



Abhinav Jayanty

Data Engineer

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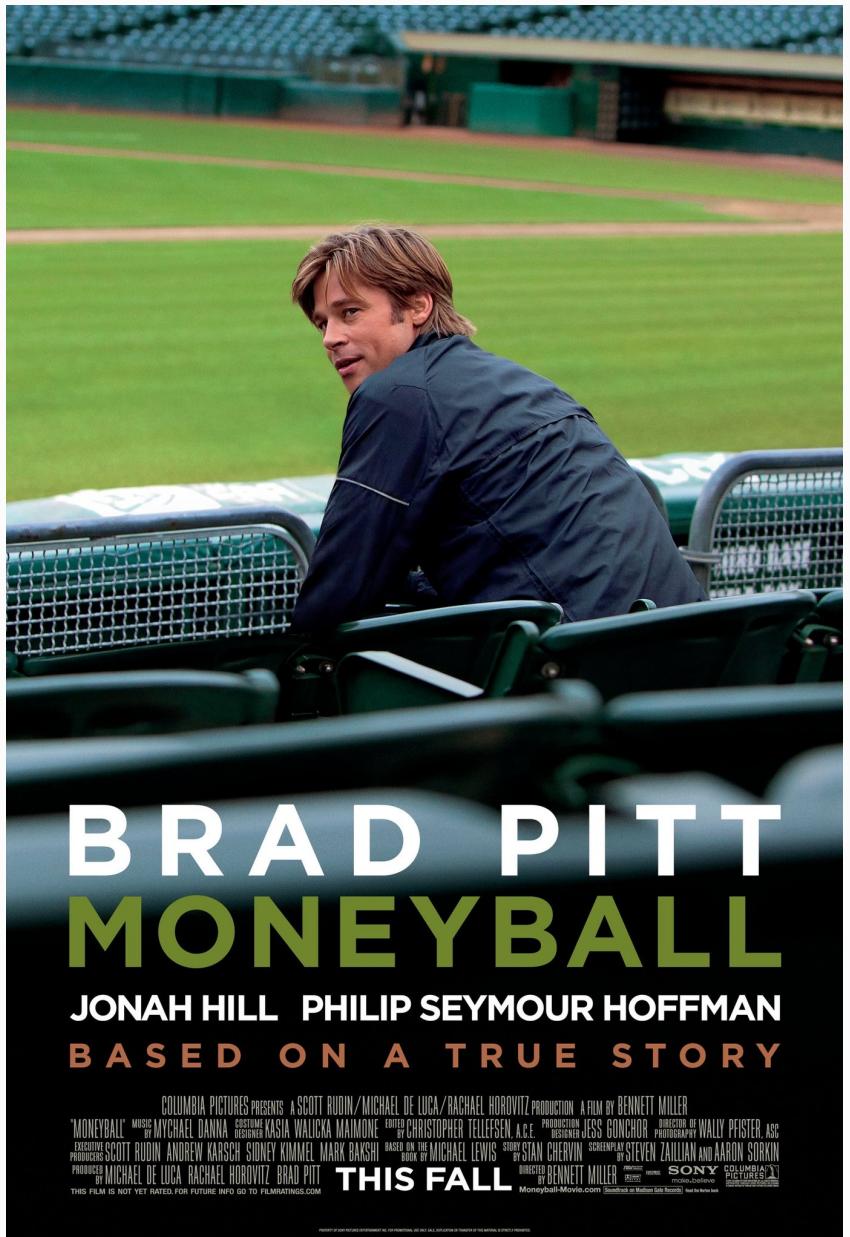
Moneyball

How Data & AI Has
Revolutionised Sports Analytics

Thank you!



Many thanks to our sponsors, without whom such an event would not be possible.





