



***Asia-Pacific region special report:
Advanced-service adoption, growth prospects***

By Grace Shaw, SNL Kagan, July 29, 2009

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Asia-Pacific region special report: Advanced-service adoption, growth prospects



Introduction

The Asia-Pacific region experienced steady adoption of digital TV and advanced pay-TV services in the last few years, particularly in China, India, Japan, South Korea, Australia and Singapore. Facing invigorated competition, operators in the region are turning to advanced-service rollouts to drive subscriber growth and ARPU gains. The following report analyzes how leading operators in Japan, South Korea, Australia and Singapore are incorporating digital video recorders, video-on-demand services and high-definition content to drive revenues and enhance competitive differentiation. In addition, the report examines how digital TV rollouts are shaping future opportunities for advanced services in China and India.

Asia-Pacific Summary

Metric	2009	2014	2009-2014 net additions	Net additions as % of total	2009-2014 CAGR
Digital DTH Subscribers	26,701,504	46,325,933	19,624,429	7.2%	11.6%
Digital Cable Subscribers	87,582,933	238,821,112	151,238,179	55.8%	22.2%
Digital Fixed Wireless Video Subscribers	543,287	1,083,133	539,846	0.2%	14.8%
DTT-only Households	24,096,046	110,344,130	86,248,084	31.8%	35.6%
IPTV Subscribers	9,683,719	22,646,924	12,963,205	4.8%	18.5%
DTV Connections	167,613,917	438,757,251	271,143,334	99.8%	21.2%
DTV Penetration of TV Households	26.0%	62.7%			

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Asia Pacific: Top 15 Pay-TV DTV Net Adds 2009-2014

Market	Platform	2009	2014	2009-2014 Net Adds	% Change
China	Digital Cable	73,580,468	200,362,725	126,782,257	172.3%
India	DTH	13,970,646	26,319,826	12,349,180	88.4%
South Korea	Digital Cable	1,311,767	9,843,035	8,531,268	650.4%
China	IPTV	5,337,559	12,492,164	7,154,605	134.0%
India	Digital Cable	2,311,886	9,326,657	7,014,771	303.4%
China	DTH	0	4,579,378	4,579,378	-
Taiwan	Digital Cable	422,975	4,409,887	3,986,912	942.6%
South Korea	IPTV	1,197,680	3,652,165	2,454,485	204.9%
Japan	Digital Cable	5,902,991	8,033,235	2,130,244	36.1%
Japan	IPTV	1,067,945	2,729,926	1,661,981	155.6%
India	IPTV	51,926	1,546,051	1,494,125	-
Taiwan	IPTV	810,075	1,656,625	846,550	104.5%
Japan	DTH	3,844,679	4,690,315	845,636	22.0%
Philippines	Digital Cable	169,497	992,206	822,709	485.4%
Indonesia	DTH	890,193	1,496,809	606,616	68.1%
Total top 15		110,870,287	292,131,004	181,260,717	163.5%

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Asia-Pacific: NDS XTV DVR deployments

Operator	Platform	Country	Date
FOXTEL	DTH	Australia	31-Jul-08
Tata Sky	DTH	India	4-Nov-08
Hathway	Cable	India	19-Feb-08
SKY	DTH	New Zealand	31-Jul-08
SkyLife	DTH	South Korea	31-Oct-05

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Asia Pacific:

Top 3 DTH Net Adds 2009-2014

Market	2009	2014	2009-2014 Net Adds	% of A-P '09-'14 DTH Net Adds
India	13,970,646	26,319,826	12,349,180	62.9%
China	0	4,579,378	4,579,378	23.3%
Japan	3,844,679	4,690,315	845,636	4.3%

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Asia Pacific:

Top 3 Digital Cable Net Adds 2009-2014

Market	2009	2014	2009-2014 Net Adds	% of A-P '09-'14 Digital Cable Net Adds
China	73,580,468	200,362,725	126,782,257	72.3%
South Korea	1,311,767	9,843,035	8,531,268	550.4%
India	2,311,886	9,326,657	7,014,771	203.4%

