PhD Application for The PhD Thesis "Decentralized Fog Computing Infrastructure Control"

Ali J. Fahs

Supervised by Professor Guillaume Pierre

Audition, 8th of June, 2017

Outline

Personal Presentation

- A double diploma student.
  - Engineering diploma in telecommunication and computer science - Lebanese University, Faculty of engineering (ULFG).
  - Master's degree in Informatics Grenoble (MoSIG) Parallel, Distributed Systems Track - Grenoble INP (Institut national polytechnique), Ensimag (École nationale supérieure d'informatique et de mathématiques appliquées de Grenoble) jointly with UGA (université grenoble alpes), IMAG (Informatique, mathématiques, mathématiques appliquées de Grenoble).
- Research interest: Distributed systems, Networking.
- Master's thesis "Distributed Approach for Cross-Layer Resource Allocation in Wireless Sensor Networks" Jointly between LIG (Laboratoire d'Informatique de Grenoble) and VERIMAG.

Master Thesis

Overview

- IEEE802.15.4: Wireless sensor network standard.

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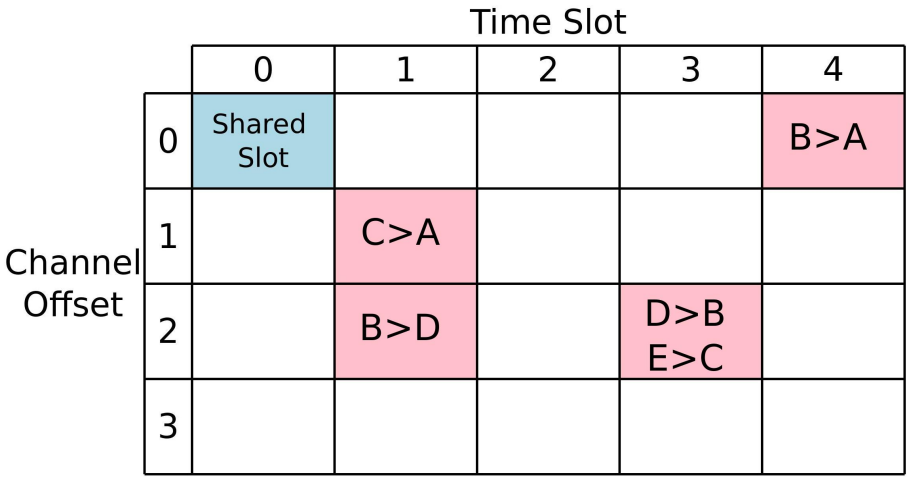
- Time-slotted channel hopping (TSCH), The Meduim access layer control.



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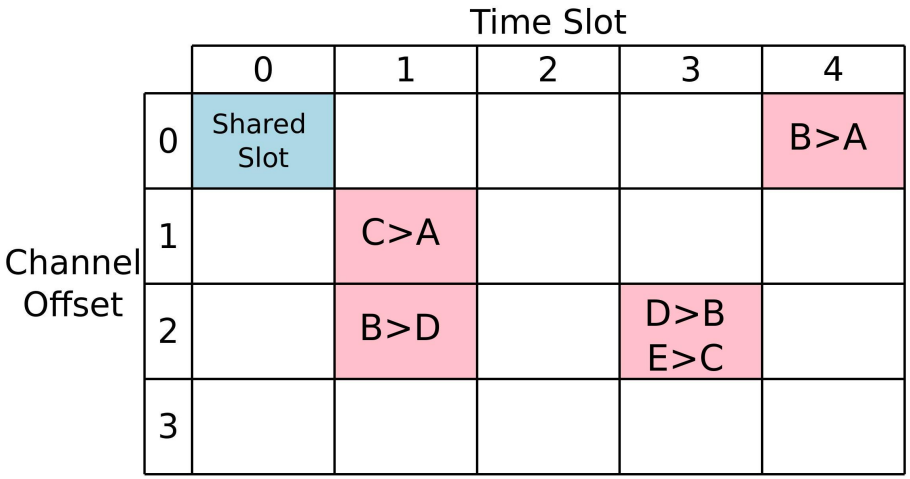
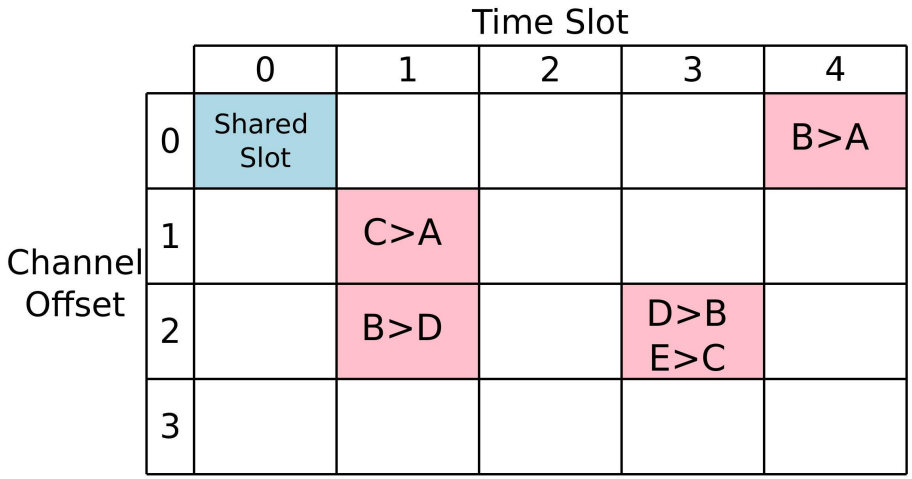
- 6TiSCH: IPv6 over IEEE802.15.4e TSCH.



