

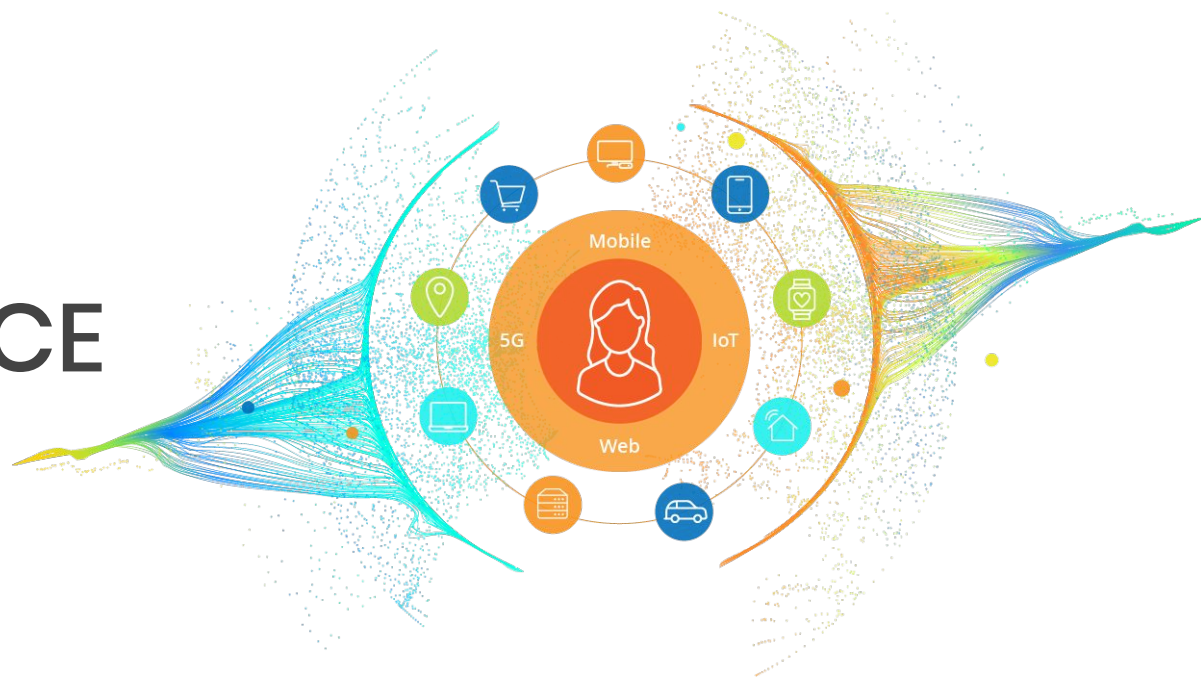


POWERING FLAWLESS CONNECTED EXPERIENCES



Google Play  
Music

# HEADSPIN PERFORMANCE REPORT



“ Connected experiences are fundamental to the success of digital businesses and require a **unified, proactive approach to testing, monitoring, and analytics** across applications, devices, and networks. ”



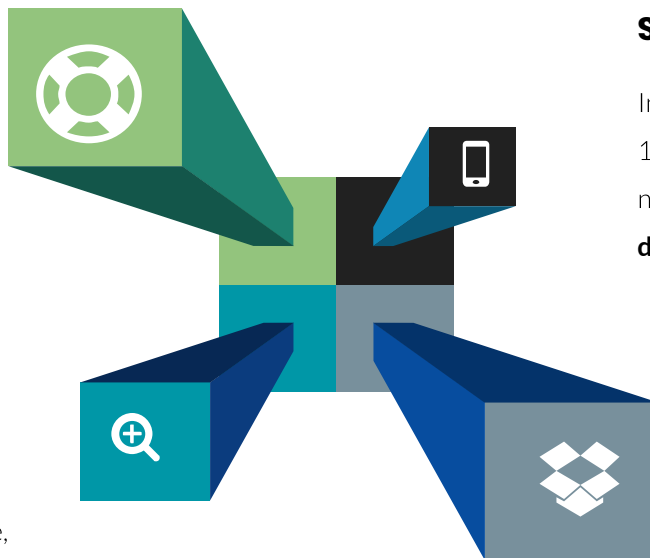
# HEADSPIN IS THE WORLD'S FIRST CONNECTED INTELLIGENCE PLATFORM™

## CONNECTED EXPERIENCES

HeadSpin provides **Mobile, IoT, and 5G** solutions to optimize connected experiences across applications, devices, and networks.

