



Improving Mobile Cloud Performance using Offloading Techniques and Stochastic Models

Ph.D Thesis Defense

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Lifestyle › Tech › News

There are officially more mobile devices than people in the world

The world is home to 7.2 billion gadgets, and they're multiplying five times faster than we are

Zachary Davies Boren | @zdboren | Tuesday 7 October 2014 | 0 comments

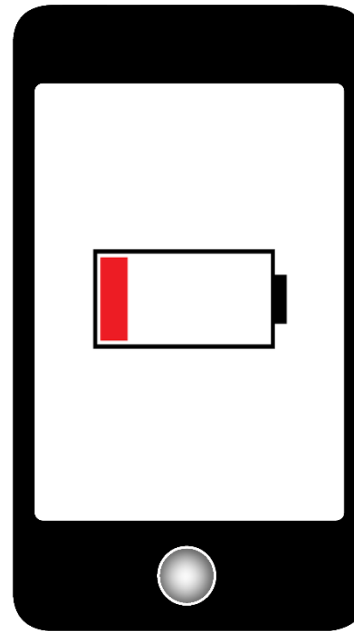


<http://www.independent.co.uk/>

Mobile Devices Limitations



Execution Time



Energy

Concerns



Final User

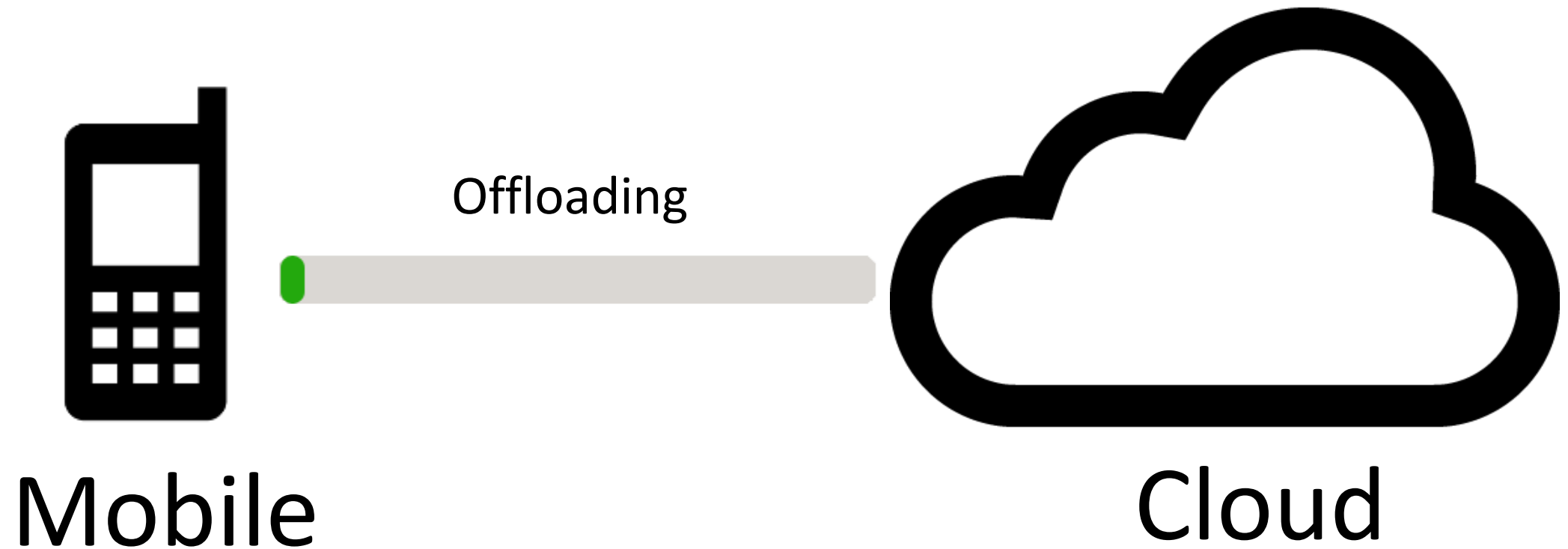


Programmers



Mobile Industry

Mobile Cloud Computing (MCC)



