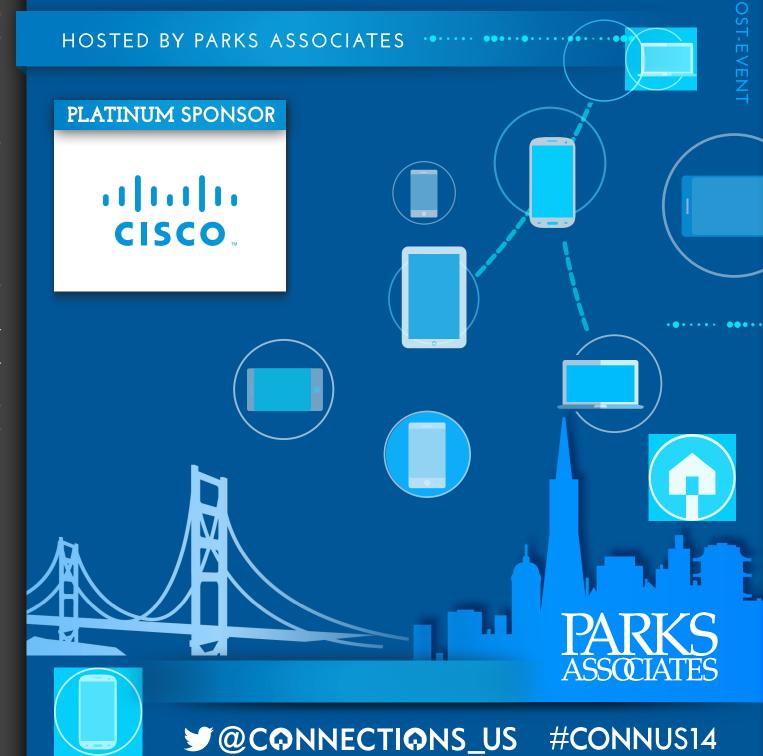
CONNECTIONS

EVENT SUMMARY 2(1)4





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THE PREMIER CONNECTED HOME CONFERENCE

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Event Summary

Parks Associates research finds that in 2014, the average U.S. broadband household has 7.4 connected CE devices. As consumer adoption of connected home solutions continues to increase, and as the Internet of Things takes shape, companies in this space need to find unique ways to stay competitive, which ultimately requires creating unique user experiences to encourage consumer adoption, engagement, and retention.

CONNECTIONS™ features discussions, networking, and presentations among engaged industry leaders from all consumer market segments who are dedicated to finding these business and market solutions and monetization strategies. The event also examines the key innovations that will expand the connected home:

- Apps and APIs will deliver interactive and engaging applications that enhance content and the overall customer experience on connected platforms.
- Connectivity expands the use cases for smart home devices.
- Service providers are developing the next generation of multiscreen services in order to differentiate their offerings.
- Consumer usage of connected CE and OTT content is intertwined, so all service and content strategies must accommodate these new user-driven use cases.

"I have been in tech sales for 23 years and helped build many start-ups, etc., and NEVER been to a more focused show and had such great appointments than CONNECTIONS™."

-Sr. Manager, Software Provider

"I was delighted to see how diverse the topics were and the wide array of opinions and ideas shared throughout the three days... congratulations again on what I feel was a very successful conference."

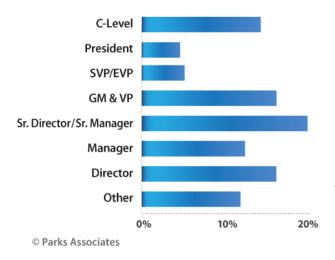
-Operations Analyst, Service Provider

Congratulations to our iPad Mini Winners:

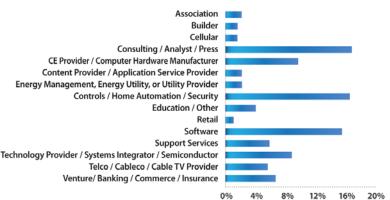
- Daniel Gordon, Valhalla Partners
- Sam Yacoub, CEL
- Bob Chambless, CenturyLink

Attendees

CONNECTIONS™ 2014 Attendees by Title



CONNECTIONS™ 2014 Attendees by Industry



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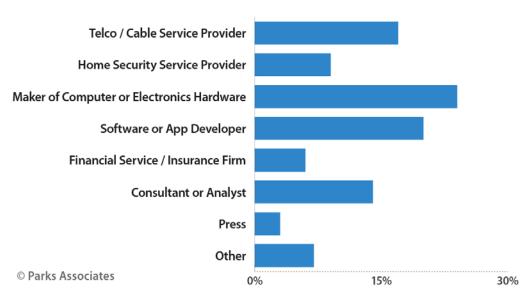
Session Notes

TUESDAY, MAY 13

Consumers and the Connected Home: Challenges, Trends, and Opportunities

Which of the following best describes the function of your company?

CONNECTIONS™ 2014 Attendees



Over 80% of U.S. broadband households have a home network, creating a sizeable market for smart home and entertainment technologies and services. Consumers, as their usage of connected devices evolves, are redefining the value propositions for connected and mobile CE, home management and controls solutions, and security and monitoring platforms. This session set the stage with an in-depth discussion of the market and an assessment of the key challenges as multiple industries converge within the connected home.

SPEAKERS

- Marwan Afana, Chief Solutions Architect, Connected Home Solutions, Amdocs
- Dan Kerzner, Chief Product Officer, Alarm.com
- Steve Shapiro, VP, ADT
- Jeff Wilson, Director of Product Management, NETGEAR
 Moderator: Stuart Sikes, President, Parks Associates

Notes:

Most telecom operators either currently offer or are planning to offer home automation—this offering is a "must" if they
are to get into the worldwide service market. All telecoms believe it is the next stage of services, but they aren't all sure
where to begin.



- Professional monitoring is going to grow first, but in five years, self-monitoring will take over the home automation space. Generally, people don't want to live without their security, and while growth might slow down, professional monitoring is here to stay.
- When asked about the biggest obstacle, the panelists felt connectivity was the top obstacle in the U.S., but slow consumer adoption and interoperability of devices are also contributors.
- Health and personal safety (PERS) are big drivers and will continue to be in the future.

Rocking the Boat: New User Experiences and Content Discovery

The user interface is the main communication point between a device or service and the user. The interface helps define the quality of the user experience, which in turn affects a consumer's overall perception of the product or services. Within the connected home, these interfaces have become a key battleground in the fight to win consumer use and, ultimately, revenues.

Discovery of content is a critical element of the interface for content providers, be it over-the-air broadcasters, TV networks, content producers, pay-TV operators, over-the-top (OTT) services, or online retailers. Methods used for discovering content vary based on the entertainment service, the viewer(s), and the viewing environment.

