Performance Test Results Report Prepared for AnyDesk

For period 08/31/2020 – 09/09/2020

Reporter: Aliaksandr Hryshutsin

Creation Date: 9/21/2020

Contents

1 Testing Approach

1.1 Types of Tests

Framerate.

The framerate test is performed using https://anydesk.com/benchmark/framerate.html website. It uses the angular velocity change to measure the transmitted framerate. The image appears to stand still and forms a cross, if it rotates by exactly 90 degrees in one frame. This will most likely be the case at 59-60 Hz locally.

Latency.

The latency test was performed using http://anydesk.com/benchmark/latency.html website. The latency between the PC1 and PC2 can be checked by comparing photos of the 2 monitors. The controlled PC shows the number in **ms** (native) and the controller (PC2) shows **native–latency**.

Bandwidth.

The bandwidth puts the image compression under severe stress. It displays a complex circular moving image with 60 FPS on a white background. The total received data for the process of connection from PC1 to PC2 was measured. The measurement took 1 minute period of time. The default quality settings on all competitors were used.

Website: http://anydesk.com/benchmark/bandwidth.html

1.2 Test set-up

	PC 1	PC2
OS	Windows 10 Enterprise	Windows 10 Enterprise
Processor	Intel Core i5-9400	Intel Core i5-7400
RAM	16GB	16GB
GPU	Intel UHD Graphics 630	Intel UHD Graphics 630
Monitor	iiyama proLite XB2483HSU (1920x1080) 60 Hz (GTG – 4ms)	iiyama proLite XB2483HSU (1920x1080) 60 Hz (GTG – 4ms)
Browser	Chrome 85.0.4183, Firefox 80.0.1	Chrome 85.0.4183

Remote Desktop Software	
AnyDesk (v 6.0.7)	RealVNC (v 6.7.2)
TeamViewer (v 15.9.4)	ConnectWise Control (v 20.9.799.7542)
Splashtop (v 3.4.0.1l)	Zoho Remote Access Plus Free (v 10.0.476.W)
LogMeIn Rescue (v 7.12.3359)	RemotePC by iDrive (v7.6.32)
GoToMyPC (v 11.1.2921)	Zoom Meetings (v 5.2.2)
RDP (v 10.0.19041)	MS Teams (v 1.3.00.21759)

2 Summary on Test Results

2.1 Summary

Tests showed that Anydesk shows good benchmark results in comparison with other competitors:

