



*Comprehensive
Networking
Buyer's Guide*



GRANDSTREAM

CONNECTING THE WORLD



Your Network is Your Connection to the World

In the global, digital world that we live in, no business can succeed without a strong network. No matter what type of business you run or facility you manage, employees, customers and guests expect to have internet access anywhere and everywhere. In the year 2017, with so many locations offering powerful networking options that enable and empower staff and visitors to access tools and resources to stay productive, informed and connected, you are lagging behind without offering a powerful network.

Your Business Cannot Compete Without a Strong WiFi Network

It is no longer good enough just to offer a basic WiFi option, you need to offer your staff, clients, customers or visitors a strong and secure WiFi network connection just to keep up. According to Nielsen, 68% of all internet traffic in 2017 will come from WiFi devices – and you can surely expect that number to grow every year. Your staff relies on WiFi devices more than ever to stay productive and connected anywhere in the office. The internet is the best resource that we have to stay connected, access information and share tools, and more than 2/3 of that traffic worldwide will come from WiFi devices in 2017.

WiFi is Critical for Hotels, Stores and Restaurants, too

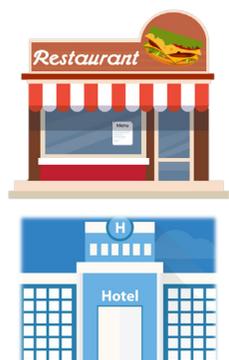
WiFi is not just vital for an office setting, but also for any business that host visitors or customers, including stores, restaurants, hotels and convention centers. An IGR report found that businesses see a 72% success rate of increased sales after implementing free WiFi.

Retail Stores



By not offering customers WiFi, not only are you losing customers, but you are missing a major opportunity to connect with them. More than half of smartphone users want to receive location-based offers while they shop (FirstDataCanada).

- 75% of shoppers admit to using their mobile device while shopping in store (InReality)
- 40% of shoppers look for offers on their mobile devices while in store (Millennial Media)
- In-store messages sent to customers can lead to 20x increase in purchase intent (inMarket)



Restaurants, Hotels and Convention Centers

Hotel and convention center guests rely on a strong WiFi connection more than ever before to stay connected. Business travelers need to be able to conduct business from your hotel the same way they can from their office. If you are a restaurant, your guests need to stay connected to their jobs and families when they are visiting your location, and a restaurant that offers that will keep guests happy and coming back.

- 64% of people say WiFi availability is a factor in deciding what restaurant to eat at (Accenture)
- 94% of people cite Wi-Fi as the most important amenity (Hotel Chatter, 2014)



What to Consider when Building a Network

So now that we have showed you that WiFi is a critical resource no matter what type of business or facility you run, now we will go through the choices you will need to make and the decisions to consider when building a network

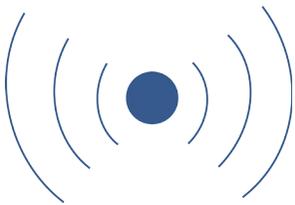
How Many Users and Concurrent Clients?



1. How many people do you need to support within a given space
2. How many WiFi devices do you expect will need to access the WiFi network?

Consider the amount of people who will need to access the network in a given space and the amount of WiFi clients they will use (smart phones, laptops, tablets, computers, etc). You will also want to take into account the range of the access point and how many people are within range of any AP.

Consider Your Range Requirements



1. How big of a space do you need to offer WiFi access to? Will one AP cover this? Or, might you need multiple APs to cover your whole area?
2. How many WiFi devices do you expect will need to access the WiFi network within the range of an AP?

Client support and range are often related. Consider how big your space is to determine if one or more APs will be needed to cover that area. Also, consider how many people need to access a network within a given space to determine if the client support of an AP will cover your need.

What are your speed requirements?



- Is it essential that your network offers the fastest possible speeds? This is generally the case within offices and businesses, as well as high-end hotels. If so, you will want to look at mid-tier or high-end access points like our GWN7610.
- Is it more important to be able to support a lot of WiFi users than to offer high-end speeds? This is common with restaurants, retail stores, and many hotels. If this is the case, a lower-end or mid-tier access point, like our GWN7600, will be ideal for you.