Low Bandwidth

Availability

Intrusiveness

Evaluation

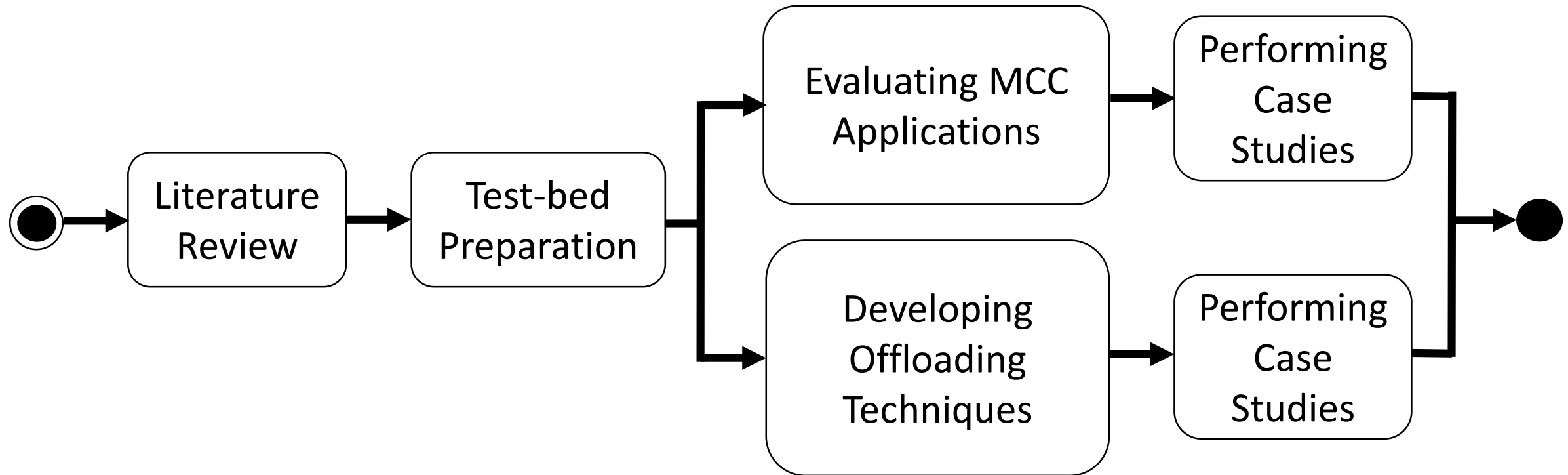
General Objective

The main objective of this research is to conceive, design and implement methods applied to mobile cloud computing to support performance improvement and extending mobile device autonomy.

Specific Objectives

1. Conceive strategies to support MCC application performance evaluation.
2. Propose MCC application performance models.
3. Design and implement tools to evaluate MCC applications.
4. Conceive, design and implement mobile application offloading techniques aiming at performance and autonomy improvement.

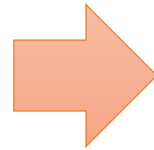
Research Methodology



Evaluating Applications using SPNs

Evaluating Applications using SPNs

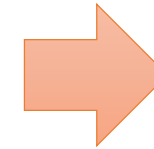
```
public List<Image> reduceC(  
    Image image1, Image image2, Image image3){  
  
    results.add (reduceColor (image1));  
    results.add (reduceColor (image2));  
    results.add (reduceColor (image3));  
  
    return results ;  
}
```