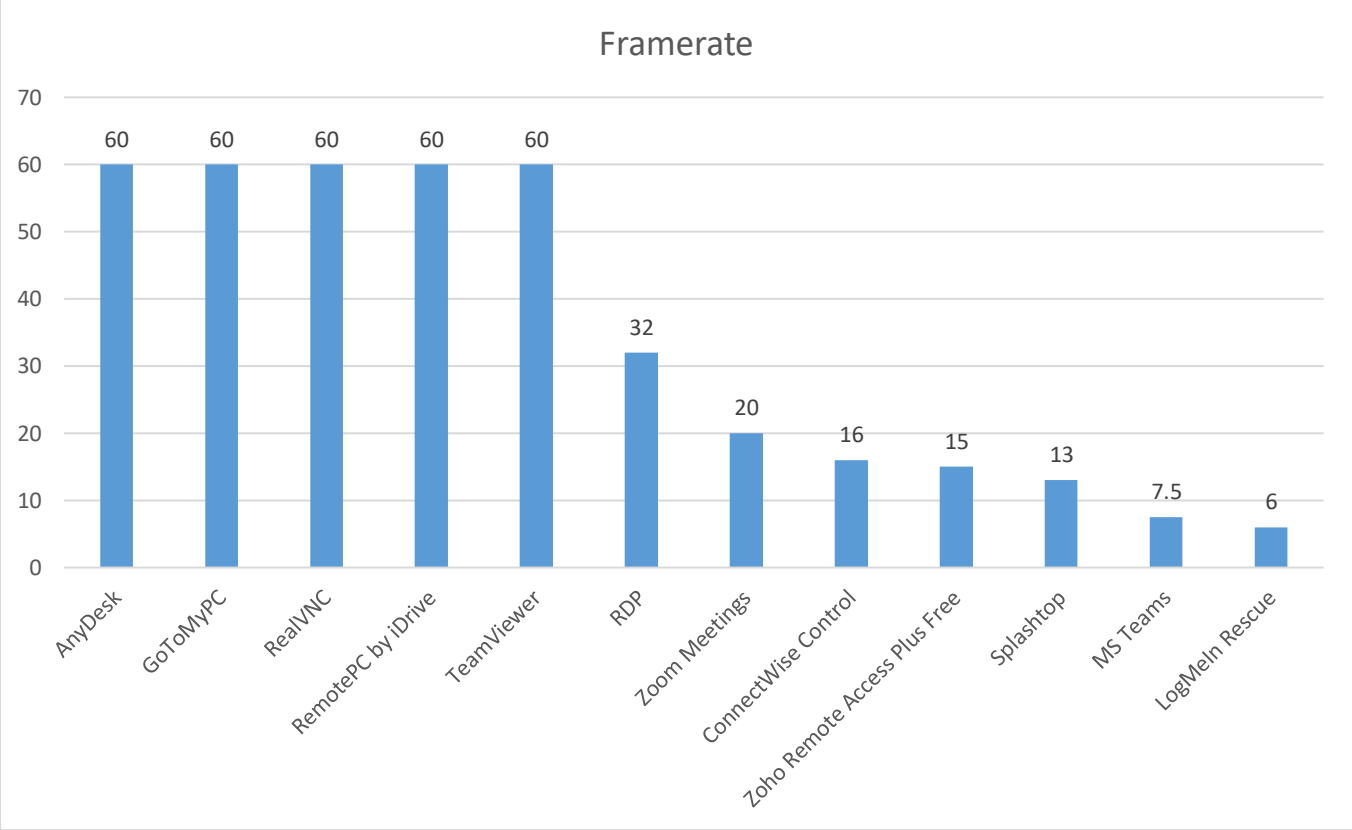
TeamViewer, RemotePC by iDrive and RDP are the main competitors of the Anydesk tool based on the performance score of all 4 tests (Full results can be seen in **paragraph 3.4** of the document).

The testing team would like to note that test results may vary depending on the version of the software used, internal software settings, user actions taken during measurements and other factors.

3 Test results

3.1 Framerate

On the graph below framerate statistics by tools can be seen:



Remarks:

1. Splashtop tool has different settings for the framerate. Standard setting was used in measurements (medium). The high framerate setting gives up to 20 framerates (medium - 13).
2. Zoom meetings doesn't provide stable framerate. Based on the inside zoom statistics the value is between 12-25 frames (the average value has been recorded)