This session discussed the evolution of the user experience, including the impact of content discovery and mobile experiences for devices and services. Some of the topical areas covered included:

- Defining a good user experience
- Consumer expectations
- Impact of new innovations
- Unique aspects of the mobile environment
- Evolution of interfaces
- Revenue opportunities

SPEAKERS

- Yosi Glick, Co-founder & CEO, Jinni
- Billy Purser, Vice President of Marketing, Digitalsmiths, A TiVo Company
- Gene Wang, CEO & Co-founder, People Power
- Justin Whittaker, Co-founder, i.TV
- Todd Viegut, CEO, Kannuu

Moderator: Brett Sappington, Director, Research, Parks Associates

- The most popular use cases for TV apps are discovery oriented, such as searching for TV listings or information from a TV program.
- The interface is the touch point to the consumer, and the user experience has the potential to make or break the connected experience. Interface developers must balance static features with dynamic features, as stability brings familiarity while dynamics facilitate predictive and intuitive functions.
- A seamless experience is essential for an effective interface. People do not want 20 different apps for 20 different devices
- The next-generation User Experience would include the following features, according to panelists and audience members:

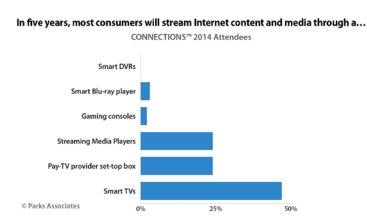
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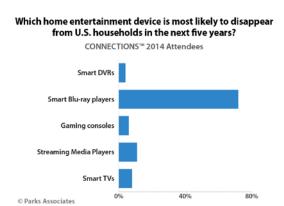
SAN FRANCISCO AIRPORT MARRIOTT WATERFRONT

- o Natural language / Semantic models
- Analog design (i.e., design that takes into account the human element)
- o iBeacon from Apple
- Awareness of where and who the user is
- o Intuitive control mechanisms
- Speech and sound recognition
- o Environmental awareness
- Geofencing
- Personalization

- Contextual awareness & relevancy associated with surroundings
- Day one journaling
- Simple interface interconnected and deeply integrated with other apps
- Premium services upsold to different devices
- Simplicity
- o Tactile feedback
- Conflict resolution and user input prioritization
- Contextual awareness will be important in the future, but balancing functional benefits and personal privacy will be exceedingly difficult.
- Many consumers are naive about the security and privacy risks that may accompany social interaction related to contextual awareness.
- Personalization will be more complex in the future and will be tied to automated identification/authentication. Future interfaces will learn about the user and adapt to their needs and preferences.
- Maintaining simplicity will be critical to adoption and ongoing use. Consumers will quickly drop experiences that are too
 complex or that require too much time, learning, or effort.

The Changing Role and Revenue Potential of Connected CE





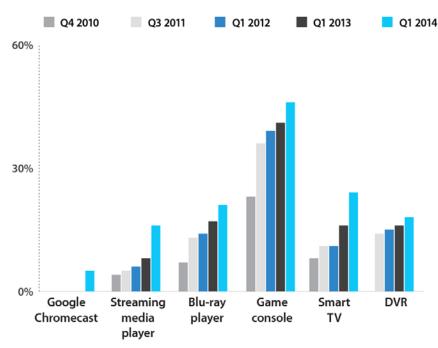
Manufacturers of connectable CE devices continue to innovate to create new and compelling experiences for users to enhance the home entertainment experience and to generate additional revenue through content services.

Historically, the main source of revenue for connected CE manufacturers has been device sales, and CE makers are adding innovative new features to increase unit sales. In addition, device manufacturers are looking to generate new sources of revenue through interface content placement, advertising, in-app purchasing revenues, and subscription revenues as well as fees for usage of the device's ad network. Content and apps are being assessed for competitive differentiation that can be monetized. 4K content is being developed and may have higher subscription rates than HD streaming. New revenue streams and business models will emerge.

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U.S. Broadband Households Connecting CE Devices to Internet (2010 - 2014)



© Parks Associates

SPEAKERS

- Jim Funk, SVP Product Management, Roku
- Kurt Hoppe, Director of Innovation and New Business, LG
- Brett Sappington, Director, Research, Parks Associates
- Rob Tobias, Senior Director, Strategic Marketing and Standards, Silicon Image, Inc.
- Stephen Venuti, President, HDMI Licensing

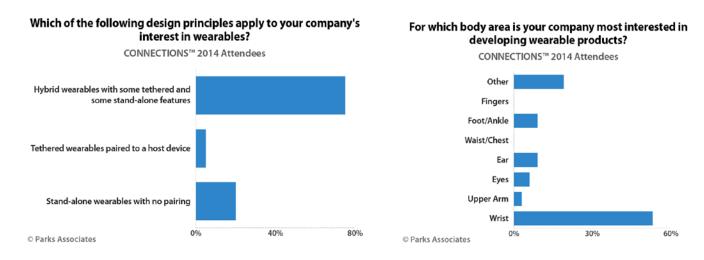
Moderator: Barbara Kraus, Director, Research, Parks Associates

- Software-based innovation will be the future of connected devices. Innovation related to authentication will also be a priority. Anything that minimizes the amount of effort that consumers put into their devices will guide innovation in the CE space. Platforms will evolve along with the ways in which they connect.
- CE models can survive even if they are not the primary interface as long as their setup and discoverability are made easy. Some panelists believe the company that owns the user interface that sits on top will lead in content revenue. Other panelists believe the business model should drive cooperation. CE manufacturers should create UI models where users can easily switch between revenue-generating services, and then each player would obtain a small margin. Other panelists argue that the concept of primary interface is questionable since so many providers act as content aggregators.
- Advertising is an evolving business model with features such as targeting, which provides easy access to consumers.
 Partnering with companies that have credit cards on file is another growing revenue model—likened to the iTunes

strategy. Exposing platform capabilities to developers is a useful strategy to grow revenue in the space. Capabilities that allow interaction with consumers can be exposed and monetized. It is important to minimize the cost of support in order to maintain margins.

Differentiation is primarily in the price point and in the experience offered by services.

Wearable Computing: Driving New Connected Home Experiences



As wearables emerge, there has been constant debate about their potential role in consumer's digital life, which is increasingly shaped by the Internet of Everything. Innovations in form factors, functions, and low-power personal area networking technologies make wearables increasingly more attractive to consumers. Whether they can become a mass-market product category similar to smartphones or HDTVs depends on innovations in use cases, a smooth user experience, and a price range that matches consumers' value expectation.

Wearables can be stand-alone products or tethered to a more popular device platform. Developers are interested in finding out which use cases warrant a stand-alone form factor versus a tethered solution. Device OEMs are also interested in identifying which use cases make sense for consumers to consider a wearable product and where to wear it on their body. In Parks Associates' view, wearables are a more challenging product category because consumers have a high expectation on product design and comfort, while OEMs and app developers have limited room to optimize functions, user experience, and cost.

Longer term, Parks Associates envisions wearables to mesh well with consumers' lives, giving personalization a new meaning as they find their respective "sweet spot."

