8-Port 10/100/1000Mbps + 2-Port 100/1000X SFP Managed Ethernet Switch

GSD-1020S
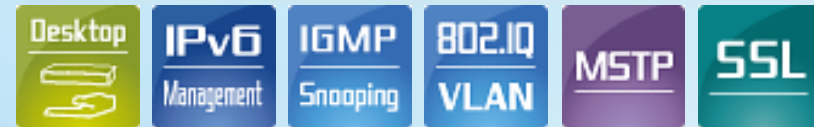
Desktop
IPv6 Management
IGMP Snooping
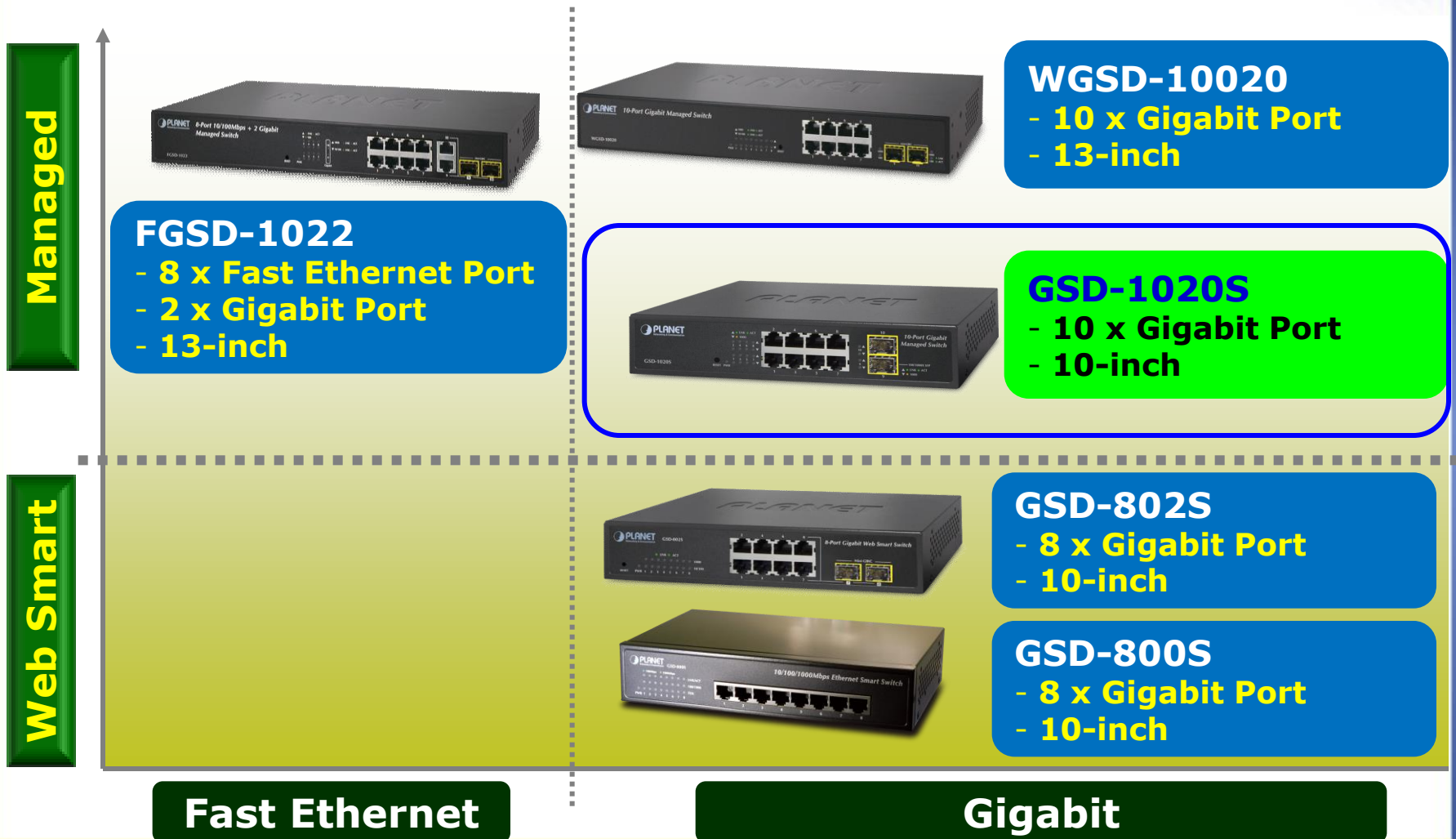802.1Q VLAN
MSTP
SSL

