

GWN7800 Series - Enterprise Layer 2+ Switches

Overview and Basics



About the GWN7800 Series

The GWN7800 series are Layer 2+ managed network switches that allow small-to-medium enterprises to build scalable, secure, high-performance, and smart business networks that are fully manageable. It supports advanced VLAN for flexible and sophisticated traffic segmentation, advanced QoS for prioritization of network traffic, IGMP Snooping for network performance optimization, and comprehensive security capabilities against potential attacks. The PoE models provide smart dynamic PoE output to power IP phones, IP cameras, Wi-Fi access points, and other PoE endpoints. The GWN7800 series can be managed in a number of ways, including the local network controller embedded in the web user interface of the GWN7800 series switch. The series is also supported by GWN.Cloud and GWN Manager, Grandstream's cloud and on-premise Wi-Fi management platform, and GWN Manager, Grandstream's cloud and on-premise Wi-Fi management platform.

Product Positioning

The enterprise-grade GWN7800 series are ideal managed network switches for small-to-medium enterprises. Switches can be easily managed and configured with an entire GWN Wi-Fi access point deployment through GWN.Cloud or GWN Manager. The GWN7800 switches come with a wide range of features to allow them to be a backbone for any Wi-Fi access point or IP endpoint deployment.



Support for up to 24 Gigabit Ethernet ports



Management through embedded controller and GWN.Cloud and GWN Manager



Built-in QoS for prioritization of network traffic

Competitive Features

- 8/16/24 Gigabit Ethernet ports and 2/4 Gigabit SFP ports
- Smart power control to support dynamic PoE/PoE+ power allocation per port for PoE models
- Supports deployment in IPv6 and IPv4 networks
- Provides quaternary binding of IP, MAC, VLAN, and port; ARP Inspection, IP Source Guard, DoS protection, port security, and DHCP snooping
- Management through embedded controller or GWN.Cloud and GWN Manager, Grandstream's cloud and on-premise Wi-Fi management platform
- Built-in QoS allows for the prioritization of network traffic

GWN7800 Key Technical Specifications

	GWN7801(P)	GWN7802(P)	GWN7803(P)
Network Protocol	IPv4, IPv6, IEEE 802.3, IEEE 802.3i, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z, IEEE 802.3x, IEEE 802.3af/at, IEEE 802.1p, IEEE 802.1Q, IEEE 802.1w, IEEE 802.1d, IEEE 802.1s		
Gigabit Ethernet Ports	8	16	24
Max Output Power (PoE Models)	30W per Port, 120W Total	30W per Port, 240W Total	30W per Port, 360W Total
Switching Capability	20Gbps	40Gbps	56Gbps
Forwarding Rate	14.88M packets per second	29.76M packets per second	41.66M packets per second
Switching	8K static, dynamic and filtering MAC addresses, 4K VLANs, port-based VLAN, IEEE 802.1Q VLAN tagging, voice VLAN, VLAN virtual interface, GVRP (pending), 8 link aggregation groups, Spanning tree, 64 instances for STP/RTSP/MSTP		

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Features and Benefits



Powerful Processing Capabilities

Grandstream's GWN7800 Series switches come with powerful processing capabilities to ensure a high-performance backbone for any network. Backed by enterprise-grade processing features like unicast routing and up to 46Gbps switching capabilities, GWN Switches are an ideal choice for network deployments.

- Unicast routing via ACL for data communication routing between different network segments. Supports DHCP Server and Relay to assign IP addresses to hosts within the network.
- GVRP for VLAN dynamic distribution, registration, and attribute propagation, to reduce the amount of manual configuration and ensure the correctness of configuration.
- QoS, including Port Priority, Priority Mapping, Queue Scheduling, Traffic Shaping, and Rate Limit.
- ACL is used to recognize the filtering of data packets by configuring matching rules, processing operations and time schedule, and providing flexible security access control policies.
- IGMP Snooping and MLD Snooping to meet the needs of multiterminal HD video surveillance and video conference.
- IPv6 for the network transition from IPv4 to IPv6



Management and Maintenance

GWN series switches not only have advanced management options through GWN.Cloud and GWN Manager, but also have a variety of tools to help monitor performance.

