

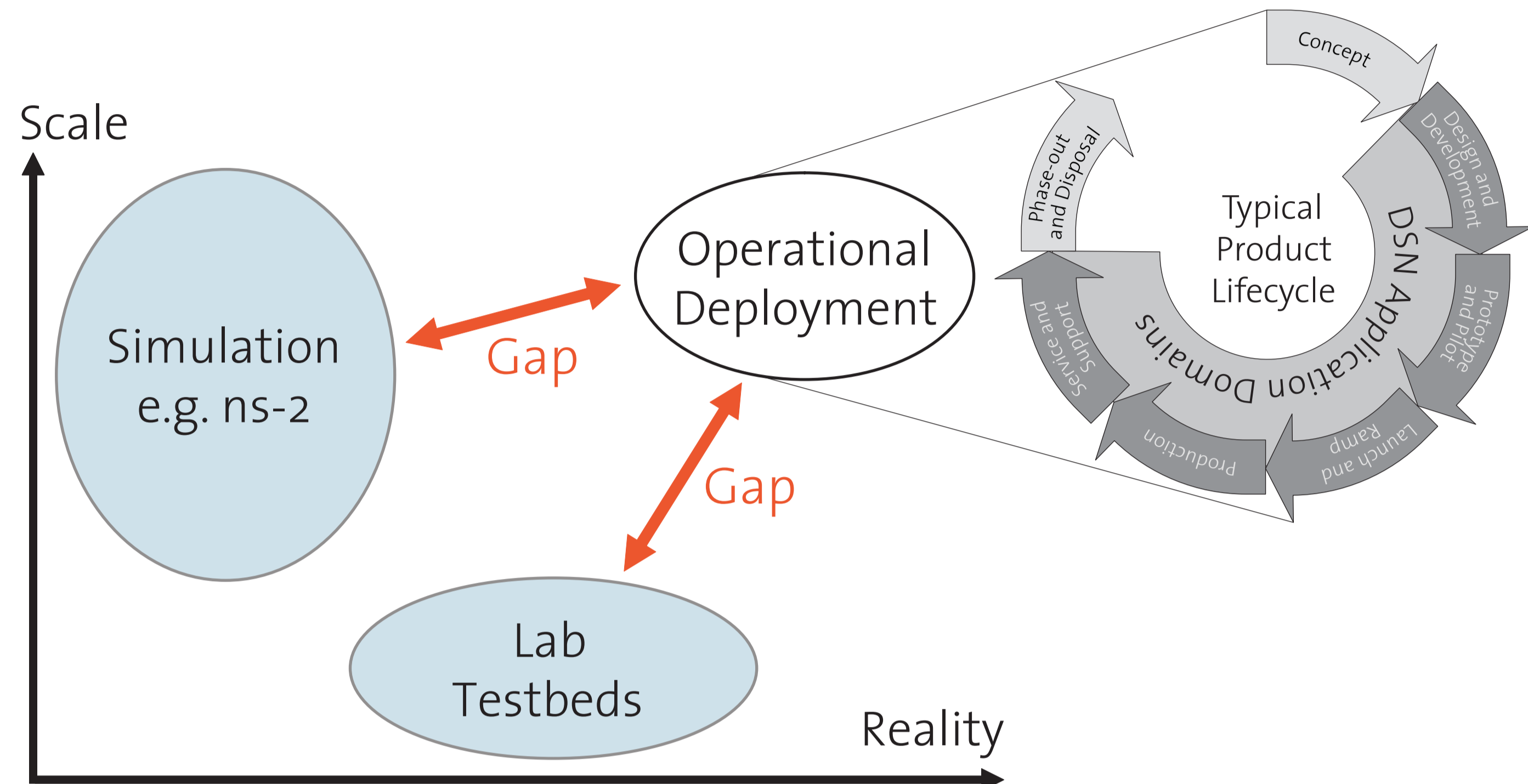
Scalable Topology Control for Deployment-Support Networks

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The Case for Deployment-Support Networks – A Poor WSN Development Reality