www.planet.com.tw

Presentation Outlines

◆ **Product Overview**

◆ **Product Benefits**

◆ **Product Features**

◆ **Applications**

◆ **Comparison**

GSD-1020S

Product Overview

◆ **The PLANET 8-/10-Port Managed Switch Product Map**

Managed

Web Smart

WGSD-10020
- **10 x Gigabit Port**
- **13-inch**

FGSD-1022
- **8 x Fast Ethernet Port**
- **2 x Gigabit Port**
- **13-inch**

GSD-1020S
- **10 x Gigabit Port**
- **10-inch**

GSD-802S
- **8 x Gigabit Port**
- **10-inch**

GSD-800S
- **8 x Gigabit Port**
- **10-inch**

Fast Ethernet

Gigabit

Product Overview

◆ **Front Panel of GSD-1020S**
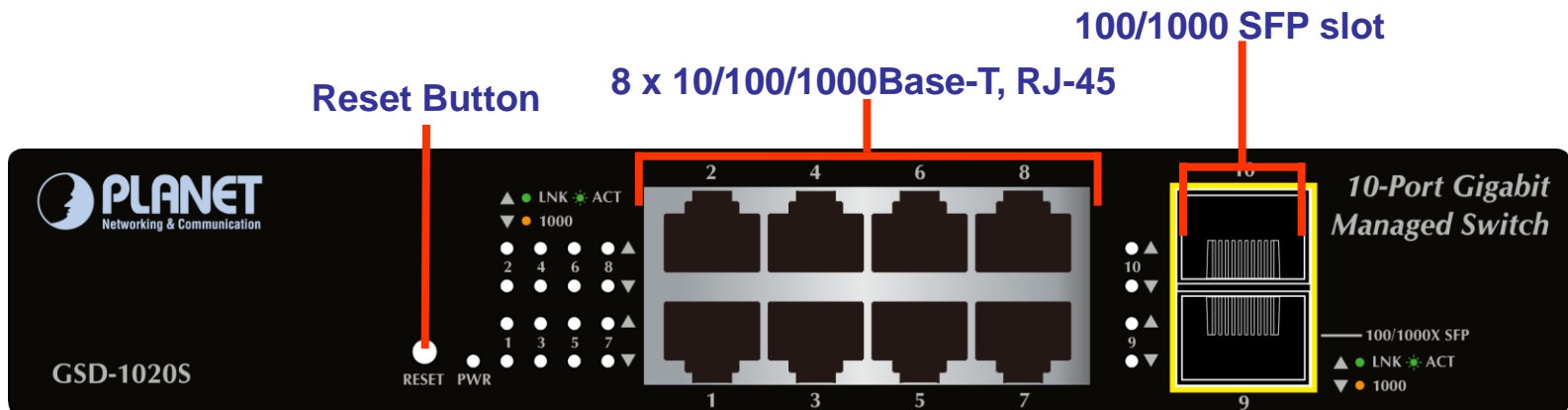
   ✓ **8-Port 10/100/1000Base-T RJ-45**

- Auto-MDI/MDI-X, Auto Negotiation
- **Green Networking** Technology - Power Saving
- **Cable Diagnostic**

   ✓ **Two 3.3VDC mini GBIC/SFP slots**

- Compatible with **1000Base-SX/LX** or **100FX SFP** modules

   ✓ **One reset button**

100/1000 SFP slot

8 x 10/100/1000Base-T, RJ-45

Reset Button

Product Overview

◆ **Rear Panel of GSD-1020S**

    ✓ **100~240V AC, universal power supply**

    ✓ **Fanless design**

    ✓ **10-inch desktop size**

    ✓ **Rack-mountable with optional rack-mount kits**

AC Power Connector

100-240V AC

50/60Hz

◄──────────── **10" / Desktop / Rack-mountable** ──────────►

Product Benefits – *Enterprise / ISP*

PLANET
Networking & Communication

- **Cost-Effective *IPv6* Managed Edge/Department Switch**

- **Full / Secure Management**
  - ✓ *SSH* / *SSL* / *SNMPv3* protocols ensure security management
  - ✓ SNMP , RMON and Trap alarm for Centralized Network Management

- **Excellent Layer 2 / 3 /4 Traffic Control**
  - ✓ Layer 2 / 3 / 4 QCL (QoS Control List) Traffic Control
  - ✓ Layer 2 / 3 / 4 ACL Security
    - • MAC-based ACL
    - • **IPv4/IPv6** IP-based ACL

- **FTTx Access Capability**
  - ✓ Flexible for *100Base-FX* or *1000Base-SX/LX* Fiber-optic network extension
  - ✓ *Q-in-Q* for MAN (Metro Area Network) applications
  - ✓ Desktop size, rack-mountable, easy installation in space-limited environment

Product Benefits – *SMB/SOHO*

◆ **Cost-Effective SMB/SOHO Backbone Switch**

- ✓ *10G* High-performance Wire-speed Switching

- ✓ *IPv4 / IPv6 Dual Stack* helps to connect to IPv6 network now and in the future

◆ **Right for Office IT Network Applications**

- ✓ Storm Control and IGMP / MLD Snooping handle unicast / multicast streaming to reduce network congestion

- ✓ VLAN, Multiple Spanning Tree, Link Aggregation, Cable Diagnostic, etc

- ✓ QoS provides an effective data traffic control of VoIP and video conferencing transmission

◆ **Simple Management**

- ✓ Friendly Web management interface

◆ **Desktop Size**

- ✓ Easy and flexible installation at any location

Product Key Features

Energy Saving

IPv6 Management

Q-in-Q VLAN

GSD-1020S

SSH SSL SNMPv3

L2 / L3 / L4 ACL

IGMP / MLD Snooping

ARP Inspection IP Source Guard

Product Features

◆ **Hardware**

- ✓ 10-Port Gigabit Interface
  - • support for **20Gbps** switch fabric (non-blocking)

