**Rural Banking in India using Cloud Computing**

India has become one of the centers around the world known for its expertise in the field of IT majorly due to people that have intellectual prowess in this field. But, there is also a part of India that is very far away from technology and its advantages which is the rural India. The farmers mostly comprise of the rural population and need credit for agriculture which has the following problems related to banks. Usually, the scenario is, either there is an ATM machine of a particular bank or there is no ATM machine. In the first case, if there is an ATM machine, people using it will have to pay the ATM usage charges if they are non-members of the bank and in the second case they will have to travel long distances and then the scenario might be same as the first. So, the majority of funding is provided by private money lenders that exploit the farmers. Recent, attempts by government to help the farmers by letting off their loans taken from banks was a failure as most of the poor farmers didn’t even have their bank account and rich farmers got benefit from it.

Let us first examine the current system before providing the solution:

The existing model uses the client–server model of computing. It is a distributed application structure that partitions tasks or workloads between the providers of a resource or service, called servers, and service requesters, called clients. Often clients and servers communicate over a computer network on separate hardware, but both client and server may reside in the same system. A server machine is a host that is running one or more server programs which share their resources with clients. A client does not share any of its resources, but requests a server's content or service function. Clients therefore initiate communication sessions with servers which await incoming requests. An Automatic Teller Machine is essentially a client-server system. The bank's central computer is the server, and maintains information about the accounts of all the customers. The ATM is the client. You may assume the bank has only one customer - your server needs to keep track of only one balance. You should assume all amounts are in whole rupees (don't bother with decimal points) and that can be positive or negative. The server must handle three commands withdrawal: subtract an amount from the account (and return the new balance) query: return the account balance to the client be a simple iterative server that is it handles only one connected client at a time. The client must connect to the server when it is started allow the user to perform any of these functions and consequently disconnect from the server.

Now, let us study the proposed model that can use Cloud Computing Services:

**What is Cloud Computing?**

"Cloud Computing," to put it simply, means "Internet Computing." The Internet is commonly visualized as clouds; hence the term “cloud computing” for computation done through the Internet. Cloud Computing refers to both the applications delivered as services over the Internet and the hardware and systems software in the data centers that provide those services. The services themselves have long been referred to as Software as a Service (SAAS). The data centre hardware and software is what we will call a Cloud. In other words, Cloud Computing is integration of hardware and software to provide companies complete solution for their IT needs.

With Cloud Computing users can access database resources via the Internet from anywhere, for as long as they need, without worrying about any maintenance or management of actual resources. Besides, databases in cloud are very dynamic and scalable. In its broadest form, we can define ‘cloud’ is an elastic execution environment of resources involving multiple stakeholders and providing a metered service at multiple granularities for a specified level of quality (of service).To be more specific, a cloud is a platform or infrastructure that enables execution of code (services, applications etc.), in a managed and elastic fashion, where “managed” means that reliability according to pre-defined quality parameters is automatically ensured and “elastic” implies that the resources are put to use according to actual current requirements observing overarching requirement definitions implicitly, elasticity includes both upward and downward scalability of resources and data, but also load-balancing of data throughput.

One of the main advantages is its cost-effectiveness. Here, cost is greatly reduced as initial expense and recurring expenses are much lower than traditional computing. Maintenance cost is reduced as a third party maintains everything from running the cloud to storing data.

Cloud computing has particular characteristics that distinguish it from classical resource and service provisioning environments:

(1) It is (more-or-less) infinitely scalable;

(2) It provides one or more of an infrastructure for platforms, a platform for applications or applications (via services) themselves;

(3) Thus clouds can be used for every purpose from disaster recovery/business continuity through to a fully outsourced ICT service for an organization;

(4) Clouds shift the costs for a business opportunity from CAPEX to OPEX which allows finer control of expenditure and avoids costly asset acquisition and maintenance reducing the entry threshold barrier;

(5) Currently the major cloud providers had already invested in large scale infrastructure and now offer a cloud service to exploit it;

(6) Cloud providers essentially provide datacenters for outsourcing;

**Proposed Solution:**

To overcome the disadvantages of client-server systems in Rural Banking, we can use the concept of cloud computing which is extremely cost-effective. Today, in remote villages people have to travel miles so as to have access to an ATM machine (may or may not be the one where he/she holds an account), rural banking. So to overcome this, a single ATM machine can be installed which allows members of different banks to use it without being levied the ATM usage charges. A common interface (a cloud of the different bank ATMs) can be developed to deal with the problem.