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Asia Pacific:

Top 3 IPTV Net Adds 2009-2014

Market	2009	2014	2009-2014 Net Adds	% of A-P '09-'14 IPTV Net Adds
China	5,337,559	12,492,164	7,154,605	55.2%
South Korea	1,197,680	3,652,165	2,454,485	18.9%
Japan	1,067,945	2,729,926	1,661,981	12.8%

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Japan

Including Japan's sizable free-to-air satellite market, digital TV services are expected to penetrate 95% of TV households by the end of 2009, a figure forecast to reach 100% by 2014. Between 2009 and 2014, our models indicate, Japan will grow its digital cable market by 2.1 million households, constituting the top opportunity for advanced-service growth in the country. During the same period, IPTV is expected to follow cable's lead, with 1.6 million digital net additions. As a market known for its early adoption of digital technology, Japan has a relatively well-developed advanced-service landscape, with DVRs, VOD and HDTV readily available.

Japan Summary					
Metric	2009	2014	2009-2014 net additions	Net additions as % of total	2009-2014 CAGR
Digital DTH Subscribers	3,844,679	4,690,315	845,636	22.9%	4.1%
Digital Cable Subscribers	5,902,991	8,033,235	2,130,244	57.6%	6.4%
Digital Fixed Wireless Video Subscribers*	0	0	-	-	-
DTT-only Households	15,920,830	14,925,344	-995,486	-26.9%	-1.3%
IPTV Subscribers	1,067,945	2,729,926	1,661,981	44.9%	20.6%
DTV Connections**	45,743,875	49,441,388	3,697,513	98.51%	1.6%
DTV Penetration of TV Households	95.0%	100.0%	-	-	-

* Not available. ** Total DTV Connections also includes "Other Satellite" households.
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Jupiter Telecommunications (J-COM)

With 2.6 million subscribers at year-end 2008, Jupiter Telecommunications, or J-COM, is Japan's largest MSO and second-largest pay-TV operator after SKY Perfect JSAT Corp. Digitization efforts are well under way, with J-COM's entire network upgraded to either 750 MHz or 770 MHz two-way in 2007. The operator launched its digital cable service, J:COM TV Digital, in April 2004. The company deployed a lower-priced alternative, J:COM TV Digital Compact, in December 2006 to encourage digital service migrations. At year-end 2008, J:COM had 2 million digital subscribers, accounting for 78% of its subscriber total, up from 1.5 million, or 67%, at year-end 2007. J-COM stated in its 2008 annual filings that it expects to complete its digital migration in 2010.

J-COM's analog cable service offers more than 50 video channels, while its digital cable services feature more than 120 channels. Optional premium channels and discounted voice and data bundles are available to both analog and digital cable subscribers, while VOD, pay-per-view and DVR service are available only to digital subscribers.

In September 2007, J-COM selected the OpenTV integrated browser to power its VOD services, branded J:COM On Demand, and interactive TV services. For the 12 months ended December 2008, J-COM On Demand generated ¥2.7 million in revenues from 6.8 million VOD purchases.

As of July, J-COM's HD channel lineup consisted of 24 channels, including Discovery HD, FOX HD, Movie Plus HD, LaLa HD, J sports Plus and Channel Ginga. J-COM also rebroadcasts free-to-air and broadcast satellite channels, including NHK, NHK Digital Hi-Vision, TV Asahi, BS Japan, BS Fuji and WOWOW.

The company launched an HD DVR in April 2006. As of December 2008, it sold a cumulative 404,800 units, up from 254,600 in December 2007. J-COM's HD recorder set-top box is the Humax JC-5000, with a 250-GB hard disk

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capable of up to 20 hours of HD recording. In December 2008, the company launched the HDR Plus service leveraging Panasonic's TZ-DCH8000 STB, providing HD video recording via a 500-GB hard disk for ¥1,260 per month. The new box includes a built-in DVD drive with video recording capability.

