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

Ali J. Fahs

Institut de Recherche en Informatique et Systmes Alatoires (IRISA)
MYRIADS Team
Supervised by Professor Guillaume Pierre

Audition, 8th of June, 2017

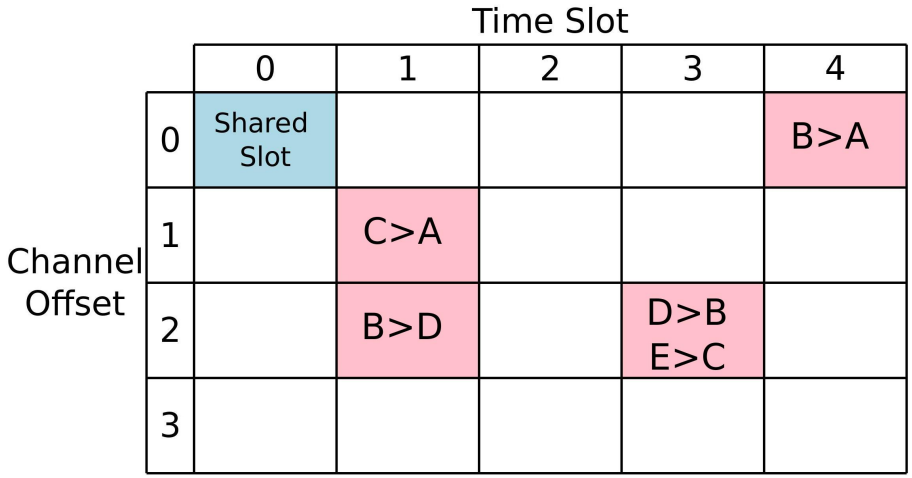
Outline

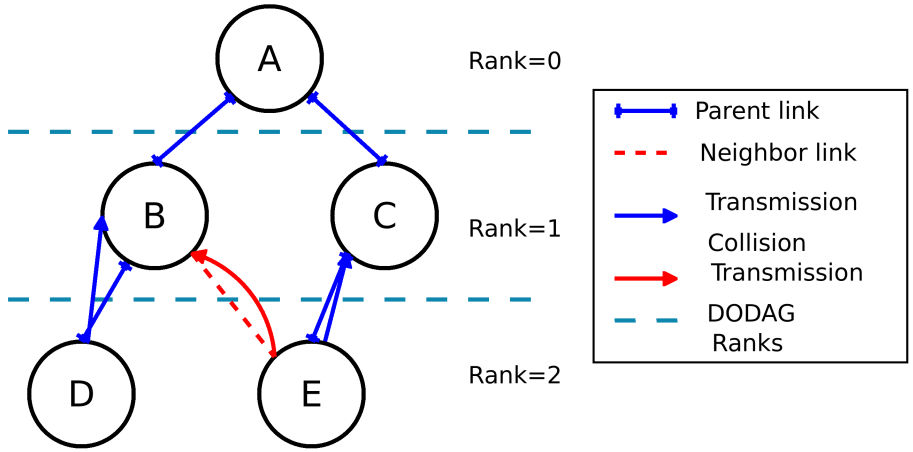
Personal Presentation

- A double diploma student.
  - Engineering diploma in telecommunication and computer science - Lebanese University, Faculty of engineering (Home University).
  - Master's degree in Informatics Grenoble (MoSIG) Parallel, Distributed Systems Track - Grenoble INP, Ensimag jointly with UGA, IMAG (Host University).
- Research interest: Distributed systems, Networking.
- Master's thesis "Distributed Approach for Cross-Layer Resource Allocation in Wireless Sensor Networks" Jointly between LIG and VERIMAG.

