AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

BSI201

Self-service analytics for everyone with ML-powered Amazon QuickSight Q

Tracy Daugherty
Director, Amazon QuickSight
AWS

Michael Chi
Director, Technology of
Next Gen Stats
NFL

Mike Band
Research and Analytics Lead
Next Gen Stats
NFL

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.


Water, water everywhere,
not a drop to drink

Deluge of data

More data has been created in the last two years than in all of history

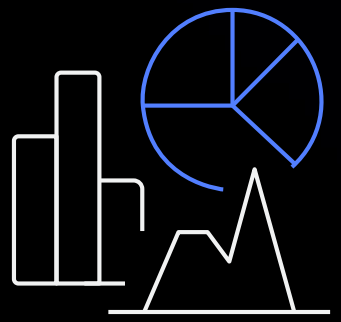


Without insights, what good is data?

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Fostering a data-driven culture

EVERY SINGLE USER SHOULD HAVE ACCESS TO THE DATA IN AN EASY-TO-USE FORM



Easy data analysis w/o SQL

Interactive dashboarding

Embedded analytics

+

Natural Language Query

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

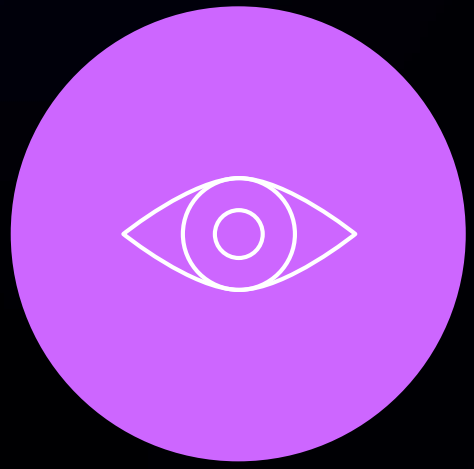
Amazon QuickSight

SCALABLE, EMBEDDABLE, ML-POWERED BI SERVICE BUILT FOR THE CLOUD



BI at scale

Easily scale from tens to hundreds of thousands of users without servers and with pay-per-use pricing



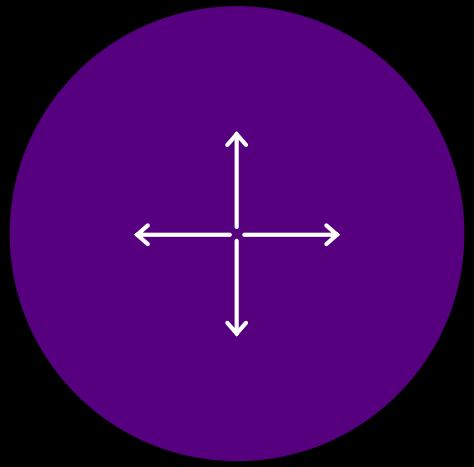
Embedded analytics

Quickly embed dashboards in your apps with rich API support and multi-tenancy



ML Insights

Leverages Amazon's expertise in ML with built-in anomaly detection, forecasting, and auto-narratives



Enterprise ready

High availability, security, access control, and easy connectivity to your data wherever it may be

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon QuickSight Q

Ask natural language questions about your data
and get answers in seconds



aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Challenges



Hi Dan. I'm trying to compare sales trend in California vs New York this year, but I couldn't find it in the dashboard. Can you help pull this number for me real quick?

Hey Amy, how's it going. Can you cut a ticket please and we'll add it to our backlog.





I kind of need it urgently for a quarter planning meeting tomorrow. When do you think you can get to it?

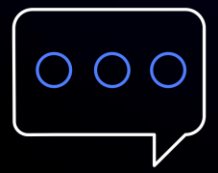
I'm in the middle of a sprint to onboard another team. Also have a long backlog of ad-hoc request. Probably towards end of next week.



aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Key benefits



Natural language questions

Ask questions in plain business language – no need to learn any syntax



Get instant answers

Get answers instantly to one-time questions not found in your dashboards



Ask about all of your data

No need to specify a particular dataset or dashboard to ask question



Get started in minutes

Get started with your existing datasets just a few clicks

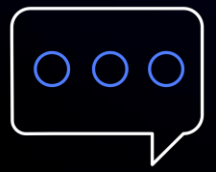


Know what users want

Understand the exact questions and insights users are looking for

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Data-driven culture with Q



Natural language questions

Ask questions in plan business language – no need to learn any syntax



Get instant answers

Get answers instantly to one-time questions not found in your dashboards



Ask about all of your data

No need to specify a particular dataset or dashboard to ask question



Know what users want

Understand the exact questions and insights users are looking for

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Challenges we tackle

There are infinite different ways you can ask this same question!

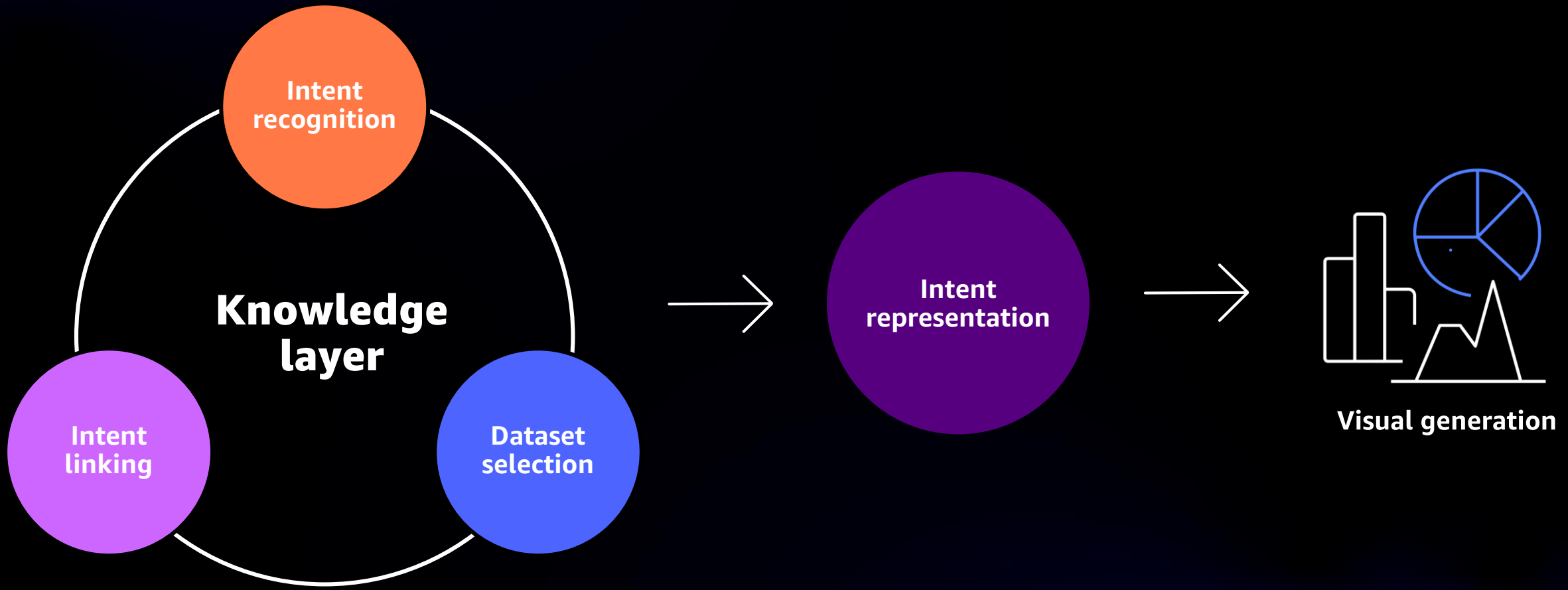
"Show me weekly revenue week over week for California compared to New York in 2020"

Data is cryptic, dirty and overlapping; how do we identify the right data to query?

Daily_rpt	*wk_rpt_w_goals*	*Daily_rpt_customer*
snapshot_date	snapshot_date_wk	snapshot_date
state	rev_gross	state
rev_gross	rev_net	rev_gross
rev_net	goal_net	rev_net

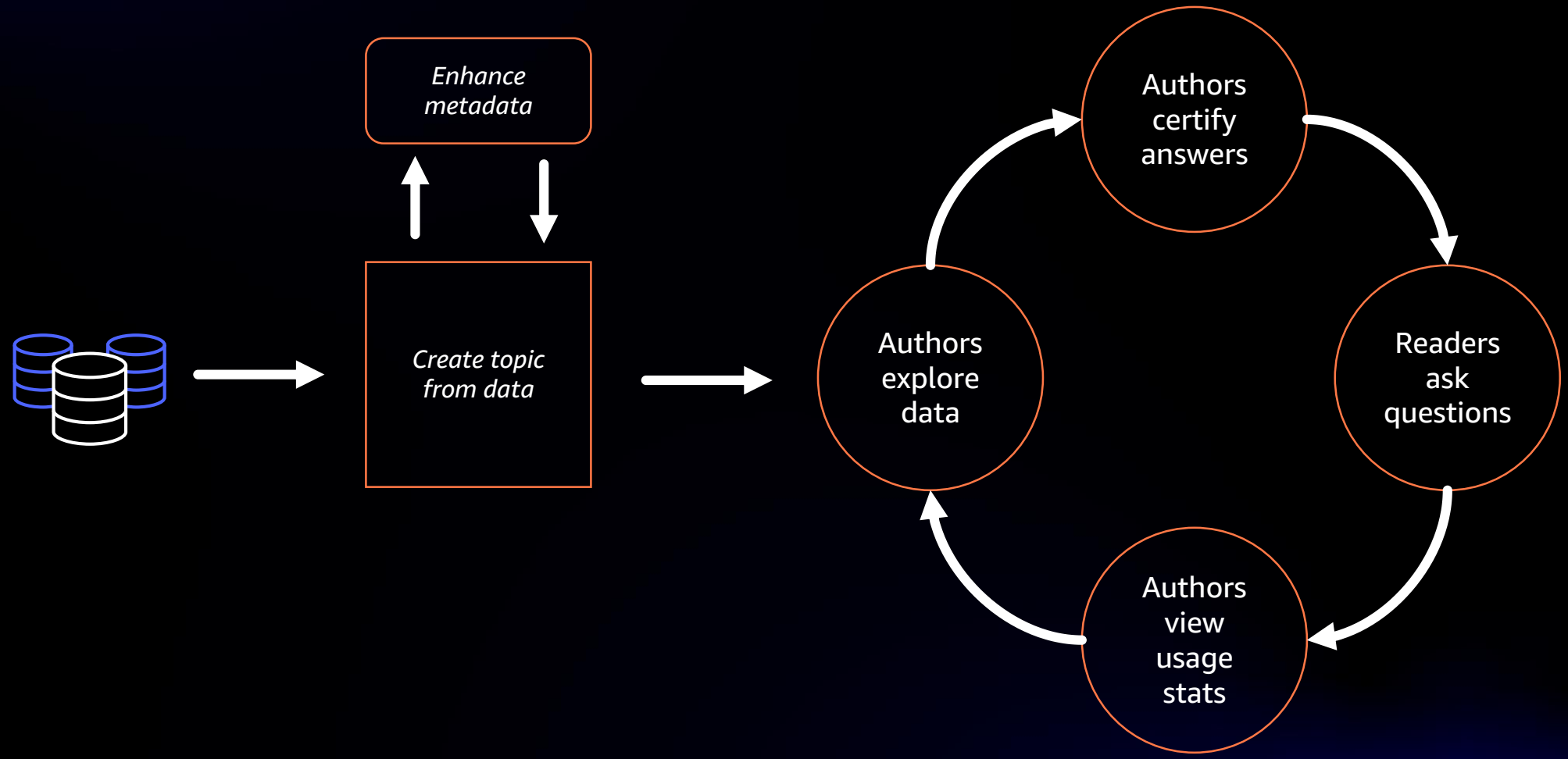
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

How does it work?



