**Frequently Asked Questions Version 1.02 May 26, 2010**

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**1. What is an "Index"?**

An index is traditionally defined as a numerical scale used to compare variables with one another or with some reference number. For purposes of the Net Index, Ookla defines an index as a weighted average of data collected over the 30 most recent days.

**2. How is an Index calculated?**

To calculate an index, Ookla ensures that distance and infrastructure bottlenecks have a minimal impact on accuracy. To do this, we track the distance between the test location and the server. Thanks to the breadth of our infrastructure, we have a server within 300 miles for the vast majority of the population. Nightly, we review 24-hour increments until we identify 30 days of data with acceptable parameters. To ensure the index value is current, we do not go back further than six months to find those 30 days of data used to compute the final index value. We ignore days where the value is more than 300 miles to ensure events, such as server downtime, do not affect the aggregated number.

**3. What are Ookla and Net Index about?**

In short, it's all about a better future for the Internet through monitoring the present and reporting on the past. Ookla maintains an explicit philosophy articulated in actionable policies and operational guidelines. Together they assure long-term relevance, and in the process, guarantee everyone on the Internet an independent resource for reliable, accurate network information. It also offers a constantly evolving and adapting set of tools to gather information on a massive scale (nothing short of globally and technologically comprehensive).

Our team is committed to expanding our tools and increasing the capabilities of our applications to gain a deeper understanding of technical issues. We will continue to leverage the massive collection of valuable information our tests produce, and work to make it available to the public in a format that is verifiable, applicable and eminently actionable. Ookla is about a better Internet future.

**4. How is the Net Index different from other reports or publications about Internet speeds?**
The Net Index is (in some cases) fundamentally different from other popular reports. Often, the data that goes into other reports is not directly intended to be for speed tests. This is the case with web content delivery companies that utilize caching servers. Specifically, users surfing the web come across content that happens to be on a caching server and so the speed of that content being delivered to the end user is what is considered the speed of their connection. The speed at which content is delivered is limited to a single thread making it impossible to fill the pipe.

At Ookla, we applaud any attempt to accurately determine the speed and quality of Internet connectivity. Our reports build on this tradition by including upload speeds, increasingly important with applications where uploading content like video or pictures is popular. Moreover, by default, our customers are actively participating in the process; mitigating the chances that something else is using their connection when testing. Finally, testing speed and measuring it accurately over any connection type is our core business. The results of this effort are especially valuable to our Ookla team.

**5. Why doesn't Net Index include ISP ratings?**
Stay tuned! Every big project has to start somewhere. When Ookla decided to launch Net Index, we knew that focusing first on the fundamentals and education were going to be critical to the ultimate success of the initiative. For this reason, we are initially providing strictly geographic oriented metrics for the basic attributes of a connection.

**6. How does distance affect the speed result? Why is it so important to find a server close to me?**
You may have noticed that downloading from a local server location is faster than a distant one. This is because each data packet that is sent during a transfer of data must be acknowledged as received by the destination. The technical protocols involved are not optimized for the increased latency that comes from an increase in distance, whether that distance is geographic or as a result of delays in the network (such as routers the data must pass through). All web-based data transfers are technically bound by the TCP "congestion window," which determines how many packets can be sent at one time; the larger the window size, the higher the throughput. Latency directly affects this because slower responses will create delays between packet transmissions.

**7. How is download and upload speed determined?**
Ookla measures connection speed in a manner that goes well beyond most speed tests and other web-based applications. Rather than measure the approximate speed of a web browser downloading a single file, we take a "fill the pipe" approach; this accurately represents what each connection is capable of producing when multiple programs or computers are using it. We do this by using multiple threads

(simultaneous transfers of data) and carefully "right-sizing" the transferred payload. In short, this means the faster we believe a given connection to be the more data we use to test it with and the more threads we employ. The result is a highly practical and useful "apples to apples" comparison between the speed your Internet service provider promises and what you actually receive. While our sophisticated testing engine often reports speeds higher than others offering similar diagnostic tests, it is for this reason that Ookla's tests produce a much more useful result.