- Routers can be managed by Web GUI, CLI (Console, Telnet), and SNMP (v1/v2c/v3).
- Monitoring of CPU and memory usage. Supports common networking tools such as Ping, Traceroute, UDLD (TBD) and Copper Test to analyze networking issues.
- Supports RMON, Syslog, traffic statistics, and sFlow (pending) for network optimization.
- LLDP and LLDP-MED for automatic discovery, provisioning, and management of endpoint devices.
- Managed by GWN.Cloud, GWN Manager, and Embedded controller



PoE Power Supply (PoE Models Only)

PoE power delivery complies with the IEEE 802.3af/at standards to meet the PoE power requirements for security monitoring, audio and video conferencing, wireless signal coverage and more.

- Supports setting user-defined time period to control the power supply of the PoE port.
- Priority setting of PoE ports; when remaining power is insufficient, it will power the ports based on priorities.
- Users can configure the maximum power allowed per port. The maximum limit is 30W per port.
- Dynamic power negotiation via LLDP-MED



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Deployment Scenarios - Offices

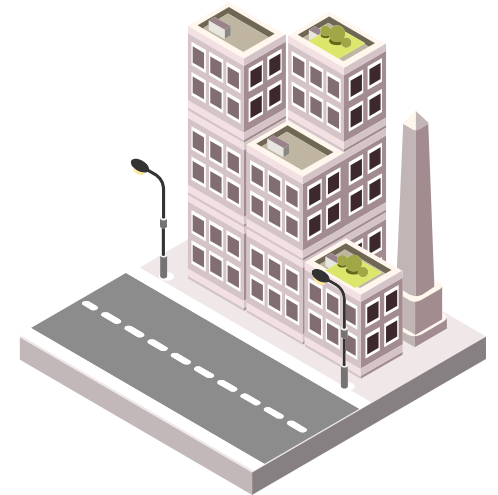


Offices

Small to medium enterprise offices can leverage the GWN7800 series to create a network foundation for their Wi-Fi, IP endpoint, and workstation devices. Within a typical office deployment, the GWN7800 series of switches best fit in the Data Link layer in reference to the Open Systems Interconnection model (OSI model). In a typical office deployment that consists of workstations (either laptops or computers), wireless access points, and IP endpoints such as IP phones, GWN7800 switches would provide a rapid protocol connection from the various nodes and devices within a network, along with handling any errors in the data connection from the physical layer.

Most offices have a great number of devices with a massive amount of data received and sent by them. The GWN7800 series has a great deal of Quality of Service capabilities to ensure the data flow between nodes is of high quality. These QoS features are especially critical for office deployments due to their high-data usage and that data being a vital part of business operations. Computers, IP phones, and Wi-Fi access points all need to be fully functioning at all points of the day despite the level of data being transferred throughout the network. QoS features such as Port Priority, Queue Scheduling, Queue Shaping, and Rate Limits enable the access point to have specified priority control and processing orders for periods of high network congestion. The major benefit of these features ensures that high-priority devices, such as workstations and Wi-Fi access points, always receive a stable and high-quality network connection despite network congestion, which is critical for offices.

In addition to the Quality of Service features, the GWN7800 series have powerful processing capabilities that benefit offices and their high-endpoint deployments. With three distinct models, all with PoE variants, the total switching capability goes up to 56Gbps with up to 24 Gigabit Ethernet Ports and 4 SFP Ports. For the models with PoE capabilities, our GWNs support a maximum total PoE power per port of 30W, with a maximum total PoE output power of 360W depending on the model. Finally, more in-depth switching and processing capabilities such as Port Auto Recovery and Link Aggregation can be fully customized. Together, these processing capabilities allow one or several GWN7800 switches to provide the rapid connection needed to support an office's various nodes of workstations, Wi-Fi access points, IP phones, IoT devices, and more. PoE capabilities supplied from the switch additionally allow for powering of PoE-capable devices, limiting the need for additional wiring infrastructure.



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Deployment Scenarios - Education



Education

Unlike an office, a typical education deployment needs to support stationary workstations for administration staff, comprehensive Wi-Fi environments for teachers and in some cases students, and an infrastructure of IP phones and IP paging devices. As we covered in the office deployment scenarios, Grandstream's GWN7800 Series of Layer 2+ Switches provide a wide variety of capabilities and features to help improve the experience of all users on the network. The switches are also an ideal choice for an education solution due to their port customization, PoE capabilities, and complete network access customization.



