ARC VIEW

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BASF to Treat Wireless as Basic Infrastructure

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Challenges to Wireless Coverage

Large process manufacturing plants have often had trouble justifying an initial investment for site-wide Wi-Fi wireless network coverage. These plants can be huge and because they are often "canyons of metal" they can be difficult to cover. At these large plants, infrastructure installations are expensive, documentation requirements rigorous, electric power harder to find, and specialized networking equipment needs to be deployed due to the hazardous and sometimes corrosive materials that may be on site. Managers looking for a business case for wireless coverage have struggled to justify the expense.

BASF has deployed outdoor Wi-Fi networking at several sites to support turnarounds and other applications. Going forward, BASF plans to treat these networks as a base-level plant infrastructure, rather than a service in support of specific applications.

Freeport Experience

BASF's manufacturing complex in Freeport, Texas is a case in point. The 500+-acre site hosts 24 different production units that make a variety of products. Yet BASF Freeport has deployed a wireless network and plans to expand its capabilities. The impetus for the network came from a need for more video surveillance. The United States Coast Guard informed BASF that its Maritime Security (MARSEC) system would require upgrades to BASF's site security, including the need to install video surveillance on part of BASF's Freeport site. Given the mandate for video surveillance, BASF determined that a new wireless network was the most economical way to achieve compliance, and so their wireless journey began.

BASF considered several wireless suppliers and selected Apprion (Mountain View, CA) for the project. Apprion was not an intuitive supplier choice for a company the size of BASF. According to BASF, the key factors in its supplier selection were past experience with Apprion (at the company's

Port Arthur, Texas plant) as well as Apprion's total focus on and commitment to the industrial wireless business. BASF was also impressed with Apprion's site survey work, technical skills, and responsiveness.

With the security system installation, wireless networking "had a foot in the door" according to Chris Witte, Senior VP of BASF for the Freeport complex. In his view, the business value associated with wireless deployment is not easily quantified, but quite believable. He compares site-wide wireless deployment to the IT investments of earlier eras. "It's like the decision that was made decades ago to put a PC on every engineer's desk. People knew there were going to see gains from it, even though the gains could not be precisely quantified at the time."

BASF compares site-wide wireless deployment to the IT investments decades ago that put a PC on every engineer's desk. Now its value is unquestioned, but at the time the value could not be precisely quantified.

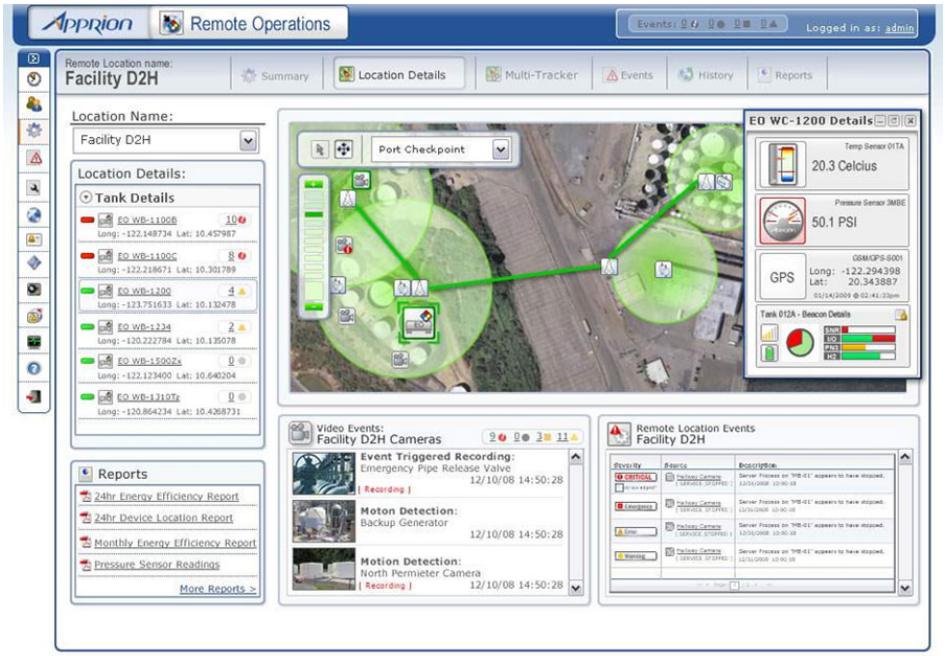
BASF's past experience with Apprion and wireless at Port Arthur is another example. In that case, the network deployment was to meet a deadline in support of a major plant turnaround that would swell the site workforce by 2000-3000 contractors for several weeks. The driver was to give mobile workers access to SAP-PM applications during the turnaround. BASF wanted wireless coverage for the turnaround so personnel in the field could have accurate job status information at all times and shift changes could be made using accurate and up-to-date information. Regarding the Port Arthur experience, Witte did not specify a figure, but said that the wireless network helped BASF realize multiple efficiency gains during the outage and these gains resulted in significant schedule compression of the turnaround.

