

Changing Dynamics of the Smart Home: Opportunities for Service Providers

A Parks Associates Whitepaper Developed for Calix



Changing Dynamics of the Smart Home: Opportunities for Service Providers

Consumers are becoming more connected every day with new products and services as the smart home market moves out of the early adopter stage. With solutions in the mass market, consumers have stronger expectations for technology to work seamlessly.

Many first-time buyers are joining the wave of smart home adoption, and they will need as much or more support as the early buyers.



The changing dynamics of the smart home create opportunities for service providers, who possess distinct advantages in offering solutions (devices and services) to consumers. Service providers have the assets, the consumer relationships, and the brand recognition to create, promote, and deliver a robust and flexible smart home experience to consumers that incorporates **support, security, privacy protection, and a variety of personalized value propositions.**

Service provider ambitions in the smart home space are not new, but traditionally they have been challenging, with many past efforts abandoned or producing costly and disappointing results.

Providers today are rightly cautious when considering the smart home space; however, multiple factors have aligned to make now the optimal time for service providers to enter this service area.

Innovative solutions in cloud technologies and service provision are now available that address consumer pain points, opening up new service revenues and the ability to differentiate. These innovations also allow smaller and regional providers to compete on the same level as the bigger players.

Through the benefits of new technology and by examining the lessons learned from previous entrants' failures and successes, service providers can now confidently enter the smart home services marketplace. The need among consumers is clearly defined, with setup and support needs reaching a mass market, while the risks to data privacy and security are elevated.

These market forces suggest that the time is right for service providers to enter the market now.

Number of Connections is Growing

Consumers continue to be more connected, from health and in-home entertainment devices to smart home products and smart speakers. The average household owns 10.4 IoT (Internet of Things) devices.

Among U.S. broadband households:

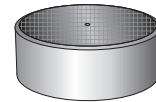


26% own at least one device from a list of common smart home devices



46% own a connected health device

28% own a smart speaker with voice assistant, up from 3% in 2016



71% own a connected entertainment device



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A positive experience drives more purchases. When a household buys one connected device and the experience of setup and daily operation goes smoothly, more purchases will follow.

Parks Associates research finds that owners of smart speakers with voice assistants (such as Amazon Echo or Google Home) are three times more likely to own a smart home device than consumers who do not own smart speakers.

Having multiple IoT devices in the home is becoming common—among consumers who own either a connected entertainment or smart home device, more than 60% have more than one.

The consumer experience is what influences the next purchase of smart home devices.



Capitalizing on Technology to Improve Everyday Living

Consumers are embracing technology to simplify and improve their lives.

Solutions can be the smart device itself or a service being used in combination with the device, such as the premium subscriptions for IP cameras that provide video storage and e911 calls. Connected solutions available today address multiple aspects of consumers' lives.

- Voice assistants allow people to multitask hands-free. A person can select music, change the temperature, and send commands to multiple smart devices while cooking dinner.
- Video doorbells save time and effort and provide peace of mind by allowing remote access to approved delivery personnel, providing access to the dog walker or housekeeper, and sending notifications when a family member arrives home.
- Internet and entertainment access services provide parents a way to limit screen time and allow age-appropriate content in a seamless manner.

From the rapid adoption of voice assistants to video doorbells, the common theme is “making every day living easier through technology.”



- From smart lighting to fall prevention, alerts for missed medication, or the ability to access help with a PERS (personal emergency response system) device, seniors now have many emerging services that enable them to continue living independently while providing comfort to caregivers and family members.

Whether a solution has broad appeal or is designed to address specific life challenges, consumers are willing to buy.



