HOW CLOUD COMPUTING IMPACTS ELECTRICAL SYSTEMS

Cloud computing is in fact a kind of **internet** service that you don't need to download or store any information in your local drive. Simply it is not something different than a web page.

Everywhere anytime you may access to the system that is available at cloud. This way it gives mobility, accessibility and easiness.

Mobility

First feature that we need to take into consideration if we are talking about cloud computing is mobility. Even you are at home watching television if you have ability to connect to internet you will also have chance to control the factory.

In industry I have seen firms using these **technologies**. Engineers has some kind of password so that they can access the online server and see the things going on at the factory and even more they can modify the plc codes and other internet connected machines' codes.

Another example is a new firm working on cloud computing technologies. The idea is very unique. You apply to them and tell which electrical machine to control online and they make the electrical machine in your facility connected to internet available at your fingertips at anytime you want. They use Arduino cards for this system. You pay for per service or per access to machine.

This is very important. With these technologies whole industry is at your fingertips. You may check whole factory or facility with several clicks.

Teamwork

Another good application I have seen while working as an engineer is the teamwork capabilities came with the cloud computing services. Compared to the previous systems, we have these days more electrical systems wired up and this gives us more teamwork possibility.

For example, for systems not connected to internet, if a faliure occurs we invite a specialist about the machine from the support team. If that system is connected to cloud we have ability to work with that specialist from internet. This is more economical and faster way.

I have seen people using this technologies. Especially at the test phase of the system. Engineers of the construction team of the electrical system even don't need to come to the field where the system will be constructed. They check the system at the test phase with the local engineering team and do the necessary modifications online if there some problems occur. With several trial and error iterations the system comes to a stable situation if there is a problem (most of the time problems are due to differences about the electrical distribution throughout the facility) .

Easiness

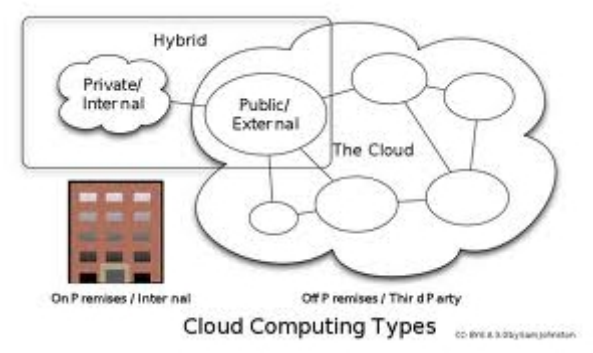

Figure 1: Cloud Computing Types

Another important point is the easiness that comes with cloud computing. The examples all given above are also about easiness. It is clear that cloud computing makes things easier and faster.

Here another example I want to give is about electrical and gas power monitoring systems. Cloud computing put it forward. I remember, especially in big factories, electricians going through all of the power meters and reading the values, calculating everyday, every month and year the values like kw power used, power used per production etc. by hand or calculators.

After passing to fiber optic cable connected meters and server technology for cloud computing, it made everything magnificent. We wouldn't need to check every power meter and take values.

Also the data taken was not very accurate since the time periods we controlled the power meters was changing according to the workload. Now with the help of these technologies managers has ability to control all of the power values from their laptop. Every data taken second by second. With this feature we have also ability to predict the possible problems at certain points of the electrical distribution system. Very accurate, very fast and very safe.

Engineers benefit from this technology so much. Before we used the cloud computing in the factory, engineers needed to come to the factory for every problem even at midnight. By using the cloud computing they no more need to come to the factory. They can access to the server from outside and deal with the problem. Isn't it great?

Weak Points of a Cloud Computing System for Electrical Systems

The tricky point with a cloud computing system is the health of the cloud computing systems like servers or the computers conntected to the system. Especially for the industrial firms the cloud computing is integrated into the intranet that is located at the local servers. In this case cloud computing used can be hybrid or private. (see Fig.1). If it is private the system is closed.

Else the system has some gates for outside entrance. Even more a cloud in the facility may be interconnected to a cloud at the outside like other firm's service. The important point for the inter cloud systems or open clouds is the security. With open gates, ready to hack and very important files in the system, the security must be kept at the maximum level.

Conclusion

Technology at the cloud computing side is evolving everyday. Cloud computing ability of a system gives the system easy to access, ready to check from everywhere even with a smart phone and the best thing is its being so useful that we don't need to do all the paperwork.
This way we may deal with the real problems and let the computers do the all other works.

Source : http://engineering.electrical-equipment.org/power-quality/how-cloud-computing-impacts-electrical-systems.html