

Final Presentation

‘A Communication Layer for Distributed Decision Making’

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Introduction

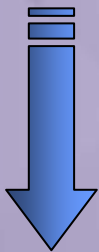
11 September 2001 New York

- **911 was overwhelmed by calls**
- **Communication coverage was limited**
- **Wrong/Incomplete information**

Introduction



**How can information
efficiently be distributed without
using a centralized point?**



**a real
simulation**

Solutions



**simulation
program**

Introduction – *Background*

Crisis Management :



Introduction – *Approach*

- Preparation
- Research
- Design
- Implementation
- Closing

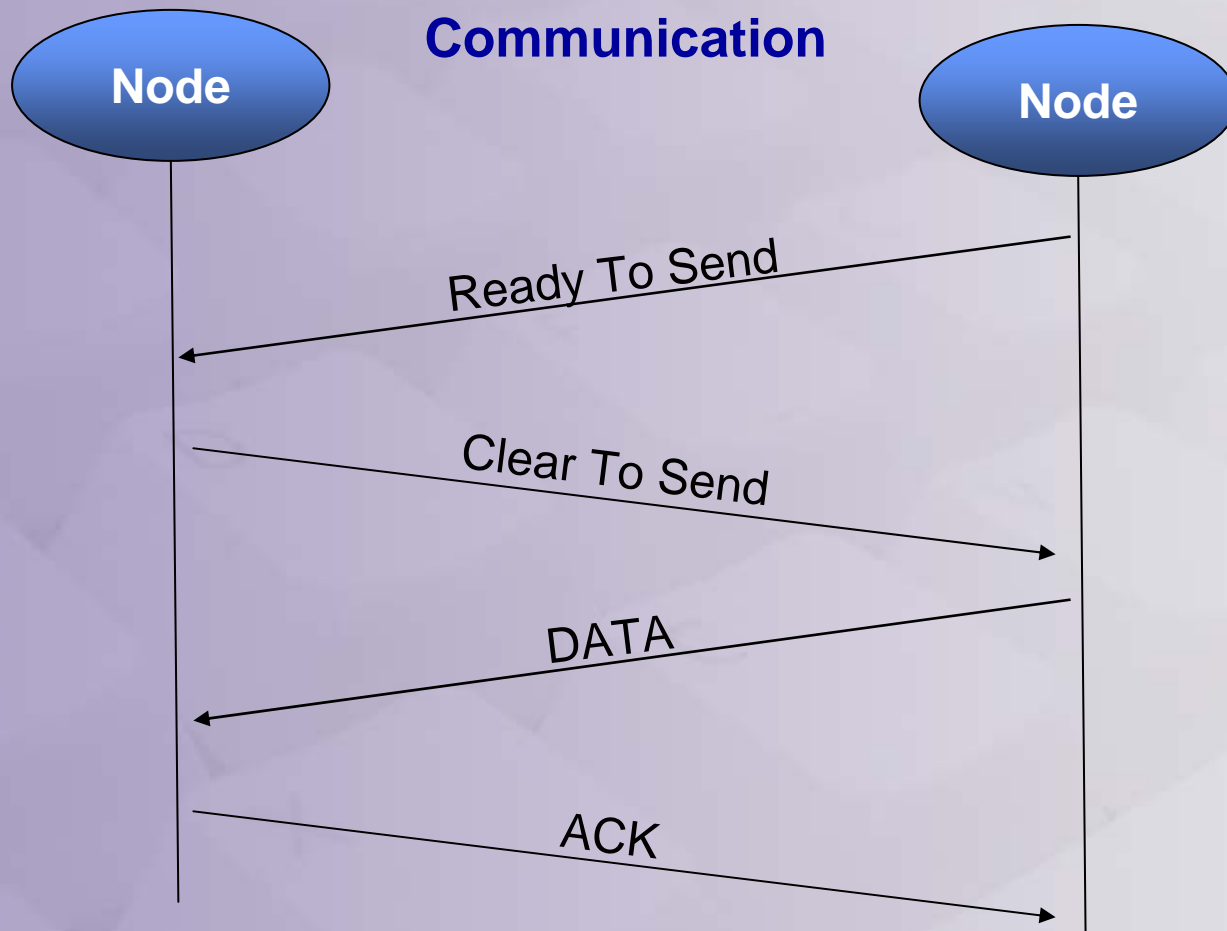


Research – *IEEE802.11b*

- Institute of Electrical and Electronics Engineers (IEEE)
- Wireless Local-Area Network (WLAN)
- 11Mb/sec