Internship objectives

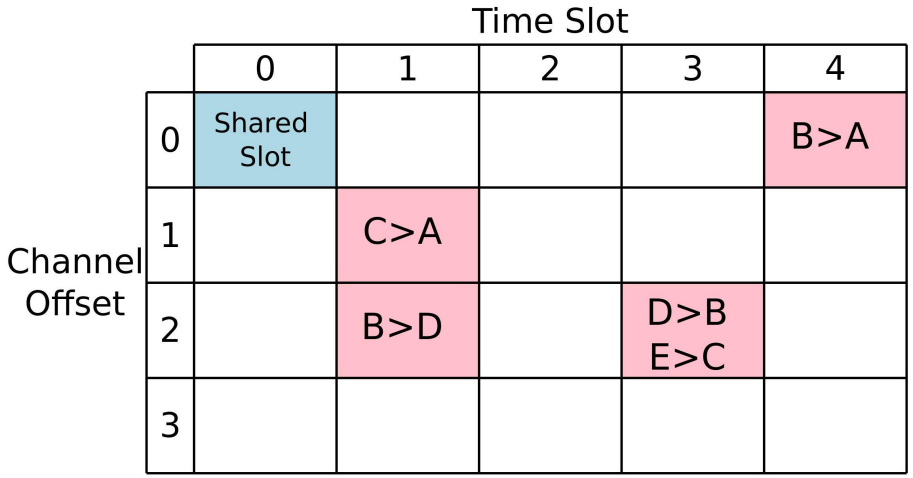
- Improvement in the distributed 6TiSCH networks

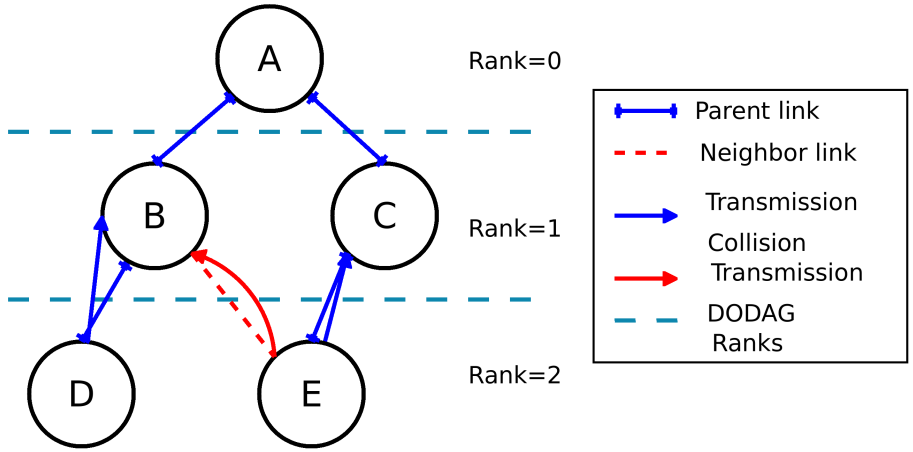




Internship objectives

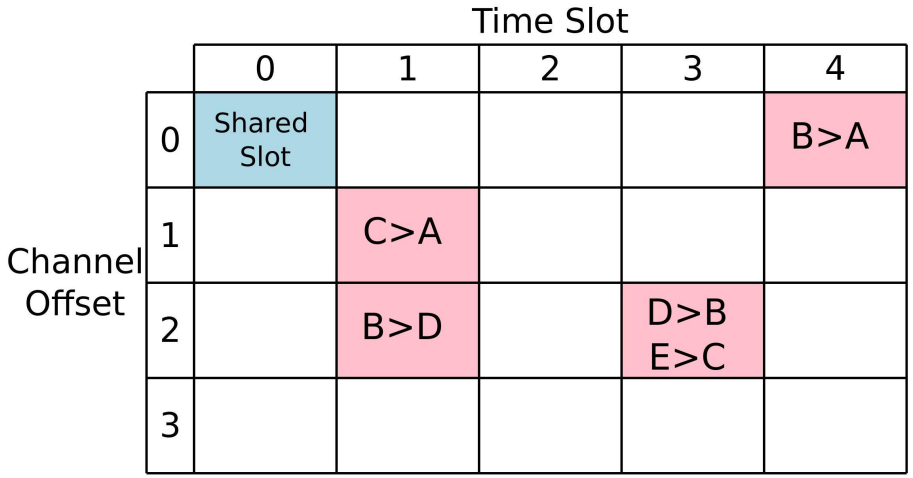
- Improvement in the distributed 6TiSCH networks
- Reduction of collision in TSCH Dedicated cells.