Changing Dynamics of the Smart Home: Opportunities for Service Providers

Consumer Desire for an Easy, Seamless Experience

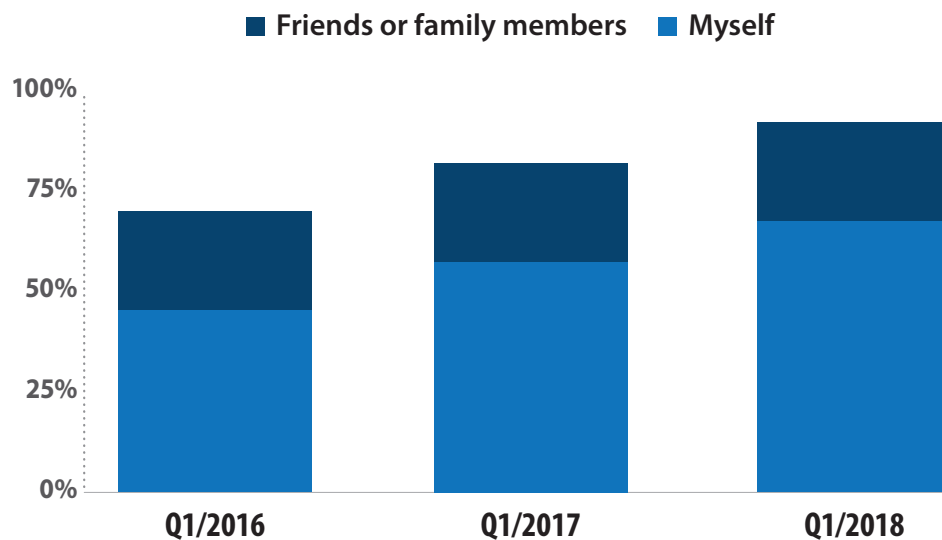
From setup and technical support, to the continual protection of data and privacy, consumers want a pain-free process throughout the life of their devices.

As adoption increases and manufacturers make the setup process more intuitive, the number of consumers who install and set up products themselves is increasing rapidly.

Nine out of ten smart home device owners have either installed and set up a device themselves or had a friend or family member help in the last year.

Overall Smart Home Device Installation Methods

U.S. Owners of Smart Home Devices



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But this process can be painful.

Approximately one-third of connected entertainment device owners and one-half of smart home device owners who set up their devices themselves experience problems.

The top five most common problems:

- connecting devices to the internet (14%)
- learning how to use devices (13%)
- configuring settings (13%)
- physically installing devices (13%)
- communicating with other devices (9%)

The percentage of smart home device owners who experienced at least one problem during device setup grew in 2018. While 43% used available information found in product manuals or on the internet to resolve the issue with their smart home device, 28% reached out to either a manufacturer or independent support provider.

Convenience plays a major role in the actions consumers are likely to take when seeking support, creating a large opportunity for service providers to fill this customer need.

Nearly 40% of smart home device owners who set up their devices themselves report they would prefer to have professional help the next time they set up a device.

Many consumers are not yet comfortable with the setup process for smart home devices.

Beyond setup problems, consumers experience other technical problems throughout the device lifecycle that cause frustration and need resolution for continued operation.

These recurring issues demonstrate that demand for support services exist; however, despite this market opportunity, no single company has stepped up to dominate the support space. **Approximately one-fifth of U.S. broadband households have a technical support subscription for their internet-connected entertainment, health and wellness, and smart home devices, and no single company has captured more than 14% of this market.**

Service providers can step into this market within their service footprint, as their existing service relationships give them a competitive advantage for the sale of ongoing support subscriptions.

