# Open for Business: Future Flexibility for Smart Home Services

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## Competition Heats Up for Connected Home Services

With the rise of the Internet of Things (IoT) in the residential sector, many players across verticals are making strong moves to become the trusted advisor in the connected home and capture new value through smart home services. Broadband service providers can look to these smart home services as a way to leverage their existing assets to develop new revenue streams and differentiate from competitors.

**Most importantly, smart home services can help stave off commoditization by fortifying their brand value as a service provider beyond merely providing a pipe.**

> With sales of connected consumer devices—including smart home, connected health, mobile, and connected entertainment products—set to exceed 520 million units by 2022, industry players are looking to a variety of uses cases for smart home services to leverage their existing assets.
>
> © Parks Associates Q4 2018 Forecasts

Partnerships with device makers and other connected companies are making it easier than ever to bring smart home services to market, but if past efforts have taught the industry anything, the ability to pivot quickly toward new opportunities is paramount.

**A future-flexible platform is a critical component for success in the IoT.** While it can be a heavy lift for service providers to develop and maintain on their own, vendors are emerging to meet this need. In particular, vendors are offering new turnkey solutions to serve the varied use cases consumers are responding to today, with the built-in flexibility to deliver on tomorrow's demands as well.

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# Consumer Interest and Willingness to Pay for Connected Home Services

## Security and Peace of Mind

Historically, security and safety have generated the most compelling consumer interest among all uses.

More than half of professionally monitored subscribers have at least basic interactivity with their security system. Interactivity and support for home controls have enabled an increase in recurring monthly revenue for security providers in recent years. New subscribers pay an average of $55 per month, $5 higher than the average for all security subscribers.

**At the end of 2018, 24% of US broadband households subscribed to professional monitoring.**
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In addition to the traditional security providers, new "do-it-yourself" (DIY) security systems with optional monitoring, video recording, and storage services, and flexible contract options are positioned to expand security into the 70% of households that do not have a security system. Owners of DIY and professionally installed systems show strong interest in add-on services such as cybersecurity, personal emergency response services (PERS), vehicle monitoring, and smart tag tracking.

## Interest in Add-Ons for Home Security Systems by Installation Method
### US Broadband Households with Professional Monitoring
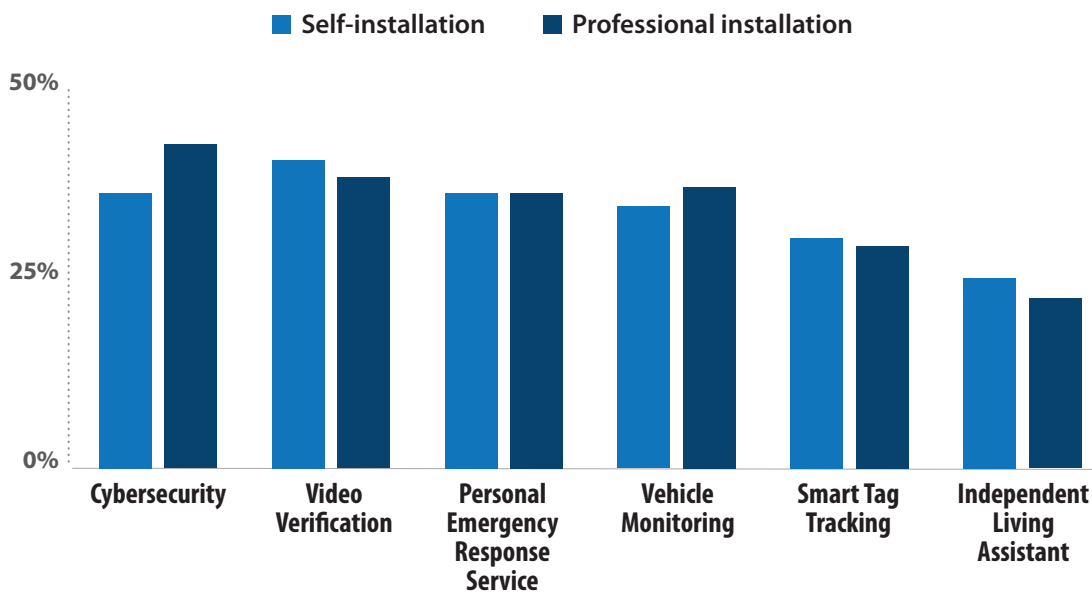
■ Self-installation    ■ Professional installation