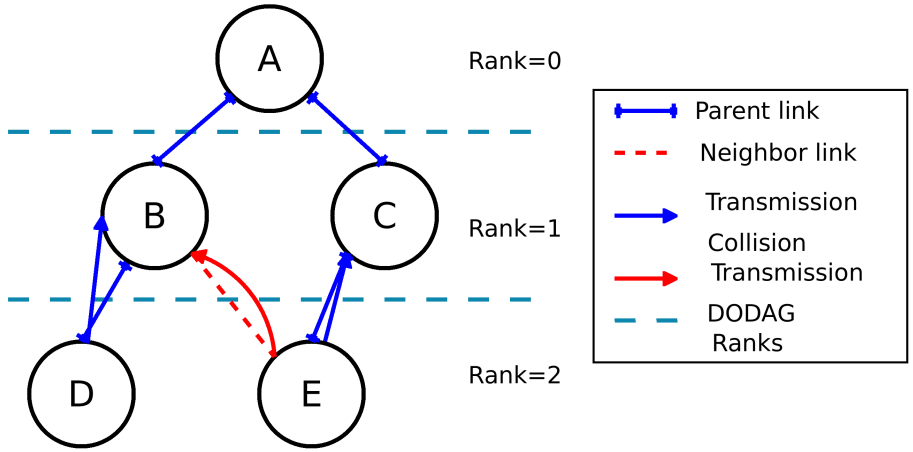




Internship objectives

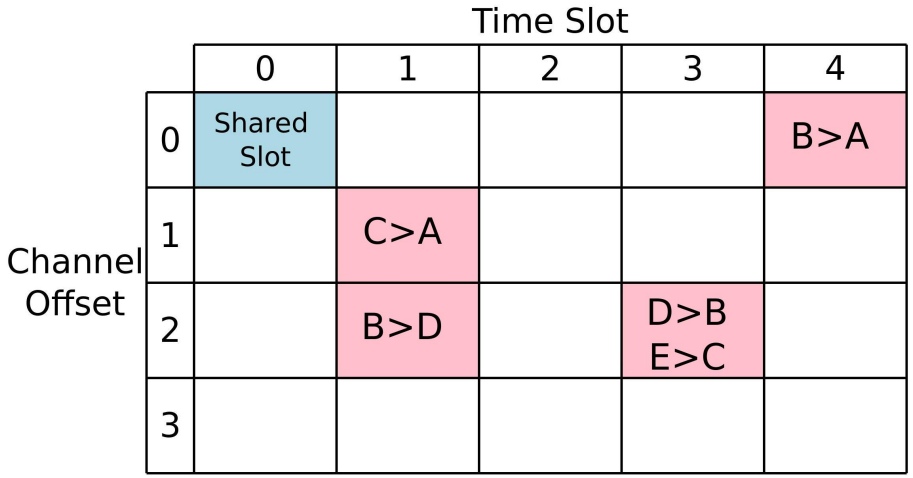
- Improvement in the distributed 6TiSCH networks
- Reduction of collision in TSCH Dedicated cells.
- The distributed approach causing the problem.

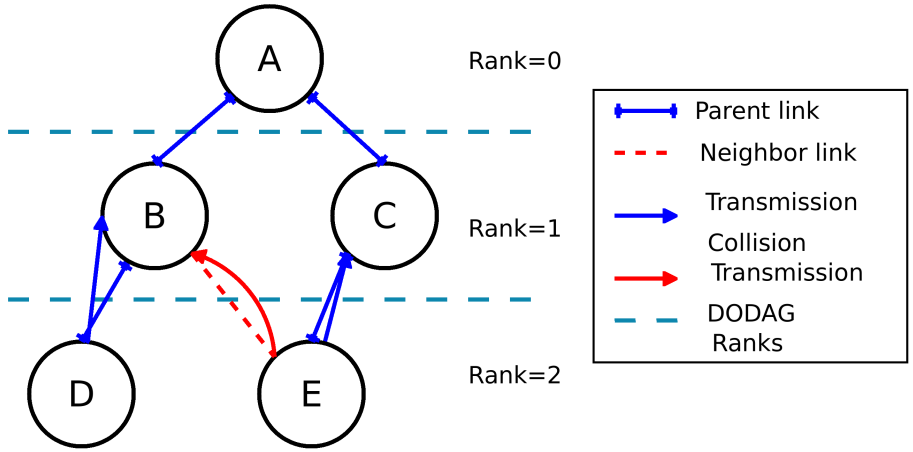




Internship objectives

- Improvement in the distributed 6TiSCH networks
- Reduction of collision in TSCH Dedicated cells.
- The distributed approach causing the problem.
- Lack of central entity.