- ✓ 2 SFP slots, flexible for Fiber-Optic network extension
  - • SFP type, plug and play
  - • **1000Base-SX/LX** :Maximum 120 kilometers
  - • **100Base-FX** compatible
  - • Supports **SFP-DDM (Digital Diagnostic Monitor)**

- ✓ **9K bytes** Jumbo Frame
- ✓ Advanced **Green Networking** technologies
  - • Hibernation Link Down power saving
  - • Intelligent scales power based on cable length

- ✓ Desktop size
- ✓ Rack-mountable installation

◆ **Full Management**

✓ **IPv4 / IPv6** Dual Stack

✓ **IPv6** IP Address / SNTP Management

✓ Standard-based Management

- Web-based
- Telnet
- SNMP v1 and v2c

✓ **Security Authentication** for secure management

- **SSH**
- **SSL**
- **SNMPv3**

✓ SNMP RMON 1, 2, 3 and 9 for in/out network traffic and event monitoring

✓ SNMP trap for device Link Up / Link Down status monitoring
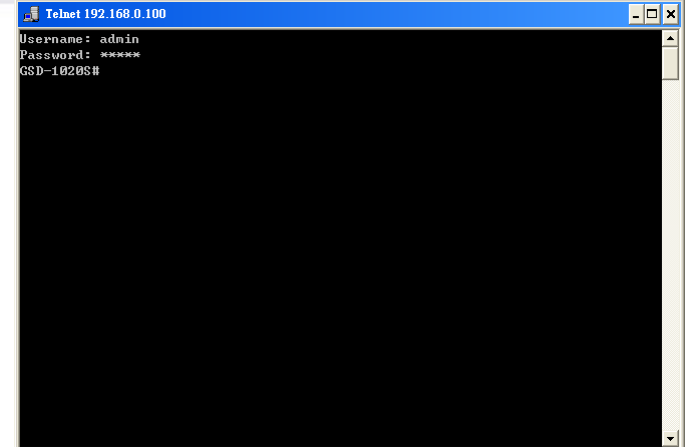
✓ **User Privilege** levels control

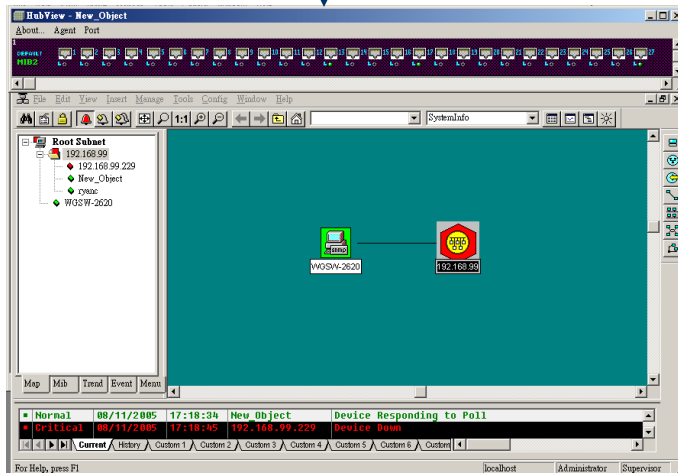# Product Features

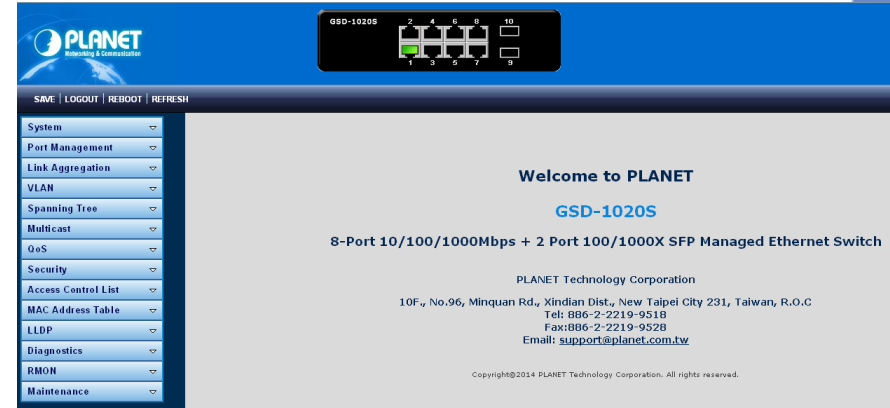◆ **Remote IPv4 / IPv6 Management**

TCP/IP

TCP/IP

TCP/IP

Telnet CLI

SSH- Secure CLI

SNMP v1 / v2c

SNMPv3 – Secure SNMP

HTTP Web Management

SSL – Secure HTTP

Product Features – SNMPv3
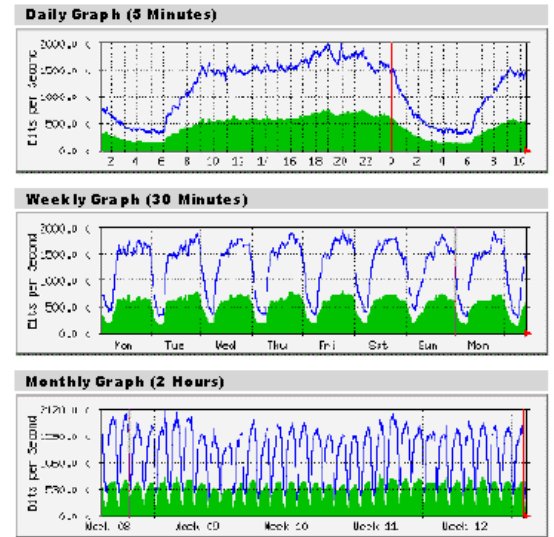
◆ **Simple Network Management Protocol**

