WatchGuard

Wi-Fi is Easy, Secure Wi-Fi is the Challenge.

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Wi-Fi Is **Everywhere**

Organizations across all industries are facing increased pressure from customers, vendors, and employees to offer wireless access. While offering this service provides gains, there are multiple areas of consideration for the provider, including mobile engagement and analytics, hotspots, IoT (Internet of Things), and the widening cellular spectrum capacity gap.

In this eBook, we'll explore the increasing demand for Wi-Fi, and more importantly, how to secure your wireless network.

Of all **Internet traffic** in the world,

63%

of it will travel over **Wi-Fi** by **2019**[1]

Drivers for Wi-Fi Adoption

The number of hotspots is predicted by iPass to grow from **23 million** in 2014 to almost **300 million** in **2018**[2]

Workplace Productivity

With the increase in wireless connection throughput to 802.11ac speed, workers are no longer tethered to an Ethernet cable. Organizations can offer the flexibility of a mobile workspace, while at the same time making no sacrifice to productivity with wireless bottlenecks.

Superior ROI

Traditional wired infrastructure is inflexible and costly to install. Businesses that choose to exclusively offer wired connectivity must cover the cost of wire, wall jacks, and switches, along with the cost of setup and maintenance. As the organization grows and users are added, additional costs are incurred. Offering wireless hotspots is far less expensive, provides greater scalability, and offers the flexibility and efficiency for users to roam around the facility.

Customer Satisfaction and Repeat Visits

Guest Wi-Fi has become a ubiquitous offering across many business sectors. Organizations that choose to provide this service also need to accommodate high speed demands of streaming HD video and music. The hospitality industry is especially dependent on offering Wi-Fi, as travelers rank free Wi-Fi access as their number one criterion in selecting a hotel.

Mobile Engagement

Mobile engagement encompasses the many techniques businesses can use to communicate with customers once they've connected to the guest Wi-Fi network. This allows businesses to extend their engagement strategies past the splash page and provide an even richer online experience that informs customers with relevant details precisely when they want it most.

Customer Analytics

Massive amounts of customer data – collected via passive scans, active scans and user connections in and around a businesses' Wi-Fi networks--can provide businesses with valuable insight into guest behavior, demographics, and trends. Businesses that harness this data in conjunction with social login analytics gain powerful visibility into demographic information, including gender, age, and customer buying tendencies, in turn informing marketing strategies to customers even after they've left the store.

Internet of Things (IoT)

The amount of "things" connected to the Internet is growing at a rapid pace. IDC estimates that the number of IoT endpoint-connected devices such as cars, refrigerators, and everything in between will triple from 2014 to 2020. The firm predicts that the global IoT market will grow 150% during the same period, from $655.8 billion to $1.7 trillion.

Widening Cellular Capacity Gap

Cellular data providers are investing heavily in the rights to send signals over the air via radio frequencies, often referred to as spectrum. The capacity of each spectrum, which is licensed by government regulators, is being outpaced by consumer demand. In order to fill this growing gap in capacity, data providers are looking to fulfill the demand through Wi-Fi, specifically on the 5GHz ISM band. But, compared to cellular data, Wi-Fi has a very short range. This presents a challenge that can only be met by a mass deployment of wireless access points, creating carrier-grade Wi-Fi networks.

Top Eleven Threats to Your Wireless Network

1. Wi-Fi Password Cracking

Wireless access points that still use older security protocols, like WEP, make for easy targets because these passwords are notoriously easy to crack.

2. Rogue APs and Clients

Nothing physically prevents a cyber criminal from enabling a foreign access point near your hotspot with a matching SSID that invites unsuspecting customers to log in. Users that fall victim to the rogue AP are susceptible to a malicious code injection that often goes unnoticed.

3. Planting Malware

Customers who join a guest wireless network are susceptible to unknowingly walking out with unwanted malware, delivered from bad-intentioned neighboring users. A common tactic used by hackers is to plant a backdoor on the network, which allows them to return at a later date to steal sensitive information.

