

# More Termination Service Options Better Mobile Services

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Motivation  
Problem Statement  
Research Idea



# Background

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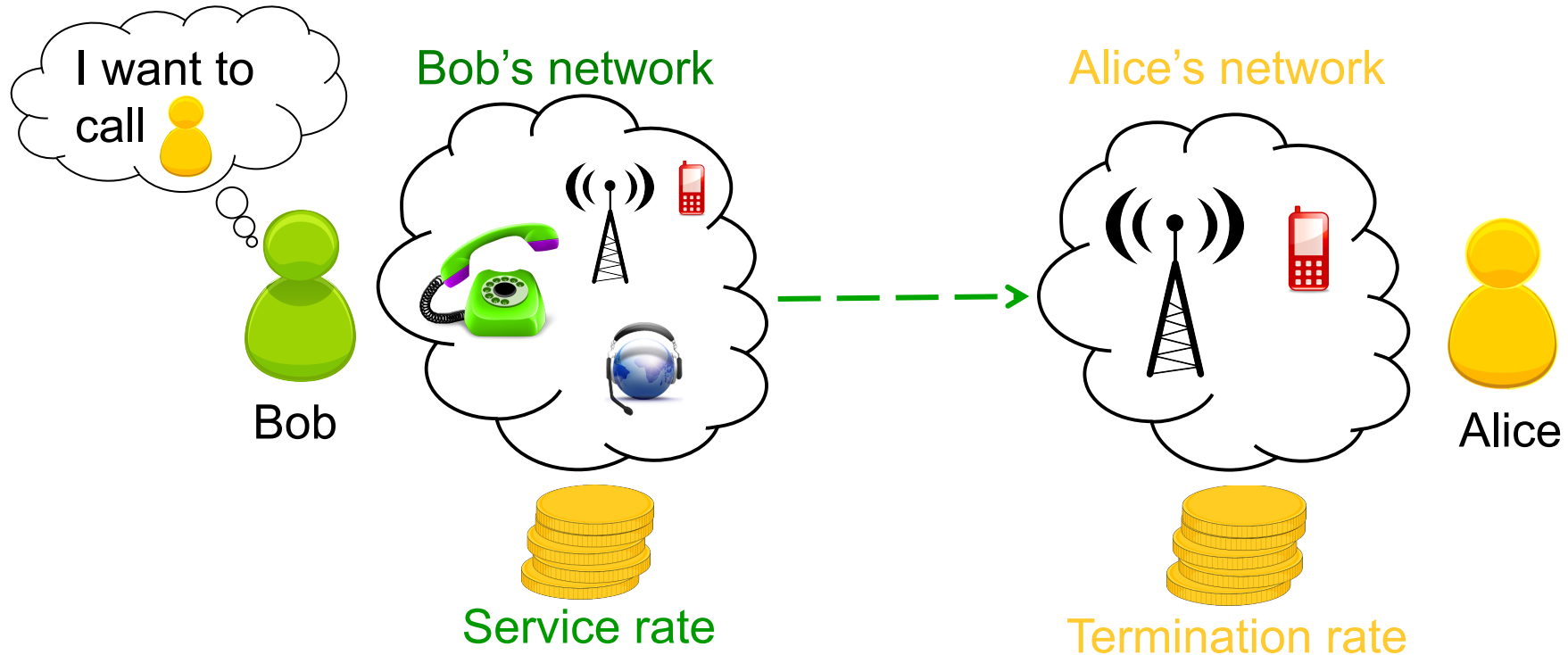
## ❑ Studies

- Diploma in Physics (UOC)
  - Computational Physics
- MSc in Computer Science (AUEB)
  - Computer networks
- PhD in informatics (UZH)
  - Mobile termination service monopoly liberation
  - Quality-of-Experience (QoE)

## ❑ Work experience

- E-payment services (Heraklion)
- Physics teacher (Athens)
- Researcher (Zurich)

