

Collision Prevention in Distributed 6TiSCH Networks

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Introduction & Background

- General Introduction

- IEEE802.15.4 Protocols

- Project challenges & Objectives

Proposed Mechanism

- Using 6top Transaction

- Avoid Table

- Cell Buffer

- Housekeeping Approach

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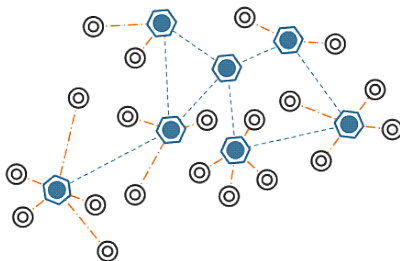
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General Introduction

IoT & Wireless Sensor Networks

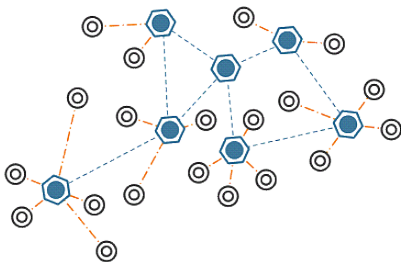
- ▶ Network technologies and IoT.



General Introduction

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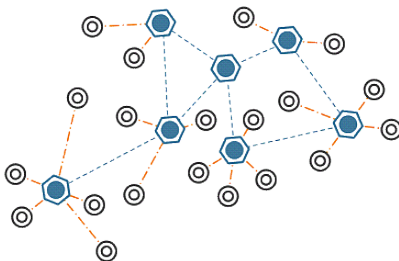
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- ▶ WSN: standardization of IoT nodes communication.



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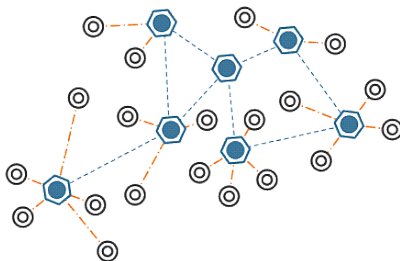
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General Introduction

IoT & Wireless Sensor Networks

- ▶ Network technologies and IoT.
- ▶ WSN: standardization of IoT nodes communication.
- ▶ Main contributions are : low power consumption, low cost.
- ▶ IEEE802.15.4 one of the main standards of WSN.

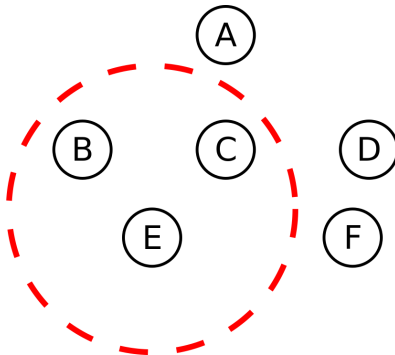


General introduction

IEEE802.15.4

Converge Cast Structure

- ▶ Nodes radio ranges defines the neighborhood.

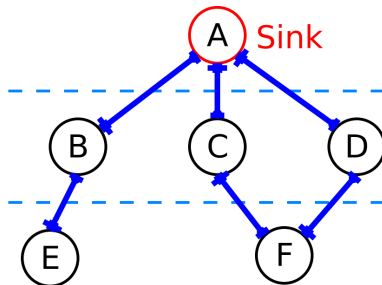


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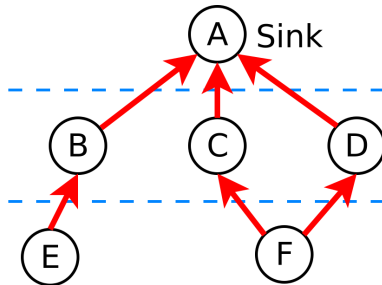


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- ▶ Packets are forwarded toward the sink.

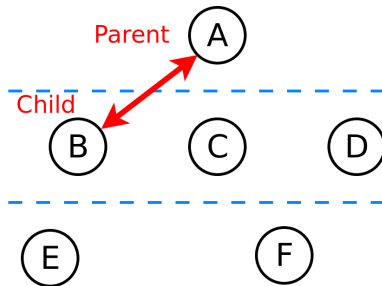


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- ▶ Communication pairs.



