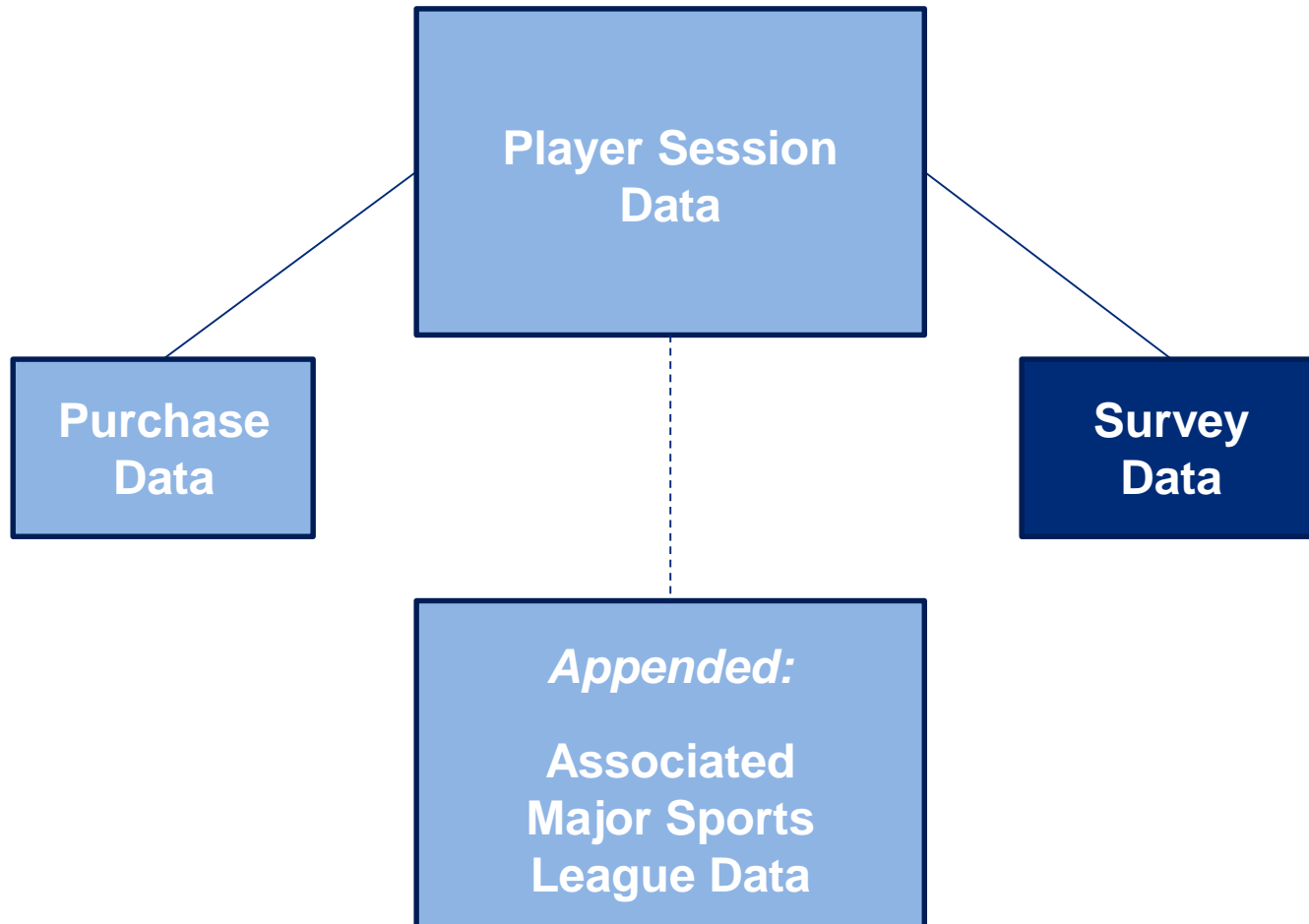
Enhancement Purchases Over Time By Game Version
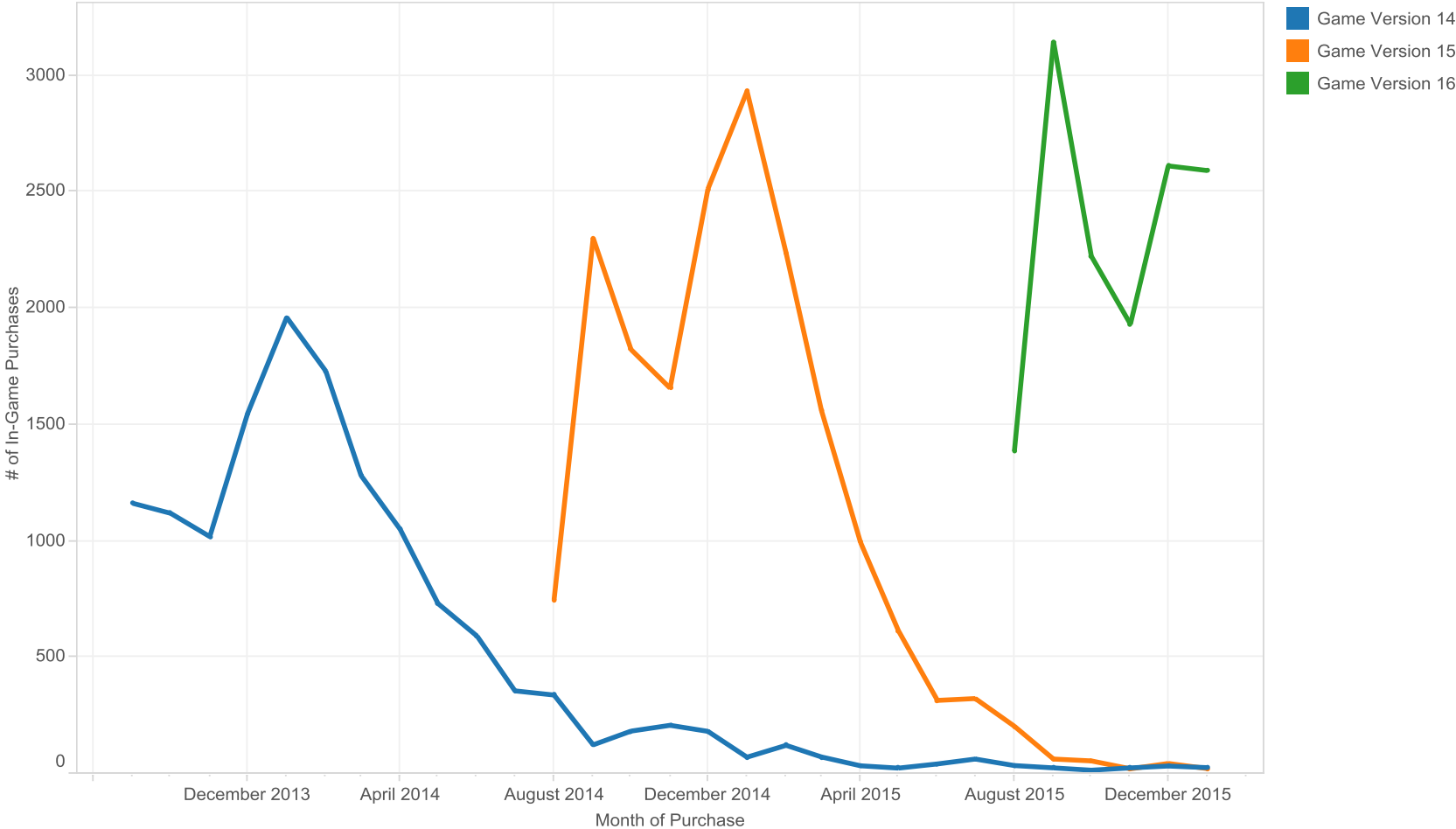
