

TOSSIM

in TinyOS 2.0.2.2

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What is it ? Why do you Care ?

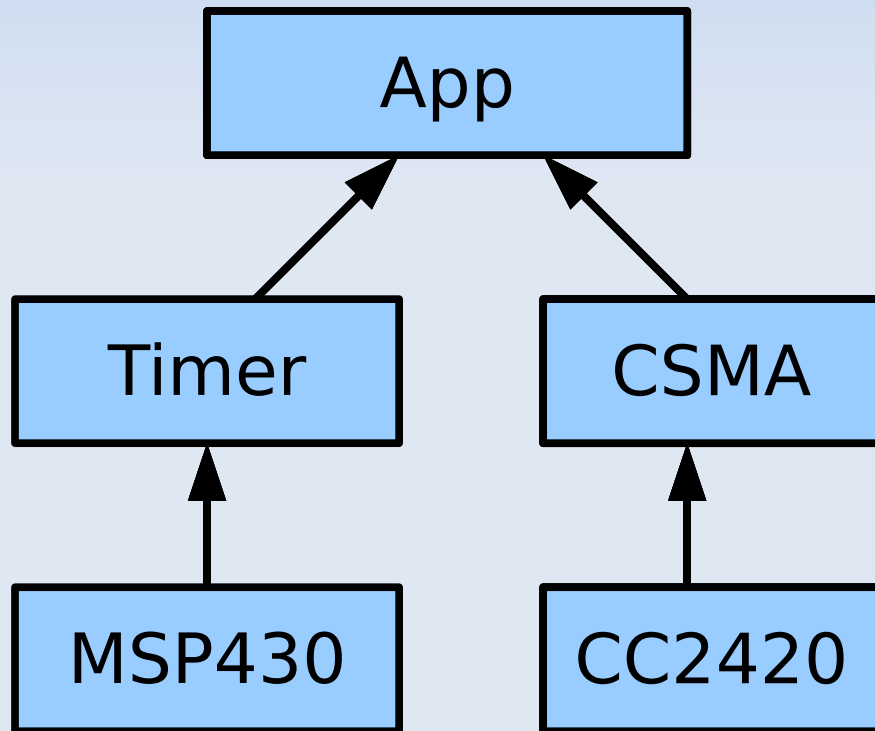
- Firstly I consider it to be a debugger !!
 - **PHILOSOPHY:** What runs on a mote, you should be able to run on a PC ?
- Secondly its a **SENSOR NETWORK SIMULATOR**
 - **PHILOSOPHY:** Try to present a lower bound in order guarantee performance in worst case scenario.

TOSSIM vs OTHERS

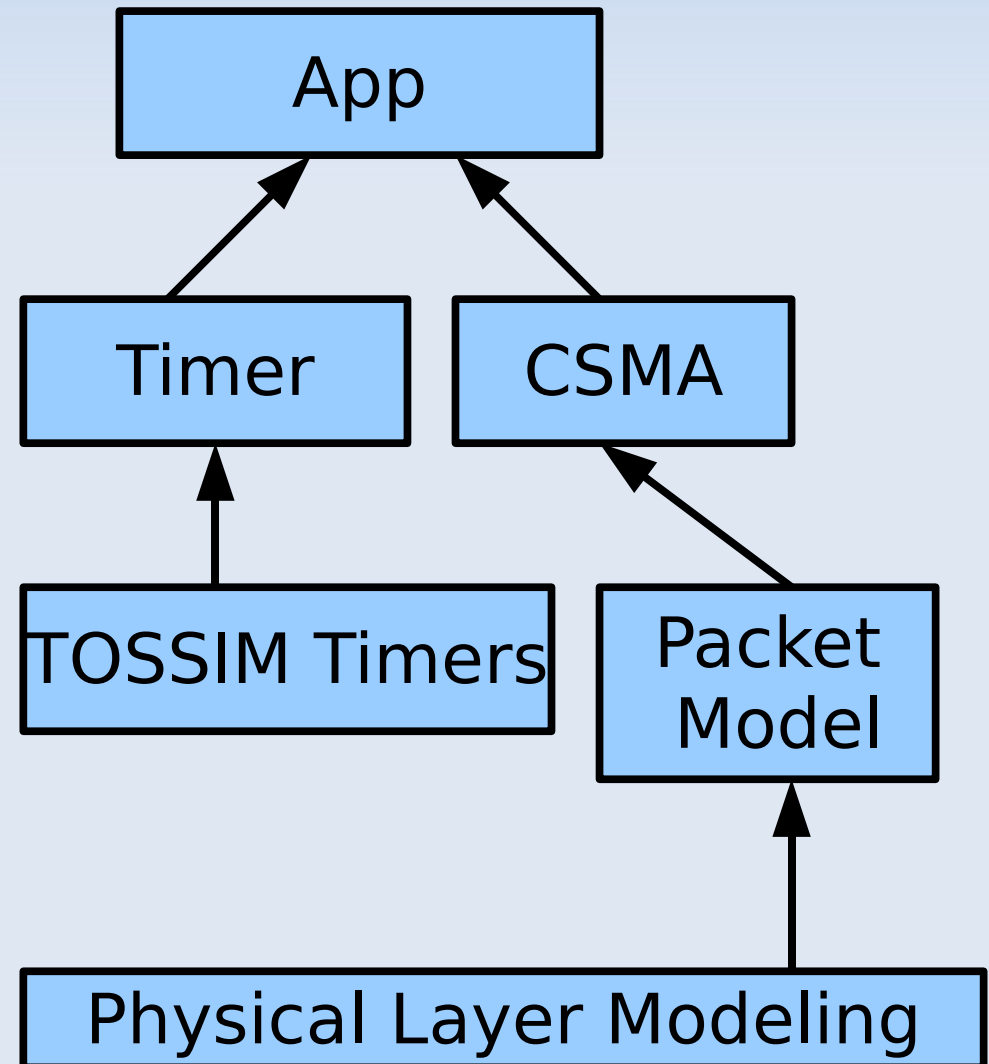
- **NS-2:** Great for simulating internet protocols and wired networks. Not good when it comes to wireless and mobility.
- **QualNet (Glomossim):** Definitely one of the better wireless simulator. Models cater more towards 802.11/cellular networks.

