

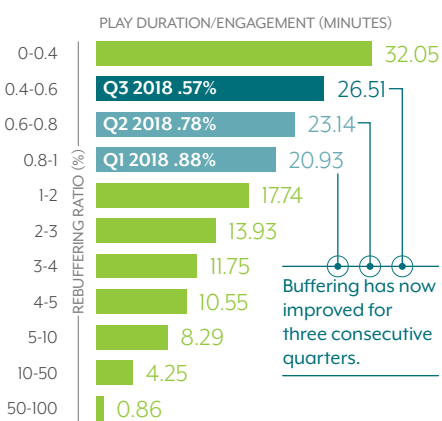
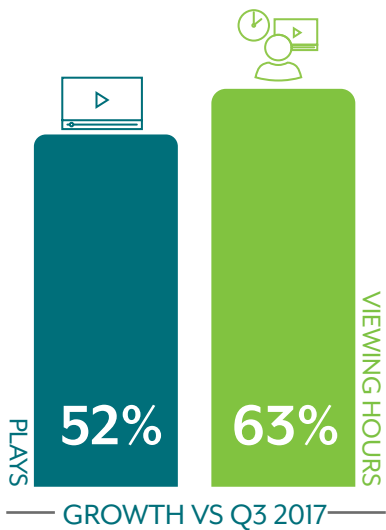
measuring



IMPROVEMENTS

The Continued Rise of Global Streaming

Streaming has seen rapid increases globally, while providers are tasked with improving quality.



MEETING INCREASED VIEWER EXPECTATIONS

Quality and viewer engagement are linked, so as viewers become less tolerant of buffering, providers have focused on delivering better viewing with less buffering.

GLOBAL QUALITY

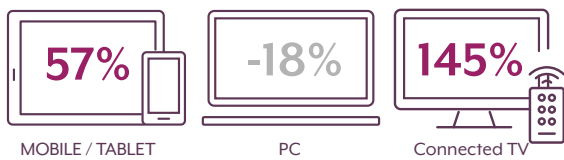


DEVICES

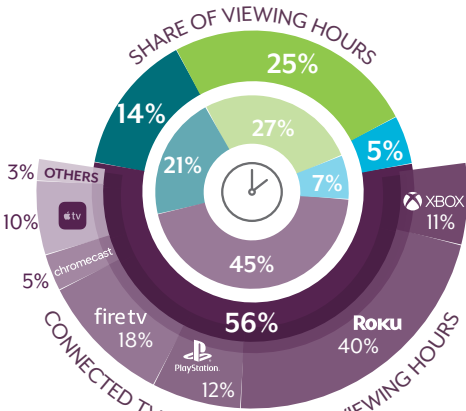
PC Lags as Connected TV Captures Viewers

Mobile viewing continues to rise, but no longer dominates streaming TV as it once did.

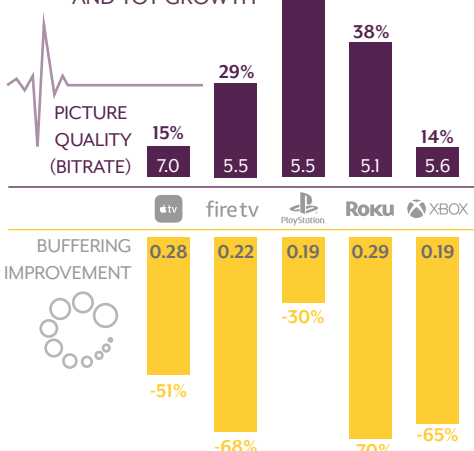
GROWTH IN PLAYS VS Q3 2017



Q3 2018: Connected TV, PC, Mobile/Tablet, Other
Q3 2017: Connected TV, PC, Mobile/Tablet, Other



Q3 NUMBERS AND YOY GROWTH



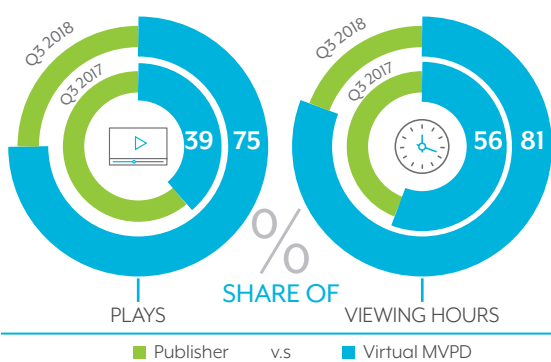
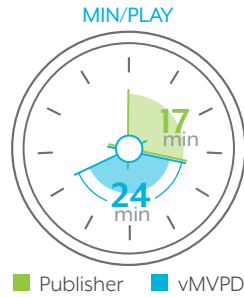
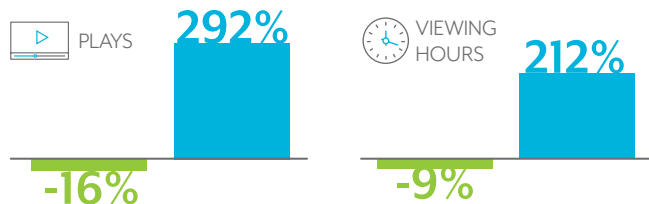
VIRTUAL MVPDs

Changing The Way Viewers Tune In: Virtual MVPDs

Bundled offerings from virtual MVPDs offer a streaming TV experience that most closely resembles traditional cable or satellite TV, but with additional benefits for cord-cutters of a broader mix of content relative to individual publisher apps.

GROWTH VS Q3 2017 | PUBLISHER vs. VIRTUAL MVPD

■ Publisher ■ Virtual MVPD



STREAMING QUALITY FOR U.S. vMVPDs vs. All U.S. Providers

Video Start Failures	1.10%	1.41%
Exits Before Video Starts	10.31%	13.22%
Video Start Time	4.32	4.65
Rebuffering Ratio	0.32%	0.87%
Bitrate Picture Quality	5.2 Mbps	4.1 Mbps

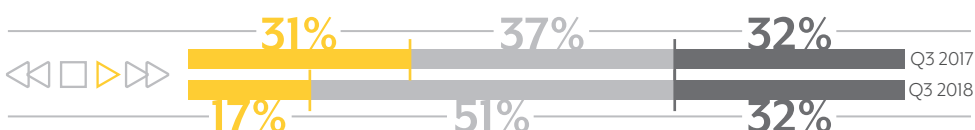
LIVE

Spotlight On Live

Live has maintained share YoY, but long-form VOD now accounts for more than half of all plays and viewing hours!

SHARE OF PLAYS BY CONTENT TYPE

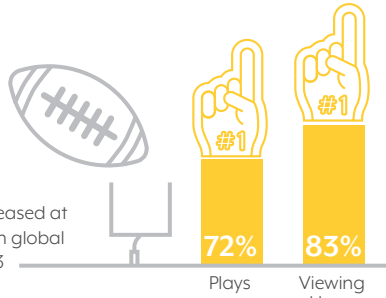
■ VOD Short Form ■ VOD Long Form ■ Live



LIVE

NFL

NFL viewing increased at a faster rate than global live viewing in Q3



LIVE QUALITY

