Chair of Network Architectures and Services
School of Computation, Information, and Technology
Technical University of Munich

Bridging the Gap: Decentralized Grassroots Networks for Disaster Relief and Education

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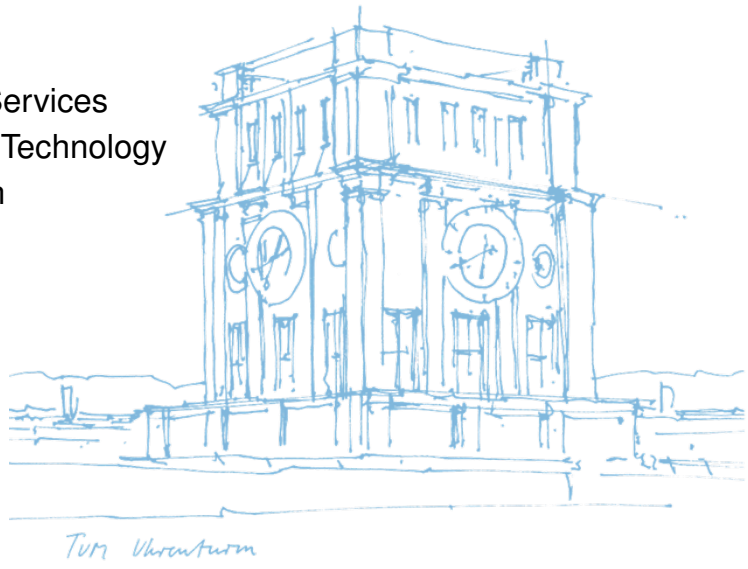

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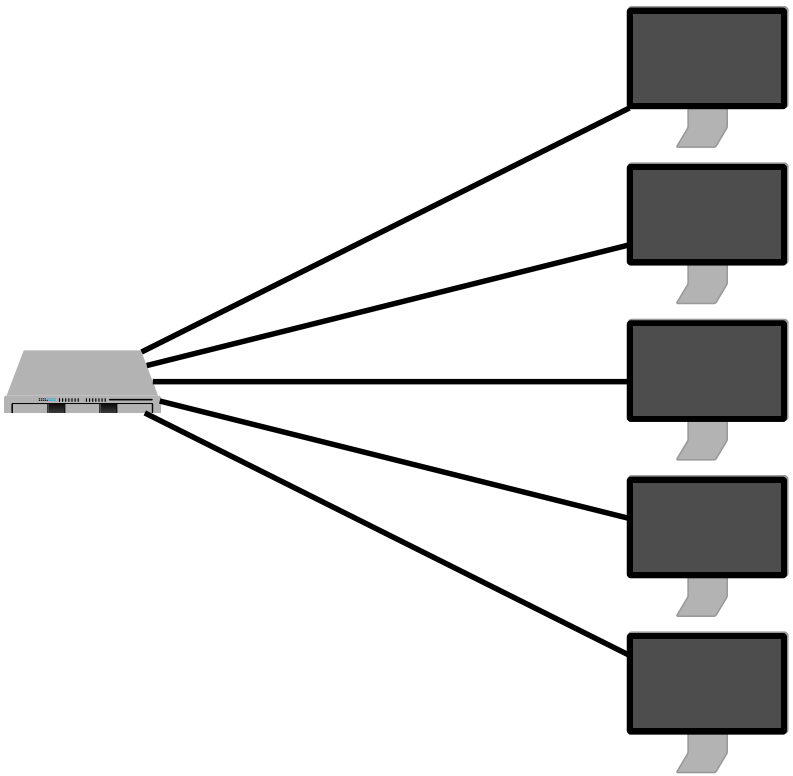

Figure 1: Client-Server

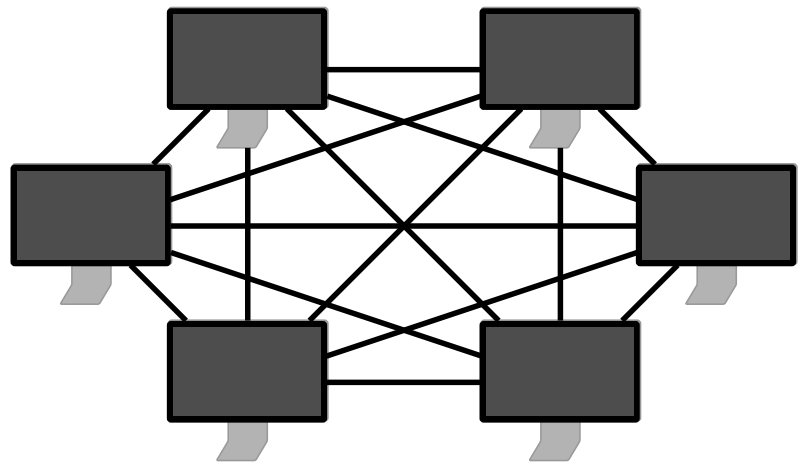

Figure 2: Distributed Grassroots Network

Background

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- Cordial dissemination

Related Work

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4. Optionally, enable external connectivity when available

Research Questions

1. **RQ1** How do blocklace-based CRDTs degrade on (offline) wireless mesh networks as a function of peer density?

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2. **RQ2** What are the key factors that influence the goodput of a grassroots social network implemented using the blocklace?

Architecture

Key components

- **Protocol** Smartphone-compatible mesh protocol (optionally supported by both iOS and Android)
- **Content Distribution** Propagate content and routing info using cordial dissemination, enabling self-healing and (valid) data recovery
- **UI**: tools to access network peers (optional)

Methodology

- **Protocols** Use networking testbed to test ad-hoc wireless protocols
- **Storage** Use Blocklace-supported storage to store network information and content
- **Prototyping** Develop a prototype app to set up and test the mesh network
- **Testing** Test in a controlled environment, conduct field tests
- **Evaluation** Measure latency, throughput, reliability, node discovery time and power consumption

Vision

- Create infrastructure for grassroots, information-centric networking

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- Enable large-scale offline communication

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- Create infrastructure for grassroots, information-centric networking
- Enable large-scale offline communication
- Facilitate access to education contents in areas without centralized infrastructure

That's it!

Questions?