Enhancement Purchases Over Time By Game Version
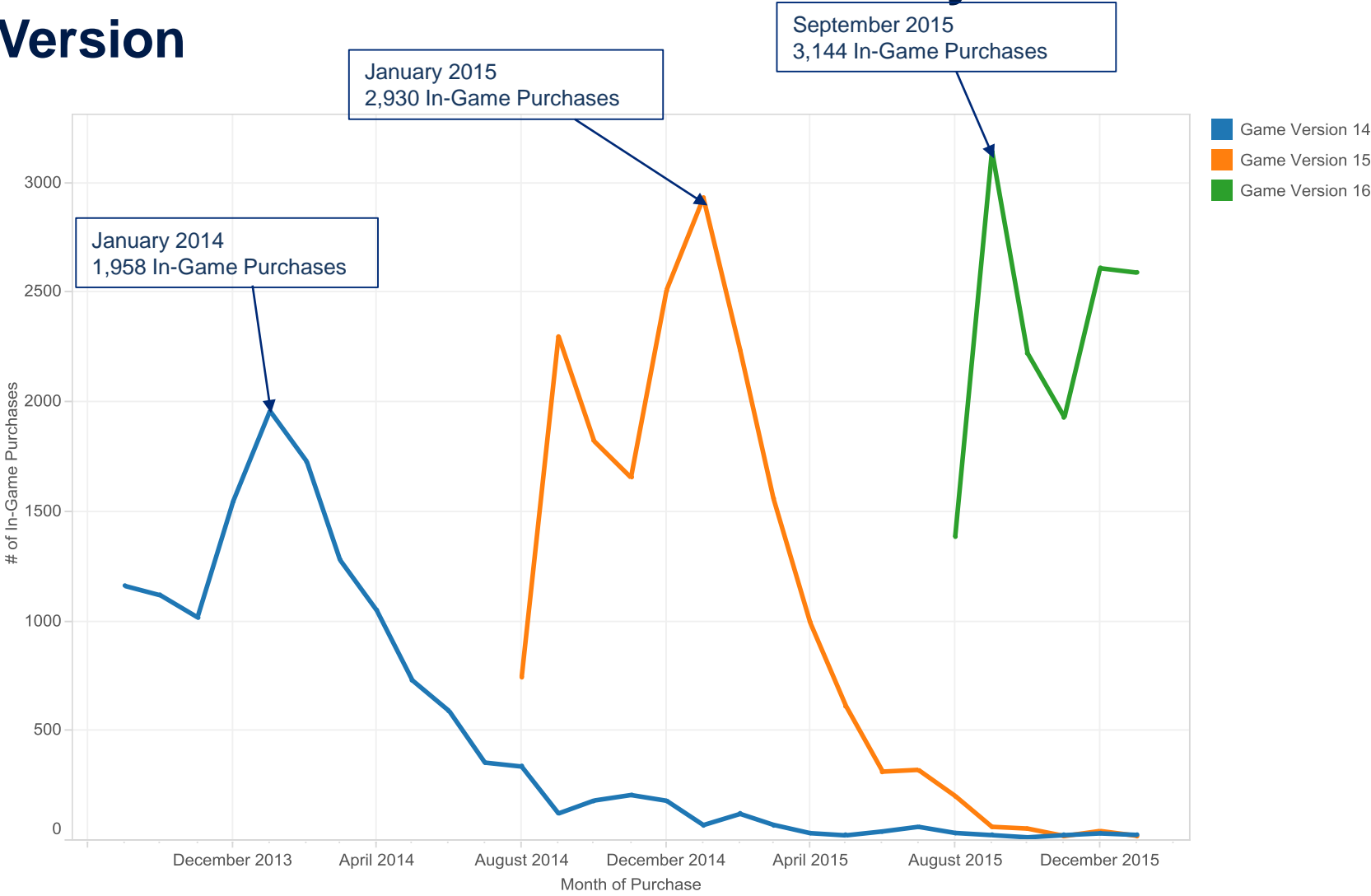
QUESTIONS