Frequent Issues with Smart Home Devices

32% loss of wireless connectivity

27% an unresponsive device

22% difficulty getting software and apps to work properly

16% poor device performance

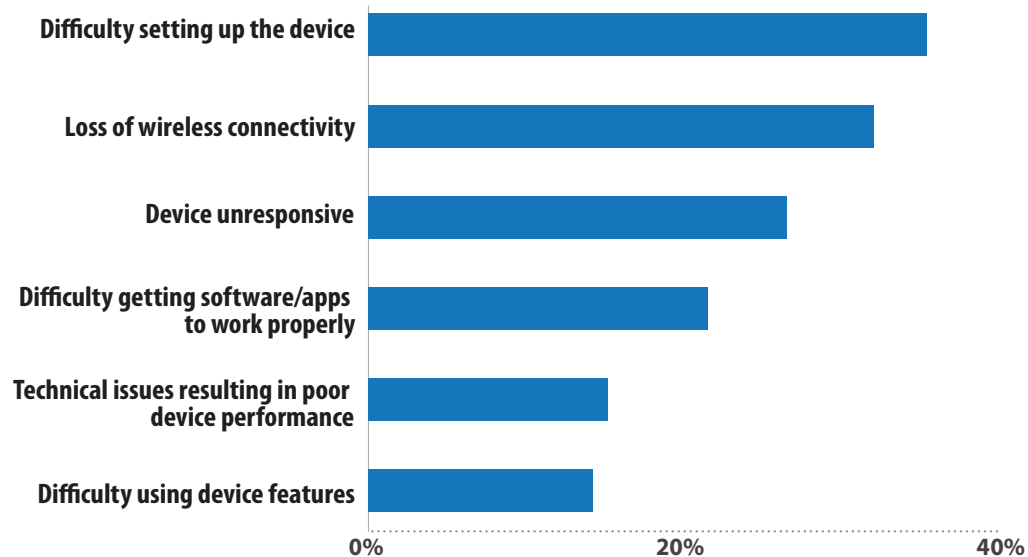
16% difficulty using device features

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Smart Home Devices: Common Technical Problems

U.S. Broadband Households that Experienced Technical Problems with Smart Home Device



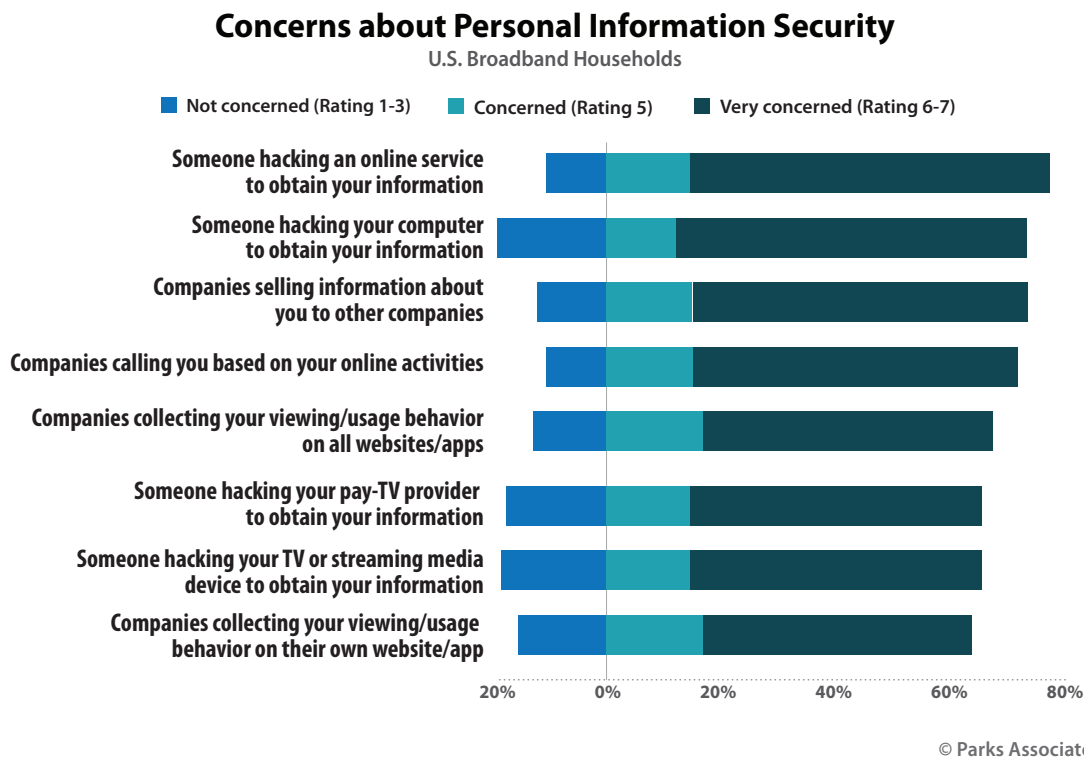
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Security Issues are Top of Mind

