Petrol PLAZA

Future Site Automation

For the last years, solutions regarding Future Site Automation have tried to make fuel stations easily adaptable to fast market changes, cheaper to run and more fault-tolerant.

Source: CODAB

The ever increasing competition in the fuel retailing industry makes it necessary to have a solution that can be easily adaptable. Oil companies and service stations cannot accept that by the time they roll out a new solution, they already have to think about replacing it.

There is also an extra focus on solutions that are very flexible, and can be upgraded and extended without increased cost of ownership to the oil company and the service station.

Technology Support

Network capabilities have developed dramatically in the last years with increased bandwidth, improved coverage, globally, for both fixed and mobile networks. With this technology the possibility of providing a cost-effective solution where a service station network is running its entire solution from central servers - in the cloud - has truly become possible. This technological revolution is used in other businesses and, therefore, it seems logical for the fuel industry to also enjoy these advantages.

Architecture change, gradually

Service stations are spread across territories, some manned and others un-manned, and mostly the systems have to be centrally connected to at least:

1)   Central system for reconciliation of both wet stock and dry stock, Head Office solution.
It does not require the connection to be online all the time as the transfer of data can happen in batches.

2)   Payment server to accept bank cards and loyalty cards, etc.
For optimal performance it will require to be online all the time and especially for handling bank cards, but can be designed to also work off line during a limited amount of time.

Some oil companies have already moved their payment servers completely to the cloud, and have successfully secured ~100% online availability.

The logical next step has been to move additional services for the service station to central servers (the cloud) and minimize the applications running at the site and also minimize the requirements for expensive and tailored hardware. These additional services include:

1)   The POS and the BOS application running on simple HW platforms like tablets, where peripheral devices like receipt printer and customer display are controlled from central POS/BOS servers in the cloud. Running 100% from the cloud will require backup lines for the connections to work in case breakdown of the normal IT connection. As demonstrated by the case of JET with T-Sytems, LS Retail and CODAB solution.

2)   Central Fuel Head Office solution for configuration, monitor and diagnose of the site. This is to configure the forecourt controller and collect important information for doing diagnostic and preventive maintenance. This type of solution is also used for wet stock services.
It does not require the connection to be online all the time as data transfer can happen in batches.

Moving more services to the cloud is not necessarily required at once, but can be done gradually as new services are introduced or exchanged. For this purpose, it is important for the oil companies and/or the retailers to have a general strategy regarding when and where services are moved to the cloud and HW is exchanged.

As things stand today, the forecourt controller is still a HW specific solution, which is not HW agnostic. When forecourt controllers are selected it is essential to select a solution that supports the new strategy, and is therefore flexible. This could be a forecourt controller that can be connected and controlled from both, a local POS and from a cloud-based POS.
Vice versa is it important, if possible, to select SW solutions that are HW agnostic and, more importantly, are flexible in where the application can be placed, either locally at the site or in the cloud.

When placing the majority of the services in the cloud, centrally, the oil company will in many cases have to interface the central services to the other third party central services like SAP, wet stock ordering systems, pricing systems, etc. The central system between the local site and the other services in the cloud becomes a very central data gateway. Therefore, is it important when selecting these type of central SW services, that they can easly adapt and interface third party central services. This could either be via standard APIs or other type of open interfaces.

Cost: Look at total cost of ownership

Service station solutions are never a one-time investment and require continuous investment in applications, HW and services. Therefore, it is important to look at the total cost of ownership for a new service station solution compared to the previous solution. Investing in a more centralized solution will provide opportunities for optimizing things like:

1)   Service cost and uptime for the solution

2)   Cheaper spare parts by switching over to standard HW

3)   Upgrades and introduction of new features will cost less as done centrally, only

4)   New central services can easier be interfaced to 3rd party solutions as they are designed with open APIs or similar.

As indicated above, the oil company or the retailer should therefore have a migration strategy for the service station solution to gradually migrate towards a solution that presents lower cost-of-ownership. This will justify the gradual investment and not necessarily require a big upfront investment.

The end solution according to the strategy outlined by the oil company/retailer, can however also be used in case new sites are build or new networks are taken into operations. This will also benefit by collecting experience on the strategy and adjust if necessarily.

Security; Always an Issue

Moving an increased number of services to the cloud will increase the amount of data transferred from the site to the cloud. Security of this has to follow the general guidelines for a network and of course the general guidelines provided for handling payment operations. The general rule of thumb should be that all data should be securely transferred and all connection should be secured properly. For this it is recommended to use the experts within this area to handle this 100%.

Challenges and Next Step

Overall, we could say that there do not exist any challenges in moving to the "Future Site Automation Solution", there are only opportunities. The opportunities lie within moving the service station network towards a solution that is easily adaptable to fast market changes, are cheaper to run and more fault-tolerant. The way to do it is the trick and needs to be based on a conscious strategy for how the network shall evolve in order to not end up with a network with insufficient uptime and high total cost of ownership.

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About Codab

CODAB is the Swedish market leader in the area of Fleet terminals and advanced Station management systems and has in addition within last few years introduced an international Forecourt Controller tot he product portfolio – All products includes a number of tools for remote diagnostic of the station equipment, using our cloud based system called TapNet.