Smart Home: Disrupting the Security Industry

Report Snapshot

Smart Home capabilities are disrupting residential security business models in the US and soon internationally. The traditional one-way security systems are giving way to innovative solutions that meld remote monitoring and control as well as automation capabilities with notifications of security breaches and events homeowners want to be alerted about. These innovations are creating new options for consumers and driving changes in the way monitoring services and first responders react to emergencies.

Devices

December 2016

Bill Ablondi
Tel: +1 (617) 614 0744 |
Email: wablondi@strategyanalytics.com

Interactive Security: A Brief History

This report focuses on the dynamic market for interactive security and how it is transforming the traditional residential security business into one capable of offering much more than rapid response to intrusion, fire and smoke alarms. Residential security services in the US changed very little for decades because security dealers had a business model that worked: they signed up subscribers for a 3- or 4-year contract with significant monetary penalties if terminated early. The dealers would install the sensors designed to detect motion, doors or windows opening or closing, sirens, smoke and fire detectors – a complex process, meant to be performed only by trained technicians. When armed, any movement, fire or smoke in the home would trigger a notification to the central monitoring station (CMS). The CMS would then attempt to call the home as well as any predefined contact numbers. If the CMS agent could not contact the homeowner or designated parties, they would call law enforcement, other authorities or determine if other assistance should be dispatched.

This worked well for decades and there was little incentive for dealers to change their business model. There was also very little incentive for manufacturers building the necessary hardware to innovate. Margins were good… everyone was happy.

Then in 2000 Alarm.com introduced a system that allowed subscribers to remotely monitor and receive alerts even when the system wasn't armed. In addition, it was a totally wireless system that relied on dedicated GSM networks for communications between the home and the central monitoring station. Anyone with an Internet connection could visit their subscriber page and see an activity log of all sensors in their home. They could get alerts if desired when certain sensors were tripped, such as one signaling the liquor cabinet door was opened. This early system also had the ability to control lighting.

The introduction of smartphones in 2007 fostered rapid growth of security systems that could be remotely monitored and controlled when users were on the go.
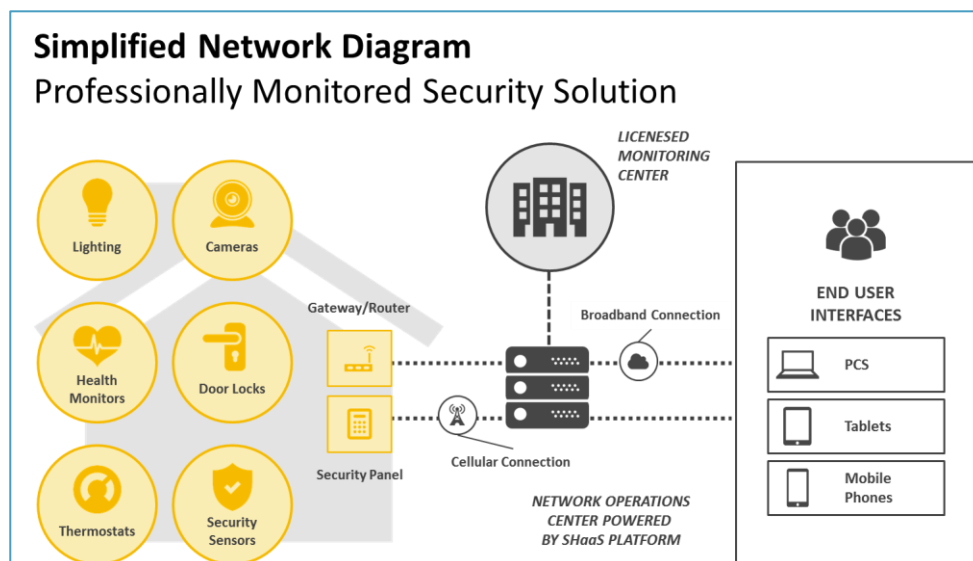
Interactive Security

Interactive security systems perform the same tasks traditional security systems do, plus they have additional capabilities including:

- Routine activity monitoring and notification, not only detection of emergency events

- Remote access to monitor and control devices and systems connected to the home security and control network

- Monitoring and control of door locks, lights, thermostats, video cameras and a variety of sensors that monitor temperature, moisture, etc.

- The ability to establish rules for controlling devices based on time-of-day, events or other conditions

Additionally, some systems incorporate cloud-based services that enhance and extend the capabilities of security features to include energy management and elder-care monitoring.

Collectively, Strategy Analytics believes these additional capabilities will increase the appeal of professionally monitored security beyond consumers interested in only security to those interested in remote home monitoring and control capabilities. In fact, in our opinion, it is time for security services providers to re-think naming and branding of their services to encompass a more holistic home-management theme.