4. Eavesdropping

Guests run the risk of having their private communications detected, or packet sniffed, by nosey cyber snoops while on an unprotected wireless network.

5. Data Theft

Joining a wireless network puts users at risk of losing private documents that may contain highly sensitive information to cyber thieves who opportunistically intercept data being sent through the network.

6. Inappropriate & Illegal Usage

Businesses offering guest Wi-Fi risk playing host to a wide variety of illegal and potentially harmful communication. Adult or extremist content can be offensive to neighboring users, and illegal downloads of protected media leave the business susceptible to copyright infringement lawsuits.

7. Bad Neighbors

As the number of wireless users on the network grows, so does the risk of a pre-infected client entering the network. Mobile attacks, such as Android's Stagefright, can spread from guest to guest, even if victim zero is oblivious to the outbreak.

8. Man in the Middle Attack (MiM)

Mundane communication over Wi-Fi can lead to a breach when a villainous actor secretly intercepts and alters legitimate conversations.

9. Wireless DoS

Attackers can cause a standstill in Wi-Fi access by intentionally sending large amounts of traffic to legitimate access points, which disables the appliance from legitimate use.

10. Masquerading Attacks

Cyber criminals set on breaching Wi-Fi security commonly attempt to disguise their devices as legitimate or known devices by spoofing MAC addresses.

11. Misconfigured AP

Deploying access points without following Wi-Fi security best practices can lead to inadvertent misconfigurations, which often leads to a security risk.

Problems Across Key Industries

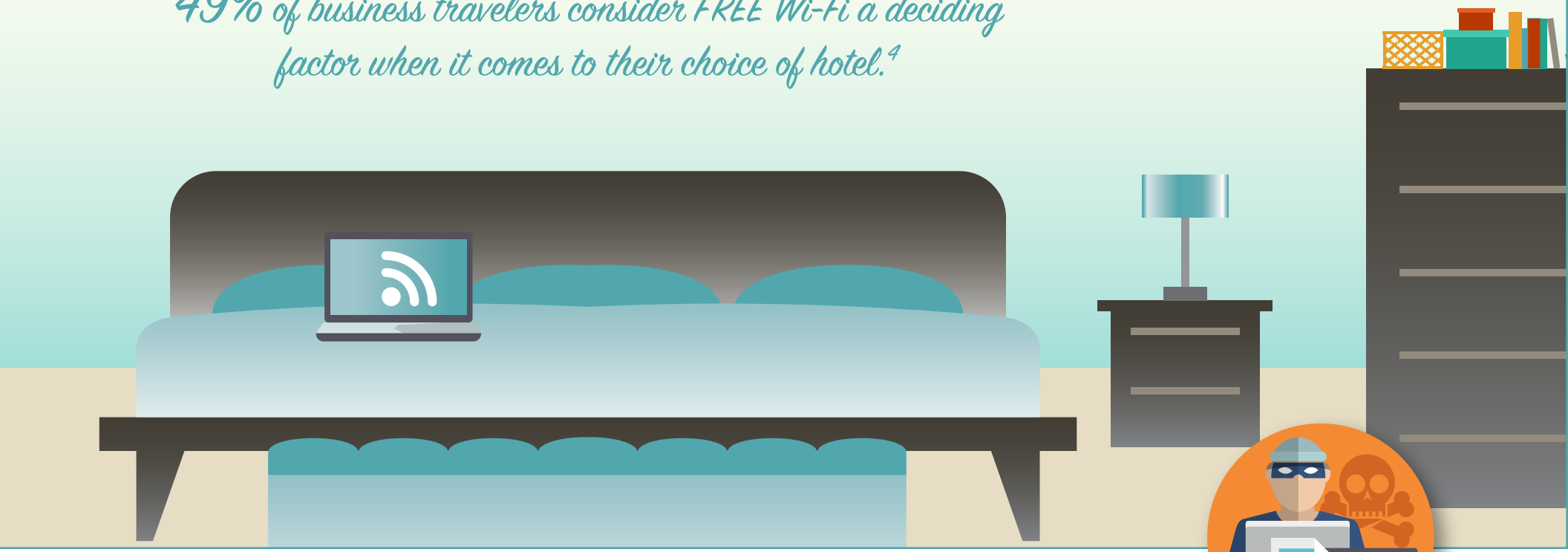
60% of SMBs that suffer a data breach go out of business within **six months.**[3]

