Cloudflare vs. Zscaler
Competitive Performance Assessment
Zero Trust Network Access
and Remote Browser Isolation

January 2023

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1.0 Executive Summary

Cloudflare commissioned Miercom to competitively examine the performance of their Zero Trust Network Access (ZTNA) and Remote Browser Isolation (RBI) products, in addition to Cloudflare's underlying global network. A competitive performance analysis was selected with distributed nodes throughout North America, South America, and other international locations. In the observed testing, Cloudflare proved overall better ZTNA, and RBI performance compared to Zscaler. In the context of the results, users will have a better experience connecting and authenticating applications protected by Cloudflare Access and a more responsive isolated browser tab due to Cloudflare's global network performance.

Key Findings

Cloudflare had a superior performance for both domestic and international ZTNA tests, and overall, for international RBI tests.

- For all the locations, both domestic and international, Cloudflare was 42% better in ZTNA performance compared to Zscaler
- Cloudflare proved 16% better average overall in ZTNA response time compared to Zscaler for domestic locations
- Cloudflare was twice as fast on average in ZTNA response time compared to Zscaler for international locations
- For all the locations, both domestic and international, Cloudflare was 42% better in RBI performance compared to Zscaler
- Cloudflare was 49% better on average for RBI response time compared to Zscaler for international locations

2.0 Products Evaluated

2.1 Products Tested

Cloudflare Access

https://www.cloudflare.com/products/zero-trust/access

Cloudflare Browser Isolation

https://www.cloudflare.com/products/zero-trust/browser-isolation

Zscaler Private Access (ZPA)

https://www.zscaler.com/products/zscaler-private-access

Zscaler Cloud Browser Isolation

https://www.zscaler.com/technology/browser-isolation

3.0 Testing Setup for ZTNA Performance

Zero Trust security is an IT security model that requires strict identity verification for every user and device trying to access internal resources, regardless of where the device is located. Essentially, Zero Trust demands that users never trust, and always verify, network requests, and implement micro-segmentation for as much of their organization as possible.

Zero Trust Network Access (ZTNA) acts as an aggregation layer to empower organizations to achieve granular and contextual access policies on a resource-by-resource basis across self-hosted SaaS and non-web resources such as SSH, VNC, or RDP connections. ZTNA helps businesses furnish secure access to their employees, contractors, and partners as they navigate secure hybrid work, faster and safer than VPNs.

In a legacy, perimeter-based security environment, IT teams directly controlled their network performance. Today, with the Internet as the new corporate network, Zero Trust providers' network architecture and performance can affect an organization's end-user experience. Modern, real-time applications involve a multitude of ongoing requests from end users, so a faster Zero Trust network speed will keep teams productive while continuously implementing contextual verification and other best security practices.

3.1 ZTNA Testing Setup

Miercom conducted tests measuring the absolute and relative network speeds of the ZTNA products for Cloudflare and Zscaler over the course of 90 days. The tests were run against 24 identical CentOS web servers in domestic and international regions, with each pair of servers protected with an instance of Cloudflare's app connector, Cloudflare Tunnel, or Zscaler's app connector, respectively.

3.1.1 Domestic Locations

For users: Boston, Chicago, Los Angeles, New York City, Washington DC

For apps: Iowa, Los Angeles, Montreal, Toronto

3.1.2 International Locations

For users: Athens, Auckland, Brasilia, Cairo, Hanoi, Helsinki, Johannesburg, Seoul,

For apps: Jakarta, London, Milan, Mumbai, Santiago, Sao Paulo, Sydney, Tokyo

Data visualized in the charts and tables below reflect a 15-day collection of performance tests of domestic and international end users, or nodes, using Catchpoint. This data included metrics such as Time to First Byte (TTFB), Document Complete, Response, DNS, Connect, Wait, Load and SSL.

Each web server was provided with a public domain to access these environments. For Cloudflare-protected web servers, a domain owned by Cloudflare was used, while Zscaler-protected web servers used the domain that was associated with the account at the time of purchase. All machines loaded the same web service instances, with Zscaler instances having 4 vCPU and 8 GB of memory and Cloudflare having 1 vCPU and 4 GB of memory. Processor and memory differences are attributed to the minimum recommended settings for running each of the app connectors.

Tests were conducted across five regions, including four domestic and twelve international locations. For each location, web servers protected by either Cloudflare or Zscaler were measured at the speed at which they responded to local nodes. Each node measured a batch of requests every 20 minutes during the collection with alternating node locations. Within each batch, nodes initiate an additional request, or cold connection, to the web server to load the web page. After completion, the nodes initiate another request, or warm connection to the web server to load the web page again. Results reveal that the Cloudflare app connector provided quicker access to the closest nodes in most cases.

Testing was repeated to the same resource twice because we wanted to measure the performance of the network using warm versus cold connections. Whether a connection is warm or cold affects various aspects of the request path, which will make latency higher or lower. A “warm” connection has been established from the client to a website. When you connect to a website, your browser performs several operations, including a TCP handshake and a TLS session establishment. This necessitates that your browser and the server communicate back and forth several times to establish a connection before any data is sent or received. Additionally, the website will ask for a requester identity, where it will send data if it can, and create a safe, encrypted channel through which it can transfer data to the user.

The entire connection stage takes time because this process needs your client and the server to talk back and forth with each other several times. The time it takes to connect is based on your distance from the endpoint. This indicates that websites should focus on performing TLS establishment as little as possible because the SSL establishment time is proportional to the distance between the user and the server hosting the website. It is important to note, being closer in proximity to an end-user reduces SSL establishment time.

Due to the fact that the SSL establishment time is related to the user's distance from the server hosting the website, it follows that websites should concentrate on executing TLS establishment as little as feasible.

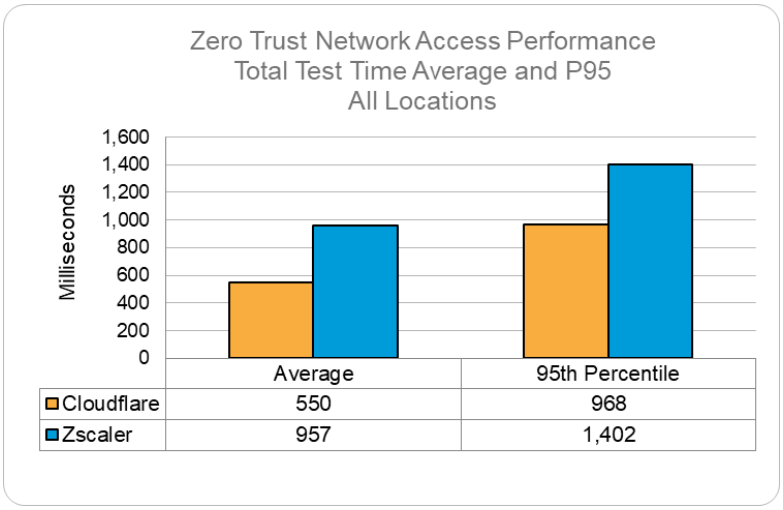
The browser will furthermore make an effort to authenticate the service you are attempting to access in order to confirm that you are who the browser claims you are, while requiring the user to input their credentials into a login screen. Once this is finished, the website normally sends a stored token to your browser so you will not need to log in every time, which also takes time to complete and will affect your application performance.

A warm connection does not need to perform SSL establishment, because the website has already established the channel, and the connection is re-used to reduce the amount of time SSL establishment is performed. A warm connection often does not need to authenticate the user again because the end user's token is present at the request and has not expired.

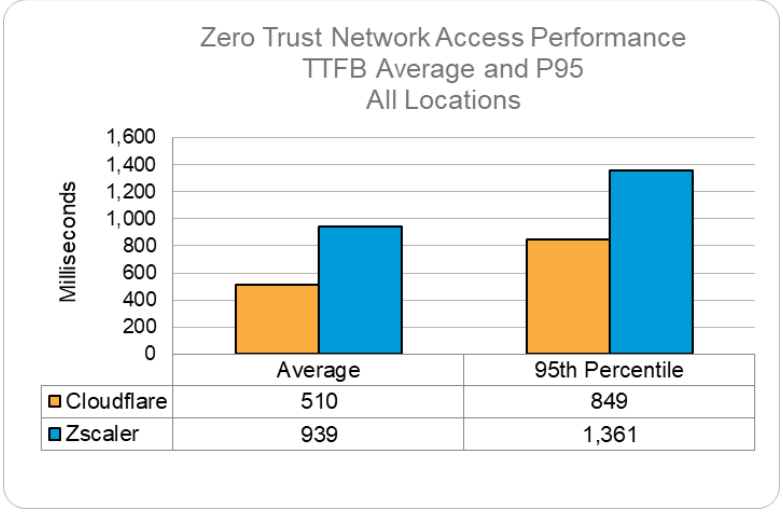
We evaluated both warm and cold connections separately and then aggregated the results for a comprehensive measurement of network performance between Cloudflare and Zscaler's ZTNA products.

3.2 ZTNA All Locations Performance Comparison

Charted below is the Catchpoint data collected for the Total Connection Time and Time to First Byte (TTFB) for Cloudflare's vs Zscaler's ZTNA in all locations. The following charts reflect the average and 95th percentile values for the cold connection and warm connection times to the closest node.



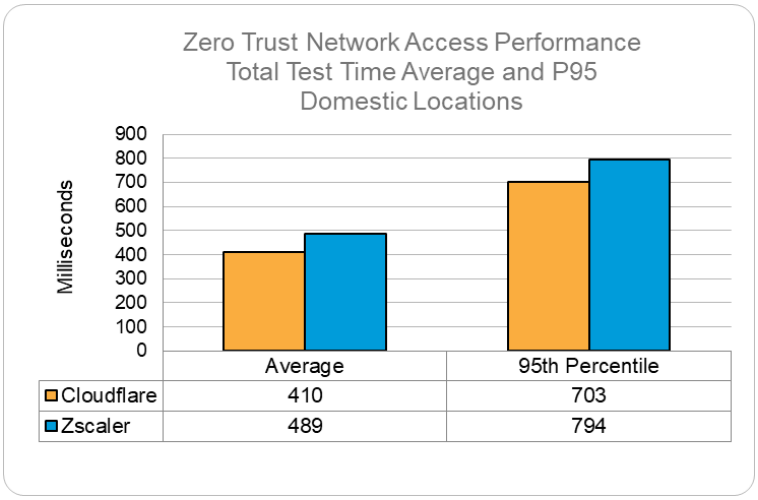
Cloudflare proves 42% better average and 31% better P95 total test time compared to Zscaler for all locations. Total test time is the total experience of time to connect, DNS lookup, delay time, content load time and SSL overhead.