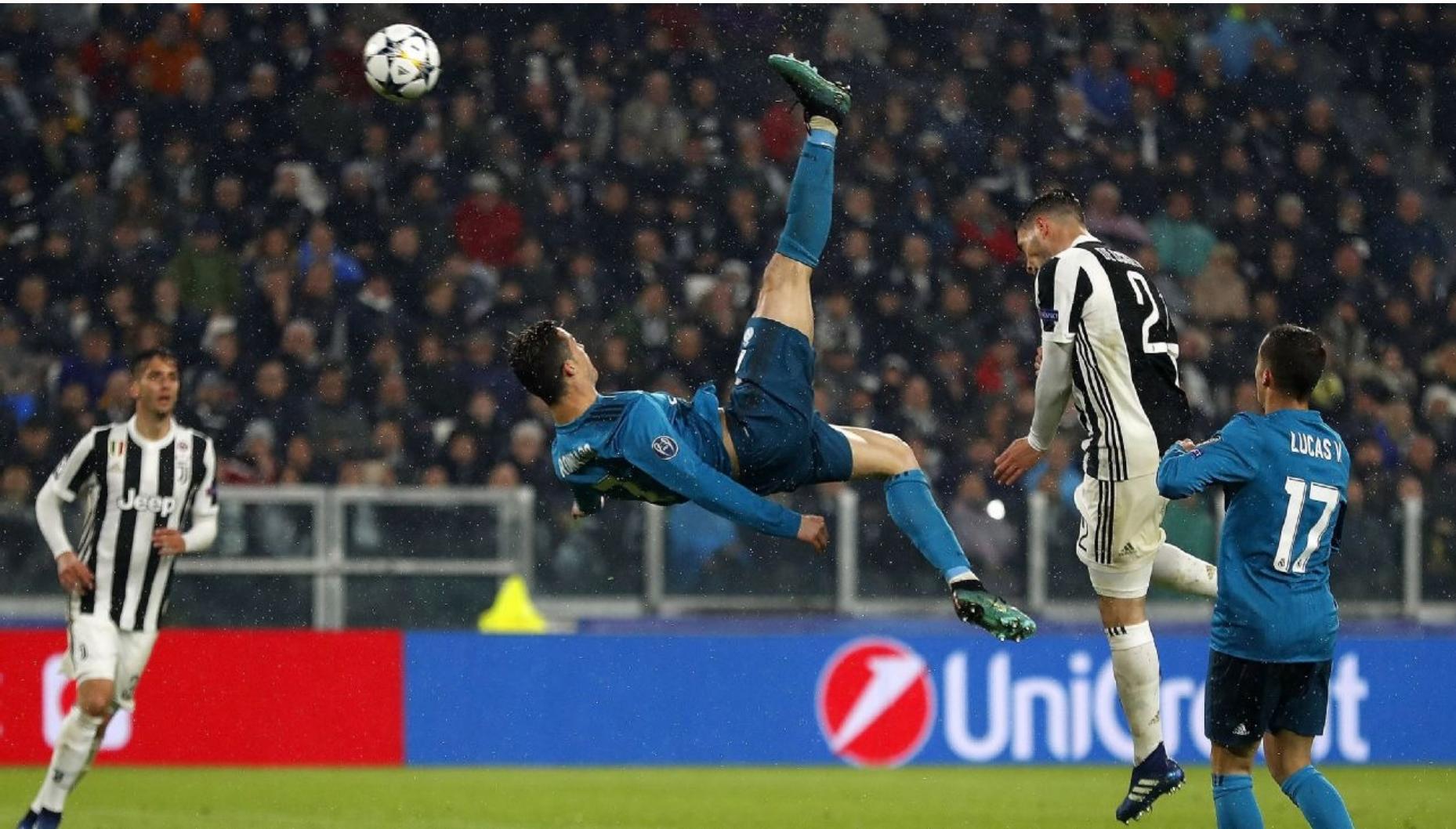
Pele 'bicycle' kick - 1968



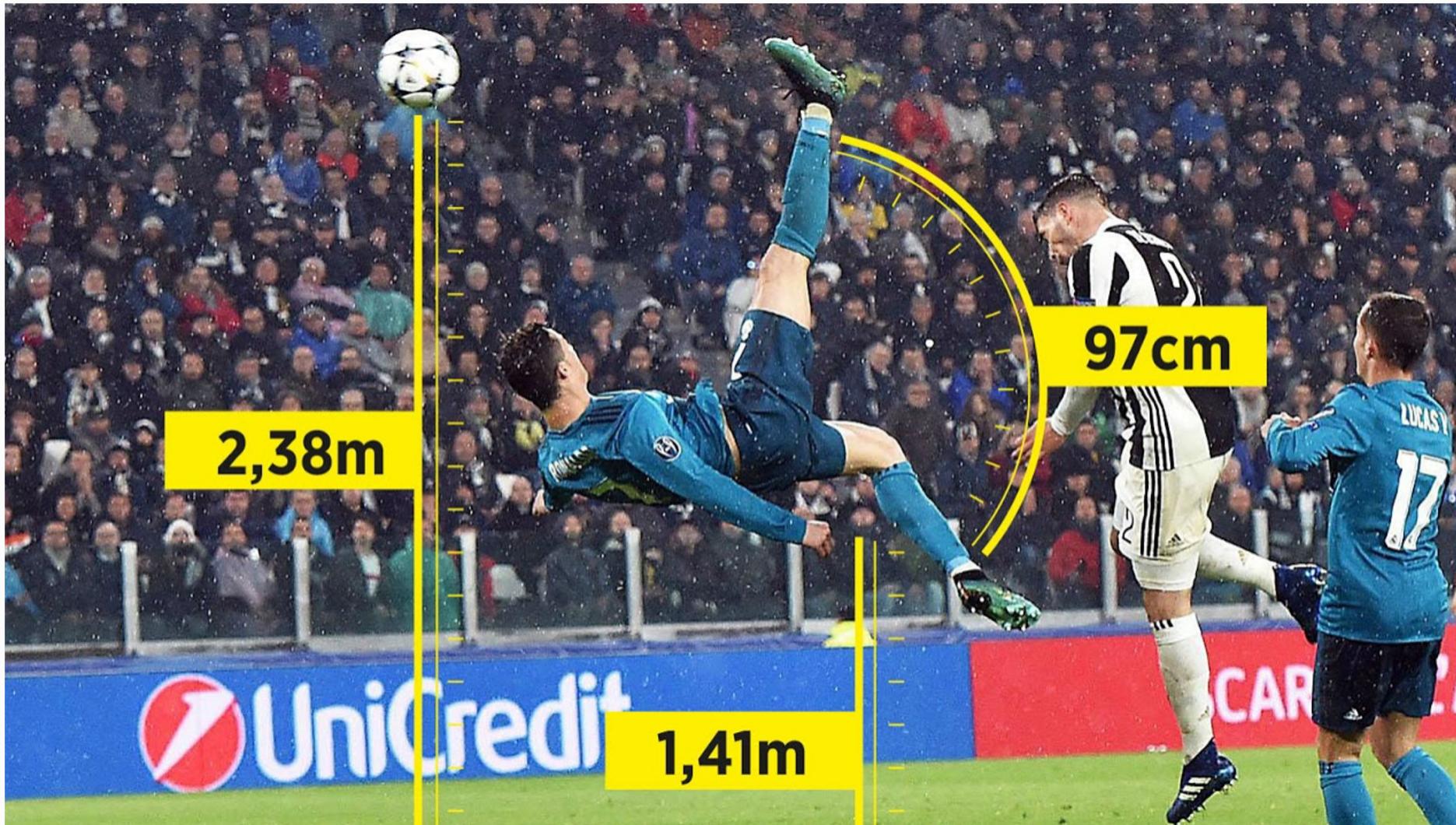
Pele 'bicycle' kick - 1968



Cristiano Ronaldo 'bicycle' kick - 2018



Cristiano Ronaldo 'bicycle' kick - 2018



Cristiano Ronaldo 'bicycle' kick - 2018







Field Assessment

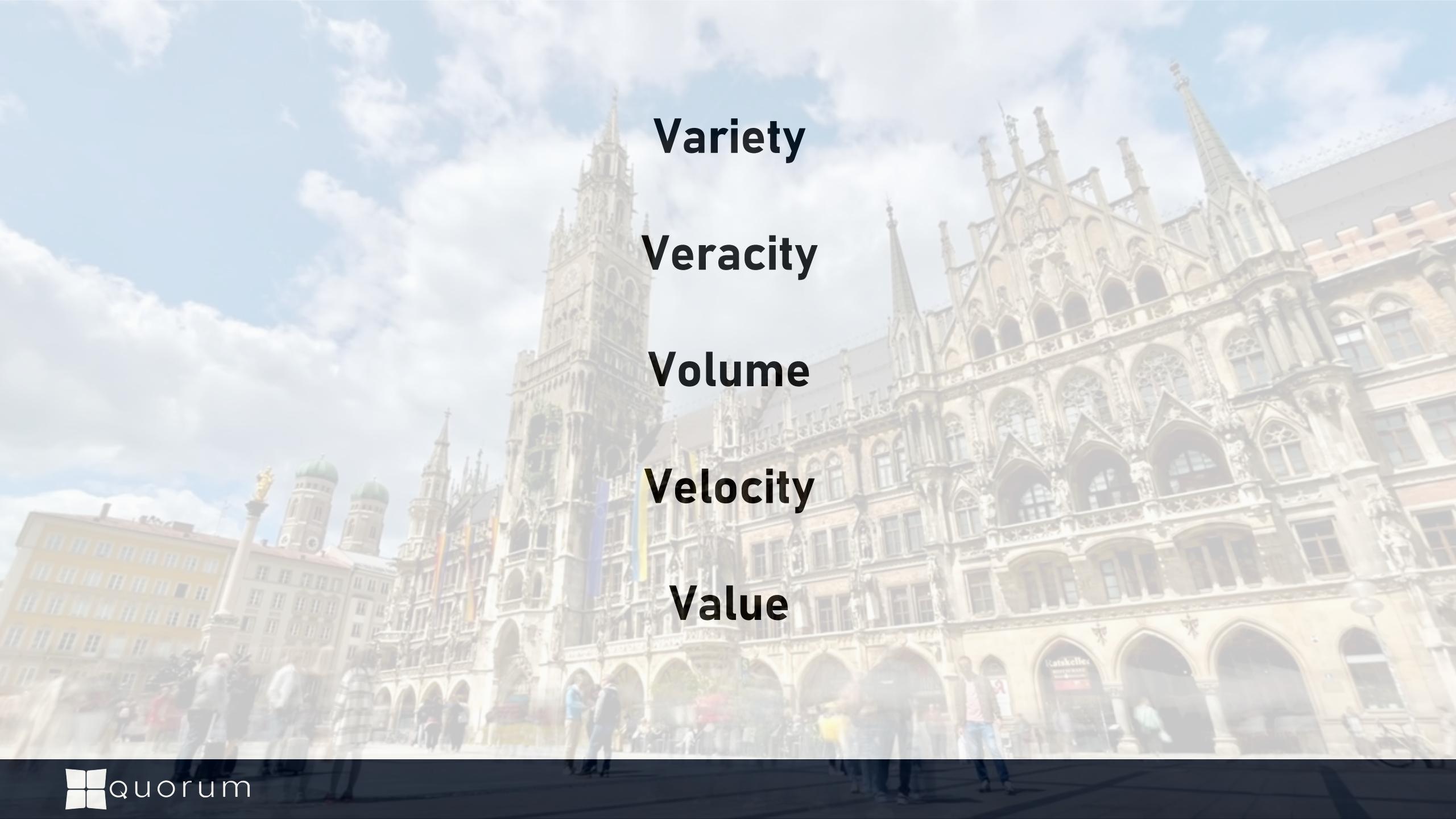
What is the current landscape of analytics in sport?

Tactics

What can we use to build these analytical solutions?

Debrief

How can we apply this knowledge going forward?

The background of the image is a soft-focus photograph of a European town square. In the center-right, a large, ornate Gothic-style building with multiple spires and intricate stonework is visible. To its left, another building with green domes and a tall column topped with a golden statue can be seen. The foreground is a paved area where several people are walking.

Variety

Veracity

Volume

Velocity

Value



How can we build a better understanding of data and the value that it can deliver?

How can data drive better decisions and insights in high-stake scenarios?

How are worldwide organisations utilising the tools and platforms available to them?







Bundesliga standings

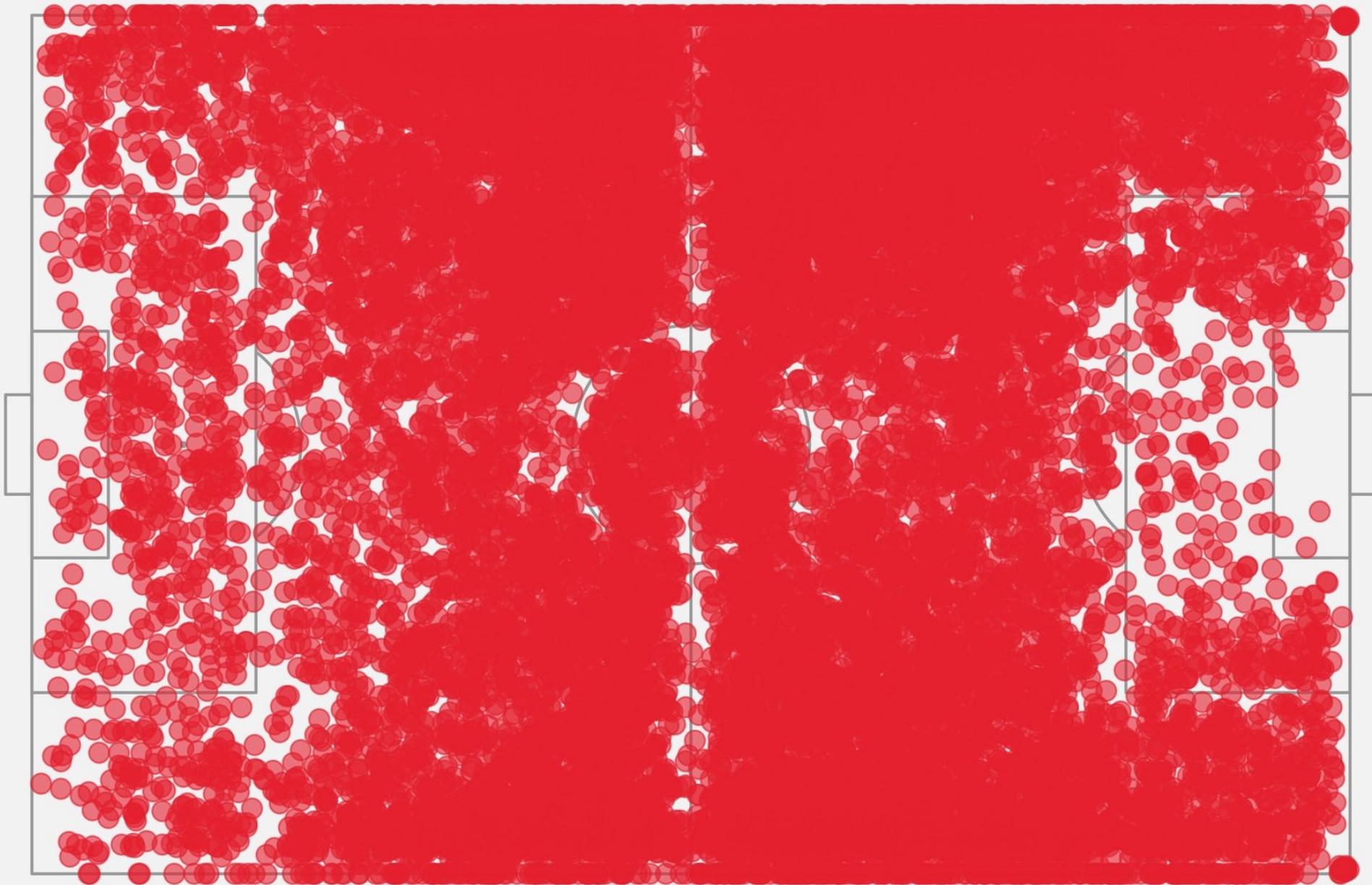
[MATCHES](#)[NEWS](#)[TABLE](#)[STATS](#)[PLAYERS](#)

Season

2023-24 ▾

Club	MP	W	D	L	GF	GA	GD	Pts	Last 5
1 Leverkusen	23	19	4	0	59	16	43	61	✓✓✓✓-
2 Bayern	22	16	2	4	61	25	36	50	✗✗✓✓✓✓
3 VfB Stuttgart	22	15	1	6	51	28	23	46	✓✓✓✓✗
4 Dortmund	22	11	8	3	44	27	17	41	-✓-✓✓✓
5 RB Leipzig	22	12	4	6	48	28	20	40	✓-✓✗✗

