



# Xbox Live vs. PlayStation Network:

Scoring the platforms on network performance  
during online multiplayer gaming



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As the online component of the game console experience has evolved over the last decade, Xbox Live and PlayStation Network have become a key part of the gaming experience on consoles. Microsoft's early entry into the market with the original Xbox and Xbox 360 allowed the Xbox Live network to develop its feature set, whereas Sony saw its networking capabilities take off with the introduction of the PlayStation 3.

Now with two robust solutions for online gameplay on game consoles, gamers are left with a vexing question. Which online multiplayer gaming platform scores higher on network performance: Xbox or PlayStation?

To measure those experiences, IHS Markit chose to focus on what could be considered an essential component of the online multiplayer gaming experience: the core network performance delivered by each side during full-blown gameplay.

**Methodology: the JND measure**

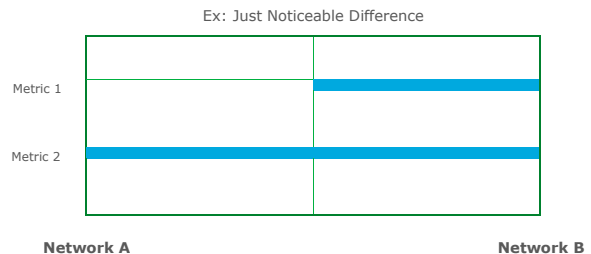
To obtain an accurate representation of the consumer gaming experience, testing was conducted in both a controlled lab setting as well as in the field to mirror the real-world environment where gamers live and play. The games tested included five of the most popular multiplatform online titles with matchmaking capabilities from April 2017 that were available on both platforms. The consoles used for testing were Xbox One and PlayStation 4.

Testing revolved around three specific categories: Reliability, Speed, and Overall Quality. All three

categories, in turn, involved a total of 10 scenarios tested multiple times. Reliability, for example, included test scenarios on the login process and matchmaking. Data was then collected during each scenario via network tools and through video or audio coding.

For scoring results, testing employed the measure known as JND, or Just Noticeable Difference. JND compares the waiting periods between two groups to determine if there is a perceivable difference in waiting times to the gamer, with the JND score representing the minimum amount of difference needed to differentiate between two stimuli. Because the values of the JND are essentially arbitrary, it is more useful to consider the scores as existing on a continuum, where the scores and their confidence intervals are plotted on a single axis.

In the graph below, two different JND outcomes are presented. The JND and confidence interval for the first metric (the top row) shows as scoring near the right-hand end of the scale, with a narrow confidence interval around that value. And because that confidence interval does not overlap with the middle point (which denotes no difference, as shown in the second metric), the advantage on the first metric goes to the network represented on the right.



### The tests—and their results

To determine whether there was a difference in network gaming performance that would be noticeable to gamers using the Xbox One or PlayStation 4 console, gameplay was tested using either Xbox Live or PlayStation Network under three distinct categories: Reliability, Speed, and Overall Quality.

### Reliability

Reliability is defined as the ability to complete specified tasks required for gameplay. This category focused on how each network fared based on two fundamental concerns: can gamers connect to a gaming network; and once connected, can they complete their gaming tasks? The metrics for Reliability included the ability to—and the consistency of— logging into network game serve game-loading times, matchmaking, and stability.

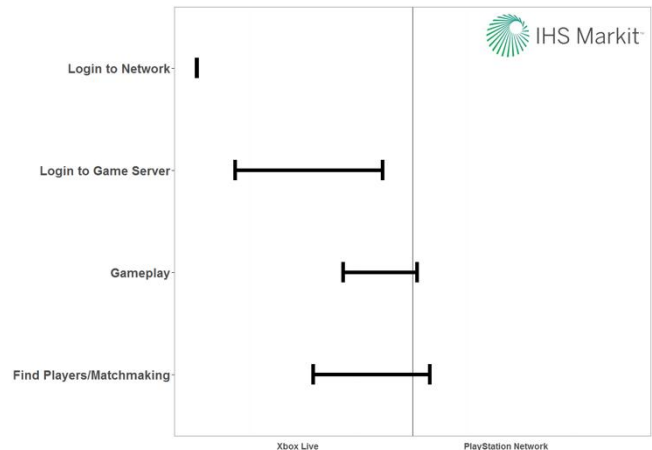
Why is Reliability important? Gamers want only the minimum number of steps needed to get into their games, because a more complex process would simply delay gameplay. For this metric, the time needed to log into game services prior to gameplay was measured. Logging into Xbox Live occurred with a single button, while a two-step process was required for PlayStation Network.