How Does It Work ?

Real Mote World



The wonderful world of PC



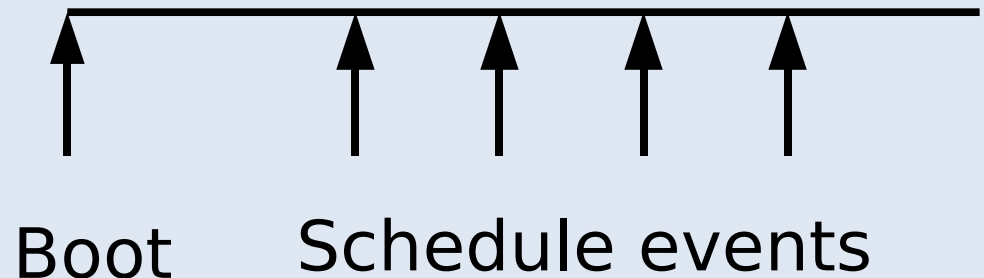
How does TOSSIM simulate code Execution ?

Structure of NesC code

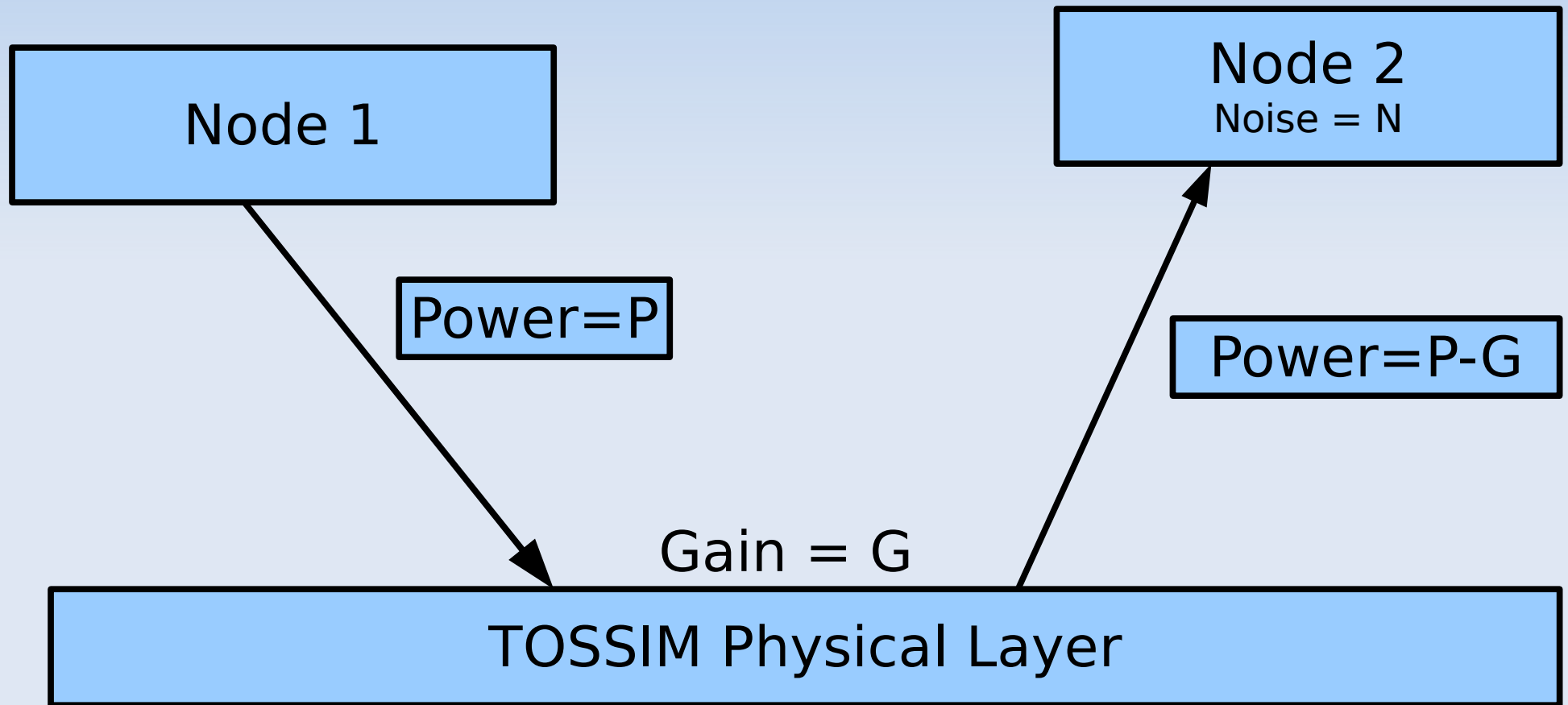
```
module {  
  uses interface TimerC  
}  
implementation{  
  command void  
  Boot.boot(){  
    call  
    Timer.startPeriodic();  
  }  
  event void Timer.fired(){  
  }  
}
```