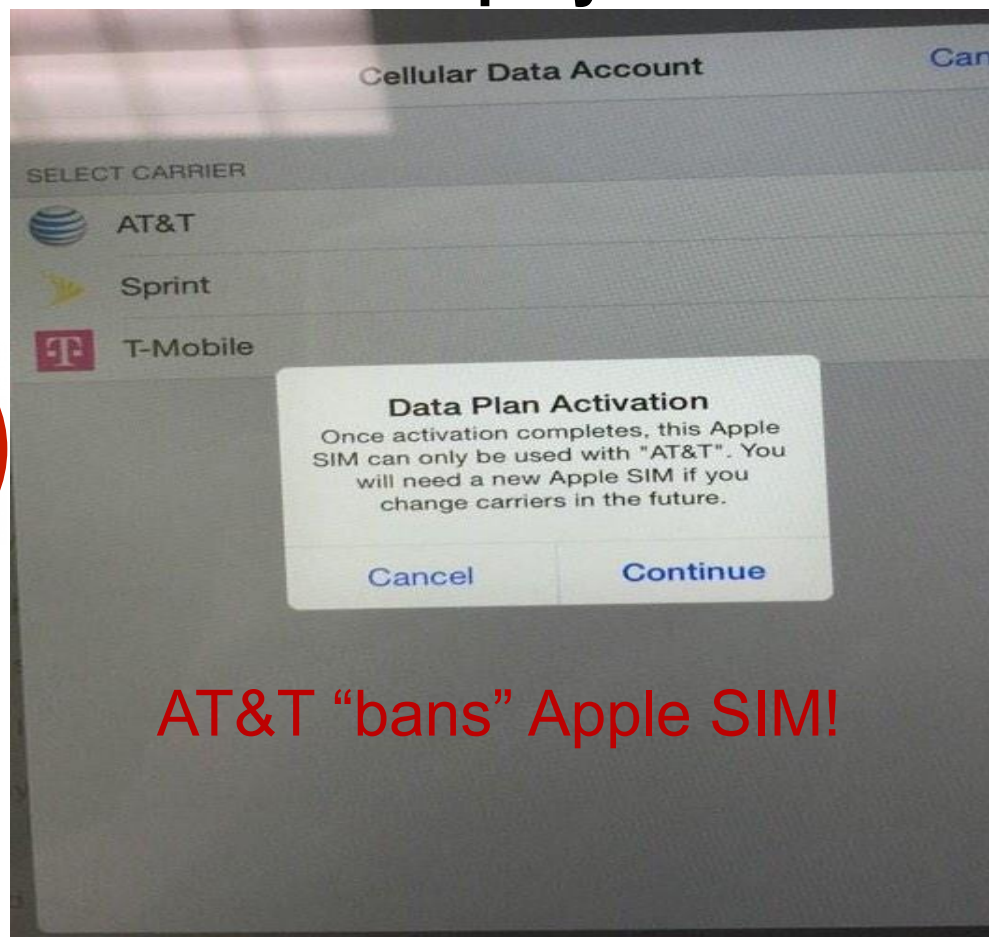
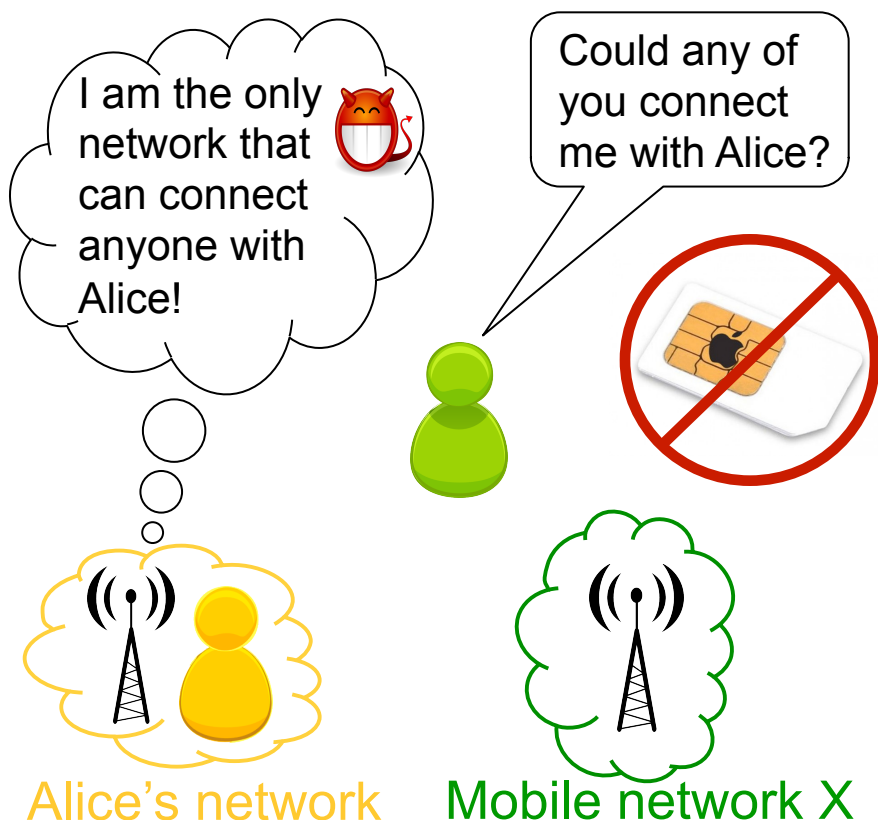
# Mobile Communication Ecosystem