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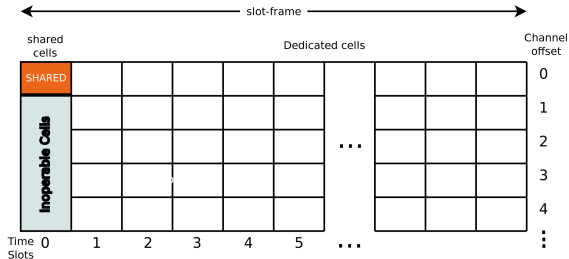
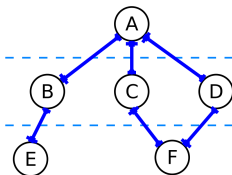
IEEE802.15.4e TSCH

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IEEE802.15.4 Protocols

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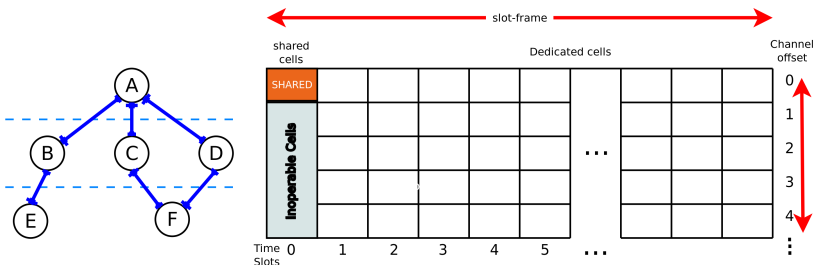
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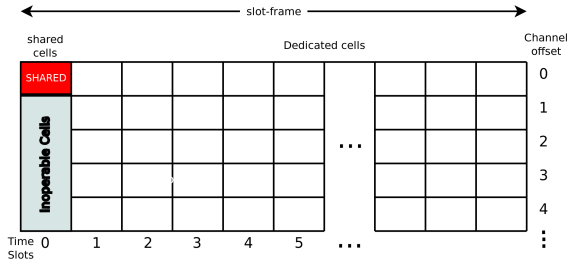
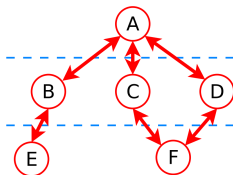
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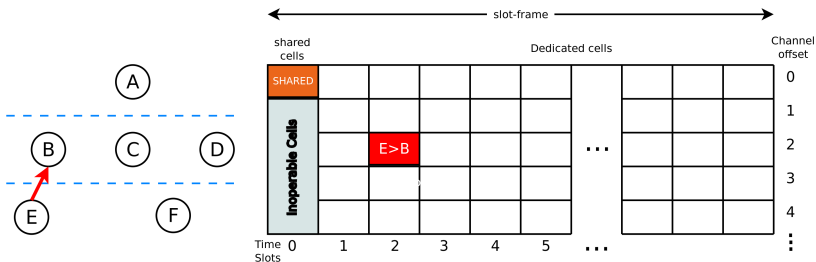
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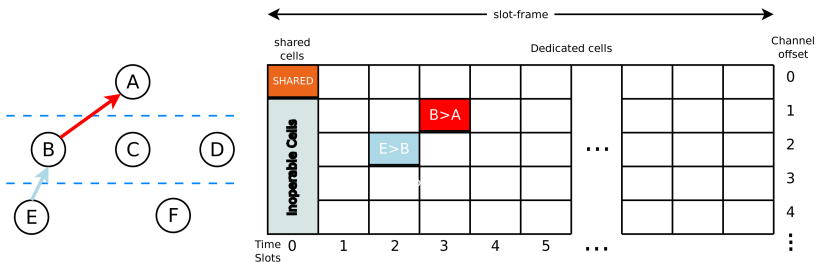
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IEEE802.15.4 Protocols