Within the WiFi industry, and within the Grandstream portfolio, higher-end access points offer the fastest WiFi speeds. Speed is generally the specification that will deem an AP to be either low-end, mid-tier or high-end.



Choose an Internet Service Provider

This one you will need to do your own research on, however there are a few core specifications we recommend paying attention to. Both local and national internet service providers are available to you.



- **Speeds** – Pay attention to the speeds offered by service providers and look for the one that best fits your needs. Keep in mind that the speed you are being offered is being split between all of the devices and services accessing the internet at your location. Some providers will guarantee specific speeds, some will offer a range.
- **Costs** - Compare costs between providers
- **Contracts, terms, guarantees** - Be sure to research the terms and conditions offered by service providers as some will require contracts while others will not. Upgrading might also have restrictions, so pay close attention to the fine print.
- **Bundled Packages** - Many providers will offer bundled packages that also allows you to buy other services you may need for your office, like SIP trunking, telephone lines, television plans, etc.

What types of networks do you need to offer?

This might be one of the most important questions to answer when building a network. This will begin to show you how you need to create your network. Here you are basically deciding how many networks you want to offer, what types of networks you need and where you want to offer those networks. Here are common network deployments:



- **One network, few access points** – Offering one or a few common WiFi networks across one or a few APs is able to cover the entire facility and allow your staff to move around an office and access the same network on every AP so they do not have to switch networks.
- **One network, many access points** – One common network for staff or guests that can be accessed throughout the entire facility on every access point.
- **Many networks, few access points** – Numerous different WiFi networks allow each department within their company to have their own dedicated network.
- **Many networks, many access points** – This allows you to have separate, dedicated networks for each department within a business or each physical area. Because our access points can each offer up to 16 networks, you can offer up to 16 different networks in every given location.

• **Link Multiple Locations (VPN)**– A virtual private network (VPN) is a network that is constructed using the Internet to connect to a private network, such as a company's internal network. Building a VPN allows you to create one or common networks that can be shared between multiple different physical locations. This allows any business to share common networks, tools and resources across different offices, stores, hotels, remote workers, etc.





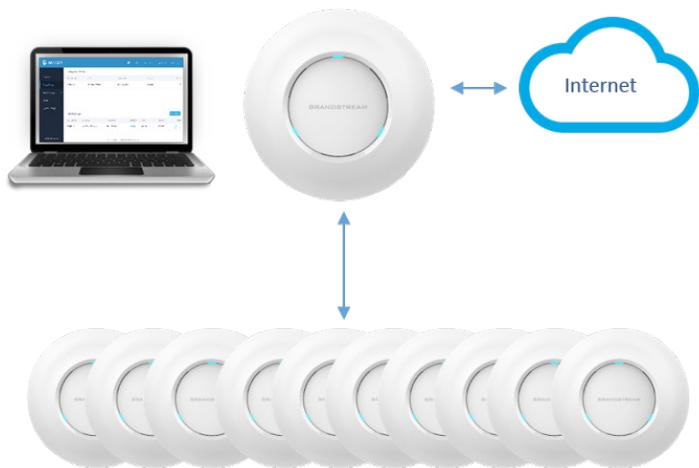
Building Networks with Grandstream Networking Solutions

Grandstream's GWN series of Networking Solutions offer powerful and secure networks with wide coverage ranges that feature industry-leading setup and management thanks to embedded provisioning and management controllers. This series offers both WiFi Access Points and Gigabit Routers in order to offer a complete wired and WiFi solution.

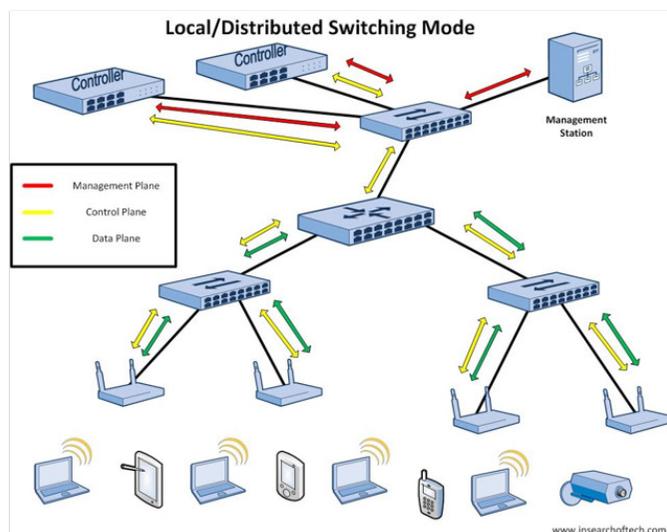
The Easiest Setup and Management Process on the Market

