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Orchestration and analysis of decentralized workflows within heterogeneous networking infrastructures

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***Highlights (for review)**

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Collaborative applications in highly dynamic and potentially disruptive network scenarios have very different requirements to the way workflows currently operate over distributed computing infrastructures.
The applies the workflow methodology to group communication applications in highly distributed and dynamic wireless networks by enabling the collaborative applications, distributed processing and logic to support a variety of deployment scenarios in a common way.

The Network Edge Workflow Tool (Newt) addresses these issues to provide, for the first time, a workflow system in such an environment.

We apply Newt to a far more advanced use case which models complex causal interactions; we orchestrate William Shakespeare's Hamlet by distributing the actors across a virtual wireless network emulation environment and having actors converse their lines as decentralized messages of communication between one actor and another as the play progresses.

We present the use of time-windowed conversational graphs as an approach for a priori or post facto modeling and analysis of communication interactions resulting from a temporal distributed workflow.

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