- ❑ Total cost of the call = Service rate + Termination rate
- ❑ Calling Party Pays (CPP) principle → Total cost
- ❑ Receiving Party Pays (RPP) principle → Service Rate Termination rate

# Current Termination Service Situation (1)

The mobile termination service, since the early days of mobile communication, is considered to be a monopoly

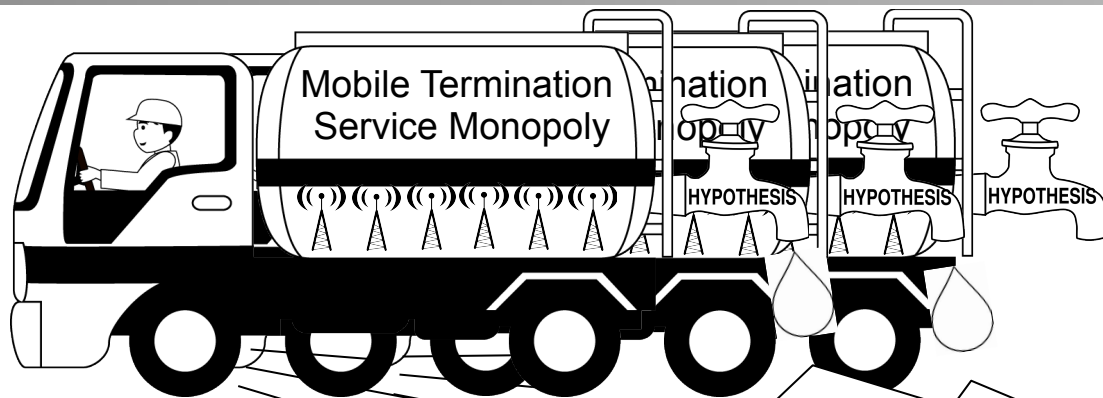


# Current Termination Service Situation (2)

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- ❑ Calling Party Pays (CPP) principle
  - Strict price regulation is needed
- ❑ Receiving Party Pays (RPP) principle
  - The caller and the callee role are not decoupled
- ❑ National Roaming (NatRoam)
  - Never applied without roaming fee for incoming calls
  - Manual MNO selection through the mobile device takes time
    - An automatic and on-demand MNO selection mechanism is missing