Also essential to Reliability are rapid game-loading times—from game initiation to logging into game servers and servers for multiplayer play, and from match initiation to the start of gameplay.

For its part, matchmaking as a measure of Reliability is key in finding the right people to play against: gamers appreciate a challenge, but they also don't want to be overmatched every single time as a result of faulty matchmaking.

Finally, stability is crucial—no one likes to be cut off or dropped midgame owing to an inconsistent or unreliable network. To measure stability, errors during gameplay associated with decreased reliability were assessed. The measurements included how often a player was dropped from an in-progress game, how often a player was added to an in-progress game, and how often the player was disconnected and subsequently reconnected to the network.

The results below for Reliability showed that Xbox Live outperformed PlayStation Network in two out of four metrics. In particular, Xbox Live delivered a considerably better score on the metrics for login time to network and for login time to game servers.



### Speed

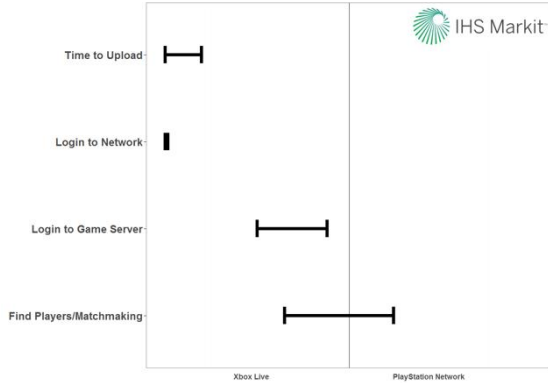
The measures for Speed were built based not only on how quickly consumers could connect to a gaming network, but also on how quickly gaming tasks could be completed. The Speed category involved five test scenarios: lag and latency, matchmaking, game-load times, login service, and friends. For instance, lag and latency was important as a measure of Speed, as it is



linked to the perception of fairness. This is because a split second could spell the difference between killing an enemy and being annihilated, and any extra bit of lag not only causes frustration but also erodes the enjoyment in playing a game.

For the friends metric, measurements were made on interaction with friends during gameplay. The metrics collected included the length of time for friends to join games, the time required for an invitation to be sent from one player to another, and the amount of time required for that invitation to be accepted and returned to the first player.

Similar to the results for Reliability, the same general advantages were observed with speed as they were with reliability. Xbox Live had a clear advantage in the time and speed at logging into the network and game servers. Xbox Live was also faster for sharing the moment. And while Xbox Live was faster at grouping up with friends, the longer matchmaking times did not result in an advantage.

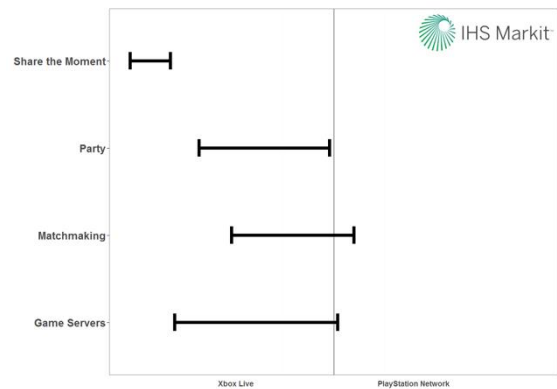


### Overall Quality

For the overall gaming experience, all of the above scenarios were combined and taken into consideration to yield the resulting score. The Overall Quality

experience combined both Speed and Reliability metrics while also including other indicators of game quality, such as the ability to join gameplay with friends and share achievements, as well as the quality of sound for voice chat. Audio chat quality, for instance, is important because gamers must be able to communicate with their team or friends, and they enjoy interacting with fellow players.

Overall gaming quality again favors the Xbox Live in two out of four metrics: Sharing the Moment and Party/Group. Party/Group benefited not only in the speed of grouping up with friends, but with the quality of games with minimal advantage for the host console. The matchmaking metric appears to not differentiate between Xbox Live and the PlayStation Network as well as overall connection to Games Servers.



### Field study observations

Field testing showed an increase in connection problems compared with what we observed during lab testing. These problems appeared to be tied to connecting with third-party services and affected both consoles. For instance, we experienced inconsistent connections issues when testing a game in New York. Every match played on both consoles during the process of finding a match disconnected from the servers with an error message indicating an inability to connect to the game server. Disconnects typically happened while entering a lobby to begin matchmaking, but mid-match dropping of players also occurred.

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