Internship Challenges

- Improvement in the distributed 6TiSCH networks



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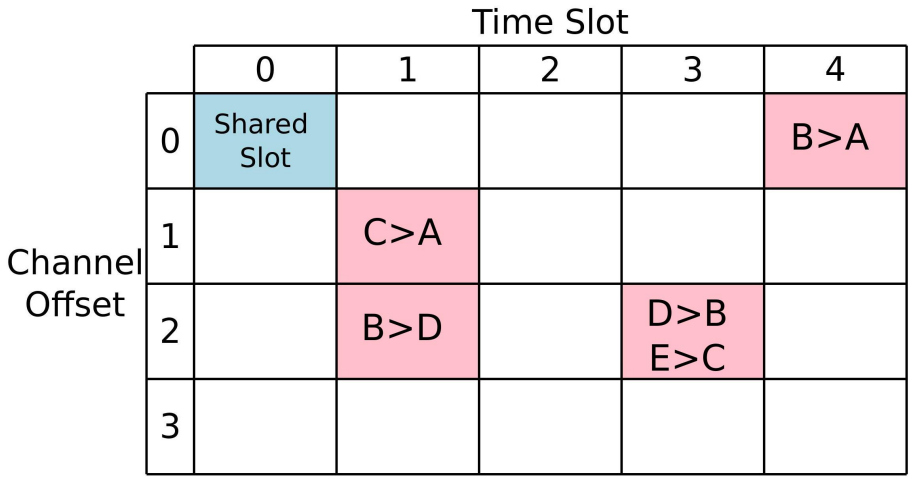