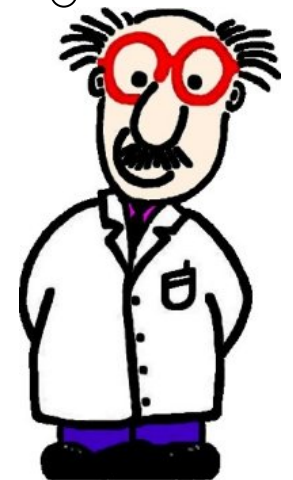
# Problem Statement



**Is the mobile termination service monopoly cancelation feasible?**

**Such a break will increase the end-user Quality-of-Experience (QoE) and MNOs' infrastructure utilization**

The current technology allows competition in the mobile termination service

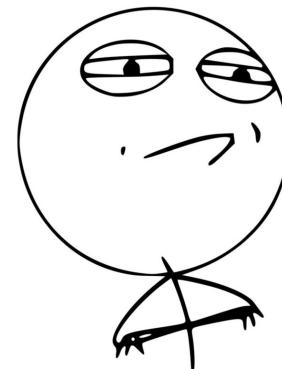


# Why Maintain the "Status Quo"

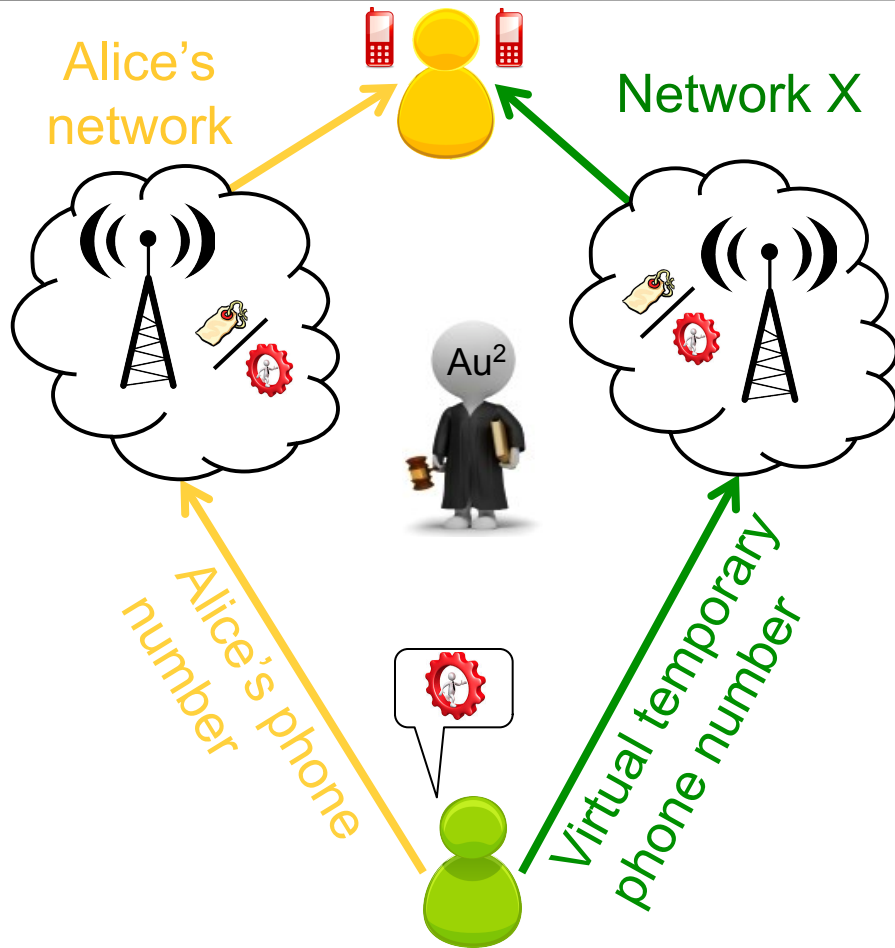
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- ❑ Technology has changed
  - Smartphones have enough computational power
  - MNOs and mobile devices are multiband
  - Mobile networks and devices support data exchange
- ❑ The mobile termination service is still considered to be a monopoly like nothing has changed
- ❑ When parameters of a problem change the decision should be reevaluated!



**CHALLENGE ACCEPTED**



# Research Idea



## □ Auction

- Auction rules
- Auction parameters
  - Expected Quality-of-Experience (QoE)
    - Quality-of-Service (QoS) parameters 
      - Resources availability
      - Voice quality
      - Network priority access
    - Price 

## □ Automatic and on-demand MNO selection mechanism

Auction-based Charging User-centric System (AbaCUS)



# AbaCUS Status (1)

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## ✓ Stakeholders identification

- Effects of breaking the monopoly for the stakeholders
- Incentives to adopt AbaCUS
  - MNOs
    - Increase infrastructure utilization
    - Offer premium services
  - Regulators
    - Break a traditionally considered monopoly
    - Decrease the price regulation demand
  - End-users
    - Control the overall cost
    - Better QoE