Retail Concerns

Mobile Point of Sale (POS) systems are becoming increasingly common. Any business that accepts credit cards via a wireless or wired network has a responsibility to secure the storage and transmission of cardholder data. A group of banks developed a standard by which payment information must be secured called PCI DSS, or Payment Card Industry Data Security Standard. This set of guidelines is designed to protect retailers and consumers from theft. Organizations face stiff fines if they fail to meet these guidelines when securing their Wi-Fi hotspots.

Gaining visibility into wireless guests poses another significant challenge to organizations within the retail sector. Online businesses have long enjoyed reliable methods for improving marketing ROI, sales conversion rates, and numerous other metrics. However, in the physical world, there has been a huge gap in the tools businesses have to achieve the same valuable insight for optimizing their business.

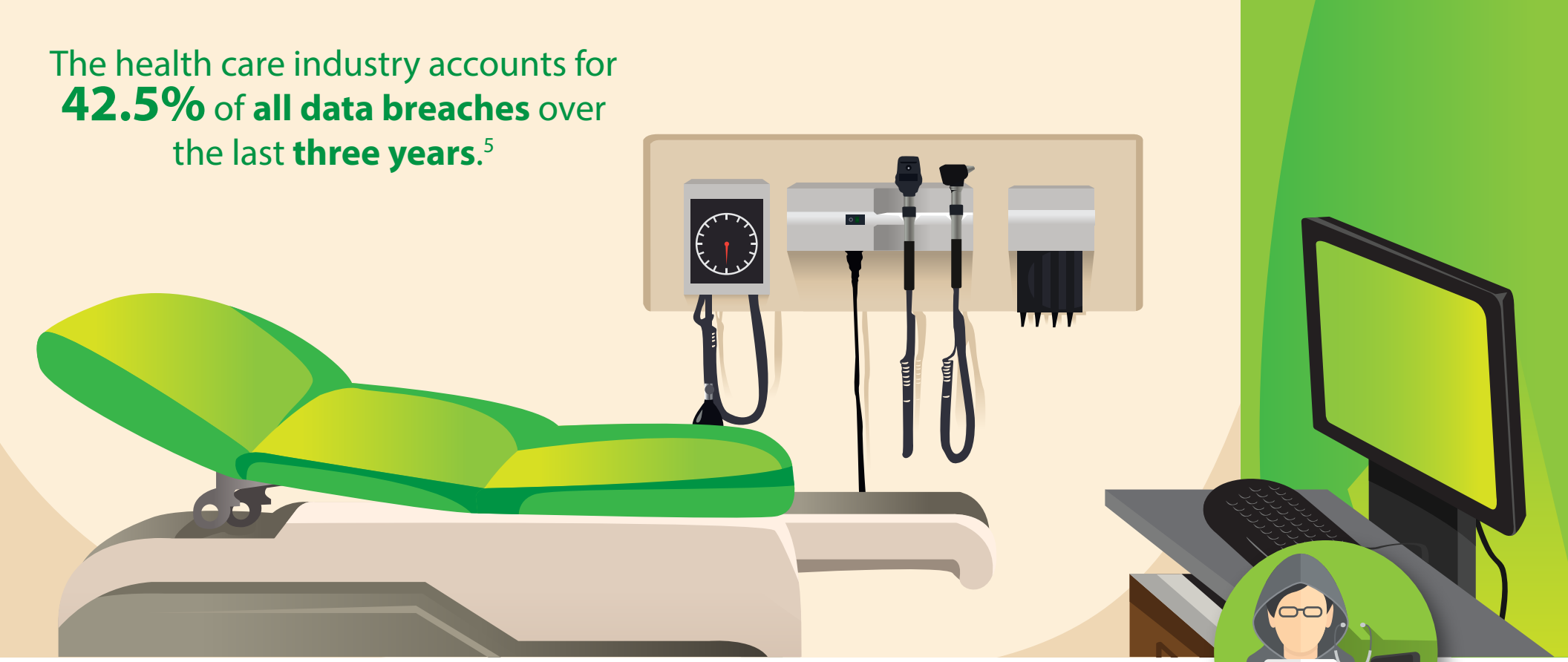
49% of business travelers consider FREE Wi-Fi a deciding factor when it comes to their choice of hotel.[4]



