First cRSP remote-access connection to India in the Metals Industry – HSM Bhushan Steel

Remote Support – A Good Idea is Making its Way

The worldwide availability of Internet services made possible the creation of a remote-access platform that meets customers' requirements with respect to security, availability, data bandwidth and a wide range of remote-service functionalities. This article describes the criteria for and the introduction of a remote-access service platform for Bhushan Steel's Hot Strip Mill in Orissa, India.

The cRSP service router establishes the link between a customer's factory network and the Siemens VAI remote service center.

Remote access to customers' computers and automation systems has been an issue for a long time. The advantages of an immediate response by specialists for troubleshooting as well as for a preventive diagnosis of upcoming problems are obvious. Years back, first teleservice attempts suffered from severe limitations due to point-to-point connections on isolated systems, narrow data bandwidth and access to only a limited number of applications. However, customers themselves imposed the most important restrictions. Only very few were ready to open their systems for remote access, since most of them feared that unauthorized users could enter their systems with all thinkable consequences. Today's Internet with high data bandwidths and reliable security precautions has opened new possibilities for viable remote-service access.

cRSP – a dedicated platform for remote services

Building on this situation, Siemens developed its cRSP

(common Remote Service Platform), which the company also uses for its Metals and Mining Service & Support Center (MSC). cRSP is an access platform that meets all needs and customer expectations for secure access with high availability and performance. An installed base of almost 90,000 systems in various industrial sectors proves that users have accepted this method today.

The architecture of a cRSP connection (see Figure 1) contains several safety features that give the customer full control over the extent of remote-service communication. A dedicated service portal handles all communication between the customer and the Siemens service team (and other business partners) and the customer's local network. This portal is implemented as a "demilitarized zone" (DMZ) with specific access and data servers. Customers with a remote-access service contract can only access the data server area that contains their own data. The DMZ's access server controls customer authorization and verification. The portal uses state-of-the-art encryption technologies for secure data exchange.

There are two ways to establish Internet access: In Customer Owned Access (COA), the client provides the infrastructure pursuant to Siemens recommendations. In Siemens Owned Access (SOA), the customer receives a preinstalled system that only needs to be completed by entering the Internet provider's access data.

Remote support sessions can only be initiated by the customer using a service router at the customer's premises that is specifically configured to only connect to the Siemens VAI service portal. This service router ensures that only the MSC Web portal can be reached, precluding any risk of unauthorized access to the Internet by customer personnel. Exclusive routing to specific computers guarantees that MSC can only reach computers and systems that have been released for access, thus protecting confidential data in the customer's systems. In addition to these functions, the architecture also keeps logs of all activities between Siemens VAI and the customer, ensuring full traceability.

On top of this, classical data transfer is also available for the collection of log files from the customer's installation or for provision of appropriate software updates, field reports or spare-parts-supply analyses on the part of the MSC.

The MSC offers a clearly defined customer access with 24/7 availability, providing expert support for a wide range of customer requirements.

Remote access – An integral part of the MSC concept

The MSC of Siemens VAI relies on cRSP as an integral part of its service concept. The MSC offers a clearly defined customer access with 24/7 availability, providing expert support for a wide range of customer requirements in plant operation and servicing.

The first contact for Siemens customers is a central e-mail address. Customers with service contracts can also use the telephone hotline, which is answered by service experts who follow a predefined escalation strategy to solve the problem. This also includes involvement of commissioning engineers and product or solution-related experts. Depending on the problem, support can also be provided via remote access to the plant.

The best time to consider remote access for new installations or modernizations is during system design. That way, remote access can already be used to support commissioning. However, remote access may also be integrated in running systems.

This concept offers important benefits: Siemens VAI experts can link to the customer's installation from their workstation systems, which contain all necessary development and analytical tools. At the same >>