One of the biggest innovations and best features of our GWN series is the incredibly quick, easy and intuitive setup and management process we have designed for our APs. Our controller-less, centralized management is the future of WiFi access point technology and Grandstream is one of the very first manufacturers to design APs this way.

Grandstream's Controller-Less Design



Traditional Controller Hardware / Software



The controller, historically, is a separate piece of hardware or software (often a separate purchase) that serves as an agent between the network and access points, allowing APs to be provisioned and managed on existing networks. Our GWN series of Routers and APs includes controller software at no extra cost and it is simply built-in to the product's web user interface. Our embedded controllers can auto-discovery and auto-provisioning any in-network GWN series AP from the designated Provisioning Master (either an AP or the GWN7000), which also offers a centralized provisioning and management interface.

Here is a quick look at the easy 4 step process of setting up WiFi networks with our built-in controllers.



1. Log in to the GWN router or APs web user interface.
2. The Setup Wizard will set up the device as the master and setup initial network settings
3. From the master's web UI, go to the "Access Points" screen, to see all in-network GWN APs
4. Select the GWN APs you want to add to the network for automatic provisioning.



High-End Security Protection

Like any technology, WiFi has its own share of security concerns. The nature of any wireless network allows anyone with malicious intent to locate themselves close to an access point in order to infiltrate a network. More than 80 percent of U.S. companies have been successfully hacked, according to a Duke University/CFO Magazine Global Business Outlook Survey. Being that a WiFi attack can occur in only 2 seconds, we set out to create our GWN series of WiFi Access Points to solve many traditional WiFi security problems by building a variety of high-end security protections into the GWN series.

Unique Security Certificates per Access Point



We build a unique security certificate into every GWN series Access Point to encrypt the data and traffic going back and forth between the AP, the controller and the controller's web user interface. This encryption protects the traffic from being hacked or intercepted as it shared between the AP and the controller. Most other manufacturers use the same security certificate on all or most of their APs, which allows anyone who may be able to hack into one AP to hack into all of that manufacturer's APs. We build a completely unique security certificate into every GWN series access point. Even if someone was able to hack into one security certificate they are not able to get anywhere because every other GWN series AP has a different, unique security certificate.

Random Default Password



Here we are talking about the default password used to access a WiFi network offered by an access point. For most deployments, the user wants WiFi to be available quickly, upon initial boot up of the access points. The problem with this is that most manufacturers will use an identical default WiFi password across all of their APs. Therefore, if you know the default password for one of that manufacturer's APs, you know the default password for every network and every AP they sell. Grandstream builds a completely random default WiFi password on to every single GWN series unit. This makes it impossible to use the default password from any GWN series AP to get into any networks being broadcasted by other GWN series devices. As a result, GWN series networks are more secure and you are able to get networks up and running faster.

Anti-Hacking security / Critical Data and Control Lockdown



Firmware is one of, if not the most critical element of your access point and your WiFi network. If someone is able to hack into your network or APs and access/change the firmware, they can completely take over your network. Our GWN series is built to protect this firmware by building digital signatures into each layer of it. If the firmware is tampered with in any way, the digital signature will fail the verification upon boot-up or firmware upgrade, and the system will block any changes to it and prevent illegally modified firmware from being installed. In addition, the firmware file is encrypted so that hackers cannot find out what is in the firmware and what is running on the device to try to reverse engineer the firmware itself.