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# Networked Cameras

In recent years, peace of mind or "soft" security use cases have driven interest in cloud video storage services among consumers who own networked cameras.

**10%** of US broadband households own at least one networked camera.

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## Networked Camera: Willingness to Pay for Video Storage Service
### Networked Camera Owners with No Video Storage*



- 80%
- 40%
- 0%

$14.99/Month   $9.99/Month   $5.99/Month   $2.99/Month

*Small sample base, results provide directional information only

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Networked cameras are increasingly popular for monitoring children, pets, and home services such as nannies, housekeepers, and delivery personnel.

- About one-third of camera owners pay for video storage, with 59% paying $11 or more per month.
- Among camera owners not currently paying for storage, about half indicate a willingness to pay $14.99 per month for 60 days of storage while 74% would pay $2.99 per month.

# Independent Living

Rapidly aging populations in the US are creating new demands for independent living services, where smart security and safety devices are supplemented by health-related sensors, connected medical devices, and personal emergency response systems (PERS). Activity monitoring, medication adherence, fall detection, and access control provide peace of mind to caregivers and more independence for elders.
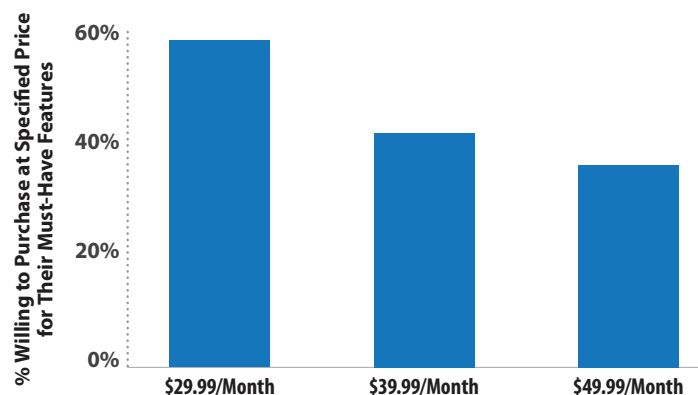
**The majority of consumers 50+ are willing to pay $30 per month for an independent living system that has their must-have features.**

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Unlike the highly competitive security segment, independent living and aging-in-place solutions are still in their infancy, with no dominant player capturing the market. Service providers may find much more market opportunity with these services.

## Willingness to Pay for Home Independent Living System
### Heads of US Broadband Households 50+ Considering One or More Must-Have Independent Living Feature



