5G moving Box Control

Introduction

The integration of 5G technology, fast hardware and intelligent control protocols hold enormous potential for transforming urban transportation. The moving box concept represents a new possibility and could replace human couriers with an automated system for efficient and reliable delivery, thus contributing to the city of the future. 5G not only promises faster connectivity, but also numerous new opportunities for various industries and areas of everyday life. Thanks to the low latency and high bandwidth of 5G, doctors and medical professionals, for example, can use telemedicine applications to perform remote operations and transmit medical data in real time. That is just one example of where 5G technology can and will change our future and world.

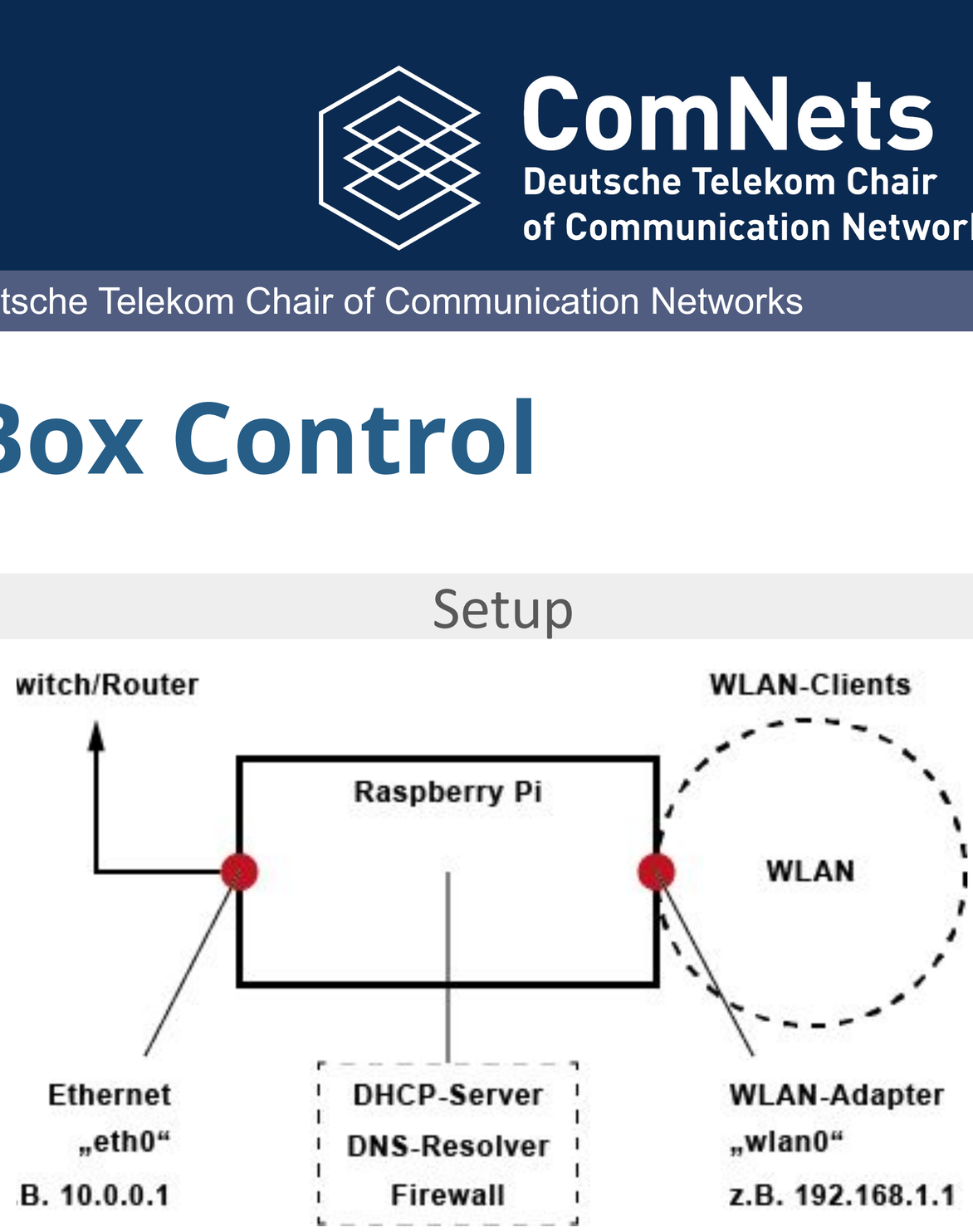
5G Non-Public Network

- URLLC - mMTC - eMBB
- Customizable
  - ORAN
  - Virtualization