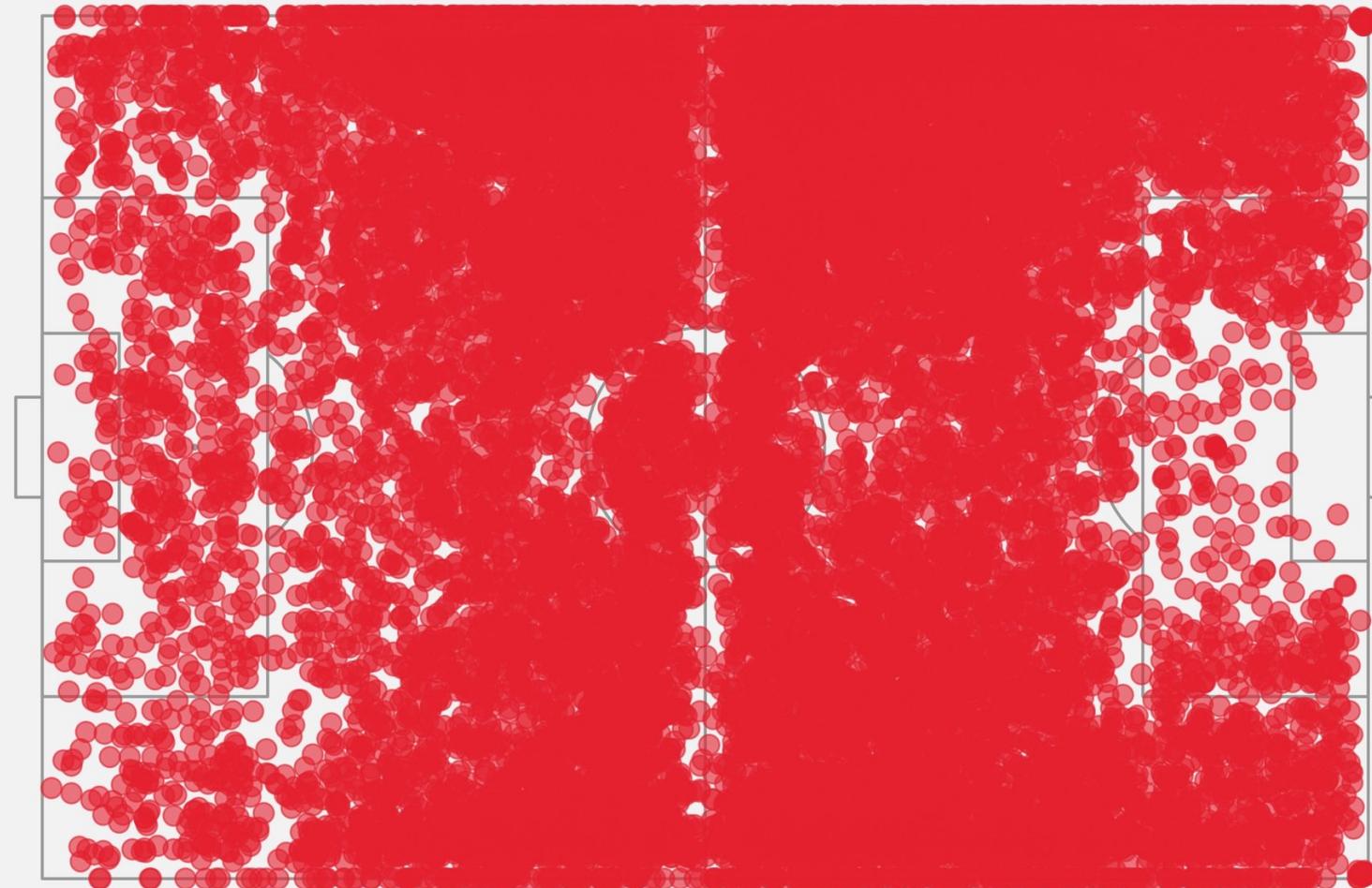






James Milner Touches

Liverpool | All Comps



18,911

touches



Attacking Direction



James Milner Touches

Liverpool | All Comps

18,911

touches



James Milner Touches

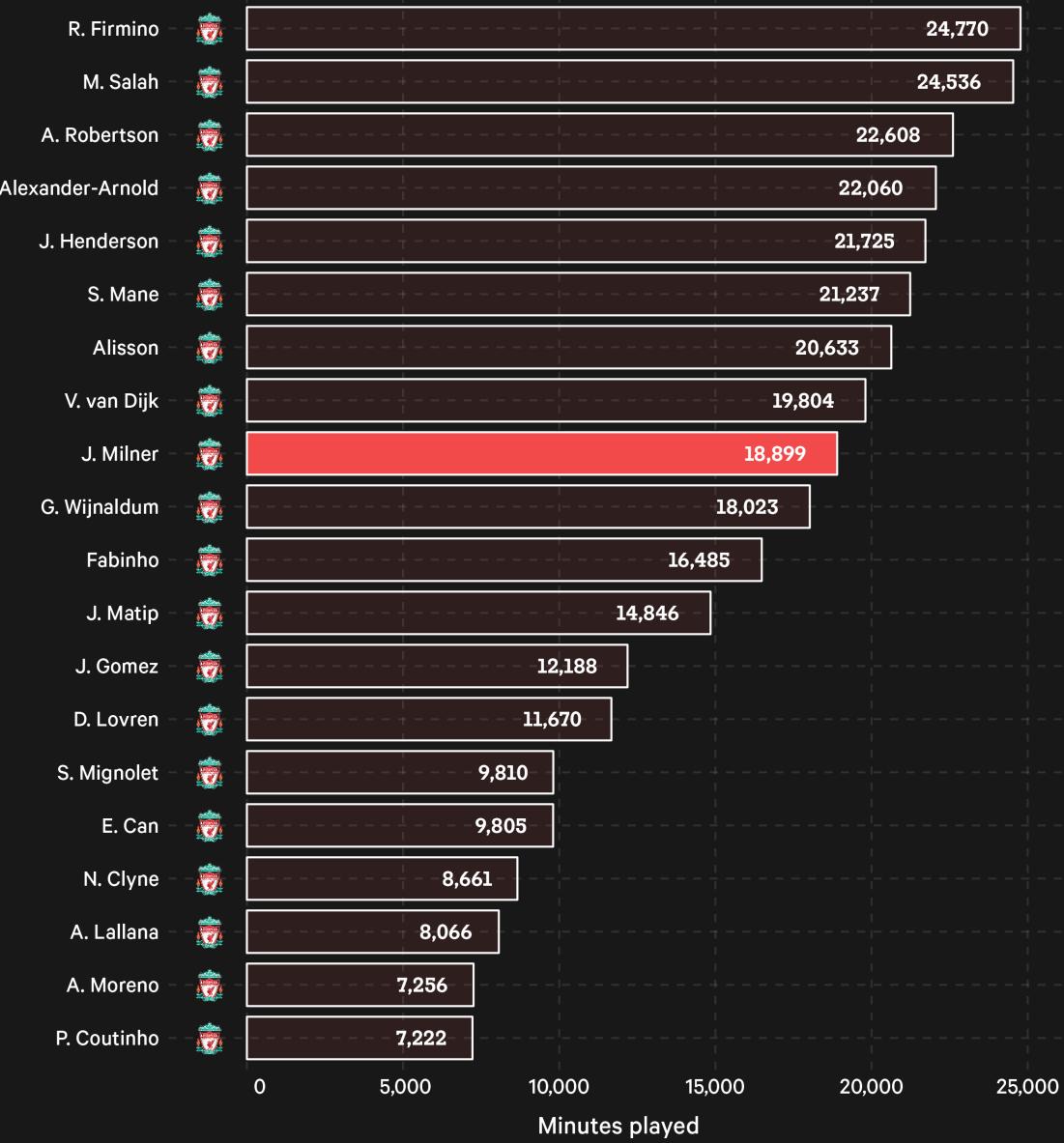
Liverpool | All Comps

18,911

touches

Milner has been a trusted foot soldier since he arrived at Liverpool

Top 20 highest minutes played by Liverpool players in all competitions since 2015-16