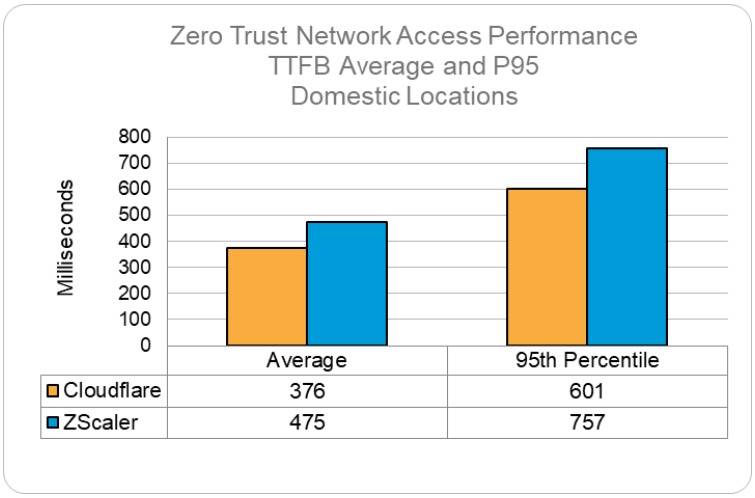
Cloudflare proves 46% better average and 38% better P95 Time to First Byte (TTFB) compared to Zscaler for all locations. TTFB is the measurement used as an indication of responsiveness.

3.3 ZTNA Domestic Performance Comparison

Charted below is the Catchpoint data collected for the Total Connection Time and Time to First Byte (TTFB) for Cloudflare's vs Zscaler's Zero Trust Network Access in the Domestic regions. The following charts reflect the average and 95th percentile values for the cold connection and warm connection times to the closest node.



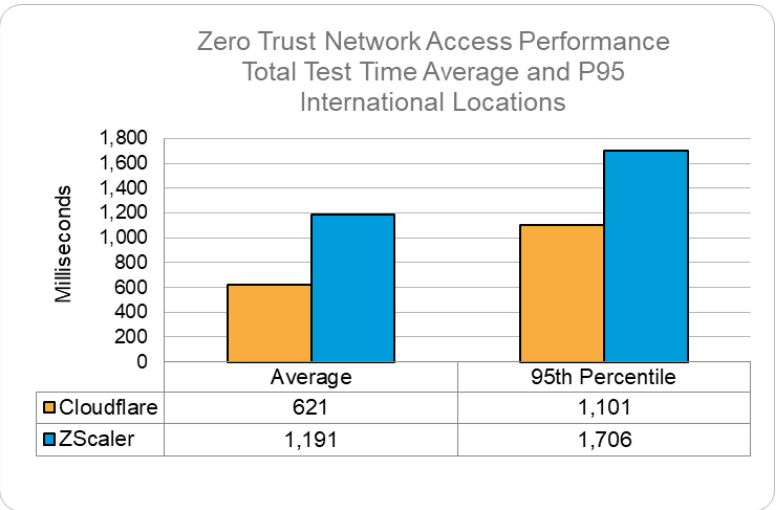
Cloudflare proves 16% better average and 11% better P95 total test time compared to Zscaler for domestic areas. Total test time is the total experience of time to connect, DNS lookup, delay time, content load time and SSL overhead.



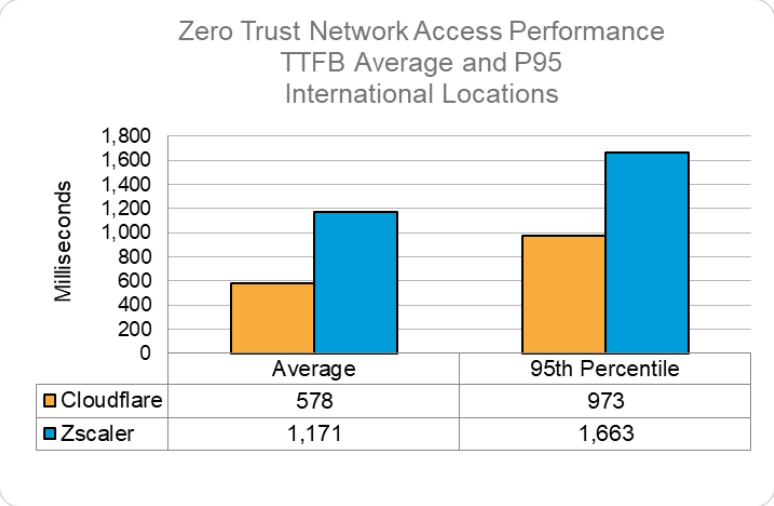
Cloudflare proves 21% better average and 21% better P95 TTFB compared to Zscaler for North America. TTFB is the measurement used as an indication of the responsiveness of a web server or other network resource.

3.4 ZTNA International Performance Comparison

Charted below is the Catchpoint data collected for the Total Connection Time and Time to First Byte (TTFB) for Cloudflare's vs Zscaler's ZTNA in International regions. The following charts reflect the average and 95th percentile values for the cold connection and warm connection times to the closest node.



Cloudflare was 48% better on average and 35% better P95 total test time compared to Zscaler for International locations. Total test time is the total experience of time to connect, DNS lookup, delay time, content load time and SSL overhead.



Cloudflare was 51% better on average and 41% better P95 TTFB compared to Zscaler for International locations. TTFB is the measurement used as an indication of the responsiveness of a web server or other network resource.

4.0 Test Results Browser Isolation Comparison

Remote Browser Isolation (RBI) is a security service that runs all code on a global network, insulating users from Internet threats including ransomware, phishing and zero-day attacks.

Both the user and the application are protected from both sides of the transaction. For instance, users who access Salesforce in an isolated environment can have their actions, like copy/paste and upload/download disabled, to protect confidential and sensitive information. Similarly, users who navigate to strange or hostile websites or who accidentally download malware will be protected from the consequences of doing so. If a user clicks on a malicious link while in Cloudflare's isolated browser, for example, then the malware that would normally break out of the browser and infect the user's device will instead find itself at Cloudflare's global network, where it cannot harm Cloudflare nor the user.

Organizations are increasingly combining RBI with ZTNA to add an extra layer of protection for high-risk access scenarios. Especially with clientless options for both RBI and ZTNA, even third-party users like contractors or partners can securely access internal resources with both granular identity verification and advanced threat defense in place.

Despite the security benefits of RBI, latency issues with some implementations in the market can cause significant harm to the end-user experience. Common methods of implementing browser isolation include pixel pushing and page scrubbing. Pixel pushing involves a 1:1 transmission of pixels from the isolated browser to the local browser. Although effective, it has scalability and performance issues. Page scrubbing involves disabling certain interactive elements on a web page, which may break the page and/or prevent the user from performing their job properly. Cloudflare uses its patented technology called Network Vector Rendering to stream draw commands instead of pixels. This consumes significantly lower bandwidth and creates a seamless, responsive experience that most users do not even realize they are browsing remotely.

Early impressions of RBI in the market with pixel pushing and page scrubbing methods have earned it a less-than-stellar reputation for usability in some cases. Latency issues can cause a high distraction for end users that some organizations have refused to consider the technology as a suitable threat defense solution; however, more advanced implementations like network vendor rendering combined with faster application load times are turning this impression around. RBI can offer its extra layer of security without compromising performance, depending on both its specific implementation details and the underlying architecture of its accompanying global network.

4.1 RBI Testing Setup

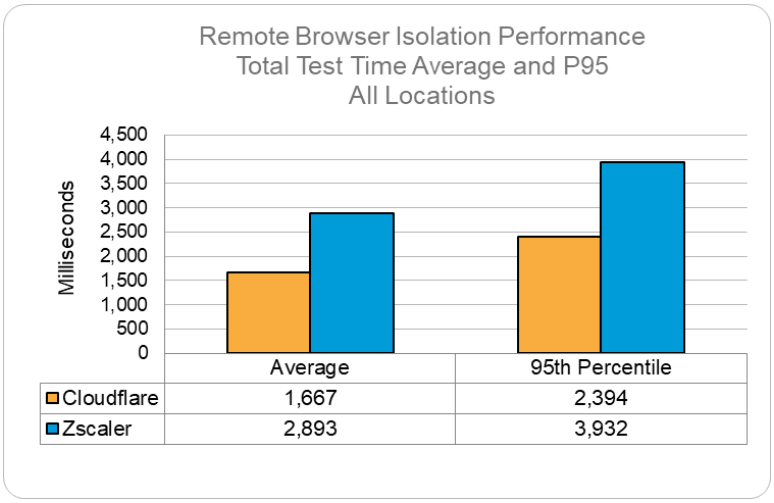
We evaluated the overall time to perform end-to-end isolated browser sessions from distributed locations around the world using Cloudflare's and Zscaler's browser isolation services. Tests were conducted in five regions, including four domestic locations and twelve international locations. Our in-depth testing revealed that Cloudflare provided quicker access to the closest node in a majority of cases.

The server-side RBI test measures both vendors' responses to an incoming request, from a user to an application, by redirecting the user to an isolated version of the application. Due to differences in RBI implementation between Cloudflare and Zscaler, we constructed our test logistics to help reach closer parity for a fair comparison. Both clientless RBI implementations use URLs that are hosted by each company's ZTNA app connector, but Cloudflare's implementation by default currently involves an extra login step to the clientless RBI service itself before the isolated application login.

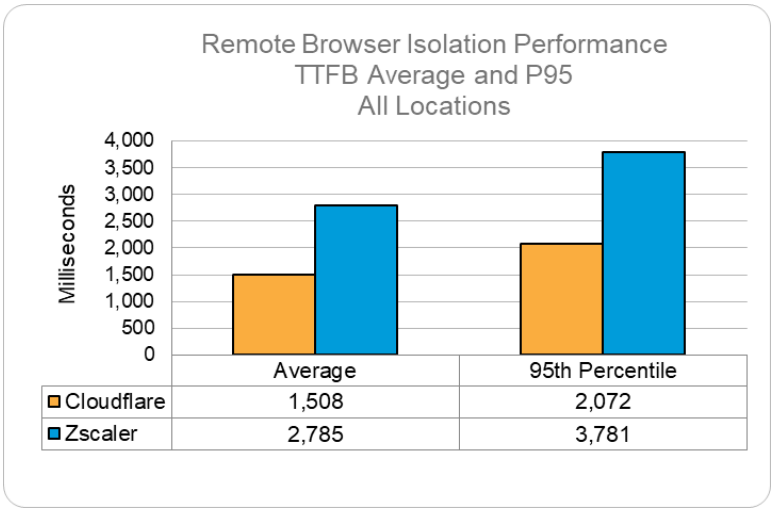
Cloudflare's clientless RBI service then provides similar capabilities to the combined use of Zscaler Private Access and Zscaler Internet Access, enabling end users to navigate to both web pages and web apps and have them load in an isolated browser. Our performance test bypasses this initial Cloudflare login step to narrow the scope of the test to the application load time itself and to reach a more equivalent comparison. The end test then resembles a similar warm connection ZTNA test to those described in the ZTNA section of this report.