  ✓ **SNMPv3 secure access**

  ✓ **RMON 1,2,3 and 9**

Access Group Status
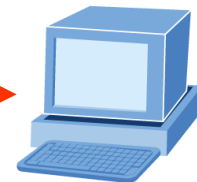
Group Name	Security Model	Security Level	Read View Name	Write View Name	Notify View Name	Action
Test	v3	noauth	all			Delete

User Status

User Name	Group	Privilege Mode	Authentication Protocol	Encryption Protocol	Access Right	Action
Test	Test	noauth	none	none	ro	Delete

Daily Graph (5 Minutes)

Weekly Graph (30 Minutes)

Monthly Graph (2 Hours)

MD5 encryption

Secure access

GSD-1020S SNMP Agent

RMON Groups 1, 2, 3, 9

SNMP Software

RFC 1757 (statistics, history, alarm, events)

Product Features

◆ **Supports VLAN**

- ✓ IEEE 802.1Q Tagged VLAN

- ✓ Provider Bridging (VLAN **Q-in-Q**) support (IEEE 802.1ad)

- ✓ Private VLAN Edge (PVE)

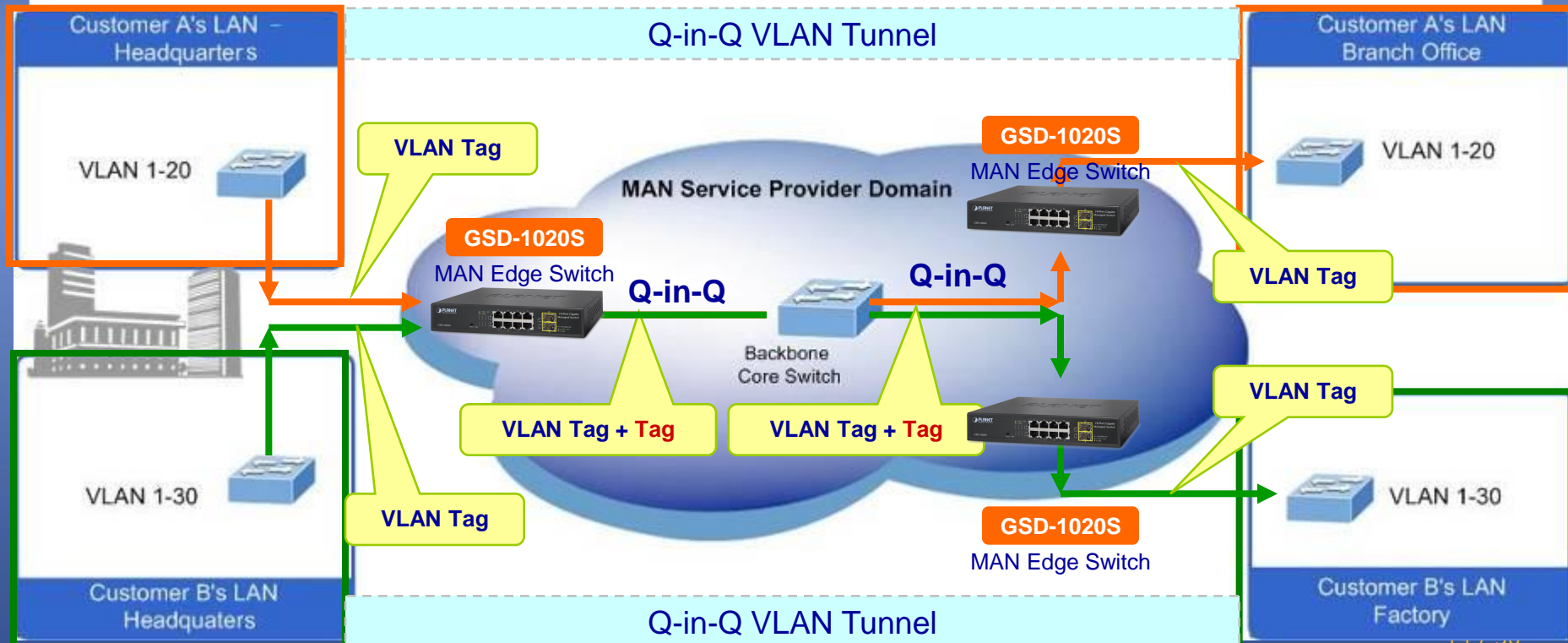- ✓ **Protocol-based VLAN**

- ✓ **GVRP**

- ✓ **Voice VLAN**

◆ **Supports Spanning Tree Protocol**

- ✓ STP, IEEE 802.1D (Spanning Tree Protocol)

- ✓ RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol)

- ✓ **MSTP**, IEEE 802.1s Multiple Spanning Tree Protocol, Spanning Tree by VLAN

- ✓ **BPDU Guard** and **BPDU Filtering** enhances switch network reliability, manageability, and security.