James Milner Touches

Liverpool | All Comps

18,911

touches

J. Milner



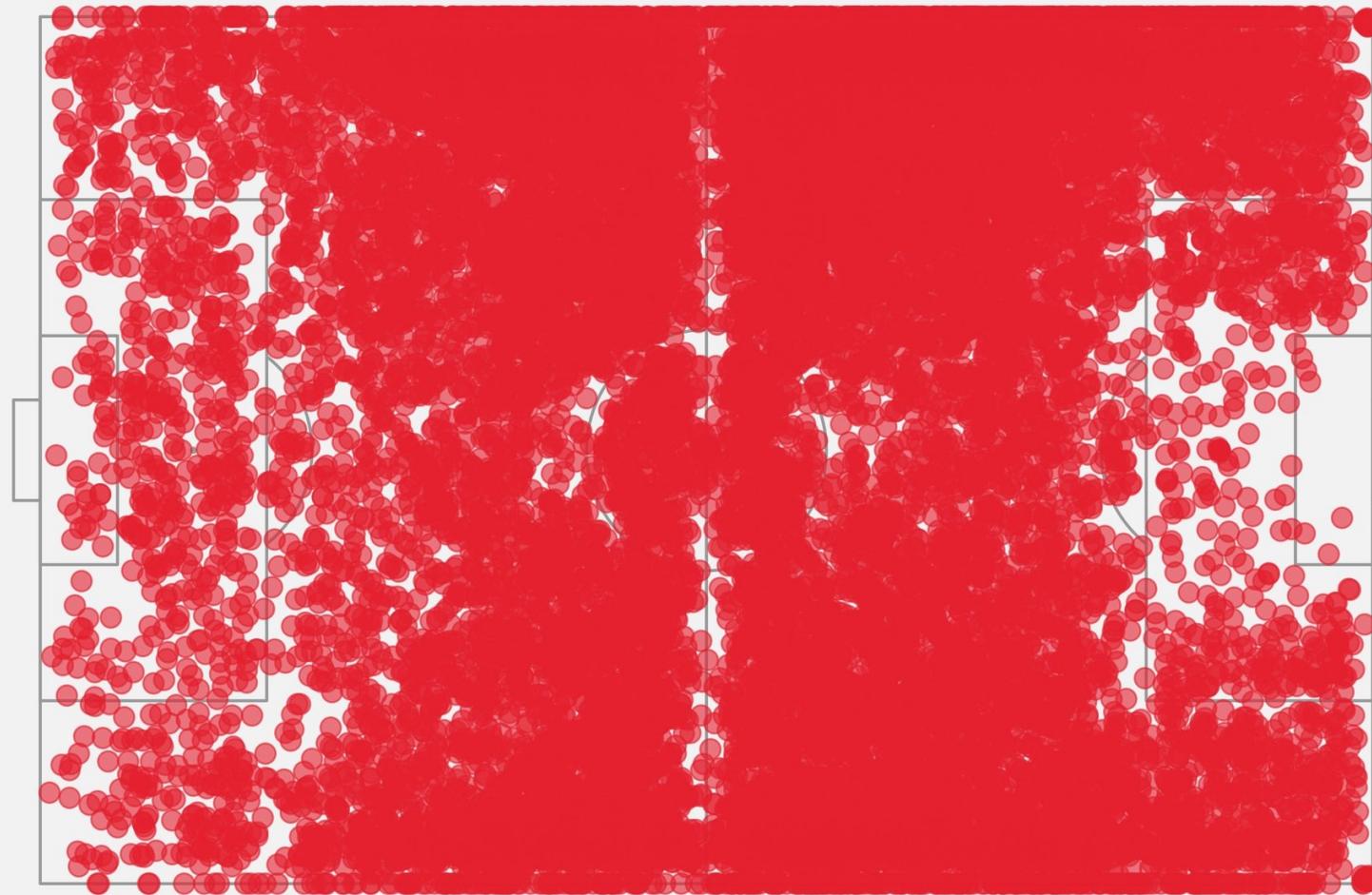
18,899

minutes played for Liverpool



James Milner Touches

Liverpool | All Comps



18,911

touches



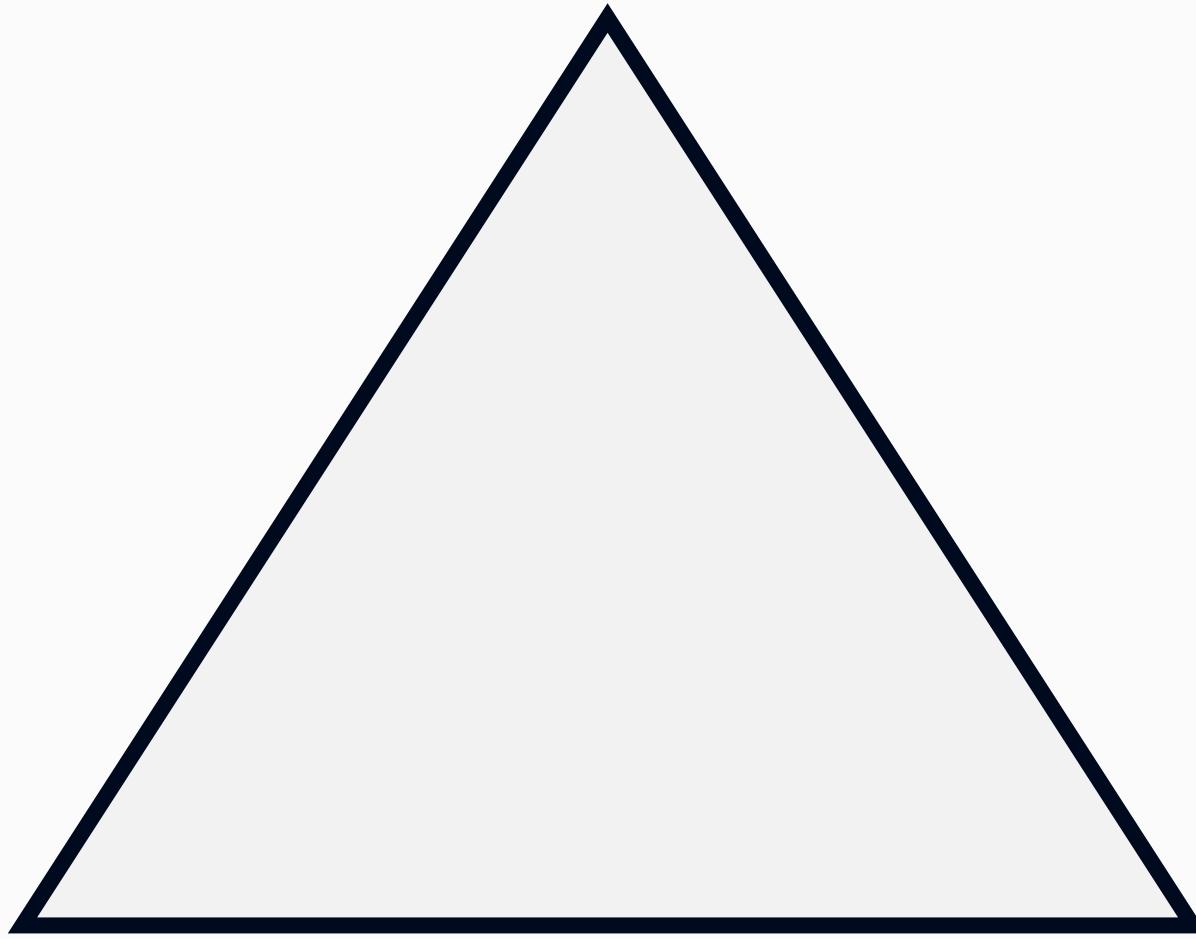
Attacking Direction

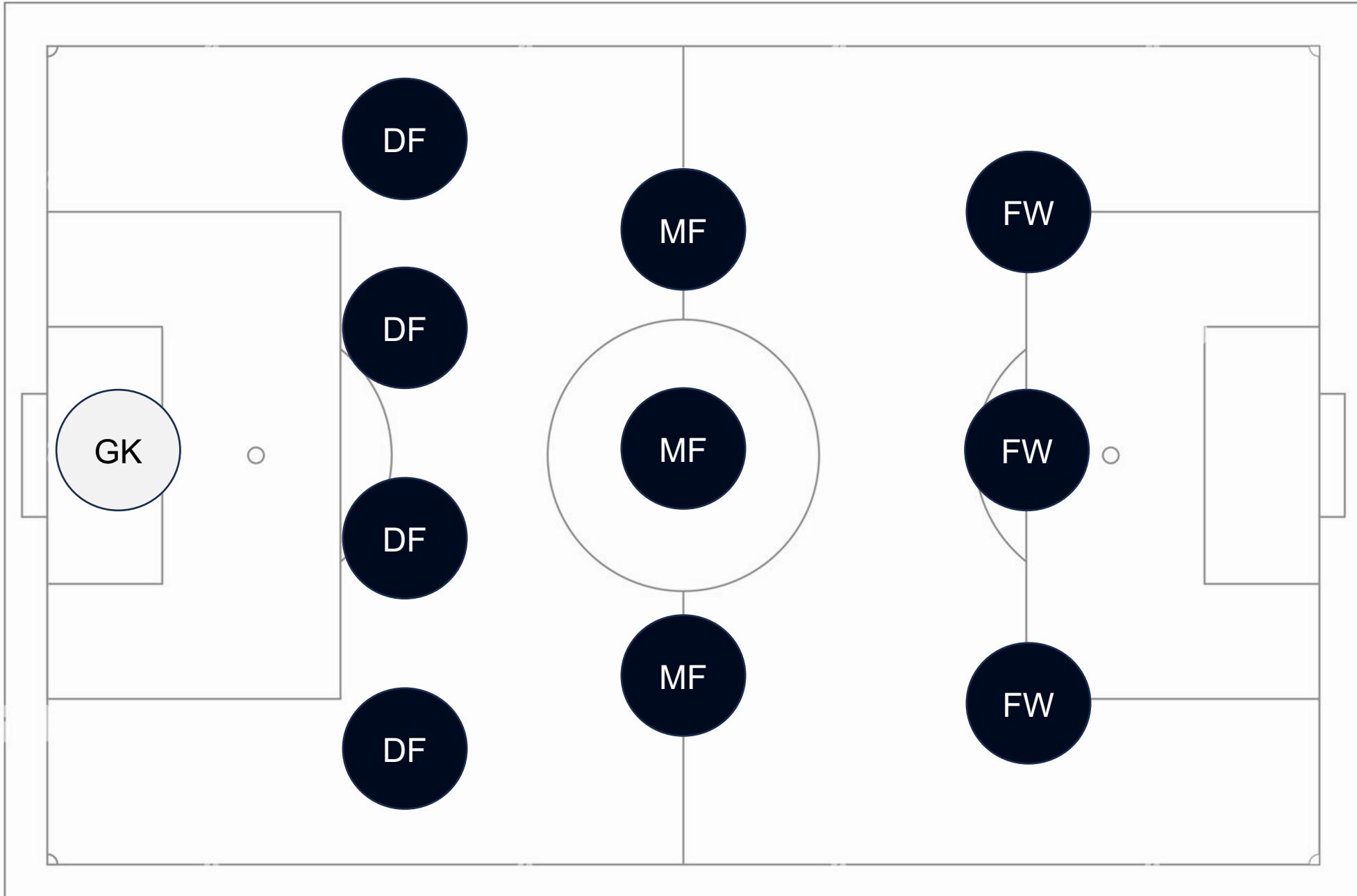
“James Milner has 18,911 touches for Liverpool”

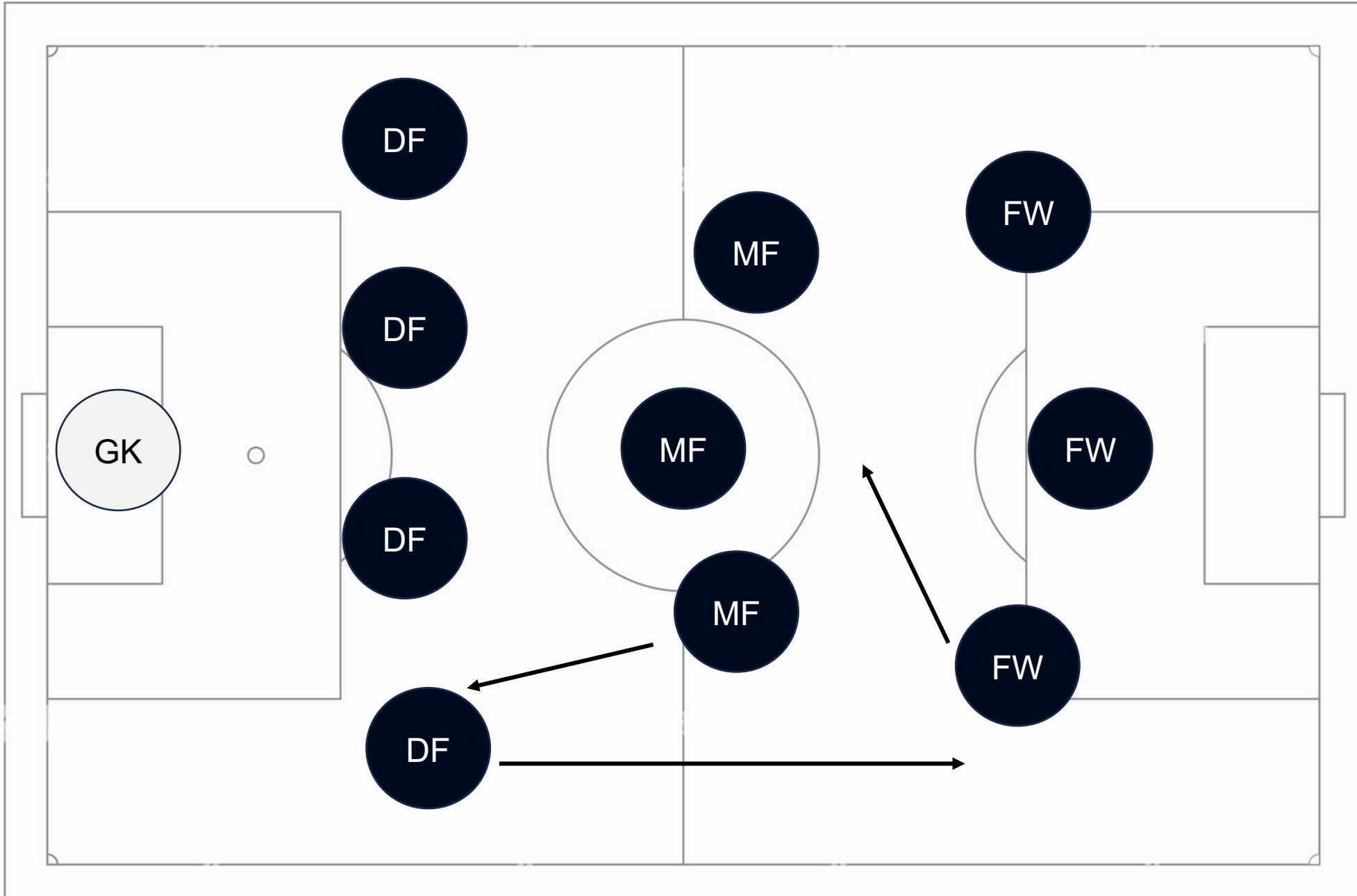
“James Milner has had a touch of the ball almost every minute that he has played for Liverpool, covering almost every inch of the pitch”

