

TOSHIBA REVIEW

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Special Reports

"TimeOn" Regza Cloud Service and TV for Cloud Services

"TimeOn" Regza Cloud Service Creating New Styles of Use
ISHIBASHI Yasuhiro

Social Network Services Evolving around Visual Contents

KATAOKA Hideo

Despite increasing opportunities for the dissemination of smart TV, what smart TV actually consists of has not yet been clearly defined. The "TimeOn" Regza cloud service provides an answer from the perspective of a service provider to the question of what the value of TV to users should be. TimeOn offers various services for cloud-based TVs taking a different approach from that of conventional smart TVs, based on the concept of not only connecting people with visual contents, but also enhancing people-to-people relationships by making them more active and enjoyable.

As a solution to the issues facing TV and other broadcasting media, Toshiba is making continuous efforts to provide cloud services including the "Cloud Menu," "Message," "Calendar," and "Recommended Scene Play" services, and to develop a new role for TVs through the incorporation of social networking functions.

REGZA Z7/J7 Series LCD TVs Offering New TV Viewing Style

NAKAO Masaharu / WATANABE Hiromasa / KUWAHARA Kazuki

It has become common practice in recent years to record high-definition television (HDTV) broadcast programs, with the result that viewers tend to watch preferred programs that they have recorded rather than watching on-air programs.

In response to this trend, Toshiba has developed the REGZA Z7 and J7 series liquid crystal display (LCD) TVs equipped with a function that allows users to watch only their preferred scenes from recorded programs in conjunction with the "TimeOn" Regza cloud service. We have also developed the "Zanmai Play" function for the REGZA Z7 series LCD TV, which introduces users' preferred programs from among recorded programs using the "time-shift machine" function. These new functions offer a new TV viewing style, in which users can watch only their favorite scenes from a large volume of programs, saving time and effort normally required for searching.

"Cloud Menu," "Message," and "Calendar" Services of "TimeOn" Regza Cloud Service

ISHIGAKI Satoru / TAKAO Yuji / TAKAGI Shu

With the improvement of the recording functions of TVs and recorders in recent years, viewers can easily search for their favorite programs and watch the recorded programs at any time. However, this viewing style is limited to individual enjoyment, and expectations are rising for the expansion of social services in this field to enhance people-to-people relationships.

Toshiba introduced the "TimeOn" Regza cloud service for cloud-based TVs based on TV contents in October 2012. TimeOn offers various services, including the "Cloud Menu," "Message," and "Calendar" services, that allow people to enjoy TV programs more by connecting them not only with audiovisual contents but also with other people. The Cloud Menu service serves as a portal for TimeOn, displaying starting icons including those for each service of TimeOn and existing functions such as video on demand (VOD) and a media player. The Message service, a core of the TimeOn communication functions, allows communication between users of each service in a consistent manner. The Calendar service displays a variety of information such as users' recording and viewing schedules in calendar form.

"Recommended Scene Play" and "Taglist" Services for more Enjoyable Viewing of Recorded TV Programs

KATO Masaya / OZAWA Masahiro / KANEKO Yuki

REGZA series liquid crystal display (LCD) TVs and REGZA Server recorders featuring the "time-shift machine" function enable users to enjoy interesting programs whenever they wish. However, as users are tending to spend less time viewing TV with the growing diversity of entertainment resources, there is a need for a service that allows them to easily access scenes that they really wish to see.

Toshiba has developed the "TimeOn" Regza cloud service, and installed it in the REGZA Z7 and J7 series LCD TVs. TimeOn provides users with the following functions for recorded TV programs: (1) the "Taglist" service, which allows users to easily access interesting scenes in each recorded program; and (2) the "Recommended Scene Play" service, which makes it possible to search for highlight scenes from among a large volume of recorded programs by scene.

"MediaGuide" and "Related and Hot TV Shows" Services for Sharing of Audiovisual Experiences among Viewers

OHKITA Hideki / SUZUKI Nobuyuki / TSUBOI Sougo

The "TimeOn" Regza cloud service is aimed at the activation of communication among viewers by enabling them to find interesting TV programs and share audiovisual contents effectively.

In line with these aims, Toshiba is developing the following services: (1) the "MediaGuide" service, which provides viewers with a navigation and search service for both programs found via the electronic program guide (EPG) and video on demand (VOD) contents; (2) the "Related and Hot TV Shows" social program recommendation service, which allows viewers to not only easily set the timer for recording their favorite programs from various lists generated by the system but also to share recommended lists with their friends; and (3) the "Auto Recording" automatic timer recording function, which can automatically record programs according to the lists selected by the Related and Hot TV Shows service. The MediaGuide service will be launched first in North America and Europe, while the Related and Hot TV Shows service will be launched first in Japan.

"Cloud Album" and "Memo Board" Services Supporting TV-Centered Communication with Family Members

GOTO Tetsuya / KIJII Isao / HARADA Takashi

Toshiba has introduced the "TimeOn" Regza cloud service for TV products, based on the concept of communication both among users and between users and contents. The "Cloud Album" and "Memo Board" services available on TimeOn offer new communication boards designed to be used on a large TV screen at home. By using these services on the TV screen, users can communicate with family members anytime and anywhere by sharing photographs via the cloud service and checking messages sent from mobile terminals.

Highly Reliable and Highly Secure Online Storage Platform Supporting "TimeOn" Regza Cloud Service

MIKI Masaaki / HAYASHI Eiji / SHINGAI Hideki

Online cloud storage services are currently attracting an increasing number of users. However, issues have been pointed out regarding the reliability of such services for long-term data storage and the security of data shared in or uploaded to the cloud.