Nippon Telegraph & Telephone (NTT)

Nippon Telegraph & Telephone Corp. is Japan's largest telecommunications provider. On March 31, 2008, NTT East and NTT West launched FLET's Hikari Next, a next-generation network service, along with a triple-play IPTV offering branded Hikari (Optical) TV. As of July, NTT's Hikari IPTV service offered 75 streaming channels available to FLET's Hikari Premium (NTT West), B FLET's (NTT East and NTT West) and FLET's Hikari Next (NTT West and NTT East) customers. Video plans range between ¥2,625 and ¥3,675.

As of July, NTT's Hikari TV IPTV service offered a VOD library with 10,000 titles. Top Oneuchi Plan and Video Zanmai Plan subscribers had unlimited access to 5,000 videos. Otherwise, VOD purchases started from ¥105 per video.

Hikari TV offers multiple HD channels, including FOX HD, Discovery HD and Star Channel HV. SNL Kagan expects Hikari TV will expand its HD selections as HD IPTV gains traction in Japan in 2009.

Between 2009 and 2014, we forecast, Japan's IPTV subscriber base will increase at a 20.6% CAGR, reaching 2.7 million subscribers.

SKY Perfect JSAT Corp.

In February 2004, SKY Perfect Communications, now SKY Perfect JSAT, partnered with NTT East and NTT West to invest in a new company to promote the SKY PerfectTV! Hikari service, formerly HIKARI PerfectTV! The IPTV service is delivered via the optical-fiber networks of OptiCast Inc., a wholly owned subsidiary of the SKY Perfect JSAT Group, offering all channels available on the SKY PerfectTV! service in addition to supplemental content including terrestrial and satellite broadcast channels. SKY PerfectTV! Hikari served 90,518 subscribers at the end of 2008, up from 54,055 at the end of 2007.

Although SKY PerfectTV! Hikari did not offer HD channels as of July, SNL Kagan anticipates it will include HD in the near term. The operator's partners, NTT East and NTT West, already offer HD channels, including Discovery HD, as part of their similarly branded Hikari TV service, having expanded to triple-play including HD video on March 31, 2008.

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South Korea

Cable dominates South Korean pay TV, but digitization is hindered by the market's fragmentation and government regulation of content and infrastructure. Despite these challenges, SNL Kagan anticipates cable will see 8.5 million digital net additions between 2009 and 2014, the highest among all platforms in the country. Mirroring Japan, IPTV will follow cable's lead, with 2.5 million digital connection net additions forecast through 2014. Although digital connection penetration is relatively low at 22% of South Korean TV households at year-end 2008, advanced services are expected to help drive subscriber migration to the digital platforms.

Metric	2009	2014	2009-2014		2009-2014 CAGR
			net additions	Net additions as % of total	
Digital DTH Subscribers	2,378,634	2,701,307	322,673	2.7%	2.6%
Digital Cable Subscribers	1,311,767	9,843,035	8,531,268	71.2%	49.6%
Digital Fixed Wireless Video Subscribers*	0	0	-	-	-
DTT-only Households	98,864	770,322	671,458	5.6%	50.8%
IPTV Subscribers	1,197,680	3,652,165	2,454,485	20.5%	25.0%
DTV Connections	4,986,945	16,966,829	11,979,884	100.0%	27.7%
DTV Penetration of TV Households	28.1%	90.0%	-	-	-

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SkyLife

Korea Digital Satellite Broadcasting Co. provides South Korea's only direct-to-home service, branded SkyLife, offering more than 150 channels as of July. The operator provides digital satellite broadcasting, near-video-on-demand, pay-per-view and interactive services branded SkyTouch. SkyTouch, which includes games and HD programming, was launched in May 2003. As of January, SkyLife served 2.5 million subscribers.