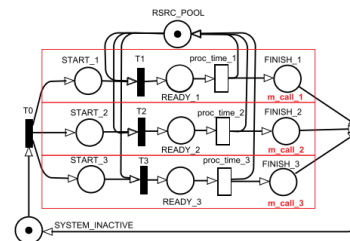
MCC-Adviser



Mercury

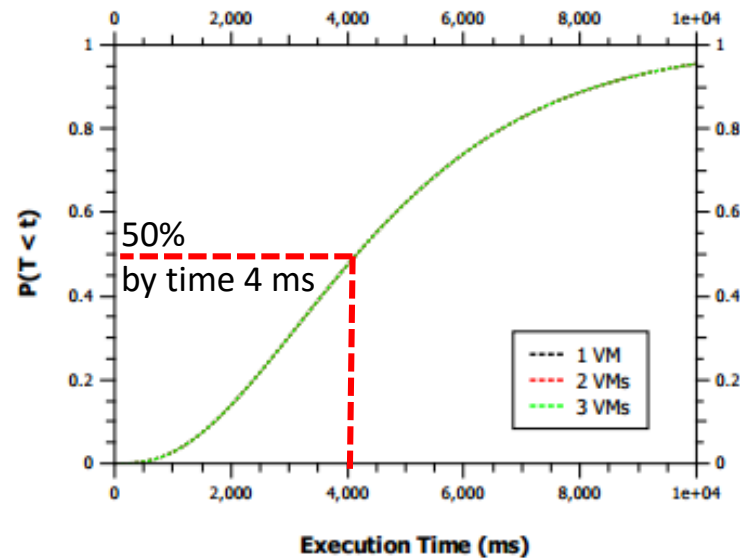


- Throughput
- MTTE
- CDF

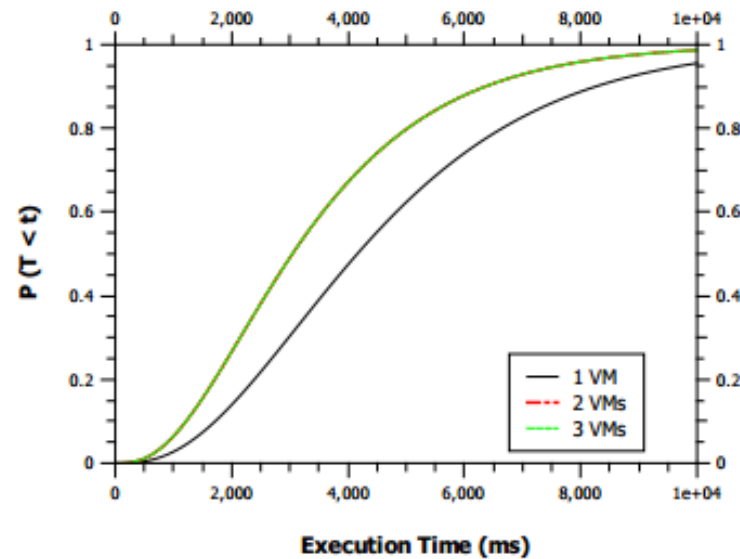


Evaluating Applications using SPNs (Case Studies)

