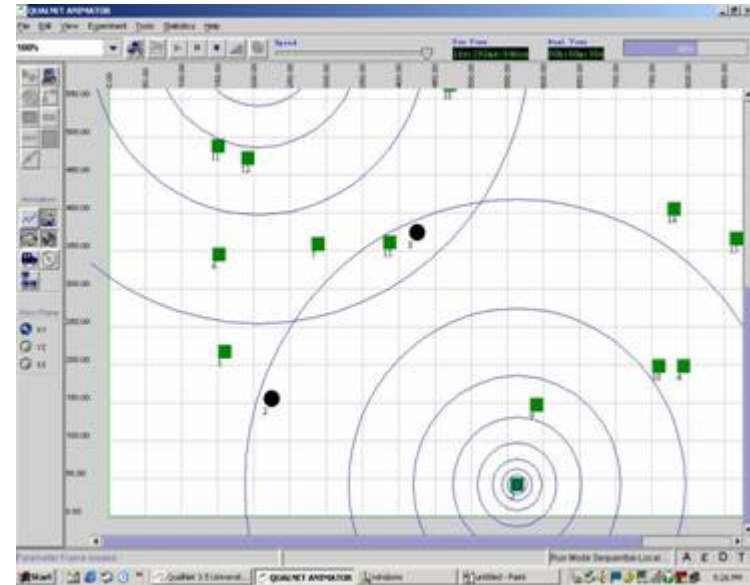


Policy-based Mobile Ad Hoc Networks

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PBNM bundled with our solution suite enables efficient, automated and robust QoS management in MANETs