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SPEAKERS

- Suke Jawanda, Chief Marketing Officer, Bluetooth SIG
- Anna Jen, Director, New Ventures/New Products, Epson
- Pankaj Kedia, Sr. Director, New Business Development, Qualcomm
- Renee Niemi, Senior Vice President, Communication Solutions, Plantronics
 Moderator: Harry Wang, Director, Health & Mobile Product Research, Parks Associates

- Consumers will have many wearable devices, including "smart fabrics."
- Creating wearables is difficult because they must be very rugged. They must also be fashionable and not cause allergies.
- Wearables generate much more data than other devices. For example, they know the location of the user, they can authenticate the user's identity, and they know what that person is looking at.
- Benefits vs. cost will drive design considerations; battery life vs. size is also a key design trade-off.
- The wearables market is still in its early days, as indicated by several unfortunate user experience issues. These include inconvenience to charge, dead batteries, undeveloped use cases, lack of consumer knowledge of intelligent capabilities, and privacy concerns through social integration. Wearables are also exposed to harsh environments for electronics including skin oil, sweat, and shock leading to breakage, and they have the potential to trigger skin allergies.
- Head apparatuses have ushered in a new series of use cases including augmented reality information streams and the
 ability to simulate environments. Both can be particularly useful in health education, such as simulating surgical
 procedures.
- Balancing form and function is a complicated process, especially because the potential customer base for wearables is very diverse. The panelists expressed varying degrees of preference between form and function.
- Multiple panelists expressed the concern that wrist wearables might resemble house-arrest devices.

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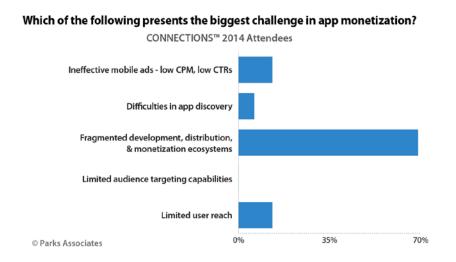
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Apps and Innovations for Entertainment Content, Services, and Devices

Mobile app revenues will exceed \$27 billion by 2018. Apps are transforming all aspects of the connected home, from mobile to fixed platforms, and becoming the key avenue for companies to promote content and services to the end user.

The app economy continues to grow at a rapid pace, spurred by consumer demand for content and services outside of traditional distribution channels.

Based on observed trends in connected device ownership since 2010 paired with users' affinity for apps, the app marketplace is positioned to grow in size as well as relevance among content owners, publishers, and advertisers.



SPEAKERS

- Mark Adams, VP & GM North America, Accedo
- John Boyd, Co-founder and CEO, ShopSavvy
- Sean Galligan, VP of Business Development and Sales, Flurry
- Matthew McLeggon, Business Development Director, FreeWheel
- Maja Mrkoci, Director, Business Development, PBS
 Moderator: Heather Way, Senior Analyst, Parks Associates

- Fragmented development, distribution, and monetization ecosystems present the biggest challenges in app monetization.
- While fragmented development systems present challenges, the Android platform will become easier for developers to manage.
- In order to be successful, app developers must ensure their apps are "sticky."
- Perspectives of mobile apps developers:
 - o For an app developer, word of mouth is most important
 - Limit app to one very simple use case with which users can engage
 - Find the right path for the use case
 - o Define loyal and engaged users
 - As important as customer acquisition is, it is more important to retain customers; keeping 40 million app users is more important than acquiring 40 million more
 - Refine and improve the app process by employing analytics
 - Maintain an extensive network
- ShopSavvy mobile shopping platform has 40 million downloads and enables price comparisons on more than 20 million products at 40 million retailers worldwide, including Walmart, Target, Best Buy, Sears, Nordstrom, and Barnes & Noble.

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- The app ecosystem, despite the growth, remains fragmented with multiple content choices available to consumers. Each content type (e.g., games versus video) brings with it varying opportunities, making it difficult to assume a "one size fits all" app strategy.
- While the smartphone and tablet app markets are relatively mature, content owners, service providers, technologists, and advertisers continue to look for ways to extend their offerings and strategies to reach consumers in multiscreen environments.
- Today, the smart TV app market has had little impact on the traditional TV business.

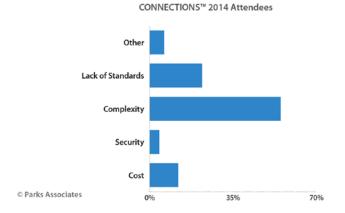
WEDNESDAY, MAY 14

Tech Support: Connected Home Strategies and Solutions

As the connected home grows more complex, the importance of technical support increases. Adoption of computers, smartphones, and game consoles has been growing steadily since 2009, and all are now staples in broadband households.

Broadband households now have an average of over seven connected devices, which is expected to increase dramatically with the growing Internet of Things (IoT) phenomenon. Connected devices are emerging in several categories, including home security, home control, health management, and entertainment.

$\label{thm:prop:connected} What is the biggest challenge facing wide spread adoption of connected devices?$



The implications for technical support are extensive. Technical support is necessary for the successful adoption of these devices; support that helps consumers to navigate and have a seamless experience with new devices will minimize no-fault returns and sustain growth in these sectors. Greater connectivity in the home also lends itself to greater installation complexities and a greater need for home networking services. Many of these devices are the first generation of their kind, which leaves them susceptible to functional glitches and problems due to user error and unfamiliarity. A likely increase in the volume of support needs among broadband households necessitates greater efficiencies, better tools, and increased automation throughout the support process.

SPEAKERS

- Larry Gordon, President, iYogi
- Frank Kouretas, Vice-President Products and Marketing, Radialpoint
- Karen McPhillips, Vice President, Marketing, PlumChoice
- Amy Millard, Vice President Marketing, Support.com
- Ratul Sengupta, Vice President, Technology Enabled Services and Platform, Sutherland Global
 Moderator: Patrice Samuels, Research Analyst, Parks Associates

Notes:

• Changes in the connected home will shape technical support services of the future. It is critical for providers of technical support services to understand the connected home and how it is evolving.

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- The average broadband household now owns seven connected devices, which is up from four devices in 2010.
 Connected devices include desktop computers, laptop/netbook computers, tablets, gaming consoles, streaming media devices, and smartphones.
- Obstacles to widespread adoption of new categories of connected devices include perceived complexity, lack of standards, and security and privacy concerns.
- While break/fix services are still in high demand, the adoption of new Internet-connectable devices has led to an increase in the number "how to" or enablement service requests.
- Some of the most common support requests now involve getting devices connected, dealing with third-party products (example: a Google Chromecast dongle isn't working with a different router), and helping consumers to understanding device features.
- For some consumer technology brands, tech support is moving from a revenue generator to an end-to-end user experience differentiator.
- As consumer adoption increases across new and more complex devices, support services can be leveraged to create
 longer-lasting relationships with consumers. Providers, therefore, actively try to maintain consumer engagement with
 technical support services—if the customer never calls tech support, they won't see the value of the service and won't
 renew.

OTT Services in a Pay-TV World

Online video has grown from niche use into a disruptive channel for video distribution that is changing the way that video services are offered and consumed.

Many services now specialize in premium, full-length content, including TV shows and movies.

In the U.S. market, almost two-thirds of consumers access TV shows and movies via the Internet.

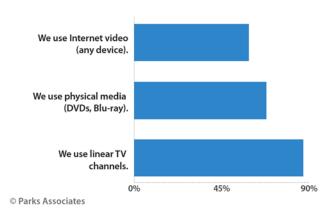
Today, 45% of U.S. broadband homes subscribe to a paid, online video subscription service.