Data Structure

Observation Window: August 2013 – January 2016

Survey Data

Players can optionally submit Net Promoter Score and free-text survey response.

– Surveys are connected to game version

– Surveys go out to a random selection of players via email about four weeks post launch

– Surveys sent to another random selection of players quarterly thereafter

– Each Individual player will only receive the survey once

Survey Data

Over 2,300 individual survey responses

- Net Promoter Score

- Free-text feedback

- Game Version played

- Game Console used

Sneak Peek: Survey Data
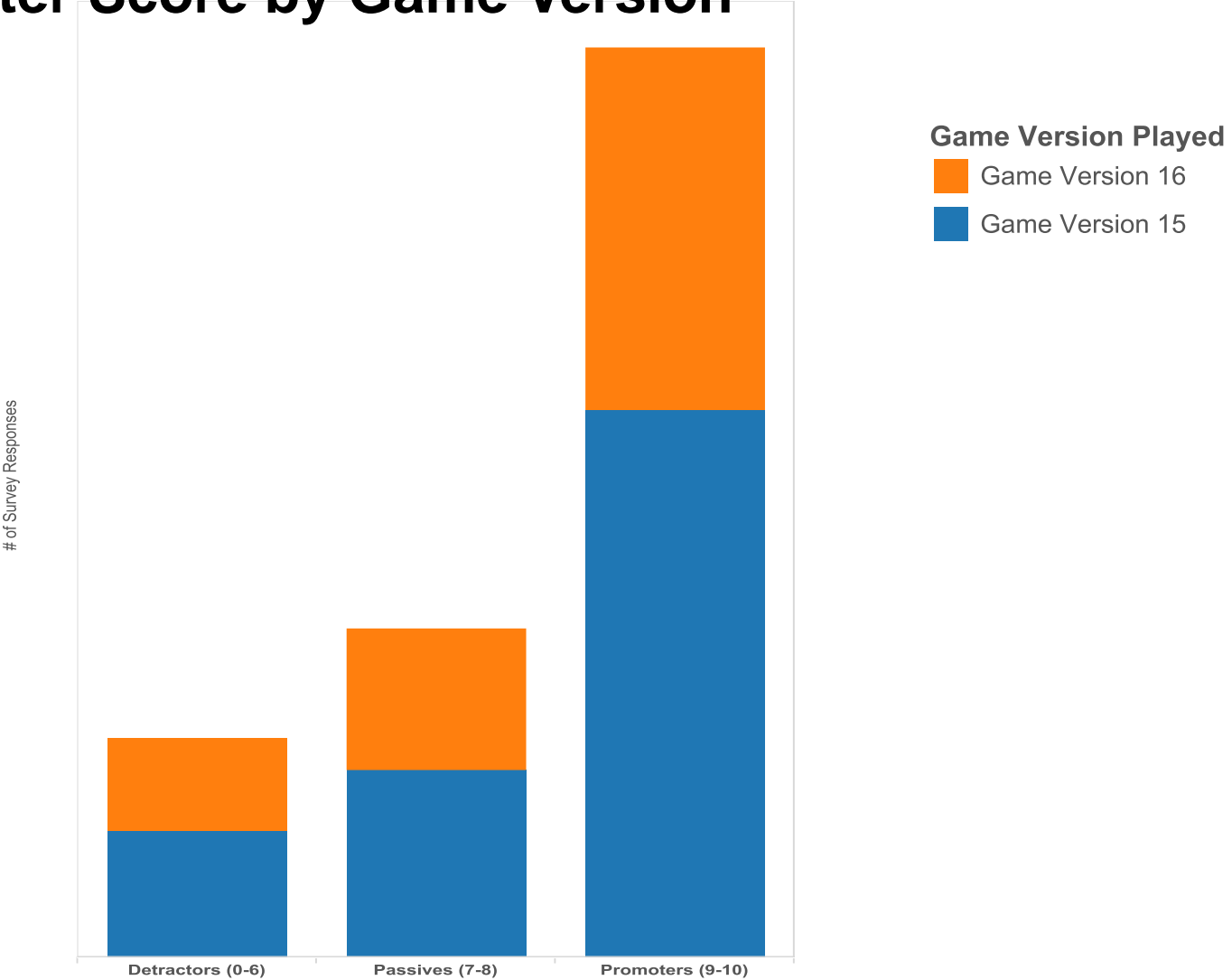
We can see if Brandon recommends the game … and why!