% Willing to Purchase at Specified Price for Their Must-Have Features

- 60%
- 40%
- 20%
- 0%

$29.99/Month   $39.99/Month   $49.99/Month

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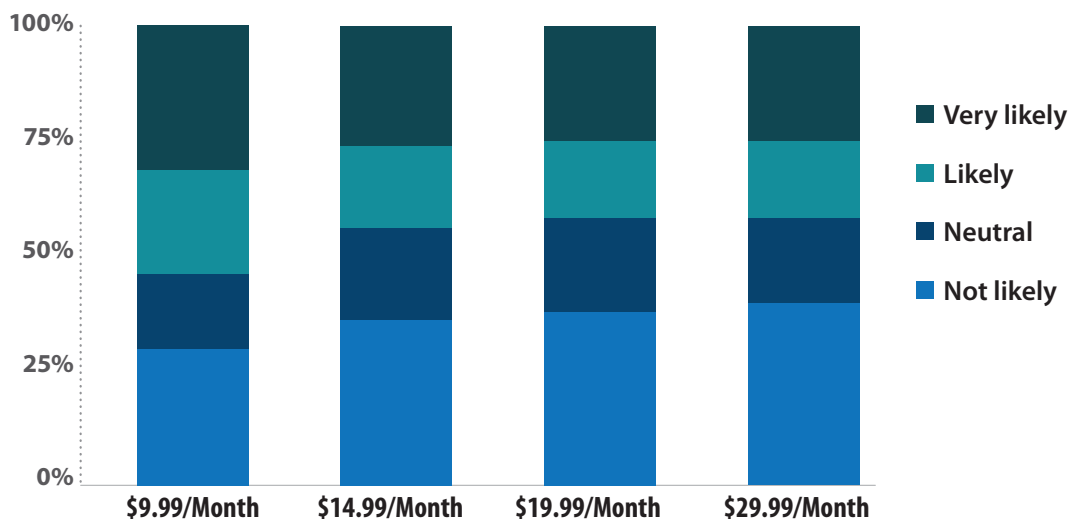PARKS ASSOCIATES

# Premium Tech Support Services

Consumers show interest in a variety of support services for smart home devices. The services include on-demand and subscription services for tasks from initial installation, setup, and technical support to ongoing consultation for future purchases.

- Consumers who paid a one-time fee for technical support services in the past 12 months paid $50 or more for one service event.

- Nearly 60% of consumers are willing to purchase a comprehensive subscription support service for $9.99 per month

These support services can also be bundled with related services, such as warranties, cybersecurity, and data backup services.

## Likelihood to Pay for Smart Home Device Support Services
### Smart Home Device Intenders with Specified Price Presented



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In planning for smart home services as diverse as security, independent living, and tech support, service providers need to align with vendors that will enable quick and easy integration across a wide range of applications.

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# Opportunities for Putting the "Service" in "Service Provider"

As broadband service providers seek to compete with endpoint device manufacturers, DIY systems, and service providers in other channels, they need to assert their unique position to relieve pressing consumer pain points. **The smart home struggle is real for consumers.**

## DIY Products

Adoption of self-installed, self-monitored devices (DIY) has increased significantly in recent years, but Parks Associates finds consumers continue to experience frustration over problems during installation, setup, and configuration.

- 16% of connected entertainment device owners and 28% of smart home device owners report the setup process as being difficult or very difficult.

- 1 in 5 consumers who found the smart home device process "very difficult" returned the device.

- 12% of smart home device owners report technical problems going unresolved in 2018.

When DIY consumers are asked how they would like to install future devices (regardless of the cost involved), **41% indicate they would prefer some form of technical assistance.** This consumer preference points the way toward demand for professional services that can deliver convenience and technical support.

Many DIY consumers may evolve into Do-It for-Me (DIFM) consumers for a variety of reasons:

- Self-installation is either too difficult or too inconvenient.

- As the number of desired devices in the home increases, DIY consumers may shift to pro-installed systems that provide more reliable interoperability and unified control.

- Rising affluence and declining prices may lead younger adopters into professional services.

- Services and features built on top of basic smart home control offer compelling value propositions for desirable use cases.



## Support Services

**Broadband service providers are uniquely positioned to roll trucks with technicians for installation and configuration services. They also have the resources to provide ongoing technical support services for initial installs as well as subsequent self-installed devices.** Those that have adopted software-defined networks have added visibility into home networks to deliver more robust support services.

Given these advantages, providers are well-positioned in particular to address recurrent concerns over Wi-Fi network management and data security, a key area of concern for consumers and an area where providers frequently lose revenue to retailers.

Difficulty connecting devices to the router has remained the leading issue facing smart home device customers for the past two years.

Among those smart home consumers who report experiencing problems, 33% reported a loss of wireless connectivity and 27% report an unresponsive device.