Product Features
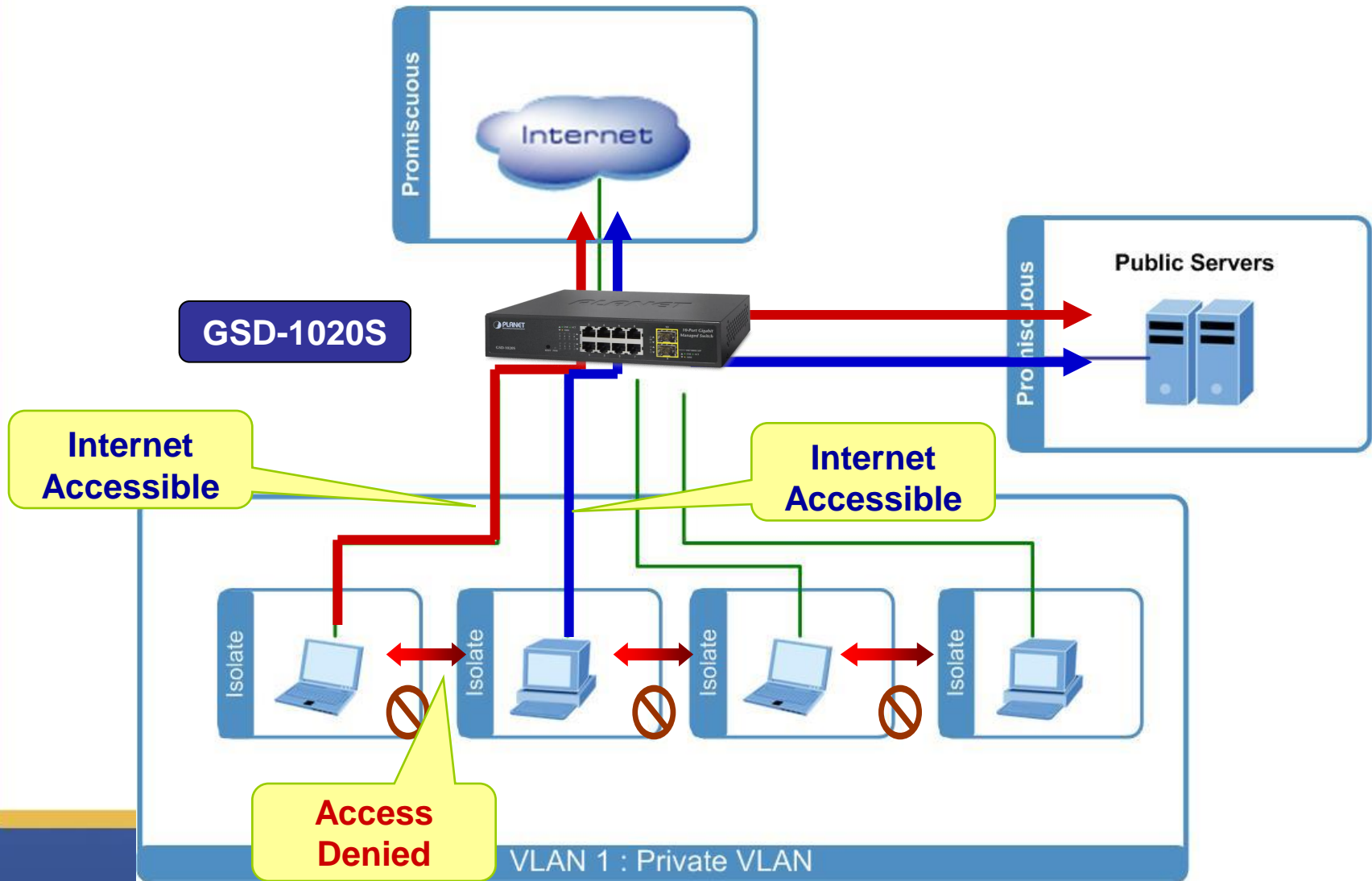
◆ **Q-in-Q VLAN Tunnel**

✓ Q-in-Q is designed for service providers carrying traffic for multiple customers across their networks.

✓ It is used to maintain customer-specific VLAN and Layer 2 protocol configurations even when different customers use the same internal VLAN IDs.

Product Features

◆ **Private VLAN** – isolates edge ports to ensure privacy

GSD-1020S

Internet Accessible

Internet Accessible

Access Denied

Promiscuous

Internet

Public Servers

Promiscuous

Promiscuous

Isolate

Isolate

Isolate

Isolate

VLAN 1 : Private VLAN

Product Features

◆ **Quality of Service**

   ✓ **8** priority queues on all switch ports

   ✓ Traffic Classification by:

- 802.1p CoS
- IP TOS/**DSCP**/Precedence of IPv4 / IPv6 packets
- **IP TCP/UDP** port number
- Typical network applications

   ✓ **Ingress Shaper** and **Egress Rate Limit** per port bandwidth control

   ✓ **Strict priority** and **Weighted Round Robin (WRR)** CoS policies

   ✓ Traffic-policing policies on the switch port

   ✓ **DSCP remarking**

Product Features

◆ **Multicast**

- ✓ Supports IGMP Snooping v2 and **v3**
- ✓ Support MLD Snooping v1 and **v2**
- ✓ Querier mode support
- ✓ IGMP Snooping filtering
- ✓ MLD Snooping filtering