SkyLife launched its NVD service, branded SkyChoice, in March 2002. As of July, the operator offered 10 SkyChoice channels, priced at 1,800 South Korean won per film.

In June 2007, SkyLife chose Ericsson Group subsidiary Tandberg Television to upgrade its standard definition and HD satellite headend systems. By June 2008, SkyLife upgraded its existing HD services with Tandberg's MPEG-4 systems. In the following month, SkyLife selected the NDS Videoguard conditional-access system to support its HDTV services. SkyLife carries several HD channels, including Discovery HD, Voom HD and SkyLife HD. As of July, SkyLife's HD set-top boxes were supplied by Humax and DMT. Both STBs integrate Alticast's Multimedia Home Platform.

On Oct. 31, 2005, NDS announced SkyLife had selected its XTV personal video recorder technology. SkyLife deployed its SkyPVR service Nov. 20, 2006. As of July, subscribers could purchase SkyLife's PVR receiver for 230,000 won.

KT Corp. (QOOK TV)

KT Corp. is a major telecommunications service provider in South Korea. KT launched its IPTV service, branded MegaTV, in 2004. The service, which required KT's Megapass-branded Internet line, accumulated 38,566 subscribers by August 2005, at which time KT ceased its MegaTV operations due to regulatory restrictions. KT relaunched the

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MegaTV brand as an IP-VOD service in June 2007. The Korean Communications Commission awarded the telco an official IPTV license Sept. 8, 2008. At year-end 2008, MegaTV served about 773,000 subscribers, while Megapass had 6.7 million subscribers.

In April, KT changed the MegaTV brand name to QOOK TV and Megapass to QOOK Internet. As of July, QOOK TV offered 70 live broadcast channels including KBS, MBC, SBS and EBS; basic packages start from 9,600 won per month with a three-year contract.

Before KT's full IPTV broadcasting service launched in November 2008, the telco had already signed VOD deals with Time Warner Inc.'s Warner Bros. and Walt Disney Co.'s Walt Disney Pictures. QOOK TV's basic service features VOD content, including movies, television shows and educational programming. In January 2008, KT and search portal Naver developed a partnership, allowing QOOK TV to offer interactive services including stock information, banking, news, karaoke, games, text messaging, weather and traffic updates. As of July, QOOK TV's VOD library offered more than 70,000 titles. As of July, QOOK TV's VOD service fees were as follows: 8,000 won per month with a three-year contract, 9,000 won per month with a two-year contract, 9,500 won per month with a one-year contract and 10,000 won per month with no contract.

KT offered HD programming since its IP-VOD launch in July 2007. As of July, QOOK TV offered five HD channels. Voom HD, History HD, Asia N HD and AXN HD were included in the basic package, while Sky HD was available as a premium channel for 16,000 won per month.

As of July, QOOK TV did not offer a DVR service, and the telco had not announced any plans for a future DVR deployment.

LG Powercom (myLGtv)

LG Powercom Co. Ltd., a subsidiary of LG Dacom, provides broadband Internet, cable-TV transmission network services and fixed-line voice services. LG Powercom launched myLGtv, its IPTV service, in December 2007. As of January, the service had 80,000 subscribers, a figure growing to 110,000 subscribers by April. Customers may only subscribe to myLGtv with an LG Powercom XPEED broadband bundle. As of July, a basic dual-play, XPEED plus myLGtv, subscription cost 18,200 won per month with a three-year contract. When bundled with LG Powercom's XPEED telephony and broadband package, subscribers paid 8,000 won per month for the video service with a three-year contract.

As of July, myLGtv advanced services consisted of VOD, including HD content, and various interactive services including games and karaoke. VOD channels were priced from 7,800 to 10,000 won per month. Some individual selections were free, but some were priced from 500 won.