**8. How is connection quality determined?**
Currently, we use a unique modified algorithm to calculate *R Factor*, a traditional metric that can be converted into another popular quality indictor, MOS (mean opinion score). Both of these are centered on voice quality, and while they have certain limitations, both are the most widely used quality metrics today and offer a very meaningful way to rate critical aspects of your connection.

**9. Why isn't my city/state/country showing in a particular category?**
In order to best represent an area, Ookla requires a sufficient portion of the Internet population there to have used our applications in a relatively recent period of time. In practical terms, this means that if a country does not have at least 100,000 unique IP addresses present in our database it will not be ranked in the "Top 10" type of lists. Note all countries with at least 1,000 unique IPs are shown on the All Countries list. Cities also have a cut-off in order to be ranked (75,000 unique IPs) and cities at the state or regional level must have 1,000 unique IPs.

In the case of many global cities, there are instances where a population may be large but the percentage that is online skews remarkably small. In these instances, as with countries, we will occasionally be unable to justify ranking it alongside other cities that are highly representative of the Internet population.

Ookla also requires test results to be free from excessive latency that can dramatically impact the accuracy of the results, unfairly presenting a connection as slower or of a lesser quality than it is in reality. The number one cause of this type of "artificial" latency is distance, and for this reason, as stated above, we limit the tests we use in rankings to be at an estimated distance of no more than 300 miles (approximately 483 kilometers). [While this method may be imperfect (as any would be), as our growth continues Ookla will have fewer and fewer of these anomalies. You can help by telling others in your area to utilize Speedtest.net or Pingtest.net or, if you have the necessary resources, offer to become a host at Speedtest.net or Pingtest.net.]

**10. How do Speedtest.net and Pingtest.net know where I am?**
Your location is determined based on your IP address. Speedtest.net uses GeoIP data from MaxMind to position you on the map and determine your closest server. You can learn more about the MaxMind GeoIP data here:
http://www.maxmind.com/app/ip-location

**11. Are countries or cities without a local server at a disadvantage when it comes to reported speed?**
Unfortunately yes, but to a lesser degree every day. That's because Ookla is adding servers constantly and currently has more than 600 in service, more than any other speed testing organization in the world (by a huge margin). Of note, for Net Index purposes, Ookla eliminates any speed test results for a given area where the average distance is in excess of 300 miles.

In a few rare cases, this historically presented a problem and could be seen in the data as well as the graph (where very historical data is still used, this can still be seen). Major peaks and valleys in a graph are almost unilaterally caused by a new server going on or offline in the area. By far, the countries where this has presented a meaningful problem have been Japan and South Korea. Both have been remedied and are being monitored closely along with the rest of the Ookla network. When we formally rolled out the Net Index, we implemented comprehensive policies and operational procedures to avoid similar situations in the future data.

**12. Is Ookla affiliated with ISPs or the government? Surely there is some kind of conspiracy going on, right?**
Wrong. Ookla is at its very core a team of Internet veterans with a common vision to create tools and information that make the Internet increasingly powerful, enabling people and businesses to do even more with their connectivity. Fortunately for us, and critical to our independent voice, Ookla has zero venture capital or outside influence to dictate or even subtly influence our mission. In 1993, the CEO of Ookla created the world's first Internet Café with a mission to provide high-speed Internet access to anyone. He led that company to become the United States' largest privately held broadband provider (Speakeasy).

Along with three other founders, who served at Speakeasy alongside the CEO, the team at Ookla maintains absolute neutrality with respect to corporate interests or other influences. Today, like every day since starting the company in 2006, that mission is to work hard to foster a faster, higher quality Internet that is free from unjustified and restrictive policies, allowing for the full potential of a person or a business to become manifest in part through leveraging this powerful global network.

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