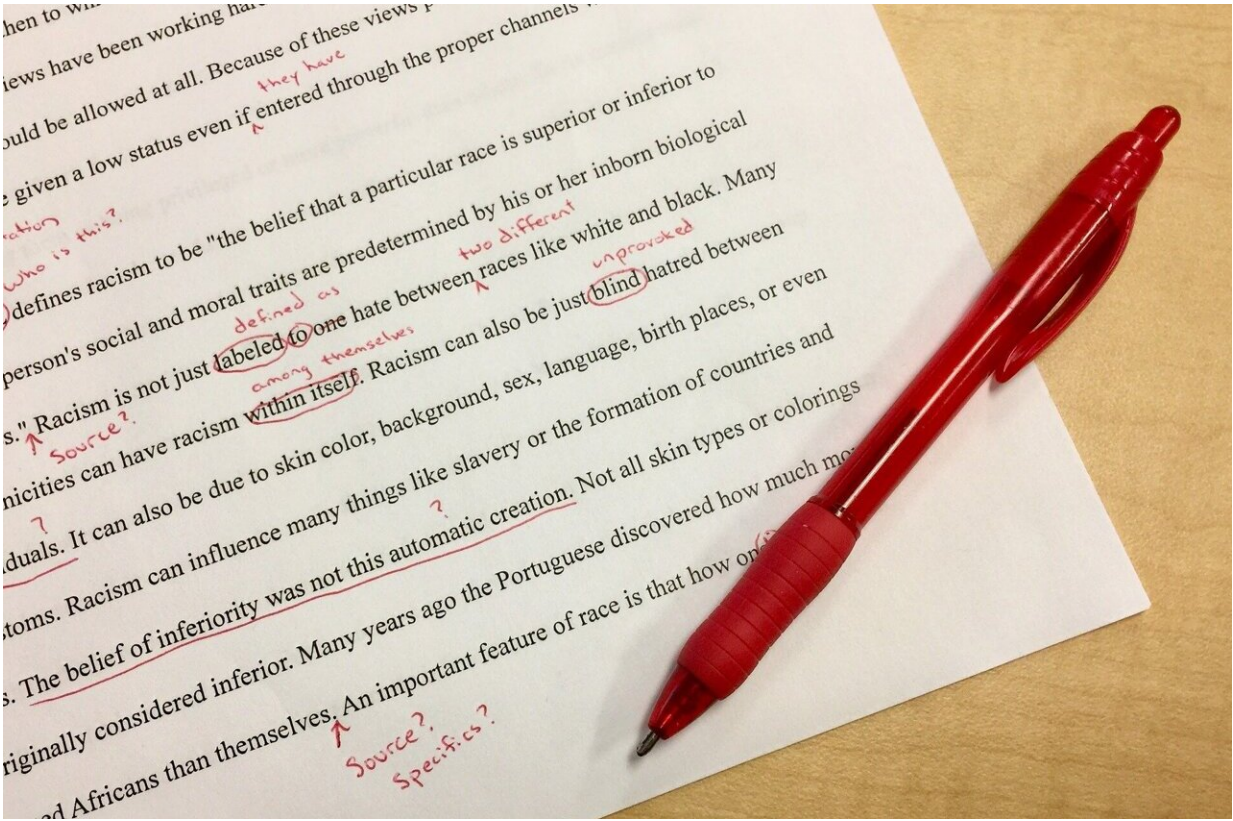


Opportunistic networks for collaborative editing

March 2 2022, by David Bradley



Credit: Pixabay/CC0 Public Domain

Opportunistic networks are ad hoc networks that allow connectivity between users where conventional network infrastructure may not be present, allowing people to work together over the OppNet and share

data. Writing in the *International Journal of Ad Hoc and Ubiquitous Computing*, a team from France and Saudi Arabia has investigated how OppNets might be used successfully in collaborative editing.

Noha Alsulami and Asma Cherif of the King Abdulaziz University in Jeddah, Saudi Arabia, and Abdessamad Imine of Lorraine University, Campus Scientifique in Nancy, France, point out that much of the OppNet research is focused on message routing and data dissemination. Moreover, the [files](#), photos, and videos that are being discussed in that research tend to be immutable packets of data for reading and viewing.

Files that are to be shared for subsequent editorial or other manipulative work represent an entirely different set of problems to be addressed. Each user receives a replica on which to carry out their tasks, but the final output must then bring together all of the changes in a single file at the end of the job. This file must be consistent, contain all necessary changes, and also ensure that there are no conflicts in work done by different users.

Fundamentally, there needs to be a way to share a file that requires changes and to allow numerous users to make the necessary changes and somehow for those to converge on a single, finalized digital entity. Data convergence of the various replicas is key. The team has tested various OppNet systems, including PROPHET and Epidemic and found that the former outperforms the latter in achieving the requisite convergence of file replicas.

There remain some issues yet to be addressed relating to the potential for data loss and data convergence delay. The team is now working on those problems as well as investigating how they might enforce consistency and increase the awareness within each OppNet node of [convergence](#) based on the operations stacked in the OppNet's routing buffer.

More information: Noha Alsulami et al, Collaborative editing over opportunistic networks, *International Journal of Ad Hoc and Ubiquitous Computing* (2022). [DOI: 10.1504/IJAHUC.2022.121121](https://doi.org/10.1504/IJAHUC.2022.121121)

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