As of July, myLGtv offered the following HD channels: Story On, On Style, Super Action, OCN Series and AXN HD, with HD programming included in the basic package. The company offers a limited number of free HD VOD selections alongside premium titles priced from 900 won.

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CJ HelloVision

CJ Cablenet, a multiple system operator established in November 2002, launched its digital cable TV service, branded Hello D, in February 2005. On May 16, 2008, CJ Cablenet rebranded to CJ HelloVision, with its digital brand, Hello D, changed to Hello TV. The operator had 2.5 million cable TV subscribers as of December 2008, of which 668,653 were digital.

As of July, Hello TV had more than 100 video channels, 20 pay-per-view channels and 30 audio channels.

In April 2007, the MSO selected Nagravision's Lysis iDTV content management service and the Quative VOD Service Delivery Platform SDP2.0. Nagravision and Quative are both part of the Kudelski Group. Hello TV offers the following four VOD channels: Catch On, 120 films; Erotic Choice, 250 films; EBS Kids, 100 programs; and Disney Channel On Demand, 120 films. VOD channels are priced from 3,000 won to 10,000 won per month.

As of July, Hello TV subscribers had access to 18 HD channels, including National Geographic HD and Story On HD. HD Channels were included in two Hello TV HD packages: 20,000 won per month with a three-year contract for the Premium HD package and 15,000 won per month with a three-year contract for the Basic HD package. HD channels are also included in the Hello TV premium HD PVR package, priced at 24,000 won per month with a three-year contract.

In February 2005, CJ HelloVision implemented Alticast's OpenCable Application Platform middleware to support digital cable TV interactive applications. By November 2008, the operator had deployed an HD PVR integrating this middleware solution. As of July, CJ HelloVision offered two PVRs: a 320-GB HD version and a 160-GB standard-definition variety.

Australia

Unlike Japan and South Korea, DTH services are expected to achieve the highest rate of digital net additions among all platforms in Australia between 2009 and 2014. During this time frame, SNL Kagan forecasts, DTH will attract 600,770 digital net additions, followed by cable with 287,296 additions. IPTV is expected to follow close behind cable, with 217,809 digital net additions. Although IPTV has yet to establish a significant presence in the Australian pay-TV market, DTH and cable have well-developed advanced services.

Metric	2009	2014	2009-2014 net additions	Net additions as % of total	2009-2014 CAGR
Digital DTH Subscribers	1,451,695	2,052,465	600,770	20.4%	7.2%
Digital Cable Subscribers	1,033,633	1,320,929	287,296	9.8%	5.0%
Digital Fixed Wireless Video Subscribers*	0	0	-	-	-
DTT-only Households	3,035,080	4,867,575	1,832,495	62.4%	9.9%
IPTV Subscribers	21,075	238,884	217,809	7.4%	62.5%
DTV Connections	5,541,483	8,479,854	2,938,371	100.0%	8.9%
DTV Penetration of TV Households	69.2%	100.0%			-

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FOXTEL

In 1995, Telstra Corporation Ltd. and News Corp. formed 50-50 joint venture FOXTEL under the 1995 Broadcasting Co-operation Agreement, bringing pay TV to Australia. In recent years, FOXTEL advanced its programming and interactive TV services, with its total subscriber base growing from 1.1 million in 2004 to 1.5 million in 2008, an 8.8% CAGR. FOXTEL's directly controlled DTH platform, which launched in March 1999, has become Australia's dominant pay-TV operator, competing strongly against cable. On Feb. 1, 2007, the operator completed its digital upgrade, shutting off analog signals. As of December 2008, FOXTEL served 1.6 million total subscribers, including 1.4 million direct subscribers.

FOXTEL launched push VOD on Feb. 8, 2007, with the service available to its iQ and iQ2 customers free. Content includes locally produced films and other blockbuster movies. Premium push VOD films, branded FOXTEL Box Office HD On Demand, are available for A\$6 per movie for iQ2 subscribers.