QoS management
in ad hoc networks



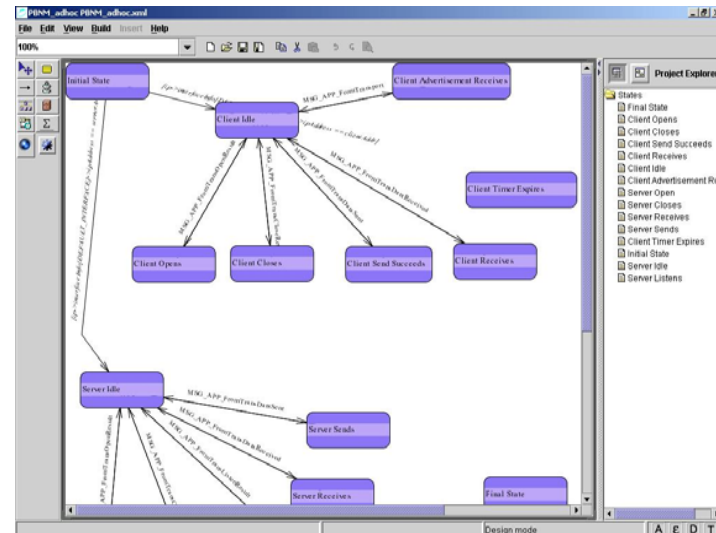
PBNM + proposed
solution suite



Seamless and
robust QoS



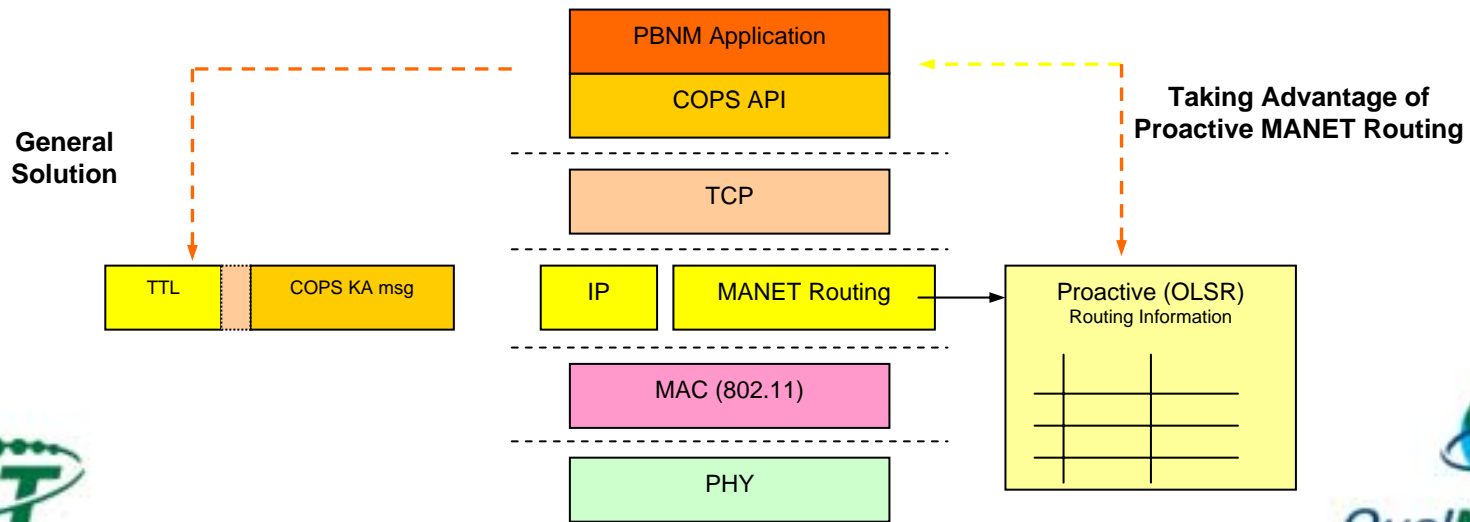
Prototype; experimental
evaluation



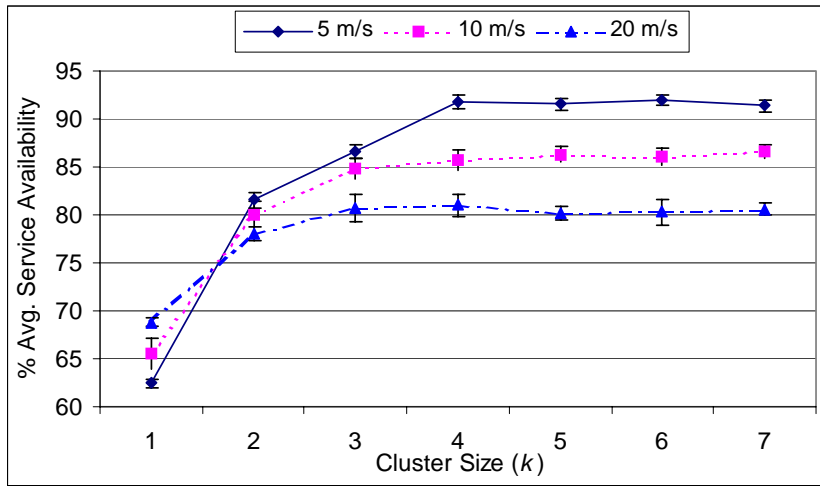
Simulation models
in QualNet

Implementation of protocols and solution suite

- Common Open Policy Service (COPS) and COPS for PRovisioning (COPS-PR) – RFCs 2748 and 3084
- Solution suite
 - k -hop clustering
 - Dynamic Service Redundancy (DynaSeR)
 - Lightweight service discovery mechanism
 - Policy negotiation