Net Promoter Score

Free-text feedback

| userID	Title	Platform_Code	NPS	Feedback
LVVVSLLAICCIE.	Game Version 15	PS4	6	Too many controls with not very good physics. Old version still better.
LVVLCYVLVIEYY.	Game Version 14	PS4	10	Because I like playing
CDADADLEIE.	Game Version 15	PS4	10	It's an amazing game
LVVLSVVDEYXLL.	Game Version 15	XBOX360	8	The new game version hasn't changed much
LVVLDDELXSVLA.	Game Version 14	XBOX One	10	Because good graphics
LVVVASDAXSDXC.	Game Version 14	PS4	10	Good game
LVVVCALLDXCYV.	Game Version 15	XBOX One	2	Too many glitches
CSLICVCELC.	Game Version 15	XBOX360	10	Because I love the game and truly enjoy it and I believe others will too

*Game titles have been changed. Details will be available to awarded researchers.

Net Promoter Score by Game Version

Game Version Played
- Game Version 16
- Game Version 15

# of Survey Responses

Detractors (0-6)　　Passives (7-8)　　Promoters (9-10)

*Only a sample of the survey data is represented. Game titles have been changed. Awarded teams will have access to the full dataset.

Net Promoter Score by Platform
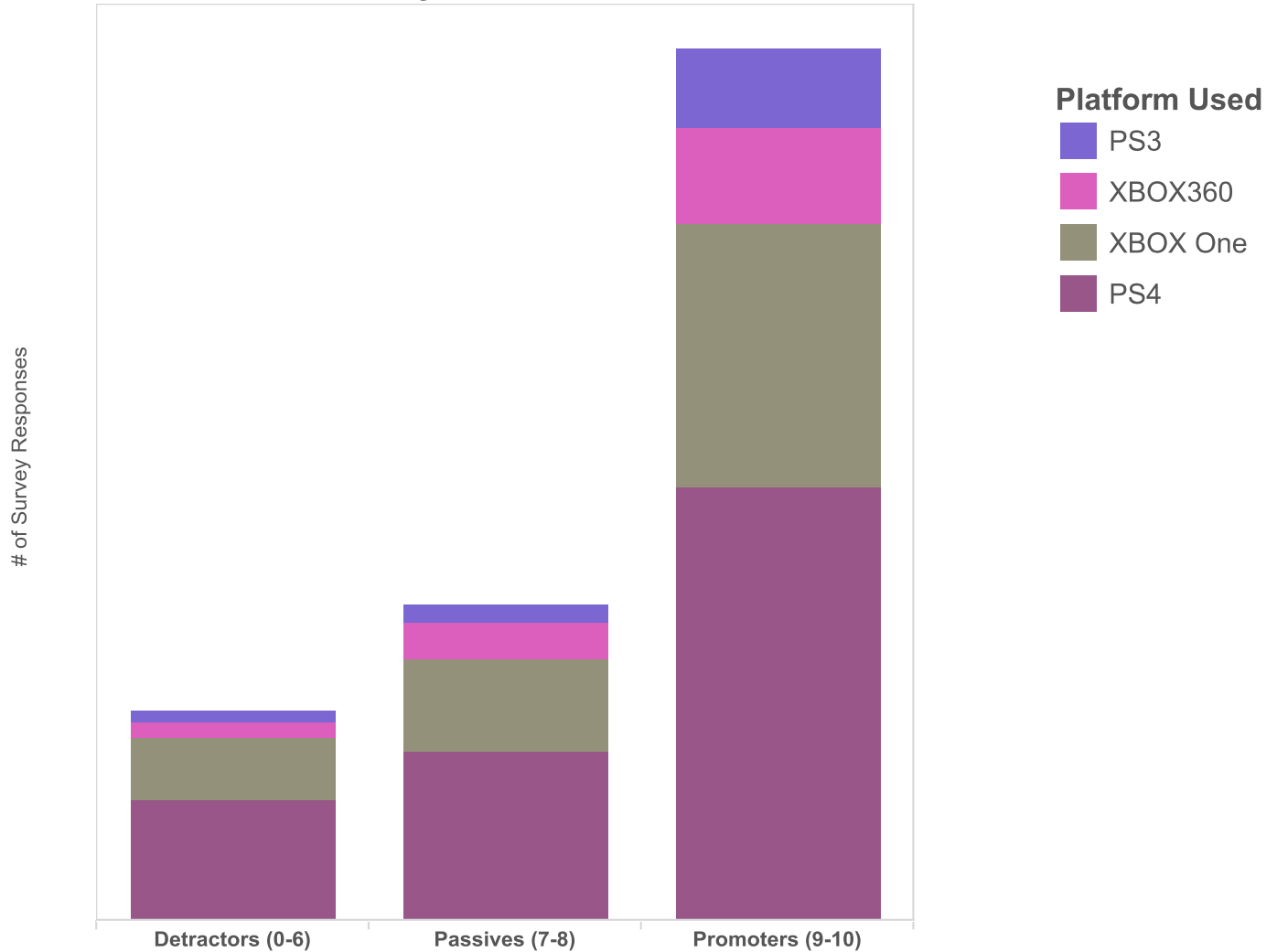
*Only a sample of the survey data is represented. Game titles have been changed. Awarded teams will have access to the full dataset.

Top 100 Words from Survey Text By Game Version
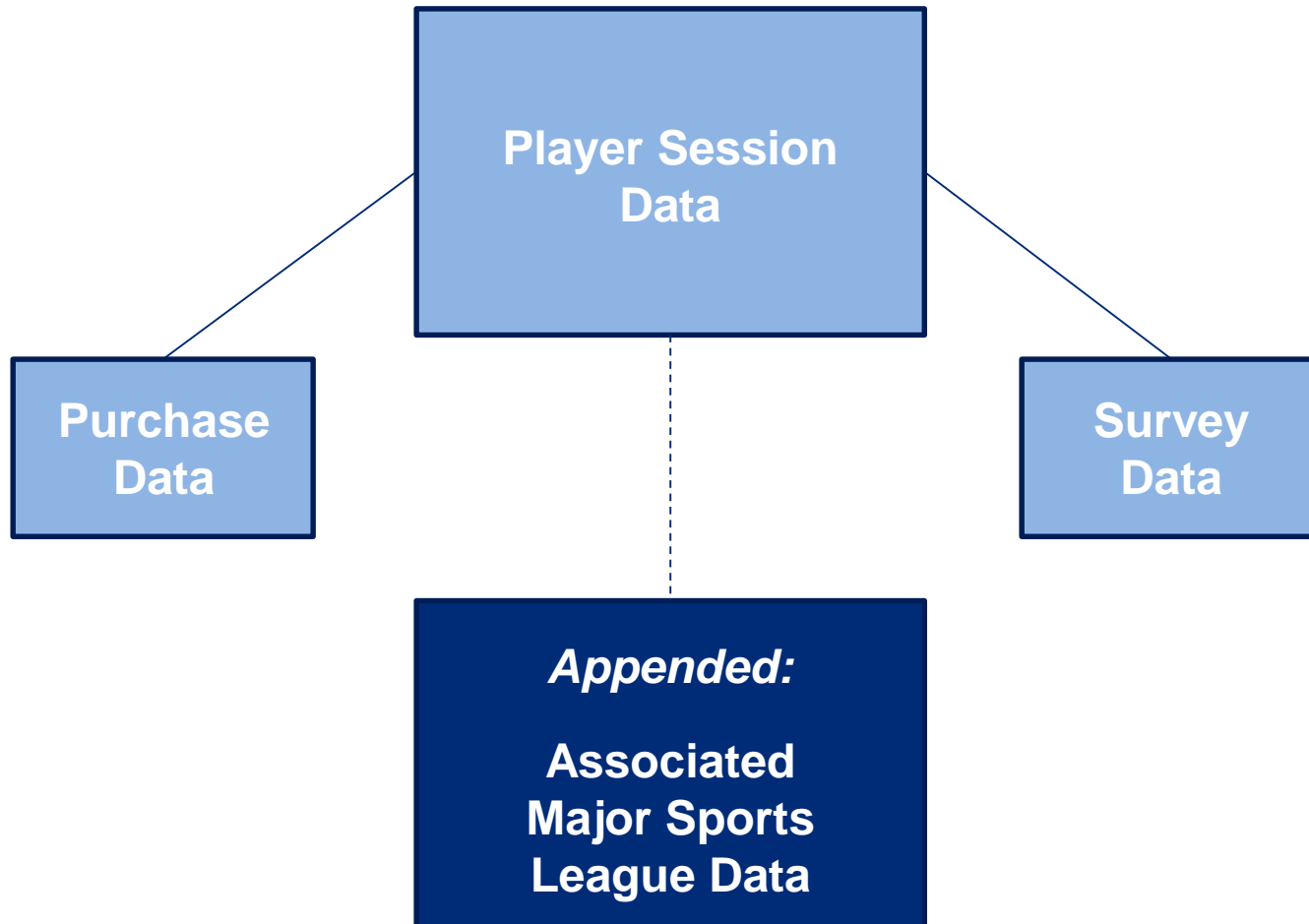

