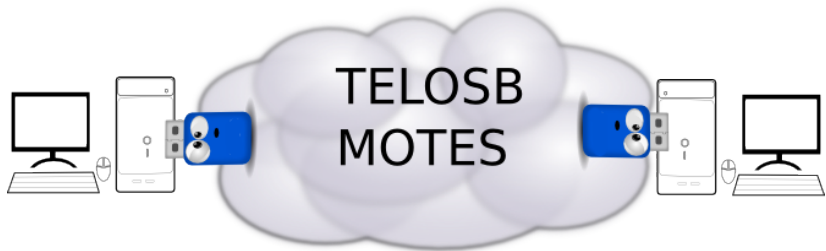


TOSNET

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May 13, 2011

Task



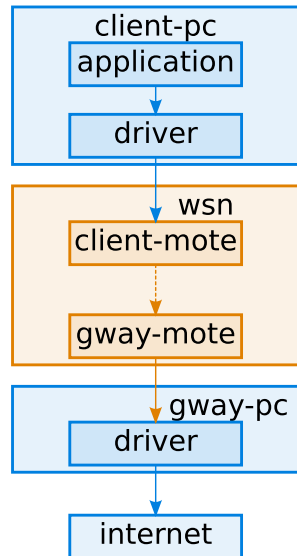
Goal

Share internet connection through a **mote network**

Architecture

Idea

Simulate a wire over the wireless sensor network



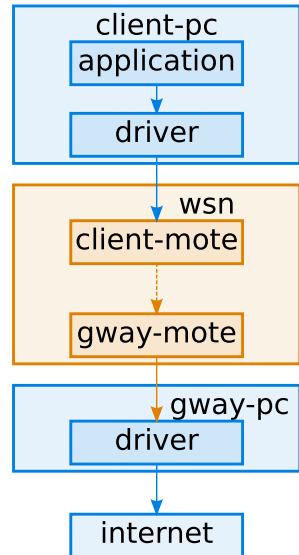
Architecture

Idea

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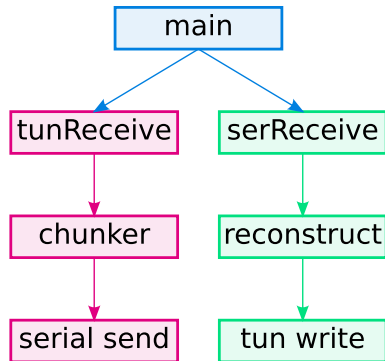
Setup

- tun device to tunnel the packets
- routing achieved with iptables (gateway) and iproute (client)
- simple mote program that broadcasts everything



Driver implementation

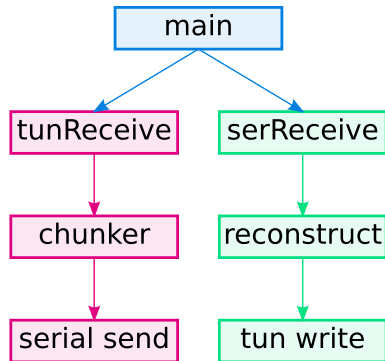
- chunk IP packets to fit in tinyos packets
 - queue to manage reconstruction
 - chunks can get lost



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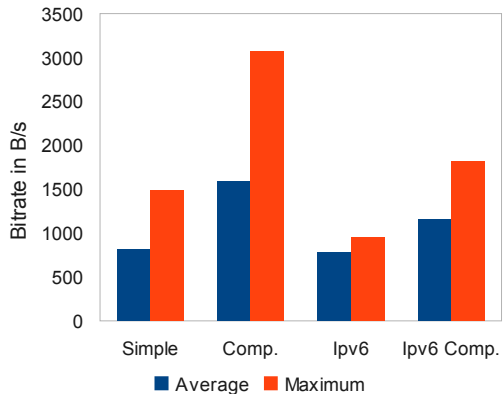
- compression with zlib
- handlers (function pointers) to decouple different modules
- **select** to listen on several file descriptors



Statistics

- speed is too slow for real application
- compression can increase the bitrate
- more sophisticated with 6lowpan
 - ipv6 header

Transmission Speeds



Conclusion

Possible improvements

- multi-client support
- real network routing protocol
- too much overhead to an already slow connection

Conclusions

- **ioctl** can drive you mad
- commented code is a good thing