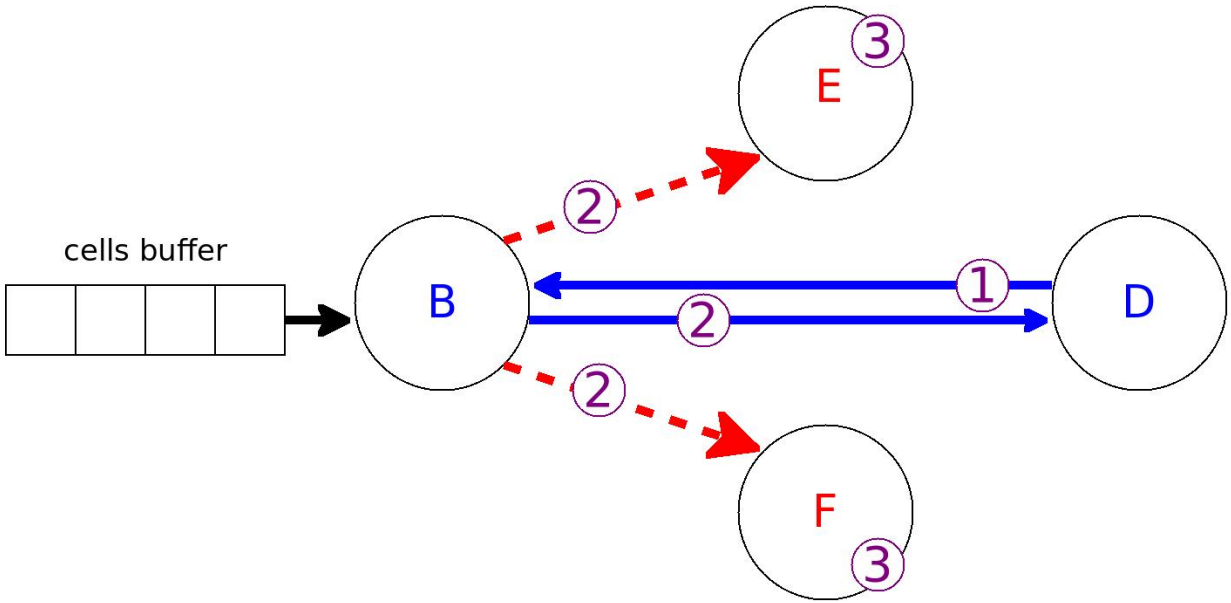
Master Thesis

Proposed Mechanism

- Local Mutual exclusion.

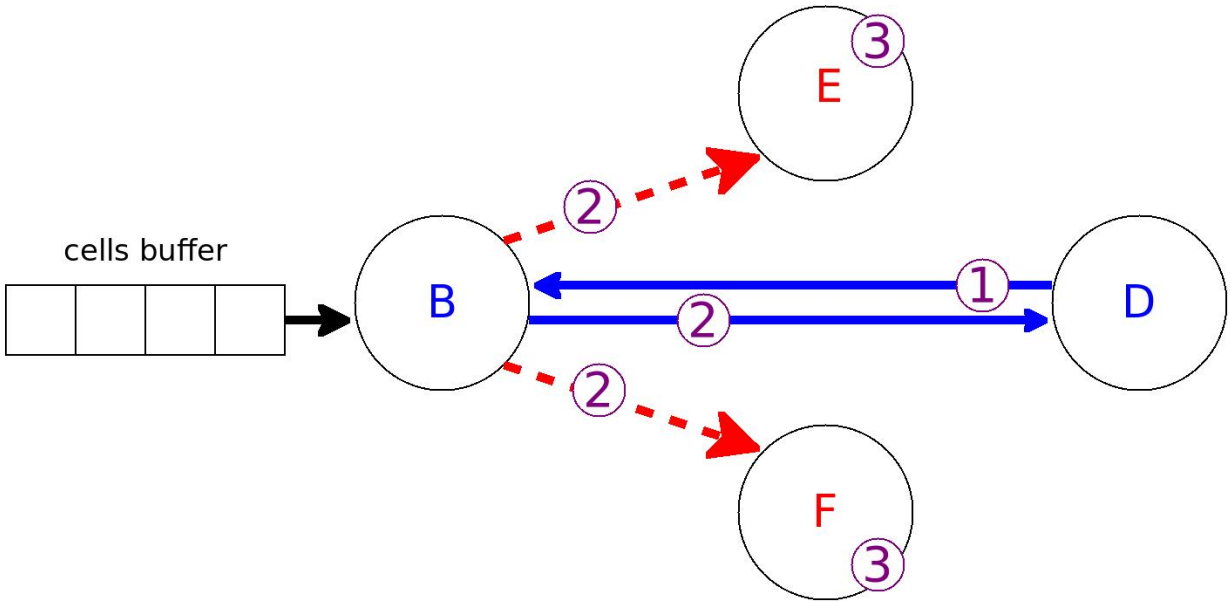
Proposed Mechanism

- Local Mutual exclusion.
- Using already existing transaction.