  - Open Source
- In Network Computing - MEC
- 5G as a Service

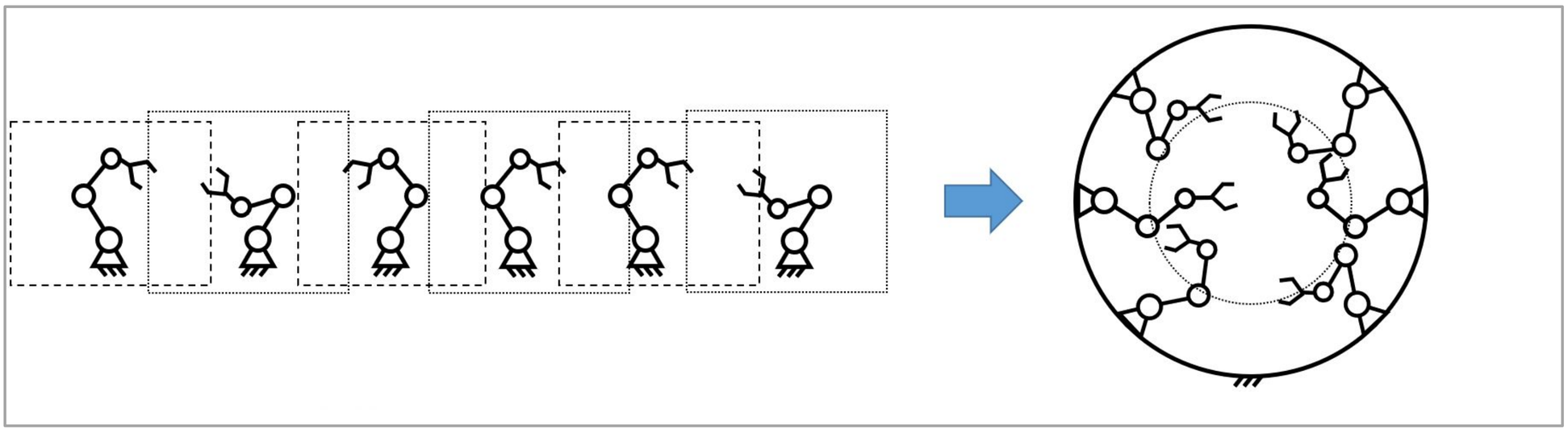
Key Improvements

- Enhanced Productivity
- Improved Efficiency
- Space optimization
- Increased Flexibility
- Decreased Safety Zones
  - Robot-Robot
  - Human-Robot Interaction
- Improved Scalability
- Real Time Remote Monitoring
- Predictive Maintenance

Setup



- Centralized Cloudified Controller - MEC
  - Rough Path Planning
  - Enveloping Spheres
  - User Interface
- Decentralized Controller
  - Real Time Robot Control
  - Detailed Steps
  - Low calculation power



Grohmann, Andreas Ingo; Peters, Frank; Kuß, David; Sossalla, Peter; Fitzek, Frank H.P.,“HYDRA - High Yield Dense Robotic Arms”, International Conference on Electrical, Computer, Communications and Mechatronics Engineering (ICECCME2023) 19-21 July 2023, Tenerife, Canary Islands, Spain

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