Toward an Information Society Friendly to Humans and the Earth
–Creating the future with you–

The C&C User Forum & iEXPO2010 were held at Tokyo International Forum on November 11 and 12, 2010. With the theme of "Toward an Information Society Friendly to Humans and the Earth - Creating the future with you -," various products, services and technologies developed by the NEC Group were introduced via lectures, seminars and exhibitions.

Abstract

C&C User Forum & iEXPO2010 was held under the theme of "Toward an Information Society Friendly to Humans and the Earth -Creating the future with you -." Here, NEC introduced its "C&C Cloud" strategy aimed at contributing to the intelligentization of society and the enhancement of corporate competitiveness as well as offering various solutions based on collaborations with customers. These included proposals for solutions in the environment and energy fields, such as energy-/power-saving systems to improve lifestyles and various other useful platforms that were presented via lectures, seminars and actual exhibits.

Enriching lifestyles

One of the major themes that the NEC Group is challenging this year is "Intelligentizing Society via Cloud Computing. The booth displaying this theme introduced various services for enriching urban environments, lifestyles and the quality of lives led by individuals. The symbolic representation of these exhibits was the Android-based touch-panel terminal "LifeTouch" (**Photo 1**, left), which is a cloud-service communicator featuring a 7-inch screen, about 370-gram weight, touch-panel operations, wireless LAN and abundant applications. The "LifeTouch" terminals were also used to support many of the exhibits and were widely acclaimed thanks to the specific visualizations of the provided services.

For example, when a LifeTouch terminal is placed over one of the AR (Augmented Reality) Maps indicating the display booth

Photo 1 Android-based touch-panel terminal "LifeTouch" (Left) and health management using the communication robot "PaPeRo" (Right).

locations and offering guidance at the entrances of the booths, the corresponding contents are displayed. In this way users can access sites explaining each booth exhibit by touching the required position on the content display. The terminals were also used to collect booth entry stamps for visitors in the exhibition.

With regard to the care of the elderly, a social issue that has recently become important, health management using NEC's communication robot "PaPeRo" (Photo 1, right) is introduced. The appealing points of this proposal are its potential for providing effective communication with an elderly user by means of a blood pressure monitor, built-in camera and various other sensors as well as enabling the monitoring of a user from a remote location.

Public safety (Protecting society)

NEC is known to be a leader in technologies such as biometric authentication, image monitoring and IR cameras etc. Its solutions for the protection of social systems and lifestyles by applying remedial countermeasures that preempt issues are attracting attention. In the booth opened with the theme of "Life Watching" NEC demonstrated its substantial total healthcare platform that covers health support, medical information support, examination support and insurance/care/welfare support. Biometric authentication, a field in which NEC technologies can proudly boast of strong competency in the global market, attracted much attention. In this field devices were exhibited such as the "contactless hybrid scanner" based on fingerprint and vein information (**Photo 2**) and the "NeoFace" facial authentication

software development kit. Attracting most attention in the adjacent "Crisis prevention in advance" booth was the harbor security system for preventing intrusions into important harbor facilities by combining a small unmanned aircraft, IR cameras, sensors and face authentication technologies. The same booth also introduced a demonstration of inter-vehicle communication by which vehicles can communicate with each other in order to support safety.

Store conversions

This booth displayed services for solving issues in store management and shop operations such as: the "EC building/ operation service for Internet shopping businesses," "next-generation CRM services supporting the creation of attractive stores" (reference exhibit), "POS solutions for overseas markets," "cloud-oriented services for the restaurant industry" and "services for utilizing the consumer networked community on storefronts." In addition, the introductions of "agricultural ICT solutions" are also attracting attention. One of these is an "agricultural management system," which is capable of operating five farming support subsystems covering production planning, materials planning and production history management, shipment/ marketing, crop culture support and operational improvements (GAP management) using the "LifeTouch" terminals (**Photo 3**). There were also exhibits of the field monitoring of plant culture environments such as in greenhouses or plant nurseries. These included the "simplified measurement equipment system (Field Server) and "wireless monitoring system." The former system

Photo 2 Contactless hybrid scanner (Reference exhibit).