Use Case Scenarios

Enterprises



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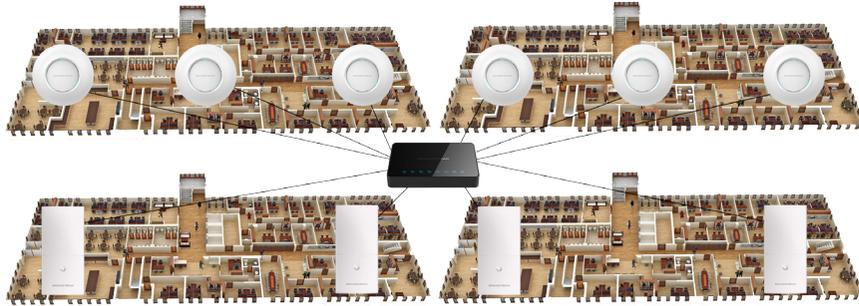
16



x

300+

- ✓ Many Access points with many networks
- ✓ Separate networks for each department or area
- ✓ Different login credentials per network or share credentials between networks
- ✓ Setup and manage up 300+ APs centrally with the GWN7000



Small to Medium Businesses/Offices

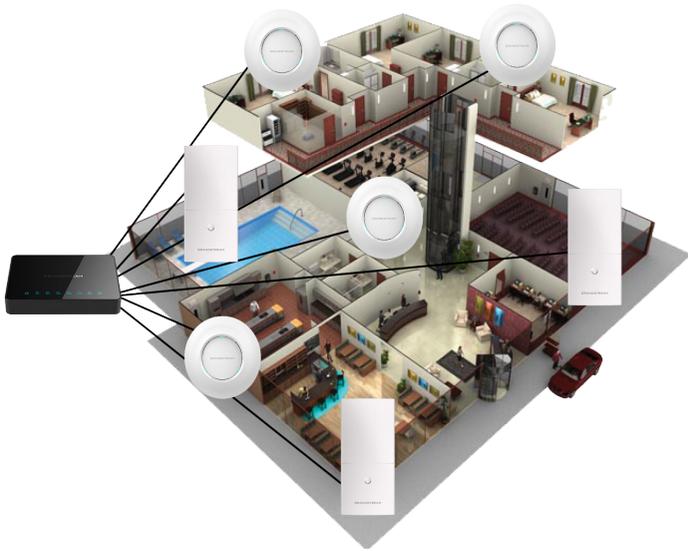
- ✓ Many access points that offer the same networks
- ✓ Move throughout the office without having to switch networks or re-login



Businesses with Multiple Locations

- ✓ Many APs, many networks, different login credentials
- ✓ VPN connection allows sharing of networks and resources between multiple locations





Hotels, Convention Centers, Dorms, Apartments, etc.



x

16



x

300+

- ✓ Offer dedicated networks and different login credentials for guests, visitors, staff, meeting rooms, conference rooms and much more
- ✓ All APs are provisioned and managed from the centralized Web UI of the GWN7000
- ✓ Offer login landing pages to facilitate guest access to WiFi (coming soon)



Retail Store

- ✓ Offer separate networks with different login credentials for guests and staff
- ✓ Offer login landing pages to facilitate customer access to WiFi (coming soon)
- ✓ Setup and manage all APs centrally with the GWN7000



Medical Office

- ✓ Offer separate networks with different login credentials for guests and staff
- ✓ Offer login landing pages to facilitate guest access to WiFi (coming soon)
- ✓ Setup and manage all APs centrally with the GWN7000



Product Overview: GWN series Access Points

Grandstream's powerful WiFi Access Points offer tremendous WiFi coverage range, market-leading security, easy provisioning/management thanks to built-in controllers, and support for a large number of clients per AP. All of Grandstream's APs can be used with any third party router as well as our own routers and offer up to 16 different SSIDs (WiFi networks) per AP.



Built-in
Controllers



16 SSIDs



250+ to 450+
WiFi clients
supported



Advanced
QoS



Gigabit

Gigabit
speeds



Integrated
PoE

GWN7610 Access Point



The GWN7610 is a high-performance 802.11ac wireless access point for small to medium sized businesses, multiple floor offices, commercial locations and branch offices. It features a 175 meter range, supports WiFi speeds up to 1.75Gbps, 250+ WiFi clients, and offers up to 16 SSIDs per device like all Grandstream APs. The GWN7610's built-in controller to manage a network of up to 50 GWN series APs independently.

Why choose the GWN7610?