## REAL TIME MONITORING

HeadSpin allows developers to test and monitor their apps in **real time, on real devices** and in real world conditions before, during and after an app is released.



## SCALABLE DEVICE INFRASTRUCTURE

Infrastructure consists of 32,000+ SIM enabled devices in 160+ locations in 110+ countries across 1,000+ telecom networks. **We Support every type of iOS and Android device** including phones, tablets, wearables and TVs

## NO SDK REQUIRED

All performance **data is monitored and captured through an API** with no code change or SDK needed

### OUR CHANNEL PARTNERS

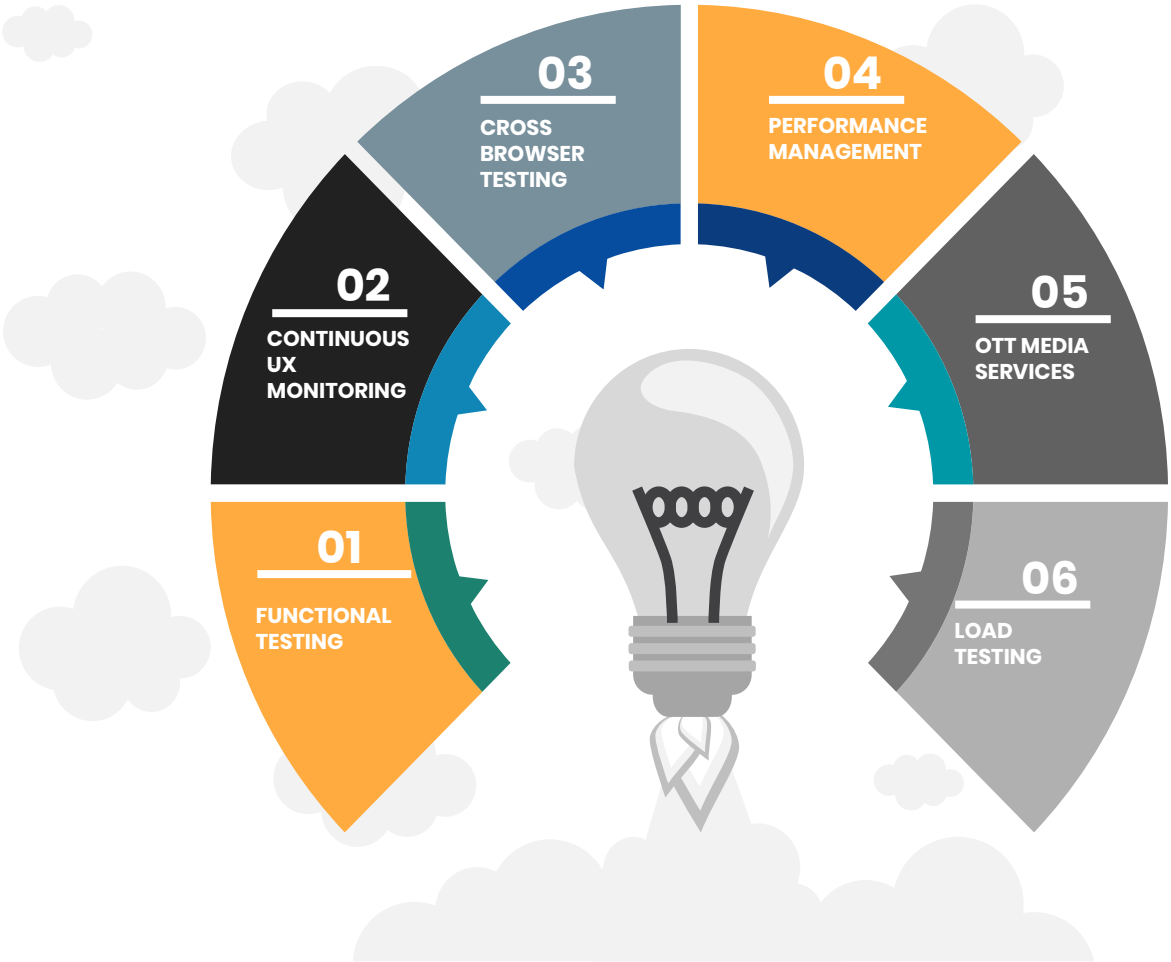


Infosys

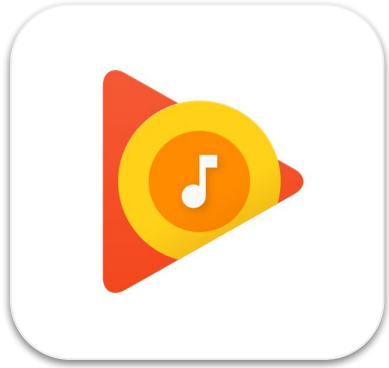


accenture

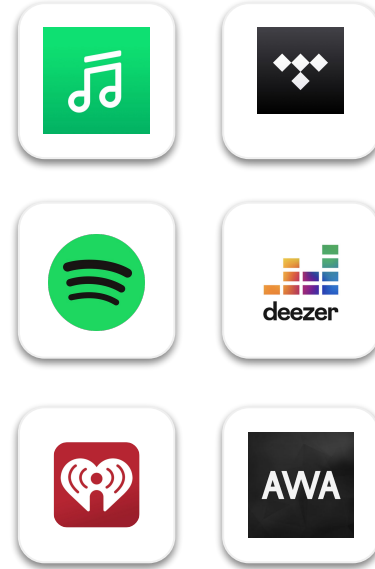
# HEADSPIN SUITE OF SOLUTIONS



# HEADSPIN DID AN INITIAL COMPARISON OF PERFORMANCE TESTING OF TOP KPIS FOR GOOGLE PLAY MUSIC VS ITS PEERS ON REAL SIM-ENABLED DEVICES



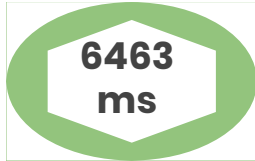
