

Interpreting the Significant Concerns of Mobile Users in Cloud Computing

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Abstract- Cloud computing in the present day world, has grown up as a paradigm for hosting and operating services over the Web. Mobile Cloud Computing is widely acknowledged as a concept that can heavily improve the user experience when accessing mobile services. By removing the cons of mobile devices with respect to storage and computing capabilities and implementing a new level of security, it is expected that it will find broad acceptance on the business as well as consumer side. This work mainly concentrates to construe the mobile devices and applications during offloading of services between cloud and devices to minimize energy. In addition, the minimal path to the cloud servers from mobile devices will be carried out to minimize the network latency.

I. INTRODUCTION

The Mobile Cloud Computing is like a breakthrough for communications and access of data with minimum energy and less turnaround time. The idea of Mobile Cloud Computing plans to bring the pros of Cloud Computing accessible for mobile users as well as accommodating extra specialties to the cloud. The ability to solve complex problems and embed imprecise cloud in mobiles is the criterion on which the ability of using mobile devices with cloud is judged. Mobile Cloud Computing will aid to profligate drawbacks of mobile devices especially of the processing capability and data storage. It could also aid to improve the battery life by shifting the implementation of substitution-intensive app to the cloud. Nevertheless, a major improvement in battery stand-by time will need that the wireless connectivity for the Mobile Cloud Computing operation is at least as energy-efficient as the state of the art. Mobile Cloud Computing is also foreseen as a great solution for the divided market of mobile OS's with prevailing eight main operating systems.

Other advantages that could be realized by the introduction of Mobile Cloud Computing are an augmented security range for mobile devices accomplished by a centralized monitoring and maintenance of software, and a single point of contact to go for users of mobile devices since Mobile Cloud Operators can concomitantly act as virtual network operators, render e-payment services, and render software, data storage, etc. as a service. As security plays a crucial role in today's web world. Along with the benefits taken in by wireless network, mobile environment confronts more challenges.

Primarily, for a wireless environment, there are many hindrances. As a result, mobile communication is depicted by lower bandwidths, high error rates and more frequent unauthenticated disconnections. Unauthenticated disconnections could be a major problem.

Secondarily, the nature of mobile environment, mobility effects the rapid address migration and unsteady specifications which make it more problematic for the system to attend the queries from users efficiently and in time. Turnaround time needs to be less for whatever tasks we perform. Overall, the portable mobile device in the mobile environment always can't have powerful computing capability and storage efficiency. Lot of drawbacks and tradeoffs for computing and storage do exist. This suggests that mobile host can't assure sufficient computing and storage capability for some complex scenarios and services which are necessary for use of individuals. The rest of this paper is panned out as follows:

- Part 1 will be explaining Idea of fuzziness concept.
- Part 2 will be explaining an AF based agent and An Fuzzy Process.
- Part 3 will clear the idea of agent and steps to be followed for mobile users in cloud computing.

- Part 4 will be giving idea on cloud functionality.
- Part 5 will be the conclusion of the Mobile Cloud Computing and also of the entire paper.

1) Idea of fuzziness concept:

The concept of fuzziness is a very commonly used technique. Fuzziness is related to probability as both of them deal with events. In the case of probability there are certain boundaries that exist but for fuzziness they don't exist. Fuzziness decides the degree to which the event occurs whereas probability will check the occurrence of an event. Both these concepts are applied at different places and each of them has their own limitations. These are developed by people to compensate their own abilities and limitations. In our case the varying size of mobile screens can be a problem as the boundaries of screen size are not fixed. Similarly, different keypads are used which will vary in size as well as type. When we are uncertain of the boundary conditions we will prefer the concept of fuzziness. If we are certain about the boundary conditions we go with probability. This concept of fuzziness can be implemented in a well-known appliance like washing machine as well as in rocket science. Fuzziness brings flexibility to things as it will not have a predetermined process in a certain scenario but changes itself according to the situation.

2) Idea about Fuzzy Agent & Fuzzy Process:

In the present trend the applications are being delivered through cloud. The applications of mobiles even if they are delivered with the help of cloud, there are problems which have to be faced like small screen size, different types of keypads, mobile-device interface etc. In this case perhaps, AF will come out to aid cloud-fetched mobile applications the most, particularly as a fuzzy agent interface which can schedule meetings and perform the innumerable different jobs mobile users need. Fuzzy agents and mobile devices form a wonderful combination.

