

Title: Greedy Coordinates for Geographic Routing

Presenter: Ben Leong

Venue: Meeting Room beside CIRL (S14, Level 6)

Day/Time: 24 Sep 2007, 2-3 pm

Abstract:

We present a new approach for generating virtual coordinates that produces usable coordinates quickly and improves the routing performance of existing geographic routing algorithms. Starting from a set of initial coordinates derived from a set of elected perimeter nodes, Greedy Embedding Spring Coordinates (GSpring), detects possible dead ends and uses a modified spring relaxation algorithm to incrementally adjust virtual coordinates to increase the convexity of voids in the virtual routing topology. This reduces the probability that packets will end up in dead ends during greedy forwarding. The coordinates derived by GSpring achieve routing stretch that is up to 50% lower than that for NoGeo, the best existing algorithm for deriving virtual Euclidean coordinates for geographic routing. For realistic network topologies with obstacles, GSpring coordinates achieves from between 10 to 15% better routing stretch than actual physical coordinates.

Ben