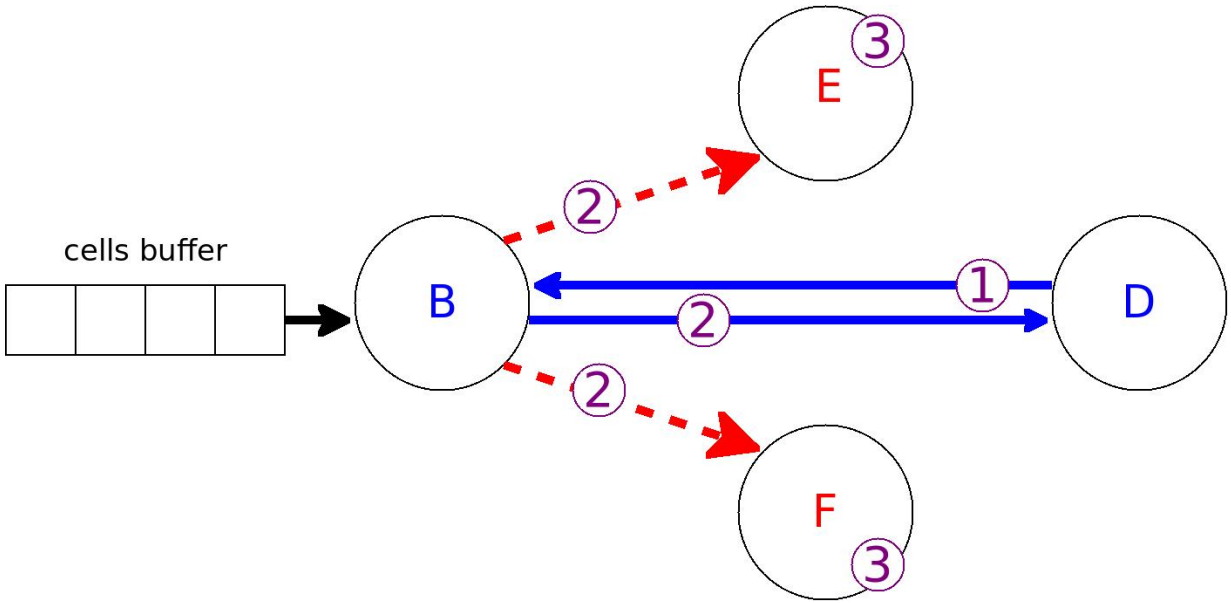
Proposed Mechanism

- Local Mutual exclusion.
- Using already existing transaction.
- No new traffic was induced.