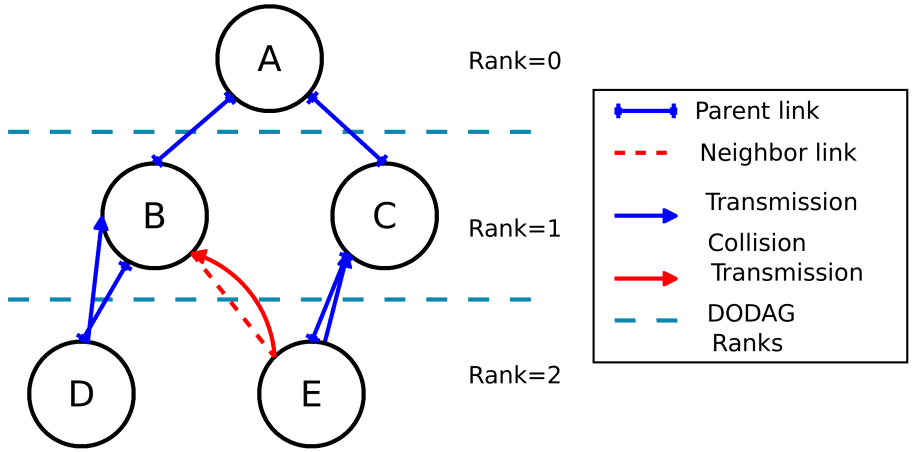

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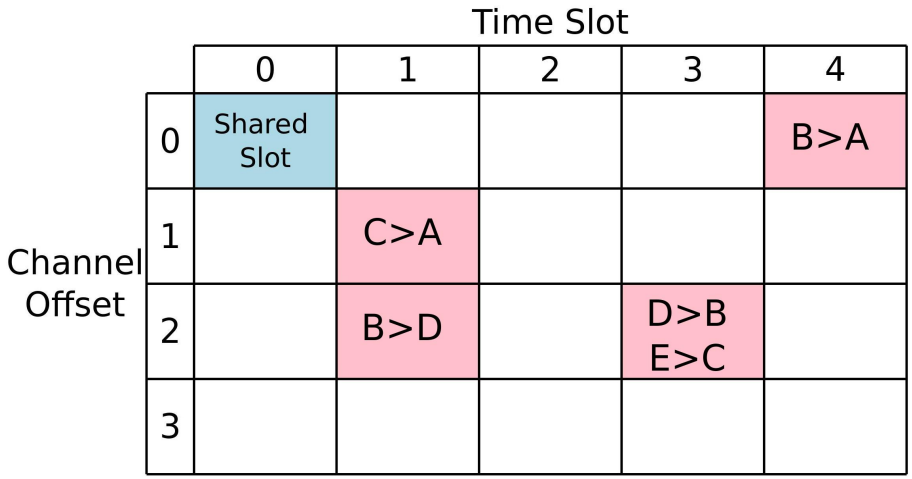

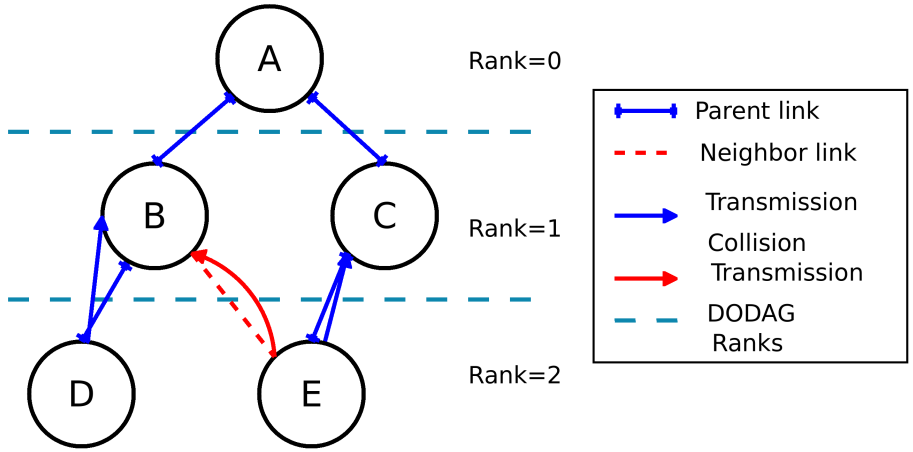

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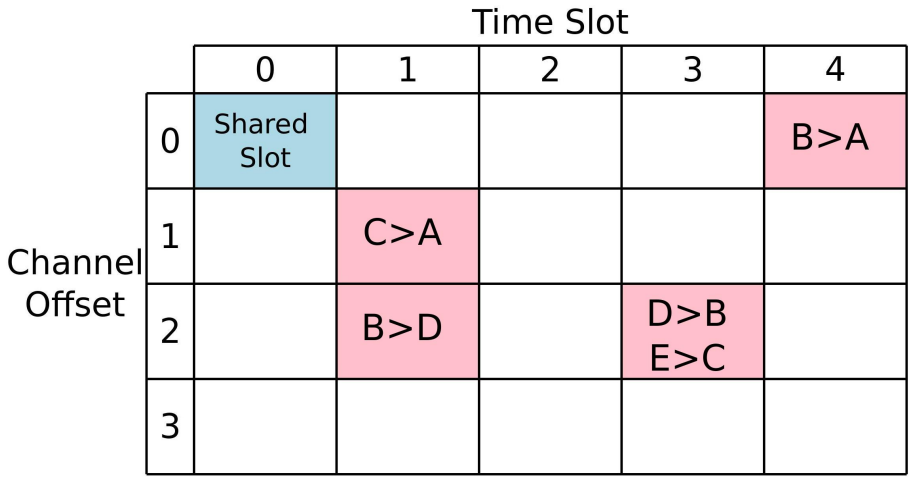

