CASE STUDY
Intel® Core™ vPro™ processors
Information Security

Harnessing technologies to bring efficient, secure, and high-performing health care services

With Intel® Core™ vPro™ processors, Netown Corporation can provide high-quality telehealth services that offer efficiency, security, and quick response for its elderly and chronic disease patients

真茂科技
www.netown.tw

Netown Corporation was established in 2003 to help older people and patients with chronic diseases retain their health to live happily and independently. To achieve this goal, the company implements Smart Health Care Service* via its innovative telehealth solution, Babybot*. Babybot provides services that include health management, home care, community health, and organization care services for users, with individual, home, community, and organization models to meet different needs.

Netown has been working with well-known hospitals, including National Taiwan University Hospital, Mackay Memorial Hospital, Landseed Hospital, and Chang Gung Medical Foundation-Taipei to make its Smart Health Care Service accessible to more patients. It targets communities, clinics and pharmacies, telecommunication companies, and construction firms to provide customized health care solutions to patients belonging to these market segments.

CHALLENGES

- **Address health care delivery challenges for doctors.** Provide a health care system that can solve service delivery issues associated with geographic distance for physicians and clinicians.
- **Provide efficient data gathering via remote access.** Gather patients' information remotely while ensuring effective and efficient data gathering following the principles of telehealth service.
- **Ensure patient information security and protection.** Allow patients to use the telehealth system with confidence without worrying about personal data and medical information leakage.

SOLUTIONS

- **Offer smart health care services to elderly and chronic disease patients.** Provide an efficient telehealth service through Babybot*, powered by Intel technologies, that will connect physicians and clinicians in one location with their patients in another location to deliver basic care.
- **Apply Intel® vPro™ technology.** Utilize performance of Intel® Core™ vPro™ processors and Intel® Active Management Technology (Intel® AMT) to securely detect and maintain users' devices, increase productivity and enhance user experience.
- **Use Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI).** Apply Intel AES-NI technology on Babybot to provide security and speed of encryption and decryption of users' personal data, including vital signs and personal health records.

Taiwan's aging population is rapidly increasing and people are living longer than ever before. As the number of older people multiplies, problems of chronic diseases also grow in this segment of society. This also intensifies the increasing demands for health care. This challenge requires aggressive promotion of health and disease prevention, as well as disease management strategies to ensure the elderly and chronically ill receive the health care they deserve.

This need has enabled Netown Corporation to develop high-quality health care services for the targeted market segment. It includes medical information, electronics engineering, electrical engineering, telecommunications, and Internet service systems. The company is particularly adept in providing smart health care services via its innovative telehealth solution, Babybot, a comprehensive monitoring system that captures, transmits and distributes vital health data to physicians and clinicians, patients and their families.

Netown looks forward to promoting its smart health care services as a core technology innovation that will extensively benefit individuals, homes, communities, and organizations to reach the goal of providing excellent primary care quality and improving living standards.

Netown's core technology applications for delivering smart health care services, integrated with Intel® Core™ vPro™ processors, deliver the attractive features of Babybot while enhancing and improving medical device quality and health care services.

Babybot®
寶貝機®

"Netown is highly confident of our product, Babybot, as we apply solutions built upon the Intel vPro technology and Intel AES-NI and other technological developments to support Babybot's work expeditiously."

Yen-Shan Lin
Chief Executive Officer
Netown Corporation

Instilling brand awareness and elevating health care

With the slogan "Your Health, Your Life, We Care," Netown is constantly faced with the challenge of how it can effectively promote its smart health care services to elderly and chronic disease patients needing convenient and highly accessible health care. Apart from that, the company seeks to make its Babybot product synonymous with high-quality, smart health care that its target market segment will constantly look for as a telehealth service that works.

The challenge of making Babybot a high-quality product was ensuring that it delivers while earning patient trust. Thus, Netown had to ensure that Babybot protects patient information while providing service that is fast, efficient and reliable. To increase brand awareness for Babybot, Netown was looking at integrating reliable and trusted technologies that meet its standard of service quality.

To address these issues, Netown collaborated with Intel to provide technologies for the Babybot platform. Using Intel Core vPro processors enabled Netown to deliver telehealth services for fast, reliable and efficient implementation while protecting patient information.

