NetForecast®

2021 Q1 Internet Latency Benchmark Report

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2021 Q1 EXECUTIVE SUMMARY

This report is the second in an ongoing series documenting internet latency experienced by users in the US. The report presents latency benchmark data for Q1 2021. Latency results are grouped by major metropolitan area and by major internet service provider (ISP). The NetForecast QMap™ benchmark methodology used for this report is described in our first benchmark report available here.

How quickly an online application responds affects a user's satisfaction and productivity. The combined impact of network latency and packet loss on a user's Quality of Experience (QoE) is at least as important—and in many cases more important—than speed. High latency and loss slow application response times. The NetForecast benchmark incorporates three factors: latency, consistency, and destination bias. Our methodology enables meaningful comparisons across service providers and geographies.

This report covers latency and loss performance by metropolitan area and by ISP from January through March 2021. During that period, Verizon delivered the best overall performance among the five ISPs measured, and Washington experienced the best overall performance among the ten cities measured (see Figure 1).

CITY BENCHMARK		
Rank	City	Score
1	Washington	0.96
2	Denver	0.95
3	Seattle	0.94
4	Los Angeles	0.90
5	Atlanta	0.89
6	San Francisco	0.86
7	Chicago	0.85
8	New York	0.84
9	Dallas	0.62
10	Miami	0.62

ISP BENCHMARK		
Rank	ISP	Score
1	Verizon	0.98
2	Comcast	0.95
3	CenturyLink	0.86
4	AT&T	0.77
5	Charter	0.73

Figure 1 – Q1 2021 Performance Benchmark Rankings

NetForecast's benchmark reports document ongoing, large-scale latency and loss measurement research solely funded and conducted by us. The metropolitan areas included in our reports encompass approximately 25 percent of US households.

NetForecast has unmatched experience conducting in-depth analyses of internet performance to locate degradations and assess their effects on the end-user's experience. Our QMap™ Internet Latency Benchmark Service is a culmination of over 20 years of network performance testing and analysis.

During Q1 2021 the metropolitan areas we track experienced major shifts in performance, and therefore rankings. Users in Washington, Denver and Los Angeles experienced notable latency improvements, while those in Atlanta and New York experienced degraded performance, while performance in Miami dropped precipitously. Figures 2 and 3 highlight benchmark score changes from Q4 2020 to Q1 2021.
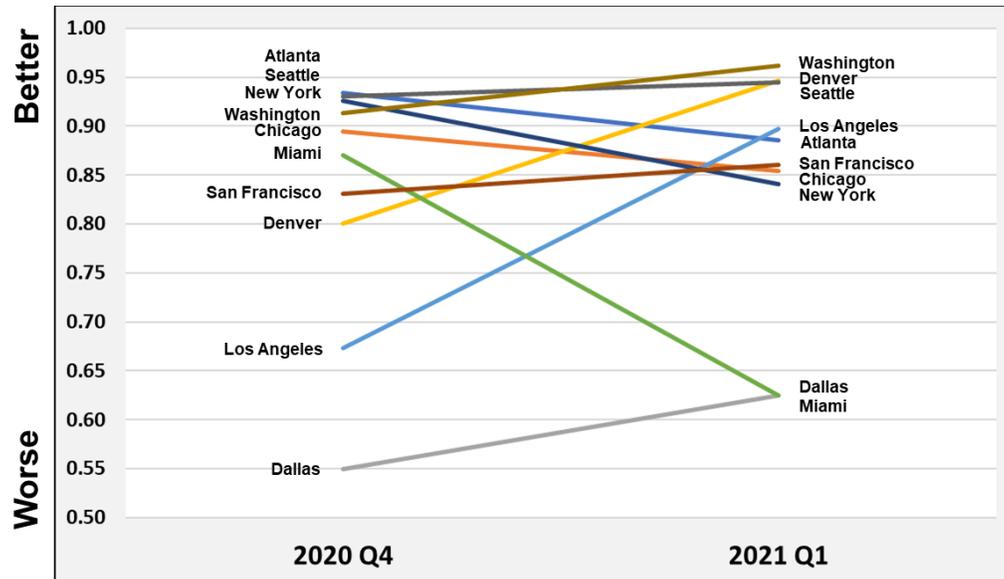

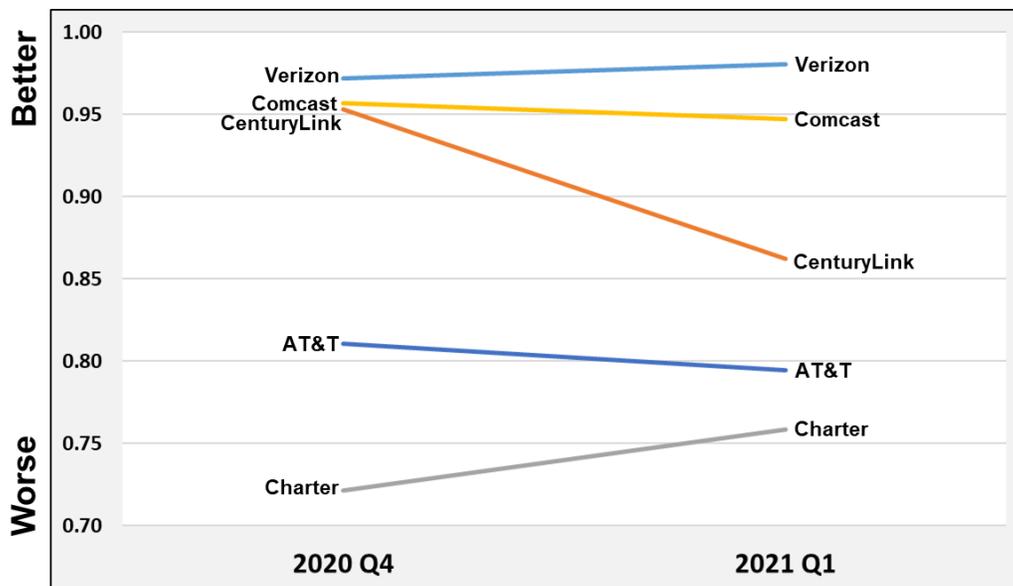Figure 2 – City Benchmark Shift from 2020 Q4 to 2021 Q1

Figure 3 – ISP Benchmark Shift from 2020 Q4 to 2021 Q1

The relative ISP benchmark rankings remained unchanged from Q4 2020 to Q1 2021. Verizon and Comcast remained the top performers, CenturyLink (now Lumen Technologies) experienced a significant overall performance drop, and Charter continued to experience the lowest overall latency performance.

Peter Sevcik is the Founder of NetForecast and is a leading network performance expert. An internet pioneer, Peter was among the first to measure and develop internet performance improvement techniques. He helped design more than 100 government, corporate and commercial networks. In addition, Peter invented the Apdex performance reporting methodology, and has co-patented application response-time prediction and network congestion management algorithms.

Alan Jones is NetForecast's Director of Software Development. He has lead teams in developing products and internal infrastructure for some of the largest telecom companies in the world. After eight years in cellular handset design and testing, he spent over a decade working on test systems for mobile networks. He currently works with mobile and cloud-based product development.

Rebecca Wetzel is the President of NetForecast and an internet industry veteran. She helped realize the commercialization of the internet in its early days, and worked to design and market some of the internet's first value-added services such as IP-based VPNs, web hosting, and managed firewall services, as well as internet protocol testing services. She also spent many years as an internet industry analyst and consultant to internet technology startups.