Hospitality Concerns

A Property Management System (PMS) is a software application used by hotels to automate and coordinate multiple business functions ranging from front office to back office operations, including management of guest credit card information. PMS systems also commonly integrate with POS and reservation systems, which results in a high-value target for cyber criminals. Many large hotel chains have recently been victimized due to a breach in the PMS or POS system, resulting in fines, lawsuits, and damage to their reputation. A major challenge for organizations in the hospitality industry is to offer high speed Wi-Fi, but at the same time protect both their guest and corporate resources. Additionally, organizations within the hospitality industry require online platforms through which to engage with guests. These tools should offer a branded customer experience and – ideally – a means to measure guest satisfaction and likelihood to return.

The health care industry accounts for **42.5%** of **all data breaches** over the last **three years**.[5]



Healthcare Concerns

The healthcare industry has a unique set of wireless security challenges brought on by the highly sensitive and highly valuable nature of the data being exchanged on the network. HIPAA (the Health Insurance Portability and Accountability Act), along with similar global standards, requires organizations that process patient data to adhere to a strict set of security practices. Various types of medical technology have evolved to exchange data wirelessly – streamlining processes like inventory tracking of equipment, but also – opening a new window of vulnerability. This trend, also known as the Internet of Things, or IoT, has revolutionized healthcare with improved efficiency; however, these devices are the most common target of malicious attacks. The medical devices are typically running older operating system versions that are known to be vulnerable. Healthcare professionals commonly store and access protected health information on mobile devices. Access to customer and patient data over mobile devices offers huge gains in efficiency, while simultaneously increasing exposure unless strong security measures are put in place.

Education Concerns

Mobile devices are transforming education. Tablets are being issued by schools at all grade levels, and students need high-speed wireless access to abundant web-based educational resources. But accessing this wealth of knowledge doesn't come without risks. Schools, especially K-12, require objectionable web content to be filtered. Elementary students are particularly vulnerable to malware because they aren't as familiar with the common traps set by hackers. In addition to external threats, student networks must be segmented from the administrator's network, to minimize the risk of cheating, tampering, and other privacy concerns.

Changes to Implement **IMMEDIATELY**:

WPA2 – Enable the **most current** security protocol.

Strong Password – **NOT** the default password. Change password regularly.

Know Your Network – Scan for **rogue APs** and **whitelist MAC addresses** when possible.

Narrow the Wi-Fi range – **Limit range** to your areas of operation.

Keep the **firmware updated**!

Step Up to **Enterprise Grade Security**

Security

Enabling Wi-Fi is easy. Security is the challenge. Top-notch security professionals ensure all traffic on the wireless network runs through a full set of UTM services including AV, IPS, web filtering, spam blocking, application control, reputation lookup, APT blocking, and data loss prevention. Ideally, services should be enabled without sacrificing performance, and for efficiency, with everything centrally managed in a single interface. Additionally, only access points enabled with WIPS should be utilized.

A Wireless Intrusion Prevention System, or **WIPS**, is an essential layer of protection for wireless networks that store or transmit sensitive data, enabling network admins to defend their airspace from unauthorized devices, denial-of-service attacks, rogue APs, and much more. The most reliable and effective WIPS will automatically and quickly classify wireless devices detected in the airspace as Authorized, Rogue, and External, thereby eliminating false alarms and saving security administrators the effort of defining complex rules to identify rogue wireless devices or manually inspecting devices.

Visibility

Wireless networks are one of the most overlooked security blind spots within any organization. IT security professionals require a solution that offers **visibility** into real-time and historical network traffic, provides **automated reports** that inform stakeholders of key trends and patterns, provides insight into where guests are going in the physical environment, and allows IT to **analyze wireless coverage** and detects rogue APs.

