

Winning control through IT/OT convergence

Martin Walder, vice-president of industry at Gambica* member company Schneider Electric, examines the vast promise of merging operational and information technologies – and some of the challenges that this merger poses.

Under the umbrella of the Internet of Things, innovative software is allowing smart devices, sensors, systems and people to connect more easily, and to interact in a secure and scalable way.

The demand for these insights is increasing both in the consumer world and in industrial environments. Clear momentum is building as we observe industrial Scada systems, which traditionally haven't always been networked to IT systems or connected to the Internet, being brought into the IoT-connected fold – in what is known as the Information technology (IT) and operational technology (OT) convergence trend.

Endless opportunities

Connectivity in an OT environment offers endless opportunities through direct monitoring and/or control of physical devices such as valves and pumps using sensor technology. Bringing IT and OT together ensures absolute control and total monitoring, allowing easy analytics from these complex systems.

But with more connections, comes more data. According to the *Harvard Business Review*, the global "big data" market is worth up to \$136bn a year.

To take full advantage, secure software infrastructure is required that has broad connectivity to manage and analyse these huge datasets to deliver the knowledge and results expected by an increasingly mobile workforce. As IT and OT convergence gathers pace, we look at the challenges and benefits that lie ahead.

Many in industry gloss over the fact that IT and OT come from two very different places and miss challenges presented when they are brought together. Both embody different

perspectives and disciplines with contrasting cultures, values and histories.

While IT is focused on storing and analysing data, OT focuses on simply making things work. For example, OT has long been established as hardware that detects or causes a real-time change through direct monitoring and control, whereas IT has not historically provided data to affect the real-time control of operational plant.

With such established silos, the first challenge is to get everyone "singing from the same hymn sheet" and to develop a language native to all. This will require establishing new processes, responsibilities and owners of architectures as maintenance and environmental demands of the technologies differ. Only with such clarity, will engineers be able to extract the most relevant data and utilise it in a way that benefits and informs all.

The second challenge of connecting IT with OT is security. With frequent headlines of breaches, leaks and hacks, security can no longer be an afterthought and must be an integral part of the design strategy and embedded in the systems. Further downtime can be eliminated by implementing centrally managed and monitored UPS (uninterruptible power supply) systems that are tied to hardware and software systems which are part of the entire network infrastructure environments.

Working together, IT and OT can guarantee the highest availability of critical systems: OT ensuring the processes are always running and optimised; and IT supporting the availability of hardware systems, always-on connectivity, cyber-security, applications and data/analytics. Leveraging both disciplines in conjunction with clean reliable power will provide the insights and control platform for optimising plants and whole enterprises.

With organisations seemingly demanding more insight to support decision-making, the merging of both IT and OT will provide engineers with just that – insights. IT/OT convergence will take real-time process control information and make it available at the business level, allowing rapid decisions to be made.

Integrating IT systems, such as ERP (Enterprise Resource Planning) with OT systems such as MESs (Manufacturing Execution Systems) will help to solve key business issues that all plants face in terms of production efficiency, process reliability and safety, along with moving ancient legacy systems into the new age.

With heightened visibility and better insight of enterprise operations, new ways of collaboration between previously isolated groups can be established and full potential can be achieved. Though, in order for this transformation to stick and its benefits to be felt continuously, organisations have to invest in effective change and culture management. Bringing together systems and tools by themselves is not enough, users have to be educated on how to use them effectively and extract the benefits.

Fast-moving industry

Only when organisations dedicate significant investment into integrating IT with previous non-networking architectures such as Scada systems, will they gain the ability to take real-time process control information and make it available for rapid business decision-making.

Today, industry is moving faster than ever before. To get ahead, and to stay ahead, technological and operational convergence must be proactively investigated to remove operational silos in favour of enhanced business communication and analytic insights in the longer term.

Collaboration will empower better decisions, in-line profitability, productivity, sustainability and efficiency. IT/OT convergence is the vehicle to enhance business processes of the future and ultimately to protect the health and longevity of industrial companies. ■