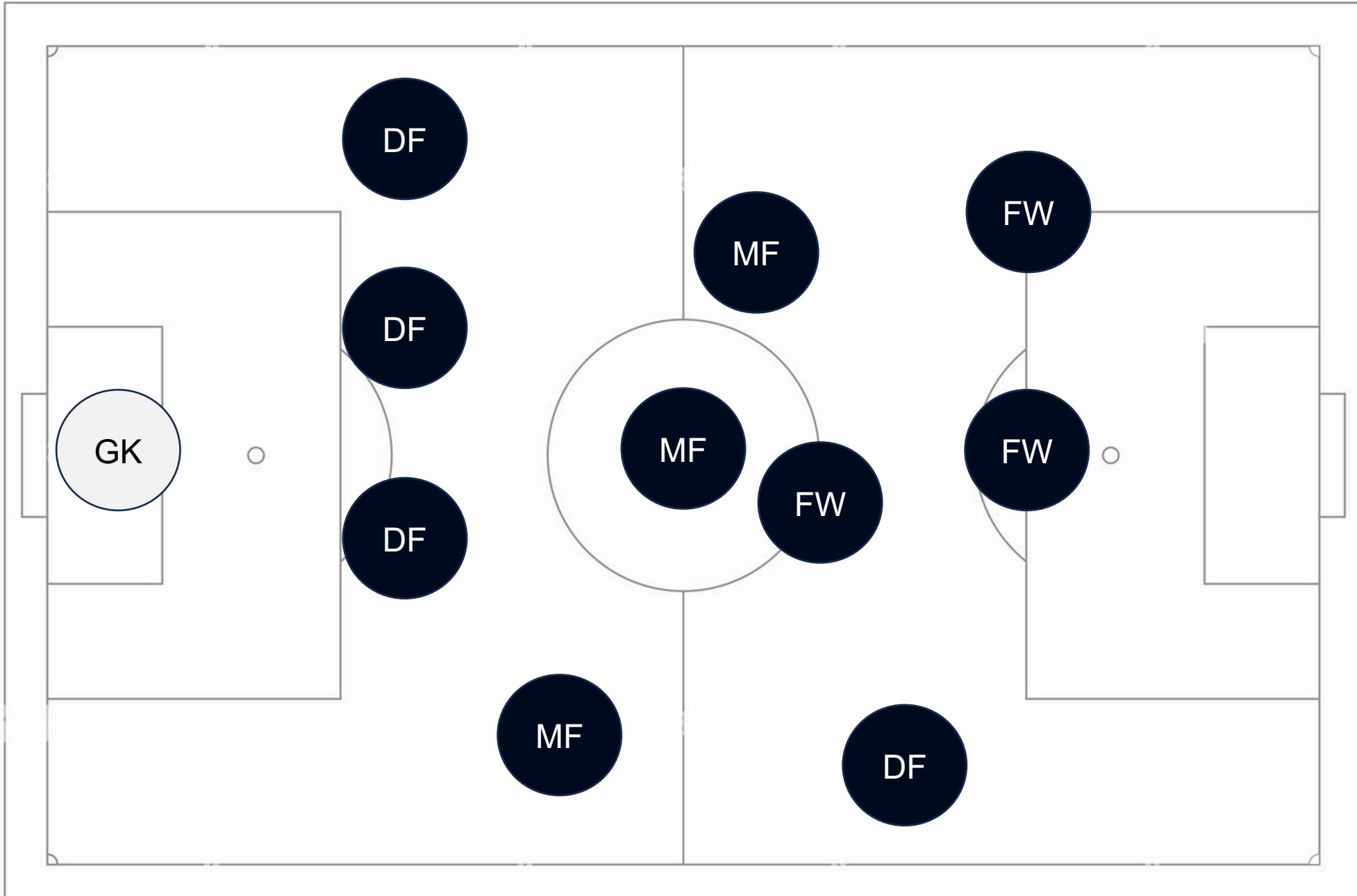


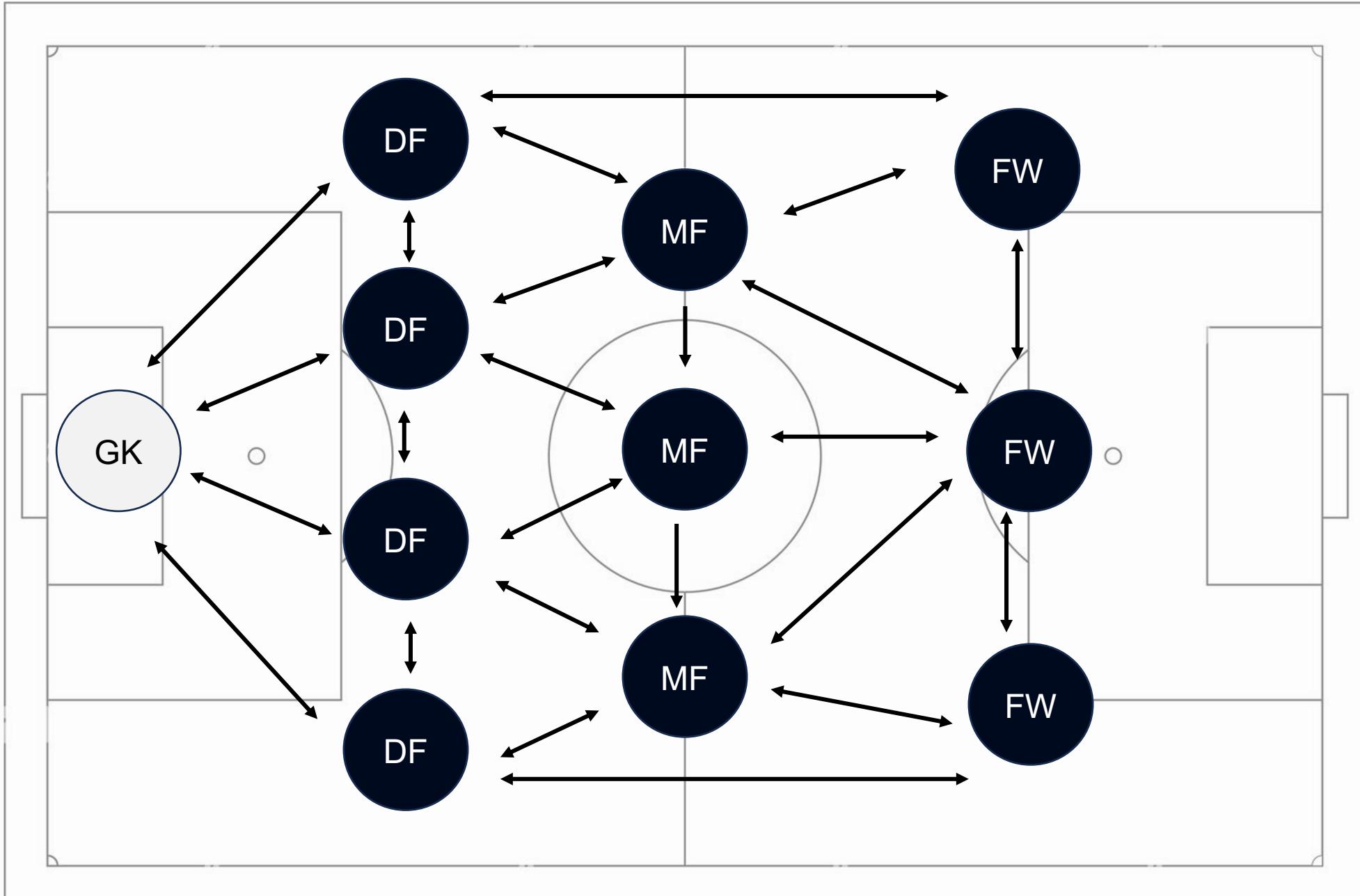
“I've never seen a bag of money score a goal”
– Johan Cruyff



