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A new era in control center communications

By Fernando Baptista, Product Manager, Siemens Building Technologies Division

A few years ago, a new era in integrated control center communications began, driven primarily by technological innovation. Many manufacturers are now migrating proprietary and hardware-centered equipment to software-based communications systems. As a result, VoiP (Voice over IP) communication is gradually becoming the de facto standard in control centers. Eliminating proprietary hardware makes virtualization possible, which, in turn, offers flexibility, failure tolerance and scalability.

The increasing use of software provides clear benefits. In addition to the significant cost advantages that go along with the elimination of proprietary hardware, manufacturers are also able to respond faster and more flexibly to the increasingly diverse communications channels. While analog radio and fixed-line telephony were the dominant communications media in the early years, today's systems must also be able to handle PA[1], alarm, paging and intercom[2] systems, fax, Tetra two-way radio, SDS[3] and SMS messaging. Media diversity will continue to increase, since video conferencing, PRM-LTE[4] and social media will also make their way into control centers in the foreseeable future. Typically, support for such media as well as new product functionalities can easily be added through software updates.

Ergonomic graphical user interfaces

Migrating to software-based solutions also opens up new dimensions in user-friendliness because novel operating concepts are created from the ground up.

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[1] Public address system
[2] Intercommunication systems
[3] Short Data Service, a data transmission service for sending short text messages on Tetra radio networks
[4] Fourth generation mobile communications (4G)

Siemens AG
Wittelsbacherplatz 2, 80333 Munich, Germany
Corporate Communications and Government Affairs
Head: Stephan Heimbach

Infrastructure & Cities Sector
Building Technologies Division
Gubelstrasse 22, CH-6301 Zug

They go far beyond an attractive interface design intended to make daily routines easier for dispatchers. Ergonomic and intuitive usag concepts ensure fast and stress-free operation in complex incidents, ultimately preventing operating errors and delays. One example is the ability to easily set up a teleconference with multiple participants or to intuitively toggle between them. Dispatchers can focus their full attention on the incident and are not distracted by operating a complex and possibly confusing communications system.

Other benefits include significantly faster training and the ability of dispatchers to quickly find their way around such a modern, user-centered system. Industrial control centers, in particular, are often staffed by external security personnel. Due to staff fluctuations, persons who have years of experience with control center systems are not always available.

When it comes to redesigning the workflows of communications systems, it has often been argued that the market for these products is a conservative one and not open to innovations. This argument has since been refuted, since the initial experience with the latest generation of communications systems has shown that both control center operators and dispatchers take an entirely positive view of the new usage concepts. This is due, among other things, to the fact that control center employees are accustomed to convenient, user-centered interfaces from using their personal smartphones and tablets on a daily basis. To an increasing extent, they expect to see these interfaces in their work environments as well. If their expectations are not met, they quickly become dissatisfied.

Interdisciplinary system development

It is difficult to make a communications system more user-friendly through ongoing product updates alone. For example, simply emulating traditional operator consoles on touch screens could very well burden dispatchers with unwieldy operating processes. A fundamental reorientation can be achieved only by consistently and completely redesigning the system’s user interface.

Setting up an interdisciplinary project team for developing the new user interface has proven to be a winning approach. Graphic designers and experts in touch screen operating concepts should be included along with experienced software developers. However, the most important experts remain the end users, that is, expe-

rienced control center staff. They should be involved in all phases of development since there is no substitute for many years of practical experience with daily control center operations, and this experience helps set priorities for functionalities.

Attractive even for small control centers

In addition to the above benefits offered by software-based communications systems and new operating concepts, this approach also leads to new applications for the systems. Modern communications solutions are increasingly being used for applications where conventional integrated systems were ill suited, such as small industrial control centers or security switchboards in shopping centers. What makes these solutions so attractive are the shrinking costs resulting from the increasing elimination of proprietary hardware and the fact that, depending on the industry, operators do not necessarily have to rely on highly qualified dispatchers in order to operate an integrated communications system.

Optimizing systems for touch screen operation offers an additional benefit: porting to mobile devices becomes a distinct possibility. There are application scenarios, such as mobile dispatch control centers, where tablet-controlled communications systems could indeed be beneficial. Easy maintenance, future-proof design, low investment costs and faster training and orientation make these modern communications systems attractive to potential users; more and more of them are asking for such systems.

With Siveillance Connect, Siemens has developed such an integrated, latest-generation communications system. It has been in use worldwide, including Germany, since the spring of 2013. The new system has found positive acceptance, receiving praise, in particular, for its user-friendliness and attractive design.

Contact for journalists:

Siemens AG, Media Relations
Catharina Bujnoch, phone: +41 41 724-5677
E-mail: catharina.bujnoch@siemens.com

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