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

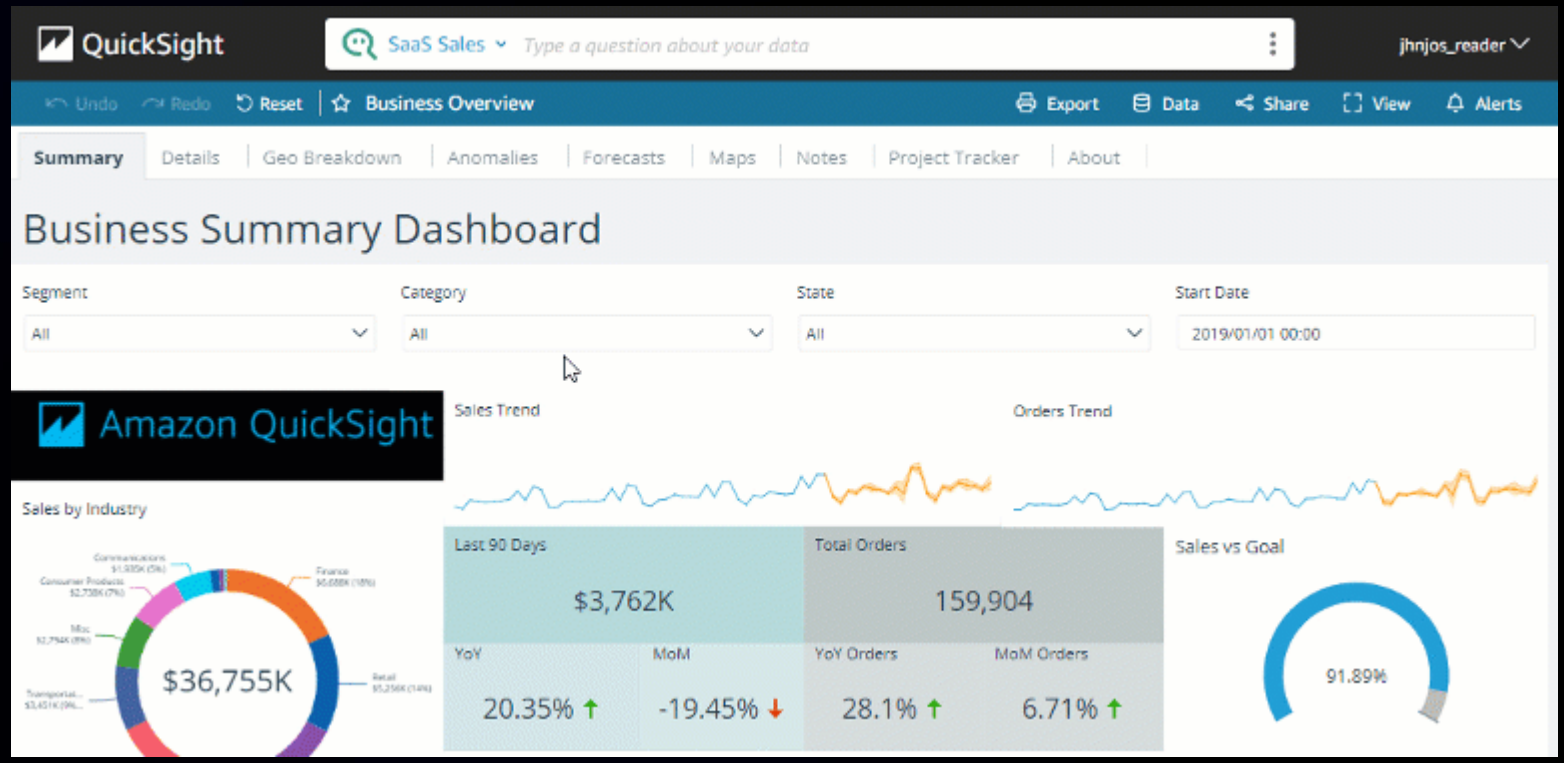
NLQ feedback loop in BI



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Readers

- Ask questions
- Get answers
- Interact with answers
- Feedback

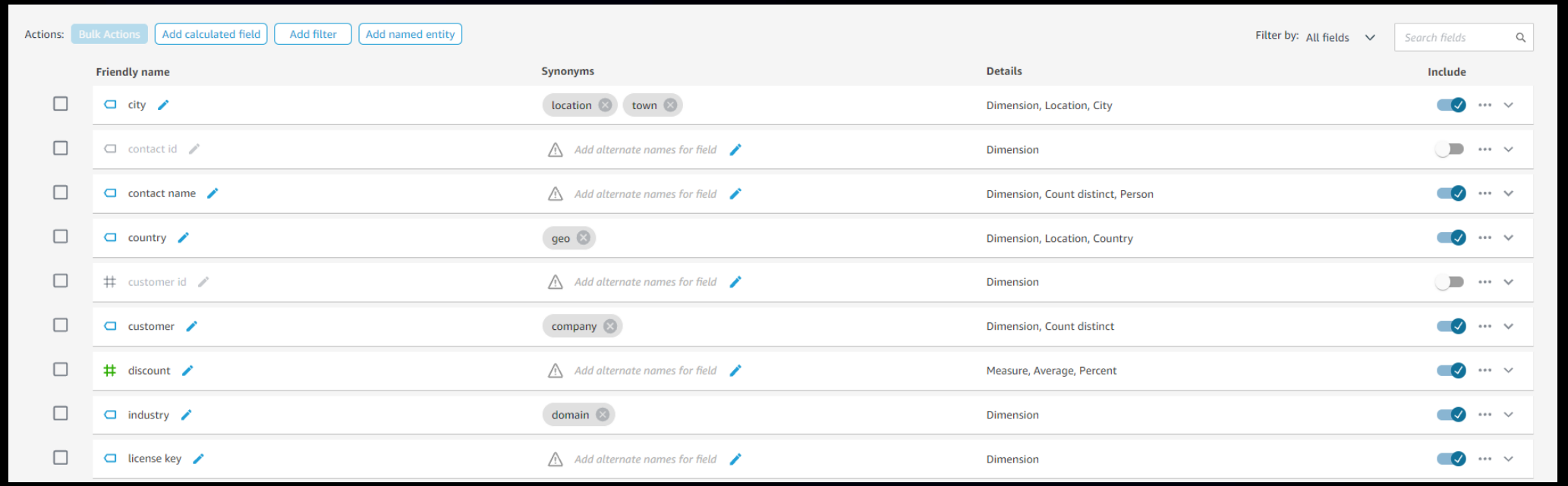


Go beyond what's presented on the dashboard

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Authors

Curate topics with business language and semantics

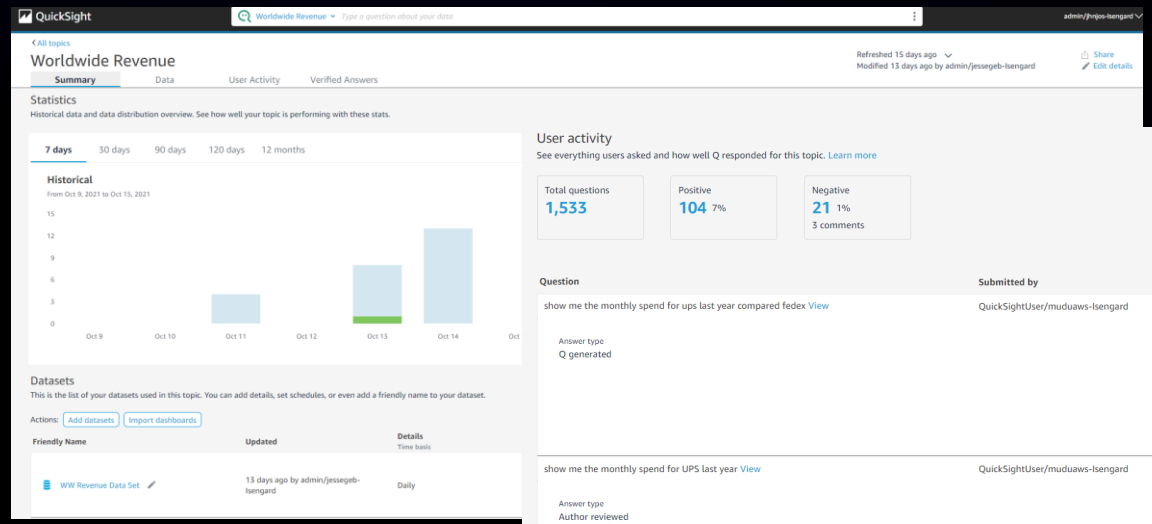


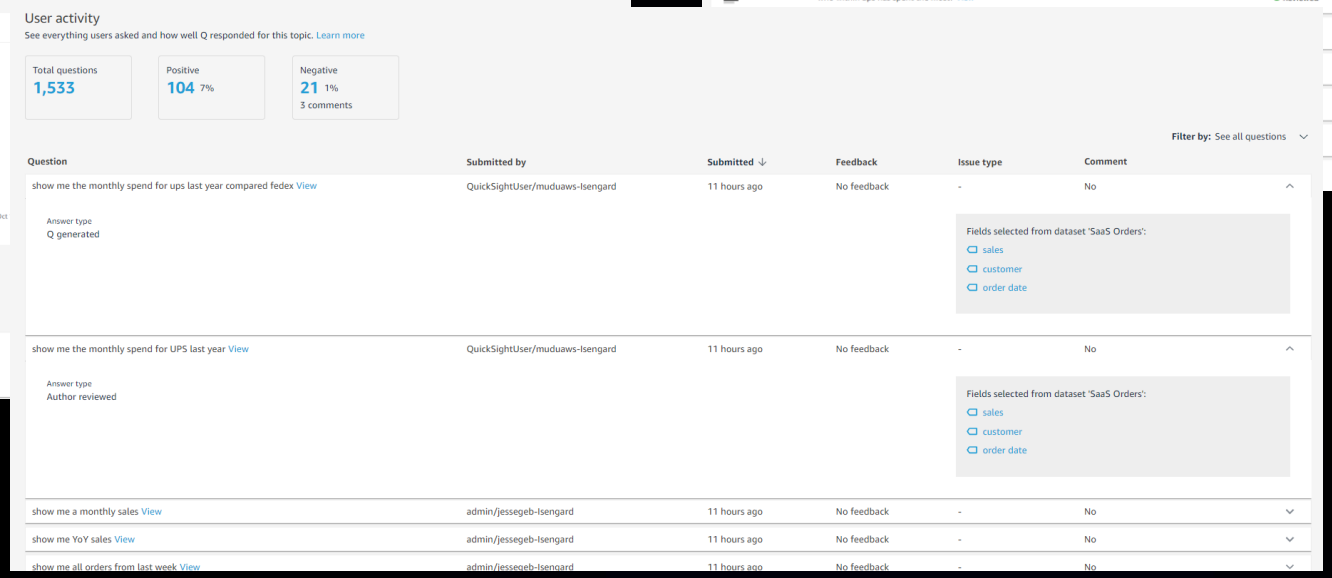
Add domain-specific or organizational language to Q

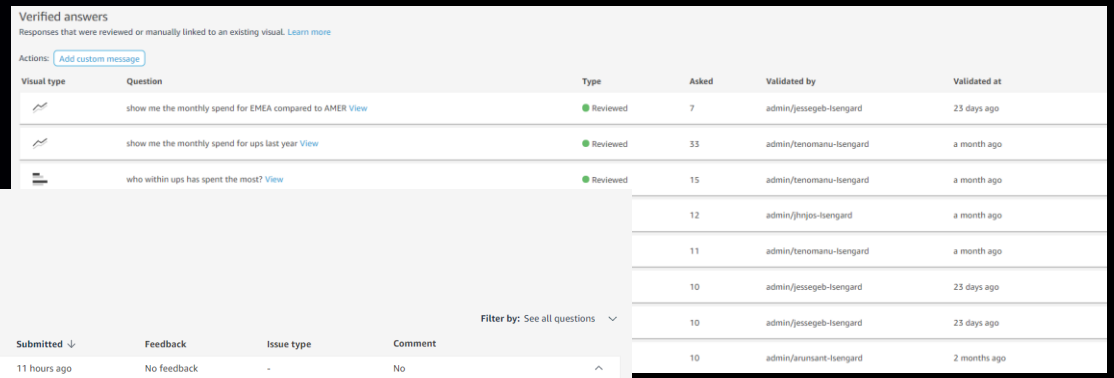
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Authors

Detailed usage analytics



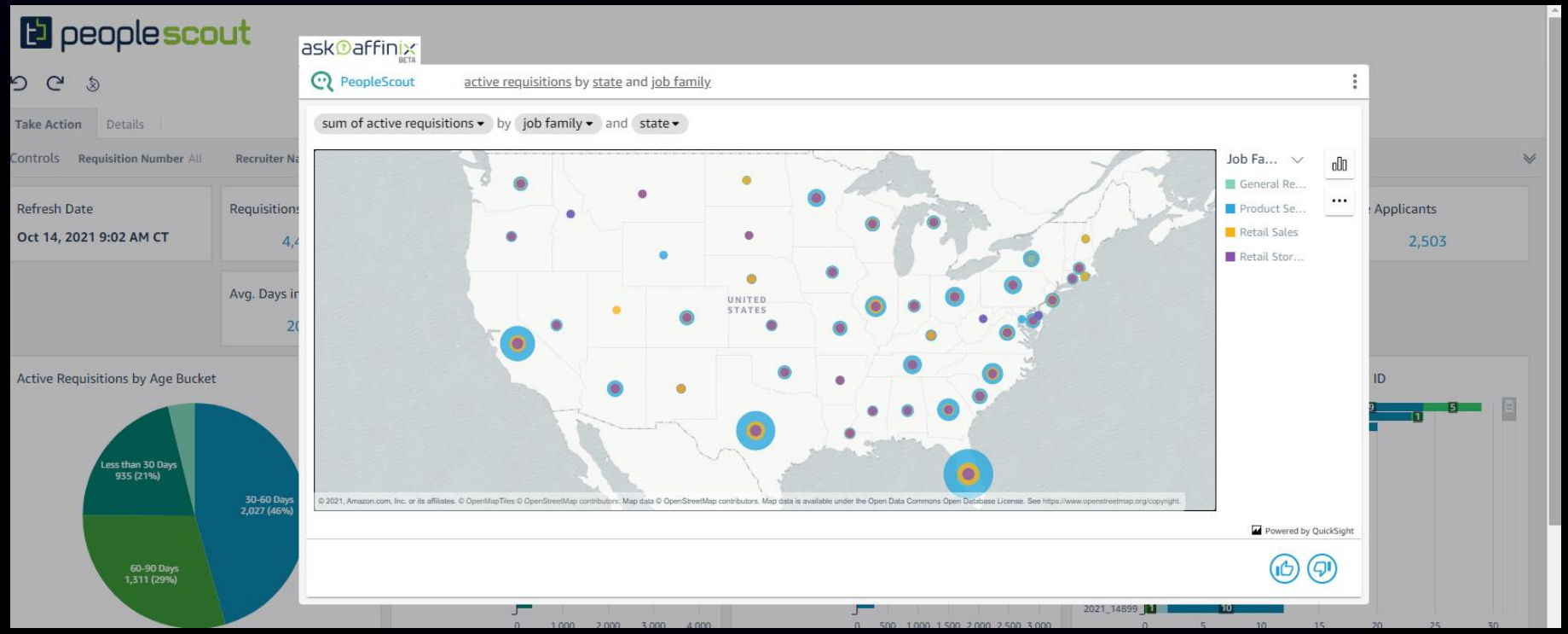




Know exactly what end users are looking for

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Developers



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

NFL Next Gen Stats powered by Amazon QuickSight Q

Michael Chi
Director, Technology of Next Gen Stats
NFL

Mike Band
Research and Analytics Lead, Next Gen Stats
NFL

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Introduction to the National Football League



















aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Introduction to NFL Next Gen Stats



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

What is NFL Next Gen Stats?

NEXT GEN STATS powered by aws

WE CAPTURE