4.2 Browser Isolation Performance All Location Comparison

Charted below is the Catchpoint data collected for the Total Test Time and Time to First Byte (TTFB) for Cloudflare's vs Zscaler's RBI products for all locations evaluated. The following charts reflect the average and 95th percentile values for the cold connection and warm connection times to the closest node.



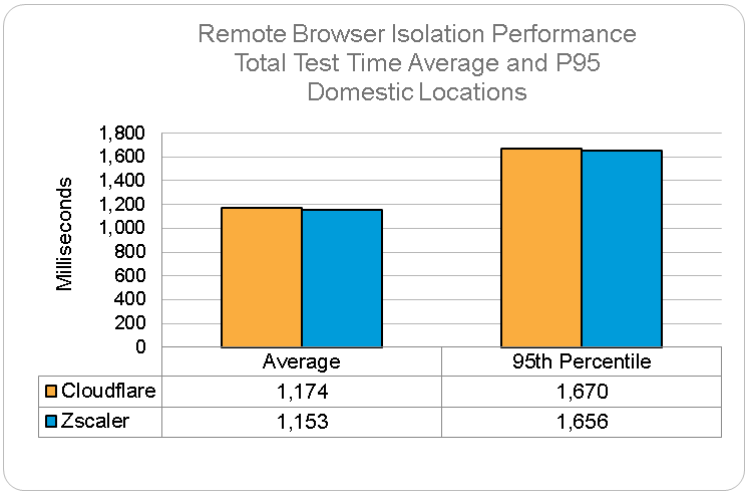
Cloudflare proves 42% better average and 39% better P95 remote browser experience compared to Zscaler for all locations. Total test time is the total experience of time to connect, DNS lookup, delay time, content load time and SSL overhead.



Cloudflare demonstrates a 46% better average and 45% better P95 TTFB remote browser experience compared to Zscaler for all locations. TTFB is the measurement used as an indication of the responsiveness of a web server or other network resource.

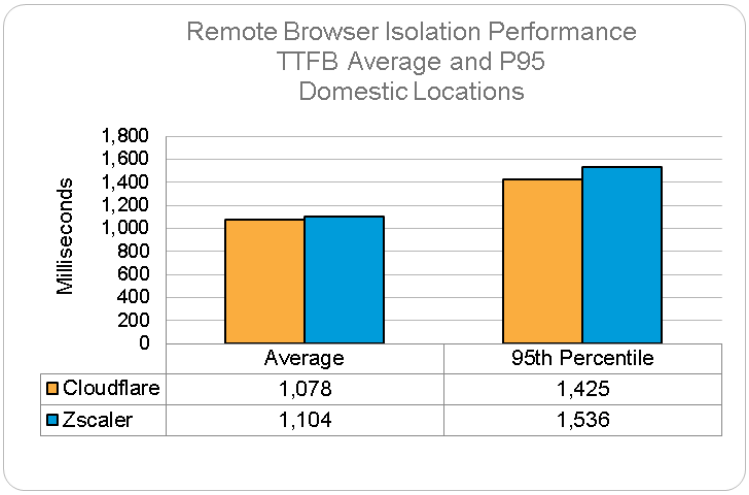
4.3 Browser Isolation Performance Domestic Comparison

Charted below is the Catchpoint data collected for the Total Connection Time and Time to First Byte (TTFB) for Cloudflare's vs Zscaler's RBI products in the domestic regions. The following charts reflect the average and 95th percentile values for the cold connection and warm connection times to the closest node.



	Average	95th Percentile
Cloudflare	1,174	1,670
Zscaler	1,153	1,656

Cloudflare proves comparable remote browser experience to Zscaler for domestic regions. Total test time is the total experience of time to connect, DNS lookup, delay time, content load time, and SSL overhead.

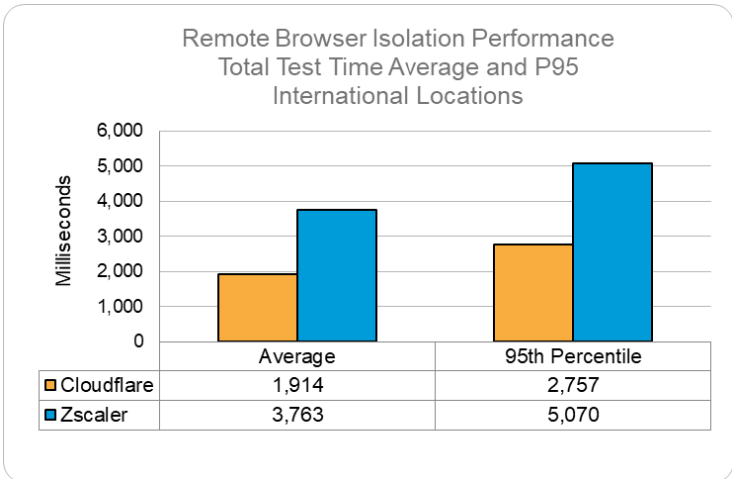


	Average	95th Percentile
Cloudflare	1,078	1,425
Zscaler	1,104	1,536

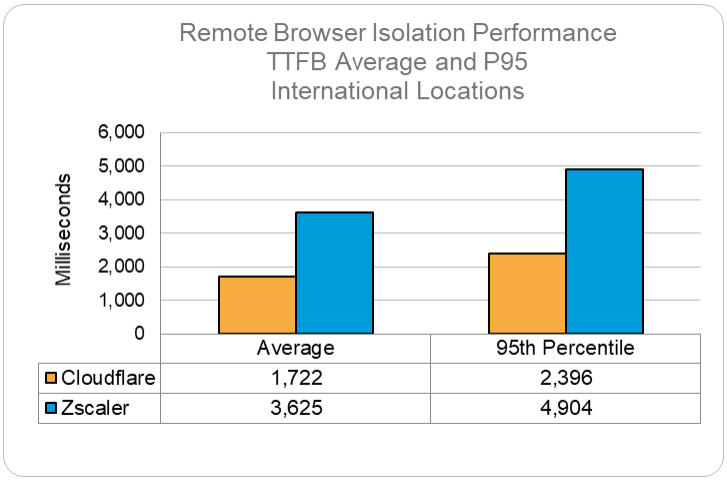
Cloudflare demonstrates a 2% better average and 7% better P95 TTFB remote browser experience compared to Zscaler for North America. TTFB is the measurement used as an indication of the responsiveness of a web server or other network resource.

4.4 Browser Isolation Performance International Comparison

Charted below is the Catchpoint data collected for the Total Connection Time and Time to First Byte (TTFB) for Cloudflare's vs Zscaler's RBI products for the international regions. The following charts reflect the average and 95th percentile values for the cold connection and warm connection times to the closest node.



Cloudflare proves 49% better on average and 46% on the P95 remote browser experience compared to Zscaler for international locations. Total test time is the total experience of time to connect, DNS lookup, delay time, content load time and SSL overhead.



Cloudflare demonstrates a 52% better average and 51% better P95 TTFB remote browser experience compared to Zscaler for international locations. TTFB is the measurement used as an indication of the responsiveness of a web server or other network resource.

5.0 About Miercom

Miercom has published hundreds of network product analyzes in leading trade periodicals and other publications. Miercom's reputation as the leading, independent product test center is undisputed.

Private test services available from Miercom include competitive product analyzes, as well as individual product evaluations. Miercom services include comprehensive certification and test programs, including Certified Interoperable™, Certified Reliable™, Certified Secure™, and Certified Green™. Products may also be evaluated under the Performance Verified™ program, the industry's most thorough and trusted assessment of product usability and performance.

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7.0 Appendix—Test Data All Locations

All test results featured in this report were derived from the data contained within this appendix section. It is organized by vendor and evaluated by location, both domestically and internationally.

Additional test data about locations and other Cloudflare testing can be found on the Miercom website at miercom.com/cloudflare