Research – *IEEE802.11b*



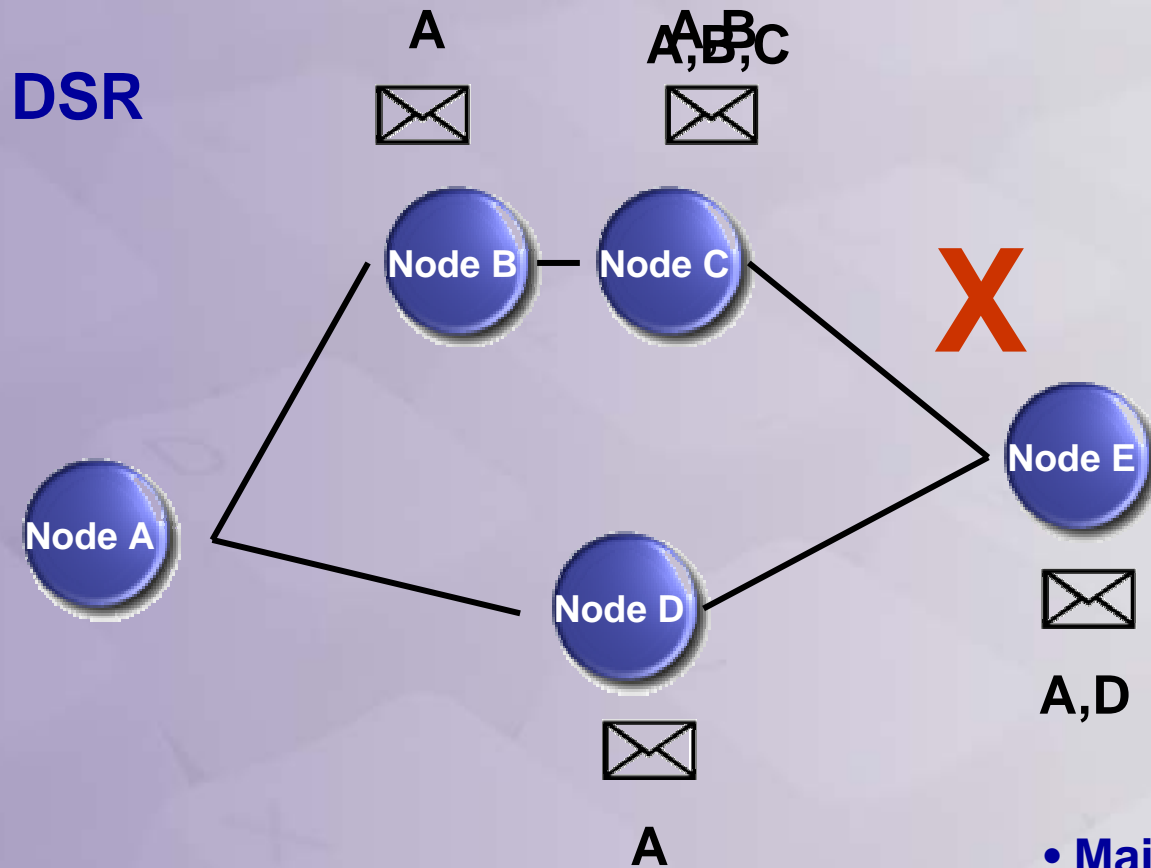
How to create a Route between two nodes?

- Dynamic Source Routing (DSR)
- Ant based Routing Algorithm (ARA)

How to determine the performance?

- ➡ Processor time, Memory usage,
Storage, message Processing,
network traffic... etc.

Research – *Routing Algorithms*



- Maintenance
- Route header packet
- Route memory

Research – *Routing Algorithms*

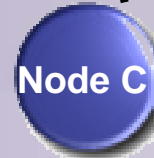
ARA

Node B		
Dest	Next	Value
A	A	+0.1
E	C	+0.1

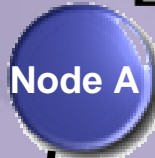
Node C		
Dest	Next	Value
A	B	+0.1
E	E	+0.1



Node E		
Dest	Next	Value
A	D	+0.1
A	C	+0.1



Node D		
Dest	Next	Value
A	A	+0.1
E	E	+0.1

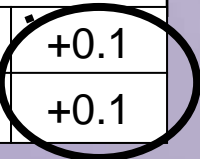


Node A		
Dest	Next	Value
E	B	+0.1
E	D	+0.1

Highest Value

=

Route



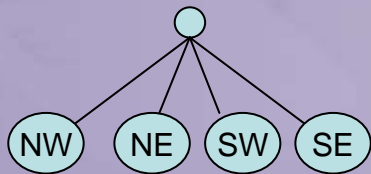
Research – *Neighbour Searching Algorithms*

How to search efficiently for neighbours?