NFL player tracking, also known as Next Gen Stats, is the capture of real-time location data, speed, and acceleration for every player on every play for every inch of the field using RFID tags and sensors installed in every stadium where NFL games are played



WE PROCESS

Our team manages the real-time data stream of raw coordinate data that feeds through a “stat-generation” pipeline, which gets saved to a database only seconds after every play

WE DISTRIBUTE

The Next Gen Stats toolbox consists of hundreds of advanced statistics derived from tracking data used by all 32 NFL clubs, football operations, game broadcasters, and media partners alike

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

What is NFL Next Gen Stats?

WE CAPTURE

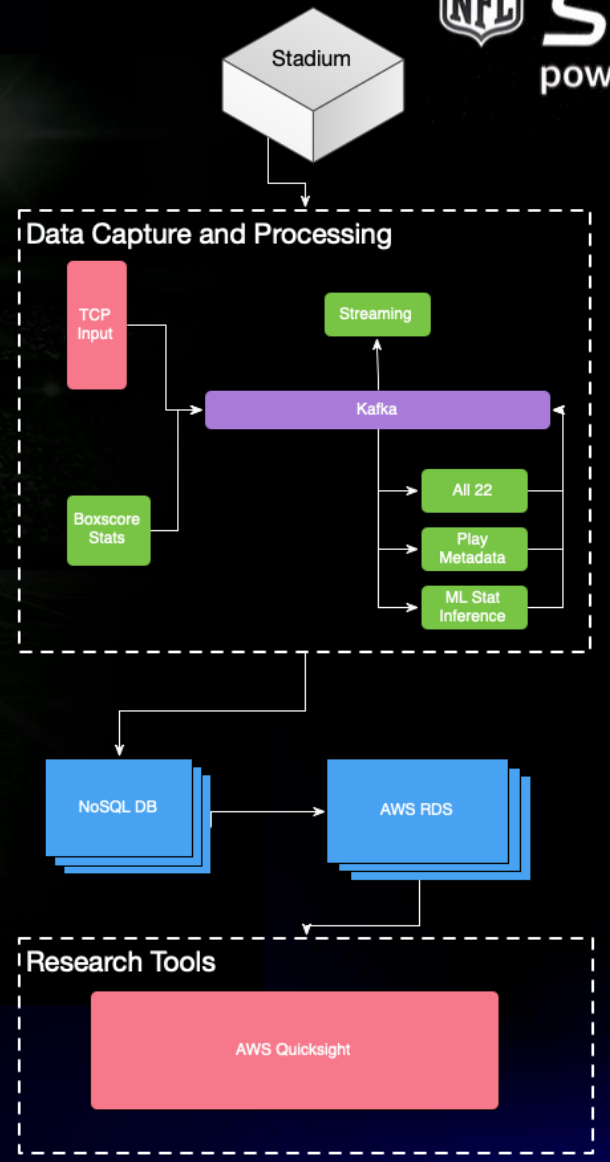
NFL player tracking, also known as Next Gen Stats, is the capture of real-time location data, speed, and acceleration for every player on every play for every inch of the field using RFID tags and sensors installed in every stadium where NFL games are played

WE PROCESS

Our team manages the real-time data stream of raw coordinate data that feeds through a “stat-generation” pipeline, which gets saved to a database only seconds after every play

WE DISTRIBUTE

The Next Gen Stats toolbox consists of hundreds of advanced statistics derived from tracking data used by all 32 NFL clubs, football operations, game broadcasters, and media partners alike



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

What is NFL Next Gen Stats?