Cloudflare Access - Domestic											
Test	**Node Location**	**Connection Type**	**Test Time (ms) Avg**	**Test Time (ms) 95th**	**Time To First Byte (ms) Avg**	**Time To First Byte (ms) 95th**	**Connect (ms) Avg**	**DNS (ms) Avg**	**Wait (ms) Avg**	**Load (ms) Avg**	**SSL (ms) Avg**
CF-USC-Iowa	New York, US - VZN	Cold	558.58	792	545.54	762	9.19	38.95	427.47	13.08	69.93
CF-USC-Iowa	New York, US - VZN	Warm	133.13	235	123.53	205	0	0.03	123.5	9.61	0
CF-USC-Iowa	Los Angeles, US - VZN	Cold	656.62	1033	623.71	937	3.62	16.4	539.55	33.68	64.14
CF-USC-Iowa	Los Angeles, US - VZN	Warm	164.62	319	132.92	216	0.02	0.16	132.74	31.71	0
CF-USC-Iowa	**Chicago, US - Level3**	**Cold**	**633.69**	**1058**	**617.24**	**1032**	**15.82**	**36.5**	**472.09**	**16.54**	**92.83**
CF-USC-Iowa	**Chicago, US - Level3**	**Warm**	**173.88**	**357**	**158.29**	**293**	**0**	**0**	**158.29**	**15.59**	**0**
CF-USC-Iowa	Washington DC, US - Level3	Cold	665.84	1099	644.26	1045	22.9	38.67	483	21.79	99.7
CF-USC-Iowa	Washington DC, US - Level3	Warm	175.42	336	158.87	288	0	0.09	158.78	16.54	0
CF-USC-Iowa	Boston, US - Comcast	Cold	650.2	1205	581.19	1012	20.27	39.22	400.32	69.64	121.39
CF-USC-Iowa	Boston, US - Comcast	Warm	211.79	512	155.5	309	0	0.07	155.43	56.3	0
CF-USE-Montreal	New York, US - VZN	Cold	588.23	892	567.32	821	10.48	38.18	436.82	20.94	81.84
CF-USE-Montreal	New York, US - VZN	Warm	139.66	257	125.39	202	0	0.01	125.35	14.28	0.02
CF-USE-Montreal	Los Angeles, US - VZN	Cold	672.69	1035	643.04	975	3.33	20.05	555.68	30.23	63.98
CF-USE-Montreal	Los Angeles, US - VZN	Warm	159.34	341	130.41	220	0	0.04	130.37	28.93	0
CF-USE-Montreal	Chicago, US - Level3	Cold	648.81	1091	625.77	1060	19.22	34.55	474.66	23.31	97.35
CF-USE-Montreal	Chicago, US - Level3	Warm	189.37	383	168.01	317	0	0.18	167.84	21.36	0
CF-USE-Montreal	Washington DC, US - Level3	Cold	645.69	1109	628.17	1076	21.64	38.52	471.68	17.52	96.33
CF-USE-Montreal	Washington DC, US - Level3	Warm	174.2	337	156.75	284	0	0.05	156.7	17.45	0
CF-USE-Montreal	**Boston, US - Comcast**	**Cold**	**727.12**	**1276**	**623.56**	**994**	**21.06**	**40.88**	**433.4**	**77.7**	**128.22**
CF-USE-Montreal	**Boston, US - Comcast**	**Warm**	**223.99**	**559**	**158.45**	**321**	**0**	**0.11**	**158.34**	**65.54**	**0**
CF-USE-Toronto	**New York, US - VZN**	**Cold**	**574.03**	**866**	**552.56**	**790**	**10.71**	**42.3**	**432.82**	**22.58**	**83.19**
CF-USE-Toronto	**New York, US - VZN**	**Warm**	**141.5**	**255**	**125.33**	**210**	**0.05**	**0**	**125.28**	**16.17**	**0**
CF-USE-Toronto	Los Angeles, US - VZN	Cold	639.64	983	608.69	924	2.95	15.7	545.69	32.08	62.92
CF-USE-Toronto	Los Angeles, US - VZN	Warm	164.27	323	130.34	215	0	0.09	130.23	33.93	0.02
CF-USE-Toronto	Chicago, US - Level3	Cold	599.57	1037	576.44	994	20.66	30.34	453.55	24.35	89.56
CF-USE-Toronto	Chicago, US - Level3	Warm	172.46	323	157.05	274	0.05	0.12	156.87	15.41	0
CF-USE-Toronto	Washington DC, US - Level3	Cold	666.46	1138	645.01	1099	21.89	41.63	499.7	21.76	100.81
CF-USE-Toronto	Washington DC, US - Level3	Warm	177.7	358	157	275	0	0.13	156.87	20.7	0
CF-USE-Toronto	Boston, US - Comcast	Cold	744.06	1407	654.72	1087	20.11	41.54	489.74	90.38	123.11
CF-USE-Toronto	Boston, US - Comcast	Warm	236.59	576	166.81	331	0	0.01	166.8	69.79	0
CF-USW-LA	New York, US - VZN	Cold	576.81	846	564.31	814	9.25	40.46	450.66	12.65	63.94
CF-USW-LA	New York, US - VZN	Warm	139.4	250	129.37	220	0	0.02	129.34	10.04	0
CF-USW-LA	**Los Angeles, US - VZN**	**Cold**	**659.77**	**997**	**642.38**	**952**	**3.6**	**20.41**	**564.27**	**17.6**	**54.09**
CF-USW-LA	**Los Angeles, US - VZN**	**Warm**	**142.73**	**253**	**129.02**	**212**	**0**	**0**	**129.02**	**13.71**	**0**
CF-USW-LA	Chicago, US - Level3	Cold	672.52	1175	632.74	1090	12.16	34.55	496.96	40.67	89.07
CF-USW-LA	Chicago, US - Level3	Warm	187.5	358	165.67	296	0	0.03	165.63	21.84	0
CF-USW-LA	Washington DC, US - Level3	Cold	603.26	967	590.9	949	7.22	26.58	493.45	12.55	63.65
CF-USW-LA	Washington DC, US - Level3	Warm	155.07	290	143.41	250	0	0	143.41	11.65	0
CF-USW-LA	Boston, US - Comcast	Cold	824.07	1452	760.51	1312	21.17	53.45	540.87	64.2	145.03
CF-USW-LA	Boston, US - Comcast	Warm	202.77	466	152.62	316	0	0.04	152.57	50.15	0

Zscaler Private Access - Domestic											
Test	**Node Location**	**Connection Type**	**Test Time (ms) Avg**	**Test Time (ms) 95th**	**Time To First Byte (ms) Avg**	**Time To First Byte (ms) 95th**	**Connect (ms) Avg**	**DNS (ms) Avg**	**Wait (ms) Avg**	**Load (ms) Avg**	**SSL (ms) Avg**
ZPA-USC-Iowa	New York, US - VZN	Cold	834.38	1103	825.31	1086	57.46	96.27	179.24	9.07	492.34
ZPA-USC-Iowa	New York, US - VZN	Warm	163.98	254	158.2	237	0.05	0.28	157.88	5.77	0
ZPA-USC-Iowa	Los Angeles, US - VZN	Cold	401.12	675	393.02	656	38.82	53.36	83.78	8.11	217.05
ZPA-USC-Iowa	Los Angeles, US - VZN	Warm	90.23	181	84.15	168	0.21	0.1	83.84	6.08	0
ZPA-USC-Iowa	**Chicago, US - Level3**	**Cold**	**837.01**	**1377**	**831.87**	**1373**	**77.81**	**98.26**	**182.3**	**5.15**	**473.5**
ZPA-USC-Iowa	**Chicago, US - Level3**	**Warm**	**186.09**	**354**	**180.37**	**338**	**0**	**0.1**	**180.27**	**5.72**	**0**
ZPA-USC-Iowa	Washington DC, US - Level3	Cold	731.99	1084	721.06	1069	43.31	75.14	160.46	10.86	442.71
ZPA-USC-Iowa	Washington DC, US - Level3	Warm	169.11	294	158.55	268	0	0.39	158.15	10.56	0
ZPA-USC-Iowa	Boston, US - Comcast	Cold	1106.64	1587	1032.63	1502	89.56	103.99	225.52	74.02	613.56
ZPA-USC-Iowa	Boston, US - Comcast	Warm	257.44	505	236.85	430	0	0.5	236.35	20.59	0
ZPA-USE-Montreal	New York, US - VZN	Cold	780.16	1045	775.37	1040	57.87	95.09	169.12	4.8	453.88
ZPA-USE-Montreal	New York, US - VZN	Warm	162.42	248	158.48	233	0	0.28	158.2	3.93	0
ZPA-USE-Montreal	Los Angeles, US - VZN	Cold	412.39	694	405.95	688	37.32	68.37	83.65	6.44	216.6
ZPA-USE-Montreal	Los Angeles, US - VZN	Warm	87.61	168	80.79	143	0.02	0.18	80.6	6.82	0
ZPA-USE-Montreal	Chicago, US - Level3	Cold	796.14	1302	789.85	1293	70.46	113.77	166.7	6.3	438.91
ZPA-USE-Montreal	Chicago, US - Level3	Warm	161.05	304	155.22	288	0.01	0.59	154.63	5.83	0
ZPA-USE-Montreal	Washington DC, US - Level3	Cold	708.92	1054	698.73	1035	40.97	74.32	153.78	10.18	429.66
ZPA-USE-Montreal	Washington DC, US - Level3	Warm	154.54	263	148.9	247	0	0.05	148.82	5.64	0.02
ZPA-USE-Montreal	**Boston, US - Comcast**	**Cold**	**1108.63**	**1848**	**1085.45**	**1806**	**94.22**	**141.81**	**225.64**	**23.22**	**624.52**
ZPA-USE-Montreal	**Boston, US - Comcast**	**Warm**	**249.03**	**525**	**221.05**	**411**	**0**	**0.21**	**220.84**	**27.98**	**0**
ZPA-USE-Toronto	New York, US - VZN	Cold	779.9	1008	769.26	985	61.17	99.64	170.33	10.61	438.7
ZPA-USE-Toronto	New York, US - VZN	Warm	169.19	254	160.37	221	0	0.26	160.11	8.82	0
ZPA-USE-Toronto	Los Angeles, US - VZN	Cold	502.94	833	491.31	805	45.66	93.69	95.76	11.63	256.19
ZPA-USE-Toronto	Los Angeles, US - VZN	Warm	101.93	199	91.44	170	0	0.24	91.21	10.49	0

ZPA-USE-Toronto	Chicago, US - Level3	Cold	788.15	1228	781.01	1224	67.91	126.41	160.98	7.14	425.72
ZPA-USE-Toronto	Chicago, US - Level3	Warm	171.42	330	163.83	298	0	0.05	163.77	7.58	0.02
ZPA-USE-Toronto	Washington DC, US - Level3	Cold	814.53	1229	807.74	1210	49.14	125.6	158.56	6.8	474.44
ZPA-USE-Toronto	Washington DC, US - Level3	Warm	161.39	271	155.89	256	0.12	0.01	155.76	5.5	0
ZPA-USE-Toronto	Boston, US - Comcast	Cold	1128.98	1704	1080.66	1665	88.99	170.91	224.96	35.31	596.58
ZPA-USE-Toronto	Boston, US - Comcast	Warm	254.49	402	213.63	380	1.11	0.06	212.23	40.86	0.24
ZPA-USW-LA	**New York, US - VZN**	**Cold**	**848.04**	**1146**	**836.81**	**1135**	**66.8**	**104.24**	**180.5**	**11.22**	**485.28**
ZPA-USW-LA	**New York, US - VZN**	**Warm**	**180.36**	**302**	**169.94**	**261**	**0.1**	**0.21**	**169.63**	**10.41**	**0**
ZPA-USW-LA	**Los Angeles, US - VZN**	**Cold**	**479.13**	**777**	**465.22**	**752**	**42.22**	**71.28**	**95.33**	**13.91**	**256.38**
ZPA-USW-LA	**Los Angeles, US - VZN**	**Warm**	**100.94**	**206**	**89.94**	**170**	**0.09**	**0.17**	**89.69**	**11**	**0**
ZPA-USW-LA	Chicago, US - Level3	Cold	704.01	1090	696.5	1075	57.92	85.1	151.95	7.51	401.53
ZPA-USW-LA	Chicago, US - Level3	Warm	147.07	263	142.32	252	0	0.02	142.3	4.74	0
ZPA-USW-LA	Washington DC, US - Level3	Cold	698.99	997	692.22	988	40.47	71.73	152.98	6.77	427.58
ZPA-USW-LA	Washington DC, US - Level3	Warm	150.21	249	144.6	231	0	0.24	144.35	5.61	0
ZPA-USW-LA	Boston, US - Comcast	Cold	1122.68	1790	1096.81	1718	99.19	139.8	227.59	25.87	630.24
ZPA-USW-LA	Boston, US - Comcast	Warm	245.82	508	223.36	439	0	0.29	222.99	22.46	0.08