37% of Wi-Fi households report their Wi-Fi seems slow at least once a week and another 20% report Wi-Fi coverage problems.

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To address these network connectivity issues, 22% of US broadband households have purchased Wi-Fi extenders. Service providers know that most of these devices do not solve connectivity issues. Another 11% of US broadband households have purchased a whole home mesh networking system that relegates the carrier-provided gateway to "bridge" mode.

> ## Absence of Wi-Fi solutions from service providers is driving consumers to retail, even though service providers are in position to solve these issues

The lack of a carrier-grade, whole-home managed Wi-Fi solution contributes to consumer perceptions of poor internet service, which can act as a barrier to adoption of new connected services and potentially drive customer churn.

## Privacy and Security

Parks Associates finds more than three-quarters of consumers have concerns about unauthorized access of their personal data.

**Network security embedded on customer premises equipment (CPE), like Wi-Fi gateways, can address security concerns in a more robust way than endpoint security solutions alone.**

Since service providers are the leading source of CPE, they can offer hardware solutions that address the problems associated with **network coverage, congestion, network security, and onboarding of devices.**

> ## Almost one-half of US broadband households are "very concerned" about the hacking of their devices and the historical data on them.
>
> © Parks Associates

Consumers expect their network provider to be best able to address their network security. **Solid, reliable Wi-Fi and network security are building blocks for future IoT offerings and can serve as key differentiators from other smart home services.**

> ## Service providers can bundle premium Wi-Fi and cybersecurity services with other smart home services to create truly differentiated offerings from other competitors in the smart home space.
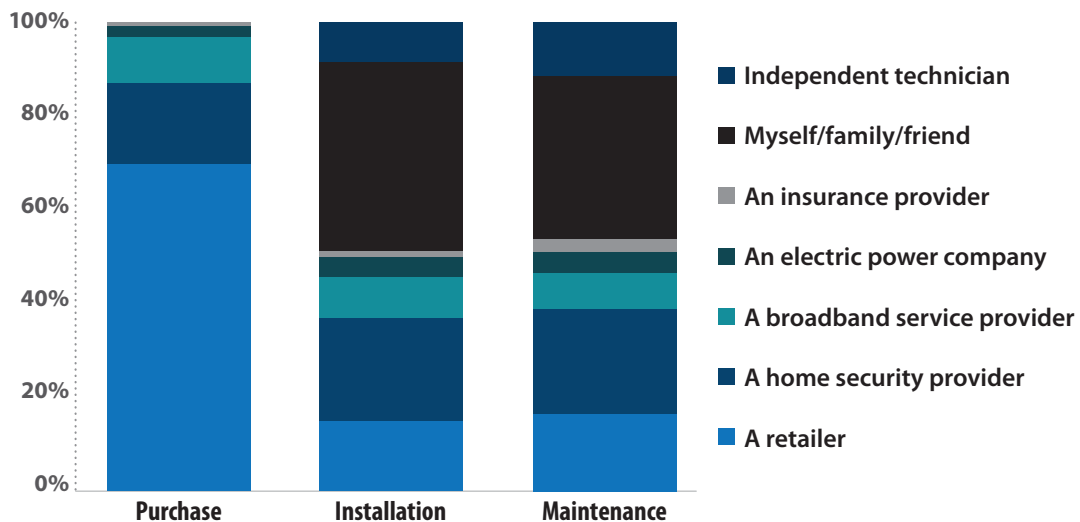
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# Service Providers Have a Window of Opportunity as a Smart Home Channel

Retailers are the most appealing purchase channel for smart home devices for the majority of consumers, **but Parks Associates research finds approximately 10% of US broadband households consider broadband service providers their channel of choice.**

Service providers' relatively low top-of-mind consideration signals the need to do more to reposition themselves for growth that will benefit players who get a foothold in the home. Once foundational smart home brands and systems are in place—such as those rapidly coming to market from tech giants—it will become increasingly difficult for new entrants to gain traction. Until now, service providers have not offered much in the way of smart home services that would drive their share of the business upward, but the opportunity remains, especially among consumer who gravitate toward a Do-It-for-Me option. Partnerships with the device brands consumers love, supported by a feature-rich application platform, will help.