NEXT GEN STATS powered by aws

WE CAPTURE

NFL player tracking, also known as Next Gen Stats, is the capture of real-time location data, speed, and acceleration for every player on every play for every inch of the field using RFID tags and sensors installed in every stadium where NFL games are played

WE PROCESS

Our team manages the real-time data stream of raw coordinate data that feeds through a “stat-generation” pipeline, which gets saved to a database only seconds after every play

WE DISTRIBUTE

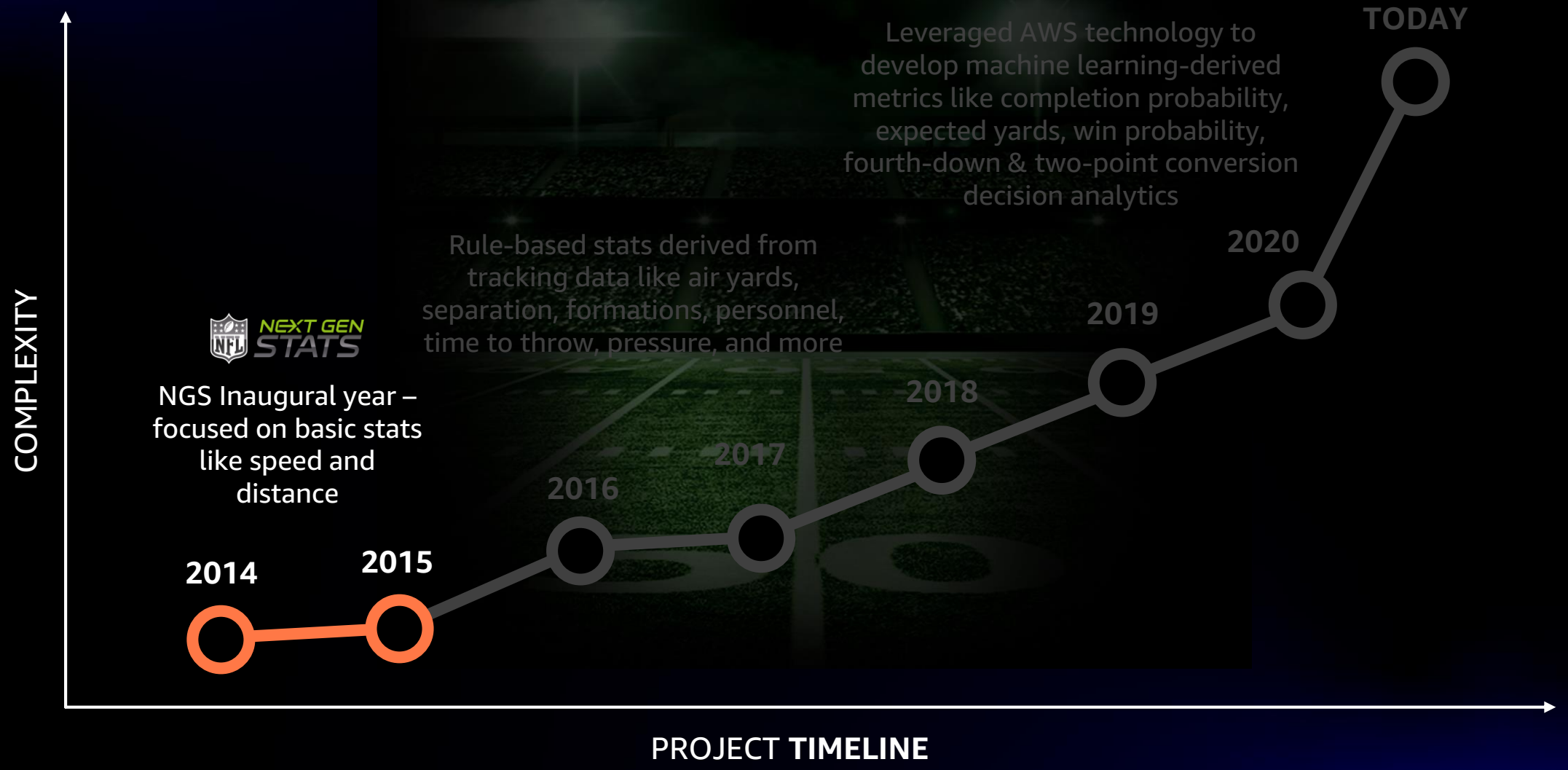
The Next Gen Stats toolbox consists of hundreds of advanced statistics derived from tracking data used by all 32 NFL clubs, football operations, game broadcasters, and media partners alike

NFL NETWORK · ESPN · NFL REDZONE From NFL NETWORK · SUNDAY NIGHT FOOTBALL · NFL CBS · THURSDAY NIGHT FOOTBALL FOX prime video · NICKELODEON · MADDEN NFL · ZEBRA · Genius SPORTS

aws

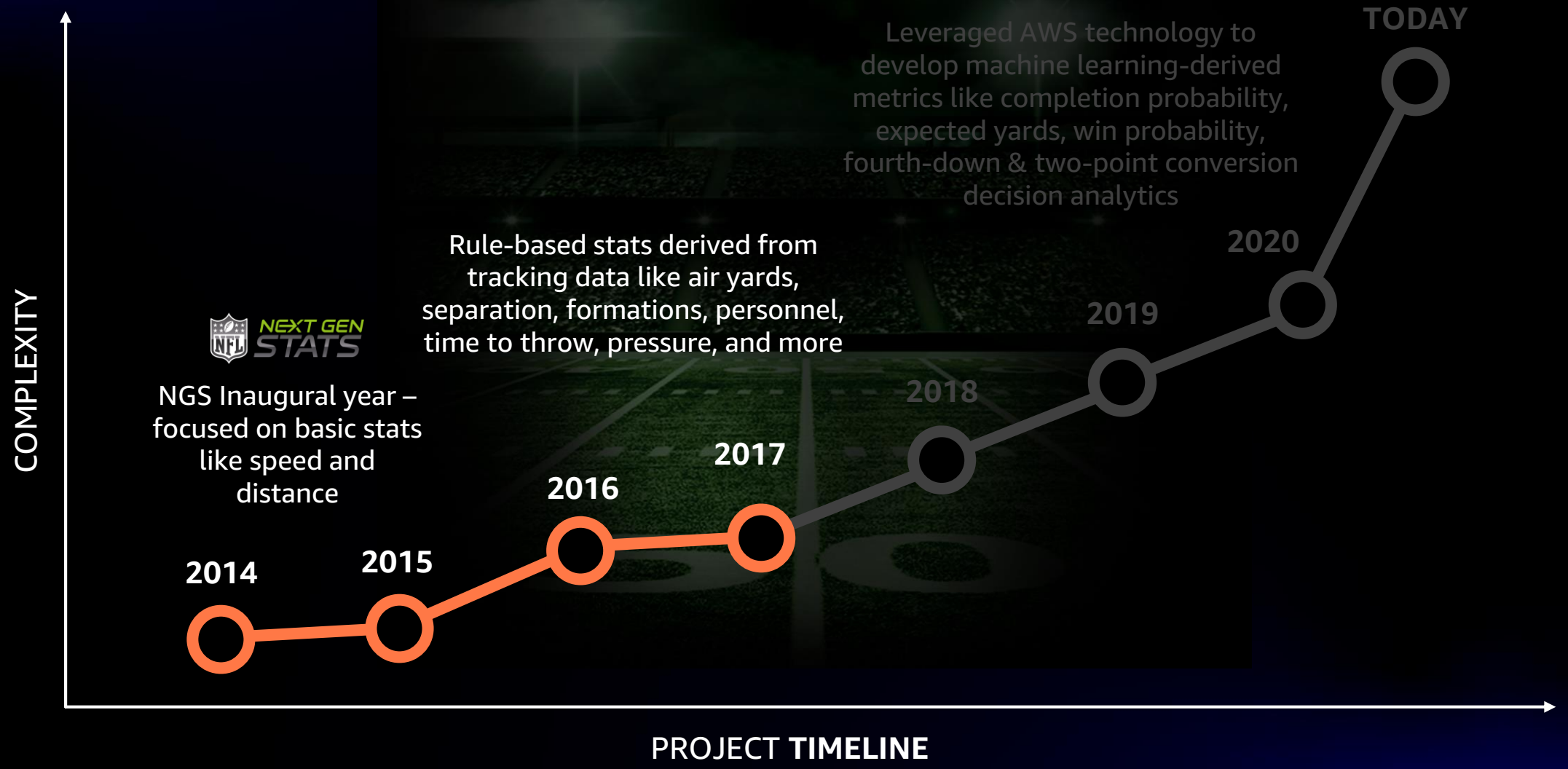
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The evolution of the Next Gen Stats toolbox



