# Flexub: Dynamic Subscriptions for Publish/Subscribe Systems in MANETs

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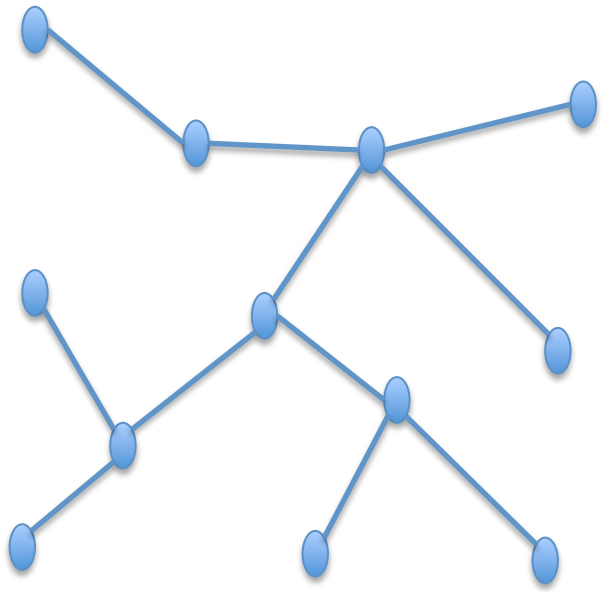
# Pub/Sub Systems for MANETs



- Dynamic Topologies
- Bandwidth-constrained
- Energy-constrained Operations
- **Massive number** of messages

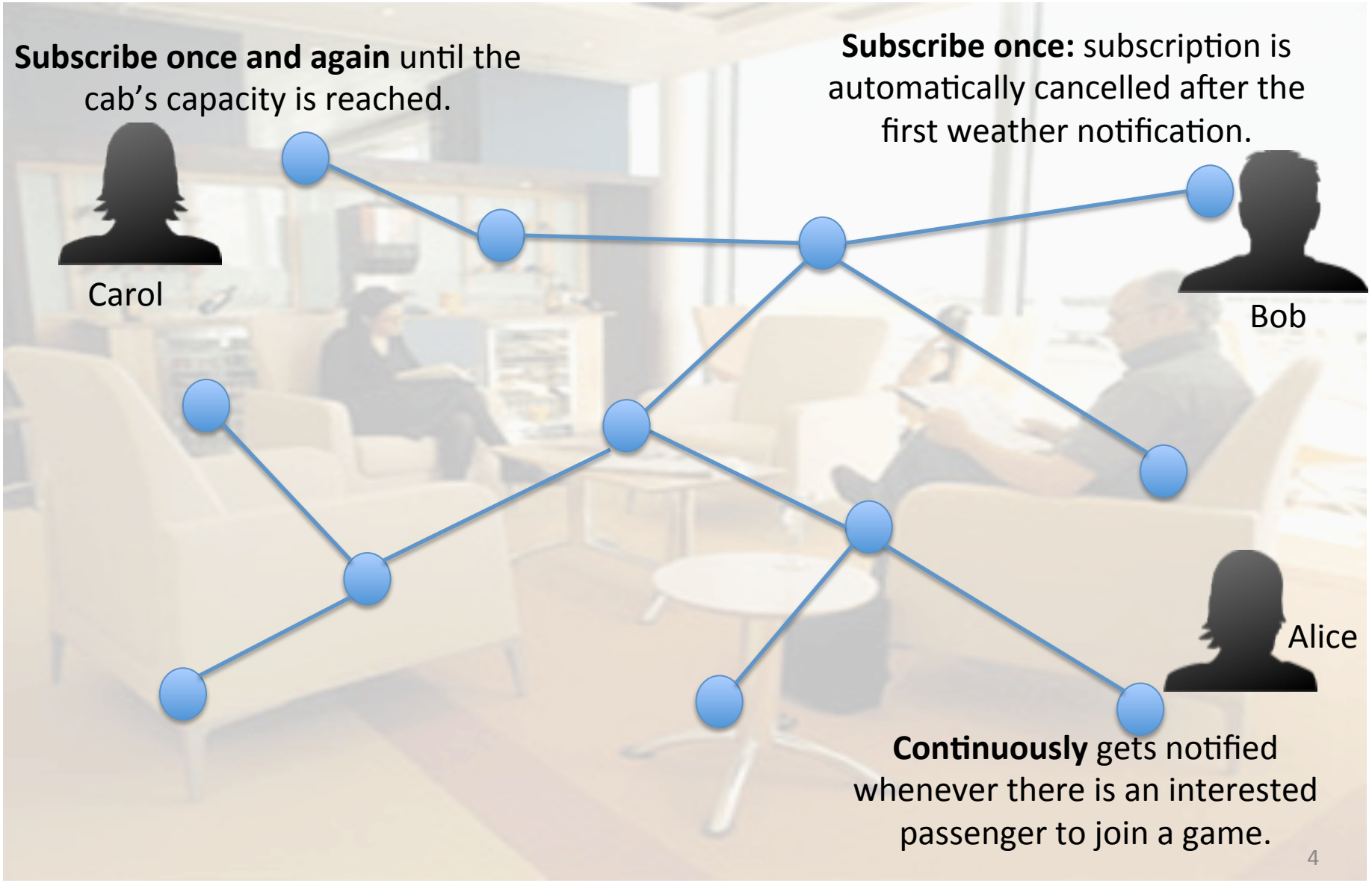
**Currently**: Limited support to dynamically modify, re-issue or cancel subscriptions