## ✓ Define the AbaCUS auction

# AbaCUS Status (2)

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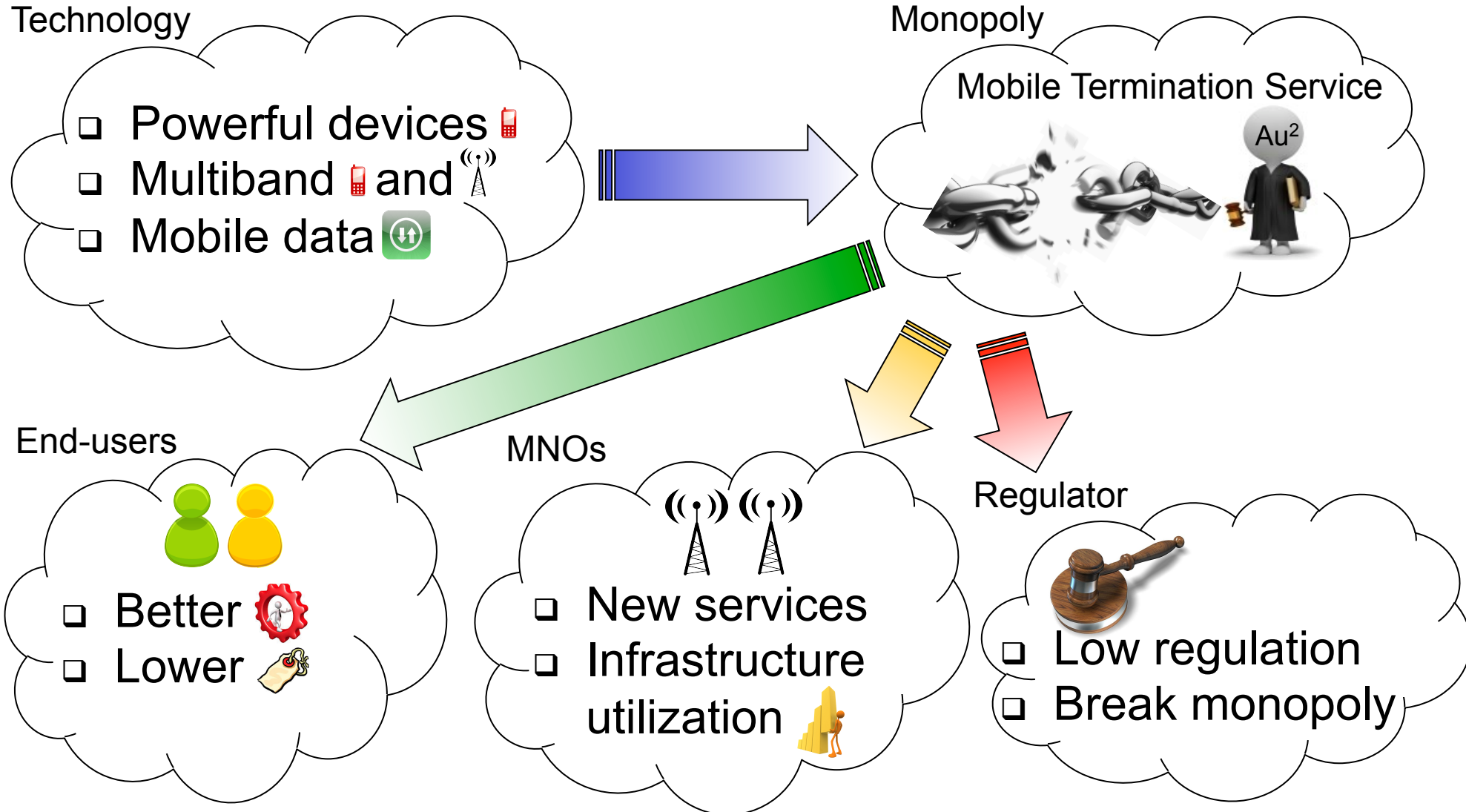
- ✓ Prototypical implementation of an automatic and on-demand and MNO selection mechanism for Android
  - Time and energy evaluation
- ✓ AbaCUS signaling messages bandwidth demand evaluation

# AbaCUS Status (3)

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- ✓ Implementation of the AbaCUS auction mechanism
- ✓ Evaluation of the auction mechanism
  - Max number of bids, response time
  - Fairness
  - MNOs revenue impact
  - MNOs infrastructure utilization impact
  - Total voice services cost impact
- ✓ Define QoE
  - Define QoE for the mobile voice service scenario
    - Use QoE as a bidding metric in AbaCUS

# Conclusions



# Demo



# Q&A



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## Thank you