More than three-quarters of consumers are concerned about privacy and unauthorized access of their personal data and access to their connected devices. Households also have multiple anxieties regarding their personal information—on average, broadband respondents admitted to concerns on more than four specific risks regarding their personal information and device security.

One-third of households are highly concerned with all the security issues listed in the figure included below.



Parks Associates research finds that **consumers perceive the likelihood of experiencing a security breach as higher than the likelihood of experiencing a technical issue.**

For consumers, the risks associated with a security breach are higher than those associated with technical problems.

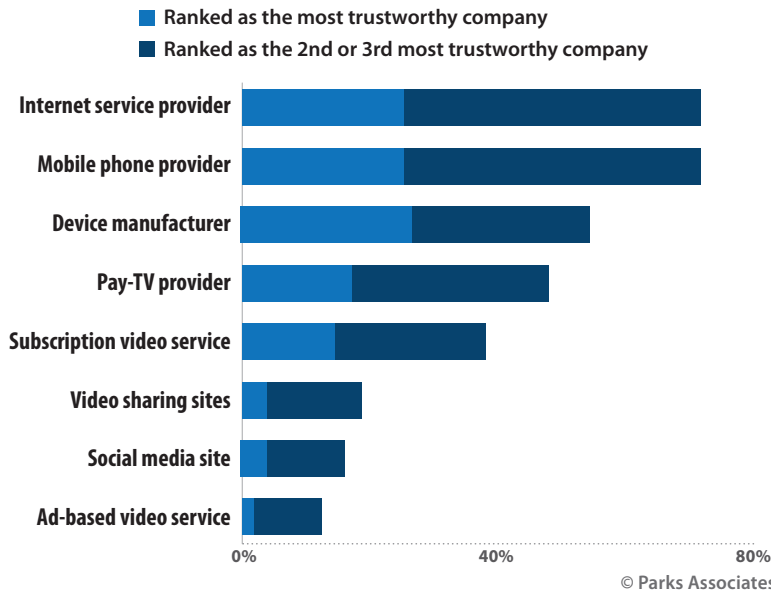
Services that protect devices from unauthorized access are ranked number one in terms of appeal, with more than half of consumers finding this type of service very appealing.

From their ongoing relationship with households to having technical support capabilities and the ability to facilitate in-home support with trained field technicians, service providers can address consumer needs as it relates to installation, setup, and ongoing technical support of smart products. With innovations in cloud-based cybersecurity capabilities, service providers can provide peace of mind to consumers by identifying and addressing potential risks before any damage happens.

Service providers are in a unique position to capitalize on consumers' needs regarding their connected devices in the home.

Most Trustworthy Company to Access and Manage Consumer Data

U.S. Broadband Households



ISPs rank at the top of providers that consumers trust to access and manage their data, with 65% ranking ISPs as either their first, second, or third most trustworthy company with regards to security and privacy issues.

Support Services Have High Appeal.