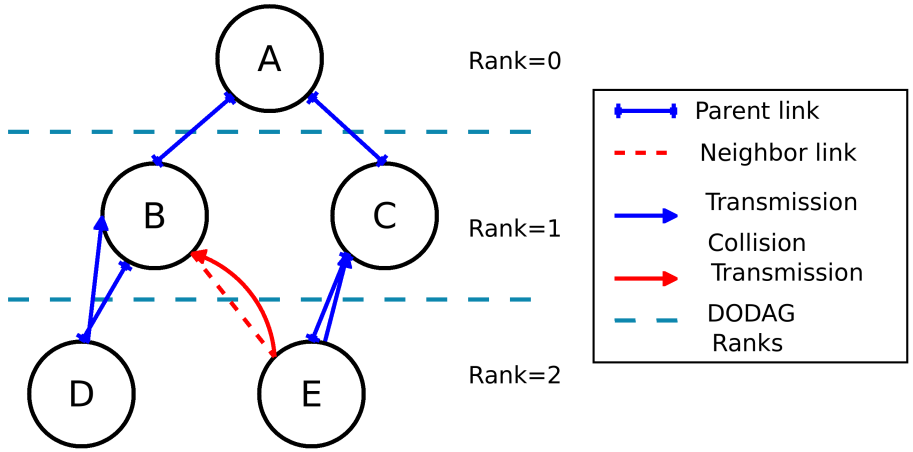

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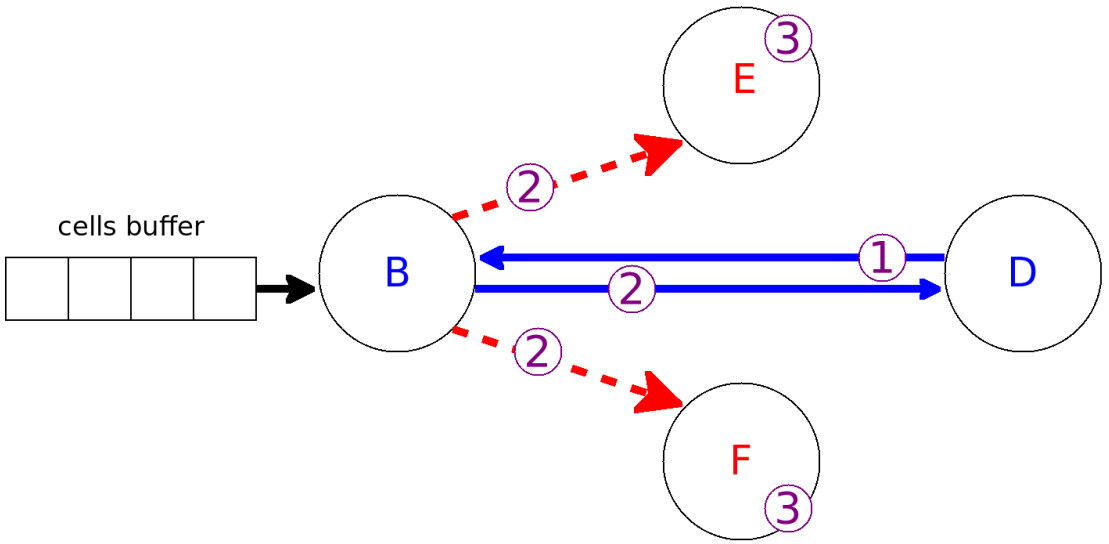

1. D decides to add new cells with B It will send an ADD REQUEST to B.
2. B Replies with an ADD RESPONSE (that contain the Cell Buffer) in the shared slot
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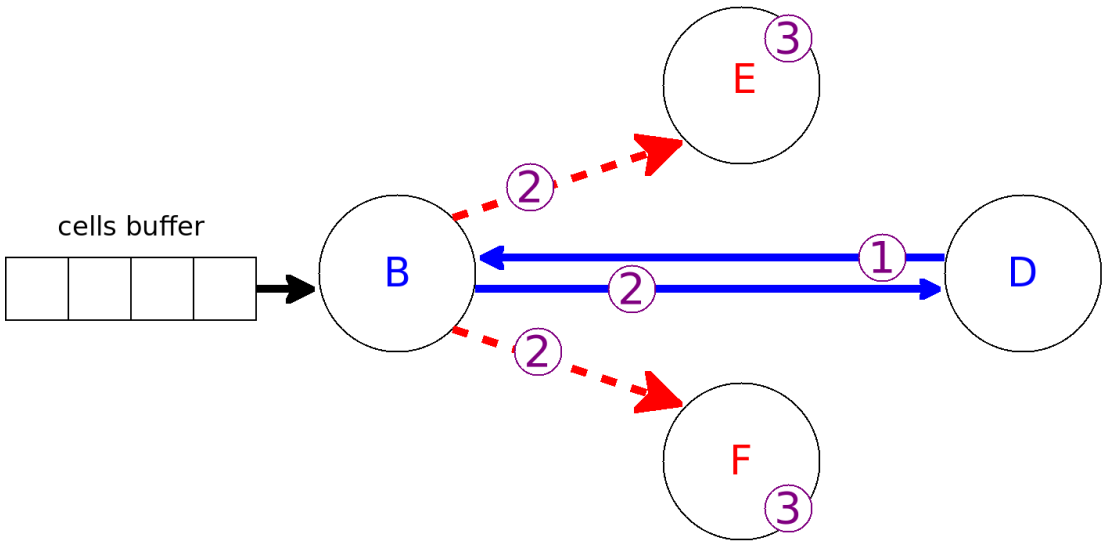