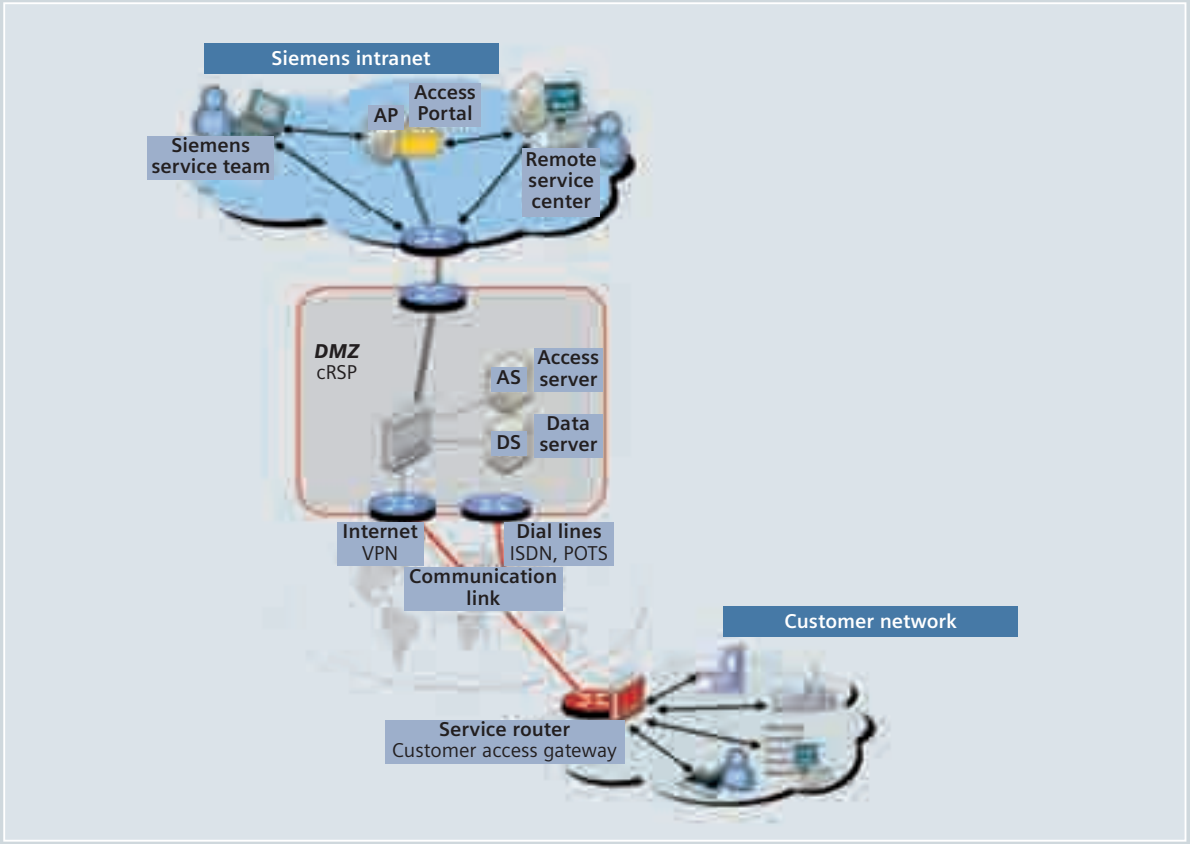

Fig. 1: cRSP remote access ensures data security in the Siemens VAI Metals and Mining Service and Support center.

>> time, Siemens VAI can meet all security-policy requirements. Consequently, a team of experts composed of customer personnel and Siemens VAI specialists on- and off-site can collaborate irrespective of their physical location until the problem is solved.

Conversely, remote access can also be used as a diagnostic tool for a regular analysis of system log files. This helps to ensure proper system operation and to avoid any upcoming problems that could cause production loss.

cRSP deployment at Bhushan Steel

Bhushan Steel's Hot Strip Mill System (HSM) in Orissa, India, has been in operation since fall 2008. Convinced of the advantages of remote access, the customer successfully installed a COA in March 2009. As in all previous instances, the finalization of technical details and the installation with all necessary tests were completed in less than one day.

To ensure cRSP visibility into the HSM's automation infrastructure, nine computers of the Level 1, Level 2, HMI, Drive Systems and Production Data Acquisition (PDA) systems were configured for access to the MSC. Using this installation, Bushan Steel's maintenance personnel can request and receive online service and troubleshooting support whenever needed.

> Siemens VAI experts can link directly to the customer's installation with all their development and analytical tools.

In the case of an equipment problem, Bhushan Steel can now contact the MSC and open their computer systems for a cRSP remote connection. Relevant system-status data are retrieved and analyzed by MSC experts. Subsequently, the experts narrow down their error search, eventually locate the cause of the problem, and then suggest possible solutions in dialogue with the customer.

In the past, when a common problem arose, a technician was sent to the site, and it took on average 48 hours for things to be back up and running (due to the time needed to book travel, arrange visas and travel

time itself). Remote cRSP access dramatically accelerates this process: support is provided directly and immediately – no long phone calls or trips to the site are required. Typical mean time to repair (MTTR) values dropped to just three hours, minimizing plant downtime and maximizing productivity.

> Remote cRSP access dramatically accelerates the maintenance process,reducing the typical MTTR to just three hours.

But this is not the end ...

Future remote-service advances promise to turn maintenance from a retroactive to a proactive process. Using sophisticated program scripts, system status data can be acquired and sent to the MSC on a regular basis. The online service team could analyze these data, so that even problems that occur infrequently can be pinpointed, such as issues with certain product qualities that are not produced continuously.

If certain plant parameters exhibit unusual values, or if the frequency of specific system events is shifting away from a typical distribution, then the online service team could suggest acquiring a wider set of parameters in order to monitor plant behavior. Consider a motion-axis stop monitored by a sensor. If sensor data state that the stop is reached less frequently, this could indicate mechanical wear on the axis and point to an impending problem. Consequently, maintenance of that axis could be scheduled for the next regular maintenance break instead of risking a machine stop that would need to be fixed outside the normal schedule.

Software maintenance can also be streamlined with automated data-collection processes. If the version states that all the plant's software programs are automatically logged in a database, then the online service team can issue lists of recommended software updates to optimize system performance.

Siemens VAI cRSP-based remote-access plant services help to decrease delays in troubleshooting and repairing plant problems, and support on-site maintenance personnel as well as process engineers to achieve their objectives of higher efficiency. ■

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cRSP remote connections contribute to a quick analysis of problems so that the customer's maintenance engineers receive clear guidance for troubleshooting.

The MSC concept even integrates the transmission of media files (e.g., images) that were acquired under Siemens VAI instructions.