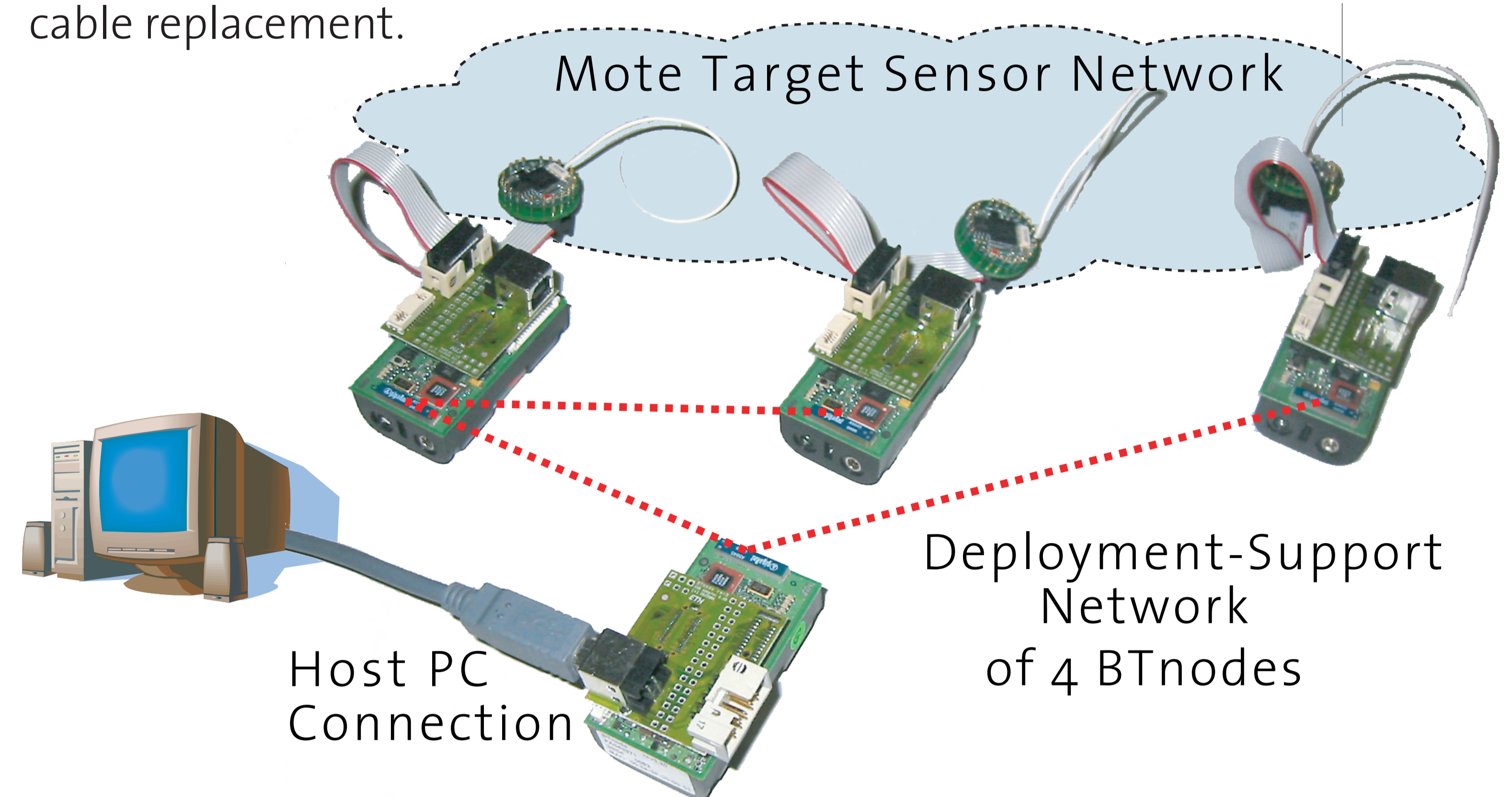
Existing approaches cannot support the development of large operational systems.

Coordinated methods and tools are missing

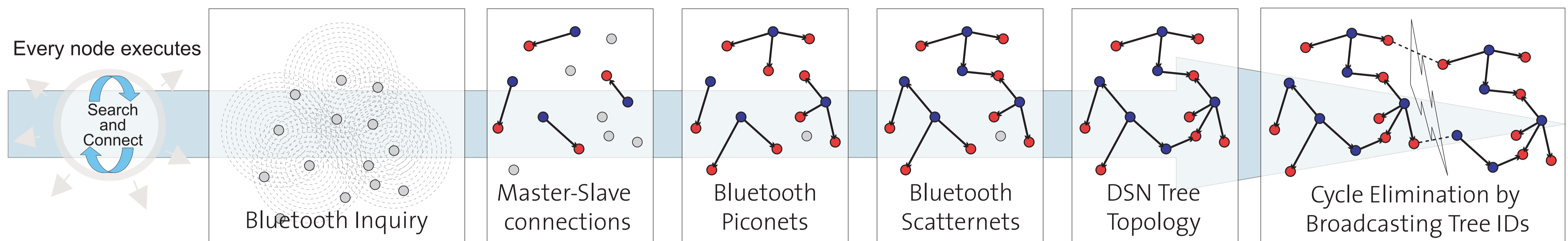


The Deployment-Support Network is a novel tool for the development, test, deployment and validation of wireless sensor networks.