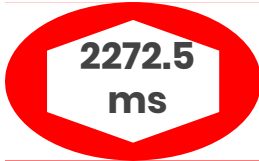
VS



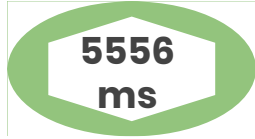
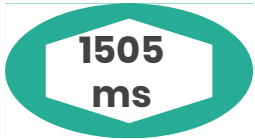
*Metrics are captured on both WiFi and Telco networks across low tier, mid tier and high tier mobile devices  
No SDK, code change or instrumentation was required*

# GOOGLE PLAY MUSIC'S KPI COMPARISON ACROSS

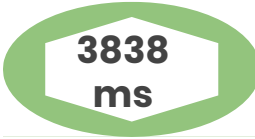
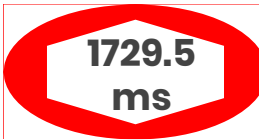
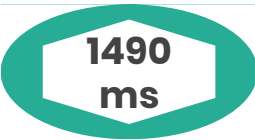
LOW TIER DEVICES



MID TIER DEVICES



HIGH TIER DEVICES



LAUNCH TIME

SEARCH TIME

PLAY LATENCY

**LAUNCH  
TIME**

# GOOGLE PLAY MUSIC COULD IMPROVE LAUNCH PERFORMANCE ACROSS DEVICES

LOW TIER

App Name	TTI
LINE MUSIC	1048.5
DEEZER MUSIC PLAYER	1433.5
AWA	1618
<b>GOOGLE PLAY MUSIC</b>	<b>2024.5</b>
SOUNDCLOUD	2611
PANDORA	2700

MID TIER

App Name	TTI
TIDAL MUSIC	665.5
DEEZER MUSIC PLAYER	694.5
AWA	709
LINE MUSIC	736.5
<b>GOOGLE PLAY MUSIC</b>	<b>1505</b>
NAPSTER MUSIC	1735