Education networks have a wide variety of devices within them, all with their own unique bandwidth requirements. IP intercoms that are deployed throughout every classroom and hallway do not need the same level of data priority as Wi-Fi access points that deliver a connection to workstations and other Wi-Fi devices used by staff, teachers, and students. Grandstream's GWN7800 layer 2+ switches can have each of their ports fully customized based on the types of devices that are being serviced. For example, ports that connect to IP intercoms, either directly or to a layer 1 switch that services the IP intercoms, can have their data throughputs limited and set to a lower priority level so they will not take excess bandwidth during times of high network usage.

Queue scheduling is another customization that can be leveraged to assist with a network of diverse devices. With Weighted Round Robin (WRR) scheduling, ports and LAGs can be assigned to a queue ID from zero to seven. Each priority Queue is then also allocated a certain bandwidth and provides services for each priority queue according to the priority from high to low. With the high-priority queue having used up all the allocated bandwidth, it is automatically switched to the next priority queue, and so on. This is an incredibly helpful feature for schools to spread network bandwidth based on the highest priority groups of devices during periods of high network congestion, such as between Wi-Fi access points that service workstations and Wi-Fi access points that service classrooms.

Lastly, Power over Ethernet (PoE) is an incredibly important feature for education deployments. IP phones and IP speakers/intercoms can both be powered through a GWN7800 switch. This allows for the network to require fewer wires overall and adds additional flexibility to the placement of these devices do not have to rely on the location of outlets. Less cabling allows for a less expensive solution, which is increasingly important for winning bids in the education industry. Less cabling allows for a less expensive solution, which is increasingly important for winning bids in the education industry.

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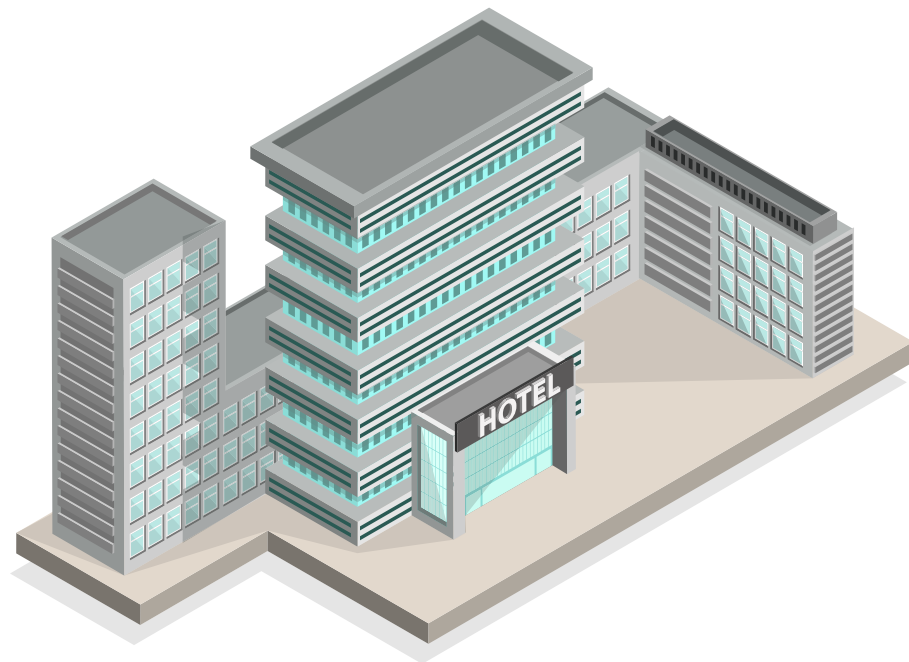
Deployment Scenarios - Hotels



Hotels

Hotels are challenging deployments that typically have a large number of IP phones within guest rooms and Wi-Fi access points spread throughout the building to accommodate both hotel guests and staff. On top of this, convention halls, business centers, and back-of-house offices add to the amount of strain on the network and the users that rely on it. Importantly as well, Wi-Fi access points within a hotel will have periods of extremely high network usage by both staff and guests, requiring QoS functionality to ensure that the network is delivering a consistent connection for all users.