Photo 3 Agricultural management support system and "LifeTouch."

Photo 4 Lithium-ion battery (Left) and Nissan EV "Leaf."

Photo 5 Wearable computer system "TeleScouter" (Left) and "See-T Navi" supporting safe, environmentally-friendly driving for sales drivers (Right).

consists of various sensors and cameras, and the latter one is capable of the collection/analysis of onsite environmental data as well as of sending alarms to mobile terminals.

Creating, storing and controlling energy

This booth exhibited solutions for visualizing energy demand/supply and for incorporating the results in a cloud computing system with the perspective of supporting the smart grid society of the future. The solutions included the "HEMS (Home Energy Management System)" and the "BEMS (Building Energy Management System)," together with proposals for "creating energy," such as via solar and wind power generation systems. The R&D themes introduced here included: "remote centralized control technology for solar power generation," "interconnected voltage stabilization technology for solar power generation" and "high-output, low-profile energy devices (organic radical battery)". The organic radical battery features minimal thickness and a flexible ability and it is therefore expected to be applied to sophisticated IC cards and in wearable terminals of the next generation.

The exhibits that attracted most visitors were the EV (Electric Vehicle) "Leaf" of Nissan Motor Co., Ltd. That was also exhibited last year and the EV-related equipment developed by a joint venture of NEC and Nissan, that featured a high-performance lithium battery and charging station (**Photo 4**).

Solving management issues

NEC boasts abundant achievements in the cloud-computing

business known as the "C&C Cloud." What is particularly appreciated is its policy of offering customers the results obtained via NEC's own efforts in its in-house management system reforms. In this exhibition, the booth named "Enhancing the foundations of management" attracted attention by introducing actual case studies of the construction of in-house cloud-computing systems.

There were also many other booths that attracted a large number of visitors. For example, the "global fabrications" (monodzukuri) booth introduced many examples of overseas constructions of total systems based on NEC software with established reputations such as: "Obbligato" (for process reform), "IFS Applications" (for SCM) and "FlexProcess" (for ERP), while the "Security" booth introduced a security measure using "SecureSociety" and the "IT system operation" booth showed an on-site service with a view to introducing cloud computing in the future. In the "Improving productivity" booth, the wearable computer system "Tele Scouter" that combines a compact computer terminal and an eyeglass-type display was exhibited (**Photo 5**, left).

In the "Environmentally-friendly management" booth, an actual pickup/delivery vehicle was exhibited with the cooperation of Yamato Transport Co., Ltd., a Japanese major parcel delivery company. The vehicle featured the "See-T Navi" safe/eco-friendly navigation system that supports safe, environmentally-friendly and energy-saving driving of sales drivers via car-mounted terminals with actual demonstrations (Photo 5, right). This system has actually been incorporated in Yamato vehicles, sequentially since March 2010. Also exhibited was a similar system that uses the car-mount terminal "DriveManager," an "all-inclusive eco-friendly logistics system," with which the drive data including the fuel consumption and ride behavior such as harsh braking and

Photo 6 The sophisticated power-saving server "Express 5800 Series."

Photo 7 High-quality videoconferencing system.

sudden acceleration are managed integrally by the management control center. The same booth also included exhibits under the slogan "all-inclusive eco-friendly monodzukuri (fabrication)," which displayed the contained chemical substances management solutions using "ProChemist" or "Obbligato II" as the core solutions for dealing with the RoHS Directive (restrictions on the use of specified substances in electric/electronic equipment) of the EU and REACH (an EU regulation on the safety evaluation of chemical substances). In order to publicize the active utilization of "M2M" (Machine to Machine) the "New services and project developments" booth introduced a system that featured the centralized management of house security and home control functions via the network ("Home gateway platform") and an agricultural support system for the integrated management of data from sensors and terminals. In addition, this booth also featured proposals for a mobile phone with a built-in RFID function and the cloud-computing service using it (Mobile Cloud Service).