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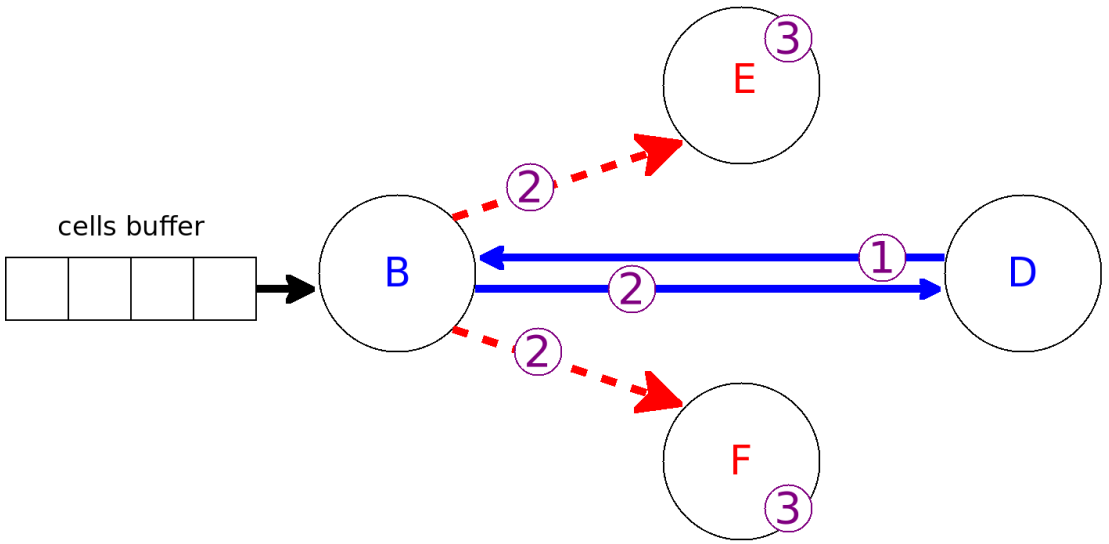

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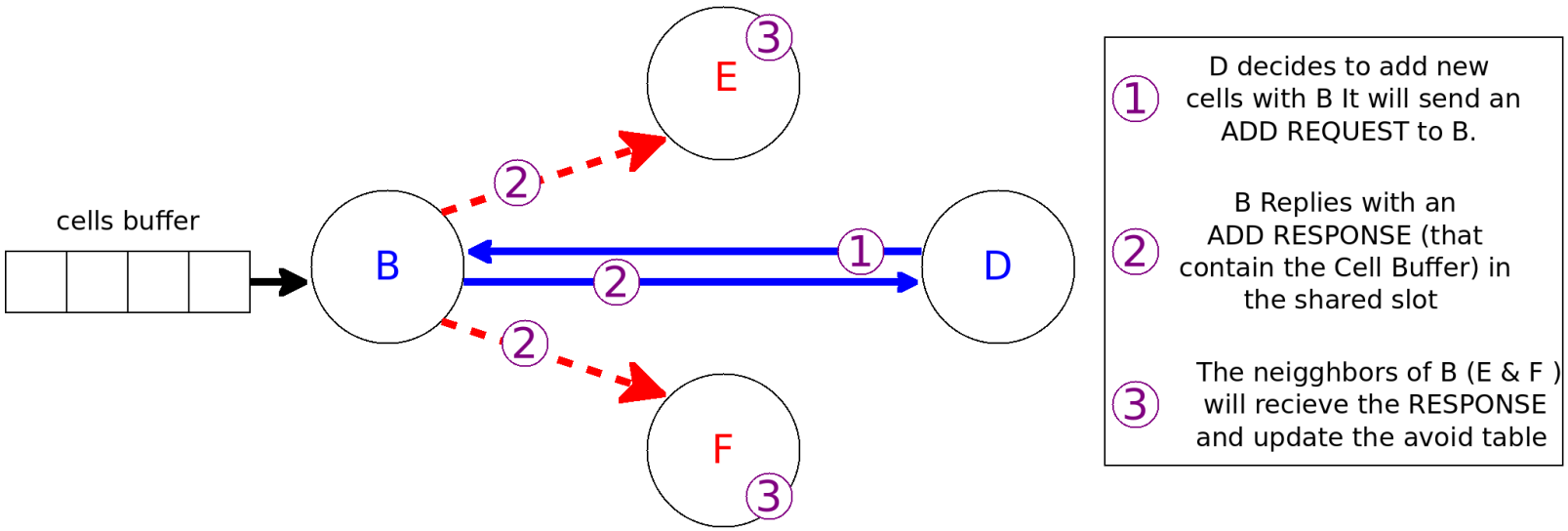