◆ **Supports Link Aggregation**

- ✓ IEEE 802.3ad Link Aggregation Control Protocol (LACP)
- ✓ Cisco ether-channel (Static Trunk)
- ✓ Up to 16Gbps bandwidth (Duplex Mode)

Product Features

◆ **Security**

✓ **Network Access Authentication mechanism**

- IEEE 802.1X – Port-based authentication

- Built-in RADIUS client to co-operate with RADIUS server

- RADIUS / TACACS+ user access authentication

✓ **Access Control List (ACL)**

- IPv4/IPv6 IP-based filtering to permit or deny traffic

- MAC-based filtering to permit or deny traffic

✓ **Management Source MAC / IP address binding to prevent unauthorized intruder**

Product Features

◆ **Security - Network Access Authentication mechanism**

    ✓ 802.1x Port-based User Authentication

    ✓ RADIUS / TACACS+ Authentication for Management Access
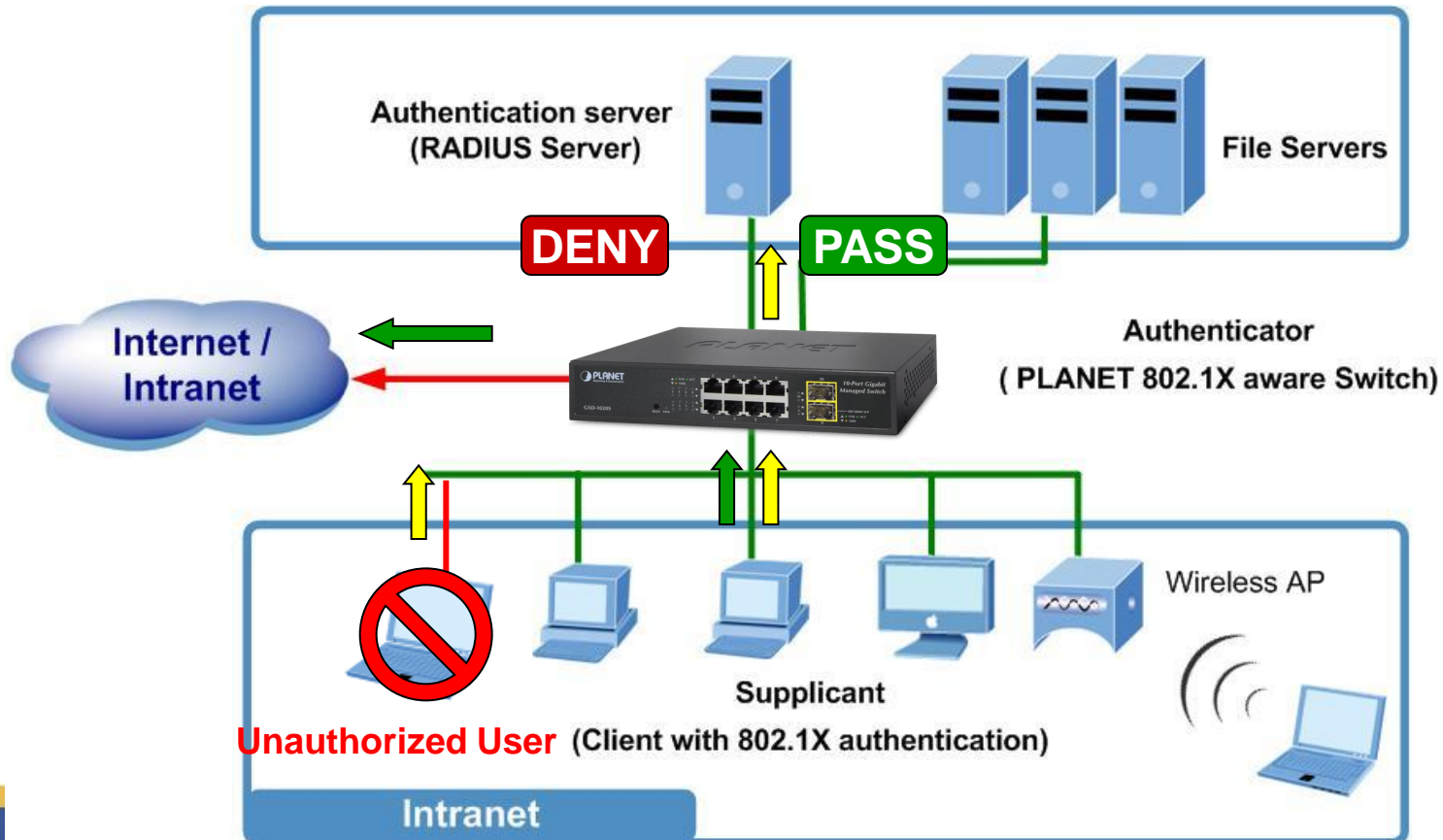
Product Features

◆ **Enhanced Security**

✓ **DHCP Snooping** to filter untrusted DHCP messages

✓ **Dynamic ARP Inspection**

- Discards ARP packets with invalid MAC address to IP address binding.

- Protects the network from certain "**man-in-the-middle**" attacks.