OTT's leading strength is its perceived value by consumers.

However, consumers also highly rate the convenience and ease of use of OTT services.

Household Consumption of TV Shows and Movies

U.S. Broadband Households



The pay-TV industry's first response to this threat was to add online delivery capabilities, allowing consumers online access to ondemand or linear programming. Increasingly, operators throughout the world are re-thinking their approach to OTT and how they can best play in the OTT market space. Some have launched their own OTT services.

This panel discussed the OTT services marketplace and the role of pay-TV providers, content producers, and others in this new content distribution channel. Some of the topical areas covered include:

- The OTT experience vs. the pay-TV experience
- New entrants in the OTT space
- The impact of new technologies on OTT and pay TV
- Differentiation of services

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· Customer retention in an OTT world

SPEAKERS

- Jeff Berenson, SVP, Product Management, Rovi Corporation
- Jim Denney, Vice President, General Manager, Product Marketing, TiVo
- Ben Huang, Head of Global Marketing, Mediaroom Business Group, Ericsson
- Sean Knapp, Co-Founder and EVP, Ooyala
- David Wolf, Managing Director, Accenture Digital
 Moderator: Brett Sappington, Director of Research, Parks Associates

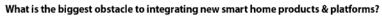
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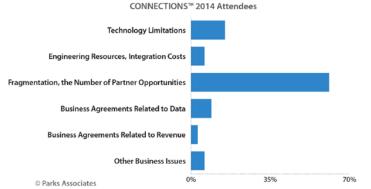
- Pay-TV services are not on par with OTT providers like Netflix in terms of bringing video content to consumers, despite the fact that they have the most current, popular (e.g., live, first-run) programs.
- Regarding the implications of the Comcast/Time Warner Cable merger on the OTT space, the merger would give Comcast
 LA and NY DMA coverage, which will be a significant advantage in advertising. Industry interest and anxiety appear to be
 focused on the content side of Comcast's business rather than the cable TV side. While companies do not have a
 monopoly with only 30% market share, they can substantially affect the course of an industry.
- OTT viewing on the TV has doubled since 2010.
- TV Everywhere awareness and use in the U.S. market are only slowly increasing even though it is "free."
- A survey of TiVo subscribers showed there was no significant difference in the amount of traditional TV viewing between self-reported Netflix and non-Netflix households. Nor did either group differ from the overall TV viewing population. OTT is additive to traditional TV.

Integrating Products and Smart Home Platforms

Manufacturer Perspective on Integrating Products with Smart Home Platforms

Manufacturers of smart products face several decisions regarding how to integrate with the larger connected home ecosystem. Some OEMs see a clear opportunity for incremental product sales through smart home service providers. Those vendors may choose a flexible, even modular architecture to support whatever protocol is required by the smart home service provider. Protocols have extensions to allow OEMs to offer new features and capabilities and to provide a standard, straightforward method to connect to a smart home platform.





Other OEMs do not believe that smart product service providers will become a source of incremental sales but do believe that there is value in connecting to a larger smart home ecosystem. Those OEMs may choose to have a direct connection to the cloud, where the OEM controls the data and can add new cloud-enabled differentiating features to the product. Integration with the larger smart home ecosystem can be accomplished via a direct connection to the smart home controller or through APIs in the cloud. The OEM must decide what to expose in an API, how open the API should be, and what business models to pursue.

Smart Home Platform and Service Provider Perspective on Integrating Products with Smart Home Platforms

The smart home platform vendors face several challenges. First, from the consumer perspective, the smart home platform vendor must avoid adding complexity to the platform. Consumers want the technology to work for them, to make their life easier, automatically making smart decisions on their behalf. As more products are added to the home, the complexity increases. Consumers don't want to spend time setting up rules or trying to figure the interaction between rules. (If I come home and it is dark, turn on the outside and entryway lights; if people are watching a movie inside, then just turn on the outside lights.)

Smart home platforms must also balance the need to avoid complexity with the need to differentiate and provide advanced features. As OEMs add new features and capabilities, platform vendors must keep pace. One approach would be to compete with OEMs to provide advanced features. Smart home platforms could also work with OEMs to fully integrate all advanced features, including app and data integration.

Smart home platforms also have a business issue related to integration. While the cost of integrating each additional device is clear, it is not clear how service providers will gain incremental revenue from integrating additional devices.

Integrating products and platforms is not only a one-time expense. In order to be competitive, smart home platforms must continually update and maintain the interface as new features are added and APIs are extended. As more OEMs begin to provide open APIs to integrate products, the problem of maintaining those APIs becomes more costly.

Finally, in the same way that OEMs must decide when and how to provide APIs to others, platform vendors face the same questions. What is good for the goose should also be good for the gander. Open platforms can scale to provide advanced services and algorithms and fill in edge use cases.

SPEAKERS

- Lewis Brown, President, MiOS
- Tim Enwall, CEO, Revolv
- V. Rory Jones, President and CEO, PlanetEcosystems
- George Land, General Manager, Ingersoll Rand Nexia Intelligence
- Dan Lieberman, Senior Director of Platform Strategy, SmartThings
 Moderator: Tom Kerber, Director, Research, Home Controls & Energy, Parks Associates

Notes:

- One of the biggest challenges for platform vendors is normalizing the setup experience. Each protocol or device has its own approach. Consumers would prefer a standard method. In-app tutorials are an important part of the setup process.
- Smart home platforms can reduce complexity by setting default functions of new devices as they are integrated into the platform. The common use cases should be set up for the consumer, streamlining setup. Consumers should not have to set up any device from scratch.
- Once adoption of smart devices reaches 5-10% of homes, alliances will form, and the winners and losers will begin to take shape.
- DIY is an option that is growing in popularity, especially as technology improves and the setup experience becomes less complex. Nexia reported that approximately one-third of their installs are completed by the end user.

Managing Multiscreen Advertising: Data, Engagement, and Revenues

The availability of broadcast and cable TV programs paired with increased time spent watching linear and on-demand video in non-traditional modes (i.e., watching TV shows online or via a smartphone or tablet device) drives TV ad budgets online, to mobile, and

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to newer connected device platforms. As more video content is released in alternative media environments, the volume of ad inventory rises, supporting the growth of multiscreen advertising.

Speakers

- Mike Fisher, Director, Strategy and Innovation, BrightLine
- Cathy Hetzel, Corporate President, Rentrak
- Ashwin Navin, CEO and Co-Founder, Samba TV
- · Vamshi Sriperumbudur, VP of Platform Marketing, YuMe
- Tal Ball, General Manager, Addressability, Gracenote
 Moderator: Heather Way, Senior Analyst, Parks Associates

Notes:

- Majority of viewers still watch television programming on a television, but as video viewing expands to the online space and to other devices, advertisers are shifting their attention and efforts accordingly.
- According to Samba TV, TV programming has not changed, but consumption/viewing behavior has.
- Viewer attention is fragmented among multiple devices, especially in the living room, and advertising must adjust to this new reality.
- According to BrightLine, there is no better way to reach a television audience than through traditional commercials.
- Consumers, more than the key industry stakeholders, are really the ones driving multiscreen advertising efforts.

