An Offloading Strategy in Mobile Cloud Computing Considering Energy and Delay Constraints

ABSTRACT

- With the expansion of wireless networks throughout the world and the high growth rate of the use of sophisticated programs in mobile devices, users' expectations for the services provided by these devices have increased.
- Mobile devices have some limitations, such as battery life time and processing power for delivering all types of services to users.
- In recent years, mobile cloud computing, which is a phenomenal branch of cloud computing, has achieved considerable evolution in the computing community.
- By considering the advantage of offloading to the cloud, the limitations of mobile devices can be overcome to a great extent.

CONTINUE

- A mobile device can be converted to a powerful device by applying cloud resources. The outstanding challenges in offloading are finding an optimum solution for the offloading problem to overcome these limitations.
- In this paper, offloading is modeled via a mathematical graph where both Wi-Fi and 3G links are topics of concern.
- Finding the best solution for offloading is equivalent to finding the constrained shortest path in this graph.
- By considering the K-LARAC and M-LARAC heuristic algorithms, a new heuristic algorithm is introduced to find the optimized path that can assess energy and delay, at a minimum, financial cost.

EXISTING SYSTEM

- mobile devices have become very popular for network users because mobility is an important criterion for purchasing computing equipment/components.
- Computing-intensive applications have significantly expanded to a degree that the growth rate of complex programs has become faster than the growth rate of computing resources of mobile devices.
- Despite the mobility advantages among network users, mobile devices have some limitations.
- Consequently, enhancing some characteristics of mobile devices to satisfy users' expectations is not possible.

CONTINUE

- The most important limitations of mobile devices are the CPU processing power and battery lifetime.
- Accordingly, an approach that can overcome these limitations while maintaining the features of mobile devices is required.

PROPOSED SYSTEM

- In this paper, offloading is modeled via a mathematical graph where both Wi-Fi and 3G links are topics of concern.
- Finding the best solution for offloading is equivalent to finding the constrained shortest path in this graph.
- By considering the K-LARAC and M-LARAC heuristic algorithms, a new heuristic algorithm is introduced to find the optimized path that can assess energy and delay, at a minimum, financial cost.
- Increases the computing capability of mobile devices, where any complex program that needs a significant amount of computational resources can be run in the cloud and obtain results.

CONTINUE

- A shared pool of resources that supports any complex program with minimal management effort is available therefore, a powerful computation device that supports a basic mobile device.
- Reduces delay due to a processing unit.
- Provides integrated access at any time and place to the cloud resources.

HARDWARE REQUIREMENTS

- Processor - Pentium –III
- Speed - 1.1 Ghz
- RAM - 256 MB(min)
- Hard Disk - 20 GB
- Floppy Drive - 1.44 MB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

SOFTWARE REQUIREMENTS

- Operating System : Windows 8
- Front End : Java /DOTNET
- Database : Mysql/HEIDISQL

CONCLUSION

- Smart phones have become a computational tool for executing sophisticated programs.
- To assure the advantages of portability and overcome the limitations of energy consumption and the delay caused by processing, an efficient solution is sought for offloading operations.
- In this paper, a new architecture is proposed for offloading operations.

CONTINUE

- The most important part of this architecture is modeling the offloading operation as a cost graph by considering both Wi-Fi and 3G links and extracting the proper offloading solution from this graph.
- The new heuristic algorithm K-M-LARAC is proposed to extract the approximate solution from the cost graph with polynomial complexity.
- K-M-LARAC, in some conditions, achieves the optimum solution, whereas an arbitrary approximate solution is found for offloading operations in other conditions.

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