Cloudflare Access - International

Test	Node Location	Connection Type	Test Time (ms) Avg	Test Time (ms) 95th	Time To First Byte (ms) Avg	Time To First Byte (ms) 95th	Connect (ms) Avg	DNS (ms) Avg	Wait (ms) Avg	Load (ms) Avg	SSL (ms) Avg
CF-APAC-Jakarta-INTL	**Hanoi, VN - CMC**	**Cold**	**964.9**	**1567**	**937.22**	**1497**	**45.31**	**40.1**	**695.3**	**27.72**	**156.51**
CF-APAC-Jakarta-INTL	**Hanoi, VN - CMC**	**Warm**	**203.78**	**409**	**178.71**	**307**	**0**	**0.07**	**178.64**	**25.07**	**0**
CF-APAC-Jakarta-INTL	Helsinki, FI - RETN	Cold	504.72	1087	463.14	992	17.31	27.38	280.51	42.08	137.94
CF-APAC-Jakarta-INTL	Helsinki, FI - RETN	Warm	165.29	377	126.96	247	0	0.07	126.89	38.33	0
CF-APAC-Jakarta-INTL	Auckland, NZ - Vocus	Cold	1119.43	1645	1099.61	1612	60.58	16.01	833.42	19.95	189.6
CF-APAC-Jakarta-INTL	Auckland, NZ - Vocus	Warm	194.91	436	182.02	401	0	0.31	181.71	12.9	0
CF-APAC-Jakarta-INTL	Cairo, EG - Link.Net	Cold	926.29	1528	912.42	1514	99.87	76.08	427.77	13.78	308.69
CF-APAC-Jakarta-INTL	Cairo, EG - Link.Net	Warm	234.34	420	221.82	374	0	0	221.82	12.52	0
CF-APAC-Jakarta-INTL	Athens, GR - Synapsecom S.A	Cold	845.91	1405	686.96	1284	11.27	88.64	384.4	113.31	205.39
CF-APAC-Jakarta-INTL	Athens, GR - Synapsecom S.A	Warm	163.12	353	110	238	0	0.22	109.78	53.12	0
CF-APAC-Jakarta-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	851.21	1314	833.32	1293	4.83	18.71	696.94	17.28	112.83
CF-APAC-Jakarta-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	115.84	216	104.24	181	0	0.06	104.16	11.59	0.03
CF-APAC-Jakarta-INTL	Johannesburg, ZA - Vox	Cold	1542.84	1695	912.57	1630	38.61	31.71	720.15	634.36	122.1
CF-APAC-Jakarta-INTL	Johannesburg, ZA - Vox	Warm	273.59	323	125.99	229	0	0.25	125.74	145.55	0
CF-APAC-Jakarta-INTL	Brasilia, BR - Multihomed	Cold	1578.02	2923	1444.43	2632	55.36	94.9	880.64	135.15	413.53
CF-APAC-Jakarta-INTL	Brasilia, BR - Multihomed	Warm	358.32	963	251.49	563	0	1.03	250.46	106.83	0
CF-APAC-Mumbai-INTL	Hanoi, VN - CMC	Cold	1140.88	1592	1119.45	1521	44.84	38.33	878.18	20.1	158.1
CF-APAC-Mumbai-INTL	Hanoi, VN - CMC	Warm	178.79	344	165.53	308	0	0.06	165.47	13.26	0
CF-APAC-Mumbai-INTL	Helsinki, FI - RETN	Cold	536.98	1153	493.47	1024	19.23	27.45	316.37	43.76	130.42
CF-APAC-Mumbai-INTL	Helsinki, FI - RETN	Warm	178.94	428	132.13	272	0	0.09	132.04	46.82	0
CF-APAC-Mumbai-INTL	Auckland, NZ - Vocus	Cold	1166.14	1674	1151.17	1613	57.21	13.83	882.7	15.04	197.42
CF-APAC-Mumbai-INTL	Auckland, NZ - Vocus	Warm	170.23	378	159.23	345	0	0.12	159.11	11.01	0
CF-APAC-Mumbai-INTL	**Cairo, EG - Link.Net**	**Cold**	**1110.58**	**1691**	**1087.41**	**1652**	**100.03**	**58.44**	**497.22**	**23.44**	**431.72**
CF-APAC-Mumbai-INTL	**Cairo, EG - Link.Net**	**Warm**	**243.81**	**407**	**225.4**	**360**	**0.17**	**0.11**	**225.12**	**18.41**	**0**
CF-APAC-Mumbai-INTL	Athens, GR - Synapsecom S.A	Cold	679.1	1305	613.1	1235	5.05	19.66	457.48	66.13	130.91
CF-APAC-Mumbai-INTL	Athens, GR - Synapsecom S.A	Warm	140.18	360	108.37	237	0	0.05	108.31	31.81	0
CF-APAC-Mumbai-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	1016.75	1470	983.35	1386	5.91	21.54	830.27	33.3	125.62
CF-APAC-Mumbai-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	138.17	306	110.53	200	0	0.13	110.39	27.64	0
CF-APAC-Mumbai-INTL	Johannesburg, ZA - Vox	Cold	2021.93	1800	1187.81	1701	27.6	31.06	973.95	819.89	158.19
CF-APAC-Mumbai-INTL	Johannesburg, ZA - Vox	Warm	214.31	266	112.59	171	0	0.01	112.55	101.38	0.02
CF-APAC-Mumbai-INTL	Brasilia, BR - Multihomed	Cold	1534.38	2616	1424.96	2306	68.74	95.88	929.25	110.53	331.09
CF-APAC-Mumbai-INTL	Brasilia, BR - Multihomed	Warm	341.29	828	238.81	520	0.01	0.52	238.28	102.48	0
CF-APAC-Tokyo-INTL	Hanoi, VN - CMC	Cold	956.64	1513	936.17	1472	46.66	37.98	691.59	19.87	159.93
CF-APAC-Tokyo-INTL	Hanoi, VN - CMC	Warm	180.95	353	163.59	300	0	0.19	163.37	17.37	0.03
CF-APAC-Tokyo-INTL	Helsinki, FI - RETN	Cold	481.83	1077	445.48	986	17.47	24.73	275.89	36.59	127.39
CF-APAC-Tokyo-INTL	Helsinki, FI - RETN	Warm	162.5	380	129.48	263	0.01	0.43	129.04	33.03	0
CF-APAC-Tokyo-INTL	Auckland, NZ - Vocus	Cold	1078.54	1587	1059.72	1552	60.5	14.54	797.55	18.95	187.13
CF-APAC-Tokyo-INTL	Auckland, NZ - Vocus	Warm	188.34	420	174.67	387	0	0.52	174.15	13.66	0
CF-APAC-Tokyo-INTL	Cairo, EG - Link.Net	Cold	1019.4	1695	983.43	1627	105.04	58.4	451.33	36.59	368.66
CF-APAC-Tokyo-INTL	Cairo, EG - Link.Net	Warm	284.55	532	261.12	465	0	0.4	260.63	23.43	0.09
CF-APAC-Tokyo-INTL	Athens, GR - Synapsecom S.A	Cold	720.94	1475	628.09	1321	14.8	38.39	392.17	93.17	183.81
CF-APAC-Tokyo-INTL	Athens, GR - Synapsecom S.A	Warm	226.21	421	142.52	275	0	0.11	142.41	83.69	0
CF-APAC-Tokyo-INTL	**Seoul, KR - SK Broadband (Hanaro)**	**Cold**	**824.64**	**1397**	**795.62**	**1295**	**7.58**	**26.29**	**627.77**	**28.72**	**133.98**
CF-APAC-Tokyo-INTL	**Seoul, KR - SK Broadband (Hanaro)**	**Warm**	**132.4**	**278**	**109.49**	**188**	**0**	**0.04**	**109.44**	**22.91**	**0**
CF-APAC-Tokyo-INTL	Johannesburg, ZA - Vox	Cold	1451.17	1530	862.21	1498	32.01	25.73	687.93	531.73	117.27
CF-APAC-Tokyo-INTL	Johannesburg, ZA - Vox	Warm	331.33	221	103.96	163	0	0.05	103.9	227.37	0.02
CF-APAC-Tokyo-INTL	Brasilia, BR - Multihomed	Cold	1439.03	2603	1346.73	2293	56.92	95.94	825.03	93.16	369.87
CF-APAC-Tokyo-INTL	Brasilia, BR - Multihomed	Warm	315.46	752	240.68	525	0.01	0.18	240.49	74.78	0
CF-AUS-Sydney-INTL	Hanoi, VN - CMC	Cold	1183.91	1627	1160.26	1573	44.87	89.39	875.72	23.33	151.21
CF-AUS-Sydney-INTL	Hanoi, VN - CMC	Warm	195.41	399	172.35	333	0.25	0.1	172	23.06	0
CF-AUS-Sydney-INTL	Helsinki, FI - RETN	Cold	617.42	1293	569.64	1164	20.13	42.07	350.59	48.23	156.86