With HDTV already present in the FTA broadcast space and rival direct-to-home operator Austar pursuing a 2010 HD launch, SNL Kagan expects FOXTEL to aggressively pursue HDTV programming to enhance competitive differentiation. FOXTEL already plans HD broadcasts of the Vancouver Winter Olympics and Delhi Commonwealth Games in 2010, as well as the London Summer Olympics in 2012.

The FOXTEL iQ digital PVR set-top box, supplied by Pace, includes ITV functionality, a 160-GB hard drive and simultaneous multiprogram recording. Reflecting an effort to preserve ad revenues, the device does not allow ad skipping, unlike its European and U.S. counterparts. FOXTEL launched its newest HD DVR service, FOXTEL HD+, on June 22, 2008, attracting more than 85,000 subscribers by December 2008. The HD+ service requires the HD FOXTEL iQ2 set-top box, an HD version of its iQ digital STB; the iQ2 is also produced by Pace. As of July, subscribers could rent the iQ2 for A\$10 per month. As of December 2008, more than one-third of total subscribers used the FOXTEL iQ set-top box.

Austar

Austar United Communications Ltd. has provided commercial television services in Australia since 1995. As of July, Liberty Global Inc. owned 54% of the operator. Austar's DTH service targets Tasmania, the Northern Territory and certain regions in South Australia, Victoria, New South Wales and Queensland; the service is not available in western Australia. In Darwin, Austar also operates a digital cable service, launched in November 2004. Austar has a fully digital infrastructure and completed subscriber migration to digital in 2006. As of December 2008, the operator had 720,658 total video subscribers, both digital cable and DTH, out of a total household reach of 2.5 million homes, leaving considerable room for further subscriber base expansion. As of July, Austar's DTH offering consisted of more than 120 channels, NVOD and interactive services.

The operator said it expects to deploy an HD service in 2010, but content deals had not been announced as of July.

Austar launched a personal video recorder, branded MyStar, to existing subscribers in November 2007, expanding to all DTH subscribers in February 2008. As of Dec. 31, 2008, Austar had 72,719 MyStar subscribers. As of July,

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MyStar cost A\$14.95 per month with an Austar subscription.

Singapore

Although cable dominates Singapore's pay-TV landscape, IPTV is expected to achieve the highest 2009 to 2014 digital video connection gain. SNL Kagan models 154,983 digital net additions for IPTV in Singapore between 2009 and 2014, followed by cable, with 118,737 additions. Pay-DTH services do not exist in the country, and we do not expect them to develop near term. Singapore has highly developed advanced-service offerings including VOD, HD, DVR and interactive content.

Metric	2009	2014	2009-2014 net additions	Net additions as % of total	2009-2014 CAGR
Digital DTH Subscribers*	0	0	-	-	-
Digital Cable Subscribers	557,313	676,130	118,817	26.8%	3.9%
Digital Fixed Wireless Video Subscribers*	0	0	-	-	-
DTT-only Households	55,443	224,180	168,737	38.1%	32.2%
IPTV Subscribers	85,799	240,782	154,983	35.0%	22.9%
DTV Connections	698,556	1,141,091	442,535	100.0%	10.3%
DTV Penetration of TV Households	62.9%	97.8%	-	-	-

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StarHub

StarHub Ltd. has been Singapore's only cable TV operator since its launch in April 2000. As of July, the company offered a triple-play package and digital cable services, branded STARHUB TV. StarHub served 524,000 cable TV subscribers at the end of 2008, including 504,000 digital subscribers.

StarHub launched its Demand TV on-demand service Aug. 20, 2008. Two kinds of VOD service are available: Video-On-Demand and the On Demand Channel. Video-On-Demand users can purchase individual video selections, including Hollywood films, TV series, and Barclays Premier League matches. On Demand Channel users pay a monthly subscription for unlimited access to a video library. As of July, StarHub offered the following eight on-demand channels: Disney Channel @ Play, HBO On Demand, BPL On Demand, WWE Series On Demand, TVBJ On Demand, VVD On Demand, E City On Demand and Ruyi Hokkien Channel.