Smart Home Bundled Services: Crossing Industry Sectors to Meet Consumer Demand

Households interested in smart home products and services can be segmented in several ways. Most recently, Parks Associates segmented broadband households using attitudinal batteries within our surveys to understand a households' proclivity for smart home devices and systems.

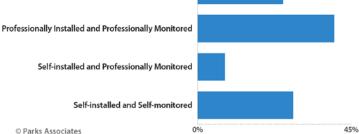
Parks Associates identified five segments using a factor analysis. Market segments are highly correlated to the appeal and willingness to purchase smart home devices and systems. Five categories of attitudes were assessed, including attitudes about the environment, money and finances, physical and premise safety, image, and convenience.

Professionally Installed and Self-monitored

If you were purchasing a home automation or security system for

your home, what type of system would you choose?

CONNECTIONS™ 2014 Attendees



The cluster analysis produces five mutually exclusive segments:

- The Conscientious
- The Neutrals
- The Fiscally Concerned
- The Easier the Betters
- The Conveniently Green

Forty-seven percent of all broadband households find six or more smart home features appealing. Of those, the top desirable features are for safety, such as smoke and CO detectors, and security, such as door and window sensors. With further analysis based on an attitudinal segmentation of the market, 85% of the Conscientious find six or more features appealing.

The existing market is extremely price sensitive. When consumers were presented with smart device options at average prices, the likelihood of purchasing dramatically decreased. However, those in the Conscientious segment of the market maintain a high likelihood of purchasing smart devices. The majority of those in the rest of the segments are unwilling to purchase any equipment and those who are willing are likely to purchase only 1-5 devices. The top five devices for all segments are safety and security devices.

When considering intention to purchase services, only 43% of the Conscientious, the segment most likely to purchase smart devices, are likely to buy in to the subsidized service provider model.

Speakers

- Joe Dada, CEO, INSTEON
- Julie Hance, VP North America, AlertMe
- Joe Jankosky, Director, Intelligent Home Vertical Markets, Time Warner Cable
- Duane Paulson, SVP, Linear LLC
- Robert J. Puric, Director Product Management Connected Home, Honeywell Security Group
 Moderator: Maia Hinkle, Research Analyst, Parks Associates

- The day for DIY smart home equipment will come, but there are still present challenges in installation, interoperability, and security.
- Some panelists felt that the smart home market is currently experiencing or at least very close to reaching the inflection point where mass-market adoption will occur.
- There is not one killer app for the smart home but rather a variety of apps that will hook consumers.
- Interoperability is a solvable challenge because it is possible to integrate multiple radios/standards into a single hub. Eventually, the market will reflect fewer standards, and the industry is just going to have to wait to see which ones will have a lasting presence.
- The panel featured extensive discussion on professional installation and monitoring versus self-installation and monitoring.
 - Companies are looking to get into the DIY market.
 - o Issue is ease of installation for homeowners—products and solutions need to be easier for homeowners to install.
 - Systems need to be simple (which is hard to do but most important), affordable, and reliable and have the flexibility for extension.
- If systems can be or are hacked, it can kill a service provider's business because of the resultant lack of trust. Security of personal information stored in, or mined from, the system should be part of the value proposition. Related issue is who owns the data? The system provider (e.g., Honeywell), the dealer, the service provider, or the homeowner?
- Some of the reasons behind the Nest sale to Google at such a high price were the user interface, industrial design, innovative technologies (several patents pending), and creating strong product buzz.
- Not all systems marketed as DIY are easy for the user to install and maintain. Homeowners are advised to test out the devices and systems first.

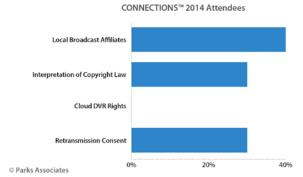
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• Interoperability is key—all products should work together to enable extension of existing systems, but they do not do so at this time. All panelists, including the service providers, agree that open systems will become the pervasive model.

Cracking the Window: New Trends in Content Rights

When the Supreme Court rules on ABC vs. Aereo, where will the verdict have the greatest impact?

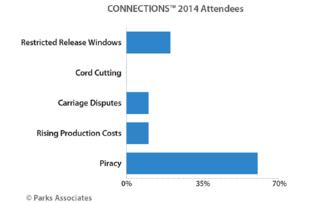


Consumers are using a variety of devices and outlets to acquire and consume entertainment content. With the expansion of content offerings, the environment for licensing the rights to carry content has become more complex.

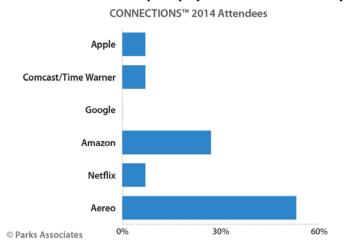
In the past, video content was licensed for movie theaters, television, and home video.

Today, content owners and rights holders must deal with licensing for different television outlets like video on-demand, premium television networks, pay television networks, and broadcast television, along with home video, electronic sell-through video, physical and digital video rental services, and over-the-top video providers.

What is the biggest barrier to monetizing licensed content?



Who is the most disruptive player in the content industry?



In addition, the expansion of video content licensing has led to different procedures for both filmed entertainment, television entertainment, and direct-to-video entertainment. A shift toward viewing content online by younger viewers has influenced the need to revisit and update licensing agreements.

Changes in the licensing environment have also led to unique issues in protecting content rights holders. Digital video has ushered in both enhanced content protection as well as exploitability in digital media. Content owners, distributors, and technology facilitators have forged partnerships to ensure consumers are receiving the content they want, to ensure only those consumers that have the right to access content are receiving it, and that rights holders and owners are being properly compensated for their intellectual property.

Speakers

Scott Bagby, SVP of Strategic & International Partnerships, Rdio

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- Jim Louderback, GM Discovery, Discovery Digital Networks
- Ted May, SVP of Strategy & Business Affairs, Synacor Inc
- Marty Roberts, SVP of Sales and Marketing, the Platform
- Jeff Ulin, General Counsel, Irdeto

Moderator: Glenn Hower, Research Analyst, Parks Associates

Notes:

- When asked to identify the most disruptive player in the content industry, the panel selected Aereo as the top response, with Amazon as the second response.
- They felt piracy is the biggest barrier to monetizing licensed content.
- The industry, as technologists, needs to understand the consumer perception of what TV Everywhere (TVE) is.

 Consumers just want to watch their favorite content. They don't want to authenticate. As a consumer, who cares if I'm using a TVE service or not, I just want to watch my show. More consumers actually use a TVE service than the percentage who are aware of what TVE is.
- It has never been a better time to be a content owner in the market because of the new monetization streams. Comcast jumped into Electronic Sell Through (EST) market. Content owners can now monetize old content by selling to Netflix. More competition is driving more innovative ways to monetize content.
- As long as you provide easy, legitimate ways to access content, consumers will abide by the laws. That being said, TV
 content has multiple places to go, so authentication barriers need to be removed. Otherwise consumers will be
 discouraged from using legitimate apps.
- People are more willing to pay for the right content in the video space, but content is very expensive.
- Authentication becomes a problem because, for one, people do not have or do not know their authentication credentials
 from their ISP. Secondly, they do not find the content compelling enough to bother with the authentication process. The
 remedies are better promotion, so people know their credentials, and better content, so people feel the experience will
 be worth the effort.