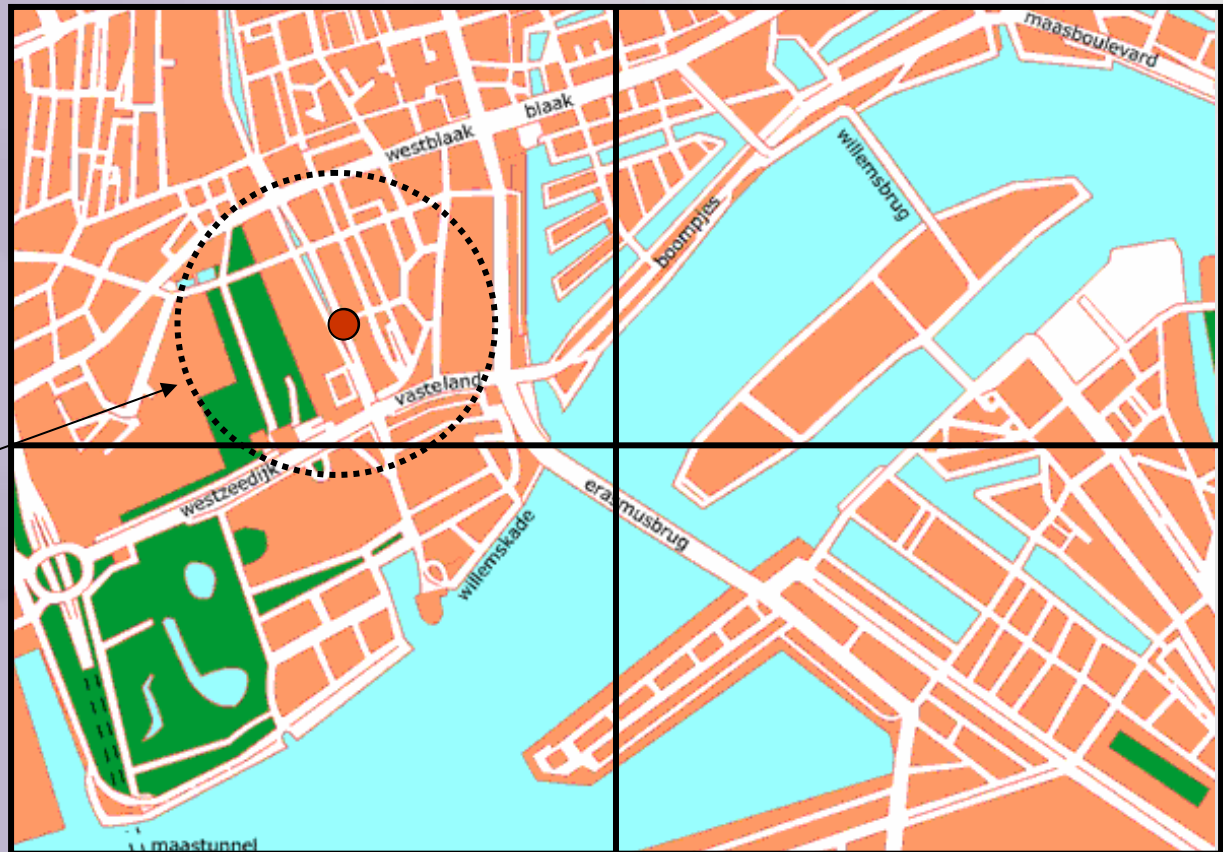
Research – *Neighbour Searching Algorithms*