## Most Appealing Purchase Location/Installation/Maintenance Option
### US Broadband Households Planning to Purchase at Least One Smart Home Device



Legend:
- Independent technician
- Myself/family/friend
- An insurance provider
- An electric power company
- A broadband service provider
- A home security provider
- A retailer

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**Roughly one-third of consumers prefer a non-retail purchase channel, including service providers in home security, broadband services, and independent contractors.**

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Service providers as a group fair even better as channels for installation and maintenance, though preference for broadband services is steady at 10% for both activities. This point further underscores the opportunity for broadband service providers to cultivate a strong consumer perception that they can deliver services beyond their core offering.

> The position of service providers is strengthened by their ability to offer more for more—more valuable services to capture more revenue per user.

Service providers can offer more value than retail and security service providers by offering bundled solutions that make customers' lives easier on several fronts.

**With more value creation comes the opportunity to capture more revenue per user:**

- Sales of devices with on-bill financing and bundling with other services
- Hardware support for smart home services in the CPE that simplifies the user experience and reduces costs to consumers
- Installation services for initial products, enabling upsell opportunities
- Technical support for connected devices and optimizing the home network
- Premium Wi-Fi services
- Cybersecurity Services
- Parental controls for broadband and entertainment content
- Proactive network and device management

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# Long-Term Investments in Flexible Platforms are Needed

Smart home use cases and value propositions are still evolving and will continue down that path for decades to come. Service providers are rightly concerned that they not invest in technology platforms that will soon become obsolete or are so rigidly inflexible that they cannot take advantage of new partnerships. **The smart home is a long-term investment.**

Some service providers have picked a partner for a specific use case and then had to completely retool to take their business in another direction. Most have lost the appetite for building and maintaining a proprietary platform in the face of relentless technological change and complexity.

> Open, cloud-based platforms and hardware-agnostic technologies provide service providers with freedom to let strategy drive their business without being limited by past partnerships.

Today, service providers may launch a security-based independent living solution, but tomorrow they may want to partner to support emerging connected health solutions. New smart home services typically require a value chain of partners that need to be integrated into an orchestrated ecosystem that delivers a unified user experience. Broadband service providers need technology solutions that won't disrupt their business but will seamlessly support new directions.

**Broadband service providers have more options than ever for leveraging technology partners so that, in the future, they will be open for business.**

## Flexible Technology Tasks



- Provide an abstracted layer of software and service applications that can run on a wide variety of popular hardware brands

- Improve time to market with ready-built application integration tools using a containerized architecture

- Centralize the management plane to manage all applications simultaneously, even though applications are installed independently

- Leverage a microservices data aggregation platform that scales for millions of devices and captures activities across the customer base in order to apply artificial intelligence for advanced marketing segmentation, maintenance, and predictive modeling

- Integrate and orchestrate third-party devices and services through standardized application programming interfaces (APIs)

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# Turn smart home complexity into revenue

For subscribers, the smart home shouldn't be a confusing mix of connected sensors and devices. It should be a manageable and robust ecosystem that works together seamlessly.

Consumer-brand companies have created products and services that are being delivered on top of the broadband network that service providers have built. The time has come to turn the potential confusion, disorder, and chaos associated with the smart home into an open, managed, and secure ecosystem that is accessible to all subscribers. But there is no time to waste.

It is time to start offering new smart home services that are keeping pace with the market. It's possible to bring these compelling new services to market quickly, create new revenue opportunities, and retake your position as the essential enabler of the smart home of the future.

The Calix Smart Home and Business solution enables service providers to unlock the full potential of the smart home.