HIGH TIER

App Name	TTI
DEEZER MUSIC PLAYER	547
AWA	611.5
LINE MUSIC	616
TIDAL MUSIC	663
SOUNDCLOUD	1254
<b>GOOGLE PLAY MUSIC</b>	<b>1490</b>

**SEARCH  
TIME**

## GOOGLE PLAY MUSIC COULD IMPROVE SEARCH PERFORMANCE ACROSS DEVICES

LOW TIER

App Name	TTI
DEEZER MUSIC PLAYER	98
SOUNDCLOUD	697
AWA	726
PANDORA	818.5
SPOTIFY	822
GOOGLE PLAY MUSIC	2272.5

MID TIER

App Name	TTI
DEEZER MUSIC PLAYER	144
IHEARTRADIO	477
SOUNDCLOUD	726
AWA	767.5
SPOTIFY	914
GOOGLE PLAY MUSIC	1918

HIGH TIER

App Name	TTI
DEEZER MUSIC PLAYER	104
SOUNDCLOUD	659
IHEARTRADIO	554
SPOTIFY	791.5
LINE MUSIC	1237
GOOGLE PLAY MUSIC	1729.5



**PLAY  
LATENCY**

# GOOGLE PLAY MUSIC COULD IMPROVE PLAY LATENCY ACROSS DEVICES

**LOW TIER**

App Name	TTI
DEEZER MUSIC PLAYER	193.5
SIRIUSXM	247.5
BUGS	1149.5
SPOTIFY	1885
SOUNDCLOUD	2011
IHEARTRADIO	4521
<b>GOOGLE PLAY MUSIC</b>	<b>6463</b>

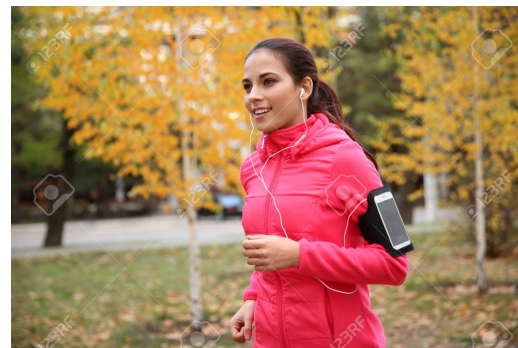
**MID TIER**

App Name	TTI
LINE MUSIC	87.5
DEEZER MUSIC PLAYER	120.5
SIRIUSXM	330
BUGS	387
SPOTIFY	1202
IHEARTRADIO	3243
<b>GOOGLE PLAY MUSIC</b>	<b>5556</b>

**HIGH TIER**

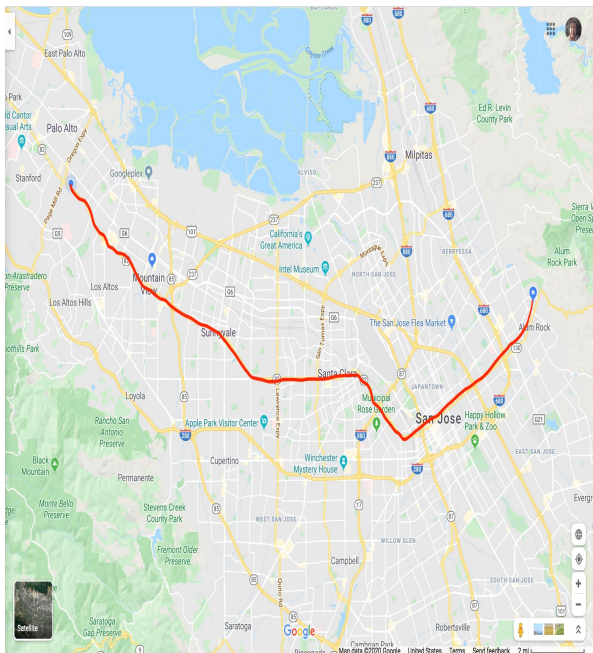
App Name	TTI
LINE MUSIC	61
DEEZER MUSIC PLAYER	70
SIRIUSXM	232
SPOTIFY	294.5
MELON	514
IHEARTRADIO	1365
<b>GOOGLE PLAY MUSIC</b>	<b>3838</b>