Quad Tree



Etcetera

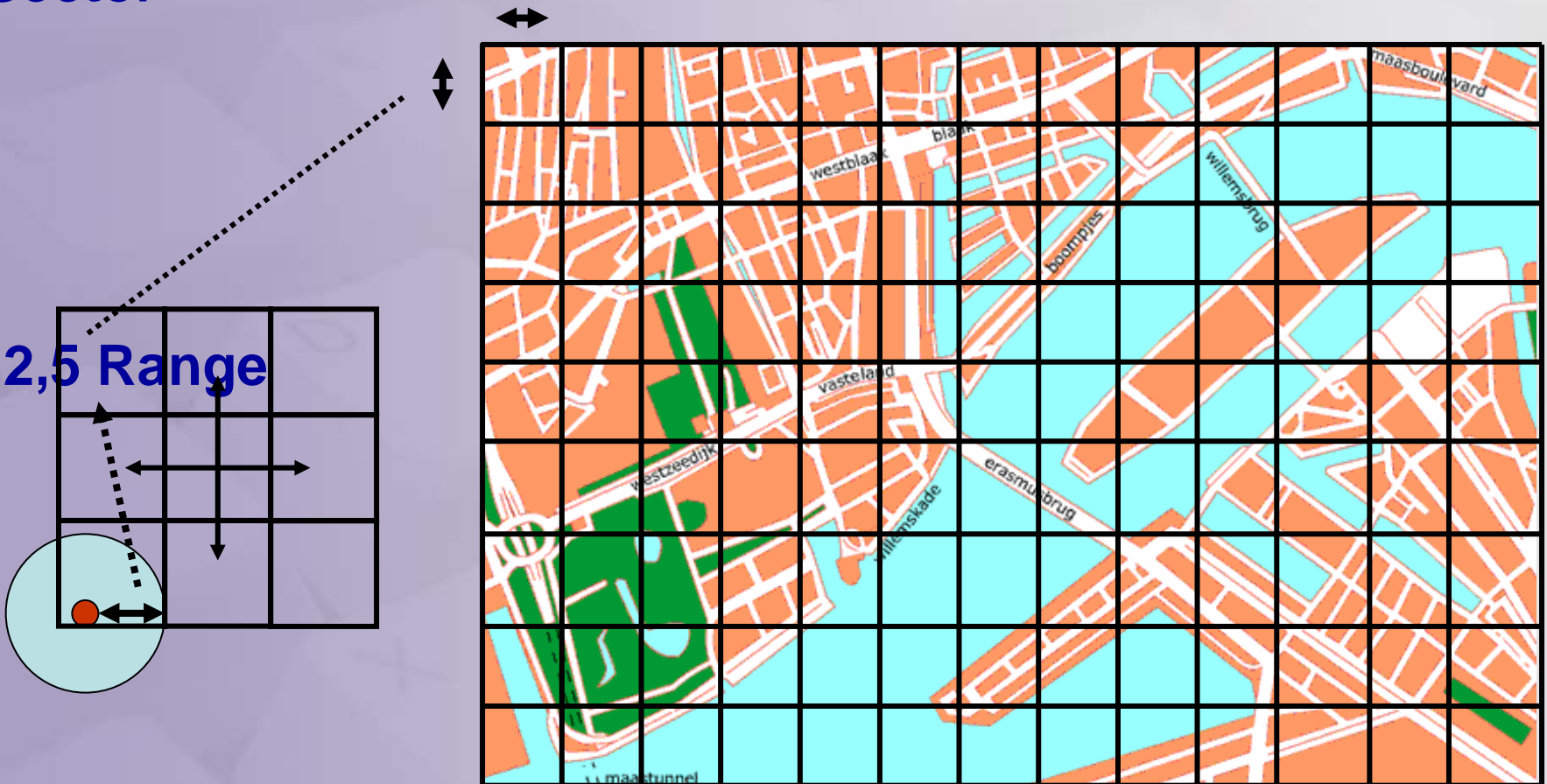
doesn't fit
place level up



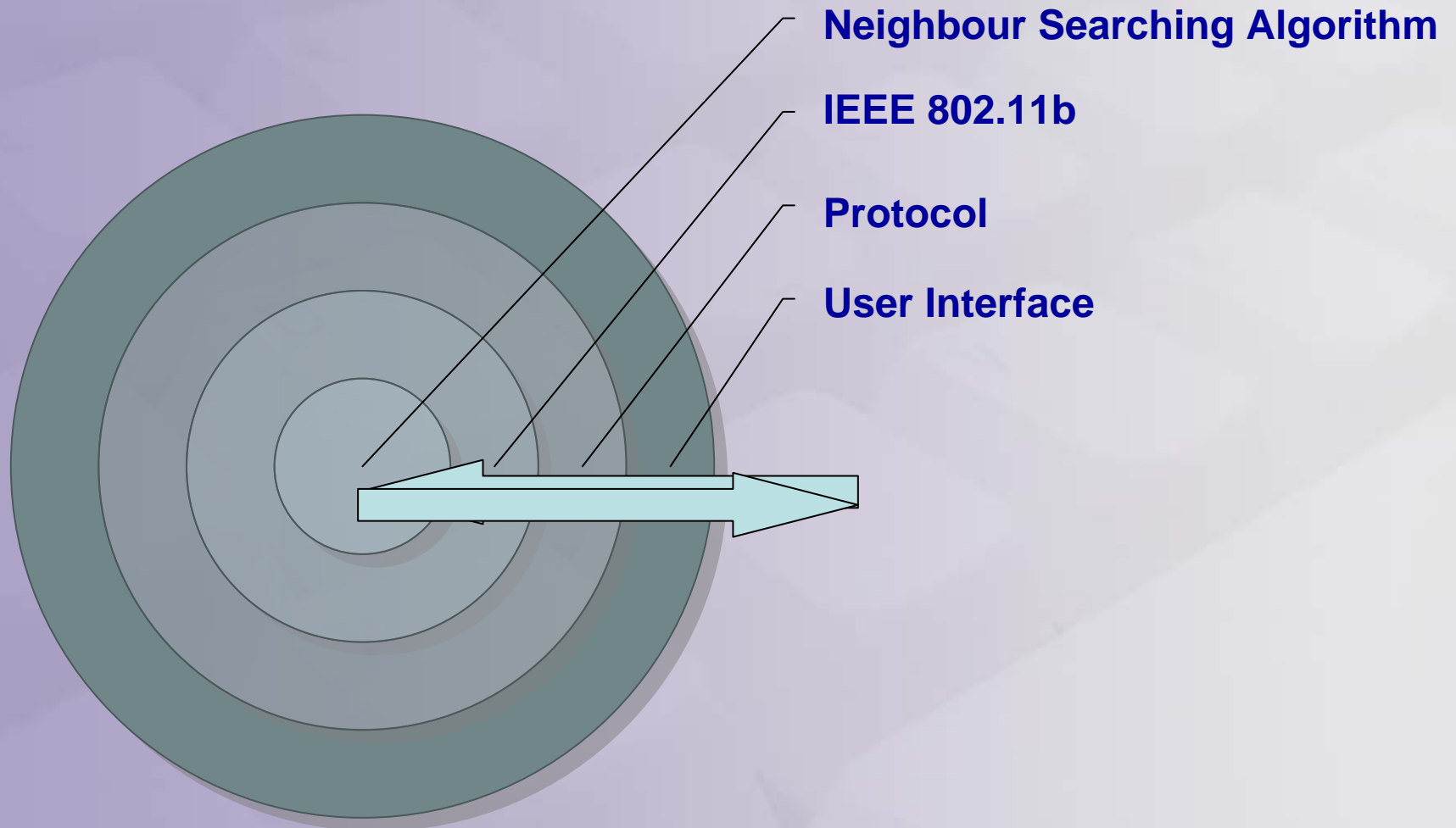
Research – *Neighbour Searching Algorithms*

