Hitachi Plant Technologies Develops Cloud Service for Crane Monitoring, Failure Diagnosis, and Facilities Maintenance

A full-support system extending throughout the lifecycle of product

Tokyo, November 21, 2011 --- Hitachi Plant Technologies, Ltd. and its wholly owned subsidiary, Hitachi Plant Mechanics Co., Ltd. have developed a crane monitoring, failure diagnosis, and facilities maintenance service using cloud computing.*1 The new service goes on sale in December of this year.

Cranes installed in ports, factories, industrial waste treatment facilities, and other facilities are vital pieces of equipment used in the transport heavy objects, in assembly, and other applications. In addition to mandated inspections, these cranes require timely post-installation servicing, which involves maintenance, repair, and recovery when there is a failure.

In addition, "stock management"*2 promoted by national and local government agencies requires the tracking and use of quantitative long-term operational data in Japan.

For nearly 100 years, the Hitachi Plant Technologies Group has supplied customers with ceiling cranes, bridge cranes, jib cranes, unloaders, and other types of cranes. We have a track record of approximately 7,600 installations. In addition Group service technicians provide specialized maintenance services. Hitachi Plant Technologies Group has sold failure diagnostic and preventive maintenance equipment to serve as aftermarket crane service support tools. The equipment installed at customer facilities require functions that infer the source of problems when there is a failure and service life predictive functions for brakes, hoist ropes, and so on. For this reason, needs have to be met for the recording and storage of operational data required in stock management in Japan. In the area of failure diagnosis and preventive maintenance, customers also need systems that will reduce management tasks, including timely and effective means of conveying information to service technicians.

To meet these needs, the Hitachi Plant Technologies Group has developed a crane monitoring, failure diagnosis, and facilities maintenance service using cloud technology to support efficient aftermarket crane servicing.

The main features of this system are: (1) an operational monitoring function to provide remote monitoring of crane operational conditions and to collect and construct a database of long-term operational information; (2) a failure diagnosis function to provide notification when there is a failure and to diagnose the location and cause of the failure; and (3) a
facilities management function to plan and manage the results of periodic inspections of
equipment and devices and to order replacements and spare parts.

By using cloud technology, it is possible not only to control initial investment costs, but
also to reduce crane life cycle costs, reduce downtime when there is a malfunction, simplify
management tasks, and to use this information to augment operator safety training.

Starting in July 2011, this crane monitoring, failure diagnosis, and equipment
maintenance management service has been in provided to eight locations in Japan and its
effectiveness has confirmed.

The Hitachi Plant Technologies Group is working to improve the full range of support
services it offers for its product and system lifecycles. The key technologies used in the
newly developed cloud service will be applied to other plants, equipment, and devices. We
are moving forward to employ cloud technology in aftermarket services both in Japan and
around the world. The Hitachi Plant Technologies Group is already providing comprehensive
management and maintenance services that apply cloud-type services for operations
management, equipment inspection, water quality analysis, report preparation, and other
tasks at water treatment plants.

*1 Cloud computing is a general term describing IT technology which provides software using an Internet environment,
rather than user servers or other user-owned IT equipment.

*2 Stock management is a general term for technology systems and management methods designed to support the
effective use and extended lifecycle of structures and facilities. Stock management is intended to reduce lifecycle costs.

Features of the crane monitoring, failure diagnosis, and facilities maintenance service
using cloud technology

(1) Controls initial investment costs

The use of cloud technology means data collection and data transmission devices are the only
types of equipment needed at the time of installation. Initial costs can be controlled because
investment in servers, software, and other IT is not required.

(2) Lifecycle costs

Quantitative planning for mid- to long-term preventive maintenance to ensure maximum
service life of cranes can be implemented by using operational records stored over the long-term
and servers. (This enables corresponds customers to implement the stock management activity
being promoted by national and local government agencies in Japan.)

(3) Reduction of downtime when there is a failure

When a warning of crane failure or operational stoppage is issued, the location of the
malfunction and its cause can be inferred by using the automatic failure diagnosis function. The
customer can then access the Hitachi Plant Technologies’ system from his own computer to
verify the nature of the problem without taking the risks associated with climbing up a crane. At
the same time, Hitachi Plant Technologies’ service technicians are automatically contacted in
real-time on their portable devices to confirm the nature of the issue over the cloud. This

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accelerates determining the nature of the issue and recovering from the malfunction, thus reducing crane downtime. Moreover, by drawing on databases of operational records, a quantitative approach can be used to determine root causes of problems and to prevent their recurrence.

(4) Reduction of management tasks

Crane inspection records can be stored, inspection schedules, data trends can be managed, and alert notifications can be issued when inspections have not been performed to simplify the effort needed to comply with mandated crane inspections. Moreover, various maintenance tasks, including the replacement of parts to reduce failure risk, and the planning, ordering, and verification of spare parts can be streamlined.

(5) Safety training

Operating data records can be used to provide safety training for crane operators handling hazardous operations.

(6) Confidentiality

The servers at the Hitachi Group Data Center have a high-security environment developed for the storage of data for the financial industry. The confidentiality of customer data is assured by using these servers.

(7) Can be used for a wide range of cranes

The system can be installed in cranes which have control equipment using PLCs.*3

*3 PLC: Programmable Logic Controller, which is a control device for factory automation (FA) containing a microprocessor (CPU) and memory (storage element).

■Overview of crane monitoring, failure diagnosis, and facilities maintenance service using cloud technology
About Hitachi Plant Technologies, Ltd.

Hitachi Plant Technologies, Ltd. — Supporting Infrastructure with Environmental and Energy-Saving Technologies — is a member of the Hitachi Group. Harnessing its engineering capabilities, monozukuri (manufacturing) skills and project expertise, Hitachi Plant Technologies offers total solutions for social and industrial infrastructures.

The core businesses of our group mainly comprise Social Infrastructure Systems (pumps, compressors and water treatment systems), Industrial Systems (mechatronics, and chemical and pharmaceutical plants), Air Conditioning Systems (industrial and building facilities) and Energy Systems (nuclear and thermal power plants construction). For more information on Hitachi Plant Technologies, please visit the company’s website at http://www.hitachi-pt.com.