# USERS EXPECT AN UNINTERRUPTED EXPERIENCE WHEN LISTENING TO MUSIC, BE IT IN THE COMFORT OF THEIR HOME OR ON THE ROAD



# HEADSPIN EXCLUSIVE

## CAPTURE GOOGLE PLAY METRICS ON THE GO WHILE DRIVING ON HIGHWAY 101 Commuters spend 90 mins on this congested highway for a 15-mile ride



Note: Each metric is a median of iteration over multiple sessions

Proprietary + Confidential

### LAUNCH TIME

01-15-2020 Morning Run		01-14-2020 Evening Run		01-14-2020 Morning Run	
App Name	TTI	App Name	TTI	App Name	TTI
SPOTIFY	1206	SPOTIFY	1022	SPOTIFY	1170
GOOGLE PLAY MUSIC	1723	GOOGLE PLAY MUSIC	1613	GOOGLE PLAY MUSIC	1489.5
DEEZER MUSIC PLAYER	2364.5	YOUTUBE MUSIC	1672	DEEZER MUSIC PLAYER	2866.5
YOUTUBE MUSIC	3335	DEEZER MUSIC PLAYER	2275	YOUTUBE MUSIC	2982
TUNEIN	3614.5	TUNEIN	3354.5	TUNEIN	3864
PANDORA	3689	PANDORA	3600	SOUNDCLOUD	5036
SIRIUSXM	4728	SIRIUSXM	4384	SIRIUSXM	5039
IHEARTRADIO	4785.5	IHEARTRADIO	4764	PANDORA	5141.5
SOUNDCLOUD	5505	SOUNDCLOUD	5125	IHEARTRADIO	5639