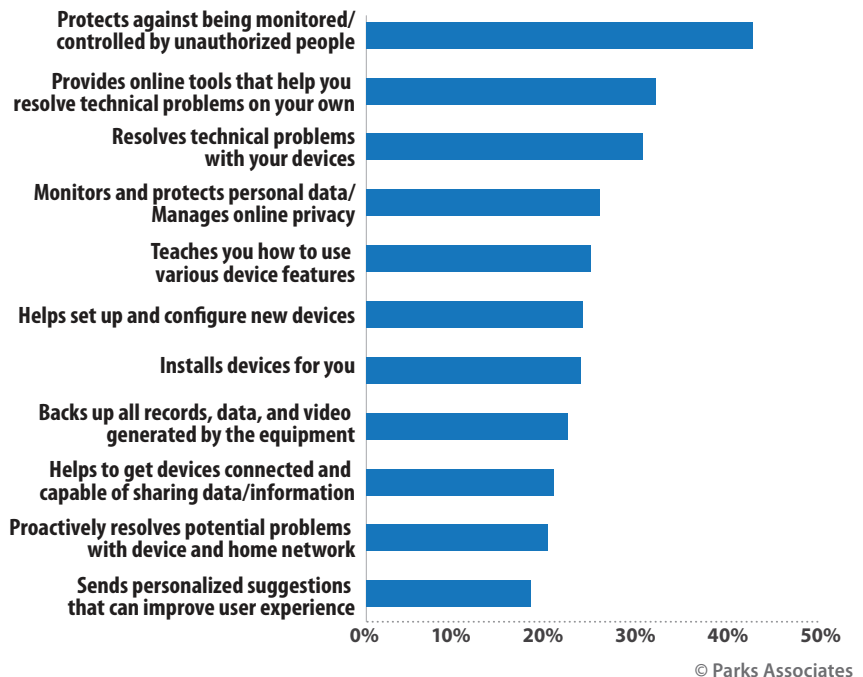
Parks Associates finds 40% of U.S. broadband households find smart home support services that resolve technical problems appealing and 51% find protection against unauthorized access to be appealing.

Support Services are Viable Offerings.

Proactively being able to access home networks remotely to identify and correct technical issues, as well as the ability to manage security, privacy, and device updates, resonates positively with consumers.

High Appeal of Smart Home Device Support Services

U.S. Broadband Households



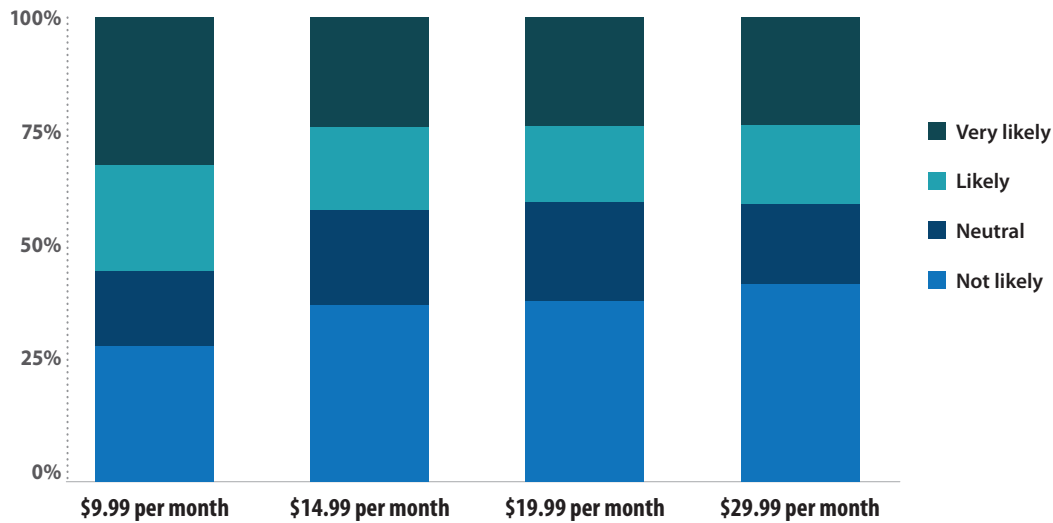
43% of consumers are likely or very likely to pay for support services covering smart home devices when offered at \$29.99 per month.

Nearly **60%** of consumers are willing to purchase a comprehensive subscription support service when the price is lowered to \$9.99 per month.