The operator launched HDTV services in the first quarter of 2008, and as of July offered six HDTV channels. StarHub confirmed to SNL Kagan that it officially shut off analog services July 5; however, the company indicated analog cessation was postponed for some customers until further notice.

On Oct. 1, 2008, StarHub launched the HubStation DVR priced at S\$8.56 per month. On Nov. 13, 2008, StarHub deployed its HD DVR, branded HubStation HD. The STB, which includes a 320-GB hard disk, enables both SD and HD video viewing and recording, along with access to the Internet and StarHub's digital voice service.

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SingTel (mio TV)

SingTel provides quadruple-play services via its fixed-line, broadband and mobile phone systems. As of July, the Singapore government held a 54% stake via Temasek Holdings. The telco launched its IPTV service, mio TV, on July 20, 2007, offering VOD and linear channel services. As of July, mio TV offers a SuperSaver pack, S\$19.90 per month, and a custom package in which customers choose any number of 44 linear channels and 13 available on-demand channels, meeting the required S\$16.05-per-month minimum charge. TV subscribers also receive free-to-air channels and VOD access to Hollywood and Bollywood films. As of December 2008, mio TV served 59,000 subscribers.

On Sept. 1, 2008, SingTel announced its on-demand service, branded Season Pass, allowing mio TV subscribers access to popular U.S. television series 24 hours after their U.S. broadcast time. Programming includes “Gossip Girl,” “Grey’s Anatomy” and “Ugly Betty.” MioTV subscribers pay from S\$16.05 per series per month.

Mio TV offers HD channels including MediaCorp TV Singapore Pte. Ltd. FTA channel, HD5. As of July, the following HD channels were priced at S\$12.84 per month or S\$10.70 per month with a 12-month contract: VOOM HD, Equator HD and Sling HD.

Mio TV’s DVR service is based on Motorola Inc.’s VIP series, VIP1200 and VIP 1280, set-top boxes priced at S\$16.05 per month. The VIP1200, which supports both SD and HD content, integrates Microsoft’s MediaRoom platform. In addition to the VIP1200’s features, the VIP1280 model includes an 80-GB hard drive for an additional S\$10.70 per month.

Advanced services outlook: China and India

Although this report focuses on Japan, South Korea, Australia and Singapore, advanced services are also present in India, China, New Zealand, Hong Kong, Indonesia, Malaysia, Taiwan and Thailand.

Asia-Pacific: Other DVR Operators				
Operator	Platform	Country	DVR Service Brand	Launch Date
PCCW	IPTV	Hong Kong (Greater China)	“All-in-one-set-top-box”	2008
SKY	DTH	New Zealand	MY SKY HDi	Dec-2005
China Network Systems	Cable	Taiwan	TiVo	2006
TrueVisions	DTH/Cable	Thailand	TrueVisions PVR	17-Mar-08
Tata Sky	DTH	India	Tata Sky+	14-Oct-08
Hathway	Cable	India	N/A	TBD
Astro	DTH	Malaysia	Astro Max	Jul-06

TBD = to be determined. © 2009 SNL Kagan, a division of SNL Financial LC, based on operator data. All rights reserved.

Based on 2009 to 2014 forecasts, SNL Kagan anticipates China and India are set to develop the region’s largest populations of digital video connections at accelerated growth rates.

In China, digital cable is expected to lead the digital march with 127 million digital net additions. Speaking in Beijing at the CCBN 2009 conference March 20, keynote speaker Wang Xiaojie, director of the Science and Technology Bureau of China’s State Administration of Radio, Film and Television, indicated the government is interested in

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advancing personal video recording and push-video-on-demand options for both DTH and cable.