Figure 1: A Typical Interactive Security System

Interactive security services are not emerging in a vacuum. Self-monitored systems from a variety of companies such as Lowe's with its Iris system, Ingersoll Rand's Nexia Home, D-Link's myDLink and a host of others compete for the same consumer budgets. Some services require a recurring fee; others do not. Therefore, we forecast the adoption of self-monitored systems in conjunction with professionally monitored security systems.

The Importance of the Platform

Interactive security systems require a cloud-based software system to integrate the various capabilities offered by these systems. This system is commonly referred to as a "platform." Interactive security platforms are a special version of smart home platforms that coordinate interactions among different devices and applications. The platform accepts input from users as well as devices and is capable of telling other devices how to behave. Strategy Analytics has compared well over 50 different platforms operating in the global smart home market. We have chosen to focus on several security-oriented platforms in this report to showcase the different approaches vendors are taking.

Icontrol was one of the first interactive security platforms in the market after Alarm.com. It was actually a combination of two different platforms, one designed for and licensed to cable TV companies, and the other designed specifically for security firms such as ADT. There are other platforms designed primarily for self-monitoring and control such as Zonoff's platform, used originally by Staples and now by Dixons Carphone in the UK.

Some platforms are owned by the smart home service provider such as AT&T's Digital Life, Lowe's Iris and IR's Nexia Home. Others such as MivaTek, Zonoff and MiOS are licensable platforms.

The capabilities offered by platforms are instrumental in differentiating interactive security or self-monitoring services based on them. These capabilities range from the types of control protocols they support to the range of devices they can monitor and control. The growth of smartphones with GPS radios prompted developers to include geo-location capabilities into their platforms; integration with connected cars is a more recent development. These and other ecosystem developments are covered in Strategy Analytics' report *Update on Ecosystems of Key Smart Home Platforms*.

This brings us to one of the current trends in the residential security industry – video verified alarms and how platform developers are responding to it.

Movement to Video-Verified Alarms

Support for video-verified alarms is growing among security companies, insurers, and law enforcement organizations The appeal is twofold: video-verified alarm systems allow viewers to observe crimes in progress and provide meaningful evidence in the wake of a crime event.

The Partnership for Priority Verified Alarm Response (PPVAR) is an industry organization established to promote the benefits of video-verified alarms as well as the use of standardized protocols for video relay. Several big names in the industry have signed on to show their support for this initiative: In September, ADT became a full member of PPVAR, joining AT&T Digital Life, Protection 1, and several smaller alarm companies. Standardized protocols allow alarm companies to provide central monitoring station operators with video to accompany an alarm event. Should central station operators verify the presence of intruders, they are able to pass this information on to law enforcement personnel, who may elevate the status of the call to a crime-in-progress.

According to Keith Jentoft, founder of PPVAR, video verification helps to strengthen the value proposition for professionally monitored security, since central monitoring stations can acquire priority police response.[1] Typically, calls in response to a security alarm are treated with low priority, owing to the frequency of false alarms. Video-verified alarms are given priority status and produce higher arrest rates, says Jentoft.

Yet video verification doesn't always need to involve a central monitoring station. Self-monitored solutions, which allow homeowners, renters, and designated third-parties to relay a video clip directly to authorities as proof of a crime in progress, can be even more effective. Typically the CMS agent doesn't definitively know whether the person in a video clip is actually an intruder or a friendly party who accidentally tripped the alarm; with a self-monitored system, that possibility is virtually eliminated. While only a few police departments throughout the United States are equipped technologically to accept video directly from consumers, this is a trend that is beginning to pick up steam. We expect that with the growth of self-monitored security systems, there will be a corresponding growth

---

[1] PPVAR is a volunteer association with no paid staff. Jentoft also holds a leadership role on the Videofied Integration Team at Honeywell; his role is focused on growing the market for Honeywell Security's video verified alarm systems.

in the number of police departments and other legal authorities equipped to receive notifications including video verification directly from homeowners.

MivaTek's Unified-IoT™ Platform: Capitalizing on Movement to Video Verification

MivaTek, a privately held company in Silicon Valley, set out to leverage the experience and technological expertise its leadership gained through the years at Oplink Communications, a US manufacturer of components for ultra-broadband optical transport networks, to deliver a platform that would enable new products and services in the interactive security space. MivaTek's Unified-IoT Platform™, which provides a secure, cloud-based architecture that is scalable and customizable across all users, domains/functions, locations, and devices, is a turnkey solution that makes it possible for service providers to go to market with smart home solutions that support security, elder care, safety monitoring, and energy management applications. At the center of MivaTek's offering is the Security Shuttle Hub, which includes a 100dB siren and network attached storage (NAS), as well as embedded Wi-Fi, Z-Wave, and 433MHz radios for communication with devices in the home. MivaTek owns patents on the platform's Zero Pairing Configuration; on the Anti-Sniffing/Anti-Hacking algorithm to the Shuttle; and on the smartphone number and location-based association method.