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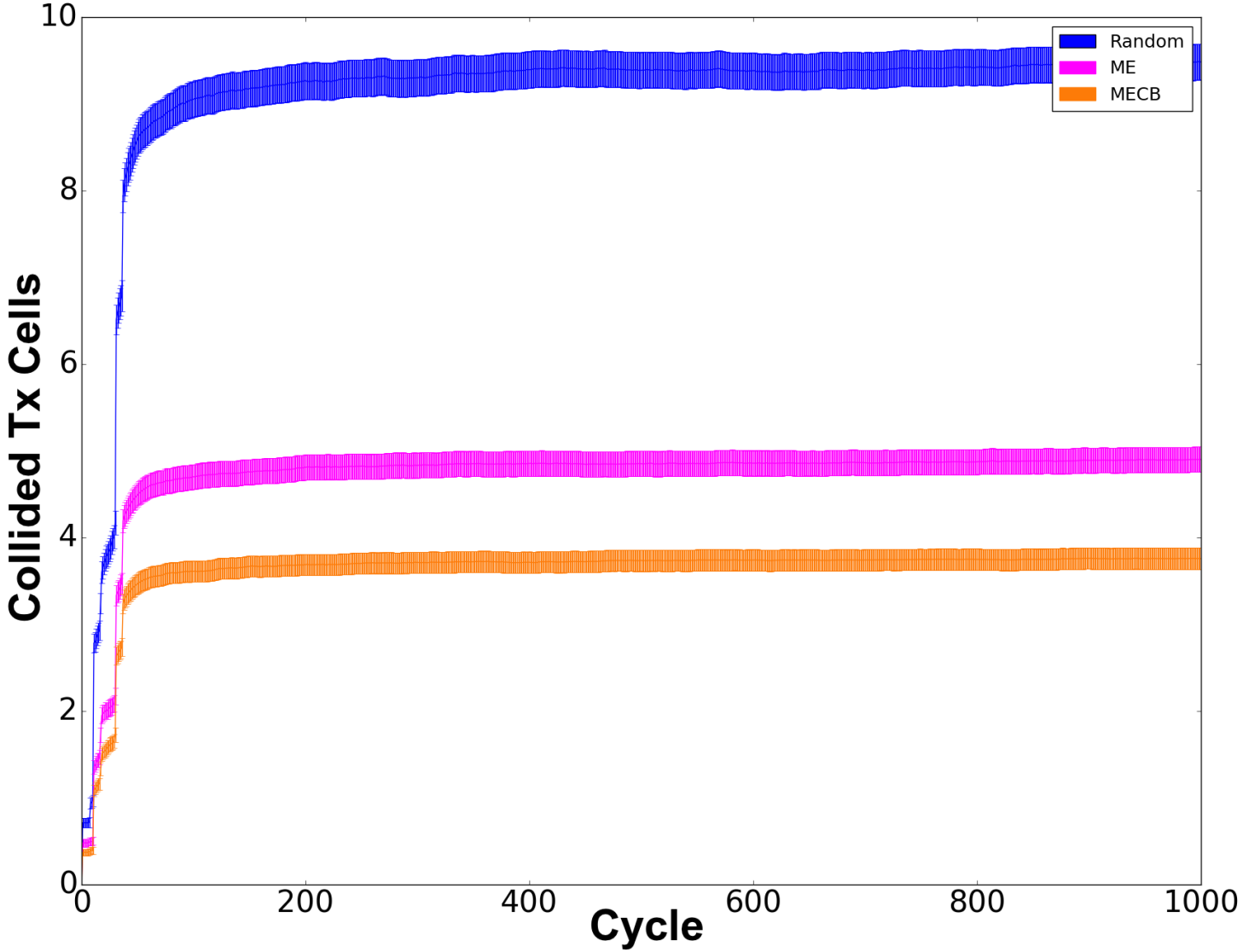

State-of-the-Art for Edge Clouding

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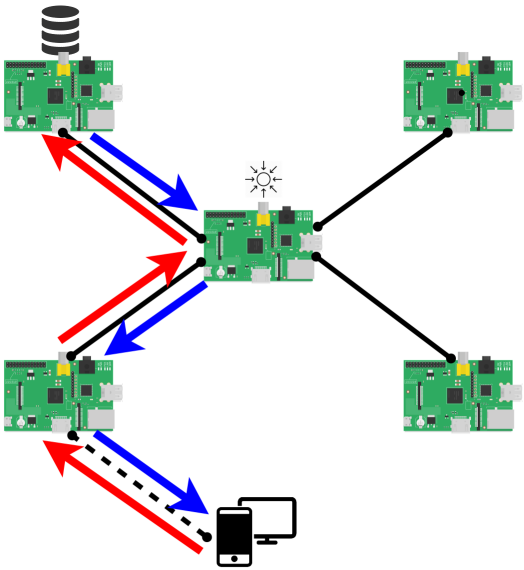
PhD Topic

Challenges of Fog Computing

- Centralized control over a distributed compute/storage resources.