CF-AUS-Sydney-INTL	Helsinki, FI - RETN	Warm	188.21	456	143.3	294	0	0.64	142.62	44.9	0.05
CF-AUS-Sydney-INTL	**Auckland, NZ - Vocus**	**Cold**	**1140.06**	**1528**	**1128.73**	**1512**	**55.53**	**21.08**	**874.21**	**10.74**	**177.92**
CF-AUS-Sydney-INTL	**Auckland, NZ - Vocus**	**Warm**	**167.15**	**353**	**155.24**	**312**	**0.02**	**0.03**	**155.19**	**11.91**	**0**
CF-AUS-Sydney-INTL	Cairo, EG - Link.Net	Cold	980.34	1625	964.72	1588	99.57	114.99	455.64	15.66	294.52
CF-AUS-Sydney-INTL	Cairo, EG - Link.Net	Warm	246.63	427	228.22	394	0	0.12	228.11	18.43	0
CF-AUS-Sydney-INTL	Athens, GR - Synapsecom S.A	Cold	783.5	1480	707.06	1382	6.42	37.46	465.44	76.56	197.74
CF-AUS-Sydney-INTL	Athens, GR - Synapsecom S.A	Warm	178.88	426	121.32	247	0	0.2	121.11	57.56	0
CF-AUS-Sydney-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	1078.49	1599	1032.12	1487	7.6	32.6	836.98	46.9	154.94
CF-AUS-Sydney-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	145.5	330	113.04	201	0	0.12	112.91	32.47	0.01
CF-AUS-Sydney-INTL	Johannesburg, ZA - Vox	Cold	1639.14	1932	1245.06	1759	32.12	40.75	994.38	387.74	179.88
CF-AUS-Sydney-INTL	Johannesburg, ZA - Vox	Warm	537.8	491	162.39	266	0.01	0.07	162.31	375.42	0
CF-AUS-Sydney-INTL	Brasilia, BR - Multihomed	Cold	1480.61	2523	1403.83	2275	51.65	96.83	928.45	76.28	326.9
CF-AUS-Sydney-INTL	Brasilia, BR - Multihomed	Warm	310.4	805	233.28	536	0.04	1.19	232.05	77.12	0
CF-EMEA-London-INTL	Hanoi, VN - CMC	Cold	1158.46	1653	1128.5	1569	45.38	37.53	889.16	29.3	156.44
CF-EMEA-London-INTL	Hanoi, VN - CMC	Warm	220.76	441	185.83	329	0	0.25	185.58	34.93	0
CF-EMEA-London-INTL	**Helsinki, FI - RETN**	**Cold**	**537.62**	**1199**	**493.47**	**1061**	**19.24**	**24.85**	**325.68**	**44.88**	**123.69**
CF-EMEA-London-INTL	**Helsinki, FI - RETN**	**Warm**	**162.56**	**378**	**130.34**	**262**	**0**	**0.06**	**130.27**	**32.22**	**0**
CF-EMEA-London-INTL	Auckland, NZ - Vocus	Cold	1155.78	1608	1138.06	1547	55.43	15.07	886.16	17.9	181.4
CF-EMEA-London-INTL	Auckland, NZ - Vocus	Warm	188.12	416	175.04	385	0.04	0.07	174.92	13.08	0.02
CF-EMEA-London-INTL	Cairo, EG - Link.Net	Cold	937.02	1597	919.49	1549	98.69	60.28	455.45	17.64	305.07
CF-EMEA-London-INTL	Cairo, EG - Link.Net	Warm	238.13	416	220.01	366	0	0.19	219.81	18.12	0
CF-EMEA-London-INTL	Athens, GR - Synapsecom S.A	Cold	786.76	1341	716.03	1266	7.84	23.01	487.37	70.97	198.45
CF-EMEA-London-INTL	Athens, GR - Synapsecom S.A	Warm	152.91	314	107.2	214	0	0.27	106.93	45.7	0
CF-EMEA-London-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	1023.16	1530	999.24	1413	7.63	24.5	830.83	23.32	136.27
CF-EMEA-London-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	129.87	264	109.42	187	0	0.06	109.37	20.45	0
CF-EMEA-London-INTL	Johannesburg, ZA - Vox	Cold	1935.66	1893	1191.22	1783	21.38	33.92	990.12	720.65	147.79
CF-EMEA-London-INTL	Johannesburg, ZA - Vox	Warm	288.33	342	158.79	242	0	0.02	158.77	129.54	0
CF-EMEA-London-INTL	Brasilia, BR - Multihomed	Cold	1540.42	2671	1422.43	2299	61.22	81.27	936.57	101.32	344.54
CF-EMEA-London-INTL	Brasilia, BR - Multihomed	Warm	300.92	738	233.89	516	0	0.24	233.65	67.04	0
CF-EMEA-Milan-INTL	Hanoi, VN - CMC	Cold	954.11	1579	919.84	1551	44.78	53.1	666.12	20.83	156.59
CF-EMEA-Milan-INTL	Hanoi, VN - CMC	Warm	180.33	365	164.23	303	0	0.09	164.14	16.1	0
CF-EMEA-Milan-INTL	Helsinki, FI - RETN	Cold	547.17	1260	500.6	1076	20.13	31.26	291.31	47.08	157.9
CF-EMEA-Milan-INTL	Helsinki, FI - RETN	Warm	176.8	476	134.21	263	0	0.1	134.1	42.59	0
CF-EMEA-Milan-INTL	Auckland, NZ - Vocus	Cold	1075.02	1462	1063.85	1423	58.54	13.29	826.79	11.29	165.23
CF-EMEA-Milan-INTL	Auckland, NZ - Vocus	Warm	169.53	366	160.28	339	0	0.32	159.95	9.25	0
CF-EMEA-Milan-INTL	Cairo, EG - Link.Net	Cold	903.75	1516	886.11	1473	95.46	62.44	432.92	17.62	295.29
CF-EMEA-Milan-INTL	Cairo, EG - Link.Net	Warm	240.61	413	225.84	375	0	0.04	225.76	14.77	0.04
CF-EMEA-Milan-INTL	**Athens, GR - Synapsecom S.A**	**Cold**	**667.55**	**1354**	**615.12**	**1221**	**8**	**31.76**	**371.75**	**52.64**	**203.61**
CF-EMEA-Milan-INTL	**Athens, GR - Synapsecom S.A**	**Warm**	**179.04**	**338**	**126.6**	**236**	**0.03**	**0.21**	**126.36**	**52.45**	**0**
CF-EMEA-Milan-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	900.21	1398	874.24	1367	8.72	21.79	711.36	25.52	132.37
CF-EMEA-Milan-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	127.42	275	107.37	180	0.02	0	107.34	20.05	0
CF-EMEA-Milan-INTL	Johannesburg, ZA - Vox	Cold	1579.06	1719	1007.05	1575	34.2	31.35	785.47	545.09	156.04
CF-EMEA-Milan-INTL	Johannesburg, ZA - Vox	Warm	299.84	299	135.68	197	0	0.03	135.65	163.37	0
CF-EMEA-Milan-INTL	Brasilia, BR - Multihomed	Cold	1409.89	2441	1327.3	2211	52.43	85.58	868.22	81.28	321.08
CF-EMEA-Milan-INTL	Brasilia, BR - Multihomed	Warm	282.72	705	229.41	506	0	1.28	228.13	53.3	0
CF-SAMER-Santiago-INTL	Hanoi, VN - CMC	Cold	936.39	1518	919.86	1473	45.79	38.16	683.36	16.2	152.55
CF-SAMER-Santiago-INTL	Hanoi, VN - CMC	Warm	184.27	361	168.99	309	0	0	168.99	15.28	0
CF-SAMER-Santiago-INTL	Helsinki, FI - RETN	Cold	480.27	1006	449.32	930	17.65	24.12	277.55	31.16	130.01
CF-SAMER-Santiago-INTL	Helsinki, FI - RETN	Warm	164.23	409	129.54	276	0	0	129.53	34.7	0
CF-SAMER-Santiago-INTL	Auckland, NZ - Vocus	Cold	1103.44	1549	1087.31	1517	56.41	17.17	828.82	16.13	184.9
CF-SAMER-Santiago-INTL	Auckland, NZ - Vocus	Warm	169.33	366	159.41	341	0	0.31	159.1	9.91	0
CF-SAMER-Santiago-INTL	Cairo, EG - Link.Net	Cold	1111.53	1782	1076.1	1756	107.18	91.13	470.58	35.95	407.2
CF-SAMER-Santiago-INTL	Cairo, EG - Link.Net	Warm	275.17	473	250.14	412	0.07	0.27	249.61	25.03	0.2
CF-SAMER-Santiago-INTL	Athens, GR - Synapsecom S.A	Cold	594.87	1320	521.36	1187	15.79	13.79	372.07	56.15	120.17
CF-SAMER-Santiago-INTL	Athens, GR - Synapsecom S.A	Warm	159.61	381	116.2	269	0	0.34	115.86	43.4	0
CF-SAMER-Santiago-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	872.8	1368	852.33	1315	7.12	19.39	703.62	20.37	122.2
CF-SAMER-Santiago-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	120.64	238	107.35	179	0	0.23	107.12	13.29	0
CF-SAMER-Santiago-INTL	Johannesburg, ZA - Vox	Cold	1232.78	1494	785.76	1440	38.48	24.44	616.1	414.84	108.03
CF-SAMER-Santiago-INTL	Johannesburg, ZA - Vox	Warm	432.36	276	227.39	194	0	0.1	227.29	183.46	0
CF-SAMER-Santiago-INTL	**Brasilia, BR - Multihomed**	**Cold**	**1397.06**	**2450**	**1327.92**	**2221**	**51.8**	**79.26**	**861.07**	**68.2**	**336.83**
CF-SAMER-Santiago-INTL	**Brasilia, BR - Multihomed**	**Warm**	**291.37**	**665**	**228.46**	**479**	**0**	**0.21**	**228.25**	**62.91**	**0**
CF-SAMER-Saopaolo-INTL	Hanoi, VN - CMC	Cold	1125.06	1557	1098.14	1501	44.23	37.71	861.47	27.09	154.73
CF-SAMER-Saopaolo-INTL	Hanoi, VN - CMC	Warm	206.85	400	181	329	0	0.12	180.88	25.84	0
CF-SAMER-Saopaolo-INTL	Helsinki, FI - RETN	Cold	555.11	1203	508.42	1069	20.65	30.6	312.77	47.58	144.4
CF-SAMER-Saopaolo-INTL	Helsinki, FI - RETN	Warm	211.32	504	144.91	296	0	0.16	144.75	66.42	0
CF-SAMER-Saopaolo-INTL	Auckland, NZ - Vocus	Cold	1134.16	1556	1116.35	1510	56.25	17.11	873.35	17.72	169.64
CF-SAMER-Saopaolo-INTL	Auckland, NZ - Vocus	Warm	184.3	425	168.58	371	0	0.23	168.35	15.72	0
CF-SAMER-Saopaolo-INTL	Cairo, EG - Link.Net	Cold	1105.73	1733	1084.93	1668	103.29	102.89	462.39	21.1	416.36
CF-SAMER-Saopaolo-INTL	Cairo, EG - Link.Net	Warm	251.11	420	231.06	388	0	0.17	230.8	20.05	0.09
CF-SAMER-Saopaolo-INTL	Athens, GR - Synapsecom S.A	Cold	590.22	1061	559.63	1038	5.64	15.43	412.86	30.67	125.7
CF-SAMER-Saopaolo-INTL	Athens, GR - Synapsecom S.A	Warm	127.1	278	108.8	247	0	0.21	108.59	18.3	0

CF-SAMER-Saopaolo-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	1019.76	1422	998.62	1381	7.22	26.66	823.56	21.25	141.18
CF-SAMER-Saopaolo-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	139.07	320	114.5	209	0	0.2	114.25	24.56	0.05
CF-SAMER-Saopaolo-INTL	Johannesburg, ZA - Vox	Cold	1821.65	2045	1138.93	1603	26.28	28.56	938.49	671.47	146.56
CF-SAMER-Saopaolo-INTL	Johannesburg, ZA - Vox	Warm	471.63	612	218.71	258	0.02	0.35	218.33	250.82	0.01
CF-SAMER-Saopaolo-INTL	**Brasilia, BR - Multihomed**	**Cold**	**1565.6**	**2751**	**1452.93**	**2441**	**56.37**	**110.21**	**914.6**	**108.11**	**371.74**
CF-SAMER-Saopaolo-INTL	**Brasilia, BR - Multihomed**	**Warm**	**341.25**	**848**	**250.32**	**527**	**0.01**	**1.04**	**249.23**	**90.93**	**0.03**