- Supports the fastest speeds within the GWN family (1.75 Gbps)
- Slightly longer range than GWN7600 (175 meters vs. 165 meters)
- The built-in controller supports 20 more APs than other GWN APs (50 vs. 30)



Up to
1.75Gbps



175
meters



250+ WiFi
clients

GWN7600 Access Point



The GWN7600 is a mid-tier 802.11ac Wave-2 WiFi access point for small to medium sized businesses, multiple floor offices, commercial locations and branch offices. It features a 165 meter range, supports WiFi speeds up to 1.27Gbps, 450+ WiFi clients, and offers up to 16 SSIDs per device like all Grandstream APs. The GWN7610's built-in controller can manage a network of up to 30 GWN series APs independently.

Why choose the GWN7600?

- Maximize supported clients (450 clients)
- Slightly smaller footprint (smallest AP in terms of physical size in the GWN family)



Up to
1.27Gbps



165
meters



450+ WiFi
clients

GWN7600LR Access Point



The GWN7600LR is a powerful outdoor, long-range WiFi Access Point featuring weatherproof casing and heat resistant technology. Ideal for any outdoor WiFi deployment and indoor/outdoor long-range needs, the GWN7600LR offers WiFi coverage range of up to 300 meters, supports WiFi speeds up to 1.27Gbps, 450+ WiFi clients, and offers up to 16 SSIDs per device like all Grandstream APs. The GWN7600LR's built-in controller can manage a network of up to 30 GWN series APs independently.

Why choose the GWN7600LR?

- Offers weatherproof casing for outdoor use
- Ideal for long-range needs (up to 300 meters WiFi coverage range)



Up to
1.27Gbps



300
meters



450+ WiFi
clients



Product Overview: GWN series Routers

GWN7000 Multi-WAN Gigabit VPN Router



Ideal for the enterprise, small-to-medium business, retail, education, hospitality and medical markets, the GWN7000 supports comprehensive WiFi and VPN networks that can be shared across one or many different locations. It features high-performance routing and switching power, traffic load balancing and failover to maximize network reliability and an embedded controller and automated provisioning master that can setup and manage up to 300+ in-network GWN series WiFi APs.



VPN support



Embedded controller



Rich firewall features



Multi WAN ports with load balancing and failover



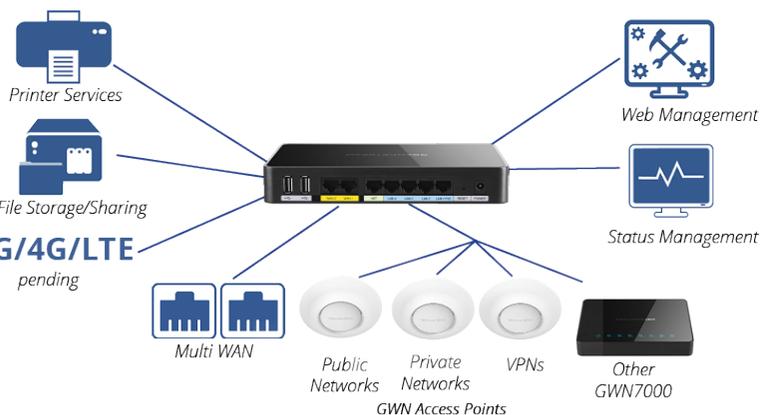
1 million packets p/second, 10Gbps switching



7 Gigabit port (2 WAN + 5 LAN)

Rich Peripheral Support

Centralized Network Management



The web UI of the GWN7000 offers a centralized interface for complete network management, a status monitoring dashboard for easy review of the network - as well as a built-in controller software.

How to buy Grandstream



Grandstream solutions are used and sold in over 150 countries across the world. All products are sold through our distribution and reseller network. To locate a Grandstream distributor or reseller near you, **visit our website and chat with us**, or use the "Contact Us" page to tell us where you are located and what you need: www.grandstream.com/company/contact-us

About Grandstream

Grandstream Networks, Inc. has been connecting the world since 2002 with SIP Unified Communications solutions that allow businesses to be more productive than ever before. Our award-winning solutions serve the small and medium business and enterprises markets and have been recognized throughout the world for their quality, reliability and innovation. Our open standard SIP-based products offer broad interoperability throughout the industry, along with unrivaled features, flexibility and price competitiveness. Grandstream was named the 2016 Global Enterprise IP Endpoints Company of the Year by renowned market research firm, Frost & Sullivan



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