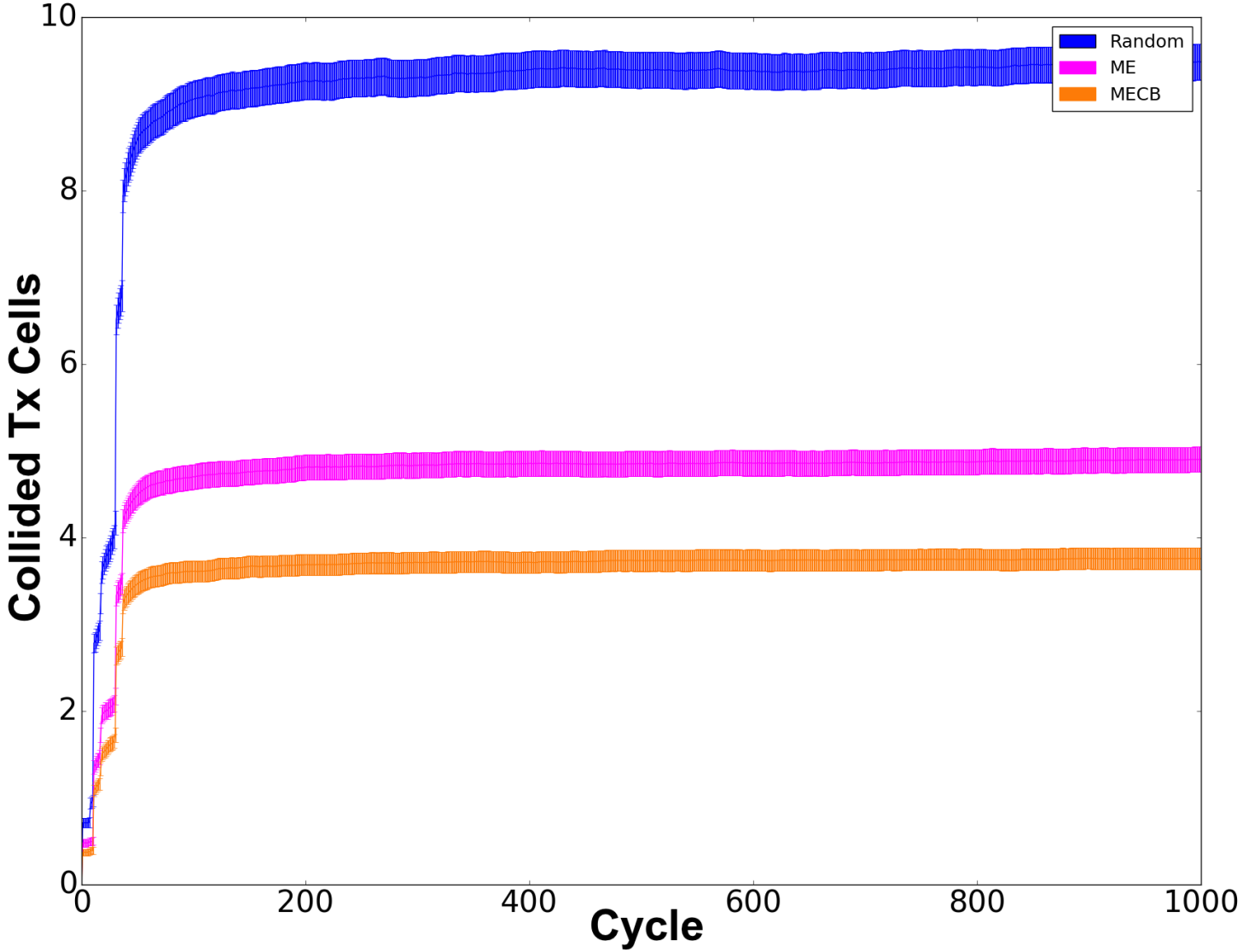


Proposed Mechanism

- Local Mutual exclusion.
- Using already existing transaction.
- No new traffic was induced.
- Achieved 70% reduction in the colliding Tx cells.



Internship Results



State of Art for Edge Clouding

Proposed Mechanism

- Clouding disadvantages: latency, mobility, *etc*...

State of Art for Edge Clouding

Proposed Mechanism

- Clouding disadvantages: latency, mobility, *etc*...
- Application-Network wall.

State of Art for Edge Clouding

Proposed Mechanism

- Clouding disadvantages: latency, mobility, *etc*...
- Application-Network wall.
- Edge Clouding: Deploying Cloudlets in the immediate end user proximity.

State of Art for Edge Clouding

Proposed Mechanism

- Clouding disadvantages: latency, mobility, *etc*...
- Application-Network wall.
- Edge Clouding: Deploying Cloudlets in the immediate end user proximity.
- Using single board computers as Cloudlets

State of Art for Edge Clouding

Proposed Mechanism

- Clouding disadvantages: latency, mobility, *etc*...
- Application-Network wall.
- Edge Clouding: Deploying Cloudlets in the immediate end user proximity.
- Using single board computers as Cloudlets
- Improvement of end to end latency, and application interactivity.

State of Art for Edge Clouding

Proposed Mechanism

- Clouding disadvantages: latency, mobility, *etc*...
- Application-Network wall.
- Edge Clouding: Deploying Cloudlets in the immediate end user proximity.
- Using single board computers as Cloudlets
- Improvement of end to end latency, and application interactivity.
- Fog computing infrastructure stills incomplete.

PhD Topic

hey

Project Perspective

hey