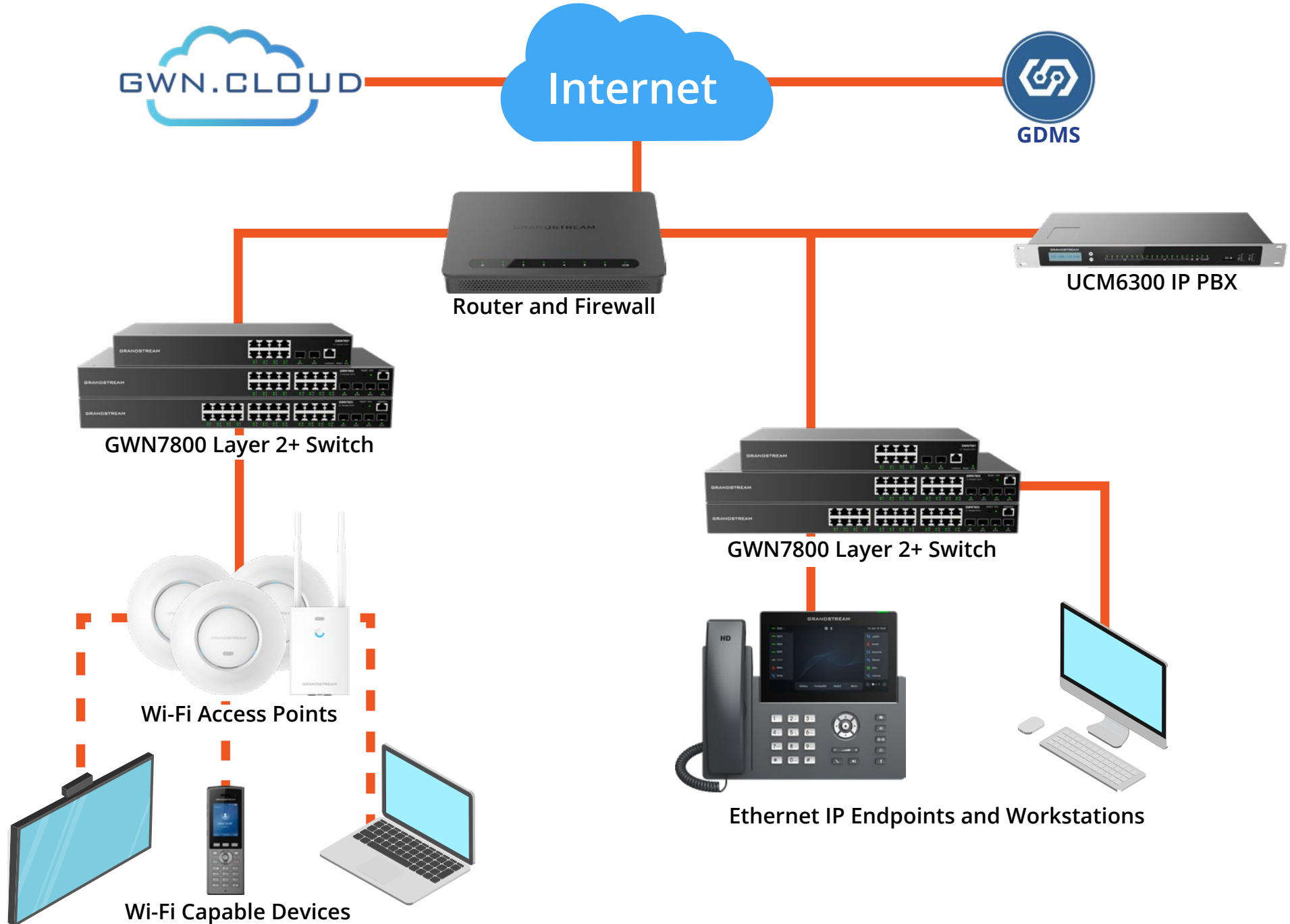
Within a typical hotel deployment, a single GWN7800 Layer 2+ switch can be deployed for every floor, providing both a rapid network connection and power. With up to 24 Gigabit ports and each port supporting gigabit speeds and the IEEE 802.3af/at PoE, each GWN7800 switch can support up to 24 rooms of IP phones, with a second GWN switch both supporting and providing power to the Wi-Fi access points on that floor. As we've mentioned in the previous deployment scenarios, a GWN7800 switch has QoS and port customization features that assist with managing a network's connection. The GWN7800 switches can additionally be managed with GWN Wi-Fi access points via GWN. Cloud and GWN Manager, Grandstream's free GWN cloud and onsite management platforms. This enables easy configuration, management, and troubleshooting for all of these devices within the network.