MivaTek saw a need in the market to provide enhanced, self-monitored home security through the use of video-verified alarms. However, with the heightened exposure of IoT devices to hacking attempts, MivaTek also focused its efforts on improving the security of its own systems. All MivaTek user accounts are tied to actual mobile devices via the corresponding phone number rather than a username and password set, which helps to prevent unauthorized account access to the system by limiting interactions only to users with access to registered mobile devices. Additionally, MivaTek ensures that unauthorized parties are unable to intercept communications by employing end-to-end encryption on its network – the same level of encryption used in online banking transactions.

MivaTek's platform is unique in that it allows users to designate trusted individuals – e.g., friends, relatives, and neighbors – as recipients of video alerts. When an alarm sounds, these individuals will receive the accompanying video allowing them to make an informed, real-time decision about whether to contact the authorities. If an intruder is present, they'll be able to contact local authorities via a prompt provided by MivaTek's system and relay this information to law enforcement personnel.

In addition to security, the MivaTek platform offers analytics capabilities that may be interesting to providers seeking to establish alternative revenue streams. With enough data, the MivaTek analytics engine can provide recommendations to end users (via partner companies) that will, for example, help them to save energy, perhaps even through the purchase of a new, more energy-efficient appliance. MivaTek's open API makes it easy for third-party vendors to integrate with its platform.

The MivaTek platform is essentially a "System of Smart IoT Systems" enabling devices and other cloud based solutions to share bi-directional data thus allowing solutions to control or be-controlled while sending targeted messaging to end users.

These capabilities have already attracted a significant following. In 2016 alone, MivaTek already has sold 12,000 units globally with an average of 2.5 users per unit and 60,000 sensors under management.

However, MivaTek, whose platform is designed to support self-monitored security and smart home solutions, and its partners aren't without competition in the marketplace.

Types of Security Offerings

The residential security market is in a state of transition – moving from the traditional one-way systems to interactive systems which can be controlled remotely. However, not all consumers feel the need for professionally monitored systems, preferring instead to be notified personally about events and then deciding on their own what action to take, if any. In addition, systems can be relatively easy to install, so some consumers take it upon themselves to connect the necessary sensors and cameras to monitor their homes. The following categories of security systems are currently available in the market:

Professionally installed; professionally monitored

This is the typical offering from companies such as ADT, AT&T Digital Life, Comcast Xfinity Home and Vivint. Monthly fees range from $30 to more than $70 depending on the capabilities subscribed to. Some firms charge additional fees for additional devices, cellular back-up and video storage.

Professionally installed; self-monitored

This is a relatively new category that is gaining popularity. Many consumers prefer to have a monitoring system set up for them rather than do it themselves. In fact, Strategy Analytics' 2016 Smart Home Consumer Survey identified a segment of likely smart-home adopters who say they can set up a system on their own, but prefer to have others do it for them. On this note, there are firms beginning to offer smart-home set-up services for these consumers.

Self-installed; professionally monitored

This category is usually less expensive than professionally installed and professionally monitored systems. Two prominent companies offering these systems are Frontpoint and SimpliSafe. Frontpoint uses the Alarm.com platform which relies on Z-Wave control communications and charges $34.99 to $49.99 for monitoring services. SimpliSafe's monitoring services range from $14.99 to $24.99.

Self-installed; self-monitored

There is a broad array of products and services that fall into this category, ranging from a single camera that sends alerts to users when motion is detected to systems with door/window sensors, motion detectors, electronic door locks, garage door openers, lighting controls, cameras and more. Often, people add thermostats and water heater controls to these systems in order to better manage energy usage.

Many systems in this category, such as Home8, have no monthly fees or as in the case of Lowe's Iris system, basic notifications are free, but enrolling multiple users and enhanced notifications costs $9.99/month.

Consumer Interest and Willingness to Pay

Strategy Analytics conducts extensive surveys of consumers' interest and willingness to pay for various smart home capabilities including interactive security services. A recent survey revealed that about 22% of online households currently subscribe to professionally monitored security, paying, on average, $39/month (see Figure 3). We then asked those not subscribing to security services how interested they would be if those services were free; 43% of online households reported that they were interested or very interested in security if it cost nothing. We then asked this 43% what's the most they would pay if a fee was charged. About 6% weren't willing to pay anything, but over 86% (or 37% of all online households) were willing to pay an average of $16/month or less than half the going rate. This clearly points out how elastic the market is; more consumers would be likely to subscribe if fees were lower.