To resolve these issues, Toshiba has developed a highly reliable and highly secure online storage platform incorporating its proprietary proxy re-encryption technology to ensure data security without sacrificing usability, and a wide-area distributed backup system to realize highly reliable data retention with a rapid response time. We have applied this platform to cloud storage for business-to-customer (B2C) services, including the "Cloud Album" service of the "TimeOn" Regza cloud service that allows users to share data among TV products on the network, and the Digital Kashikinko online storage service for consumer PC products.

User Experience Design for "TimeOn" Regza Cloud Service

NAKAMURA Takashi / HORIKAWA Masayuki / NAGATA Hirokazu

The conventional TV experience has not fulfilled viewers in recent years, and demand for a higher quality viewing experience has been increasing as part of the trend away from TVs.

In response to these circumstances, Toshiba has developed the "TimeOn" Regza cloud service to create and provide new value through TV-based communication in line with the concept of enhancing people-to-people relationships via visual contents. To improve the user experience (UX) with the aim of adding to the value of TimeOn services, we have developed an effective mechanism for smooth communication in these services and a graphical user interface (GUI) to facilitate widespread recognition and support of viewers.

"RZ Cloud" and "RZ Bangumi Navi" Companion Applications for Cloud TV Offering New Value to TV Users

SAIKI Kohji / ESAKA Naoki / OHTAKE Toshifumi

At the inception of its "TimeOn" Regza cloud service, Toshiba launched two applications for tablets, "RZ Cloud" and "RZ Bangumi Navi," as companion applications for use with cloud TV.

To realize RZ Cloud and RZ Bangumi Navi, we developed the following technologies: (1) technologies for HTML5 (HTML: Hypertext Markup language) application platforms, (2) an electronic program guide (EPG) distribution technology, and (3) common device control modules to connect Toshiba products such as TVs and recorders. These technologies make it possible to accelerate the global-scale development of multiplatform applications.

Platform Technologies Realizing "TimeOn" Regza Cloud Service

KAIBE Hiroshi / FUKAI Yusuke / SAGA Sayoko

To realize the "TimeOn" Regza cloud service, Toshiba has developed two new platform technologies based on HTML5 (HTML: Hypertext Markup Language) and cloud technologies: a network service using cloud technology, and a WebSocket server implemented on TV products. These technologies make it possible to offer a base service platform in cooperation with existing multiple services.

Feature Articles

Real-Time Dense 3D Reconstruction Technology Using Video Images of Monocular Camera

SEKI Akihito / Oliver WOODFORD

Three-dimensional (3D) shape information of objects and their surroundings is used in various applications, including the creation of 3D contents, driving support systems, plant construction and maintenance, product inspection, and so on. Expectations are rising for the realization of a 3D reconstruction technology using inexpensive means such as a digital camera, in view of the strong possibility of applying it to a broad range of markets from the consumer market to the social infrastructure market.

Toshiba has developed a real-time dense 3D reconstruction technology using a handheld monocular camera. In such types of cameras, it is crucial to achieve the precise estimation of camera positions/poses and point correspondences between images. This technology makes it possible to acquire 3D shape in real time by processing a sequence of motion videos through the simultaneous operation of both a central processing unit (CPU) and a graphics processing unit (GPU).

Efficient Parallelization Technology for Screen Transfers in Tiled Display Systems

MINEMATSU Mika / GOTO Masataka / MATSUZAWA Shigeo

With the increasing size of displays to distribute information more efficiently and accurately in recent years, the tiled display system consisting of multiple monitors has been attracting considerable attention as a novel approach to the realization of large display systems.

Toshiba has developed an efficient parallelization technology for screen transfers performed by the rendering servers of tiled display systems. A rendering server incorporating this technology can flexibly adapt to a larger display size by making use of the processing power of a multicore central processing unit (CPU).

ExaEdge_{TM} Next-Generation Video Streaming Server

INABA Hidekazu / FUKUI Hiroaki / KURIHARA Shinichi

To meet the growing demand for video viewing via terminals including smartphones and tablets connected to various networks, it is necessary to efficiently distribute increasing volumes of video contents to Internet Protocol (IP) networks such as IPTV and over-the-top (OTT).

Toshiba has developed the ExaEdge_{TM}, a next-generation video streaming server featuring high speed, extra-low power consumption, and compact size to significantly save space in the data center. The ExaEdge_{TM} makes it possible to distribute video contents to a large number of users by applying technologies including a hardware-based network protocol processing engine to achieve stable performance in simultaneous and multiple distributions and a direct storage access technology.

EC20 Model 100 Small Box-Type Embedded Computer

INARI Masaru / NAKAMURA Tadamichi / MAEZAWA Takuya

There is demand in the industrial field for small, fanless, box-type embedded computers for various applications such as automated teller machine (ATM) terminals, supervisory control systems, inspection systems, and so on.

Toshiba has developed the EC20 model 100 small box-type embedded computer to meet the diverse requirements of the market. Despite its small size, this model is equipped with multiple interface slots including universal serial bus (USB), digital video interface (DVI), and PCI slots. It is also equipped with a remote shutdown input terminal for safe power shutdown in combination with an uninterruptible power supply (UPS) system, as well as an efficient air cooling system and, in the case of using a solid-state drive (SSD) for the storage system, a maintenance-free spindleless configuration.

Frontiers of Research & Development

Sound Equalization Technology for Loudspeakers to Realize Clear and High-Quality Sound