Platforms supporting cloud computing

The hardware introduced as platforms for supporting cloud computing included: a server with advanced power-saving and operations management functions ("Express" series, **Photo 6**), a storage solution for managing the data that is estimated to increase enormously in the era of cloud computing ("iStorage") and a next-generation data center network that achieves cost reduction and power saving based on centralized management/control of information ("UNIVERGE" series).

The series of NEC software products that were introduced

included: an efficient and secure operations management function featuring centralized management ("WebSAM" series), virtualization technology and security software ("SecureSociety").

The hardware and software products mentioned above were combined to introduce strategic energy-saving measures for the data centers of the "Total Eco-Solution for Data Center" solutions proposals zone. The presentations held there emphasized the fact that NEC not only provides the exhibited products but also provides core facility services for data center building that range from consultation services to actual control of operations and maintenance programs.

Office transformations

The concept of the "Total Eco-Solution for Office" aims at a reduction of environmental loads by introducing energy-saving ICT equipment, new work styles and office facilities. Products and services designed to target the conceptual aims were also exhibited. There were four main display booths. These were: 1) the "work style innovation" booth displaying a high-quality videoconferencing system (**Photo 7**), and a client virtualization technology system, 2) the "energy-saving ICT equipment" booth displaying energy/space-saving equipment, eco-PC with unattended sensor and featuring bio-plastic materials, 3) the "energy management system (EMS)" booth dealing with power consumption data and CO_2, and 4) the "office facility" booth exhibiting a double brightness lighting system that uses a reflecting shade ("AlLine"). As an example of the implementation

Photo 8 Demonstration of gesture technology (Reference exhibit).

of the "all-inclusive eco-friendly office" concept, the Tamagawa Solution Center based at the NEC Tamagawa Plant (Kawasaki) that opened in May 2010 was introduced as an example of an office that is expected to halve CO_2 emissions. This "Total Eco-Solution for Office" solution won the Green IT Award of the MM Research Institute Contest for 2010.

Digital signage and video solutions

The "digital signage" displays are often being used recently in streets and on storefronts to display advertising and other information. The "digital signage" enables the possibility of updating the displayed data and information via the network as well as that of providing information matching the profiles and needs of the targeted viewers by combining motion sensors and face authentication technologies. They are the difference between the "digital signage" and the traditional illuminated signboards. This booth included the same exhibits as of the previous year such as a display composed of 16 LCD panels with 46-inch long component parts and various kinds of color LED displays and projectors. However, what were particularly noticeable this year were the ambitious efforts supporting the advanced digital signage technology. These included software for determining the sexes and ages of viewers, use of the face authentication technology referred to at the beginning of this report and the "gesture technology" with which the user can instruct the way of displaying images such as zooming and camera movements by moving a hand in front of the display (**Photo 8**). These products and service solutions for the digital signage business use an integrated brand of "PanelDirector." NEC intended that the most noticeable characteristics of these solutions would be the provision of various services including: planning, production, operations management and effects measurements in addition to product availability. The aim was to maximize the effects of the introduction of the digital display signage systems.

Contributing to space technology

In 2010, the asteroid probe "Hayabusa (MUSES-C) mission" returned to Earth after overcoming several difficulties during the seven year flight since its launch in 2003. It thereby became one of the most encouraging success stories of the year. After the dramatic events of the return and capsule recovery in June, this world-first feat was further enhanced when it was found on November 16 that the capsule actually contained fine particles derived from the asteroid "25143 Itokawa." Under the guidance of the Japan Aerospace Exploration Agency (JAXA), NEC had acted as system coordinator for the satellite mission by controlling the entire process from planning through manufacturing to environmental testing and communications/orbit control. At the special exhibit booth a large number of visitors were able to view a video of the mission stages introducing the various activities of the project engineers. They were also able to examine the five recovered items and an engineering model of the capsule in the special displays (**Photo 9**).

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Photo 9 Special exhibit of JAXA satellite Hayabusa (MUSES-C) and the recovery process.