

Software defined networking in wireless sensor networks using UAV

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Software defined networking for WSNs

- Traditional approach

---data center as controller

Drawbacks: scalability, energy, reliability

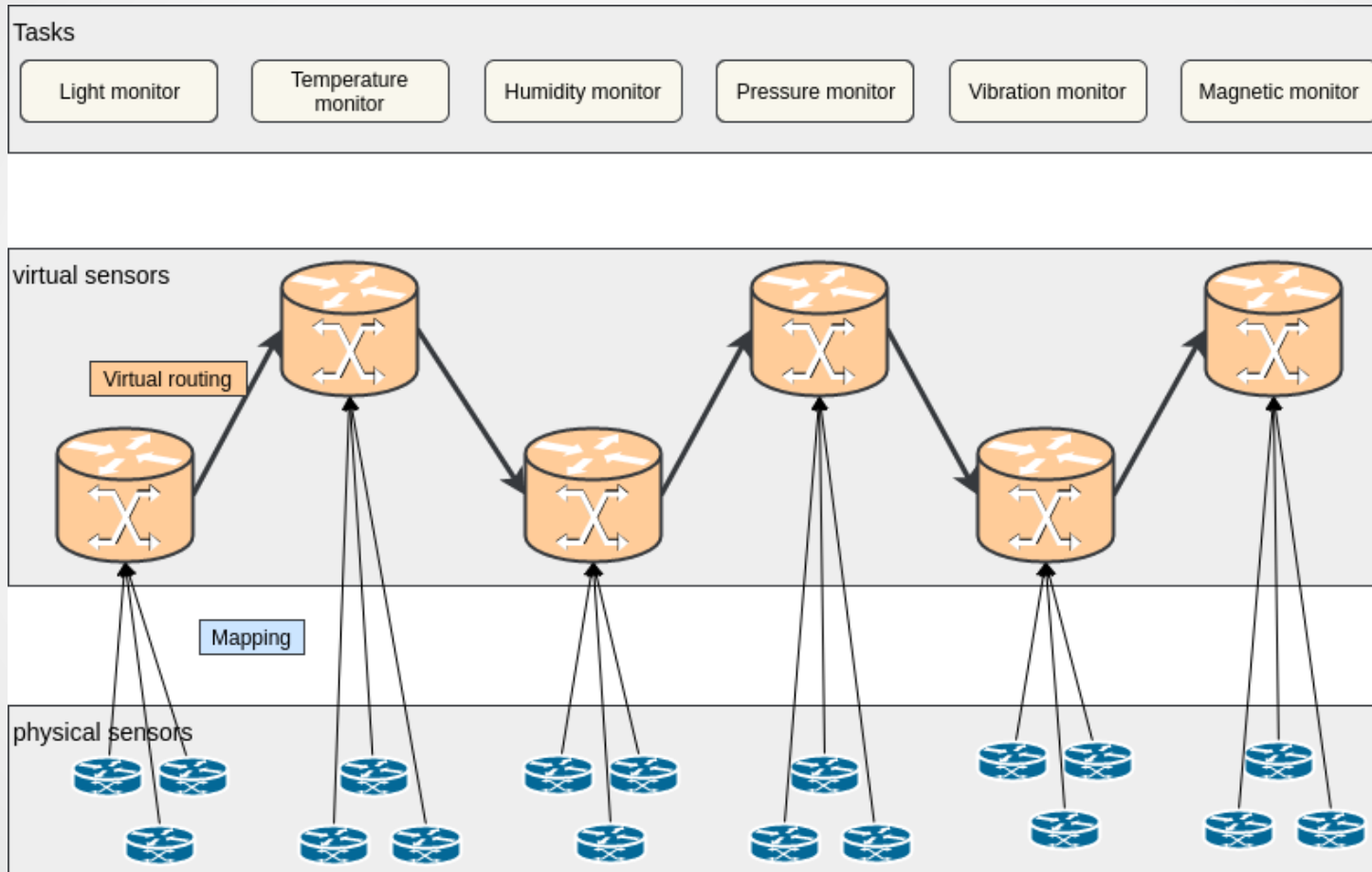
- Is the mobile controller better?