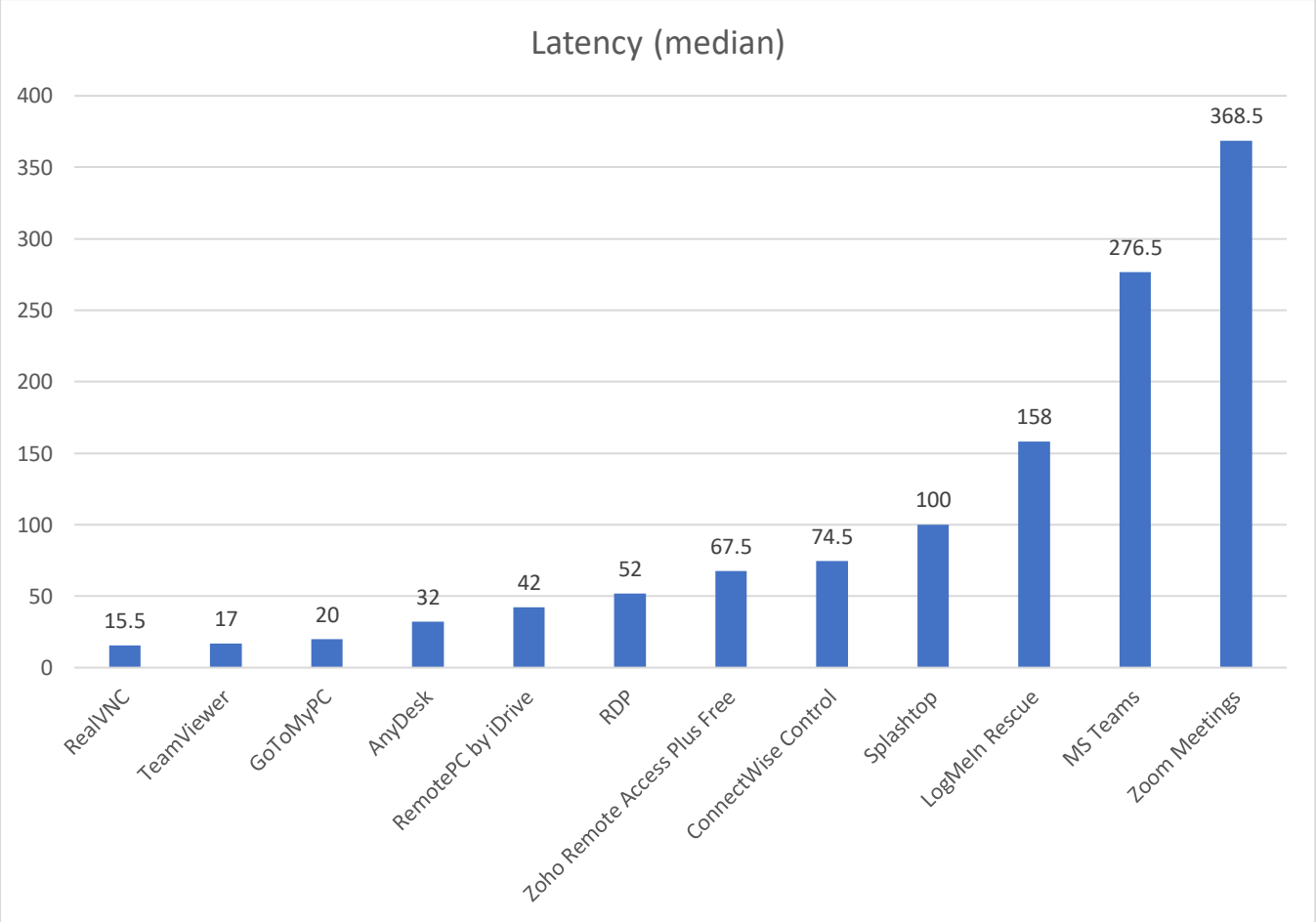
Table with the results sorted from highest to lowest (higher is better):

Tool	Framerate	Score*
AnyDesk	60	12
TeamViewer	60	12
GoToMyPC	60	12
RealVNC	60	12
RemotePC by iDrive	60	12
RDP	32	6
Zoom Meetings	20	4
ConnectWise Control	16	3
Zoho Remote Access Plus Free	15	3
Splashtop	13	3
MS Teams	7.5	2
LogMeIn Rescue	6	1

*The application is given 1 point for every 5 transmitted frames per second.

3.2 Latency

On the graph below, median latency statistics can be seen:



Description of the test setup:

- The monitors of Computer A and B are placed beside each other.
- The web-app is transmitted through the remote desktop software under test and visible on both monitors.
- A commercial-quality digital camera is used to take an image of both millisecond counters at the same time.
- The difference between the counters is the measured latency. The average of the delays from 10 measurements for every application were taken.

Remarks:

1. Because the monitor refreshes at 60Hz, it is not possible to measure any latency below 1000s / 60Hz ≅ 16.7ms. The phase difference between the two monitors can introduce up to ~16ms (1 Frame) latency by itself. If both monitors show the same counter on the photo (which we measured as 0ms), there is actually a latency, but it is most likely ≤ 8ms (due to fade-in-/fade-out-times).
2. To evaluate the results of measurements of the latency in the tests, the median value was taken. Median is determined by ranking the data from largest to smallest, and then identifying the middle so that there are an equal number of data values larger and smaller than it is. Such value helps to rate the latency time with the best accuracy since the highest and lowest measurements are excluded.
3. The latency metric in the test is very dependable on the framerate metric. So, it is not 'latency' in the context of network metrics.
4. Tables with measurements for each of the tools can be found in attachment 1.