Zscaler Private Access - International

Test	Node Location	Connection Type	Test Time (ms) Avg	Test Time (ms) 95th	Time To First Byte (ms) Avg	Time To First Byte (ms) 95th	Connect (ms) Avg	DNS (ms) Avg	Wait (ms) Avg	Load (ms) Avg	SSL (ms) Avg
ZPA-APAC-Jakarta-INTL	**Hanoi, VN - CMC**	**Cold**	**1258.27**	**1771**	**1244.33**	**1730**	**139.49**	**242.03**	**279.37**	**13.94**	**583.44**
ZPA-APAC-Jakarta-INTL	**Hanoi, VN - CMC**	**Warm**	**276.65**	**445**	**262.39**	**403**	**0**	**0.11**	**262.28**	**14.26**	**0**
ZPA-APAC-Jakarta-INTL	Helsinki, FI - RETN	Cold	712.05	1407	697.03	1341	98.63	116.74	134.68	15.03	346.98
ZPA-APAC-Jakarta-INTL	Helsinki, FI - RETN	Warm	157.19	348	143.6	310	0.15	0.4	143.05	13.59	0
ZPA-APAC-Jakarta-INTL	Auckland, NZ - Vocus	Cold	1353.91	1908	1345.13	1896	94.63	165.27	288.36	8.78	796.87
ZPA-APAC-Jakarta-INTL	Auckland, NZ - Vocus	Warm	303.37	549	294.49	517	0	0.52	293.92	8.88	0.05
ZPA-APAC-Jakarta-INTL	Cairo, EG - Link.Net	Cold	1349.6	1861	1335.87	1832	188.11	327.25	259.75	13.73	560.76
ZPA-APAC-Jakarta-INTL	Cairo, EG - Link.Net	Warm	266.84	442	255.27	413	0	0.11	255.16	11.57	0
ZPA-APAC-Jakarta-INTL	Athens, GR - Synapsecom S.A	Cold	1140.17	2094	1128.4	2062	193.09	186.43	222.88	11.85	530.2
ZPA-APAC-Jakarta-INTL	Athens, GR - Synapsecom S.A	Warm	216.32	382	199.36	338	0	0.11	199.25	16.95	0
ZPA-APAC-Jakarta-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	1382.53	1882	1373.52	1849	88.22	310.34	238.17	9.01	736.79
ZPA-APAC-Jakarta-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	245.69	354	236.09	339	0.01	0.34	235.73	9.6	0
ZPA-APAC-Jakarta-INTL	Johannesburg, ZA - Vox	Cold	3322.74	4523	3311.94	4517	515.67	261.63	741.66	10.8	1792.98
ZPA-APAC-Jakarta-INTL	Johannesburg, ZA - Vox	Warm	737.21	1028	729.12	1020	0	0.03	729.03	8.09	0.06
ZPA-APAC-Jakarta-INTL	Brasilia, BR - Multihomed	Cold	4245.95	5533	4215.84	5468	584.88	479.97	938.23	30.07	2219.27
ZPA-APAC-Jakarta-INTL	Brasilia, BR - Multihomed	Warm	939.65	1297	911.5	1207	0	0.32	911.18	28.15	0
ZPA-APAC-Mumbai-INTL	Hanoi, VN - CMC	Cold	1366.24	1917	1348.68	1863	136.64	361.3	278.56	17.56	572.19
ZPA-APAC-Mumbai-INTL	Hanoi, VN - CMC	Warm	271.91	488	259.2	442	0	0.33	258.87	12.71	0
ZPA-APAC-Mumbai-INTL	Helsinki, FI - RETN	Cold	901.09	1806	868.66	1765	107.22	190.18	146.73	32.43	424.52
ZPA-APAC-Mumbai-INTL	Helsinki, FI - RETN	Warm	173.75	409	157.48	381	0	0.64	156.84	16.27	0
ZPA-APAC-Mumbai-INTL	Auckland, NZ - Vocus	Cold	1447.23	1994	1442.7	1987	92.93	329.9	268.16	4.52	751.71
ZPA-APAC-Mumbai-INTL	Auckland, NZ - Vocus	Warm	276.73	474	271.32	453	0	0.03	271.26	5.41	0.03
ZPA-APAC-Mumbai-INTL	**Cairo, EG - Link.Net**	**Cold**	**1500.62**	**2034**	**1488.45**	**2032**	**185.21**	**494.59**	**256.33**	**12.18**	**553.18**
ZPA-APAC-Mumbai-INTL	**Cairo, EG - Link.Net**	**Warm**	**260.1**	**415**	**250.16**	**392**	**0.05**	**0.11**	**249.96**	**9.94**	**0.03**
ZPA-APAC-Mumbai-INTL	Athens, GR - Synapsecom S.A	Cold	1172.11	2309	1158.59	2283	167.51	284.41	209.04	13.09	502.24
ZPA-APAC-Mumbai-INTL	Athens, GR - Synapsecom S.A	Warm	208.07	387	198.5	343	0	0.3	198.2	9.57	0
ZPA-APAC-Mumbai-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	1503.5	2011	1489.22	1975	87.03	451.95	231.31	14.28	718.93
ZPA-APAC-Mumbai-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	236.84	340	229.92	316	0	0.09	229.83	6.91	0
ZPA-APAC-Mumbai-INTL	Johannesburg, ZA - Vox	Cold	3558.83	4800	3549.2	4779	515.23	469.89	736.65	9.65	1830.1
ZPA-APAC-Mumbai-INTL	Johannesburg, ZA - Vox	Warm	744.24	1042	732.1	1030	0	0.14	731.96	12.14	0
ZPA-APAC-Mumbai-INTL	Brasilia, BR - Multihomed	Cold	4417.29	5888	4383.56	5807	580.23	722.25	941.96	33.82	2148.68
ZPA-APAC-Mumbai-INTL	Brasilia, BR - Multihomed	Warm	960.27	1451	925.84	1331	0.01	0.57	925.21	34.43	0.04
ZPA-APAC-Tokyo-INTL	Hanoi, VN - CMC	Cold	1173.51	1680	1163.64	1658	138.94	190.14	271.5	9.89	563.9
ZPA-APAC-Tokyo-INTL	Hanoi, VN - CMC	Warm	262.1	433	253.22	414	0	0.18	253.04	8.88	0
ZPA-APAC-Tokyo-INTL	Helsinki, FI - RETN	Cold	665.75	1246	650.11	1209	94.96	77.79	135.53	15.64	341.83
ZPA-APAC-Tokyo-INTL	Helsinki, FI - RETN	Warm	155.59	330	141.82	293	0	0.13	141.66	13.76	0.04
ZPA-APAC-Tokyo-INTL	Auckland, NZ - Vocus	Cold	1289.63	1804	1281.12	1784	94.37	105.43	291.84	8.51	789.48
ZPA-APAC-Tokyo-INTL	Auckland, NZ - Vocus	Warm	300.59	522	292.41	502	0	0.16	292.23	8.18	0.03
ZPA-APAC-Tokyo-INTL	Cairo, EG - Link.Net	Cold	1327.24	1925	1299.73	1904	191.08	238.62	274.18	27.51	595.84
ZPA-APAC-Tokyo-INTL	Cairo, EG - Link.Net	Warm	292.12	465	273.99	416	0	0.49	272.94	18.12	0.56
ZPA-APAC-Tokyo-INTL	Athens, GR - Synapsecom S.A	Cold	1136.81	2317	1120.4	2280	192.13	172.65	229.76	15.67	533.12
ZPA-APAC-Tokyo-INTL	Athens, GR - Synapsecom S.A	Warm	221.12	397	212.7	374	0.17	0.14	212.39	8.42	0
ZPA-APAC-Tokyo-INTL	**Seoul, KR - SK Broadband (Hanaro)**	**Cold**	**1305.74**	**1811**	**1294.95**	**1794**	**89.39**	**220.72**	**239.44**	**10.78**	**745.41**
ZPA-APAC-Tokyo-INTL	**Seoul, KR - SK Broadband (Hanaro)**	**Warm**	**246.6**	**361**	**237.66**	**327**	**0**	**0.07**	**237.59**	**8.95**	**0**
ZPA-APAC-Tokyo-INTL	Johannesburg, ZA - Vox	Cold	3290.05	4472	3282.06	4470	522.11	236.36	737.99	8	1785.6
ZPA-APAC-Tokyo-INTL	Johannesburg, ZA - Vox	Warm	780.09	1059	767.5	1036	0	0.07	767.43	12.58	0
ZPA-APAC-Tokyo-INTL	Brasilia, BR - Multihomed	Cold	4179.87	5533	4152.39	5442	594.79	378.88	944.09	27.2	2237.91
ZPA-APAC-Tokyo-INTL	Brasilia, BR - Multihomed	Warm	964.73	1381	929.2	1281	0	0.47	928.73	35.53	0
ZPA-AUS-Sydney-INTL	Hanoi, VN - CMC	Cold	1228.87	1733	1212.74	1704	138.91	210.81	280.87	16.15	583.89
ZPA-AUS-Sydney-INTL	Hanoi, VN - CMC	Warm	285.37	491	267.14	426	0	0.39	266.75	18.24	0
ZPA-AUS-Sydney-INTL	Helsinki, FI - RETN	Cold	716.85	1480	698.91	1429	98.7	83.47	145.09	17.93	371.65
ZPA-AUS-Sydney-INTL	Helsinki, FI - RETN	Warm	176.42	384	160.27	321	0.16	0.12	160	16.14	0
ZPA-AUS-Sydney-INTL	**Auckland, NZ - Vocus**	**Cold**	**1298.8**	**1865**	**1288.46**	**1822**	**93.12**	**116.59**	**284.58**	**10.35**	**794.17**
ZPA-AUS-Sydney-INTL	**Auckland, NZ - Vocus**	**Warm**	**295.44**	**515**	**287.31**	**501**	**0**	**0.55**	**286.77**	**8.12**	**0**
ZPA-AUS-Sydney-INTL	Cairo, EG - Link.Net	Cold	1411.63	2028	1400.09	1997	186.58	254.59	280.84	10.33	678.07
ZPA-AUS-Sydney-INTL	Cairo, EG - Link.Net	Warm	279.8	467	265.71	425	0.14	0.8	264.77	14.09	0
ZPA-AUS-Sydney-INTL	Athens, GR - Synapsecom S.A	Cold	1057.66	1995	1046.78	1989	191.9	156.98	213.7	10.92	486.8
ZPA-AUS-Sydney-INTL	Athens, GR - Synapsecom S.A	Warm	221.84	429	211	397	0	0.22	210.73	10.84	0.04
ZPA-AUS-Sydney-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	1251.43	1669	1242.58	1662	84.72	205.57	235.04	8.85	717.25
ZPA-AUS-Sydney-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	249.7	379	239.83	356	0	0.05	239.78	9.87	0
ZPA-AUS-Sydney-INTL	Johannesburg, ZA - Vox	Cold	3399.24	4637	3383	4606	519.94	267.43	753.46	16.25	1842.16