Hotels tend to have high levels of network congestion based on when guests are most commonly within their rooms and utilizing an ethernet connection for laptops, watching a television that utilizes a Wi-Fi or ethernet connection, and operating their smart devices on the guest Wi-Fi network. Because of this network congestion that is unique to hotels, Rate Limiting is an important GWN7800 series feature that to be aware of. This feature can limit the total of all packets sent or received via a particular port and effectively can maintain a maximum amount of bandwidth that the connected nodes can utilize. This is increasingly helpful in hotel deployments to ensure that the category of device that is connected to the port does not over-utilize the network and begins negatively impacting the rest of the network.

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Deployment Scenarios - Deployment Diagram

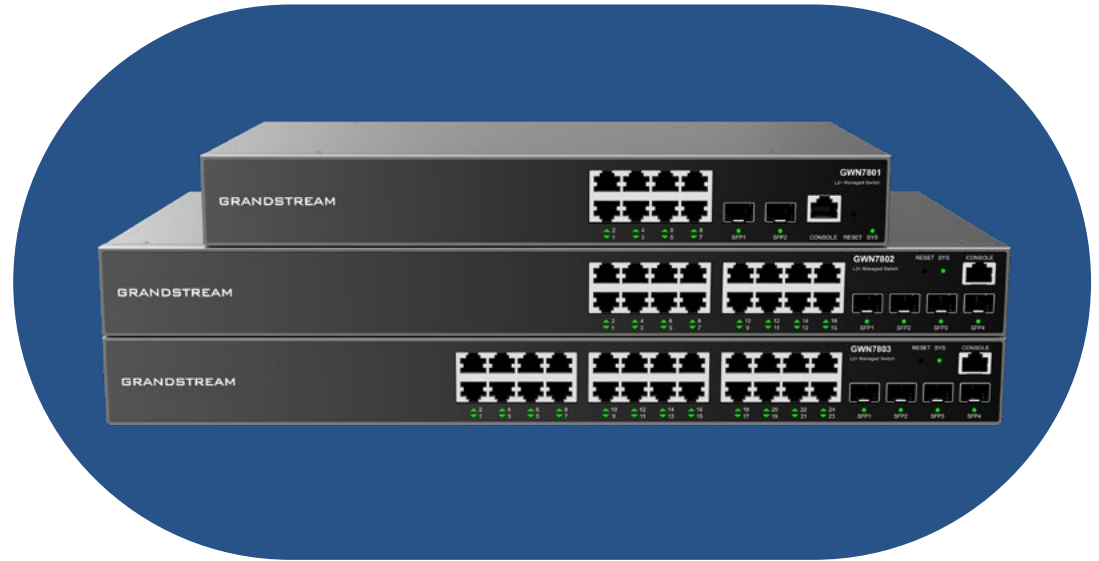


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Grandstream Integration

Wi-Fi Access Points

- A GWN7800 series switch can support an entire deployment of Grandstream access points due to its high throughput switching capabilities along with PoE-supported models
- Both GWN Wi-Fi access points and switches within a single deployment can be fully managed, configured, and monitored via Grandstream's GWN.Cloud or GWN Manager platform
- QoS features on both Grandstream APs and switches keep a network functioning at high performance throughout a day of use



Network Management

- Grandstream cloud-based GWN management platforms, GWN.Cloud, and on-premise software management platform, GWN Manager, are able to add, configure, and monitor GWN switches for easy deployments and troubleshooting
- GWN Switches also have network maintenance features that can be used to monitor an entire deployment of devices and ensure a network is operating smoothly



Desktop Endpoints

- Grandstream has a variety of desktop IP phones that can be connected with a GWN switch for smooth communications
- PoE-capable IP phones can also be powered by the PoE models within the GWN switch series
- Auto-detection and prioritization QoS features can be used to ensure Grandstream endpoints always have a stable connection in busy networks