Execution Model

Execution Time Line

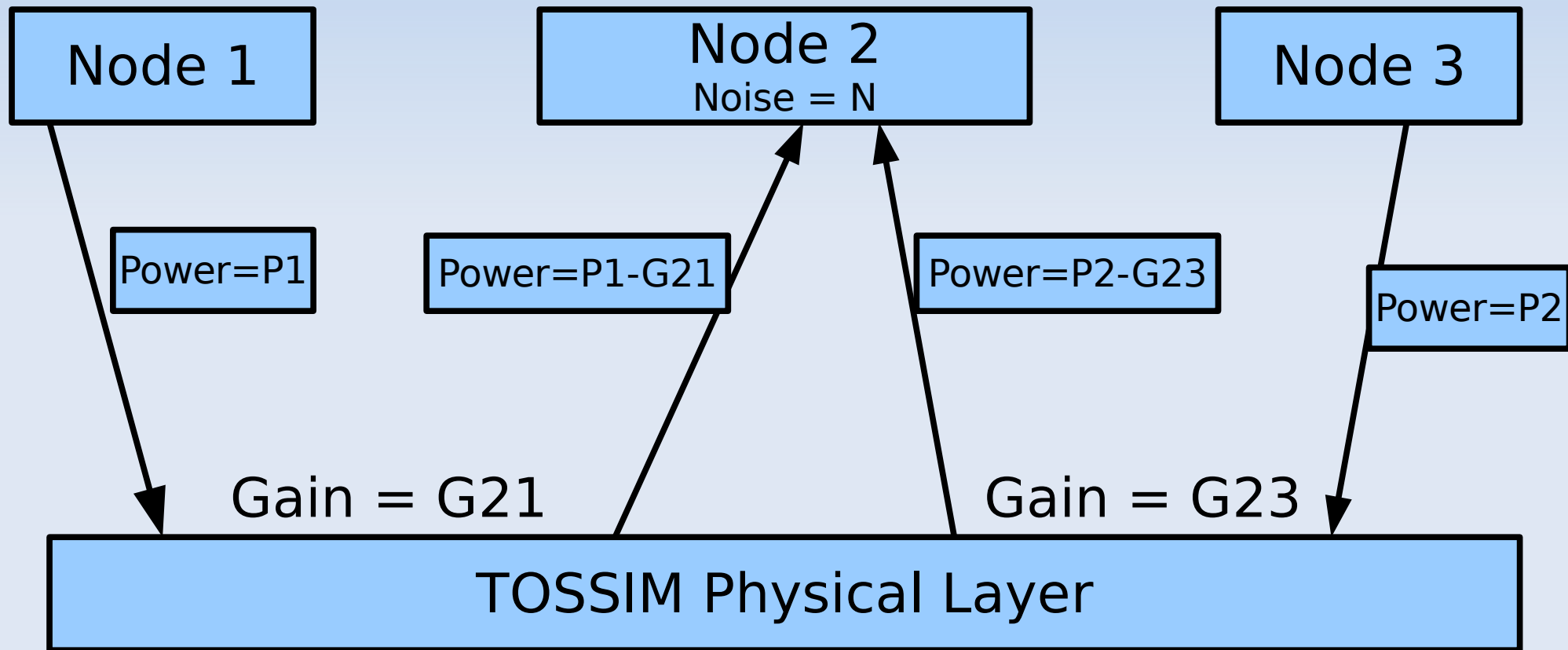


TOSSIM Physical Layer Simulation



Node 2 accepts packet if $P - G > N$

Simulating Simultaneous Transmissions



Packet from node 1 accepted at node 2 if:
 $P_1 - G_{21} > P_2 - G_{23} + N$

You are fully
equipped to
play with the
motes now

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