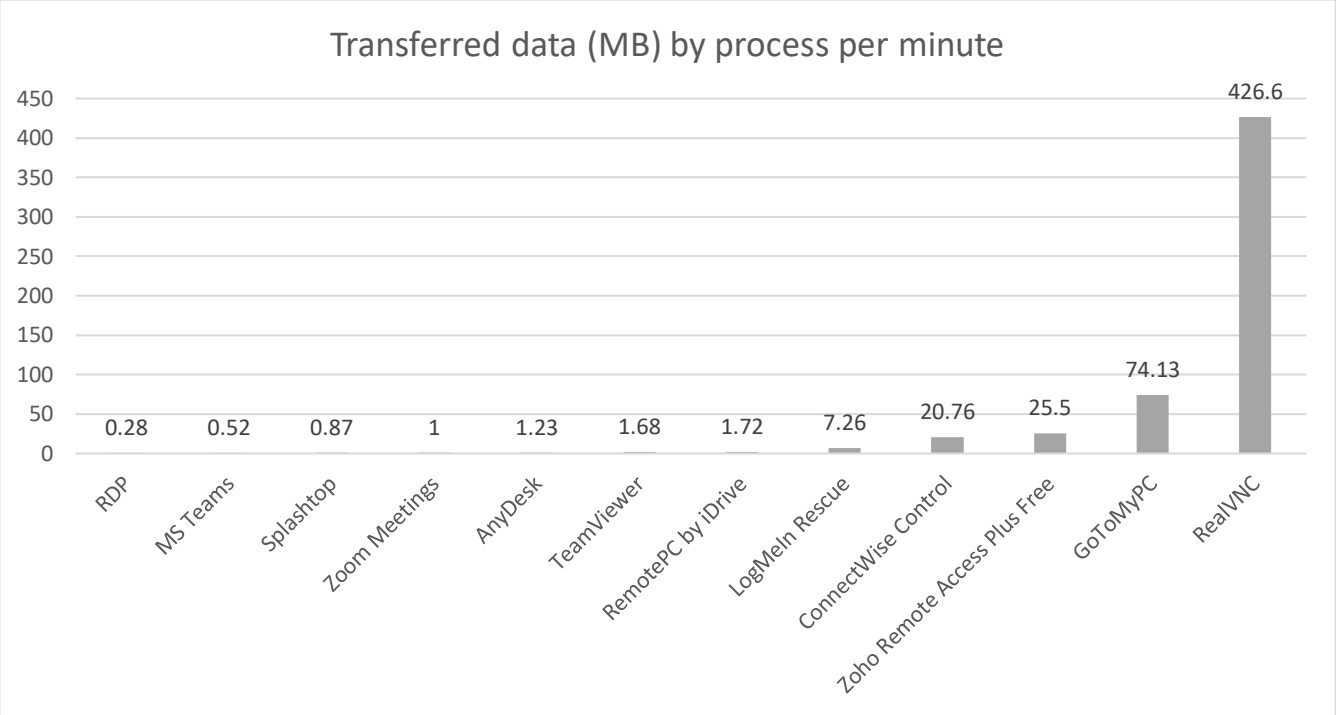
Table with the results sorted from lowest to highest (lower is better):

Tool	Latency (median), ms	Score*
RealVNC	15.5	12
TeamViewer	17	12
GoToMyPC	20	12
AnyDesk	32	11
RemotePC by iDrive	42	10
RDP	52	10
Zoho Remote Access Plus Free	67.5	9
ConnectWise Control	74.5	8
Splashtop	100	7
LogMeIn Rescue	158	3
MS Teams	276.5	1
Zoom Meetings	368.5	1

* As the latency metric can be presented in frames (1 frame ~ 16ms) it was decided to take off one score point for every 16 ms gap compared with the best result (15.5 ms). In case of the gap with the best result is more than 192 ms (~12 frames) the application receives 1 point.

3.3 Bandwidth

The bandwidth puts the image compression under severe stress. It displays a complex circular moving image with 60 FPS on a white background. The total received data measured for the process of connection from Computer A to Computer B and waiting for one minute. The default quality settings on all competitors have been used.



Remarks:

1. There were no video or audio info during the tests of Zoom Meetings an MS Teams.

Table with the results sorted from lowest to highest (lower is better):

Tool	Transferred data per minute, MB	Score*
RDP	0.28	12
MS Teams	0.52	12
Splashtop	0.87	11
Zoom Meetings	1	11
AnyDesk	1.23	11
TeamViewer	1.68	10
RemotePC by iDrive	1.72	10
LogMeIn Rescue	7.26	1
ConnectWise Control	20.76	1
Zoho Remote Access Plus Free	25.5	1
GoToMyPC	74.13	1
RealVNC	426.6	1

* The best result (0.28 MB) was taken as the title value for scoring according to the test results. Every 0.5 MB of difference from the title measurement cost the application 1 point. If the difference is more than 6 MB (0.5 * 12), the application scores with 1 point.