Sector

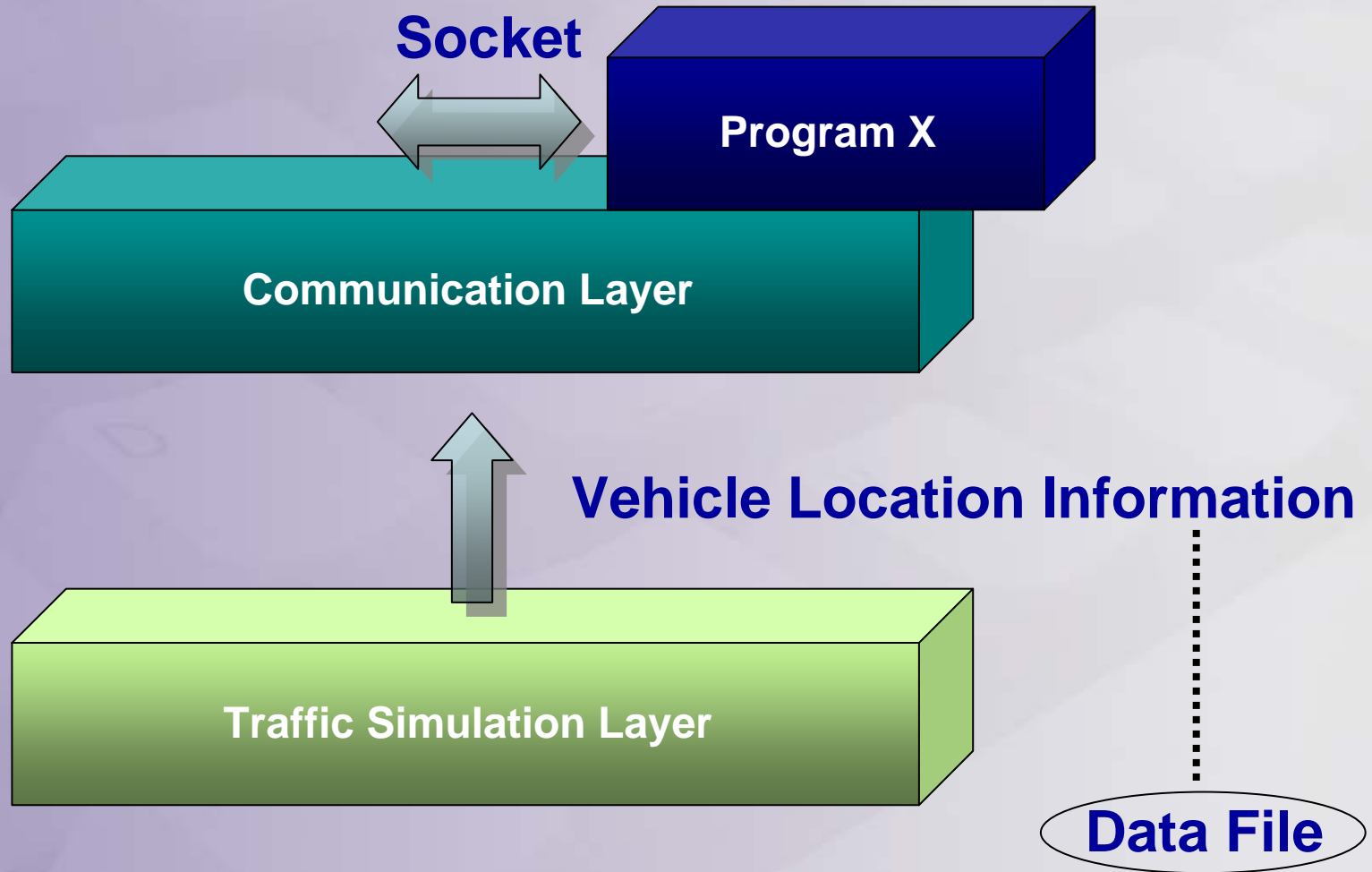
x 2,5 Range



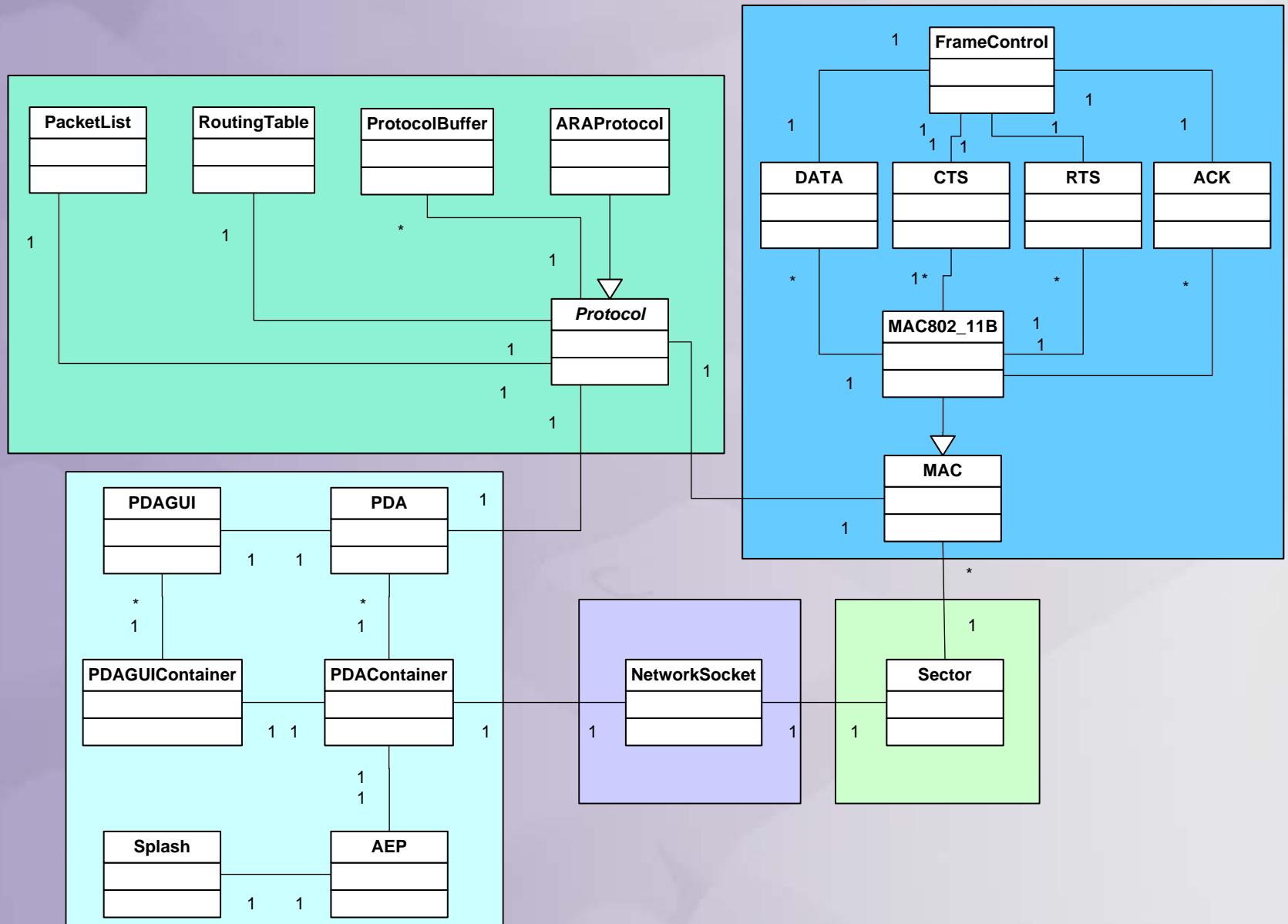
Design



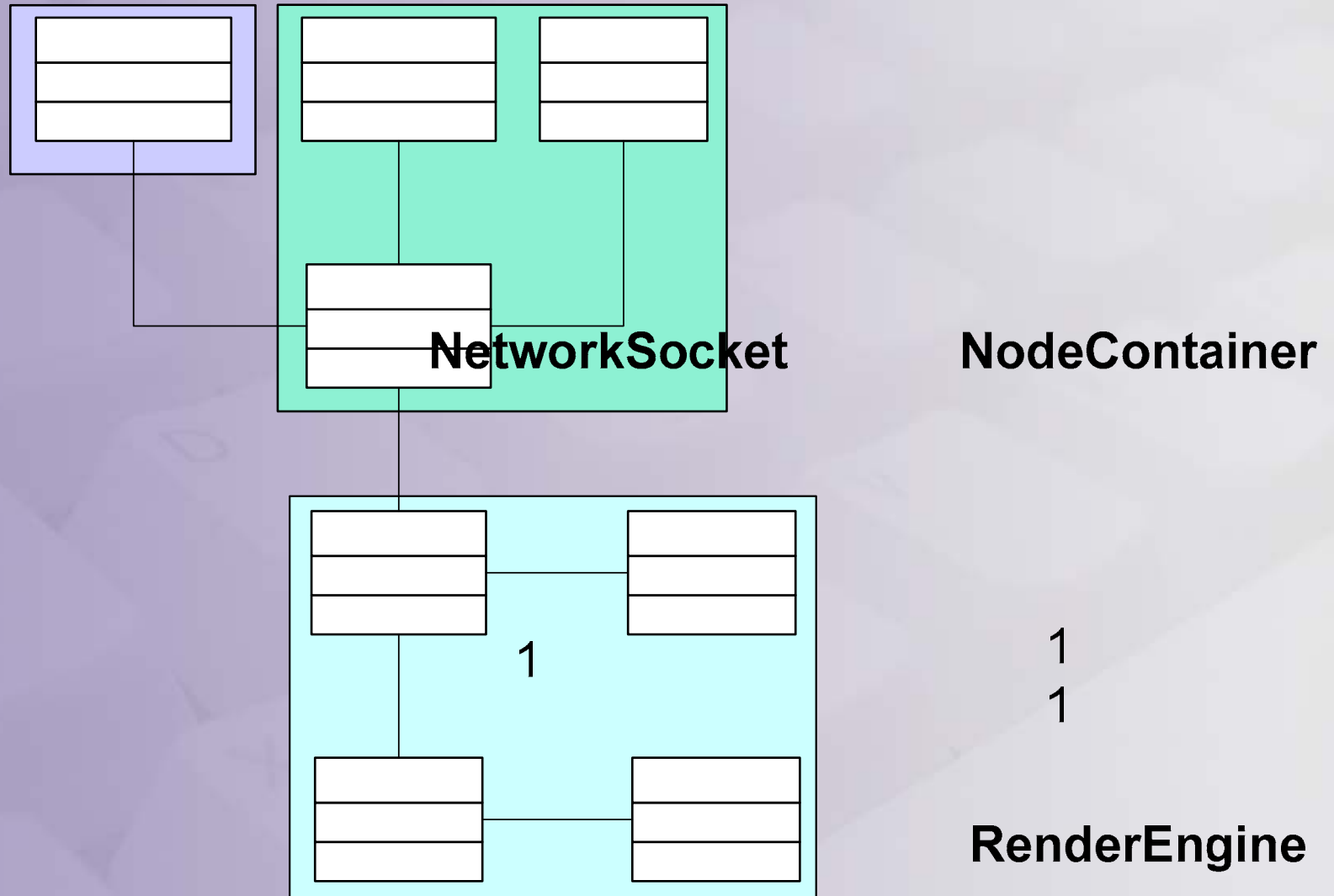