Infrastructure as a Managed Service

IT is a separate organization within BASF, which employs IT outsourcing as a common practice. At Freeport, BASF now uses Apprion's managed services offering, with the supplier managing and supporting the wireless infrastructure. BASF reported to ARC Advisory Group that this arrangement fits the company's usual IT model and that while Apprion is a smaller firm, the installed base of industrial wireless within BASF is also limited at this time, so this arrangement makes good business sense.

Next Steps

Since site security drove the initial installation, ARC asked what applications BASF will deploy next to leverage the new network. BASF wants to deploy a mustering application as a next step. Mustering is an application that is proving very attractive for process manufacturers. Aside from its obvious safety value during abnormal situations, mustering provides continuous real-time location tracking and status information for all on-site personnel. Automated "man down" indications provide a strong value proposition. Furthermore, the general visibility of onsite personnel is critical. Unit turnarounds and startups are higher risk operations and also the periods when the location of contractor personnel represents critical safety information. An automated real-time system providing high visibility of personnel located in the wrong or in potentially unsafe locations is the first step to remedying such errors.



Wireless Network-Enabled Real-time Location Tracking and Mustering Application (Source: Apprion)

After mustering, BASF plans to take a serious look at enabling mobile operators. The company's issue with this application to date has been the limited human interface provided by handheld industrial computers. BASF feels that today's handhelds are not the best platform for the applications they plan to give operators and that tablet computers will soon provide a better platform and a superior HMI in an acceptable form factor. One other

BASF facility is developing operator mobility as an initial wireless application, but the company reports that it is much more difficult to document a business case when the application investment has to support a whole new infrastructure.

In the longer term, BASF is now working to treat wireless infrastructure more as a plant utility than a discretionary capital investment. The company is now creating a standard business model for wireless at both brownfield and greenfield sites. Under this model, wireless networking will be embedded as part of the base plant cost and its expense will be estimated (and accounted for) as part of the plant's installed base infrastructure. In ARC's view, this is a forward-looking approach, especially for greenfield sites. Compressing a construction schedule also provides value to support a business case and applications like real-time location tracking (for personnel and parts), video surveillance, ad hoc video conferencing, and visibility of work order status should pay huge dividends in major construction projects. ARC believes that wireless infrastructure is as important a service for major plant construction projects as any other type of support infrastructure. This is true from the earliest stages of the project.

Conclusion

Certainly, BASF's use of wireless to support turnaround activity could be called "tactical" rather than strategic. But BASF is making very good sense when it compares today's outdoor wireless networking with the deployment of PC networks during the 1990s – as an investment that will eventually be seen as indispensable for reasons that cannot now be precisely quantified. This view is becoming more common in process manufacturing, but it is still not accepted everywhere. BASF's direction to treat outdoor wireless as a base-level plant service is a most sensible strategy in ARC's view. It is quite similar to the view already widely adopted by "indoor" industries such as aerospace and automotive that now rely on Wi-Fi networks to support all aspects of their manufacturing operations.

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