denote by $N_{x..y}$ the number of distinct nodes observed from rounds x to y, then we have $N_{j..(j+2)} = N_{(j+1)..(j+3)} = \cdots = N_{(i-2)..i} = 13$, but $N_{(i-1)..(i+1)} = 14$ and $N_{i..(i+2)} = 16 > N_{(i-2)..i} + 23\%$.

Similarly, in Figure 3 (middle row, blue plot) we display the number of nodes observed in 10 consecutive rounds in a typical practical case, which exhibits significant increases, thus revealing events in the dynamics (significant decreases were also experienced, which we removed to improve readability, as they indicate local network failures only).

This plot has another key feature: the observed values are well centered around a typical value but also reach some extremal outlier values. See the distribution plotted in Figure 3 (top row, blue distribution). This means that the sharp increases indeed reveal events in a rigorous statistical sense.

Finally, we are able to point out precise times where events occur in the dynamics of the observed topology. This opens the way to further investigation of the shape and nature of these events, for instance by drawing the topology and the changes it experienced at these precise times. We display a typical case in Figure 3 (bottom row): it shows that, whereas the dynamics are generally scattered throughout the network, the events we detect correspond to a significant change in a specific part of the topology. This confirms that these events make sense from a networking point of view. They correspond to major changes in specific parts of the internet, which we are able to automatically detect at a time scale of a few minutes, much more precisely than all previous work in this area.

Acknowledgments

This work is partly funded by the European Commission through the EULER project (grant 258307), part of the *Future Internet Research and Experimentation (FIRE)* objective of the Seventh Framework Programme (FP7). It is also partly funded by the *DynGraph* grant from the *Agence Nationale de la Recherche* with reference ANR-10-JCJC-0202.

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