Geographical routing implementation in NS3

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Summary

- Geographical Routing
- GPSR (Greedy Perimeter Stateless Routing)
- NS3 Module
- Conclusions
Geographical Routing

- Location service finds the position
  - Reactive or proactive
- Routing protocol uses position to choose the route
Algorithm 1 GPSR Pseudo-code

\[
\begin{array}{l}
\text{if } \exists n \in N: \text{Distance} (n, D) \leq \text{Distance} (R, D) \text{ then} \\
\quad \{ \text{Greedy forwarding} \} \\
\quad n = \text{Min-Distance} (N, D) \\
\quad \text{Forward\_packet} (p, n) \\
\quad \text{Return} \\
\text{else} \\
\quad \{ \text{local-maximum, use right-hand rule} \} \\
\quad n = \text{Right\_Hand\_Rule} (N) \\
\quad \text{Forward\_packet} (p, n) \\
\quad \text{Return} \\
\text{end if}
\end{array}
\]
GPSR

Source

Destination

?
Recovery - Perimeter

?
Hello Messages

- Needed to know which neighbours are available
- Random jitter in the messages
  - +/- half the hello messages interval
Conclusions

- GPSR implemented in NS-3
  - The module was tested

- Created Location service “concept” in NS-3

- Code is waiting for review to be merged in next release


- Future work
technology
from seed