3.4 Frame Size

To finalize the testing the compressed frame size in bytes was measured. This was done, by extrapolating the number of frames for one minute from the average framerate (test 1) and dividing it by the transmitted data figures above (test 3). The results can be seen on the graph below.

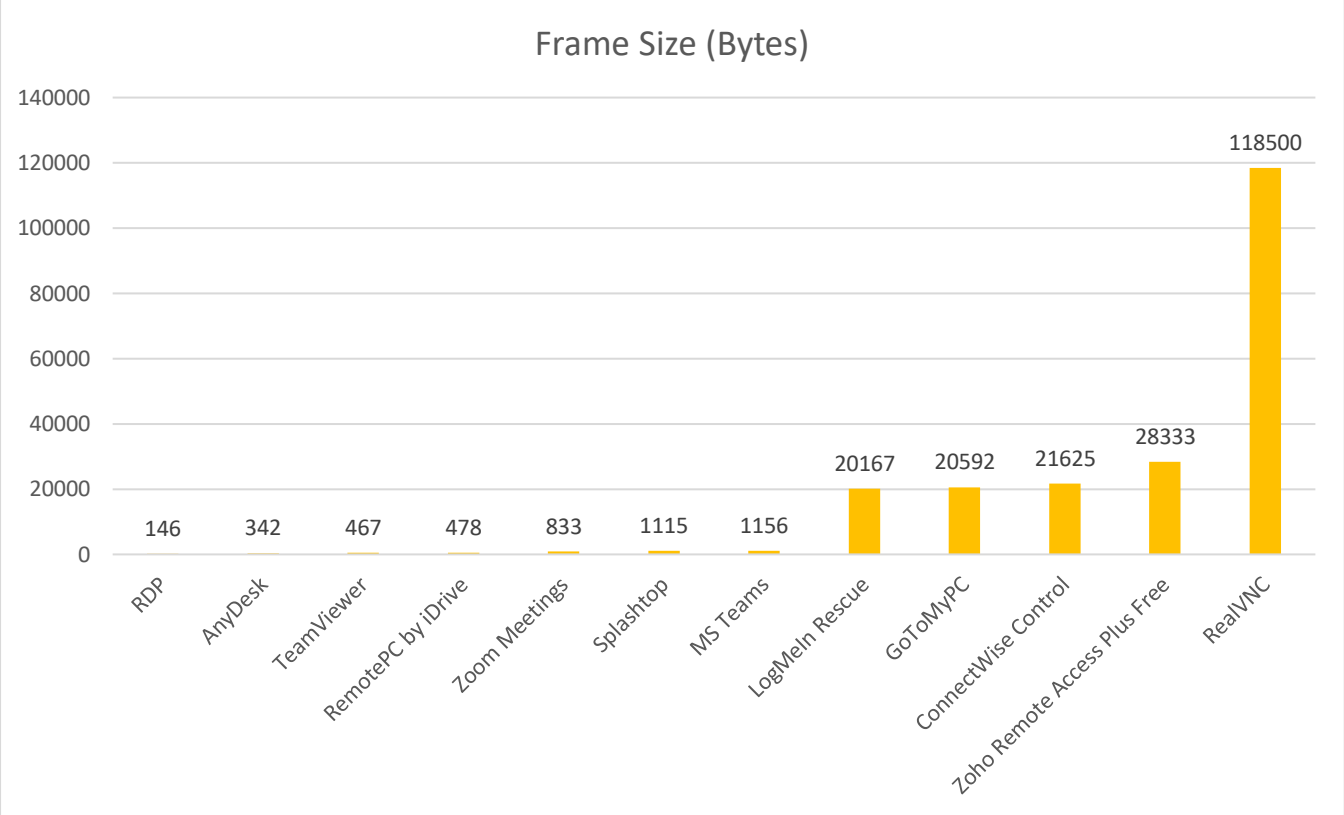


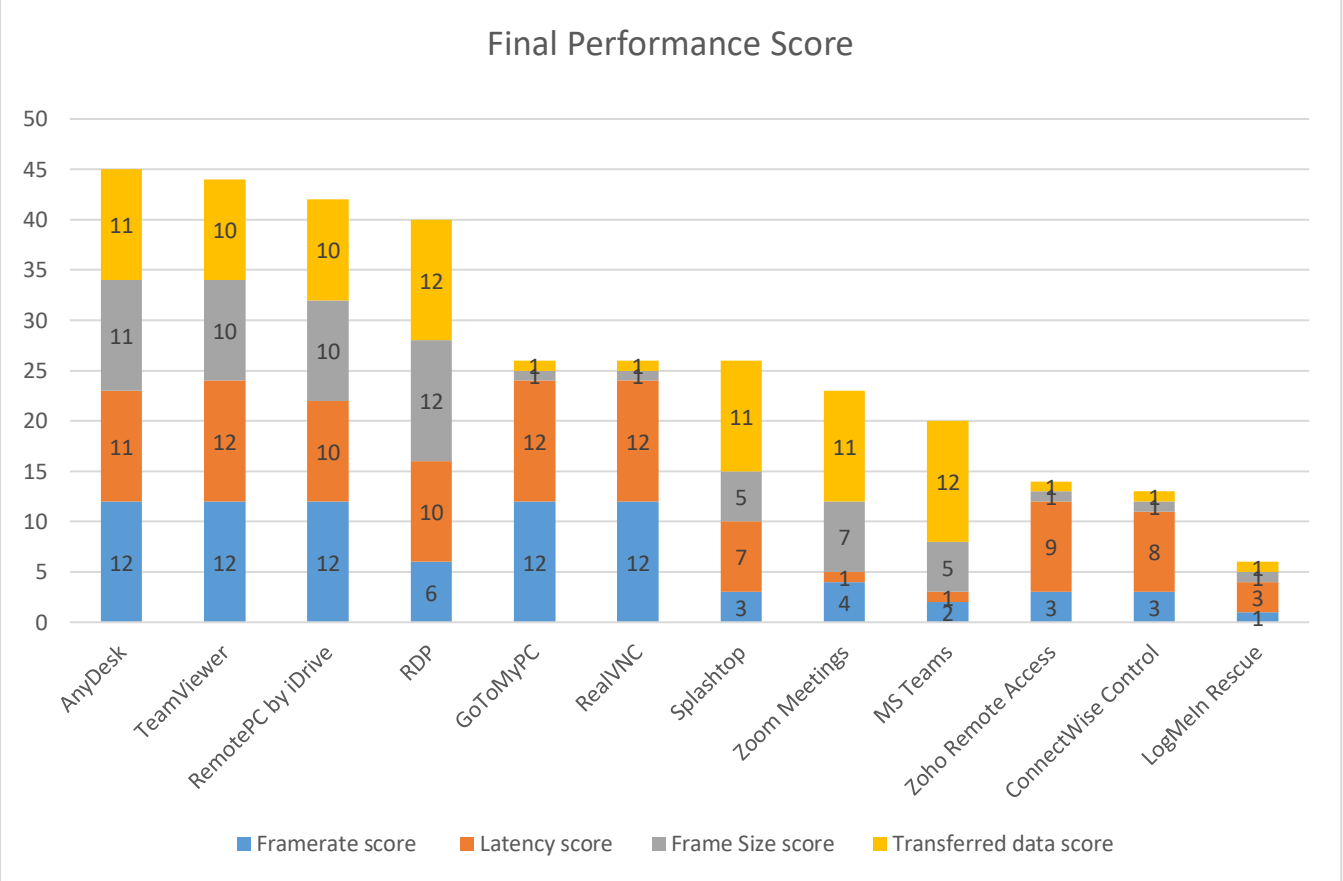
Table with the results sorted from lowest to highest (lower is better):

Tool	Frame Size, Bytes	Score*
RDP	146	12
AnyDesk	342	11
TeamViewer	467	10
RemotePC by iDrive	478	10
Zoom Meetings	833	7
Splashtop	1115	5
MS Teams	1156	5
LogMeIn Rescue	20167	1
GoToMyPC	20592	1
ConnectWise Control	21625	1
Zoho Remote Access Plus Free	28333	1
RealVNC	118500	1

* The best result (146 bytes) was taken as the title value for scoring according to the test results. Every 146 bytes of difference from the title measurement cost the application 1 point. If the difference is more than 1752 bytes (146 * 12), the application scores with 1 point.