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Likelihood to Pay for Smart Home Device Support Services

Smart Home Device Intenders with Specified Price Presented



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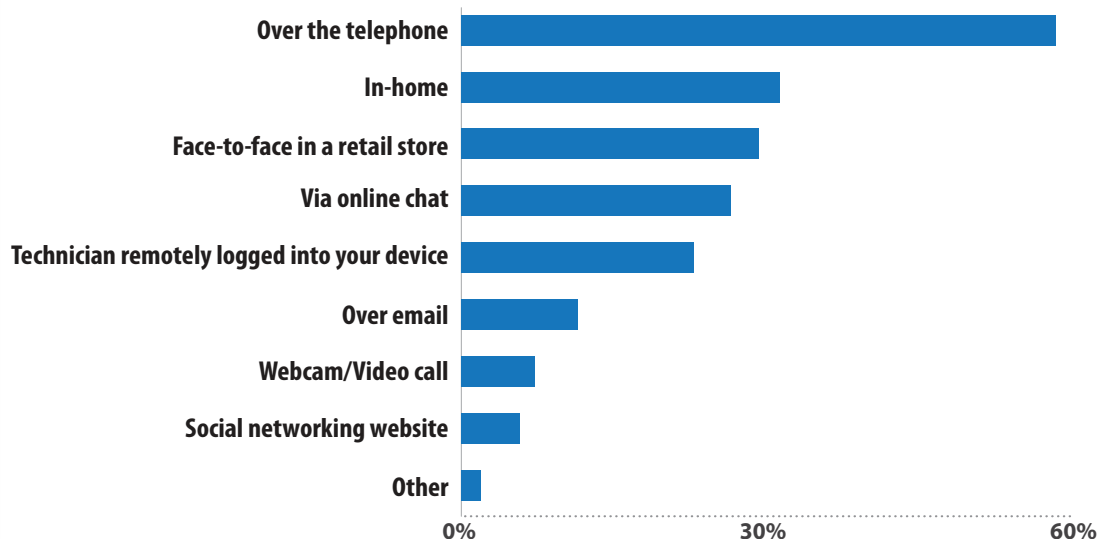
Service providers already possess the infrastructure needed to offer support services. These assets put them in an ideal position compared to manufacturers and even retailers.

Service providers can offer a variety of options for support—self-help apps, chat, phone, or rolling a truck with a technician.

In today's connected lifestyle, consumers value flexibility in their choices. A service provider's ability to address consumers' problems in the method they prefer is a distinct advantage.

Preferred Method for Support in the Future

U.S. Broadband Households that have Resolved Technical Problems with Help of a Professional Technician



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Healthy Skepticism is Expected Regarding Investing in Services

Service providers may be suspicious of entering the space. Several well-known companies such as AT&T, Verizon, British Telecom, Orange S.A., Telefonica, and Deutsche Telekom entered the smart home services space only to struggle to gain traction. It is prudent to ask questions such as **“How can we succeed when these large service providers did not?”** By examining key attributes of these forays, service providers today can confidently avoid previous miscalculations and succeed now where others were previously unsuccessful.



Timing is everything

Many of the earlier home service efforts failed because they entered the market too early.

With any new technology, innovators are the majority of buyers, and their overall numbers are small. Forecasting how quickly the majority of consumers will embrace a new type of solution is incredibly difficult. For example, smart thermostats have been in the U.S. market for more than a decade and have only 13% penetration among broadband households, while smart speakers with personal assistants have gained rapid acceptance in just three years with 28% adoption. Most early entrants in the home services market overestimated speed of adoption. Today, with more than a quarter of households owning at least one device, and more than 50% intending to purchase a smart home device in the next 12 months, service providers can now confidently invest.

Predicting technology transformations is difficult, and the speed of technology changes can contribute to failure.