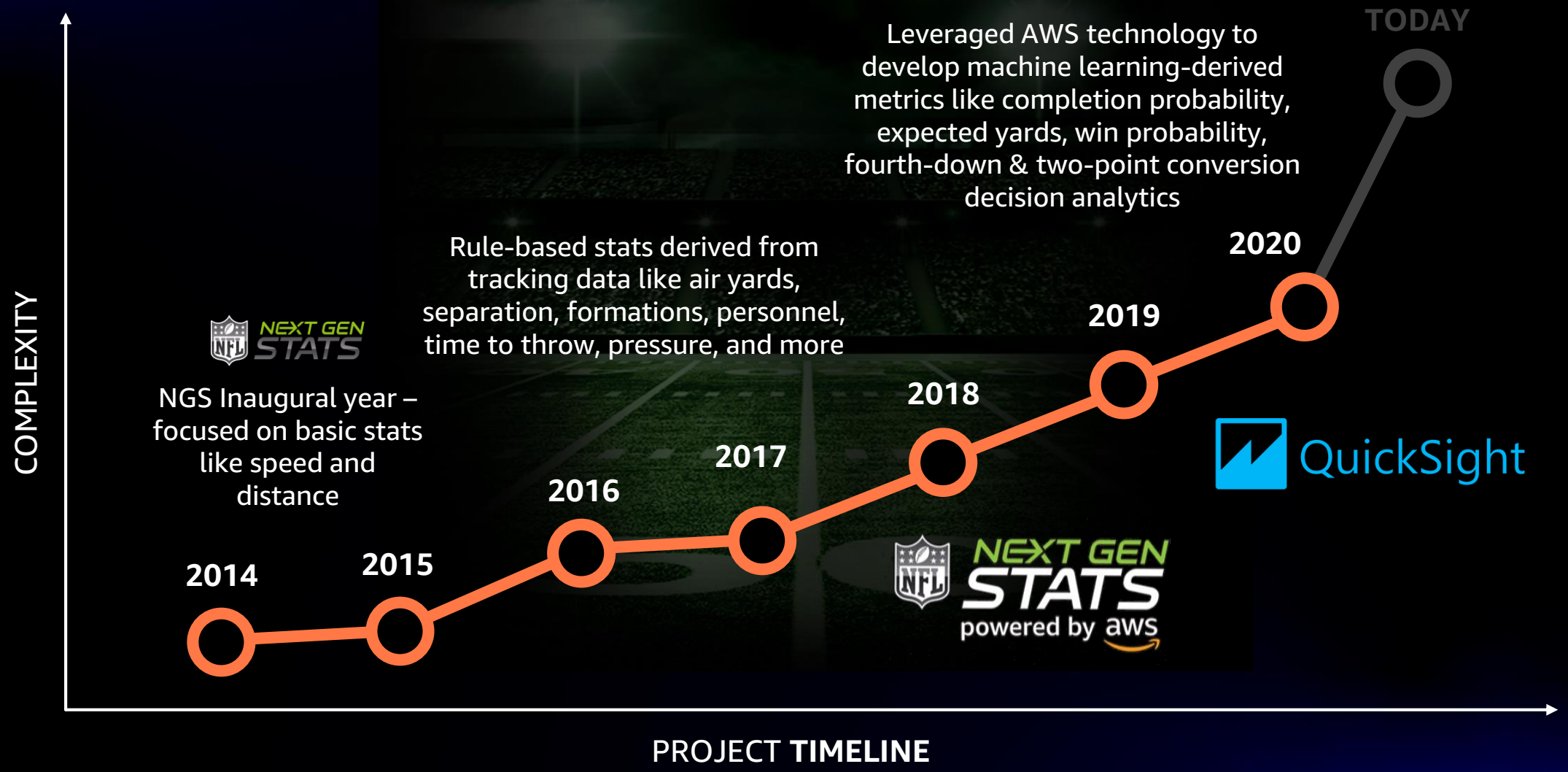
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The evolution of the Next Gen Stats toolbox



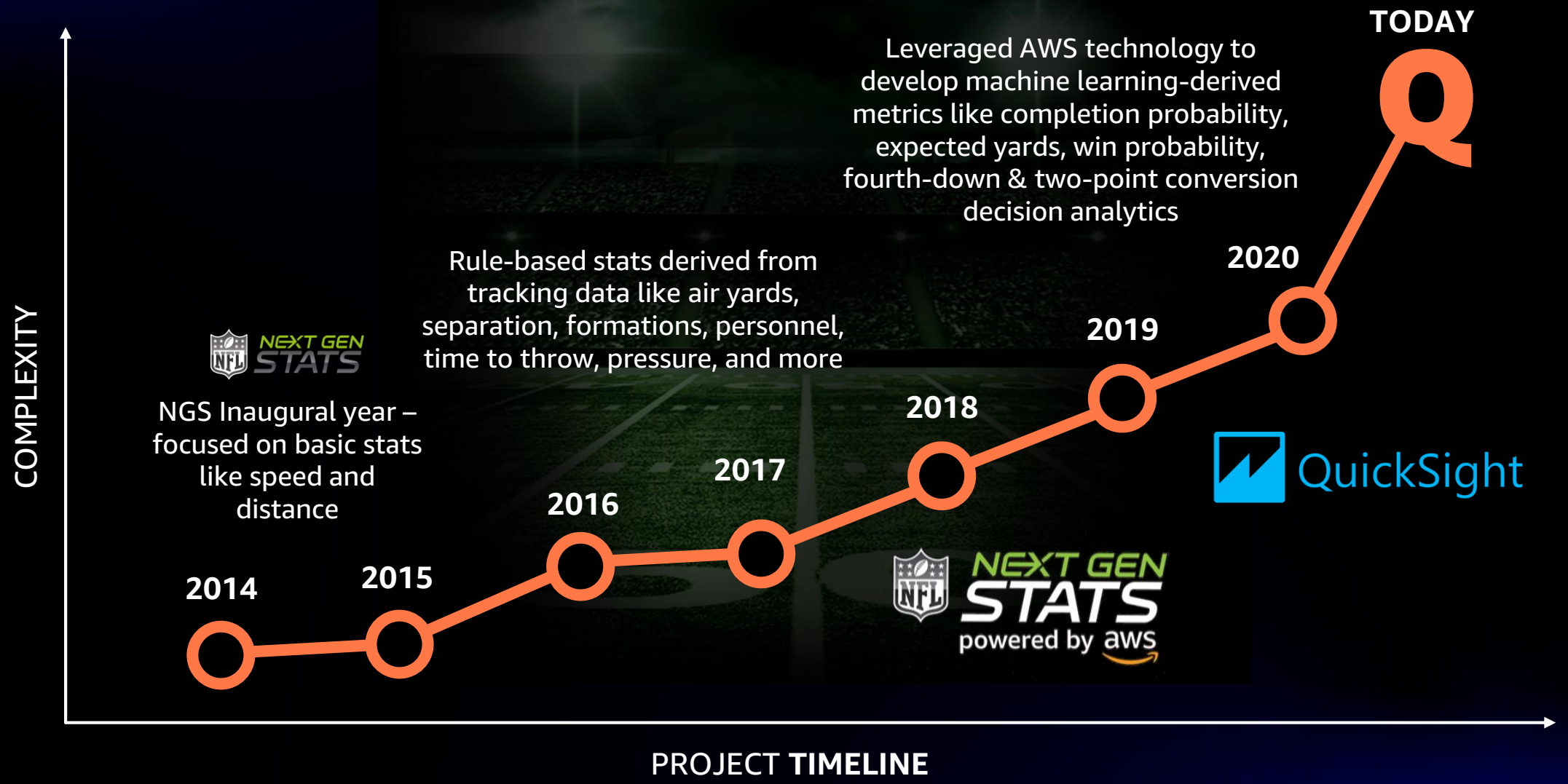
© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The evolution of the Next Gen Stats toolbox



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The evolution of the Next Gen Stats toolbox



© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Who we serve . . .

All 32 NFL Clubs

NFL Football Operations

Live Game Broadcasts + Media & Fans



The race for competitive advantages

How can we improve the game, and make it safer?

Storytelling beyond the box score to enhance the fan experience

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Who we serve . . .

NEXT GEN STATS powered by aws

All 32 NFL Clubs



The race for competitive advantages

NFL Football Operations

How can we improve the game, and make it safer?

Live Game Broadcasts + Media & Fans

Storytelling beyond the box score to enhance the fan experience

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Who we serve . . .

NEXT GEN STATS powered by aws

All 32 NFL Clubs



The race for competitive advantages

NFL Football Operations

NFL FOOTBALL OPERATIONS

How can we improve the game, and make it safer?

Live Game Broadcasts + Media & Fans

Storytelling beyond the box score to enhance the fan experience

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Who we serve . . .

NEXT GEN STATS powered by aws

All 32 NFL Clubs



The race for competitive advantages

NFL Football Operations

NFL FOOTBALL OPERATIONS

How can we improve the game, and make it safer?

Live Game Broadcasts + Media & Fans

NEXT GEN STATS powered by aws

NFL NETWORK · ESPN · NFL REDZONE From NFL NETWORK

SUNDAY NIGHT FOOTBALL · NFL on CBS · THURSDAY NIGHT FOOTBALL FOX prime video · NICKELODEON

MADDEN NFL · ZEBRA · Genius SPORTS

Storytelling beyond the box score to enhance the fan experience

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Next Gen Stats in live game broadcasts







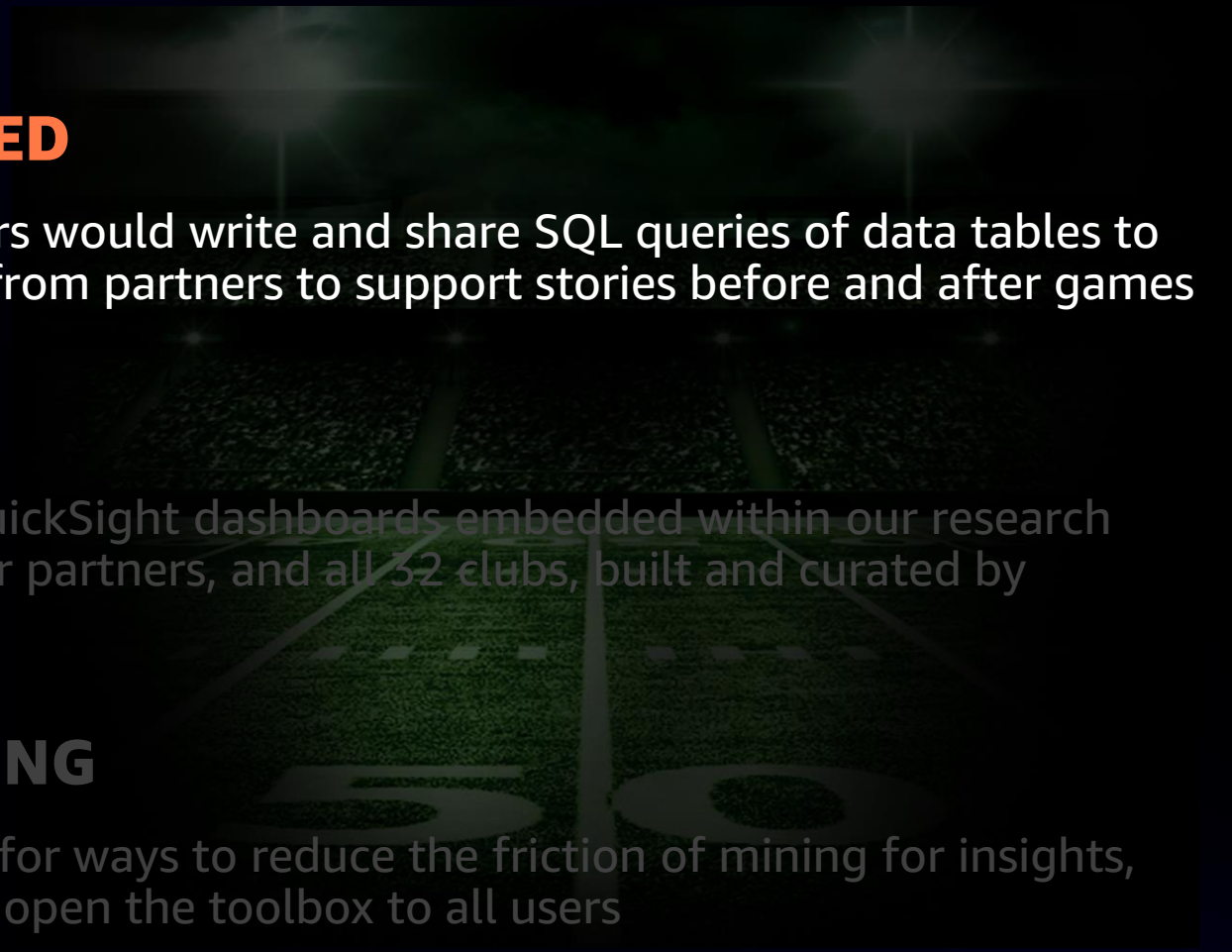


ESPN

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

From database to dashboards . . .