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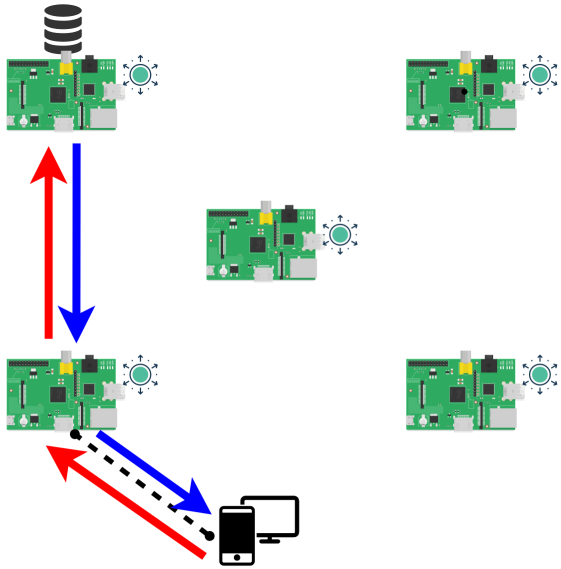

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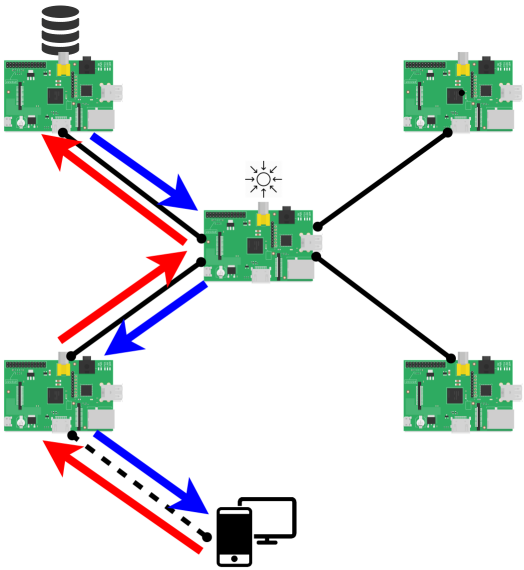

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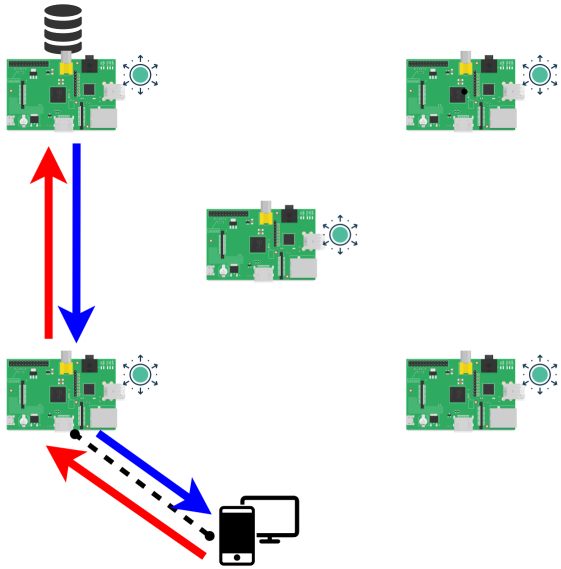

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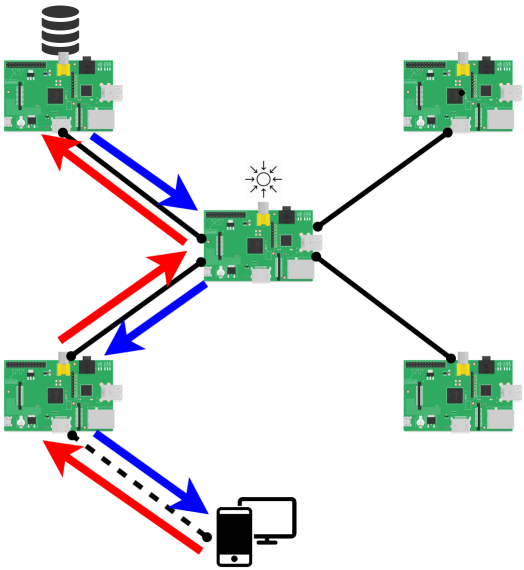