ZPA-AUS-Sydney-INTL	Johannesburg, ZA - Vox	Warm	787.13	1133	763.82	1077	0	0.37	763.45	23.31	0
ZPA-AUS-Sydney-INTL	Brasilia, BR - Multihomed	Cold	4159.97	5353	4122.38	5197	577.32	402.57	941.32	36.11	2209.88
ZPA-AUS-Sydney-INTL	Brasilia, BR - Multihomed	Warm	987.44	1400	948.92	1294	0.1	0.28	948.54	38.52	0
ZPA-EMEA-London-INTL	Hanoi, VN - CMC	Cold	1142.89	1580	1133.18	1569	132.17	175.9	272.04	9.72	553.07
ZPA-EMEA-London-INTL	Hanoi, VN - CMC	Warm	263.2	440	254.45	416	0	0	254.45	8.74	0
ZPA-EMEA-London-INTL	**Helsinki, FI - RETN**	**Cold**	**694.79**	**1258**	**681.05**	**1251**	**97.86**	**103.66**	**132.22**	**13.75**	**347.31**
ZPA-EMEA-London-INTL	**Helsinki, FI - RETN**	**Warm**	**157.83**	**330**	**143.77**	**290**	**0**	**0.27**	**143.49**	**14.06**	**0**
ZPA-EMEA-London-INTL	Auckland, NZ - Vocus	Cold	1316.89	1870	1310.11	1838	96.99	138.53	278.82	6.77	795.77
ZPA-EMEA-London-INTL	Auckland, NZ - Vocus	Warm	288.54	491	279.55	480	0	0.09	279.45	8.99	0
ZPA-EMEA-London-INTL	Cairo, EG - Link.Net	Cold	1448.87	2010	1438.02	1987	189.82	261.82	289.51	10.85	696.88
ZPA-EMEA-London-INTL	Cairo, EG - Link.Net	Warm	274.53	440	263.69	405	0	0.08	263.61	10.84	0
ZPA-EMEA-London-INTL	Athens, GR - Synapsecom S.A	Cold	1040.28	2011	1025.78	1996	189.97	126.05	218.32	14.57	494.08
ZPA-EMEA-London-INTL	Athens, GR - Synapsecom S.A	Warm	216.81	431	207.26	403	0	0.14	207.12	9.55	0
ZPA-EMEA-London-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	1354.24	1831	1339.38	1791	89.94	282.35	232.86	14.87	734.23
ZPA-EMEA-London-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	246.98	364	236.29	324	0	0.07	236.22	10.69	0
ZPA-EMEA-London-INTL	Johannesburg, ZA - Vox	Cold	3260.08	4527	3250.41	4509	515.05	228.26	740.3	9.66	1766.81
ZPA-EMEA-London-INTL	Johannesburg, ZA - Vox	Warm	746.82	1038	738.27	1024	0	0.02	738.25	8.55	0.01
ZPA-EMEA-London-INTL	Brasilia, BR - Multihomed	Cold	4324.62	5656	4258.9	5560	593.05	466.46	956.75	64.84	2258.17
ZPA-EMEA-London-INTL	Brasilia, BR - Multihomed	Warm	978.25	1480	943.77	1347	0.02	0.98	942.59	34.48	0.17
ZPA-EMEA-Milan-INTL	Hanoi, VN - CMC	Cold	1204.54	1663	1192.02	1654	133.86	235.74	268.25	12.5	555
ZPA-EMEA-Milan-INTL	Hanoi, VN - CMC	Warm	261.87	426	251.92	406	0	0.07	251.85	9.95	0
ZPA-EMEA-Milan-INTL	Helsinki, FI - RETN	Cold	804.89	1604	786.95	1571	103.92	134.76	141.03	17.96	407.24
ZPA-EMEA-Milan-INTL	Helsinki, FI - RETN	Warm	174.66	404	157.19	353	0.01	0.23	156.95	17.47	0
ZPA-EMEA-Milan-INTL	Auckland, NZ - Vocus	Cold	1352.22	1969	1345.28	1922	96.99	216.64	272.31	6.95	760.31
ZPA-EMEA-Milan-INTL	Auckland, NZ - Vocus	Warm	288.25	481	280.47	467	0	0.72	279.75	7.78	0
ZPA-EMEA-Milan-INTL	Cairo, EG - Link.Net	Cold	1384.69	2006	1374.15	1996	187.11	350.21	267.46	10.54	569.38
ZPA-EMEA-Milan-INTL	Cairo, EG - Link.Net	Warm	275.01	438	262.08	417	0	0.43	261.65	12.93	0
ZPA-EMEA-Milan-INTL	**Athens, GR - Synapsecom S.A**	**Cold**	**1155.6**	**2165**	**1129.77**	**2099**	**178.82**	**195.44**	**232.66**	**25.99**	**526.54**
ZPA-EMEA-Milan-INTL	**Athens, GR - Synapsecom S.A**	**Warm**	**246.91**	**486**	**215.91**	**442**	**0**	**0.56**	**215.35**	**31.01**	**0**
ZPA-EMEA-Milan-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	1445.23	2087	1433.52	2052	97.96	314.14	244.58	11.7	776.84
ZPA-EMEA-Milan-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	252.3	376	241.93	339	0	0.35	241.53	10.37	0.05
ZPA-EMEA-Milan-INTL	Johannesburg, ZA - Vox	Cold	3476.94	4803	3457.26	4767	535.45	287.68	758.74	19.68	1875.39
ZPA-EMEA-Milan-INTL	Johannesburg, ZA - Vox	Warm	777.5	1084	760.13	1059	0	0.3	759.83	17.37	0.01
ZPA-EMEA-Milan-INTL	Brasilia, BR - Multihomed	Cold	4327.05	5681	4304.23	5632	591.25	505.66	964.62	22.35	2246
ZPA-EMEA-Milan-INTL	Brasilia, BR - Multihomed	Warm	941.3	1331	917.95	1272	0.24	1.17	916.54	23.35	0
ZPA-SAMER-Santiago-INTL	Hanoi, VN - CMC	Cold	1123.11	1528	1113.16	1520	129.25	185	267.16	9.95	531.75
ZPA-SAMER-Santiago-INTL	Hanoi, VN - CMC	Warm	255.67	425	246.35	398	0.24	0	246.11	9.32	0
ZPA-SAMER-Santiago-INTL	Helsinki, FI - RETN	Cold	735.74	1514	707.94	1425	98.62	118.97	133.19	27.8	357.17
ZPA-SAMER-Santiago-INTL	Helsinki, FI - RETN	Warm	157.88	355	140.24	296	0.05	0.4	139.79	17.64	0
ZPA-SAMER-Santiago-INTL	Auckland, NZ - Vocus	Cold	1317.4	1879	1307.43	1841	92.74	156.51	280.31	9.97	777.86
ZPA-SAMER-Santiago-INTL	Auckland, NZ - Vocus	Warm	288.88	494	279.62	474	0	0	279.61	9.26	0
ZPA-SAMER-Santiago-INTL	Cairo, EG - Link.Net	Cold	1492.01	2130	1477.25	2102	191.58	293.3	293.55	14.75	698.81
ZPA-SAMER-Santiago-INTL	Cairo, EG - Link.Net	Warm	283.75	455	269.01	419	0	0.12	268.89	14.74	0
ZPA-SAMER-Santiago-INTL	Athens, GR - Synapsecom S.A	Cold	1276.04	2515	1253.44	2483	246.03	171.2	246.07	22.64	590.92
ZPA-SAMER-Santiago-INTL	Athens, GR - Synapsecom S.A	Warm	243.44	514	226.48	497	0	0.3	226.18	16.96	0
ZPA-SAMER-Santiago-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	1309.23	1737	1297.02	1722	86.45	279.28	229.25	12.21	702.05
ZPA-SAMER-Santiago-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	231.46	311	224.95	298	0	0	224.95	6.52	0
ZPA-SAMER-Santiago-INTL	Johannesburg, ZA - Vox	Cold	3249.32	4506	3242.81	4490	517.17	231.14	739.34	6.51	1755.16
ZPA-SAMER-Santiago-INTL	Johannesburg, ZA - Vox	Warm	757.64	1034	748.5	1029	0.08	0.04	748.38	9.15	0
ZPA-SAMER-Santiago-INTL	**Brasilia, BR - Multihomed**	**Cold**	**4217.97**	**5637**	**4186.32**	**5593**	**580.09**	**470.95**	**942.9**	**31.46**	**2202.1**
ZPA-SAMER-Santiago-INTL	**Brasilia, BR - Multihomed**	**Warm**	**957.81**	**1382**	**924.97**	**1290**	**0.01**	**0.63**	**923.94**	**32.85**	**0.38**
ZPA-SAMER-Saopaolo-INTL	Hanoi, VN - CMC	Cold	1205.9	1654	1190.87	1632	138.41	190.97	283.99	15.05	579.24
ZPA-SAMER-Saopaolo-INTL	Hanoi, VN - CMC	Warm	281.5	478	267.37	436	0	0.39	266.98	14.13	0
ZPA-SAMER-Saopaolo-INTL	Helsinki, FI - RETN	Cold	732.63	1485	713.32	1379	101.01	105.81	138.87	19.32	367.63
ZPA-SAMER-Saopaolo-INTL	Helsinki, FI - RETN	Warm	177.78	400	160.58	322	0	0.54	160.04	17.2	0
ZPA-SAMER-Saopaolo-INTL	Auckland, NZ - Vocus	Cold	1360.14	1957	1349.22	1926	93.48	176.45	281.34	10.91	797.96
ZPA-SAMER-Saopaolo-INTL	Auckland, NZ - Vocus	Warm	302.19	529	292.68	499	0	0.99	291.68	9.51	0
ZPA-SAMER-Saopaolo-INTL	Cairo, EG - Link.Net	Cold	1451.71	2003	1438.39	1960	188.36	288.66	282.2	13.27	679.16
ZPA-SAMER-Saopaolo-INTL	Cairo, EG - Link.Net	Warm	273.61	469	260.81	415	0	0.3	260.51	12.81	0
ZPA-SAMER-Saopaolo-INTL	Athens, GR - Synapsecom S.A	Cold	1053.02	1974	1039.05	1948	186.7	119.54	217.62	14.04	518.26
ZPA-SAMER-Saopaolo-INTL	Athens, GR - Synapsecom S.A	Warm	219.69	429	210.15	385	0.06	0.05	210.04	9.54	0
ZPA-SAMER-Saopaolo-INTL	Seoul, KR - SK Broadband (Hanaro)	Cold	1269.71	1702	1261.29	1680	86.41	222.98	234.37	8.42	717.53
ZPA-SAMER-Saopaolo-INTL	Seoul, KR - SK Broadband (Hanaro)	Warm	251.19	397	242.22	369	0	0.17	242.05	8.97	0
ZPA-SAMER-Saopaolo-INTL	Johannesburg, ZA - Vox	Cold	3381.06	4650	3360.83	4635	518.69	275.99	747.64	20.23	1818.52
ZPA-SAMER-Saopaolo-INTL	Johannesburg, ZA - Vox	Warm	788.7	1129	765.39	1062	0.02	0.09	765.17	23.31	0.1
ZPA-SAMER-Saopaolo-INTL	**Brasilia, BR - Multihomed**	**Cold**	**4187.27**	**5381**	**4157.44**	**5332**	**582.25**	**446.31**	**954.91**	**28.05**	**2185.9**
ZPA-SAMER-Saopaolo-INTL	**Brasilia, BR - Multihomed**	**Warm**	**989.86**	**1439**	**940.5**	**1304**	**0**	**1.84**	**938.64**	**49.35**	**0.03**