In the coming days, mobile devices can be the potential way by which users connect with agents that altogether operate independently and will be performing tasks for the concerned user. It will be immensely popular if implemented across cross platforms taking into account of all other problems associated with it. To the great interest of users, the evolution of agents could be limited more by user assent than by technology scope through the cloud. There exists an unperturbed opposition in the side of mobile users of possessing automated and independent systems will do a great deal for them. It will not be the case whatsoever, as divided opinions do exist and there will be tradeoffs between different factors. It creates confusion of having more computations or the ease of use for users as too much of features will be difficult to digest. Fuzzy agents would acquire broader assent in present day markets where it's difficult for the people to live without a mobile phone. It may not be astonishing to see AF-enabled mobile devices hitting the market. In spite of everything AF will have no problems to be incorporated in mobile cloud scenarios and applications. In the scope of Fuzzy mobile in aiding systems, AF will not only be like an extra service but an essential. In the field of building Fuzzy mobile assistance systems, AF is not only a nice add-on but a necessary option. A Fuzzy Process will go on to equip the mobile users for providing superlative answer in the field of cloud computing. It will give a cutting edge to the existing models.

3) The idea of an AF supported agent and a Fuzzy Process:

The idea of supported agent and a fuzzy process can be extremely innovative and can be flexible. An AF type Agent can be present either at mobile node or at any one of the cloud system. This type of existence of agent anywhere can be really helpful and this might help for optimal storage solutions and altering of turnaround time to our benefit. If at any time the mobile node needs the services from cloud it raises its call to the cloud, the Fuzzy agent will be giving all the details about mobile device storage, processing ability, details of its presence and also the details of the neighbor to the cloud system and it also gives it to the mobile devices which are adjacent to it and possessing the services and utilities related to the mobile demand. If the mobile device which is adjacent to it has the identical service, the Fuzzy agent which is at that mobile device will be giving the response to the mobile device

from which the request has been put forward. Otherwise it will transfer it to the other mobile devices that are presently being interacting with the requested services.

This kind of ability will be extended up to the services searching out for a mobile device or a distinct cloud system. The AF methodologies will take care of the development of fuzzy processing and all the design constraints will also be take care of by them.

4) *Cloud functionality:*

Cloud will be working well if implemented in ideal conditions. But in real time situations do differ and it has to be working properly for unforeseen circumstances.

If at all the mobile device is lost, we have to record the data to any one of the distinct cloud systems or to any of the mobile device that exists. If at all anyone tries to boot the stolen mobile device the agent present at the device will spontaneously be interacting with the neighbor or a distinct cloud system. If this happens then the Fuzzy agent which is at the neighborhood or at the cloud systems will be giving orders to the bootstrap process of the mobile which has been stolen and whose where about is not known to stop it from booting the device.

If at all, the processing services of the cloud systems are lost or tampered then this data will be given to the devices and to other cloud systems for making a stop gap arrangement to continue services by whatsoever manner possible.

The idea behind this is that an AF type agent will always be there to look out for mobile devices and its status along with the details, functions of the applications used which will be used for flipping of applications in between mobile device and the fuzzy cloud computing systems in order to optimize energy usage in both devices as well as cloud systems. The presence of devices or systems which do have the ability of handling application functions will be handled in a fuzzy process and will be very helpful in mobile devices in field of cloud computing.

This kind of fuzzy process can be implemented in cloud server or a cloud system that is duplicated through the cloud to optimize the network potential.

V. CONCLUSION

In this document there is a clear picture of what the problems are and how they can be overcome in a clear manner in Mobile cloud environment. It explains the concept of fuzziness and gives a brief description of AF agent and AF process which helps in securing the devices and gives the best solution for using services in mobile cloud. It also gives an idea on how the cloud could work at its best.

As the topic of mobile cloud environment is vast and there is always scope for improvement. Modifications can be made depending on the latest technologies available as the field of cloud and mobile is fast growing.

Glossary and Abbreviations:

AF -Artificial Fuzziness: This is used throughout the document for better readability.

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