Game Version 15

Game Version 16

*Game titles have been changed. Details will be available to awarded researchers.

QUESTIONS

Data Structure

Observation Window: August 2013 – January 2016

Appended: Major Sports League Historical Data

Historical real-world game outcome data collected during the video game observation window
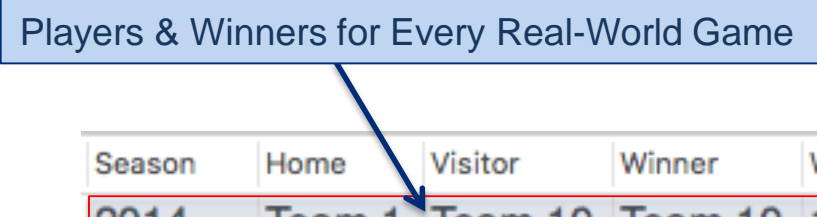
- Game season

- Names of teams who played the game

- Name of team who won the game

- Scheduled date & time of the game

Observation Window: August 2013 – January 2016

Sneak Peek: Major Sports League Historical Data

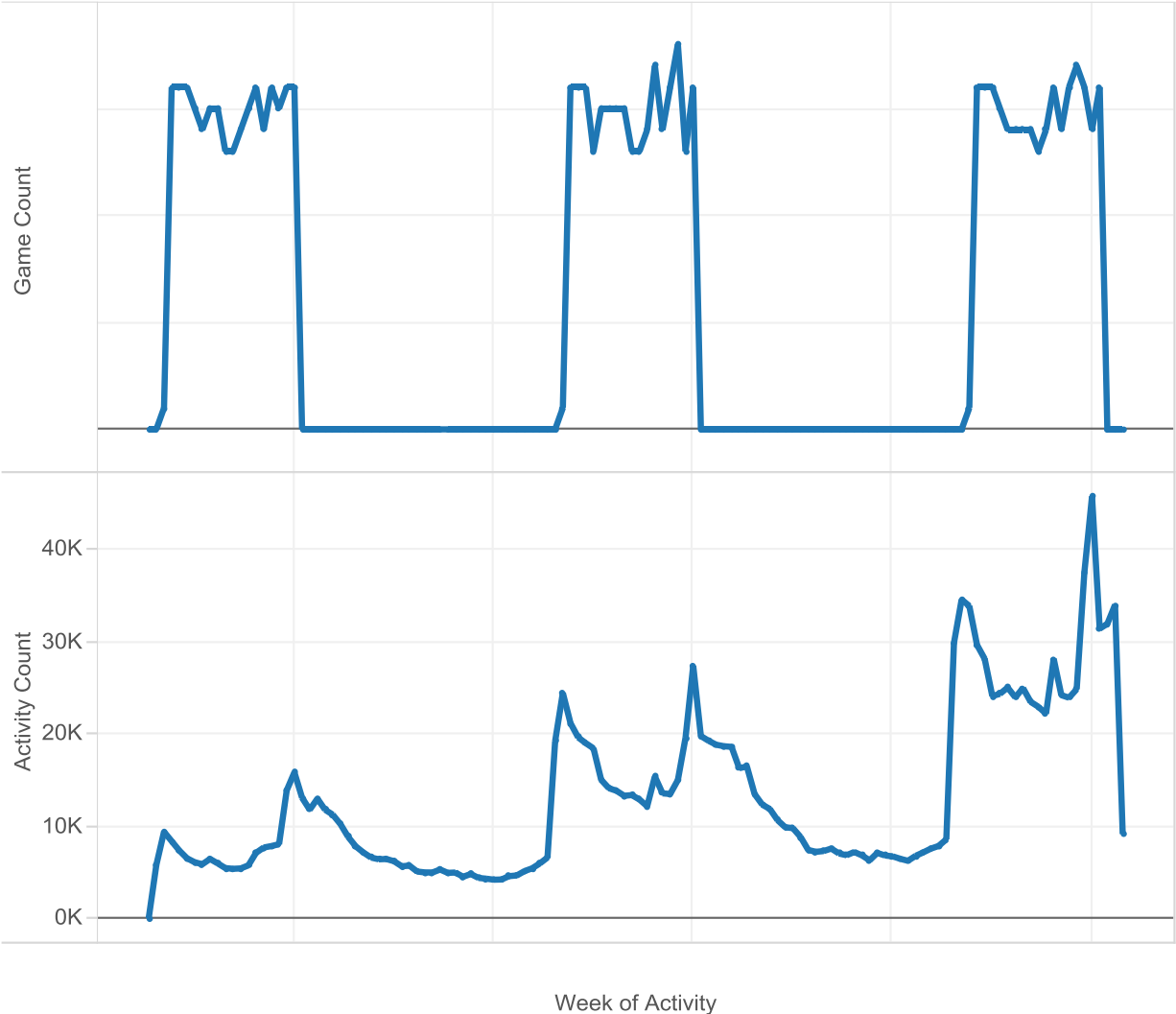We can see the real-world games taking place when Brandon played the video game.
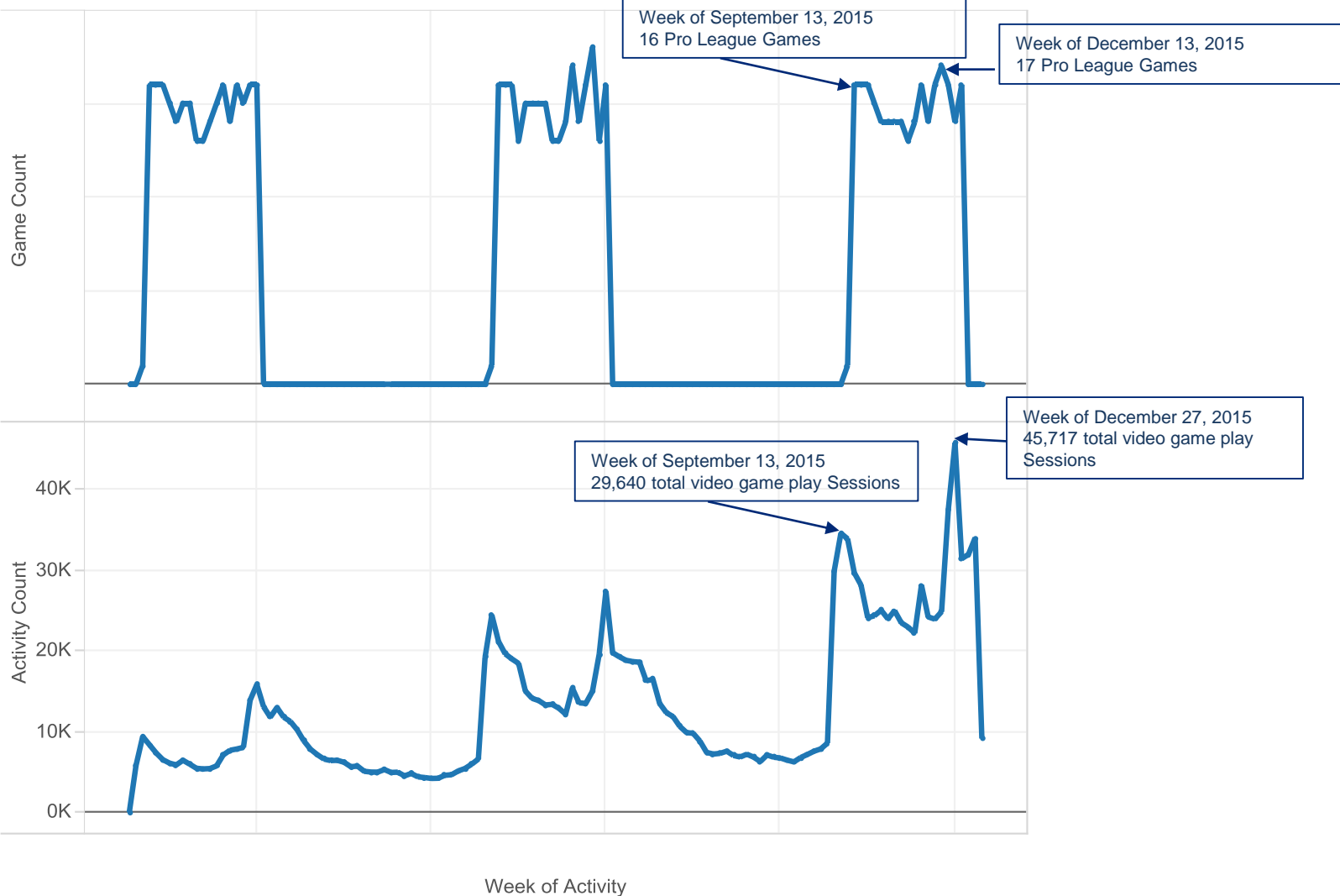
Players & Winners for Every Real-World Game