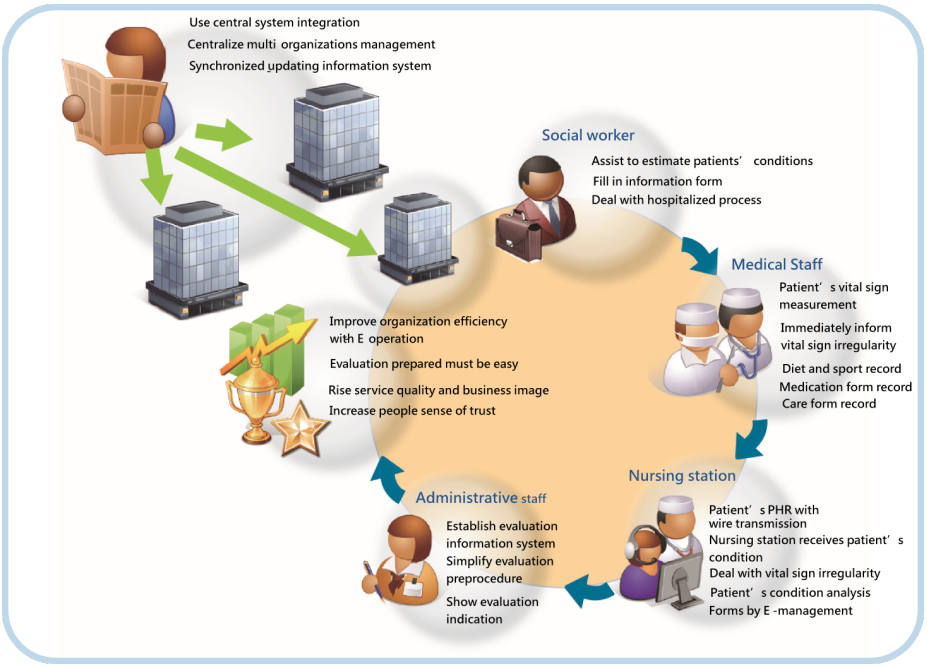

Figure 1: Babybot's centralized data management system aims to protect patient information while delivering fast, efficient and reliable healthcare service

By working with Intel, Netown is also assured of a high level of brand loyalty, giving Netown an edge when it comes to delivering the promise of high-quality service.

"Netown aims to constantly create value for the Babybot, so integrating with the Intel vPro technology assured our product delivers advanced technology that fits our patients' needs while ensuring a high level of brand awareness for our smart health care service," said Yen-Shan Lin, chief executive officer, Netown Corporation.

Building an efficient and secure telehealth service with Intel technologies

In building its smart health care service, Netown has always put its customers' needs in mind to achieve its goal of delivering high-quality health care services while creating a successful brand. With Babybot, Netown envisions a monitoring system that can connect with a variety of medical devices to provide comprehensive, vital health data for physicians and clinicians and their patients who have been discharged from the hospital.

Through this system, patients can conveniently check their vital signs, allowing them to make an appointment through visual communication with their physician in the comfort of their own homes, while enabling physicians to access patient information easily. In a nutshell, Babybot can solve health care delivery challenges associated with geographic distance by connecting physicians and patients remotely through an efficient monitoring system.

"Netown is based on user experience and up-to-date information technology to continually develop excellent health care services. We know that trusted technologies must be applied to ensure that Babybot meets or exceeds our customers' expectations," added Yen-Shan Lin.

To enhance user experience, Netown integrated utilized the Intel vPro technology to efficiently monitor a user's device and online activities. Its Intel® AMTallows Babybot to take advantage of features of users' computers' CPUs,