## Are you ready to re-invent 'smart home' for your subscribers?

The Calix Experience Operating System (EXOS) is the world's only hardware-independent, modular, standards-based, always-on smart home operating system.

With EXOS, service providers can quickly deploy new services that leverage a range of pre-integrated smart home solutions and thousands of smart devices. Service providers can quickly change and adapt their services to embrace new technologies and meet the evolving needs of their subscribers.

## Want to offer the world's most advanced smart home systems?

Historically, consumers have looked to the consumer electronics industry for cutting-edge technology. Now, cutting edge comes from their service provider.

The new Calix GigaSpire MAX and GigaSpire BLAST are not typical residential gateways; they are premium smart home systems featuring:

- unmatched Wi-Fi performance and coverage, thanks to the latest and greatest 'Wi-Fi 6' technology (802.11ax)
- cutting-edge security with features like Physical Unclonable Functions (PUF) built in to the hardware
- always-on operation, making network disruptions a thing of the past
- advanced instrumentation and analytics to ensure optimal performance for all connected devices

The GigaSpire MAX also features built-in Alexa functionality and support for universal Internet of Things (IoT) technologies—such as Bluetooth, Zigbee and Z-Wave—making it a world's first!

## Empower your marketing and support teams

Turn your subscribers' vision of a smart home into a revenue opportunity while tackling the chaos and complexity. By leveraging the network/behavioral analytics and machine learning delivered through the Calix Cloud, service providers can proactively address issues associated with smart home devices to increase satisfaction and reduce churn. Equally as important, the Calix Cloud can provide insights into subscriber behavior that help service providers offer new services that match subscriber needs and maximize ARPU and marketing ROI.

## Smart Home Enablement Services

Smart Home Enablement Services help you get your people and processes ready to deliver and manage the smart home experience for your subscribers. We'll get with your operations team to develop your customized playbook—called a Smart Home Customer Guide—that covers service delivery use cases, system architecture and workflows, and system deployment best practices. Calix Professional Services will work with your team onsite to lock down installation and troubleshooting best practices and assist your people in actual customer deployment scenarios.

## About Calix

Calix, Inc. (NYSE:CALX) pioneered Software Defined Access and cloud products focused on access networks and the subscriber. Its portfolio of Intelligent Access systems and software combines AXOS, the revolutionary platform for access, with Calix Cloud, innovative cloud products for network data analytics and subscriber experience assurance. Together, they enable communications service providers to transform their businesses and be the winning service providers of tomorrow. For more information, visit the Calix website at **www.calix.com**.

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**Parks Associates is an internationally recognized market research and consulting company specializing in emerging consumer technology products and services.**

Founded in 1986, Parks Associates creates research capital for companies ranging from Fortune 500 to small start-ups through market reports, primary studies, consumer research, custom research, workshops, executive conferences, and annual service subscriptions.

**The company's expertise includes** the Internet of Things (IoT), digital media and platforms, entertainment and gaming, home networks, Internet and television services, digital health, mobile applications and services, support services, consumer apps, advanced advertising, consumer electronics, energy management, and home control systems and security.

For more information, visit **parksassociates.com** or contact us at **972.490.1113** / **info@parksassociates.com**

## About The Author

**Brad Russell**, *Research Director, Connected Home,* **Parks Associates**

Brad leads Parks Associates' connected home team, exploring leading-edge issues converging in the connected home—smart home devices and services, home networking, IoT data privacy and security, data-driven applications, and platform services. Brad's custom research work includes market sizing and forecasts, ecosystem and competitive landscapes, channel analyses, and go-to-market strategies.. Brad balances the art and science of market research to generate insights that lead to more astute business strategy and value-generating practices. He has a background in marketing communications, technology startups, and online media.

Brad received his Bachelor of Science degree in advertising and marketing from the University of Texas at Austin. He also earned a M.Div. and a D.Min. with concentrations in ethics and cross-cultural collaboration.

Twitter ID: @bradrusselltech

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