Every province is serviced by its own local MSO. According to SARFT, the following are the top five MSOs: Shaanxi Cable Network, Beijing Gehua CATV Network, Shanghai Orient CATV Network, Yunnan Cable Network and Tianjin Cable Network. Shaanxi Cable Network offers a basic digital cable package for 25 Chinese yuan per month in urban areas and 20 yuan per month in rural areas. Premium content includes interactive and European football programs. Beijing Gehua offers a slightly cheaper basic digital package for 18 yuan per month. Among the top MSOs, basic digital cable packages range from 15 yuan per month to 25 yuan per month.

Although SNL Kagan projects digital cable to dominate digital net additions in most markets, in India, we expect DTH to lead, with 12.3 million digital net additions between 2009 and 2014. Although Tata Sky Ltd. was the only DTH operator offering a DVR service as of July, additional rollouts are expected near term. In regard to the cable market, on March 12, NDS announced Hathway Cable will implement the NDS XTV DVR service. As of July, Hathway had not deployed commercial DVR services, but is expected to become India's first major cable operator to do so, via a near-term service launch.

Addendum — TiVo

The TiVo Inc. digital video recorder was commercially introduced to the U.S. market in 1999. As of July, TiVo served 3.2 million subscribers. In the U.S., TiVo users either purchase a TiVo stand-alone unit and subscribe to a TiVo service plan or subscribe to a multichannel service that licensed and integrated TiVo technology for in-house set-top boxes. Prices vary for both the hardware and the monthly service. Because of high TiVo licensing fees, most multichannel operators in the U.S. have pushed DVRs using their own software, although some consumers still prefer the TiVo functionality. One operator, Cablevision Systems Corp., after winning a recent U.S. Supreme Court ruling in its favor, is also rolling out a new service in which programs are recorded on a central server to allow playback without a DVR box connected to the user's TV.

TiVo: U.S. service fees (As of July 2009)	
TiVo DVR Unit	Price (US\$)
TiVo Series Dual Tuner	149.99
TiVo HD	299.99
TiVo HD XL	599.99
TiVo service plan	Price (US\$)
Monthly	12.95
Annual	129
3-year	299
Lifetime*	399

* One-time payment only. © 2009 SNL Kagan, a division of SNL Financial LC, based on TiVo data. All rights reserved.

TiVo also licenses its brand internationally. As of July, the service was available in Australia, Canada, Mexico, Taiwan, the United Kingdom and New Zealand. This addendum serves to note TiVo's presence in Asia-Pacific region markets.

Australia & New Zealand

Hybrid Television Services (ANZ) Pty. Ltd. licenses TiVo in both Australia and New Zealand.

In 2008, Hybrid Television became the exclusive licensee to TiVo in Australia. In Australia, Hybrid Television Services

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is owned by the Seven Media Group. Unlike the U.S. pricing scheme, Australian TiVo users pay a one-time fee along with the device. As of July, the TiVo media device, including the service, cost A\$699. The device can record up to 60 hours of standard-definition or 30 hours of high-definition programming on its 160-GB hard drive. The service also offers push VOD and branded Blockbuster Movies on Demand, with films priced at A\$3.95 or A\$5.95 for new releases.

In New Zealand, Hybrid Television Services is owned by TV New Zealand. On March 26, Hybrid Television Services announced it plans to deploy the TiVo service in New Zealand by Christmas. Although specific details about the device and price have not been released, the company said the pricing scheme would resemble that of Australia's TiVo service.

Taiwan

TiVo's minority-owned subsidiary TGC Inc., TiVo Greater China, is the exclusive TiVo partner in Taiwan.

Cable TV operator China Network Systems Co. Ltd launched the TiVo service in the first half of 2006 to increase digital migration momentum. In December 2006, Eastern Multimedia, now kbro, also partnered with TGC to deploy the TiVo service.

TiVo Greater China Fees (As of May 2009)	
Device Capacity	Price (NT)
600 hours	29,800
180 hours	12,900
90 hours	10,900

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