✓ **IP Source Guard**

- Helps prevent **IP spoofing attacks** when a host tries to spoof and use the IP address of another host.

- Any IP traffic with a source IP address other than that assigned will be filtered out.

✓ **Auto DoS** rule to defend DoS attack

Product Features
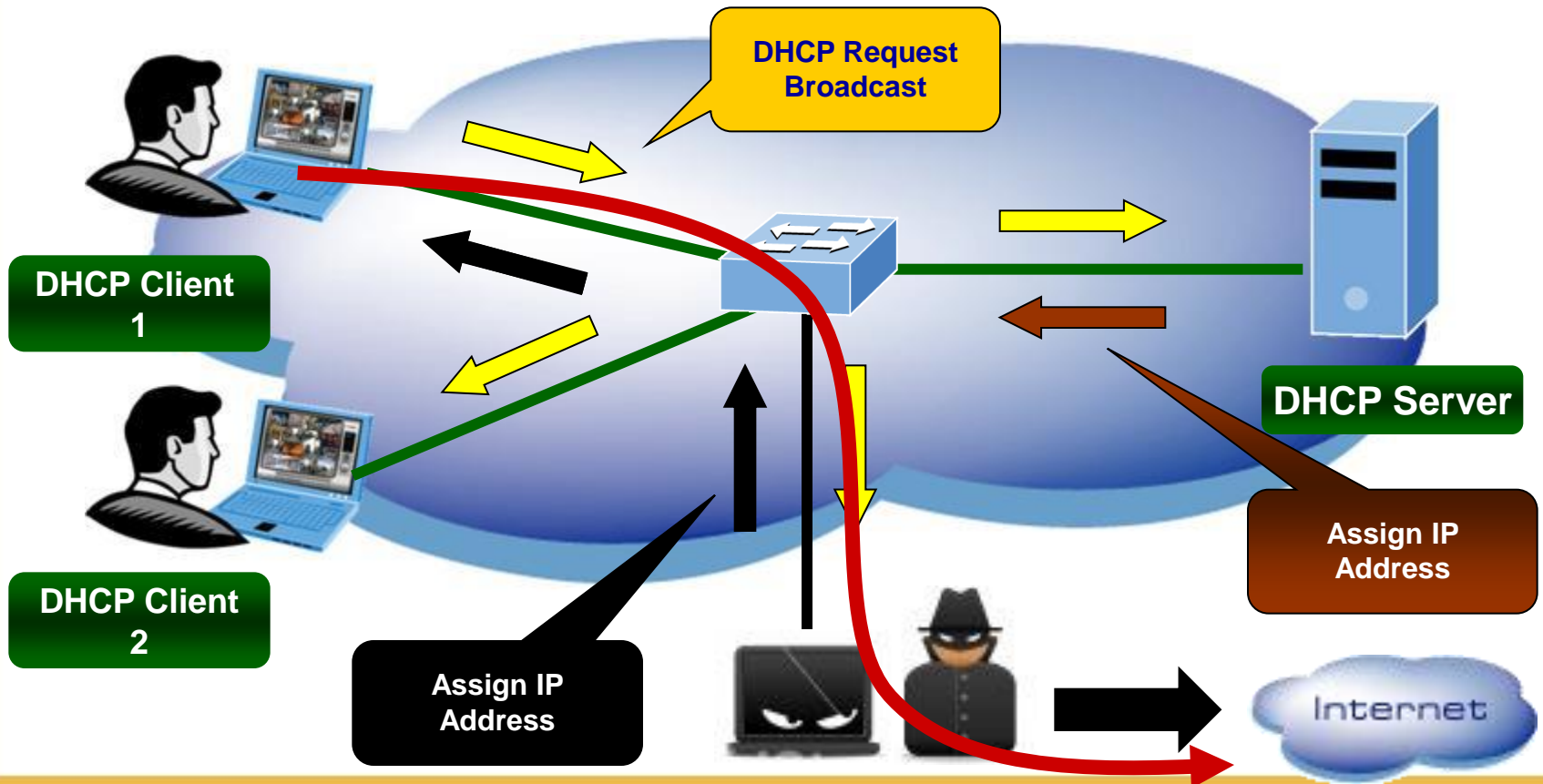
◆ **DHCP Snooping**

Product Features

◆ **DHCP Snooping**

VLAN ID   IP Address   MAC Address
----
1   192.168.0.1   00:30:4F:11:22:33
2   192.168.0.2   00:11:22:55:AA:BB