Similar to adoption rates, being able to foresee whether a particular solution will fail or take off in the marketplace requires foresight. Examples from almost every industry exist. Sometimes the first to market succeeds (e.g., eBay's online consumer auction process), but often early entrants adopt a solution that ends up losing (e.g., Sony's Betamax). Unique market forces can drive success (e.g., Microsoft's partnership with IBM for the personal computer operating platform). Innovations can resurrect players once thought past their prime (e.g., Apple was nearly bankrupt in the late 1990s).

Another contributing factor that creates challenges that hinder adoption and market success is not having enough vendors in the ecosystem to provide solutions and drive excitement. These vendors are an important part of continuing solutions as they can help service providers keep up with rapid technology changes.

Companies may misstep any number of ways.

Whether that is not having the resources to support change, not being willing to change direction, or underestimating market timing and technology direction, offering a new product or service can be difficult. New technology platforms are exceptionally vulnerable, but sometimes even market leaders can stumble. Google's smart device software platform (Android@Home) was abandoned before even one manufacturer adopted it. Numerous examples exist in previous home services as many of the early entrants focused a tremendous amount of effort developing their own platforms that became quickly out of date.

Waiting until an industry takes a clear direction on specific technologies helps prevent failure. While standards are still evolving, the market is moving away from proprietary to open platforms. Vendors are embracing this direction and are developing applications that work with these open protocols.



This evidence of vendor support is a key indicator that the market has turned and the timing is better to enter the market.

Impatience for success determines failure.

While the large service providers entered the space with good intentions and strong business plans, the payback periods experienced were longer due to slower adoption rates, changes in technology, and the dearth of differentiated service offerings. As a result, programs were discontinued. Companies can combat this challenge by having alternative plans when slower growth is experienced initially. As market adoption increases for any new product or service, timelines are reduced.

Take Advantage of Today's Smart Home Dynamics

Consumers are now embracing smart products and solutions in numbers approaching mass-market adoption. The specific products and services vary with each household, but the layer of cloud-based capabilities on top of flexible product platforms allows a service provider to deploy solutions that can adapt and change to accommodate a variety of use cases. A millennial can use a smart video doorbell to remotely allow package delivery and give access to the dog walker. A family can utilize parental controls for internet/entertainment access. A senior can use PERS devices to continue living independently.

With the increase in adoption of complex connected devices, consumer expectations and challenges rise as well.

From cybersecurity concerns to device setup and ongoing technical issues, service providers are in a unique position to be able to address these needs based on their relationship with consumers, their support capabilities, and consumers' confidence in their ability to protect personal data.

Evidence that the time is right to enter a desirable and viable market can be seen by the re-emergence of the large providers. Telecoms such as Orange, Deutsche Telekom, Vodafone, and Verizon have evaluated their failures and have regrouped, retooled, and relaunched their smart home offerings.

Recent technological innovations, such as enterprise-level cloud-based platforms that allow proactive security and privacy protection for the home network, along with the ability to remotely manage devices in the home and provide technical support to the consumer, allow smaller service companies to enter the space confidently and capitalize on new revenue streams while minimizing risks. Service providers, working with their suppliers, can now offer bundles customized for their markets while being able to respond to technology changes without the risks that early entrants experienced.

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) – Innovative communications service providers rely on Calix platforms to help them master and monetize the complex infrastructure between their subscribers and the cloud. Calix is the leading global provider of the cloud and software platforms, systems, and services required to deliver the unified access network and smart premises of tomorrow. Our platforms and services help our customers build next generation networks by embracing a DevOps operating model, optimize the subscriber experience by leveraging big data analytics and turn the complexity of the smart home and business into new revenue streams. For more information, visit the Calix website at www.calix.com.



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



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Denise recently joined Parks Associates' Smart Home Energy Management team. She has worked for both manufacturers and service providers, with experience leading new product development, marketing, and sales. Her expertise in launching products from design to sales execution and channel management brings a unique perspective. Her motto is "look at the data, it will tell you what direction to take."

Denise earned her MBA from University of Chicago's Booth School and her BS in Industrial Engineering from Iowa State University.

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