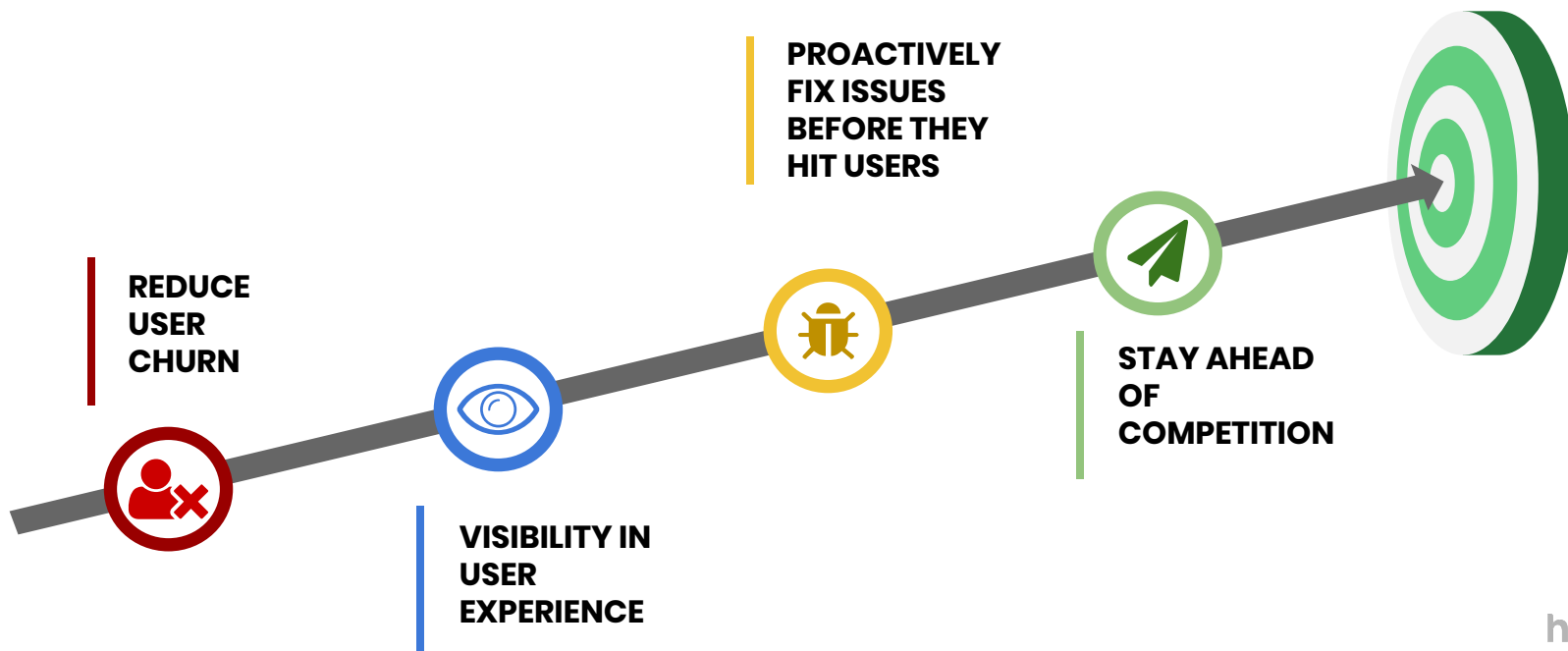
### SEARCH TIME

01-15-2020 Morning Run		01-14-2020 Evening Run		01-14-2020 Morning Run	
App Name	TTI	App Name	TTI	App Name	TTI
DEEZER MUSIC PLAYER	124	TUNEIN	77	DEEZER MUSIC PLAYER	114.5
PANDORA	637	IHEARTRADIO	340	IHEARTRADIO	658
IHEARTRADIO	655	SPOTIFY	700	TUNEIN	659
SPOTIFY	729	SOUNDCLOUD	840	SPOTIFY	727
TUNEIN	753	GOOGLE PLAY MUSIC	1234	SOUNDCLOUD	798
SOUNDCLOUD	798	DEEZER MUSIC PLAYER	1376.5	SIRIUSXM	1342
SIRIUSXM	1270.5	SIRIUSXM	1612	PANDORA	1384.5
YOUTUBE MUSIC	1599	YOUTUBE MUSIC	1871.5	YOUTUBE MUSIC	1657
GOOGLE PLAY MUSIC	1712	PANDORA	3057	GOOGLE PLAY MUSIC	1979.5

