

Overcoming Communication, Distributed Systems, and Simulation Challenges as presented by Kenneth Hopkinson

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Abstract

Recent political events have motivated a fear induced "Homeland Security" audit. One such example is this "protection and control of the electric power grid" case study. In spite of it's questionable recent attention, this problem is important and of interest. Dr. Hopkinson outlines some of the issues and some solutions.

1 EPOCHS Simulator

Dr. Hopkinson and other students at Cornell built EPOCHS - a simulation system that glued together NS2, PSLF and PSCAD/EMTD using "agents". This simulator was the test bed for all of Dr. Hopkinson's findings and discussion. It sounds as though this system allows him to simulate various equipment configurations and failure scenarios.

2 Communication

"Gossip" is a communication protocol that Dr. Hopkinson researched to help facilitate the inter-control center communication. It's main goals are to minimize latency and get maximal communication in a unstable network. All of the simulation data presented makes it look like an attractive option for this

application. Obviously the connectivity of the examples tested was orders of magnitude more connected than what exists currently in the real world.

3 Conclusion

Dr. Hopkinson's research is of high value now, and will only become more valuable as the technology this is based on becomes readily available to the mass market. Utilities are of upmost importance to developed nations, so this technology is bound to become popular.

4 Comments

Although an interesting presentation, Dr. Hopkinson's graphs were under effective. The graphs (and some diagrams) he brought were far to fine to be seen clearly. This may have been a projector issue, but bolder graphs on a larger scale should have been used in any case. Otherwise his slides were clear and effective.

I felt that his lecturing skills were adequate. The lecture started off a little shaky, but he looked comfortable and in control by the end.

I felt the research was well presented given the amount of time he had. I heard others commenting that they were not overly impressed, especially considering the recommendation his advisor gave him and the notoriety of his advisor. I can not say I shared this sentiment, but I was not "wow-ed" by him. I would certainly hope that we see better applicants before this process is over.