# Flexub: Dynamic Subscriptions for Pub/Sub Systems in MANETs

- Allows the subscriber to express a condition when to reissue or cancel a subscription

- Three subscription mechanisms
  - **Continuous** subscription
  - **Subscribe once**
  - **Subscribe once and again**

# Dynamic Subscriptions in Flexub



# Expressing Subscriptions in Flexub



Example: **Subscribe once and again** until the cab's capacity is reached.

```
Subscription cabSubscription = new Subscription();
cabSubscription.topic = "cab sharing";
cabSubscription.content = //subscription details
```

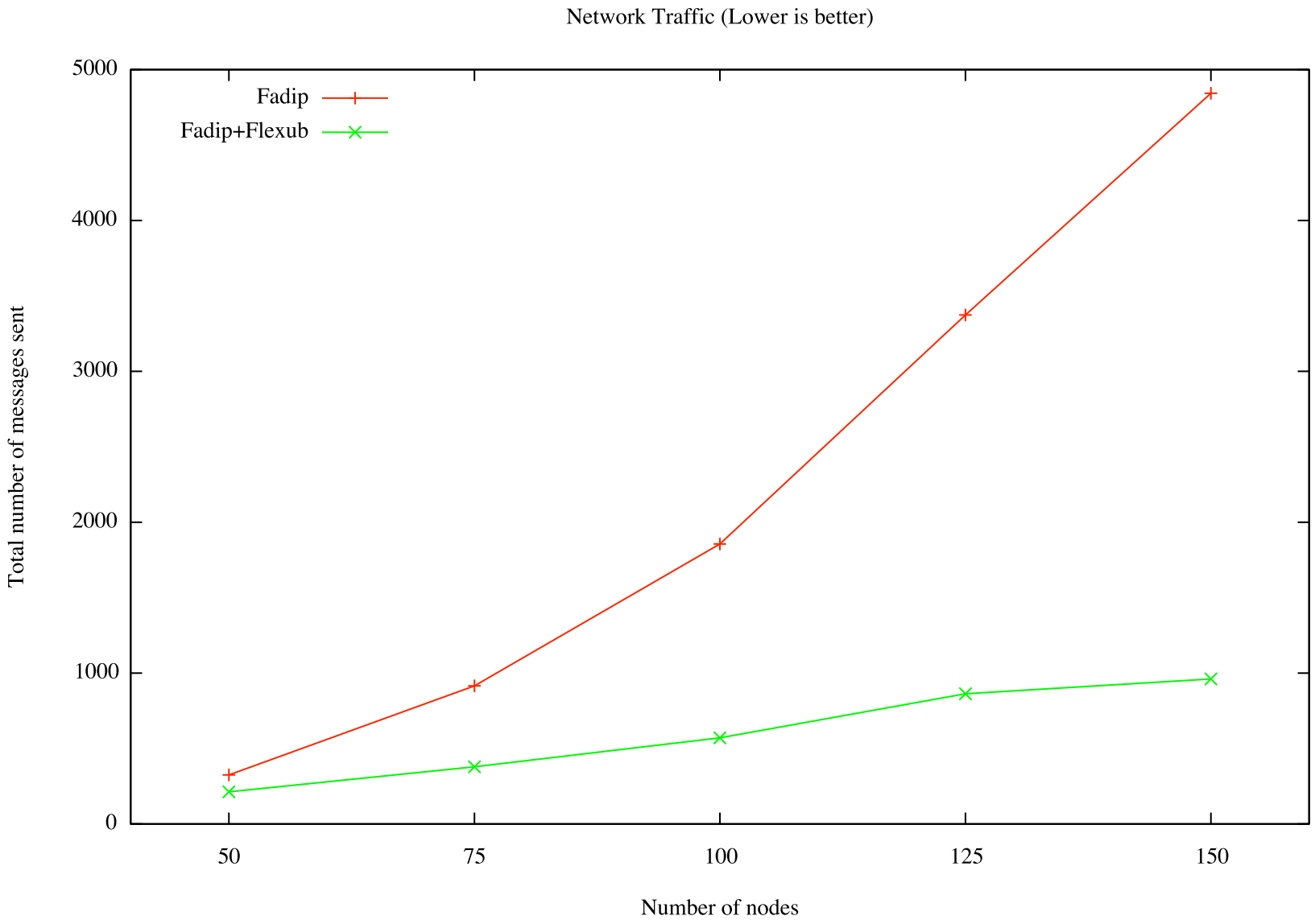
```
Policy subscriptionPolicy =
new SubscribeOnceAndAgain([cabCapacity]()
   {return (receivedMatchedEvents<cabCapacity)});

Flexub.subscribe(cabSubscription, subscriptionPolicy);
```

