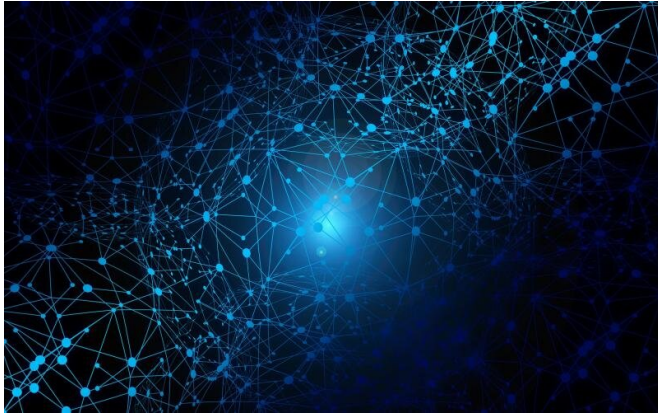


New insights into the everyday operation of the nation's power grid

2 November 2021, by Elizabeth Rosenthal



possible and provide information to grid operators about how to address problems," said ORNL's Srdjan Simunovic.

Provided by Oak Ridge National Laboratory

An open-source code developed by an ORNL-led team could provide new insights into the everyday operation of the nation's power grid. Credit: Pixabay

Oak Ridge National Laboratory, University of Tennessee and University of Central Florida researchers released a new high-performance computing code designed to more efficiently examine power systems and identify electrical grid disruptions, such as power outages.

The Resilient Adaptive Parallel simulator for grid, or [RAPID](#), relies on a novel parallel in time, or "parareal," algorithm that divides calculations into smaller time intervals, then completes them simultaneously on different processors to streamline traditionally time-consuming simulations.

RAPID also uses adaptive model reduction, which reduces computational demand by focusing only on areas near a disruption. The code is compatible with various architectures and could eventually help predict grid dynamics and assess algorithms for the integrated transmission and [distribution network](#) as fast as or faster than real time.

"The goal is to run these simulations as fast as

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