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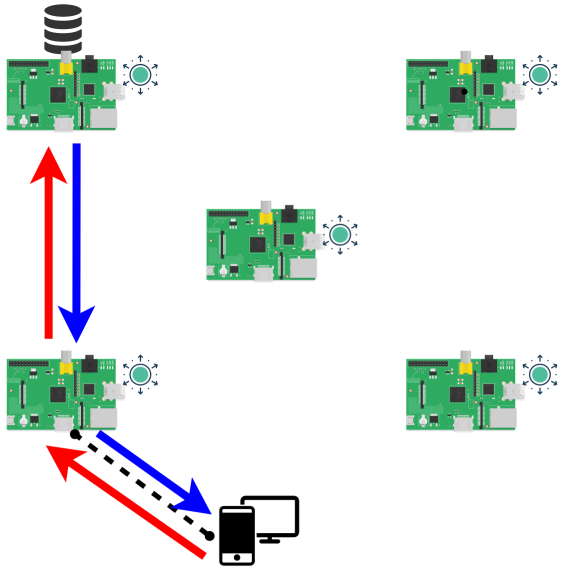

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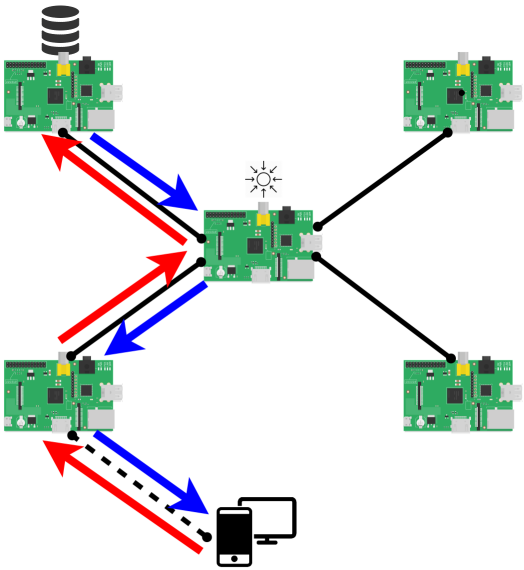

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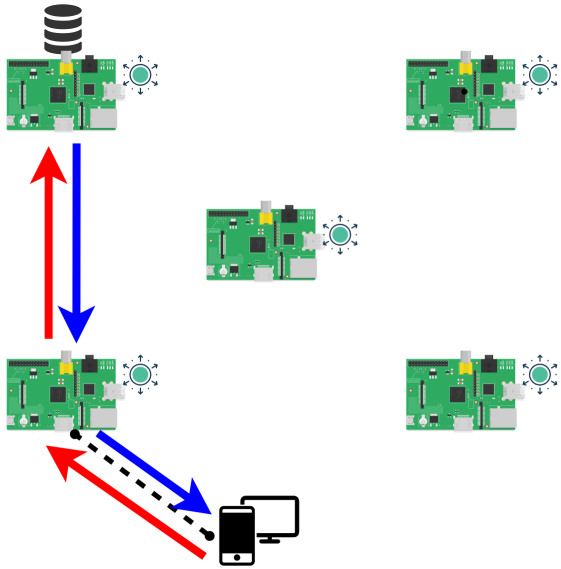

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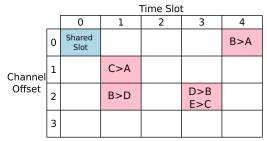

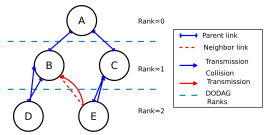

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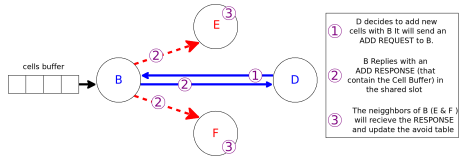

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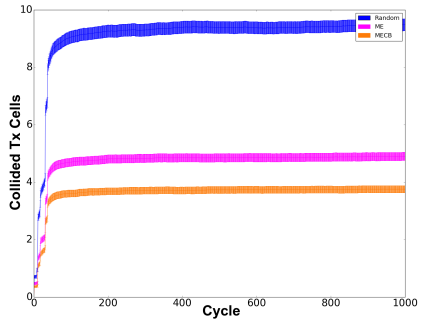

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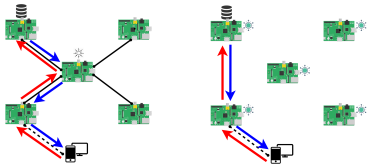

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Questions?