3.5 Score Results

To give the final score result the total scores of each application were summarized. The maximum score that can be obtained by a separate application is 48 points (12 points for each test).
Final results can be seen on the graph below.



Tool	Framerate score	Latency score	Transferred data score	Frame Size score	Total Score
AnyDesk	12	11	11	11	45
TeamViewer	12	12	10	10	44
RemotePC by iDrive	12	10	10	10	42
RDP	6	10	12	12	40
GoToMyPC	12	12	1	1	26
RealVNC	12	12	1	1	26
Splashtop	3	7	5	11	26
Zoom Meetings	4	1	7	11	23
MS Teams	2	1	5	12	20
Zoho Remote Access Plus Free	3	9	1	1	14
ConnectWise Control	3	8	1	1	13
LogMeIn Rescue	1	3	1	1	6

As can be seen from the table above **TeamViewer**, **RemotePC by iDrive and RDP** are the main competitors of the **Anydesk** tool based on all 4 tests.

Attachment 1

AnyDesk		
PC1	PC2	Latency, ms
7756	7725	31
1472	1441	31
2072	2040	32
2676	2640	36
3273	3241	32
5193	5141	52
7709	7693	16
8076	8056	20
9643	9611	32
311	276	35

TeamViewer		
PC1	PC2	Latency, ms
982	966	16
2083	2066	17
2415	2398	17
3951	3951	0
2884	2884	0
5115	5098	17
5450	5414	36
6015	5966	49
6350	6314	36
9435	9435	0

Splashtop		
PC1	PC2	Latency, ms
6304	6218	86
7004	6902	102
7404	7304	100
7004	6902	102
7404	7304	100
8037	7968	69
8436	8353	83
9100	8985	115
9504	9404	100
2920	2853	67

LogMeIn Rescue		
PC1	PC2	Latency, ms
9803	9518	285
1335	1219	116
1938	1870	68
2502	2202	300
3102	2938	164
4102	3970	132
4470	4318	152
7887	7718	169
8354	8034	320
8954	8871	83

GoToMyPC		
PC1	PC2	Latency, ms
7133	7133	0
7896	7864	32
4993	4957	36
6293	6273	20
7093	7073	20
9273	9273	0
909	873	36
1241	1225	16
1841	1809	32
2773	2757	16

RDP		
PC1	PC2	Latency, ms
6555	6519	36
6919	6871	48
7787	7719	68
8154	8087	67
671	619	52
2738	2687	51
3070	3002	68
3671	3619	52
4002	3954	48
6855	6802	53

RealVNC		
PC1	PC2	Latency, ms
4175	4175	0
6539	6524	15
7207	7191	16
7575	7559	16
3694	3694	0
4289	4289	0
4894	4894	0
5493	5477	16
6093	6077	16
6693	6677	16

ConnectWise Control		
PC1	PC2	Latency, ms
2177	2093	84
2541	2460	81
3141	3093	48
3477	3393	84
4077	4009	68
4441	4394	47
5041	4941	100
8993	8925	68
9325	9241	84
9925	9857	68

Zoho Remote Access Plus Free		
PC1	PC2	Latency, ms
1250	1182	68
1618	1550	68
2218	2150	68
2618	2535	83
3217	3151	66
3582	3514	68
4218	4151	67
7034	6982	52
7366	7318	48
8966	8902	64

RemotePC by iDrive		
PC1	PC2	Latency, ms
3665	3629	36
4533	4481	52
5097	5065	32
9049	9013	36
2113	2065	48
2481	2433	48
3049	3017	32
3381	3333	48
5830	5781	49
6166	6133	33

Zoom Meetings		
PC1	PC2	Latency, ms
2538	2255	283
2407	2022	385
3006	2706	300
3338	3053	285
4138	3654	484
4507	4090	417
5070	4570	500
6007	5655	352
6407	6086	321
9787	9338	449

MS Teams		
PC1	PC2	Latency, ms
7353	7053	300
8188	7852	336
9753	9452	301
388	120	268
3936	3720	216
4504	4252	252
5102	4784	318
5705	5452	253
6269	5984	285
6869	6652	217

.

End of Document