WHERE WE STARTED

Internal team of researchers would write and share SQL queries of data tables to support ad-hoc questions from partners to support stories before and after games

WHERE WE ARE

Today, we have over 50 QuickSight dashboards embedded within our research tool made accessible to our partners, and all 32 clubs, built and curated by researchers for researchers

WHERE WE'RE GOING

We are constantly looking for ways to reduce the friction of mining for insights, and QuickSight Q helps us open the toolbox to all users

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

To facilitate the discovery of insights



WHERE WE STARTED

Internal team of researchers would write and share SQL queries of data tables to support ad-hoc questions from partners to support stories before and after games

WHERE WE ARE

Today, we have over 50 QuickSight dashboards embedded within our research tool made accessible to our partners, and all 32 clubs, built and curated by researchers for researchers

WHERE WE'RE GOING

We are constantly looking for ways to reduce the friction of mining for insights, and QuickSight Q helps us open the toolbox to all users

aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Opening the toolbox to all our users



WHERE WE STARTED

Internal team of researchers would write and share SQL queries of data tables to support ad-hoc questions from partners to support stories before and after games

WHERE WE ARE

Today, we have over 50 QuickSight dashboards embedded within our research tool made accessible to our partners, and all 32 clubs, built and curated by researchers for researchers

WHERE WE'RE GOING

We are constantly looking for ways to reduce the friction of mining for insights, and QuickSight Q helps us open the toolbox to all users

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Supporting the action live

BIG PLAY: Seahawks QB Russell Wilson throws a touchdown pass to **DK Metcalf**

REACTION: What are the numbers on that play? Isn't Russell Wilson good deep?



NEXT GEN STATS | HOME | LIVE | CHARTS | STATS | PLAYLISTS | INSIGHTS | INFO

Top Plays | Participation | Passing | Rushing | Receiving | Team Offense | Team Defense | Defense Player | Nearest Defender | Special Teams | NFL Draft

PASSING - SEASON

Summary | Tendencies | QB-WR Duos | **Teammate On/Off** | Player Profile

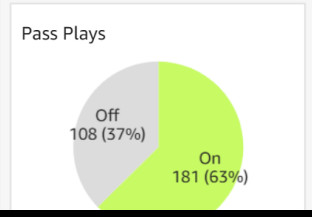
Controls

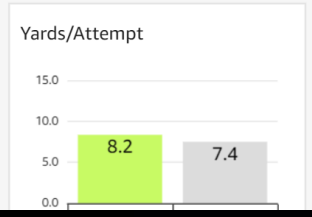
Select Teammate On/Off Field	Passer Name	Season	Season Type	Week	Team
Russell Wilson	All	2021	REG	All	All

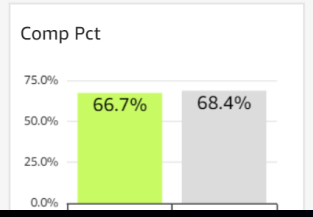
Down & Distance	Quarter	Field Position	Air Yards (LOS, Short, Mid, Deep)	Play Action	Targeted Receiver Name
All	All	All	All	All	All

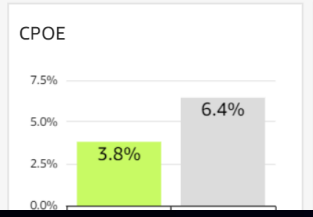
Passing with Teammate On-Off Field

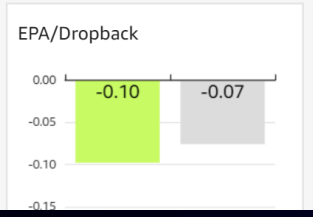
Team	On-Off	DB	TTT	Comp	Att	Yards	TD	INT	Rating	Comp %	xComp %	CPOE	Y/A	AY/A	Total EPA	EPA/DB	QBP	QBP %	Sacks	Sack %	Blitz %	Sep	TW %	Open %	+EPA
SEA	Off	108	2.94	65	95	702	5	1	103.0	68.4%	62.0%	6.4%	7.4	7.5	-8.1	-0.07	32	29.6%	13	12.0%	29.6%	3.45	16.8%	47.4%	45
SEA	On	181	2.84	110	165	1,357	10	3	104.5	66.7%	62.9%	3.8%	8.2	9.9	-17.7	-0.10	54	29.8%	16	8.8%	25.4%	3.80	15.8%	47.9%	70
		289	**2.88**	**175**	**260**	**2,059**	**15**	**4**	**104.0**	**67.3%**	**62.6%**	**4.7%**	**7.9**	**9.0**	**-25.7**	**-0.09**	**86**	**29.8%**	**29**	**10.0%**	**27.0%**	**3.67**	**16.2%**	**47.7%**	**115**

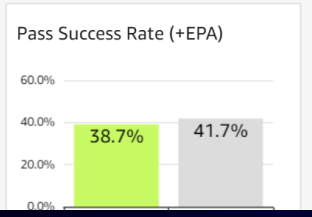












© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

NEXT GEN STATS

HOME | LIVE | CHARTS | STATS | PLAYLISTS | INSIGHTS | INFO

Player Search | Logout

Top Plays | Participation | Passing | Rushing | Receiving | Team Offense | Team Defense | Defense Player | Nearest Defender | Special Teams | NFL Draft

PASSING - MULTI-SEASON

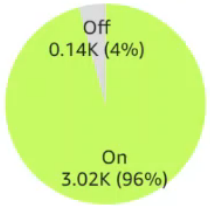
Summary | Tendencies | QB-WR Duos | **Teammate On/Off**

Controls ***Select Teammate On/Off ... Russell Wilson | Passer Name All | Season All | Season Type REG | Week All | Team All | Down & Distance All | Field Position All | Quarter All | Air Yards (LOS, Short, Mid, D.

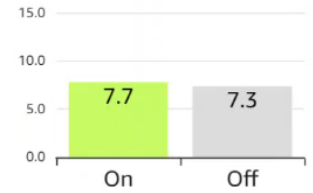
Passing with Teammate On-Off Field

Team	On-Off	DB	TTT	Comp	Att	Yards	TD	INT	Rating	Comp %	xComp %	CPOE	Y/A	AY/A	Total EPA	EPA/DB	QBP	QBP %	Sacks	Sack %	Blitz %	Sep	TW %	Open %	+EPA
SEA	Off	135	2.82	83	120	876	6	2	99.9	69.2%	62.4%	6.8%	7.3	6.9	-6.3	-0.05	38	28.1%	15	11.1%	34.8%	3.42	18.3%	45.0%	59
SEA	On	3,015	2.89	1,809	2,769	21,387	172	52	101.6	65.3%	61.4%	3.9%	7.7	9.3	120.1	0.04	890	29.5%	246	8.2%	32.6%	3.41	15.6%	43.8%	1,355
		3,150	**2.89**	**1,892**	**2,889**	**22,263**	**178**	**54**	**101.5**	**65.5%**	**61.4%**	**4.1%**	**7.7**	**9.2**	**113.8**	**0.04**	**928**	**29.5%**	**261**	**8.3%**	**32.7%**	**3.41**	**15.7%**	**43.9%**	**1,414**

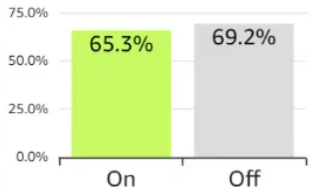
Pass Plays



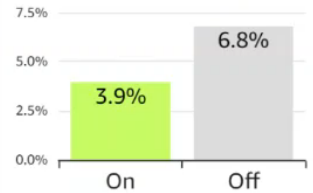
Yards/Attempt



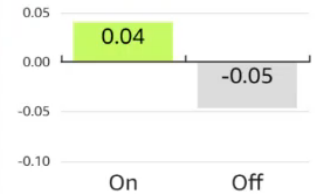
Comp Pct



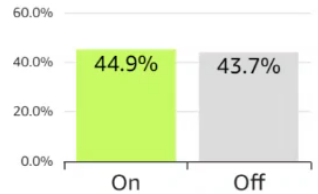
CPOE



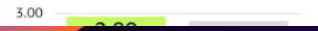
EPA/Dropback



Pass Success Rate (+EPA)