Season	Home	Visitor	Winner	Week	Game_DateTime
2014	Team 1	Team 10	Team 10	1	2014-09-04 12:32:00
2014	Team 2	Team 11	Team 11	5	2014-09-07 13:29:00
2014	Team 3	Team 12	Team 3	5	2014-09-13 14:06:00
2014	Team 4	Team 13	Team 4	7	2014-10-22 18:52:00
2014	Team 5	Team 14	Team 5	7	2014-10-29 08:01:00
2014	Team 6	Team 15	Team 15	7	2014-11-02 13:09:00
2014	Team 7	Team 16	Team 16	9	2014-11-18 21:17:00
2014	Team 8	Team 17	Team 17	10	2014-11-19 23:48:00
2014	Team 9	Team 18	Team 18	11	2014-11-27 19:19:00

* Team names and Game Date & Times have been changed. Details will be available to awarded researchers.

Professional League Season vs. Session Volume

Professional League Season vs. Session Volume

Week of September 13, 2015
16 Pro League Games

Week of December 13, 2015
17 Pro League Games

Week of December 27, 2015
45,717 total video game play Sessions

Week of September 13, 2015
29,640 total video game play Sessions

Game Count

Activity Count

40K

30K

20K

10K

0K

Week of Activity

QUESTIONS

Possible Research Areas

- Exploring the interplay between game play and version upgrades for a major sports video game series

- Predicting the future of game version upgrades and purchase incidences of enhancement packs

- Gauging game player satisfaction from NPS, free-form text feedback and game play session data

- Identifying changes in play style and purchase cadence across different versions of the game and in relation to a professional sports league schedule

- Game console adoption and its effect on usage, purchase incidence, and play behavior

- Estimating the likelihood to purchase game versions and enhancements packs based on early life sessions

- *Something else not on this list!*

Proposal Format

Proposals should be in PDF format, no more than 2,000 words, and include the following information:

- **Title**

- **Author(s) name, title, affiliation and e-mail address:** Please designate a corresponding author.

- **Summary information:** a single "slide" that visually summarizes team & project.

- **Abstract**

- **Introduction:** Describe expected contribution(s), covering both the academic and practical aspects. Please keep it concise, and cite relevant work as necessary to explain your academic contribution. There is no need to include a lengthy literature review.

- **Detailed project proposal:** Please include enough detail that we can assess the feasibility & merit of the proposed approach. For example, modeling projects should include at least a sketch of the model. In addition, include a rough estimate of how long the project will take. Also include the business relevance of your research and the impact for the sponsor as well.

- **Data Needs:** Bulleted list of data required or requested for analysis not explicitly mentioned during this webinar. While we can't guarantee the inclusion of these items, we are happy to investigate the availability.

- **Biographies:** Include up to a paragraph-long biography highlighting what each team member will contribute to the project. **Gaming experience is a plus!**

Proposal Submission Process

- **Read more about the proposal format and Submit Proposals here:http://wcai.wharton.upenn.edu/for-researchers/get-the-data/**

  No later than Monday, April 4, 2016, 12 noon US Eastern

  - **Proposals will only be accepted online**

  - **A single PDF combining the written portion and the single slide**

- **Proposals will be evaluated both on academic contribution and potential to significantly improve the research sponsor's marketing practice by the proposal review committee:**

  Eric Bradlow (WCAI), Pete Fader (WCAI), Elea Feit (Drexel University), Paulo Albuquerque (INSEAD), Hema Yoganarasimhan (University of Washington) and representatives from the Corporate Sponsor of this dataset

- **Contact wcai-research@wharton.upenn.edu, if you have questions prior to submitting your proposal.**

Other WCAI Opportunities for Researchers

If you registered for this webinar, you will receive regular announcements regarding:

- **Upcoming Research Opportunities:**

  - **Predicting the Future Lifetime Value of Financial Advisors for a Fortune 500 Financial Services Company**

  - **Understanding the Past, Present, and Future Economic Behaviors of Customers and the Evolution of their Adoption of Financial Products Over Time**

Also find us at:

- **SSRN Research Paper series:**
  http://www.ssrn.com/link/Wharton-Cust-Analytics-Initiative-RES.html

- **Sign up for updates: http://wcai.wharton.upenn.edu/newsletter/**