6TiSCH

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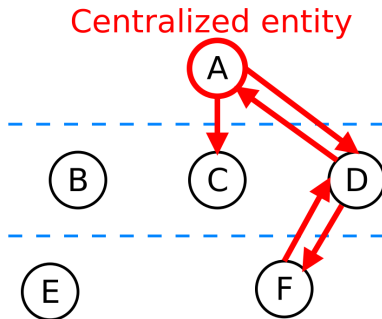
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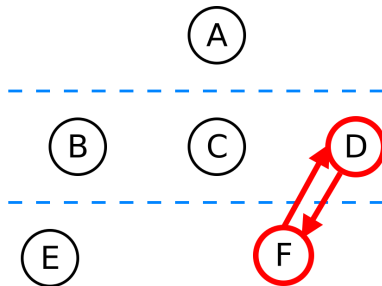
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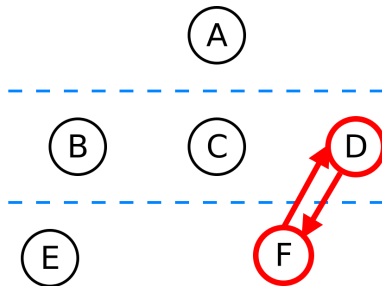
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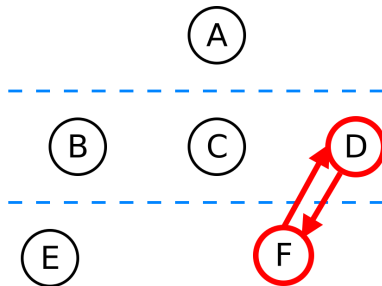
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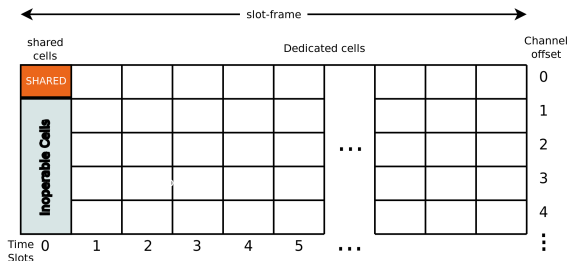
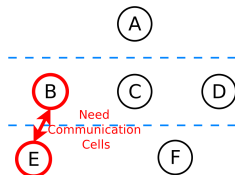
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 - ▶ Scheduling function.



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Cell Reservation Process

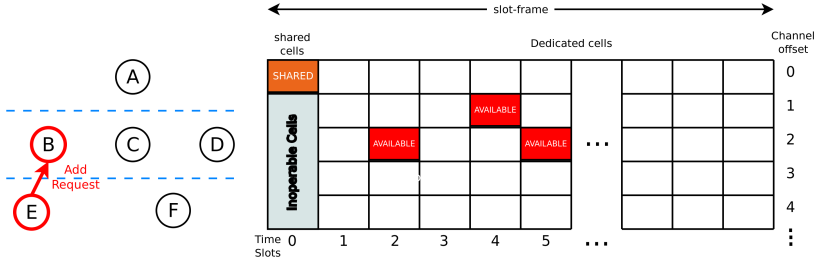
- Scheduling function decides new cell should be assigned.



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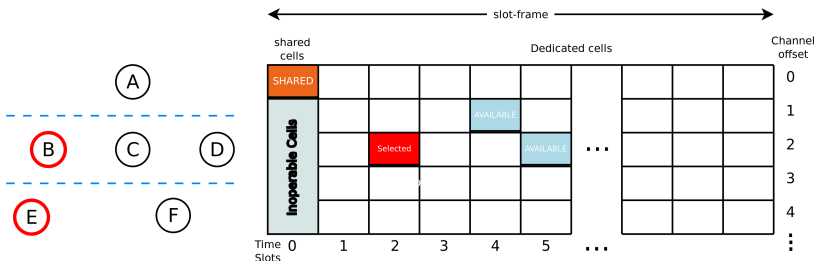
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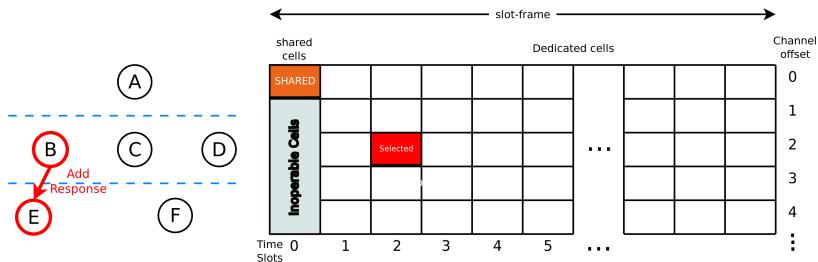
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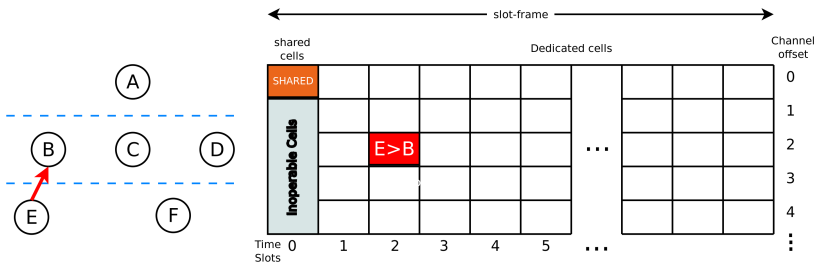
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- ▶ Child node sends an Add request.
- ▶ Scheduling function decides which cells to be selected.
- ▶ Parent node replies with an Add response.
- ▶ Cell is added and communication start.



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