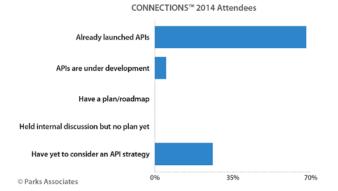
Extending Services to Connected Devices: APIs for Business Innovations

The connected home market has heated up. Like many industries that are being disrupted by mobile technology, the connected home industry benefits from new connected device designs and new applications that can be enabled, accessed, or programmed on the Web or from a consumer's fingertips.

The connected home applications span multiple, traditionally siloed verticals, from security, home automation, and energy management to more mainstream home infotainment services.

In many instances, these connected applications become new sources of digital data that help consumers access services and open up new business opportunities to enable more comprehensive and convenient user experiences.

Which of the following best describes the status of your company's API strategy?



Across all these innovations, Application Programming Interface (API) is playing a more visible role in supporting application integration and fostering new business/revenue models.

For example, the Alarm.com platform provides interactive services for the security industry. Alarm.com offers APIs that allow vendors to integrate the Alarm.com user interface (UI) into their products, and its Platform Connect uses a multi-tiered API to support direct integration, cloud-to-hardware integration, and cloud-to-cloud integration with partners' applications. In the home entertainment industry, streaming video service providers such as Netflix have successfully expanded their service footprint to millions of consumers by integrating their APIs with hundreds of Internet-connected video streaming devices.

As more and more connected devices are activated and connected to the Internet through a home network or via mobile broadband, we expect to see a rising number of applications that power UI or related information and content services. Integration of these application-defined experiences can be a business challenge but also an opportunity. At the same time, application developers are likely to gain access to an unprecedented amount of usage data—such data can be a treasure trove for them and their partners. This panel explored the API's role in enabling service experiences on connected devices, how a carefully crafted API strategy can benefit connected home application developers and service providers, and how to manage challenges in implementing APIs.

Speakers

- Hugo Fiennes, Founder & CEO, Electric Imp
- Stuart Lombard, President and CEO, ecobee
- Letha McLaren, Vice President, Product Management, iControl Networks
- Kenneth Wacks, Chair, ISO/IEC Home Electronic System
- Steve Willmott, CEO, 3Scale

Moderator: Harry Wang, Director, Health & Mobile Product Research, Parks Associates

- Open APIs allow you to leverage other innovations in the industry and create more value for your consumers. Companies should consider open API strategies early in product development. This early-mover status could give them a chance to lead the industry in several ways.
- Private APIs may no longer exist as companies will reverse engineer your product and gain access to your API.
- API strategies should include marketable use cases and not just provide a data feed. Companies will not be encouraged to partner if there are no good use cases for your API. If you do not create these good use cases, then you will not attract new innovation from ecosystem relationships that could add value for consumers.
- When there is a market for API use cases, there are a number of developers who are willing to write apps off your APIs. When working with developers, some companies may prioritize who they partner with for different APIs.

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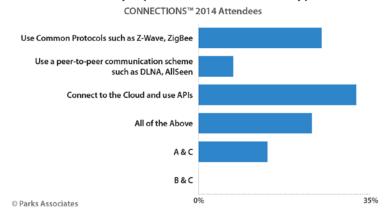
Smart Home Devices

Manufacturers of smart products face several decisions regarding how to integrate with the larger connected home ecosystem. Some OEMs see a clear opportunity for incremental product sales through smart home service providers. Other OEMs do not believe that smart product service providers will become a source of incremental sales but do believe that there is value in connecting to a larger smart home ecosystem.

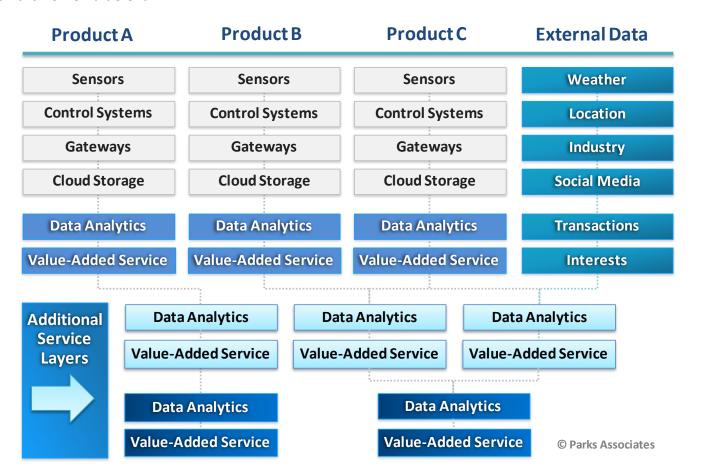
OEMs have a variety of approaches available to extend the value of smart products, but they must decide how far up the smart home value chain they can play.

The Internet of Things will evolve into layer after layer of data mash-ups, analytics, and the resulting value-added services. It is in the best interest of OEMs to extend capabilities and capture the value-added services and resulting revenue.

From a manufacturer's perspective, what communication approach is best?



Smart Home Value Chain



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Given that any data set can be mined and used for multiple purposes, limiting access to the raw data set and exposing only the value-added asset allows the OEM to control the monetization.

Speakers

- Jeff McInnis, CEO, SmartRG
- Charles A. Peters, Senior Executive Vice President, Emerson
- Joerg Tewes, Vice President, Digital Home Business Group, Logitech
- Nate Williams, Chief Marketing Officer, GreenWave Systems
 Moderator: Tom Kerber, Director, Research, Home Controls & Energy, Parks Associates

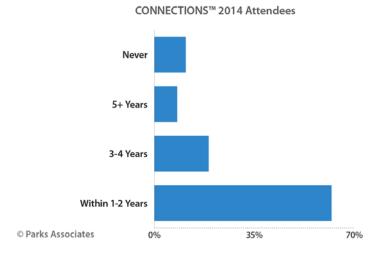
Notes:

- Do consumers use your app every day, and does it matter? They should use the system app regularly but the device app infrequently.
- Consumers don't buy platforms; they buy applications (use cases).
- One primary issue is that we (the device and system manufacturers) haven't done a good job of abstracting the device from the use case.
- Providing a unique API is not useful because consumers will use only the top 5-10 devices. The model of providing unique APIs is not scalable.
- Adoption really comes down to a few key devices: window sensors, door sensors, 4/1 sensors, camera, door locks, and the thermostat.

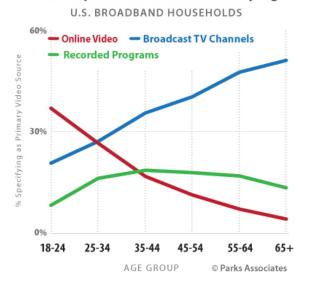
THURSDAY, MAY 15

Connected Consumers: Entertainment Services and Connected Devices

When will second-screen activities become a typical part of TV viewing?



