Homework #7 : `networksim` Example

Here is an example trial of the network simulator `networksim`. The italic texts are commands entered by the user and the verbatim texts are the responses of the network simulator. The result of the `delete`, `recv` and `tick` commands might be different; the messages "`destructed: node {...`" are printed in `Node:: Node()`, not in the provided code. Similarly, the messages "`tick: n sent`" and "`receive: received 'm'`" are printed in my `System` solution. All these messages are not part of homework requirement.

```
$ ./networksim
```
create laptop L 192.168.0.1
create server S 140.112.239.8
create server T 140.112.253.11
create wan W 8.8.8.8
connect 192.168.0.1 140.112.239.8
connect 192.168.0.1 140.112.253.11
connect 192.168.0.1 8.8.8.8
send 192.168.0.1 140.112.253.11 ping
stat

```
system {
  tick = 0,
  "192.168.0.1" = node {
    name = "L",
    local_ip = "192.168.0.1",
    node_list_ = [ "140.112.239.8" "140.112.253.11" "8.8.8.8" ],
    data_list = [
      datagram {src="192.168.0.1", dst="140.112.253.11", length=4, msg="ping"}
    ]
  }
  "140.112.239.8" = node {
    name = "S",
    local_ip = "140.112.239.8",
    node_list_ = [ "192.168.0.1" ],
    data_list = []
  }
  "140.112.253.11" = node {
    name = "T",
    local_ip = "140.112.253.11",
    node_list_ = [ "192.168.0.1" ],
    data_list = []
  }
  "8.8.8.8" = node {
    name = "W",
    local_ip = "8.8.8.8",
    node_list_ = [ "192.168.0.1" ],
    data_list = []
  }
}
```

tick

```
tick: "192.168.0.1": 1 sent.
tick: "140.112.239.8": 0 sent.
tick: "140.112.253.11": 0 sent.
tick: "8.8.8.8": 0 sent.
```

stat

```
system {
  tick = 1,
  "192.168.0.1" = node {
    name = "L",
    local_ip = "192.168.0.1",
    node_list_ = [ "140.112.239.8" "140.112.253.11" "8.8.8.8" ],
    data_list = []
  }
  "140.112.239.8" = node {
    name = "S",
    local_ip = "140.112.239.8",
    node_list_ = [ "192.168.0.1" ],
    data_list = []
  }
  "140.112.253.11" = node {
    name = "T",
    local_ip = "140.112.253.11",
    node_list_ = [ "192.168.0.1" ],
    data_list = []
  }
  "8.8.8.8" = node {
    name = "W",
    local_ip = "8.8.8.8",
    node_list_ = [ "192.168.0.1" ],
    data_list = []
  }
}
```

tick

```
tick: "192.168.0.1": 0 sent.
tick: "140.112.239.8": 0 sent.
tick: "140.112.253.11": 0 sent.
tick: "8.8.8.8": 0 sent.
```

recv 140.112.239.8

```
receive: received ''
```

recv 140.112.253.11

```
receive: received 'datagram deleted: datagram {src="192.168.0.1", dst="140.112.253.11", length=4,
ping'
```

delete 192.168.0.1

```
destructed: node {
    name = "L",
    local_ip = "192.168.0.1",
    node_list_ = [ ],
    data_list = []
  }
```

delete 140.112.239.8

```
destructed: node {
    name = "S",
    local_ip = "140.112.239.8",
    node_list_ = [ ],
    data_list = []
  }
```

delete 140.112.253.11

```
destructed: node {
    name = "T",
    local_ip = "140.112.253.11",
    node_list_ = [ ],
    data_list = []
  }
```

delete 8.8.8.8

```
destructed: node {
    name = "W",
    local_ip = "8.8.8.8",
    node_list_ = [ ],
    data_list = []
  }
```

halt