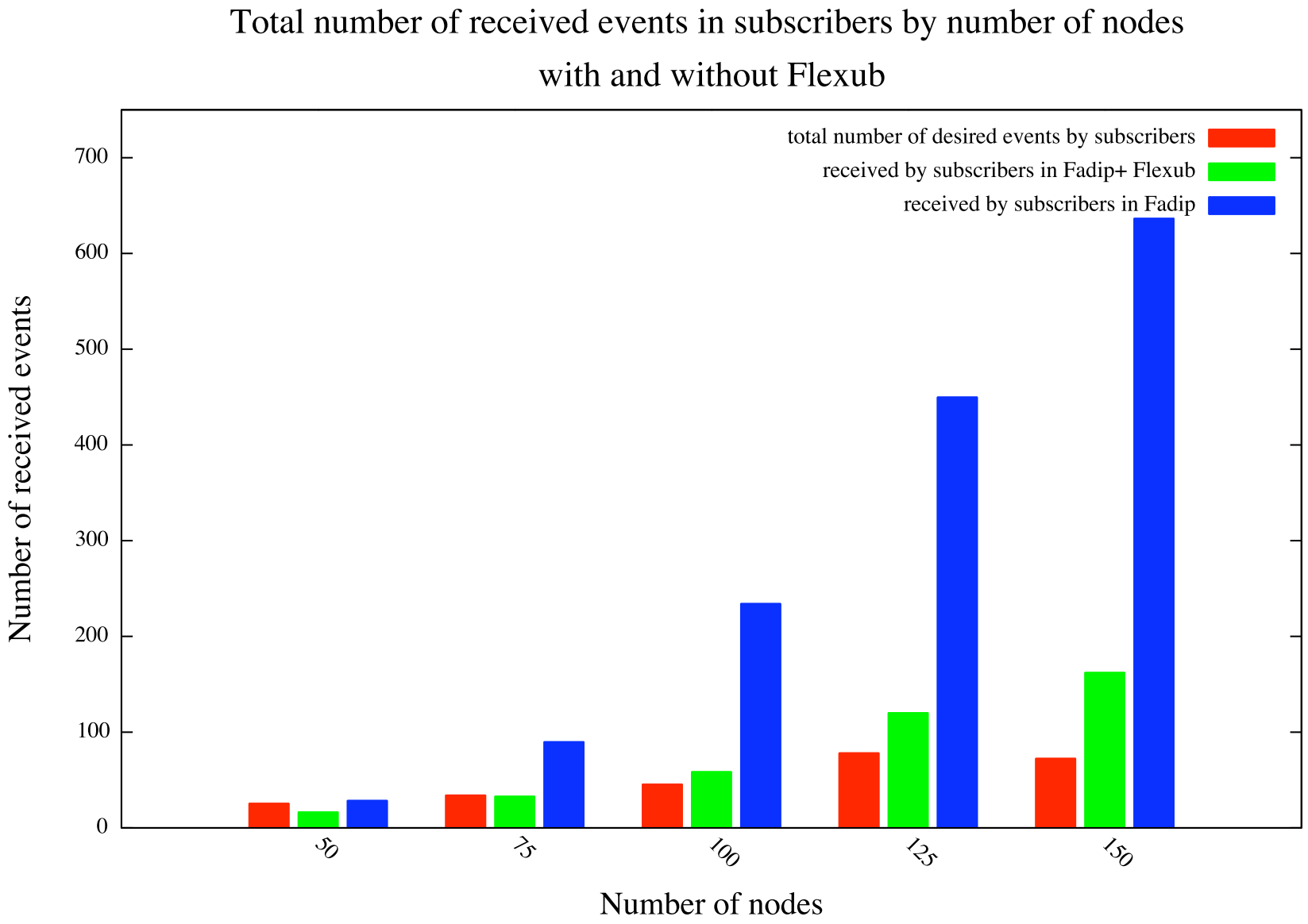
# Evaluation: Simulations

- Flexub is implemented on top of Fadip
- Simulation setup:
  - OMNeT++ and MiXiM to simulate wireless mobile networks
  - 50 to 150 nodes in 1000 by 1500 meter playground
  - 20% randomly chosen publishers
  - 5% randomly chosen subscribers

# Flexub and Network Traffic



# Flexub and Workload on Subscribers



# Conclusion

- Flexub:
  - Reduces network traffic
  - Improves the expressiveness and the flexibility of subscriptions
  - Subscriptions specify a condition under which a subscription should be **automatically** reissued or cancelled