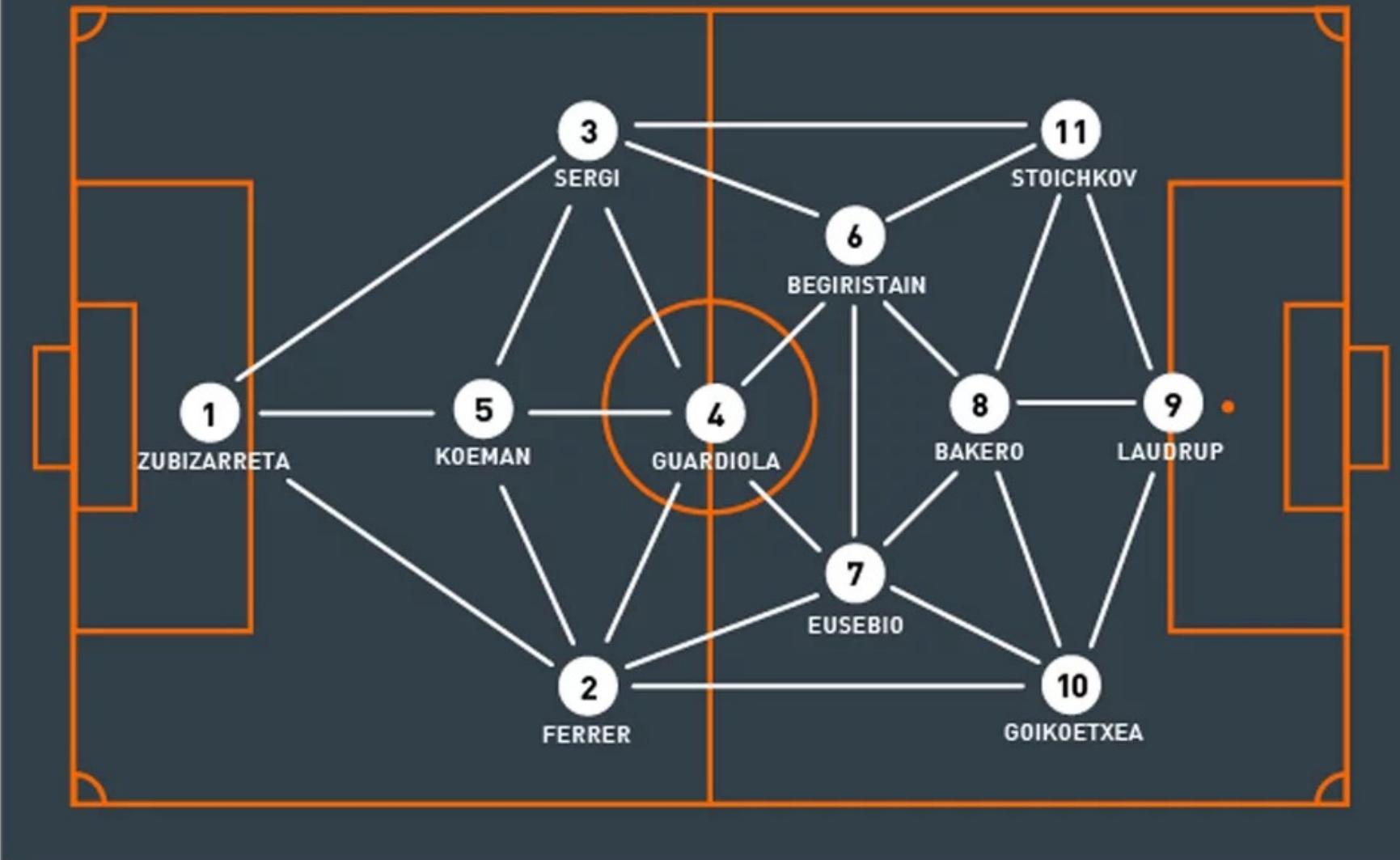








CRUYFF'S TRIANGLES AT BARCELONA



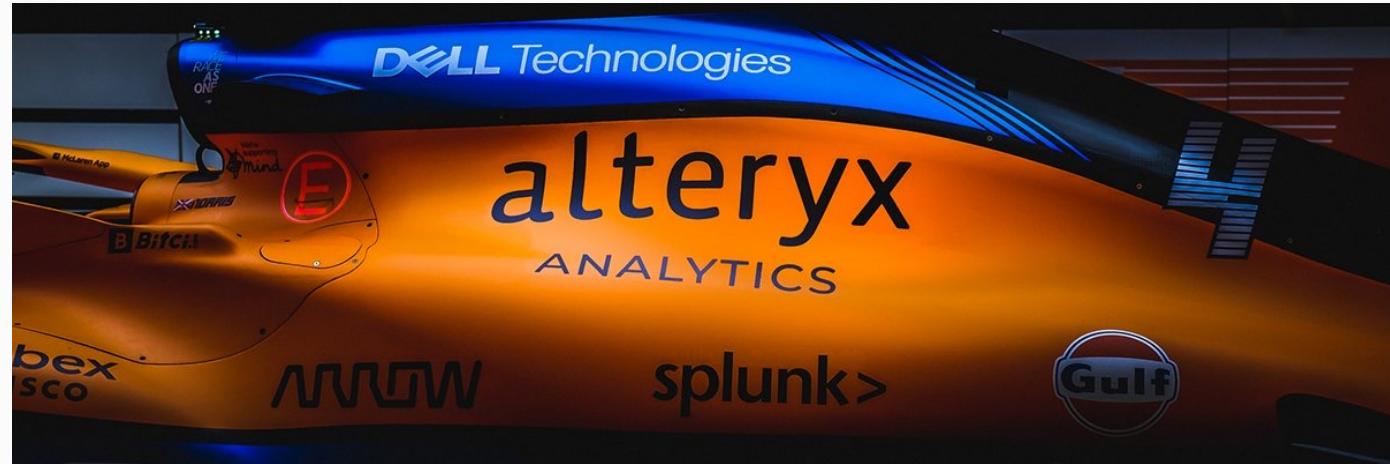








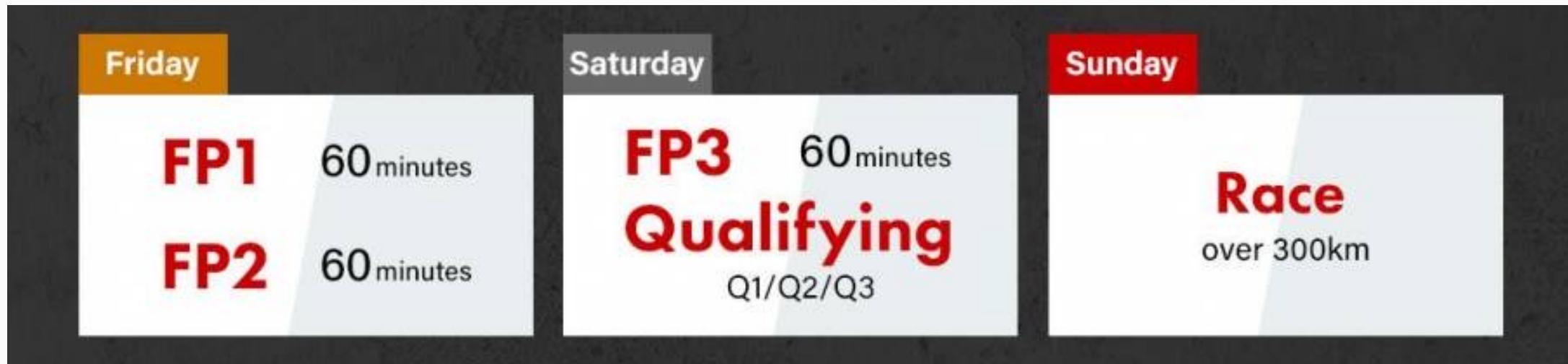








Up to 10,000 data points every single second



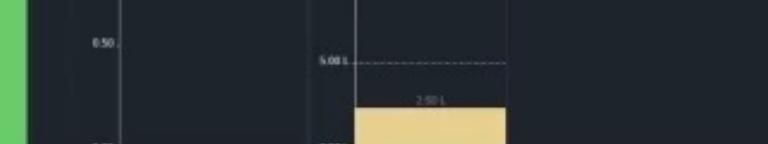
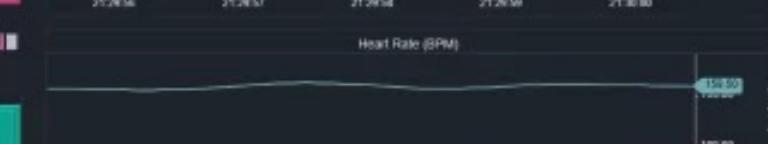