Benefits: scalability, energy

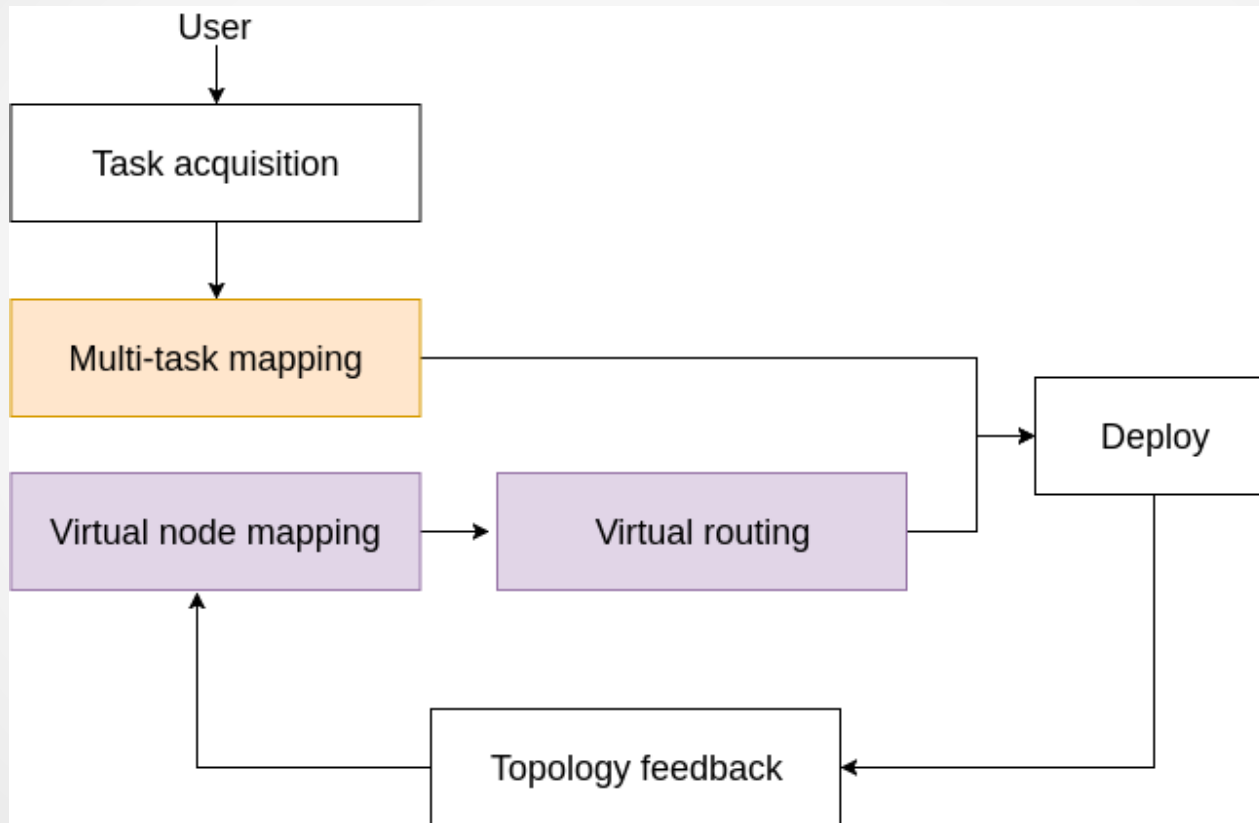
Challenge: robustness

- How to achieve robustness by using mobile controller?

Design overview



System workflow



Eevaluation

Reliability, Scalability, Energy, Rubustness,

- END-END Packet Delivery Ratio vs. node number
- throughput vs. node number
- energy cost && lifetime vs. network size
- routing rapair time (CDF) vs. RPL
- routing rapair overhead vs. RPL
- task number vs energy

Baseline

- SDN-WISE: Design, prototyping and experimentation of a stateful SDN solution for Wireless SEnsor networks." Computer Communications (INFOCOM), 2015 — Packet Delivery Ratio ---latency
- Energy minimization in multi-task software-defined sensor networks." IEEE transactions on computers 2015 ---multi-task energy—sensing rate, coverage ratio requirement
- RPL(routing protocol for low power and lossy networks) is a IPv6 standards working under low-power and low-cost constraints rpl build routing need building overhead energy, throughput, routing repair time(routing fast repair)



SDWN

Thank you!