Avg Time to Throw



Pressure Rate



Sack Rate



Air Yards/Attempt



Avg Target Separation

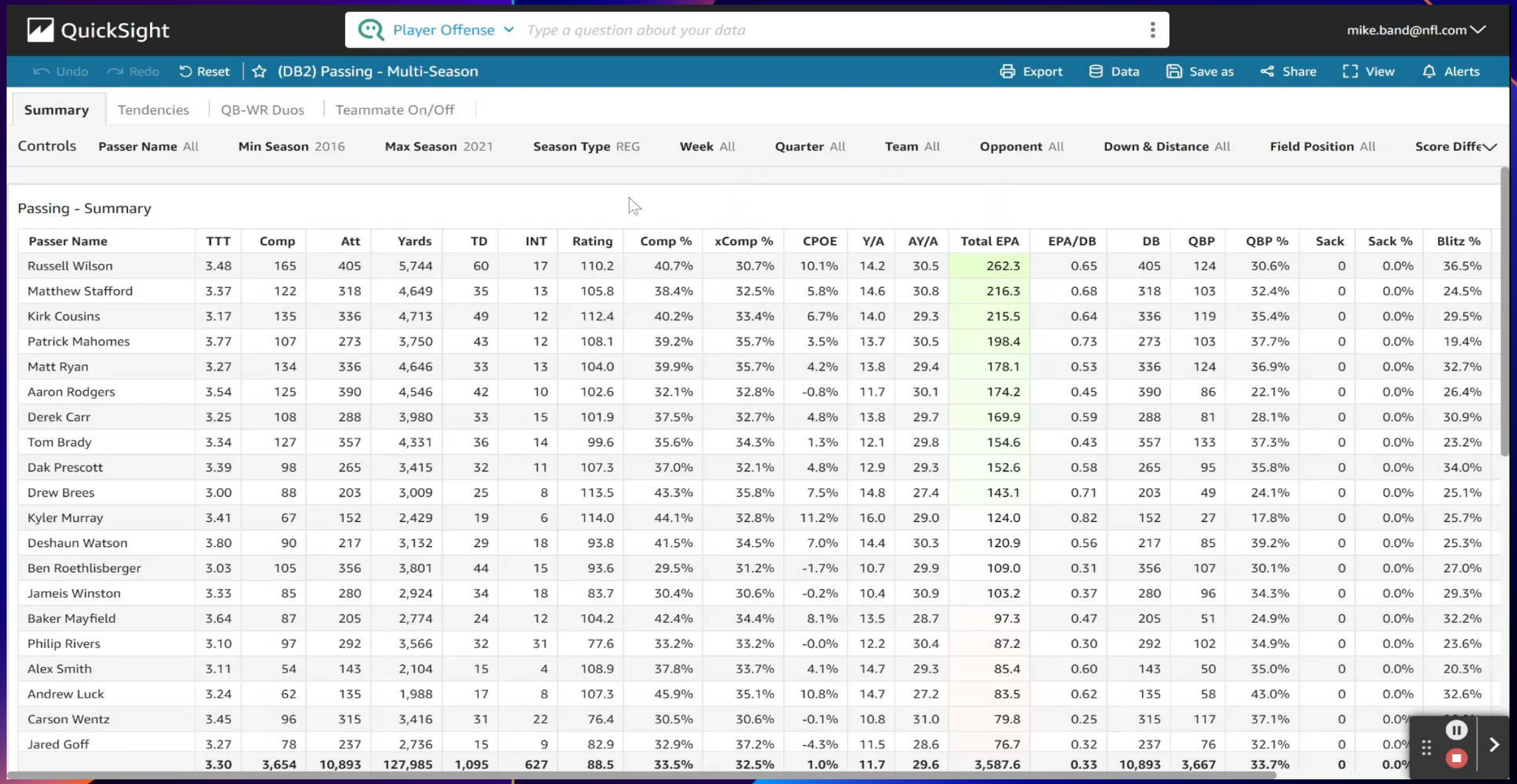


Tight Window Pct



aws

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

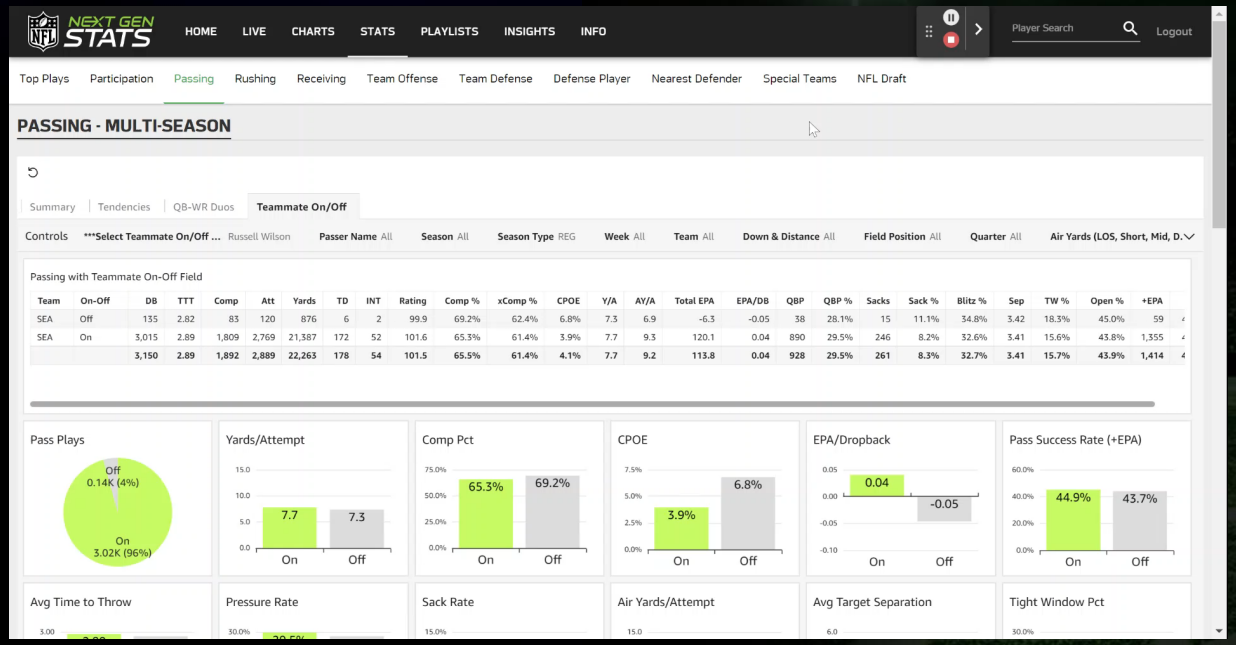


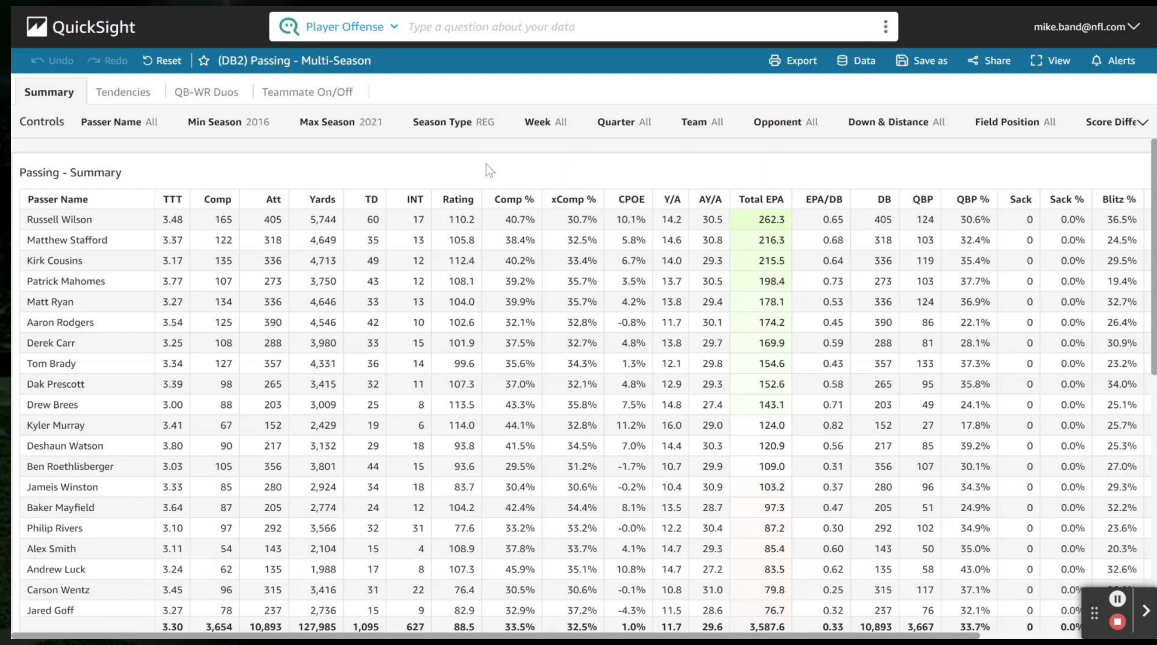
Passing - Summary

Passer Name	TTT	Comp	Att	Yards	TD	INT	Rating	Comp %	xComp %	CPOE	Y/A	AY/A	Total EPA	EPA/DB	DB	QBP	QBP %	Sack	Sack %	Blitz %
Russell Wilson	3.48	165	405	5,744	60	17	110.2	40.7%	30.7%	10.1%	14.2	30.5	262.3	0.65	405	124	30.6%	0	0.0%	36.5%
Matthew Stafford	3.37	122	318	4,649	35	13	105.8	38.4%	32.5%	5.8%	14.6	30.8	216.3	0.68	318	103	32.4%	0	0.0%	24.5%
Kirk Cousins	3.17	135	336	4,713	49	12	112.4	40.2%	33.4%	6.7%	14.0	29.3	215.5	0.64	336	119	35.4%	0	0.0%	29.5%
Patrick Mahomes	3.77	107	273	3,750	43	12	108.1	39.2%	35.7%	3.5%	13.7	30.5	198.4	0.73	273	103	37.7%	0	0.0%	19.4%
Matt Ryan	3.27	134	336	4,646	33	13	104.0	39.9%	35.7%	4.2%	13.8	29.4	178.1	0.53	336	124	36.9%	0	0.0%	32.7%
Aaron Rodgers	3.54	125	390	4,546	42	10	102.6	32.1%	32.8%	-0.8%	11.7	30.1	174.2	0.45	390	86	22.1%	0	0.0%	26.4%
Derek Carr	3.25	108	288	3,980	33	15	101.9	37.5%	32.7%	4.8%	13.8	29.7	169.9	0.59	288	81	28.1%	0	0.0%	30.9%
Tom Brady	3.34	127	357	4,331	36	14	99.6	35.6%	34.3%	1.3%	12.1	29.8	154.6	0.43	357	133	37.3%	0	0.0%	23.2%
Dak Prescott	3.39	98	265	3,415	32	11	107.3	37.0%	32.1%	4.8%	12.9	29.3	152.6	0.58	265	95	35.8%	0	0.0%	34.0%
Drew Brees	3.00	88	203	3,009	25	8	113.5	43.3%	35.8%	7.5%	14.8	27.4	143.1	0.71	203	49	24.1%	0	0.0%	25.1%
Kyler Murray	3.41	67	152	2,429	19	6	114.0	44.1%	32.8%	11.2%	16.0	29.0	124.0	0.82	152	27	17.8%	0	0.0%	25.7%
Deshaun Watson	3.80	90	217	3,132	29	18	93.8	41.5%	34.5%	7.0%	14.4	30.3	120.9	0.56	217	85	39.2%	0	0.0%	25.3%
Ben Roethlisberger	3.03	105	356	3,801	44	15	93.6	29.5%	31.2%	-1.7%	10.7	29.9	109.0	0.31	356	107	30.1%	0	0.0%	27.0%
Jameis Winston	3.33	85	280	2,924	34	18	83.7	30.4%	30.6%	-0.2%	10.4	30.9	103.2	0.37	280	96	34.3%	0	0.0%	29.3%
Baker Mayfield	3.64	87	205	2,774	24	12	104.2	42.4%	34.4%	8.1%	13.5	28.7	97.3	0.47	205	51	24.9%	0	0.0%	32.2%
Philip Rivers	3.10	97	292	3,566	32	31	77.6	33.2%	33.2%	-0.0%	12.2	30.4	87.2	0.30	292	102	34.9%	0	0.0%	23.6%
Alex Smith	3.11	54	143	2,104	15	4	108.9	37.8%	33.7%	4.1%	14.7	29.3	85.4	0.60	143	50	35.0%	0	0.0%	20.3%
Andrew Luck	3.24	62	135	1,988	17	8	107.3	45.9%	35.1%	10.8%	14.7	27.2	83.5	0.62	135	58	43.0%	0	0.0%	32.6%
Carson Wentz	3.45	96	315	3,416	31	22	76.4	30.5%	30.6%	-0.1%	10.8	31.0	79.8	0.25	315	117	37.1%	0	0.0%	
Jared Goff	3.27	78	237	2,736	15	9	82.9	32.9%	37.2%	-4.3%	11.5	28.6	76.7	0.32	237	76	32.1%	0	0.0%	
	3.30	**3,654**	**10,893**	**127,985**	**1,095**	**627**	**88.5**	**33.5%**	**32.5%**	**1.0%**	**11.7**	**29.6**	**3,587.6**	**0.33**	**10,893**	**3,667**	**33.7%**	**0**	**0.0%**	