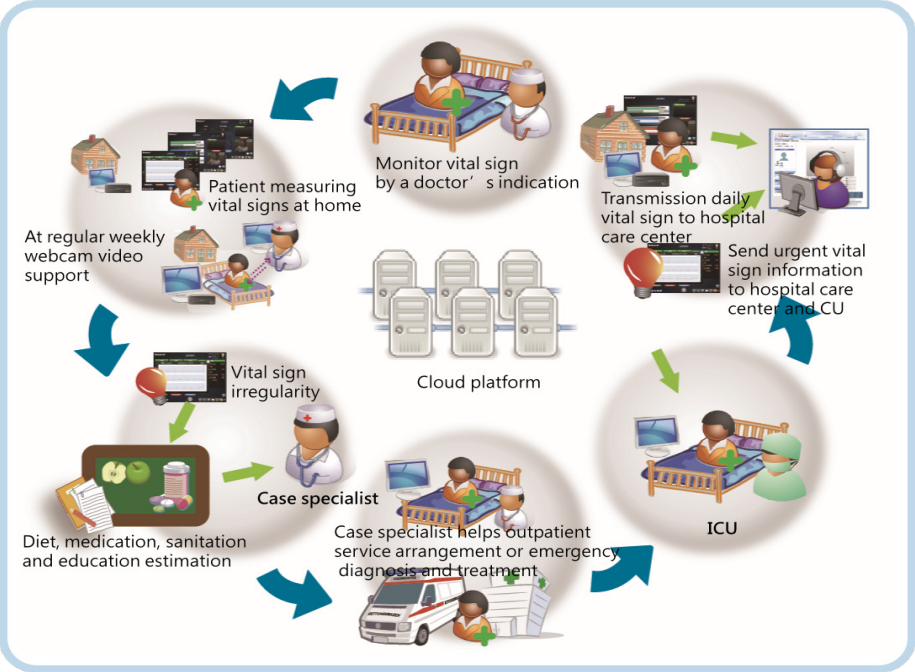

Figure 2: Effective telehealth services are made possible by Intel vPro technology, which efficiently monitor a user's device and online activities

and other components while running. This technology also allows Babybot to automatically adjust according to the conditions of client, server and hardware efficiency, speeding up the computer's buffering. Through this technology, Babybot can help physicians gather patient information faster and more efficiently.

To build an efficient telehealth service, Netown also needed to address security. Explained Han-Wei Zhang, Research and Development Department manager for Netown Corporation: "Personal data protection is an important concern for users. Generally, most users worry that their personal data, including personal information, vital signs or personal health records, would be leaked."

To address this, Intel AES-NI is applied on Babybot so that users can be assured of security and protection when they measure their vital signs. This technology improves the speed of applications performing encryption and decryption using the Advanced Encryption Standard (AES). In the past, data could only be encrypted or decrypted one-by-one, which took a lot of time. With Intel AES-NI,encryption and decryption can be done on users' data synchronously and quickly, saving time and effort, while providing a high level of enhanced security encryption/decryption protection of confidential documents and an Internet communication security set on Babybot.

Deploying Intel AES-NI on the Babybot improves and supports AES performance, including the cryptographic key length of each standard, the operation of each mode, and other non-standards. Intel AES-NI also raises the performance of the Babybot remarkably. At the research and development stage, Netown experimented between Intel AES-NI performance and traditional encryption and decryption software tools. Netown found that Intel AES-NI speed testing came in at 223.33 seconds compared to the speed testing of traditional encryption and decryption software, which performed at 356.86 seconds. The encryption and decryption speed of Intel AES-NI improves about 30 percent when Babybot is running patients' personal health records and vital signs.

The Intel vPro technology and its Intel AMT and Intel AES-NI are definitely great capabilities to support Babybot. The former can efficiently and effectively know patients' vital signs when they are measuring, while the latter enhances security and speed of encryption and decryption of client-side data. Netown hopes that by adopting Intel Core vPro processors, 15.6 and 10-inch touch screens, and a simple selection mode of operation, Babybot will meet users' needs," said Han-Wei Zhang.

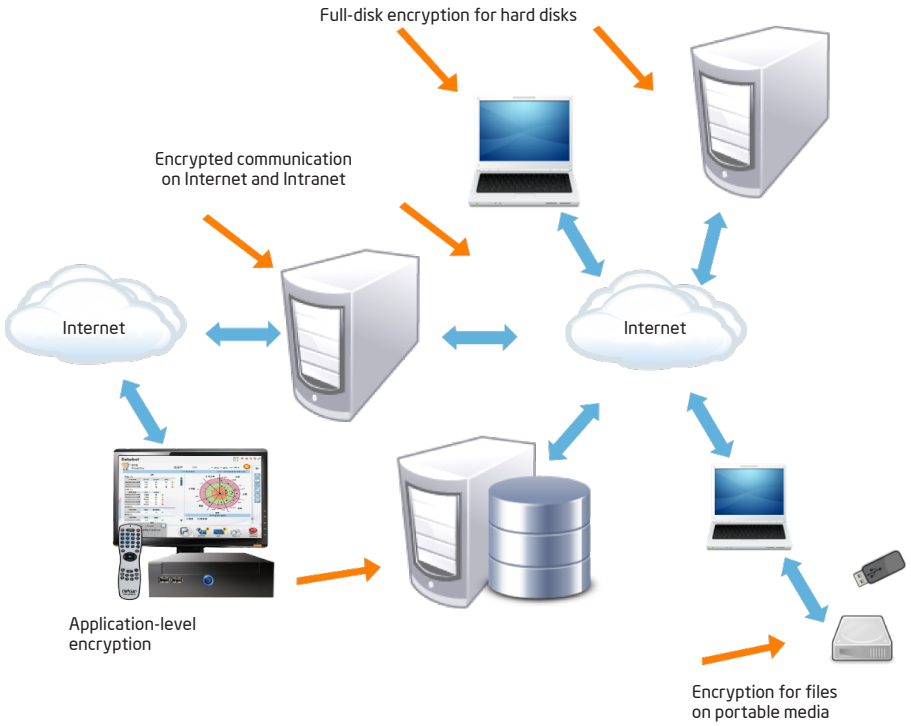

Figure 3: With Intel AES-NI, encryption and decryption can be done on user data quickly, providing confidential documents and Internet communication the highest level of security

