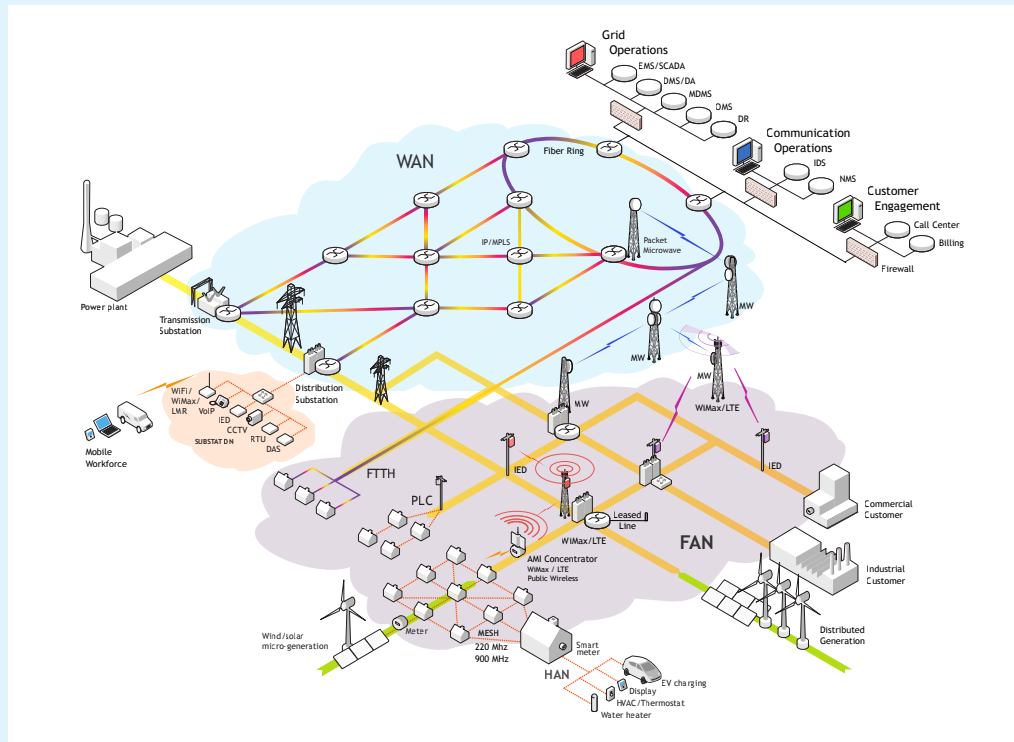


# Reaping fruits of going smart



Smart grid architecture of Alcatel-Lucent

In this day and age when it's critical how we manage our resources, whether or not we are in an economic slump, the key is efficiency. But how do we ensure efficient processes particularly in networks? The answer is by going smart.

In Washington, D.C., a smart grid pilot project involving smart meters, smart thermostats, dynamic pricing, and enhanced energy information delivered significant results with a reduction in peak demand as high as 51%.

Expected to provide operators the ability to improve their operational efficiency and to help them understand usage behavior in real time, smart grid is easily becoming the go-to system. Operators need to introduce intelligent sub-systems to increase their visibility to the entire delivery infrastructure and to develop intimate knowledge of consumer usage behaviour.

However, a number of factors such as available infrastructure, geography, frequency of data reads or updates, data volume, information sensitivity and prioritization need to be considered by utilities as they determine the optimal approach and model for smart grid projects. The investments may seem huge but the rewards are even greater.

The expectations are for the network to be dynamic, secure, mission-critical, and capable of adapting to support increasing numbers of smart grid applications. To drive operational decisions, a smart grid communications network needs to reach the entire grid, collect real time data, deliver data to operations systems, manage the volume of data, and enable data analysis and correlation.

But what abilities do smart grid technologies should have to be able to perform tasks such as communications transformation, multivendor

turnkey integration, and manage services?

- o Ability to understand and manage the interdependencies among various smart grid technologies;

- o Ability to accommodate existing legacy infrastructure while adapting to support new advanced smart grid applications;

- o Ability to calculate the risk associated with transformation and devise mitigation strategies.

In terms of visibility, utilities need to have these critical components: network infrastructure to enable real-time communications throughout the entire grid and, secondly, data processing systems capable of correlating and analyzing a substantial amount of data generated by smart grid sub-systems. In addition, management tools with end-to-end visibility and that are capable of understanding and correlating events should be introduced to help operators become more proactive in managing the grid.

Another key component in an integrated system for operations and business support are asset management systems. To enable utilities to automate work flows and operate more efficiently in an increasingly complex environment, the asset management system needs to not only track individual assets, maintenance schedules and warranty information, but should also be integrated with physical and logical topology, event

**“Operators need to introduce intelligent sub-systems to increase their visibility to the entire delivery infrastructure and to develop intimate knowledge of consumer usage behaviour.”**

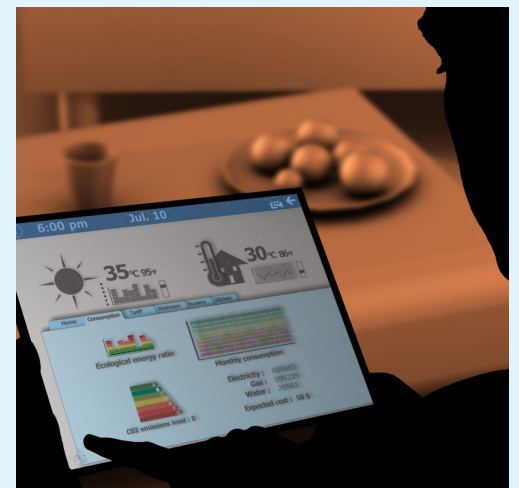
management, trouble ticketing, dispatch and work management systems.

To illustrate how the asset management system comes into play, here's an example: In the event of a network failure, the integrated system would identify the root cause of the problem (e.g. communications card needs to be replaced), locate the nearest spare equipment, and automatically dispatch the right personnel with the right information to speed the repair process.

With the constant influx of data to networks, it's essential that they are organized, thus the need for smart grid initiatives. Organization of data should be such that it can be grouped, filtered or analyzed on any criteria, as well as power consumption, operational, system status and event data. This is where meter data management systems are crucial. The meter data management systems must reliably collect, process and store meter data for the purpose of calculating billing determinants.

In addition to being a critical component for meter-to-cash business processes, meter data management can also be a highly strategic component of smart grid. It enable and encourage consumer participation in time of use pricing, demand response, critical peak pricing, rebates and distributed generation, market settlement, rate plan modeling, rate program design, strategic planning and investment, revenue assurance and operational efficiency. It enables power consumption data to be transformed into business-critical information to manage consumption patterns and increase reliability and efficiency.

After all, aren't these what we are striving for? Increased—eventually optimal—reliability and efficiency are among the fruits to savor of going smart.



Proactive management of energy usage

## CONTACT

ALCATEL-LUCENT AUSTRALIA LTD  
LEVEL 3 215 SPRING STREET  
MELBOURNE, VIC 3000 AUSTRALIA  
T: +61 3 9664 3717  
E: Martin.d.Whelan@alcatel-lucent.com  
W: www.alcatel-lucent.com