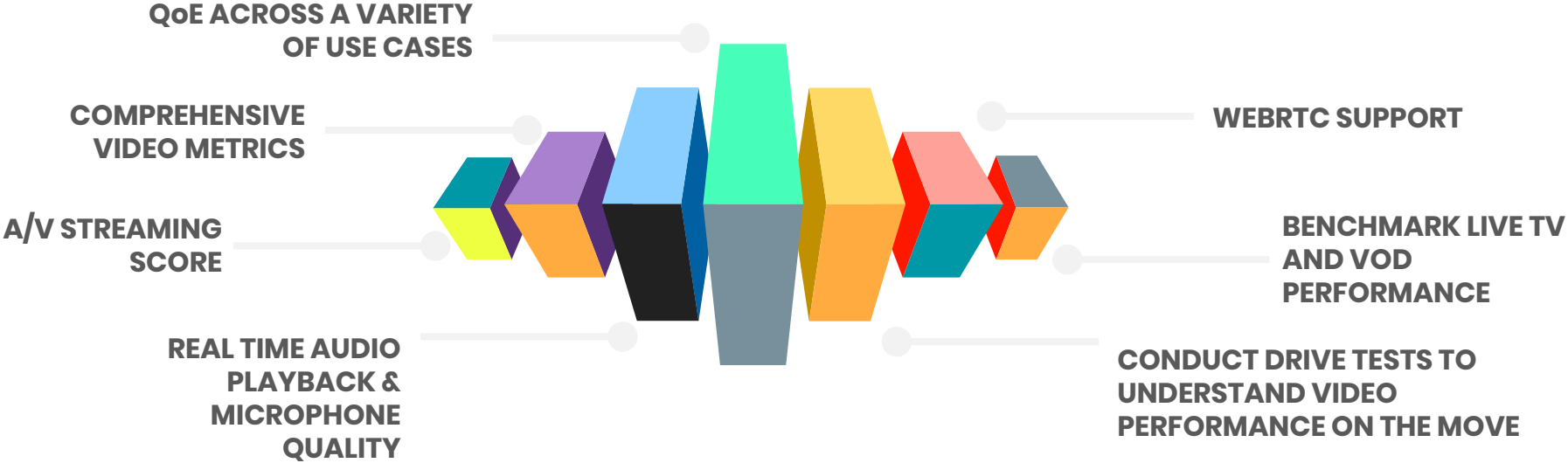
### PLAY TIME

01-15-2020 Morning Run		01-14-2020 Evening Run		01-14-2020 Morning Run	
App Name	TTI	App Name	TTI	App Name	TTI
SPOTIFY	82	YOUTUBE MUSIC	58	DEEZER MUSIC PLAYER	84
YOUTUBE MUSIC	92	SPOTIFY	110	SPOTIFY	86.5
DEEZER MUSIC PLAYER	98	DEEZER MUSIC PLAYER	133	PANDORA	115.5
PANDORA	424.5	SIRIUSXM	188	SIRIUSXM	193.5
SIRIUSXM	453	PANDORA	956	IHEARTRADIO	1591
IHEARTRADIO	1497	TUNEIN	1325	YOUTUBE MUSIC	1706
TUNEIN	1884	GOOGLE PLAY MUSIC	1704	TUNEIN	2043.5
GOOGLE PLAY MUSIC	2484	IHEARTRADIO	2382	GOOGLE PLAY MUSIC	2886.5
SOUNDCLOUD	10309	SOUNDCLOUD	10225	SOUNDCLOUD	10178.5

# HEADSPIN COULD POWER GOOGLE PLAY MUSIC TO CONTINUE TO DELIVER FLAWLESS CONNECTED EXPERIENCES BY MEASURING MANY MORE KEY METRICS YOU CARE ABOUT



# INCLUDING COMPREHENSIVE PERFORMANCE METRICS FOR MUSIC STREAMING COMPANIES



# AI BASED ISSUE DETECTION TECHNOLOGY



01

## DISCOVER CLIENT SIDE PERFORMANCE ISSUES

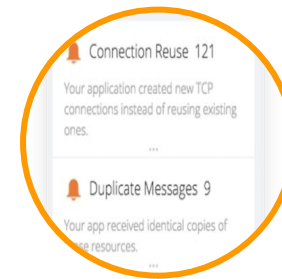
- Analyze mobile app performance
- Measure network, memory and disk usage
- Pinpoint slowdown root causes with method call stacks



02

## FIND ROOT CAUSE FOR CLIENT SERVER APP PERFORMANCE ISSUES

- Fine-grained diagnostics
- Measure carrier network, APIs, SDK, CDN, impact on app performance
- Bug fix prioritization



03

## IDENTIFY ISSUES WITHOUT HUMAN INTERVENTION USING AI

- Alerts
- Visibility
- Recommendations

# CLIENT PORTFOLIO AND SUCCESS STORIES



# OUR CUSTOMERS ARE SOME OF WORLD'S TOP COMPANIES – AND THEY CARE ABOUT EXPERIENCE



Uber

Google



Microsoft

facebook.



CITI

VISA



ESPN

LinkedIn



Disney

KOHL'S

Telefonica



verizon media



PayPal

ebay



# OUR CUSTOMERS CONTINUE TO SEE **HIGH ROI ON HEADSPIN** PLATFORM



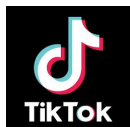
Tinder increased **user engagement by 65%** and **revenues by 20%** in India



Flipkart **reduced startup time to 2.2 seconds**, putting them far ahead of eCommerce competitors according to their developer team, boosting adoption by 28%



Pinterest increased **user engagement and revenues by 21%** with Pinners viewing more pins and sponsored content



TikTok **reduced their outages in India by 30%** with the insights derived from the performance sessions and continuous monitoring



Airbnb increased conversion to app installs by 2X, by **reducing their apk size from 83MB to 37MB**

## IN OUR CUSTOMERS OWN WORDS..



HeadSpin's data-driven platform is able to **proactively uncover hidden insights through learning**. This helps us fix our performance issues before launch and have something reliable and repeatable to test or measure.



**Bryan Li**  
Director, Engineering at Tinder



HeadSpin provided access to Kenya and China to let us iterate and **improve the quality of service much faster than previously possible** and when we tried in India for routing changes on a few different carriers, only 1 carrier behaved as expected.



**Josh Staples**  
Solutions Architect at Twilio