

Adding leap second this year expected to cause Internet problems

January 7 2015, by Bob Yirka



Credit: Vera Kratochvil/public domain

(Phys.org) —Officials at the International Earth Rotation Service have [announced](#) that a leap second will be added to the year this summer to allow for syncing up atomic clock time with the Earth's rotational time. The announcement has made many Internet sites nervous, as adding leap seconds in the past has caused problems with services such as Foursquare, Reddit, LinkedIn and Yelp—all reported incidents due to

the sudden time discrepancy the last time a leap second was added back in 2012.

The advent of computers and the Internet has caused a need for ever more precise [time](#) measurement and scientists have responded—atomic clocks are the standard now with accuracy up to quadrillionths of a second. Unfortunately, the spin of the Earth on its axis, which of course is the [original source](#) for recording the passage of time—one spin equals one day—is slowing down, losing approximately two thousandths of a second every day. That means that atomic clocks and true Earth time must be reconciled every so often—it has happened 25 times since it became necessary back in 1975. But back then, adding leap seconds went virtually unnoticed by all but the most interested. Nowadays, however, adding a leap second—which is scheduled to occur at 23:59:59 on June 30 (the halfway point of the year)—can cause computer systems to become confused when their clock shows 60 seconds, rather than rolling over after 59—and we all know what that generally means—outages. Other computers will show the 59th second for two seconds in a row, which can also cause problems.

Some companies, most notably, Google, have created a work-around—they call it the "smear around"—it forces servers to use extra time in making updates over the course of the year, which prevents them from ever noticing that a leap second has occurred. That approach apparently worked well enough as Google has already announced that it would use the same technique this year. Whether other sites will be doing the same is still not clear.

Because of such disruptions, some in the technology sector have called for an end to leap seconds—doing away with time based on the Earth's movement altogether. That would not mean much of a difference in the near term, but at some point, people would find their clocks completely mismatched with days and nights, perhaps necessitating the need for a

leap minute, or hour which would seem to be even more disruptive. Another possibility is of course, to maintain a dual system, one for technologists, the other for everybody else.

More information: International Earth Rotation Service:
www.iers.org/IERS/EN/Home/home_node.html

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