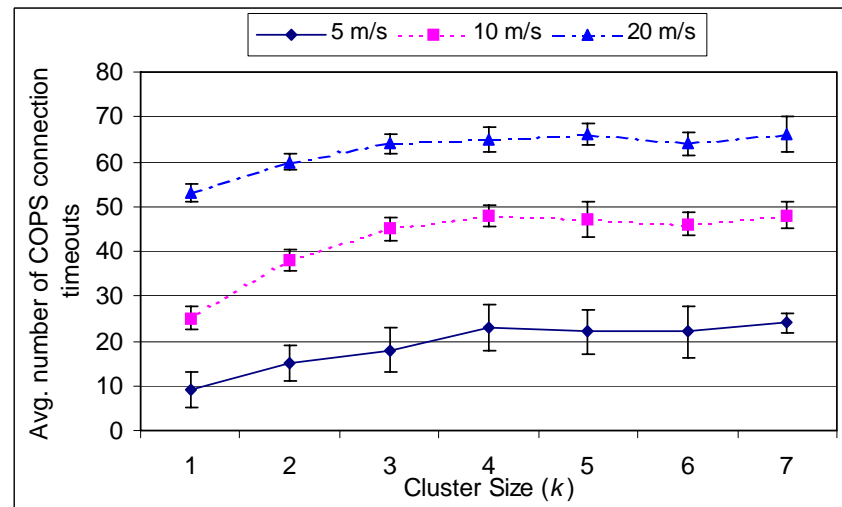


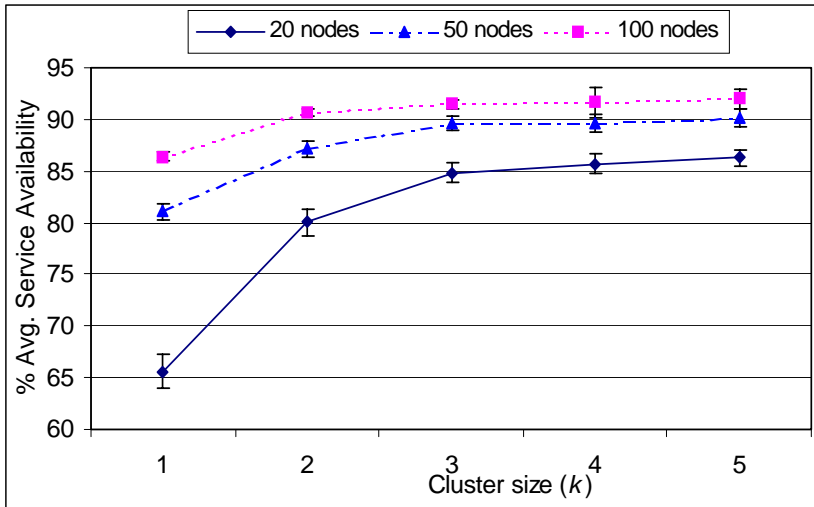
Valuable insight gained using simulations – effect of cluster size, mobility, network density, ...



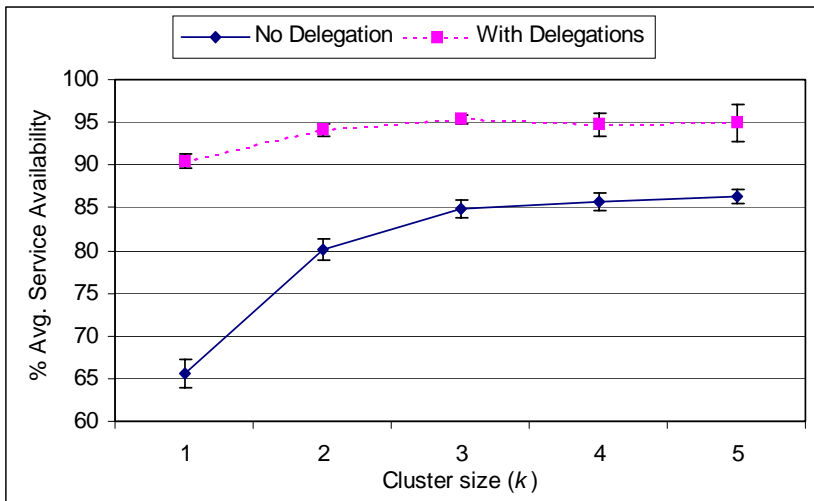
Improved % service availability with increase in cluster size k

Trade-off is reduced predictability and inefficiency





The management system scales well for larger networks; density improves service availability



Improvement on the order of 10-25% obtained using on-demand delegation

References

- K. Phanse, “Policy-based Quality of Service Management in Wireless Ad Hoc Networks,” Ph.D. dissertation, Virginia Tech, August 2003. Available at: <http://scholar.lib.vt.edu/theses/available/etd-09082003-110529/>
- K. Phanse and L. DaSilva, “Protocol Support for Policy-Based Management in Mobile Ad Hoc Networks,” submitted for (conference) publication, 2003.
- K. Phanse, L. DaSilva and S. Midkiff, “Design and Demonstration of Policy-Based Management in a Multi-Hop Ad Hoc Network Testbed,” to appear in Journal of Ad Hoc Networks, 2003.
- K. Phanse and L. DaSilva, “Addressing the Requirements of QoS Management for Wireless Ad Hoc Networks,” *International Journal on Computer Communications*, vol. 26, no. 12, pp. 1263-1273, July 2003.