Management

Misconfiguration of networking equipment is one of the most common causes of a network security breach. By consolidating the management of wired and wireless networks, the risk of misconfiguration is dramatically reduced. Modern IT pros are looking for **complete flexibility in management options**, utilizing the cloud, Windows, the web, and CLI-based systems to enable **maximum security control**.

WatchGuard **Secure Wireless Technologies**

Cloud-ready Access Points

Customers can enhance or add wireless to an existing firewall by deploying cloud-ready wireless access points. The AP120 is a great fit for smaller wireless networks, while the AP320 is perfect for larger and more complex wireless environments. WatchGuard APs provide flexible deployment options, but all WatchGuard APs are cloud-ready and can be managed from the Wi-Fi Cloud.

Network Security Appliances

Run all Wi-Fi traffic through a WatchGuard network security appliance, enabling an additional level of security to protect your business and your customers.

WatchGuard Dimension™

Fully integrated with the WatchGuard Wi-Fi Cloud, WatchGuard Dimension consolidates real-time and historical wireless traffic into a single source, complete with dashboards and customizable reports, allowing IT staff to establish baselines, spot trends, and put a stop to malicious wireless activity before it becomes a larger threat to the business.

WatchGuard Wi-Fi Cloud

WatchGuard Wi-Fi Cloud delivers unprecedented visibility into every corner of a business's wireless environment, and beyond. Customizable dashboards and alerts provide a comprehensive overview and the ability to drill down for a more granular view. By tapping into ground-breaking Wi-Fi technology, the Wi-Fi Cloud provides visibility into a goldmine of marketing data, including insights into footfall and customer demographics. Organizations can easily monetize these insights by tapping into the Mobile Engagement features, which allow direct and customized communication with individual customers in the form of SMS, MMS, and their social network of choice.

Friendly Wi-Fi is a world's first accreditation to show that the Wi-Fi services that a venue provides to young people are safe and filtered of inappropriate and illegal content. Initiated by government and industry bodies as the world's first standard for public Wi-Fi, with key brands already showing their support and becoming a part of the Friendly Wi-Fi initiative. WatchGuard was recently accredited by Friendly Wi-Fi as a preferred provider of secure Wi-Fi solutions. For venues utilizing WatchGuard's Unified Threat Management (UTM) features and/or access points managed by the Wi-Fi Cloud, becoming accredited enables them to display the colorful 'Safe Surf' symbol', plus venues are searchable through the Friendly Wi-Fi website.

WatchGuard **Secure Wi-Fi Products**

1. *Cisco VNI Global IP Traffic and Service Adoption Forecast, 2014-2019*
2. *http://www.marketwired.com/press-release/ipass-wi-fi-growth-map-shows-1-public-hotspot-for-every-20-people-on-earth-by-2018-nasdaq-ipas-1963515.htm*
3. *https://www.staysafeonline.org/stay-safe-online/resources/small-business-online-security-infographic*
4. *Hotels.com. "Free Wi-Fi Reigns but Wanes as Top Hotel Amenity," May 6, 2015*
5. *USA TODAY. "Another Health Care Data Breach," July 25, 2015*
6. *Websense Security Labs Blog. "Today's Lesson," July 7, 2015*

Every product that WatchGuard creates is built with consideration for the Secure Wireless environment. From network firewalls to cloud-ready access points, WatchGuard knows that your business relies on fast and reliable Secure Wireless.

Leveraging WatchGuard's portfolio of secure wireless technologies, organizations can easily configure, deploy, and manage consistent, enterprise-grade network security and secure wireless across all remote locations without the need for technical expertise at each location with innovative RapidDeploy technology. In addition to providing best-in-class, easy-to-deploy security, the company's cloud Wi-Fi solution, WatchGuard Wi-Fi Cloud, combines best-in-class wireless security and threat prevention with a full suite of interactive engagement and analytics tools, delivering enterprise grade security and top wireless features to small, midsize, and distributed organizations.

www.watchguard.com/wifi