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

From eight clicks to one

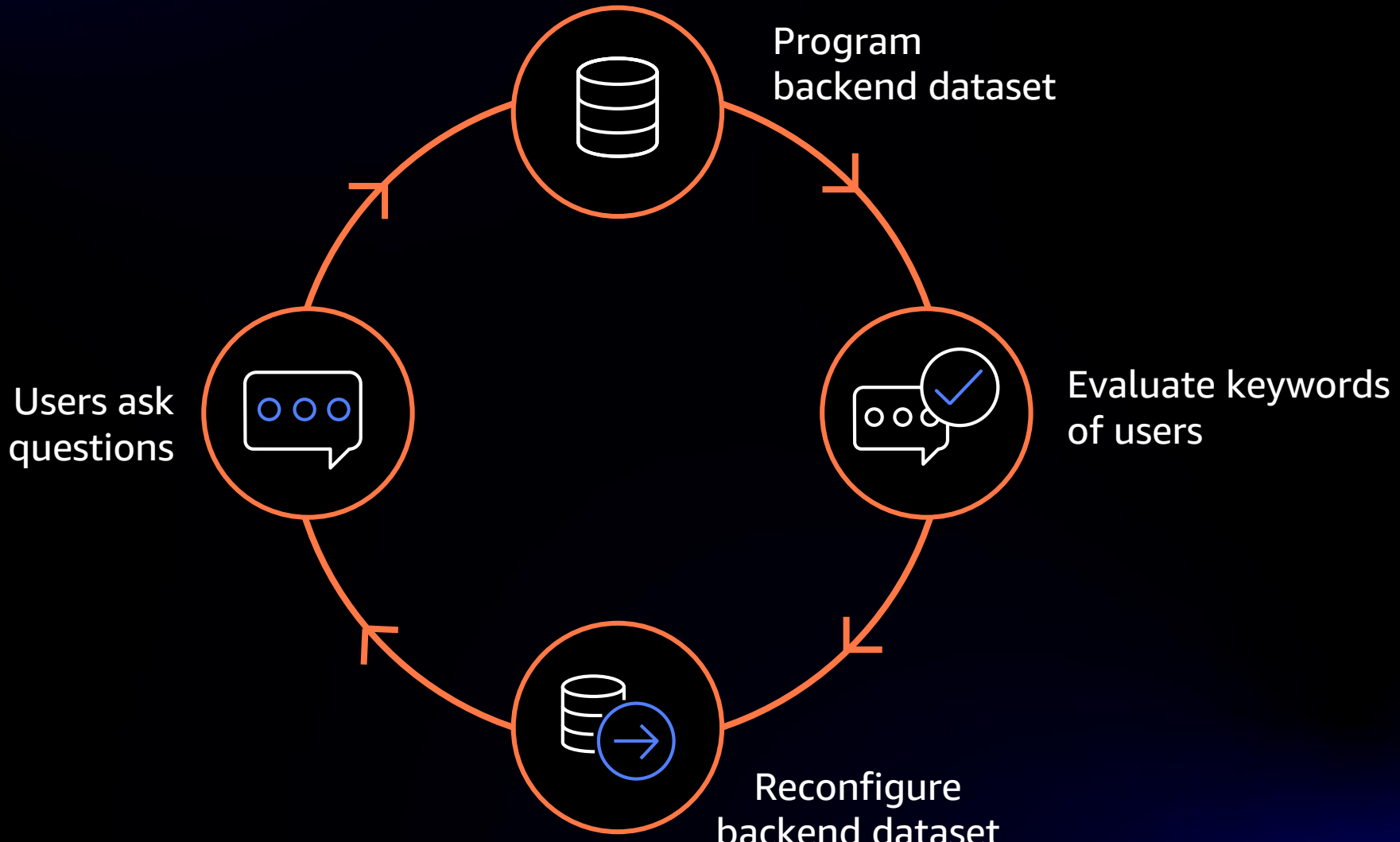




Passer Name	TTT	Comp	Att	Yards	TD	INT	Rating	Comp %	xComp %	CPOE	Y/A	AY/A	Total EPA	EPA/DB	DB	QBP	QBP %	Sack	Sack %	Blitz %
Russell Wilson	3.48	165	405	5,744	60	17	110.2	40.7%	30.7%	10.1%	14.2	30.5	262.3	0.65	405	124	30.6%	0	0.0%	36.5%
Matthew Stafford	3.37	122	318	4,649	35	13	105.8	38.4%	32.5%	5.8%	14.6	30.8	216.3	0.68	318	103	32.4%	0	0.0%	24.5%
Kirk Cousins	3.17	135	336	4,713	49	12	112.4	40.2%	33.4%	6.7%	14.0	29.3	215.5	0.64	336	119	35.4%	0	0.0%	29.5%
Patrick Mahomes	3.77	107	273	3,750	43	12	108.1	39.2%	35.7%	3.5%	13.7	30.5	198.4	0.73	273	103	37.7%	0	0.0%	19.4%
Matt Ryan	3.27	134	336	4,646	33	13	104.0	39.9%	35.7%	4.2%	13.8	29.4	178.1	0.53	336	124	36.9%	0	0.0%	32.7%
Aaron Rodgers	3.54	125	390	4,546	42	10	102.6	32.1%	32.8%	-0.8%	11.7	30.1	174.2	0.45	390	86	22.1%	0	0.0%	26.4%
Derek Carr	3.25	108	288	3,980	33	15	101.9	37.5%	32.7%	4.8%	13.8	29.7	169.9	0.59	288	81	28.1%	0	0.0%	30.9%
Tom Brady	3.34	127	357	4,331	36	14	99.6	35.6%	34.3%	1.3%	12.1	29.8	154.6	0.43	357	133	37.3%	0	0.0%	23.2%
Dak Prescott	3.39	98	265	3,415	32	11	107.3	37.0%	32.1%	4.8%	12.9	29.3	152.6	0.58	265	95	35.8%	0	0.0%	34.0%
Drew Brees	3.00	88	203	3,009	25	8	113.5	43.3%	35.8%	7.5%	14.8	27.4	143.1	0.71	203	49	24.1%	0	0.0%	25.1%
Kyler Murray	3.41	67	152	2,429	19	6	114.0	44.1%	32.8%	11.2%	16.0	29.0	124.0	0.82	152	27	17.8%	0	0.0%	25.7%
Deshaun Watson	3.80	90	217	3,132	29	18	93.8	41.5%	34.5%	7.0%	14.4	30.3	120.9	0.56	217	85	39.2%	0	0.0%	25.3%
Ben Roethlisberger	3.03	105	356	3,801	44	15	93.6	29.5%	31.2%	-1.7%	10.7	29.9	109.0	0.31	356	107	30.1%	0	0.0%	27.0%
Jameis Winston	3.33	85	280	2,924	34	18	83.7	30.4%	30.6%	-0.2%	10.4	30.9	103.2	0.37	280	96	34.3%	0	0.0%	29.3%
Baker Mayfield	3.64	87	205	2,774	24	12	104.2	42.4%	34.4%	8.1%	13.5	28.7	97.3	0.47	205	51	24.9%	0	0.0%	32.2%
Philip Rivers	3.10	97	292	3,566	32	31	77.6	33.2%	33.2%	-0.0%	12.2	30.4	87.2	0.30	292	102	34.9%	0	0.0%	23.6%
Alex Smith	3.11	54	143	2,104	15	4	108.9	37.8%	33.7%	4.1%	14.7	29.3	85.4	0.60	143	50	35.0%	0	0.0%	20.3%
Andrew Luck	3.24	62	135	1,988	17	8	107.3	45.9%	35.1%	10.8%	14.7	27.2	83.5	0.62	135	58	43.0%	0	0.0%	32.6%
Carson Wentz	3.45	96	315	3,416	31	22	76.4	30.5%	30.6%	-0.1%	10.8	31.0	79.8	0.25	315	117	37.1%	0	0.0%	
Jared Goff	3.27	78	237	2,736	15	9	82.9	32.9%	37.2%	-4.3%	11.5	28.6	76.7	0.32	237	76	32.1%	0	0.0%	
	3.30	3,654	10,893	127,985	1,095	627	88.5	33.5%	32.5%	1.0%	11.7	29.6	3,587.6	0.33	10,893	3,667	33.7%	0	0.0%	

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The feedback loop of QuickSight Q

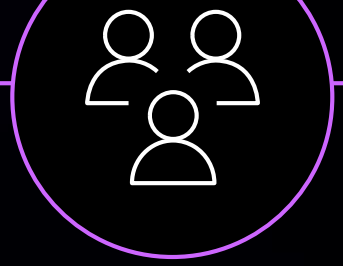


© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The advantages of QuickSight Q in sports



Reduce the barrier of entry; non-experts can become experts



From analysts, to researchers, to producers, to fans . . .



Everyone can be empowered to ask and a question and receive an answer from our vast, complex dataset

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Thank you!

Tracy Daugherty
dautracy@amazon.com

Michael Chi
michael.chi@nfl.com

Mike Band
mike.band@nfl.com

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.