Taking telehealth service to the next level

Through Babybot and Intel technologies, Netown can deliver smart health care services that do more than just act as a monitoring system. Apart from delivering instant medical information analysis such as management of vital signs, graph analysis, and abnormal reminder, Babybot also provides multiple network access, coordinated hospital services, visual and audio integration with communication, video entertainment, and daily services such as medication reminders and diet and exercise management.

Figure 4: Netown's Babybot delivers more than just smart medical services, taking healthcare to the next level

The cardiology department of one customer, National Taiwan University Hospital, benefits by having patients, particularly those who have suffered heart attacks, use Babybot to constantly check their vital signs and quickly communicate any signs of urgency with their physicians.

As it continues to elevate telehealth services, Netown eyes enhancing Babybot to become a more effective and efficient companion to patients. Soon, Babybot will adopt Intel® vPro™ technology as a development strategy.

After Netown's search and evaluation, Intel vPro technology should be an important factor in moving to the next developmental stage of an enhanced Babybot. This technology can intelligently manage itself and possesses a self-aware feature, automatically turning on or off on schedule. On top of that, Intel vPro technology is a green technology, allowing Babybot to save on energy consumption. With Intel vPro technology, Babybot can become a more humanized and user-friendly machine for patients, while allowing them to save on the costs of power and energy.

Highly efficient technologies for creating brand awareness

Applying Intel technologies has allowed Netown to deliver high-quality telehealth services that would serve as its anchor to building a successful brand. By taking advantage of a co-branding strategy with Intel, Netown can promote Babybot as an effective and efficient health care system that elderly and chronic disease patients want.

"Netown associates brand loyalty with Intel. Using Intel's components could build Babybot's reputation as the best integrated solution for providing better care and more functional options for elderly and chronic disease patients. As we look at a promising future, we choose Intel to power our smart health care services and we are not going to consider other technology providers," said Han-Wei Zhang.

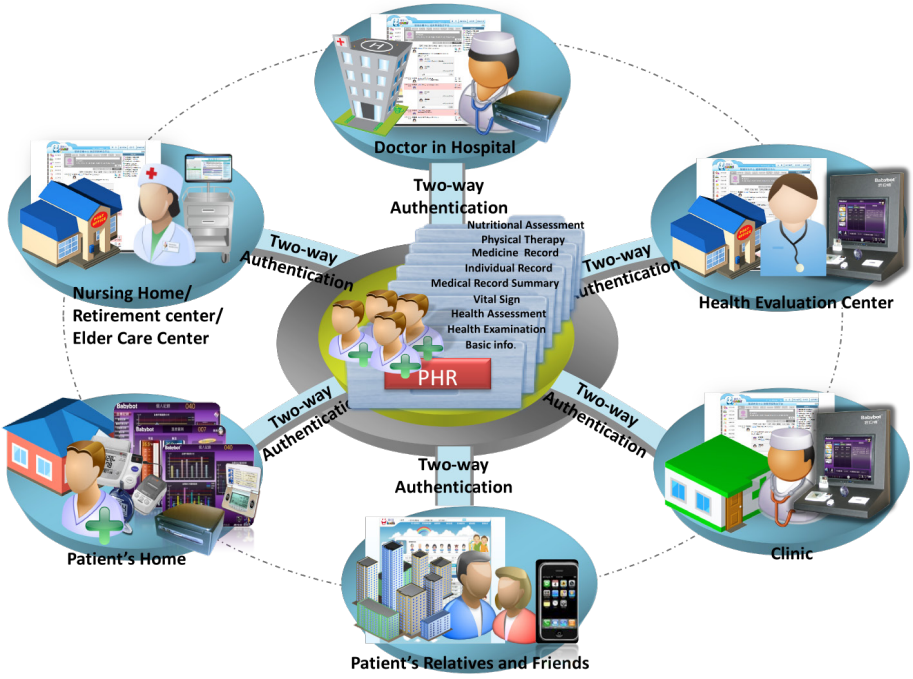

Figure 5: Accurate patient information on the go: With Babybot, healthcare personnel and family members can conveniently verify and authenticate a patient's medical history wherever they are

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