Real Time Telemetry

Austria - Spielberg



Weather

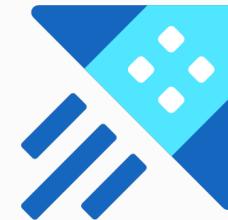




carId	trackId	trackLength	lapIndex	lapNum	lapFlag	binIndex	validBin	lap_number	lap_distance	lap_time	lap_time_invalid	world_position_X	world_position_Y	world_position_Z	world_forward_X	world_forward_Y	world_forward_Z	world
Red Bull Racing	Monza	5798	0	0	0	0	1	0	8.90604	0.098		0 620.01	602.743	-3.09608	-0.0817286	-0.996643	0.00338755	-0.9966
Red Bull Racing	Monza	5798	0	0	0	1	1	0	8.90604	0.098		0 620.01	602.743	-3.09608	-0.0817286	-0.996643	0.00338755	-0.9966
Red Bull Racing	Monza	5798	0	0	0	2	1	0	8.90604	0.098		0 620.01	602.743	-3.09608	-0.0817286	-0.996643	0.00338755	-0.9966
Red Bull Racing	Monza	5798	0	0	0	3	1	0	8.90604	0.098		0 620.01	602.743	-3.09608	-0.0817286	-0.996643	0.00338755	-0.9966
Red Bull Racing	Monza	5798	0	0	0	4	1	0	8.90604	0.098		0 620.01	602.743	-3.09608	-0.0817286	-0.996643	0.00338755	-0.9966
Red Bull Racing	Monza	5798	0	0	0	5	1	0	8.90604	0.098		0 620.01	602.743	-3.09608	-0.0817286	-0.996643	0.00338755	-0.9966
Red Bull Racing	Monza	5798	0	0	0	6	1	0	8.90604	0.098		0 620.01	602.743	-3.09608	-0.0817286	-0.996643	0.00338755	-0.9966
Red Bull Racing	Monza	5798	0	0	0	7	1	0	8.90604	0.098		0 620.01	602.743	-3.09608	-0.0817286	-0.996643	0.00338755	-0.9966
Red Bull Racing	Monza	5798	0	0	0	8	1	0	8.90604	0.098		0 620.01	602.743	-3.09608	-0.0817286	-0.996643	0.00338755	-0.9966
Red Bull Racing	Monza	5798	0	0	0	9	1	0	9.84184	0.108889		0 619.85	600.787	-3.08748	-0.0817387	-0.99664	0.00347911	-0.9966
Red Bull Racing	Monza	5798	0	0	0	10	1	0	10.7776	0.119778		0 619.69	598.832	-3.07888	-0.0817489	-0.996636	0.00357067	-0.9966
Red Bull Racing	Monza	5798	0	0	0	11	1	0	11.7134	0.130667		0 619.529	596.876	-3.07029	-0.0817591	-0.996633	0.00366222	-0.9966
Red Bull Racing	Monza	5798	0	0	0	12	1	0	12.6492	0.141556		0 619.369	594.921	-3.06169	-0.0817693	-0.996629	0.00375378	-0.9965
Red Bull Racing	Monza	5798	0	0	0	13	1	0	13.585	0.152444		0 619.209	592.965	-3.05309	-0.0817794	-0.996626	0.00384533	-0.9965
Red Bull Racing	Monza	5798	0	0	0	14	1	0	14.5208	0.163333		0 619.048	591.01	-3.0445	-0.0817896	-0.996623	0.00393689	-0.9965
Red Bull Racing	Monza	5798	0	0	0	15	1	0	15.4566	0.174222		0 618.888	589.055	-3.0359	-0.0817998	-0.996619	0.00402844	-0.9965
Red Bull Racing	Monza	5798	0	0	0	16	1	0	16.3924	0.185111		0 618.728	587.099	-3.0273	-0.08181	-0.996616	0.00412	-0.9965
Red Bull Racing	Monza	5798	0	0	0	17	1	0	17.3282	0.196		0 618.567	585.144	-3.01871	-0.0818201	-0.996612	0.00421155	-0.9965
Red Bull Racing	Monza	5798	0	0	0	18	1	0	18.368	0.208111		0 618.483	584.111	-3.01382	-0.0818235	-0.996612	0.00421155	-0.9965
Red Bull Racing	Monza	5798	0	0	0	19	1	0	19.4078	0.220222		0 618.398	583.079	-3.00894	-0.0818269	-0.996612	0.00421155	-0.9965
Red Bull Racing	Monza	5798	0	0	0	20	1	0	20.4476	0.232333		0 618.313	582.047	-3.00405	-0.0818303	-0.996612	0.00421155	-0.9965
Red Bull Racing	Monza	5798	0	0	0	21	1	0	21.4874	0.244444		0 618.228	581.015	-2.99917	-0.0818337	-0.996612	0.00421155	-0.9965
Red Bull Racing	Monza	5798	0	0	0	22	1	0	22.5272	0.256556		0 618.144	579.982	-2.99428	-0.0818371	-0.996612	0.00421155	-0.9965
Red Bull Racing	Monza	5798	0	0	0	23	1	0	23.567	0.268667		0 618.059	578.95	-2.98939	-0.0818405	-0.996612	0.00421155	-0.9965
Red Bull Racing	Monza	5798	0	0	0	24	1	0	24.6068	0.280778		0 617.974	577.918	-2.98451	-0.0818439	-0.996612	0.00421155	-0.9965
Red Bull Racing	Monza	5798	0	0	0	25	1	0	25.6466	0.292889		0 617.89	576.885	-2.97962	-0.0818473	-0.996612	0.00421155	-0.9965
Red Bull Racing	Monza	5798	0	0	0	26	1	0	26.6863	0.305		0 617.805	575.853	-2.97474	-0.0818506	-0.996612	0.00421155	-0.9965
Red Bull Racing	Monza	5798	0	0	0	27	1	0	27.6259	0.315889		0 617.728	574.92	-2.97022	-0.081854	-0.996612	0.00422512	-0.9965
Red Bull Racing	Monza	5798	0	0	0	28	1	0	28.5655	0.326778		0 617.652	573.987	-2.9657	-0.0818574	-0.996612	0.00423868	-0.9965
Red Bull Racing	Monza	5798	0	0	0	29	1	0	29.5051	0.337667		0 617.575	573.055	-2.96119	-0.0818608	-0.996613	0.00425225	-0.9965
Red Bull Racing	Monza	5798	0	0	0	30	1	0	30.4447	0.348556		0 617.498	572.122	-2.95667	-0.0818642	-0.996612	0.00426581	-0.9965
Red Bull Racing	Monza	5798	0	0	0	31	1	0	31.3843	0.359444		0 617.422	571.189	-2.95215	-0.0818676	-0.996612	0.00427937	-0.9965
Red Bull Racing	Monza	5798	0	0	0	32	1	0	32.3239	0.370333		0 617.345	570.256	-2.94763	-0.081871	-0.996612	0.00429294	-0.9965
Red Bull Racing	Monza	5798	0	0	0	33	1	0	33.2635	0.381222		0 617.268	569.323	-2.94312	-0.0818744	-0.996612	0.0043065	-0.9965
Red Bull Racing	Monza	5798	0	0	0	34	1	0	34.203	0.392111		0 617.192	568.391	-2.9386	-0.0818778	-0.996612	0.00432006	-0.9965
Red Bull Racing	Monza	5798	0	0	0	35	1	0	35.1426	0.403		0 617.115	567.458	-2.93408	-0.0818812	-0.996612	0.00433363	-0.9965
Red Bull Racing	Monza	5798	0	0	0	36	1	0	36.2147	0.415375		0 617.027	566.391	-2.92887	-0.0818812	-0.996612	0.00432218	-0.9965
Red Bull Racing	Monza	5798	0	0	0	37	1	0	37.2868	0.42775		0 616.94	565.324	-2.92367	-0.0818812	-0.996612	0.00431074	-0.9965

Kusto

What is it and why should I care about it?



Logs ⚙ ... X

Demo

New Query 1* +

Demo Run Time range : Last 24 hours Save Share New alert rule Export Pin to dashboard Format query

Tables Queries Functions Filter ...

Filter Group by: Category

Collapse all

Favorites
You can add favorites by clicking on the ★ icon

Applications

- Error and exception count
- Exceptions causing request failures
- Failed operations
- Failed requests - top 10
- Failing dependencies
- Function activity over time
- Function Error rate 🕒
- Function results
- Operations performance
- Page views trend
- Request count trend
- Response time buckets
- Response time trend
- Show application logs from Function Apps
- Show logs with warnings or exceptions
- Slow Functions

```

2 | where ResultCode == `200`` 
3 | where Name == `GET Home/Index`` 
4 | 
5 // Function Error rate 
6 // Summarizing functions success and errors per hour. 
7 FunctionAppLogs 
8 | where Category startswith "Function." and Message startswith "Executed " 
9 | parse Message with "Executed " Name `` ( `` Result `` , Id=`` Id `` , Duration=`` Duration:long `` ms)`` 
10 // | where Name == "MyFunction" // Use this to restrict to a specific function 
11 | summarize count() by bin(TimeGenerated, 1h), Name, Result, _ResourceId 
12 | order by TimeGenerated desc 
13 |

```

Results Chart Columns Display time (UTC+00:00) Group columns

Completed. Showing results from the last 24 hours. 🕒 00:02.7 13,551 records

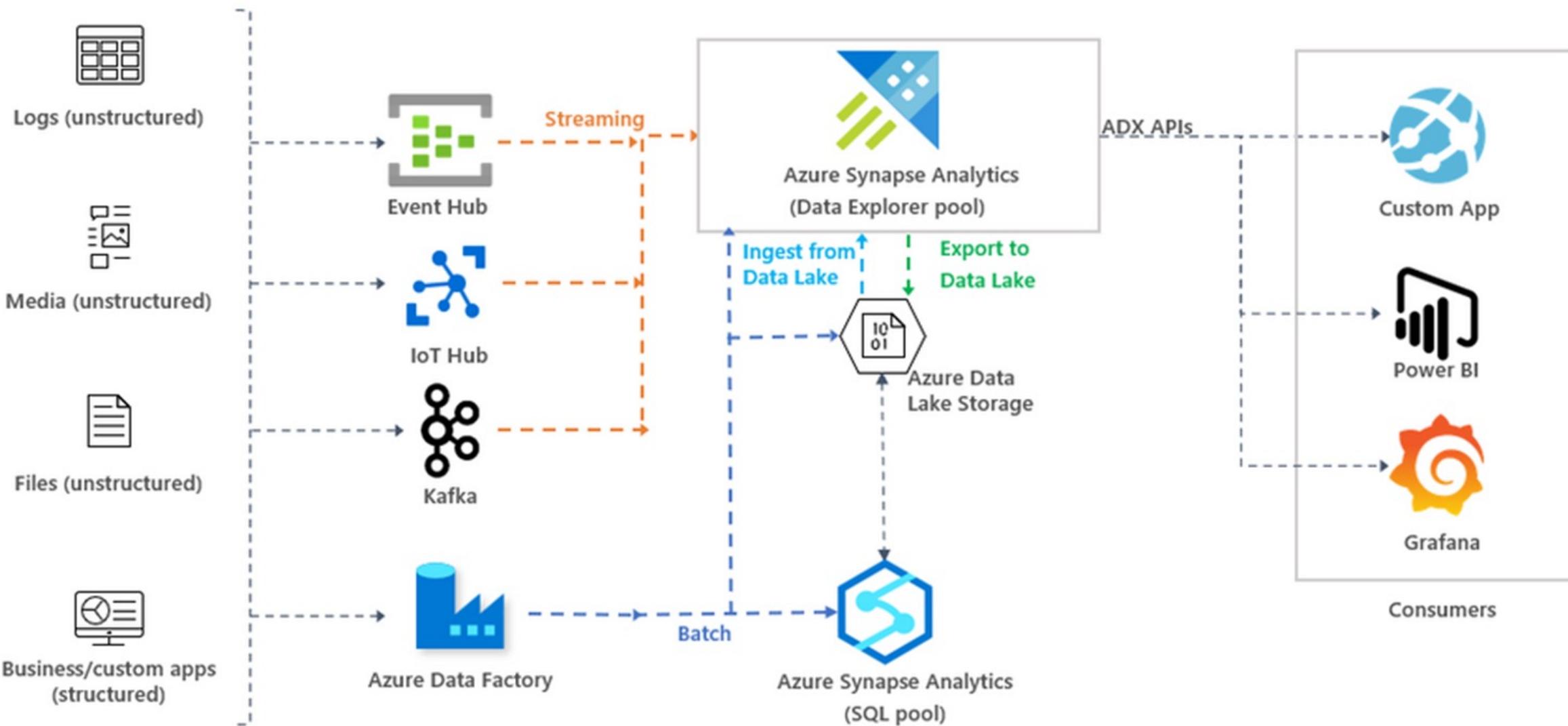
TimeGenerated [UTC]	Id	Source	Name	Url	Success	ResultCo
6/28/2021, 6:14:00.098 PM	20f1a0f709b0b...	cid-v1:326c1b24-cd4d-4cf9-b53a-53c85ec...	GET Home/In...	http://ch1-retailvm01y37ha6.eastus.cloudapp.azure...	true	200
6/28/2021, 6:14:15.175 PM	b9abc3ba1630...	cid-v1:326c1b24-cd4d-4cf9-b53a-53c85ec...	GET Home/In...	http://ch1-retailvm01y37ha6.eastus.cloudapp.azure...	true	200
6/28/2021, 6:14:18.958 PM	284cdbbf28a1...		GET Home/In...	http://ch1-retailvm01y37ha6.eastus.cloudapp.azure...	true	200
6/28/2021, 6:14:21.758 PM	29a9b4eb10f6...		GET Home/In...	https://ch1-retailappy37ha6.azurewebsites.net/	true	200
6/28/2021, 6:14:22.604 PM	2edf29a72f110...		GET Home/In...	https://ch1-retailappy37ha6.azurewebsites.net/	true	200
6/28/2021, 6:14:22.822 PM	1488b0c14e8c9...		GET Home/In...	https://ch1-retailappy37ha6.azurewebsites.net/	true	200
6/28/2021, 6:14:30.106 PM	fbcdf98450eb9...	cid-v1:326c1b24-cd4d-4cf9-b53a-53c85ec...	GET Home/In...	http://ch1-retailvm01y37ha6.eastus.cloudapp.azure...	true	200
6/28/2021, 6:14:30.183 PM	2d00eab72788...		GET Home/In...	http://ch1-retailvm01y37ha6.eastus.cloudapp.azure...	true	200
6/28/2021, 6:14:35.140 PM	de5dd1f5abfa1...		GET Home/In...	https://ch1-retailappy37ha6.azurewebsites.net/	true	200
6/28/2021, 6:14:45.086 PM	e8af43ca37687...	cid-v1:326c1b24-cd4d-4cf9-b53a-53c85ec...	GET Home/In...	http://ch1-retailvm01y37ha6.eastus.cloudapp.azure...	true	200
6/28/2021, 6:14:45.174 PM	48d3e43b91be...		GET Home/In...	http://ch1-retailvm01y37ha6.eastus.cloudapp.azure...	true	200
6/28/2021, 6:14:49.127 PM	a4d9c8fbc00f3...		GET Home/In...	https://ch1-retailappy37ha6.azurewebsites.net/	true	200