Design – *Information extraction*



Design – *Ad Hoc Simulation (AHS)*



Design – *Ad Hoc Visualization (AHV)*

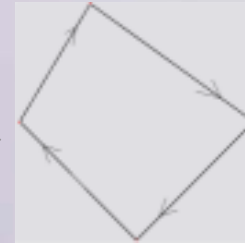
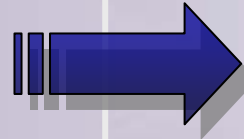


Implementation

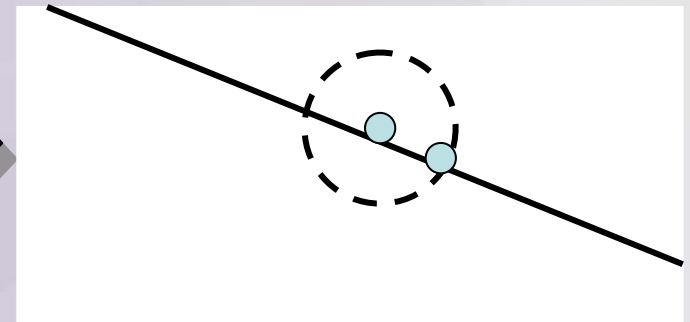
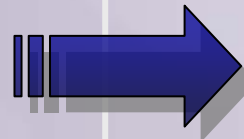
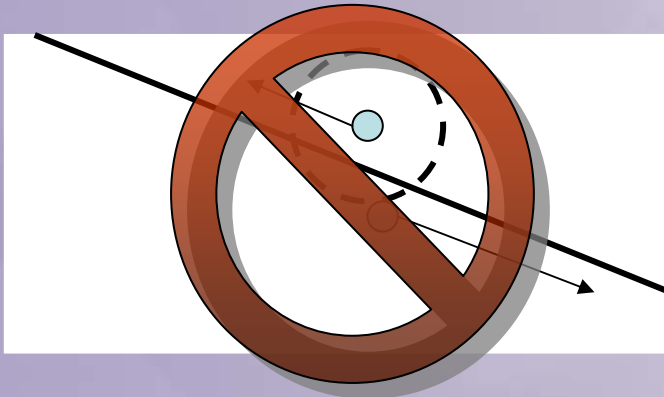
Traffic Simulation Layer

