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Chemical Makers Embrace Virtualization

Approach can provide significant advantages for automation projects

By Seán Ottewell, Editor at Large

CHEMICAL MAKERS are realizing real benefits from virtualization, an approach to automation that separates the physical and functional aspects of a control project into independent hardware and software activities. Implementation of automation projects can go more quickly, safely and efficiently.

INCREASING INTEREST

Emerson Process Management, Round Rock, Texas, is finding greater acceptance by chemical makers for its virtualization technology. Companies in the pharmaceuticals and life sciences sector still lead the way but the chemicals industry is running close behind in terms of uptake, says John Caldwell, DeltaV product manager for virtualization.

A lot of people who were on the fence before about virtualization now are seeing its benefits, he notes. "More and more companies are willing to use virtualization on their production systems; we are finally crossing the chasm."

Chemical industry concerns that virtualization would make the control infrastructure the responsibility of the information technology (IT) department rather than process control engineers are fading. "Progress is being made here because of a lot of especially younger engineers are much more IT savvy and not intimidated by new technologies, and control departments and IT departments are learning to work together more and more," he adds.

Also contributing to this uptake is a deep understanding of what the chemical industry is looking for in terms of virtualization technology. Long before the company's latest offering — Delta Virtual Studio — was released in late 2013, Emerson conducted a major survey that revealed three main concerns of chemical makers. First is complexity, i.e., industry worries that controls systems would become too complex to operate and maintain. Second is support. "The companies don't want to rely on multiple software vendors and support organizations to keep their systems running. They want to maintain their own systems with a single point of

support from the DCS vendor as needed," explains Caldwell. Third is risk and reliability. Chemical makers fear introducing new risks that could compromise system availability. "Virtualization can be perceived as 'putting a lot of eggs in one basket' and provisions need to be in place to protect against hardware failure and to provide fast disaster recovery," he adds.

So DeltaV Virtual Studio (Figure 2) is designed specifically for process control in a way that keeps process control engineers in their comfort zone, without them having to become IT experts at the same time, contends the company. The judges of *CP*'s 2015 Vaaler Awards obviously saw the merits, bestowing an award on the software (see: http://goo.gl/cE8ITj).

Two years after the launch of DeltaV Virtual Studio, Caldwell says three main benefits now are driving chemical customers to invest in virtualization technology. Number one is flexibility and productivity. This leads to faster project execution using multipurpose development, test and training environments that can minimize upfront equipment required to start project work — and enables late binding of control equipment in the field.

Second is lower cost of ownership. A lot of companies are interested in decreasing the number of servers and workstations, to reduce footprint, maintenance costs and, in some cases, energy consumption. "For some customers, the main driver is extending system life without software upgrades. Many customers are forced to upgrade software because the hardware becomes obsolete. Often virtualization can extend the life of their software without forcing software upgrades, which is often perceived as risky," notes Caldwell.

Third is higher availability and disaster recovery. "We have learned from users that new capabilities for automatic failover and faster disaster recovery are perceived as a major benefit, ranked equal with cost savings as the biggest driver to adoption in production environments," he notes.

"Most customers start using virtualization in their offline systems for development, testing and operator training. For online systems, most customers wait for an opportunity such as a planned hardware or software upgrade to virtualize."

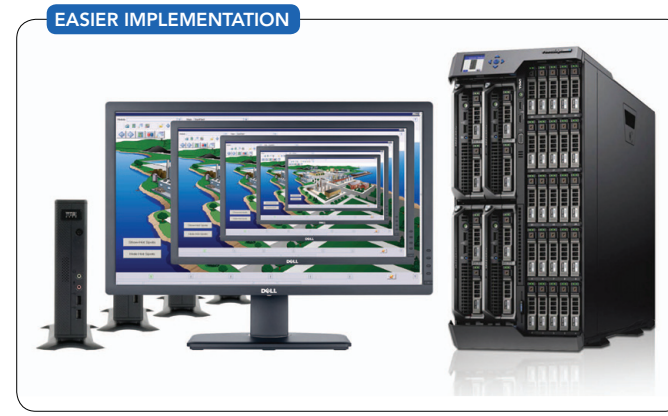

Figure 2. Software aims to allow process engineers to remain in their comfort zone. *Source: Emerson Process Management.*

With many virtualization systems already in place, Emerson now is turning it emphasis to making software upgrades as easy as possible. The company's vision is to have control-system software upgrades become a one-click operation — just like upgrading software on a smartphone.

Version 3.3, due at the end of December 2016, should include automated software upgrades that will startup new virtual machines with the latest DeltaV software and copy existing control-system configurations automatically. When upgrading DeltaV software in a virtual environment, users also will benefit from being able to use their older virtual machines as a safety net; if a problem with the software upgrade arises, they easily can fall back to the older software.

"If there is one overall message here, it's that the industry is concerned about its control systems being too complex when virtualization is implemented. So, we are doing everything we can to make virtualization easy for the process control industry," he concludes.