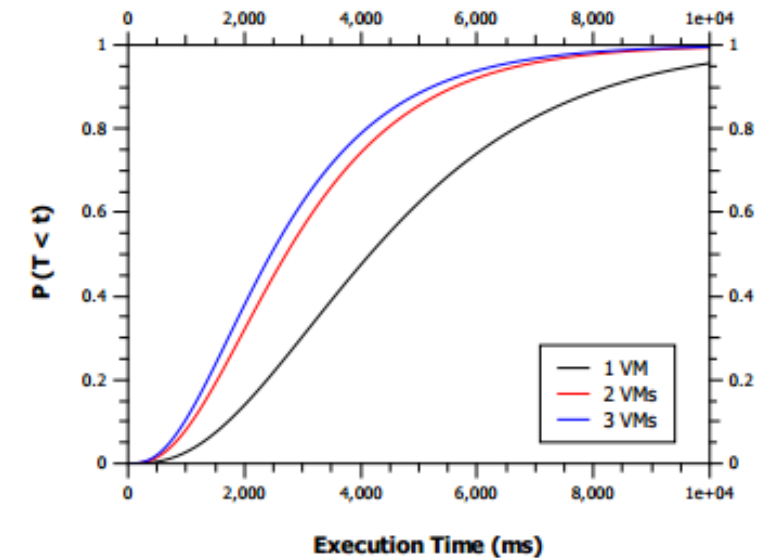
CDF



(a) CDF - Application_A



(b) CDF - Application_B

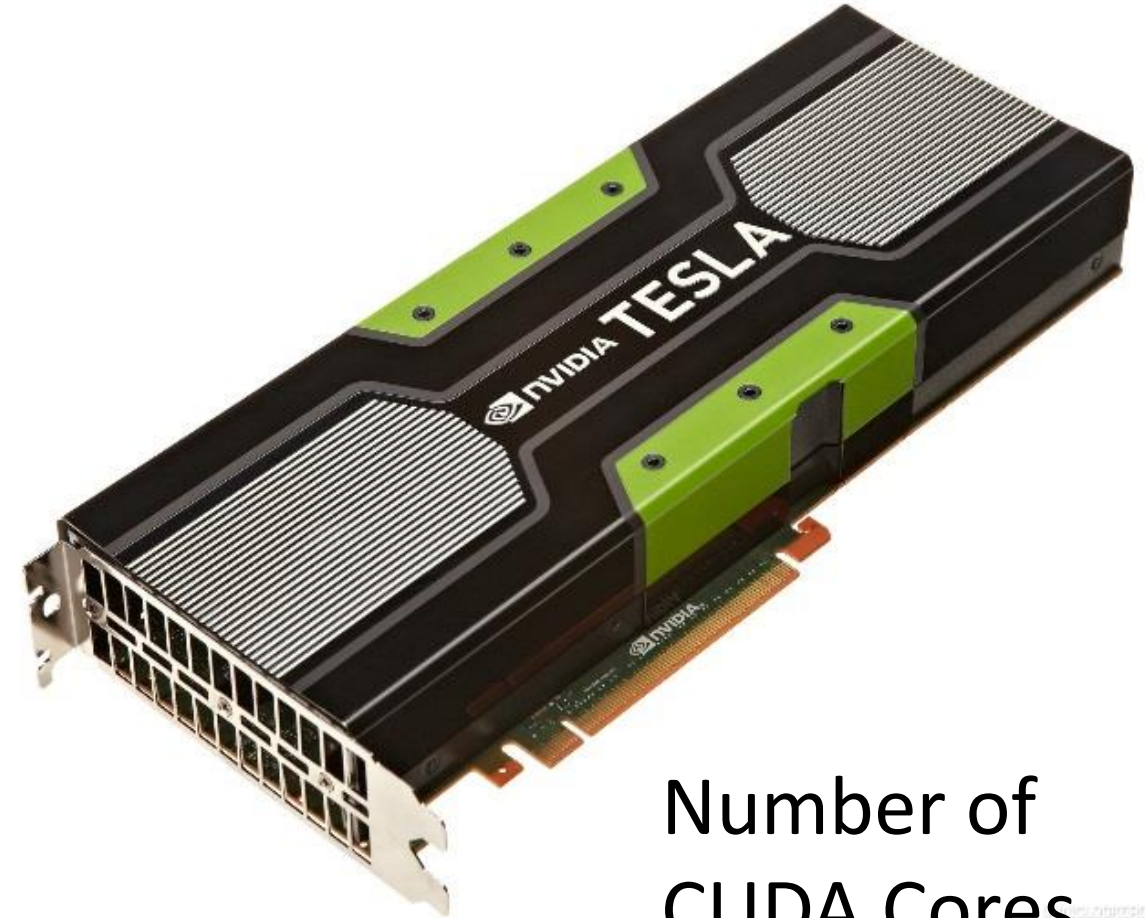


(c) CDF - Application_C

Evaluating Applications using SPNs



X

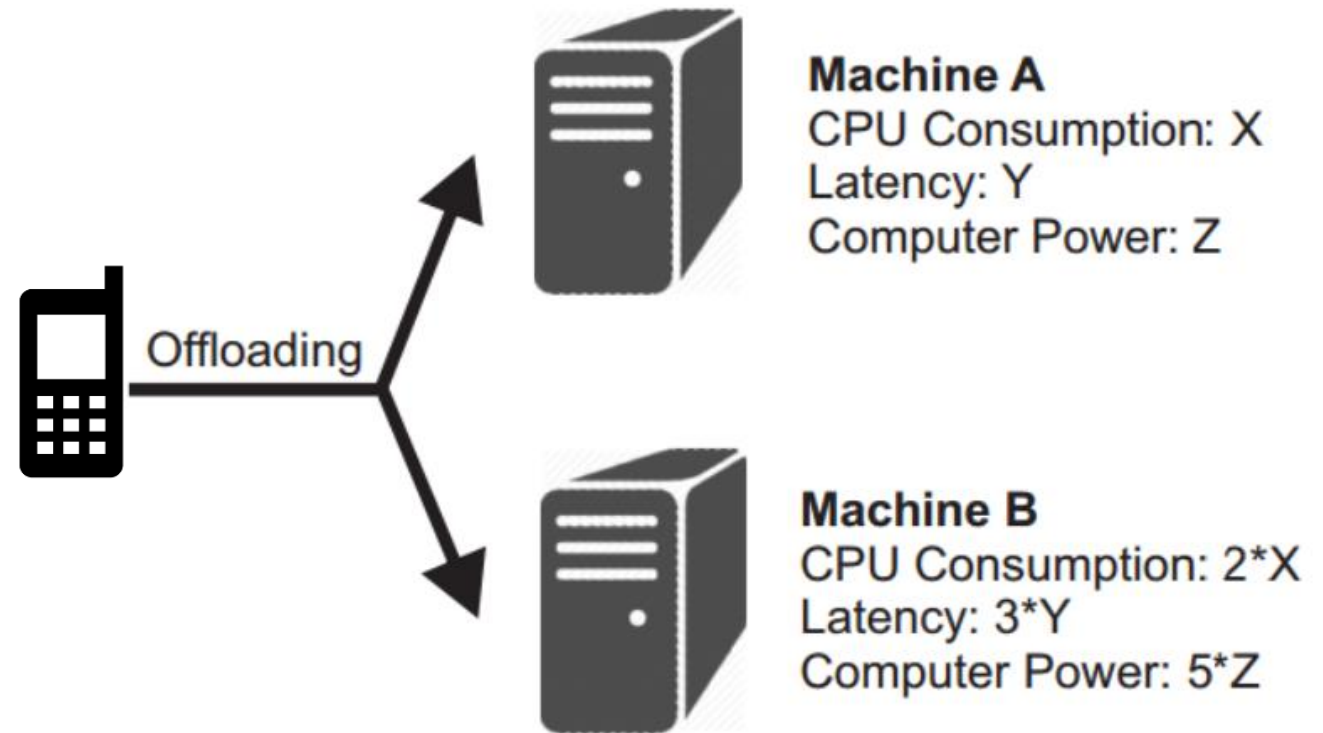
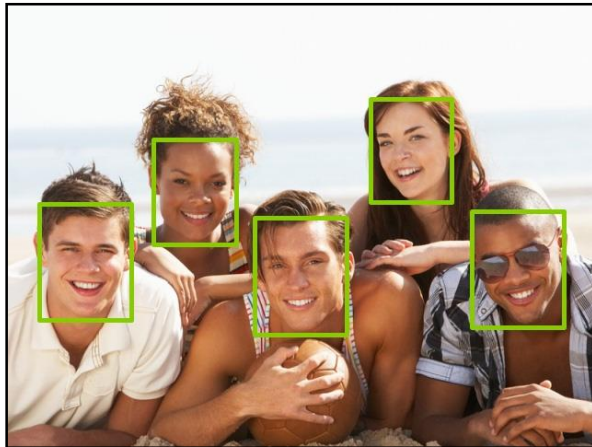