Figure 2: Consumer Interest and Willingness to Pay for Security
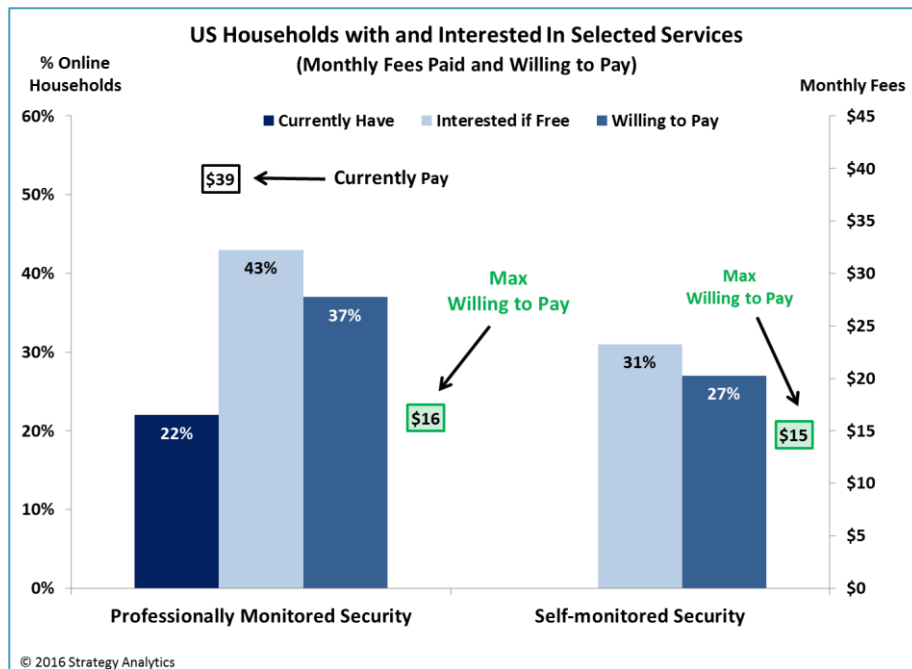
Self-Monitored Security

Self-monitored security systems were described to those currently not subscribing to professionally monitored security as a service that would allow them to monitor their home for burglary, fire and other emergencies, but would ONLY notify them or designated people by text or email in case of emergency and not notify the authorities.

Thirty-one percent of all online households reported that they would be interested in or very interested in such a service if it were free, and 87% of these (or 27% of all online households) households indicated that they would be willing to pay $15/month, on average.

The New Breed of Interactive Security Systems

There are a number of new interactive security systems coming to market, supported by providers with business models that allow consumers to choose a professionally monitored or self-monitored service level. These new offerings are much less expensive and more flexible than services offered by incumbent security firms. They don't require subscribers to commit to fixed, long-term contracts with steep penalties for early cancellation. Some provide professional security monitoring on demand for short periods of time.

Abode

Abode combines a smart home hub featuring ZigBee, Z-Wave, and Wi-Fi with a pay-as-you-go security system. Monitoring plans are available for 3 days ($8), 7 days ($15) or monthly ($30). No contract is required for any of the monitoring plans, and users can switch among them at any time. The hub also employs a 433 MHz radio for communications with traditional security sensors.

Abode offers two types of cameras: one is a battery-operated "motion camera" built into a ZigBee-enabled PIR motion sensor. When motion is detected, the device captures images and delivers them to the gateway, which in turn sends the pictures to users or, if on a professional monitoring plan, to the call center. In addition, there is a full-featured Wi-Fi camera with live streaming to the users' smartphones and computers. Both local and cloud storage are available.

Home8

Home8 is based on the MivaTek platform described above and provides a video-verified alarm system designed to easily share video alerts with friends and family. For a single user, Home8 offers a free video-verified service that includes 24/7 video monitoring, video-to-mobile push alerts, and cloud storage with video forwarding.. It charges $9.95/month for up to 5 users and also offers coverage for multiple locations, such as a vacation home ($9.95/month/location). The centerpiece of the Home8 system is the gateway called the Security Shuttle which creates a closed network, protecting data with a firewall, AES-256 bank-level encryption, and anti-sniffing technology.

Devices are paired before they ship so users simply connect the Shuttle to their home router and set up their devices. The Shuttle serves as an integrated bridge and intelligent controller transferring data between devices and Home8 cloud servers. It also provides internal storage for local backup of video recordings.