Most Important Video Source, by Age



The Millennial generation is growing up in a world of smartphones, tablets, DVRs, YouTube, Facebook, and Netflix. For them, content access has always been on-demand, pervasive, and interactive.

Data indicates that they spend more time watching online video and social media than their older peers but spend less time watching broadcast TV—the staple of home entertainment for generations.

This panel investigated how the Millennial generation is changing the market for entertainment devices and content. Industry veterans shared their knowledge and insight on what companies need to do to prepare for the rise of the Millennial generation and the impact they will ultimately have on the market.

Speakers

- Brian Jaquet, Director, Marketing, Sling Media
- David Stevenson, President, Customer Experience Solutions, Alcatel-Lucent
- Gavin Teo, Investment Manager, Comcast Ventures
- Olivier Wellmann, VP Product, NAGRA
 Moderator: John Barrett, Director, Consumer Analytics, Parks Associates

- The process of content discovery is difficult to hammer down. Sometimes viewers want specificity; sometimes they have no idea. And there are multiple scenarios in between.
- Video analytics need specificity down to the device Quality of Experience. Consumers want an unbundled experience, but they do not understand the full cost involved.
- The big question facing providers: how do you harness the cost of content while still monetizing content? Things to consider include:
 - Millennials want to consume more but pay less.
 - o In five years, consumers are going to expect to see the content they want on the device they want; whenever they want, wherever they want, and it just work. This will be a baseline expectation and a standard feature.
- Effective discovery is the top challenge facing providers and consumers.
- Tablets and smartphones for video are lean-back experiences, more conducive to in-stream advertising. Computers are more lean-forward, consumers are more active on these devices, and more likely to be intolerant of in-stream ads
- Consumers are bombarded by popular media, and spoilers become a massive problem for both viewers and content companies. Exposing plot elements before viewing affects the overall viewership.
- TV Everywhere abilities can help networks maintain access with consumers and can ensure sticky viewership among dedicated fans.

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Winning Business Models for the Connected Home

The market for home controls is in a period of rapid growth. The broad adoption of mobile devices and broadband services has laid the foundation for connected products and home services.

New business models within the utility, security, and home control industries are being driven by the deployment of connected devices, applications built around new data sources, and unmet consumer needs.

The convergence of energy, security, and home controls applications means that multiple channels are now competing for the consumer's business.

How will early adopters enter the smart home market? CONNECTIONS™ 2014 Attendees Purchase a Smart Home System Purchase Individual Smart Home Products 0% 40% 80%

This competition also creates an opportunity for partnerships as retailers, security, telecoms, cable operators, and utilities are all vying for position. Each channel will exploit their strengths and mitigate their weaknesses as they enter the market. New monetization strategies will emerge that expand revenue sources beyond utilities and consumers and maximize market share and profits.

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The early market for home controls has several barriers to adoption. The largest roadblock by far is the lack of consumer awareness. Home controls are a new product category for most households. This barrier will be removed over time, as many large players enter the space with large advertising campaigns that will improve consumer awareness and help the entire industry grow. Each channel entering the home controls space must leverage the consumer's familiarity of their base products and services and clearly show how those products and services can be enhanced with connectivity and interactive services.

Another barrier to broad adoption is the lack of a concise value proposition. Home controls solutions are made up of many components, and each of those components have multiple use cases. A camera, for example, can be used to monitor a door, a baby, a nanny, a pet, a child returning home from school, or nearly anything else in the home. Each use case resonates with a specific segment of users. The sales channels will need to overcome this barrier.

Historically, home control solutions were expensive, limiting the market to the wealthy. The consumer's willingness to pay for equipment and for recurring fees is limited. Companies must also overcome the consumer's perception that home controls are too costly.

A variety of business models are being tested in the market. Recurring revenue models include monthly service fees, mobile advertising, lead generation, selling data, transaction fees, and participation in energy programs. Business models that rely on one-time fees include selling a new premium product, adding connectivity to differentiate a product portfolio and receiving higher margins due to product mix, expanding the product portfolio to include retrofit products, offering complementary products, expanding sales channels to provide incremental product sales, and app sales and upgrades.

Speakers

- Seth Frader-Thompson, President, EnergyHub
- Peter Gerstberger, Director/DMM, New Business Development, Staples
- Mike Harris, CEO, Zonoff, Inc.
- Art Lancaster, CTO, Affinegy

Moderator: Tom Kerber, Director, Research, Home Controls & Energy, Parks Associates

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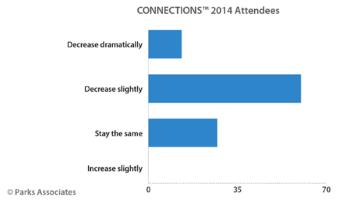
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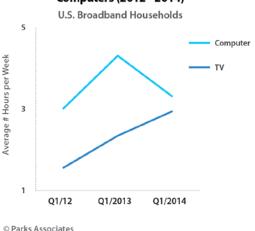
- In the great debate of system vs. device, it will likely be five or more years of messy combinations. It will take a few years to figure systems out, and right now, devices are winning because people are solving one problem at a time. Systems will take the lead when consumers understand the value proposition of interoperability.
- There is no target segment for devices vs. systems, and there is opportunity for both. In the long run, app fatigue will take over and become very frustrating, thus demonstrating the need for systems.
- The freemium model isn't sustainable, but it is the best way to introduce consumers to services with reoccurring fees.
- Traditional security interactive services are a great way to introduce people to connected features and functionality.
- System platforms must embrace premium products into system-level acceptance. Hue is still desirable and premium even when it is integrated into a system. The system will offer basic functionality, and advanced settings will still be available in the Hue App.
- Channel is the most important aspect of protecting a business model.
- Returns and buyer's remorse:
 - o Higher with connected products than normal products, so tech support services are key to counter this trend.
 - o While returns are high, they are lower than expected.
 - Call centers now have to be able to help with setup, connectivity, and connecting to other manufacturers' devices (routers, hubs, smart devices).

Tomorrow's Set-top Boxes

In the next five years, the percentage of U.S. broadband households with a pay-TV subscription will...



Hours of Internet Video Consumption: TVs vs. Computers (2012 - 2014)



Despite the growth in usage of OTT services, the percentage of broadband households that subscribe to pay-TV services has been very consistent among U.S. broadband households, averaging 87% since 2011. Globally, 59% of television households have a settop box (STB) for pay-TV, including boxes leased and purchased. However, broadband households are streaming Internet video to their TV sets using a variety of other devices—smart TVs, gaming consoles, connected Blu-ray players, and streaming media devices—to do so, resulting in multiple boxes necessary to view content. Two-thirds (64%) of U.S. broadband households have connected a device to their TV to stream Internet content, and one-quarter own a streaming media device.

Some broadband providers are making apps available on streaming media devices, such as the Time Warner Cable (TWC) app on Roku streaming media players, enabling the Roku to replace many functions of the current cable STB. Will operators opt to

outsource streaming software and devices for speed-to-market and savings on equipment and labor costs? Or will operators continue to develop in-house streaming functionality? And if so, how does that impact streaming media players—devices that have the sole purpose of streaming Internet content?