Number of
VMs

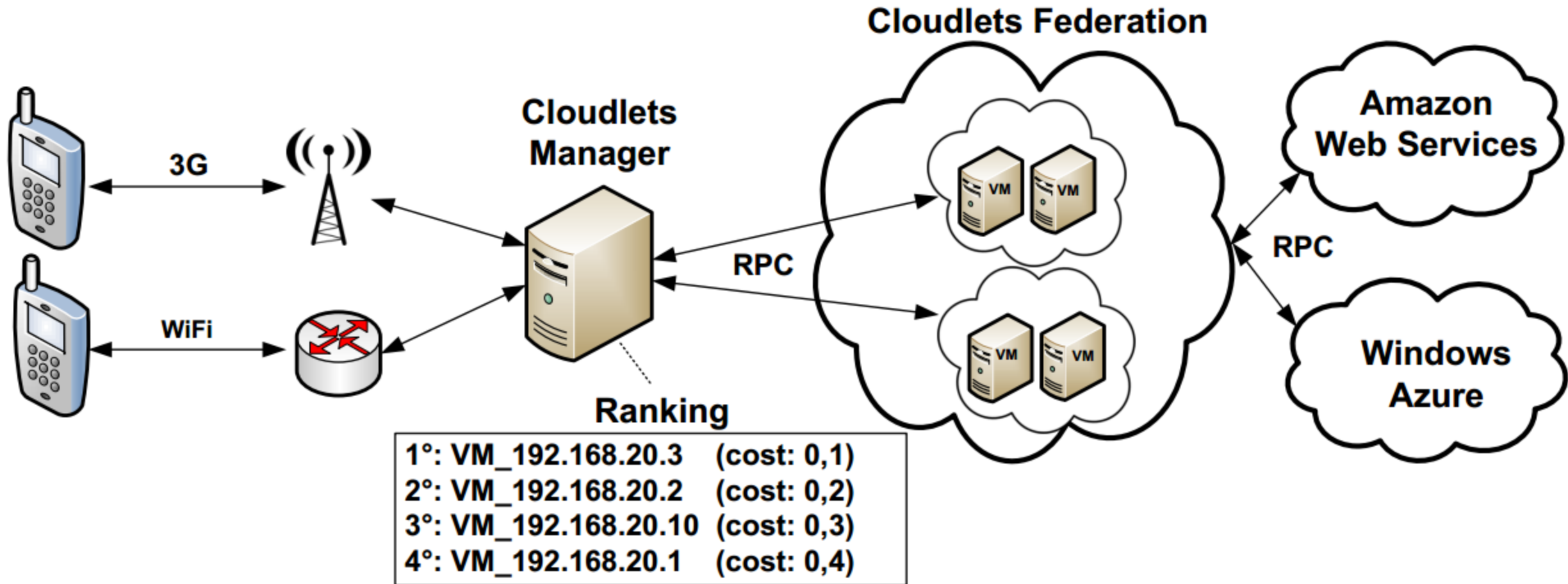
Number of
CUDA Cores

Optimized Tasks Distribution

Optimized Tasks Distribution (Illustration)



Cost Calculation



Thank You

<http://cin.ufpe.br/~faps>