1. Performance optimization of delayed WiFi Offloading in Heterogeneous Networks

Abstract

* The performance of the **delayed WiFi offloading** is affected by the delay timer value
* Develop analytical models for **the expected saving monetary cost** and download completion time

2. Stochastic Analysis of Delayed Mobile Offloading in Heterogeneous Networks

Abstract

* Two types of delayed offloading
  + The partial offloading model – job can leave from the slow phase of offloading process and be executed locally and mobile device
  + Full offloading model – jobs can abandon the WiFi Queue and be offloaded via the Cellular Queue
* Minimizing the Energy- Response time Weighted Product (ERWP) metric. – if WiFi availability is low, the job an abandon the queue.
  + Partial Offloading is suitable for “Delay-sensitive” applications
  + Full offloading is suitable for “Delay-tolerant” applications
* Energy Consumption is key point!
  + Long energy response time affect to more Energy consumption

Conclusion

* Developing analytical queueing models for **delayed mobile cloud offloading**

3. Statistical QoS-Driven Power Allocation for WiFi offloading over Heterogeneous Wireless Networks

Abstract

* Maximizing the effective capacity under QoS constraints.
* Propose the statistical QoS-driven power allocation scheme
* Nakagami-m fading channel model
  + Establish the communication model for WiFi offloading over heterogeneous wireless networks
* Given the statistical QoS constraints, we analyze the effective capacity under the developed optimal power-allocation policies
  + Effective capacity is defined as the maximum constant arrival rate that a given service process can support in order to guarantee a QoS requirement

4. Joint Heterogeneous statistical QoS/QoE provisionings for Edge-computing Based WiFi offloading over 5G mobile Wireless Networks (คนเดียวกันกับ 4)

* Propose the joint heterogeneous statistical QoS/QoE provisioning schemes
* Formulate and solve the effective-capacity optimization problem by using the optimal power-allocation policies

5. Performance Analysis of Delayed Mobile Data Offloading with Multi-level Priority

Abstract

* Propose a preemptive priority queuing analytic model for delayed offloading with multi-level priority traffic.
* Derive expressions for the average delay and offloading efficiency of traffic with differ priorities as a function of the WiFi availability, deadline…
* How to choose a suitable deadline for traffic of different priorities.

6. Dawn: Delay-aware WiFi Offloading and Network selection

Abstract

* Study WiFi offloading problem with delay-tolerant applications under usage-based pricing
* First propose a general Delay-Aware WiFi offloading and Network Selection (DAWN) algorithm for a general single-user decision scenario.
* Then, analytically establish the sufficient conditions under which the optimal policy exhibits a threshold structure in terms of both time and file size
* DAWN จะช่วยให้ระบบ ตัดสิน Delay ที่เหมาะสมตามสภาพแวดล้ม จากนั้นจะทำให้ Policy กำหนดเงื่อนไขที่เหมาะสม จนทำให้ QoS ดี และ User จ่ายน้อยลง

7. Performance Modeling, Analysis, and Optimization of Delayed Mobile Data Offloading for Mobile Users

Abstract

* Propose a queueing analytic model for delayed offloading, and derive the mean delay, offloading efficiency and other metric
* Use real data trace for realistic scenarios
* How user could optimally choose deadlines by solving the variations of a constrained optimization problem.

Introduction

* Analytic model for delayed offloading for two types of scheduling disciplines: First Come First Served (FCFS) and Processor Sharing (PS) based on 2D Markov chains, and derive expression for the average delay.

8. Stochastic-Geometry-based Performance Analysis of Delayed Mobile Data Offloading With Mobility Prediction in Dense IEEE 802.11 Networks

Abstract

* Propose a stochastic geometry model for the performance analysis of delay-tolerant offloading with mobility prediction.
  + Parameter: network size, channel condition
* The deployment of WiFi is modeled as an independent Poisson point process (PPP) to take the effect of interference
* Then, the semi-Markov process is used to model the user’s movement

Conclusion

* The basic idea is to use the stochastic geometry to analysis the coverage probability and mean data rate taking interference into account
* Semi Markov process is presented to evaluate the user mobility process among each area