Speakers

- Naveen Chhangani, Director, Product Management, NETGEAR
- Anthony Citrano, VP Communications & Chief Evangelist, Verizon EdgeCast
- Jordan Davis, Director of Product Management, Fan TV
- JT Taylor, Senior Manager Video Marketing, Cisco Systems, Inc.
- Andrew Ferrone, VP of Pay TV, Roku

Moderator: Barbara Kraus, Director, Research, Parks Associates

- Content, choice, and seamless discovery are the main things consumers want from a set-top box.
- In five years, STBs will be smaller in form factor, and the functionality of STBs will move to the cloud.
- Andrew Ferrone of Roku noted that there is a role for games on the big screen. They've done well with Angry Birds, but it is a secondary use case as video is the primary content preference among consumers.
- What do consumers want from a STB?
 - To be entertained by the content they want to see. They don't want a complicated discovery experience. They want high picture quality and convenience through device use.
 - o Companies need to deliver what consumers want while providing multiple options for users; fragmentation in the experience is a problem.
 - o Consumers want content, not a STB; the STB is a means to an end.
 - o Consumers don't want an STB, they want the results. Millennials like content and programs while feeling little to no affinity for networks as a brand (this "brand blindness" does not help improve the fragmented experience).
 - Consumers don't want additional training to operate their devices.
- What will tomorrow's STB be?
 - There is not likely to be a radical shift in five years. Long term, we are likely to see virtualized software-based STBs and cloud STBs.
 - o STBs are likely to be smaller, wireless, and more capable. In five years, smart TVs will likely have either hardware or software STB apps included.
 - In the end it all comes down to content. Consumers want an intuitive solution to deliver an effective user experience focused on providing easy access to content.
- Does the STB have the potential to be a home automation controller?
 - App function and IP connection provide for a home automation use case, but changing consumer behaviors is hard. It is difficult to imagine consumers immediately gravitating to STB-based automation control, but integrating TV/STB/smartphones may push connected home control in that direction in the future. What really matters is the device the consumers happens to have with them at the time, which would make the shift logical.
 - o The gateway becomes the key. If the Quality of Service is not there, then the Quality of Experience will not happen, no matter the content or capabilities.

Interoperability in the Internet of Things

Interoperability between devices and systems has been an elusive, challenging goal. Solutions for interoperability include the adoption of peer-to peer communication technologies, common protocols, gateways to bridge between protocols, or cloud-based solutions.

The business motivations for manufacturers of connected products and smart home service suppliers are not always aligned. OEMs are using connectivity to differentiate products, deploying connectivity initially in premium-tier high-margin products to gain share and improve product mix. Smart home systems service providers from the telecom and security space prefer to move the value creation from the end products to the platform. Service providers prefer to use a generic end product that passes data to the smart home platform. The products include only the lowest common denominator of features so that the service provider can commoditize the end devices, creating price competition that keeps costs low.

Smart home service providers in the retail channel are more aligned with OEMs when it comes to product sales, since both retailers and OEMs would prefer to sell more products at higher margins. Discord arises when the conversation shifts to the customer and potential channel conflict. Retailers believe that they, and not the OEMs, have the relationship with the customer, and are concerned about the potential for disintermediation by the OEM selling products directly to the customer through an app. Every player sees the value of the connected customer and would like to control the data and the customer interface.

	OEM	Broadband, Security	Retail
Product	Differentiate Products	Commoditize Products	Sell More Products
Platform	Add Value to Product	Centralize Value Creation in the Platform	Add Value through Integration
Data	Control Data and Extend Customer Relationship	Control Data and Customer Relationship	Control Data and Maintain Customer Relationship

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Speakers

- David Foote, CTO, Hitachi
- Dave Friedman, CEO, Ayla Networks
- Dennis Kyle, VP/GM, Connected Systems, Arrayent
- Ryo Koyama, CEO, Co-Founder, Weaved, speaking on behalf of Qualcomm
- Tobin Richardson, Chairman & CEO, ZigBee Alliance

Mark Van Walters, Chairman, Z-Wave Alliance

Moderator: Tom Kerber, Director, Research, Home Controls & Energy, Parks Associates

Notes:

- World leaders aren't going to be displaced by Kickstarter companies. Kickstarter companies are seeing millions of dollars of funding. Collectively, they will be very disruptive to the industry.
- There is no crystal ball so knowing where to put the intelligence would suggest that the company knows how consumers will use its product. Each company will take a guess and maybe the guess will be correct, but there is still a good chance it will be wrong. The ability to change is what is important, and that is facilitated by distributing the intelligence from the start.
- "The beauty of being a futurist is that eventually you will be right."
- A killer app for a device is not likely to be developed by the device OEM but by an app developer that sees the alternative and edge use cases. Examples such as SnapChat and Instagram show a developer providing the most-used applications for a camera function within the smartphone.
- There are cases to have control in the gateway. The gateway must work 100% of the time, and having the intelligence only in the cloud can be a problem for functionality and latency.

Future of the Connected Home: Investment Perspectives Roundtable

The recent years have seen excitement in a number of connected home developments:

- Social networking
- Internet video content leading to mobile game development
- Wearable computing
- Connected health
- Energy management
- Second-screen opportunities

Clearly the connected home is arriving—debate is not about if consumers will adopt but at what rates and what are the business models. Connected appliances and connected health are further down the adoption curve but more plausible each day.

As major service providers and retailers offer smart home solutions, these ecosystems become increasingly connected to mobile devices and services, entertainment and connected CE devices, cloud services and premium tech support services. How significantly are these technologies perceived as investment growth platforms?

Speakers

- Greg Berkin, Managing Director, Concours Ventures
- Manny Fernandez, Founder; SF Angels Group; CEO/Co-Founder, DreamFunded.com
- Dan Gordon, Technology Partner, Valhalla Partners
- Jeremy Kaplan, Editor in Chief, Digital Trends
- Tomasz Tunguz, Partner, Redpoint Ventures
- Michael Yang, Managing Director, Comcast Ventures
 Moderator: Stuart Sikes, President, Parks Associates

Notes:

- Where are the most investments made right now? What areas have the most activity?
 - o Simple products and simple control. Consumers want a device that disappears and just works.
 - Simple user experience on one side of the coin and a smart device with complicated technology on the other.
 - o Just because you can doesn't mean you should. Meaning, making a device connected isn't the answer for everything. The product must be much better than analog with fewer steps.
- Connected health is a really hot market that is moving really quickly.
- Content for OTT is not going to a good target for top-tier VC investment. The VC community in general is allergic to anything that requires building an audience.
- VC Advice:
 - Tell me quickly who you are, what you want, what you do and who you do it with. Ask "for a date" directly, don't beat around the bush.
 - o What will you be world class in, and who will you partner with? What is the passion in your solution?
 - Demonstrate how you will get to the next round of funding (i.e., demonstrate awareness of future roadmap).
 - o Reach out and ask for advice before you ask for money.
 - o How to impress a VC: Meet them, tell them the plan, and then by the next meeting show how you have exceeded the plan.

CONNECTIONS™ 2015

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