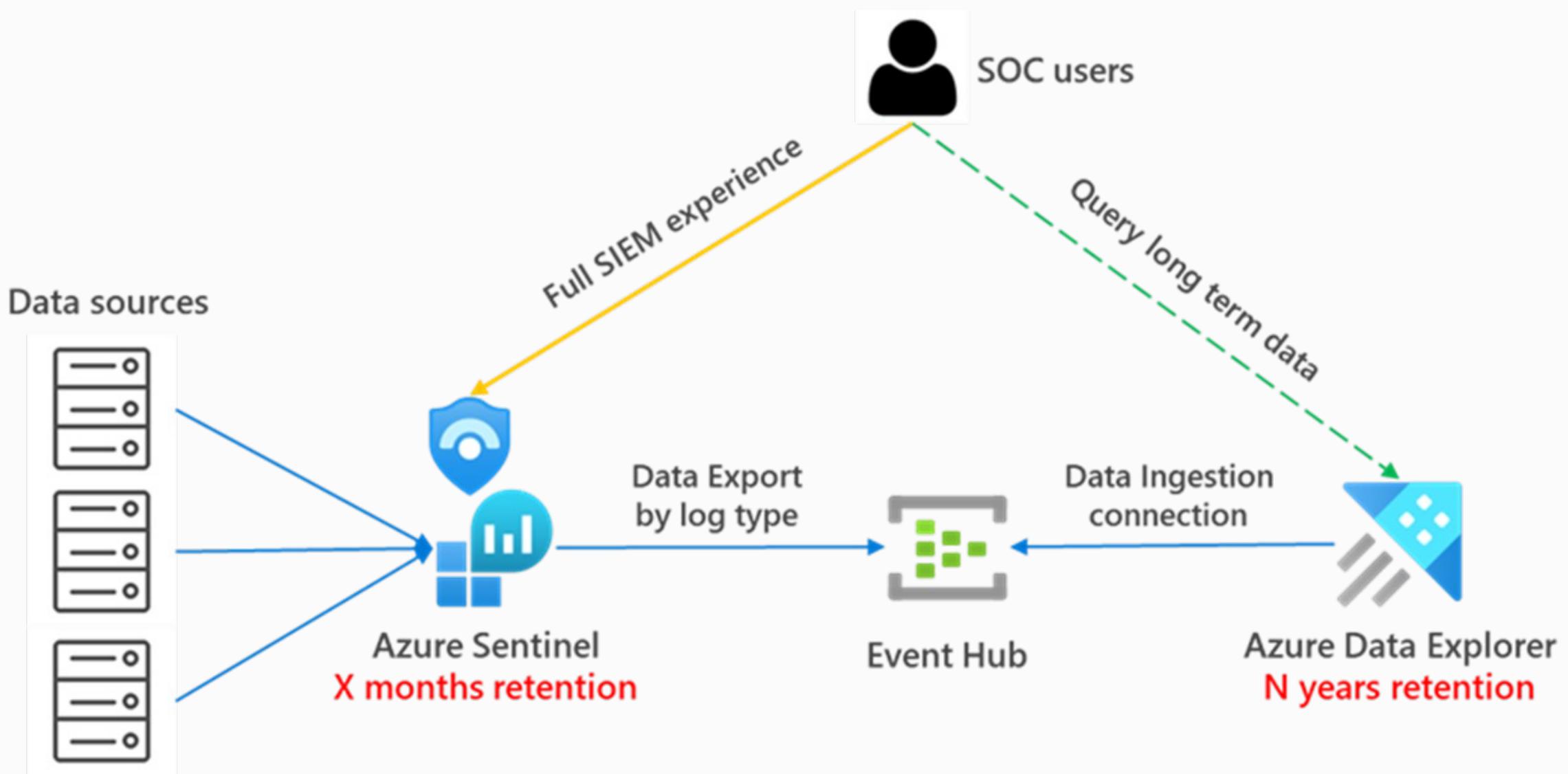
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Data Explorer



"Azure Data Explorer is a fast, fully-managed data analytics service for real-time analysis on large volumes of data streaming from applications, websites, IoT devices, and more..."

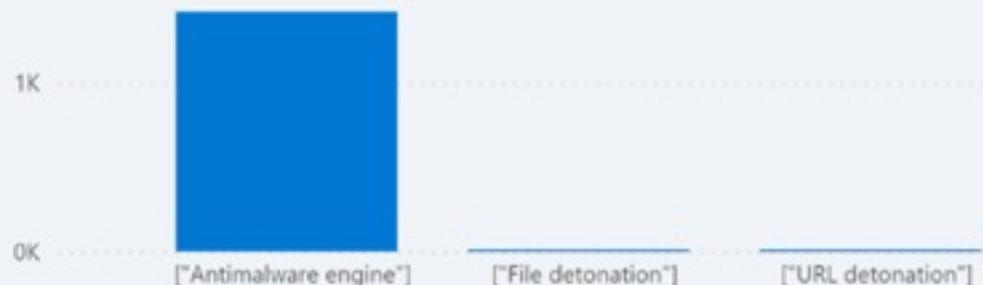
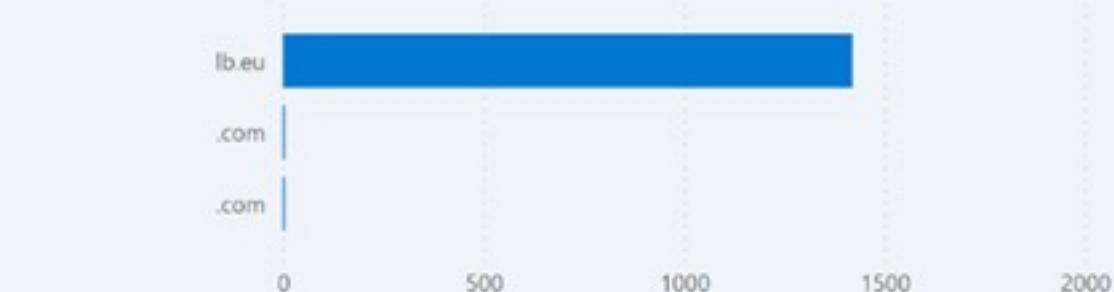




Microsoft Defender for Office 365

Malware Detections

10/09/2022 10/10/2022

[Back to ReadMe](#)**Malware Threats- Trend Over last 30 days****Detection Technology used for Malware Detections****Top Domains sending Malware****Sender Heatmap (IPv4)****Top Malware Families****Top Targeted Users (Malware)**



Microsoft Fabric

The data platform for the era of AI



Data
Factory



Synapse Data
Engineering



Synapse Data
Science



Synapse Data
Warehousing



Synapse Real
Time Analytics



Power BI

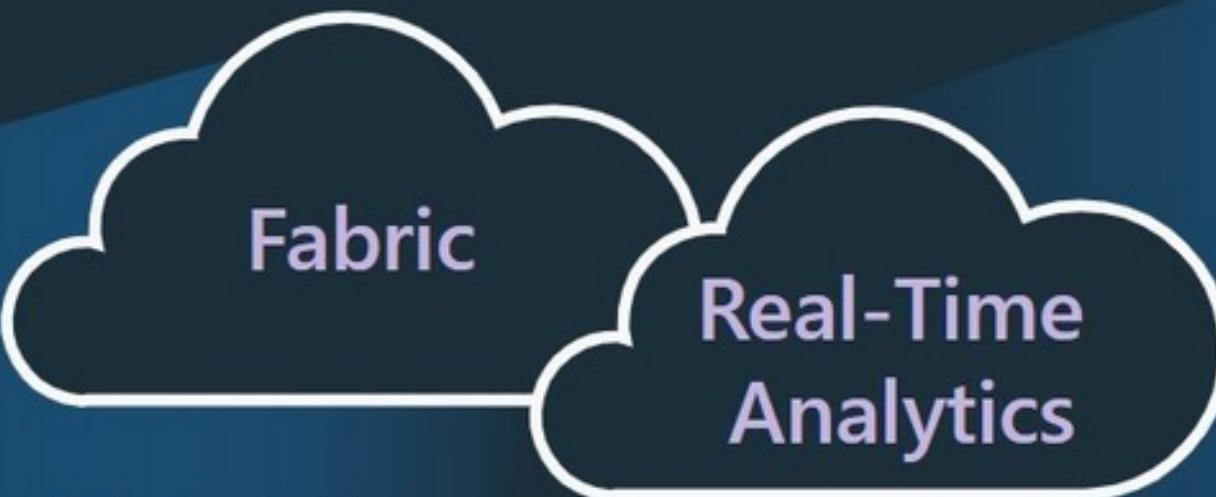


Data
Activator



OneLake

Real-time analytics in Fabric

- 
- › Simplicity
 - › SaaS
 - › One unified portfolio for all data and AI solutions
 - › All Experiences are fully integrated
 - › One Logical Copy
- › By-default streaming ingestion
 - › By-default indexing everything
 - › Time and Hash-based data partitioning
 - › Data movement
 - › Torrents of data
 - › Take action on real-time data
 - › Native support for structured, semi-structured and free text data
 - › In-place transformation