Communication Layer

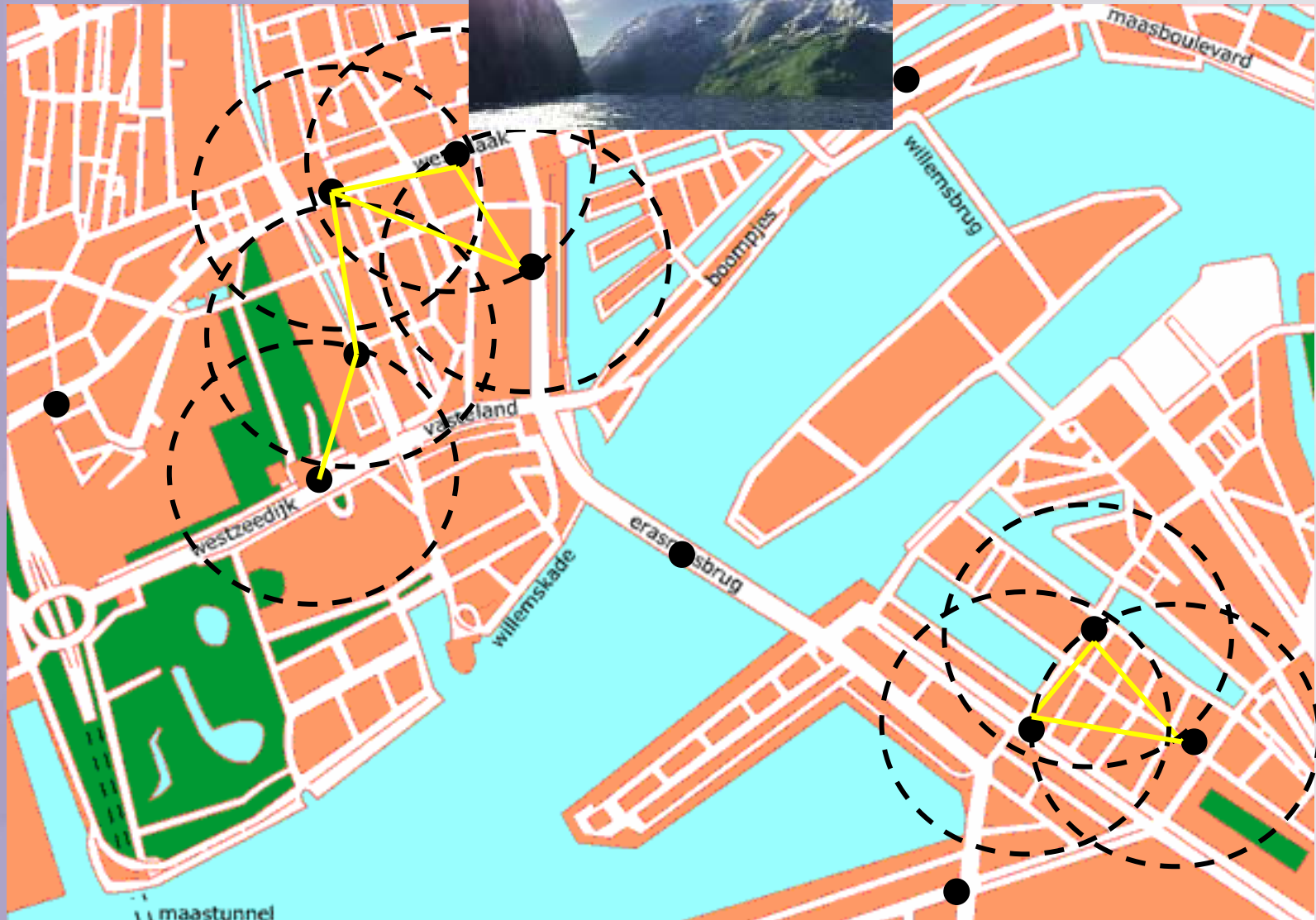
Map stretching



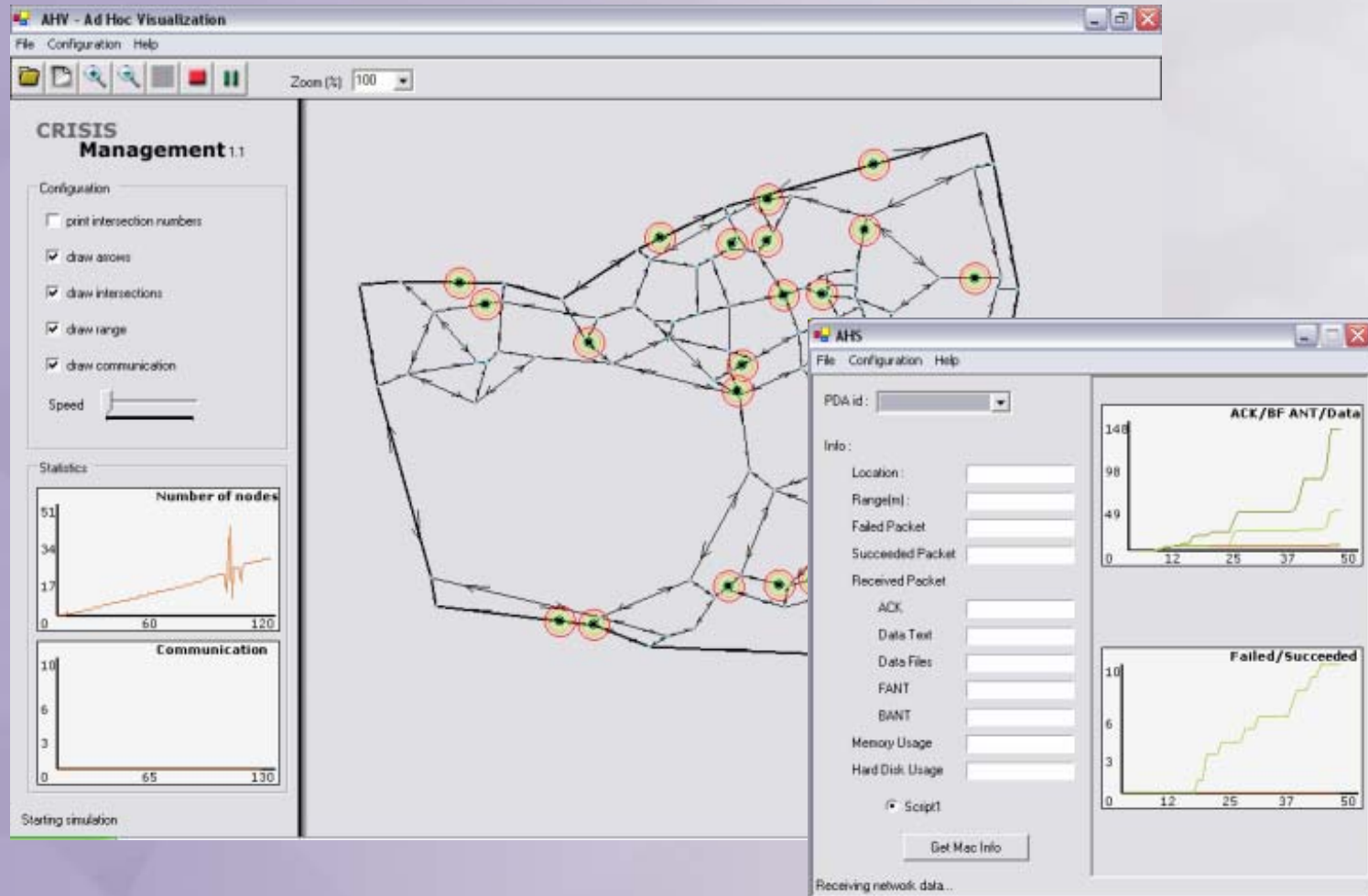
Off Road Vehicle



Implementation – *Example of communication*



Demonstration



Questions?