It is connected to a target sensor network as a non-permanent, wireless cable replacement.



Robust Bluetooth Topology Control and Maintenance



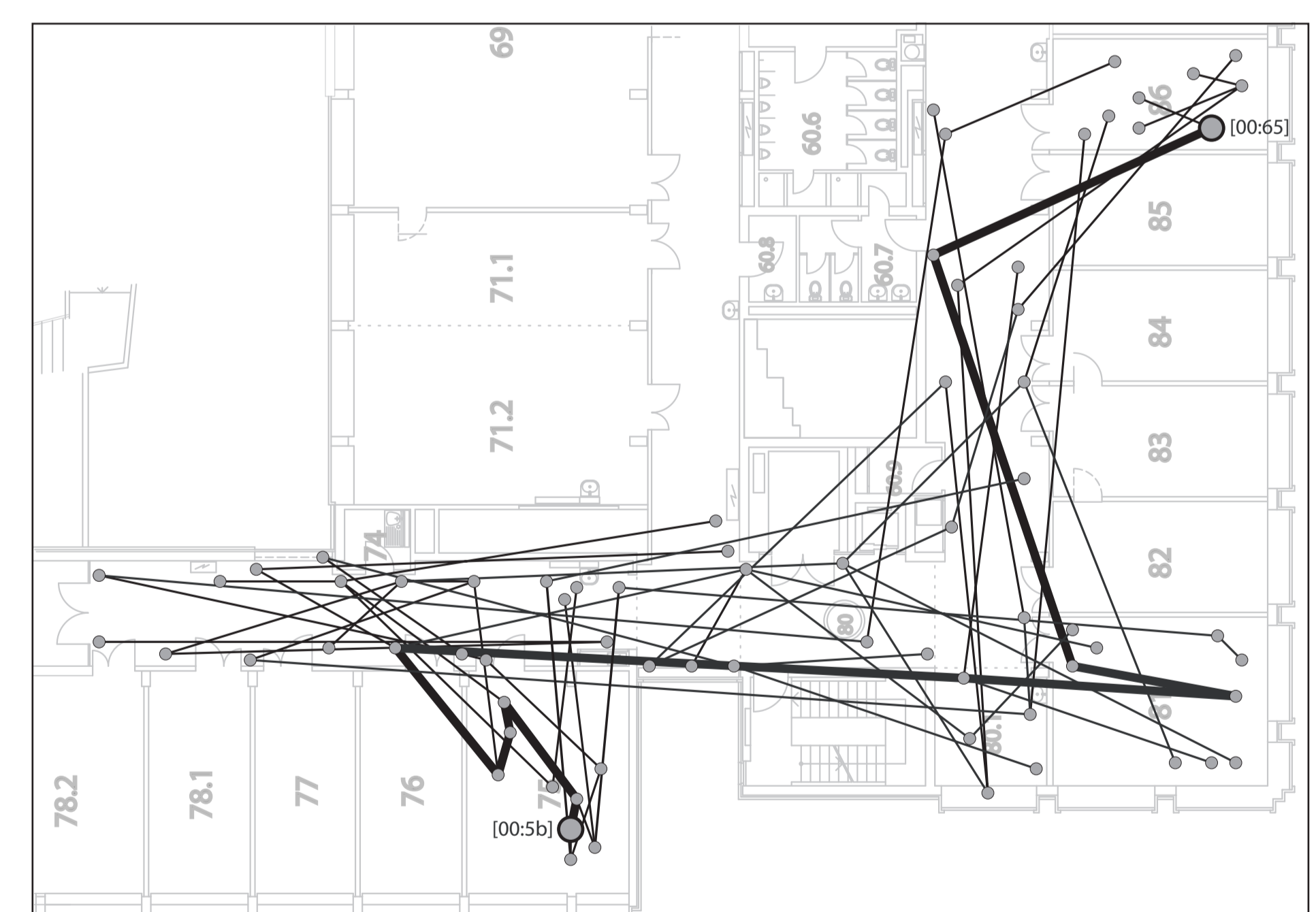
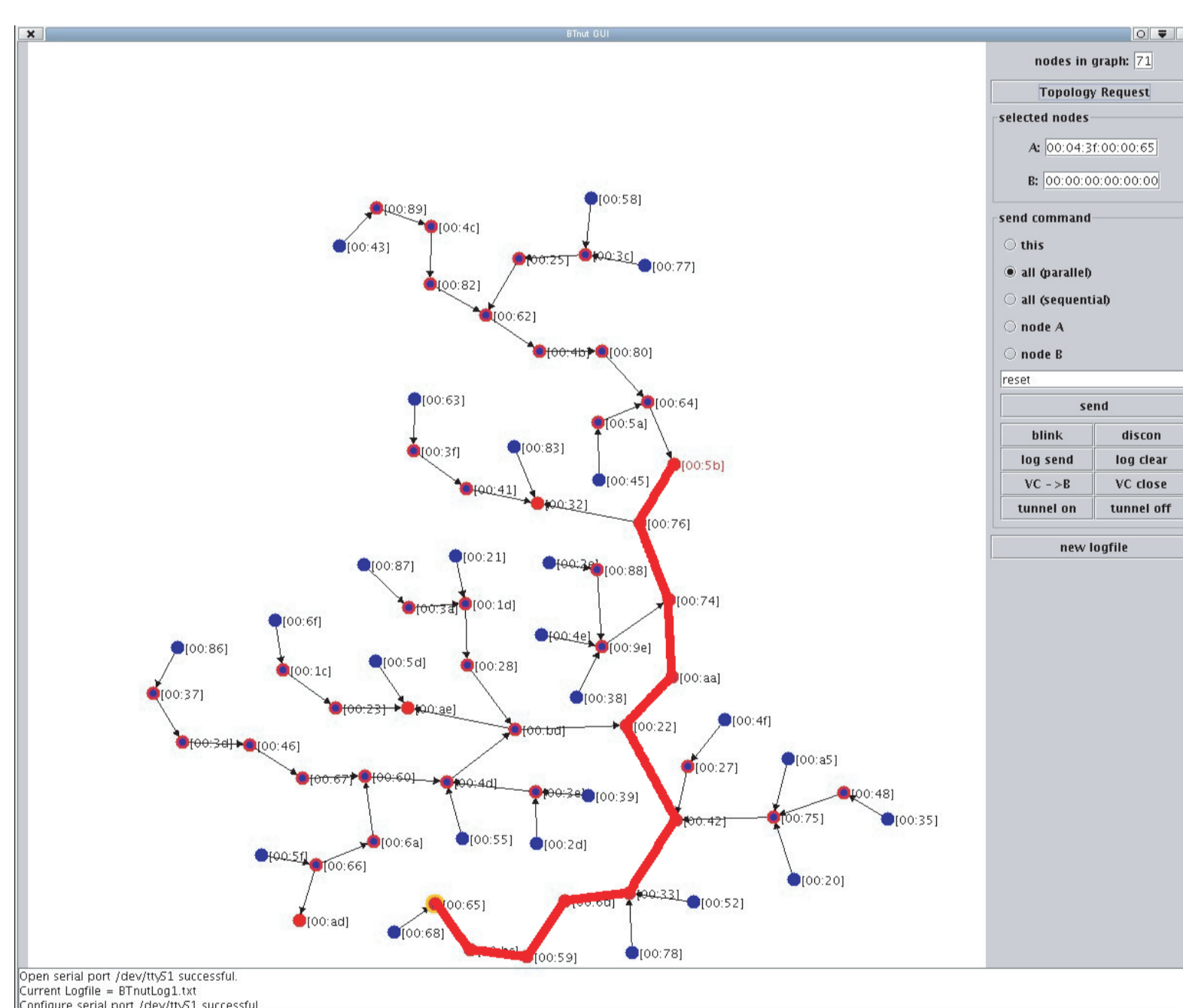
Experimental Results

Self-organizing backbone-network with deployment support services

- Virtual connections to nodes
- Remote reprogramming, debugging, monitoring

Realistic Deployment Scenario

- Worlds largest Bluetooth Scatternet (70+ nodes)
- Set-up in a large office floor
- Virtual connections with 57.6 kbps



Performance Measurements

- **Per-hop transmission delay:** Average transmission delay based on 100 packets of each size.
- **Network-topology construction:** Average of ten different experiments with the same amount of nodes. After a boot-up phase of approximately 13 s, the first connections are established. At 20 s, close to 50 percent of all the connections are established, and at 70 s the construction is finished.