SimpliSafe

SimpliSafe is a self-installed wireless security system with optional professional monitoring for $14.99 per month, which includes cellular back-up and no contract required. However, if users want to receive text and email alerts, as well as remotely control and monitor their security systems from a smartphone or PC, they have to pay an additional $10/month.

Scout Alarm

Scout Alarm offers two monitoring plans: Always On ($9.99 / month) and Always On+ ($19.99 / month). With the former, users have access to email, push, and SMS notifications supported by a 3G cellular connection. The latter plan includes professional security monitoring, for which Scout contracts with UL-certified monitoring centers. All Scout users must subscribe to a monitoring plan.

Scout's professional monitoring services are also available to Samsung SmartThings users – users can subscribe to the Scout Professional Monitoring service within the SmartThings app. Only the SmartThings hardware is required; users do not need to purchase additional hardware from Scout.

Market Forecast and Industry Outlook

Market Forecast

Interactive security systems will displace traditional one-way systems over the long term and expand the market due to the enhanced capabilities that they offer. Strategy Analytics' forecast for the number of US households with traditional and interactive security is presented in Figure 4 along with those households opting for some form of self-monitoring and control. The two columns representing traditional security and interactive security refer to those households subscribing to professionally monitored, call-center-supported security. Households with self-monitoring and control are those with systems such as Home8, Iris, or cameras from D-Link, Nest, Netgear and others.

As pointed out above, the motivations and devices installed to support self-monitoring and control vary widely. Not all of these are DIY systems, as we believe many consumers will opt for professional installation. Clearly, Strategy Analytics believes this category will become the dominant type of home-monitoring system in the long term. Safety and security capabilities such as those that the MivaTek platform offers are among the applications driving adoption of this category.

Figure 3: Market Forecast
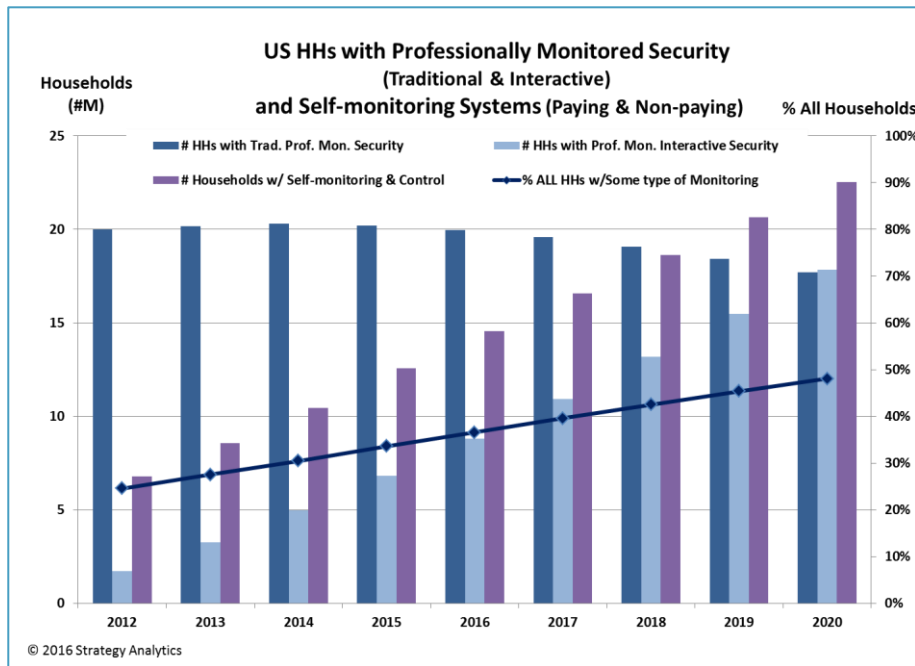
By 2020 the number of households with interactive security will edge past those with traditional security systems, and the percentage of all households with some form of monitoring system will reach nearly 50%.

Industry Outlook

The residential security industry in the U.S. is in a technological transition after decades of stagnation. In fact, monitoring homes for intrusions, fire, smoke and other security breaches is no longer sufficient in the eyes of many consumers. People are seeking to be constantly connected with their homes just as they have become connected to their family, friends, business associates, banks and travel plans. Many people will continue to want their security systems professionally monitored by call centers, but an increasing number will opt for self-monitored systems to avoid expensive monthly fees. Video-verification capabilities provided by platforms such as MivaTek will grow in popularity as alternatives to professionally monitored systems, as people become aware of the advantages they provide when seeking assistance in emergency situations.