DHCP Trusted Port

GSD-1020S

DHCP Client 1

DHCP Client 2

DHCP Server

Untrusted Port

Internet
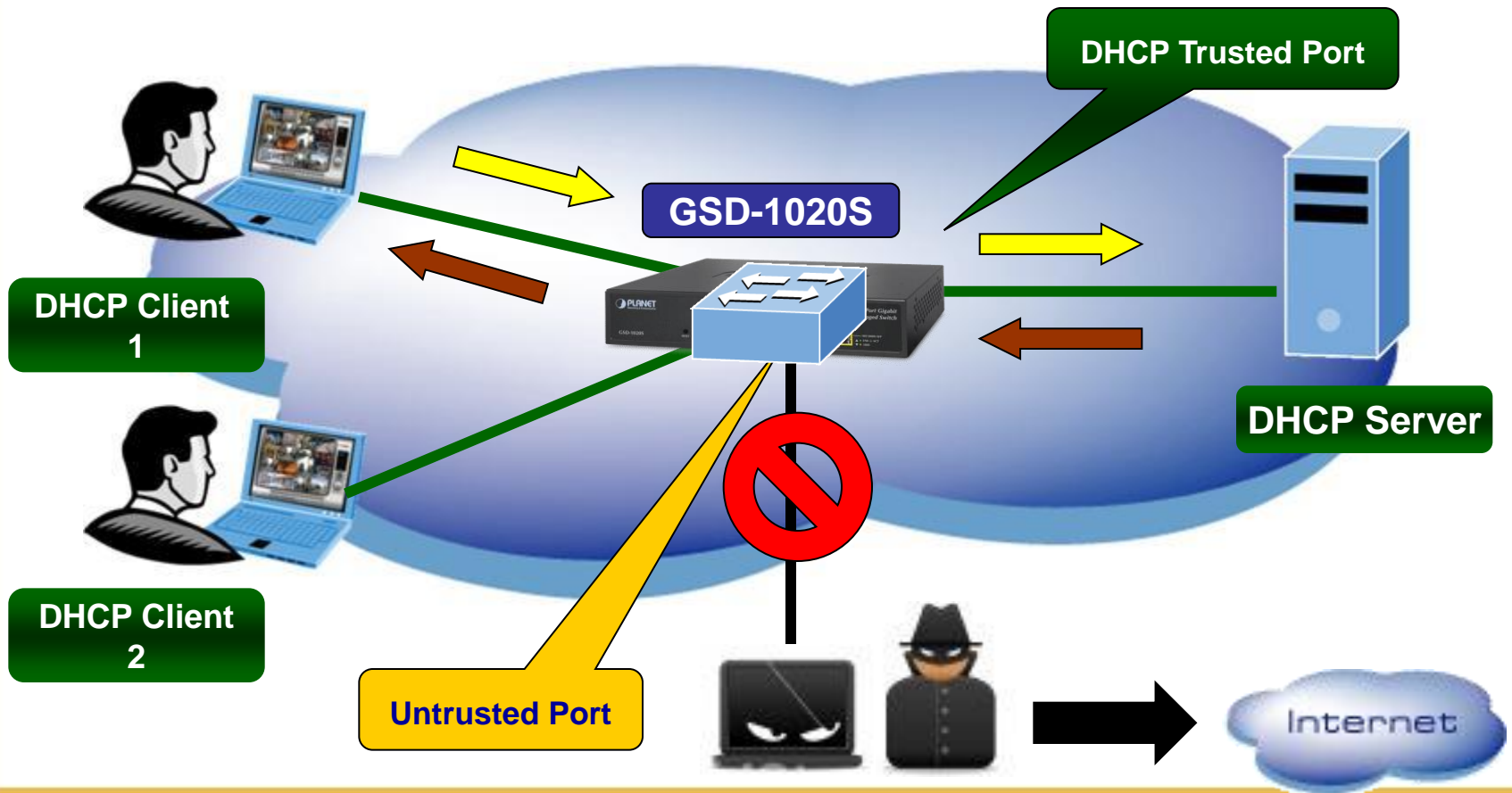
Product Features

◆ **Management Tools**

- ✓ **IPv6** IP Address / SNTP / DNS management

- ✓ Built-in Trivial File Transfer Protocol (TFTP) client

- ✓ DHCP for IP address assignment

- ✓ **Auto-configuration / DHCPv6** client for IPv6 address assignment

- ✓ Firmware upload/download via HTTP / TFTP

- ✓ SNTP

- ✓ **Link Layer Discovery Protocol (LLDP)** Protocol

- ✓ PLANET Smart Discovery Utility for deployment management

Product Features

◆ **Link Layer Discovery Protocol (LLDP)**

✓ LLDP is used to **discover** basic information about neighboring devices on the local broadcast domain

LLDP Remote Device

Detail   Delete   Refresh

Sel	Local Port	Chassis ID Subtype	Chassis ID	Port ID Subtype	Port ID	System Name	Time to Live
☐	GE2	MAC address	00:30:4F:A9:51:7F	Locally assigned	1	WGSW-24040R	102

GSD-1020S

LLDP Protocol

WGSW-24040

IP: 192.168.0.100

Applications

◆ **FTTX / MAN Application Switch**

✓ Up to **20Gbps** per second of non-blocking switch fabric, the GSD-1020S can easily provide the high bandwidth and Gigabit Ethernet network for backbone of SMBs.

✓ It can easily provide a local, high bandwidth. The GSD-1020S can be programmed for advanced switch management functions such as:

- **Dynamic Port link aggregation**

- **802.1Q VLAN, Private VLAN**

- **Multiple Spanning Tree protocol**

- **IGMP/MLD Snooping**

✓ The GSD-1020S is loaded with **powerful traffic management** and **QoS** features. The functionality includes QoS features such as :

- **Layer 4 traffic classifiers**

- **Bandwidth limiting**

✓ The above features of GSD-1020S empower the SMBs to take full advantages of the limited network resources and guarantees the best performance in VoIP and Video conferencing transmission.

Applications
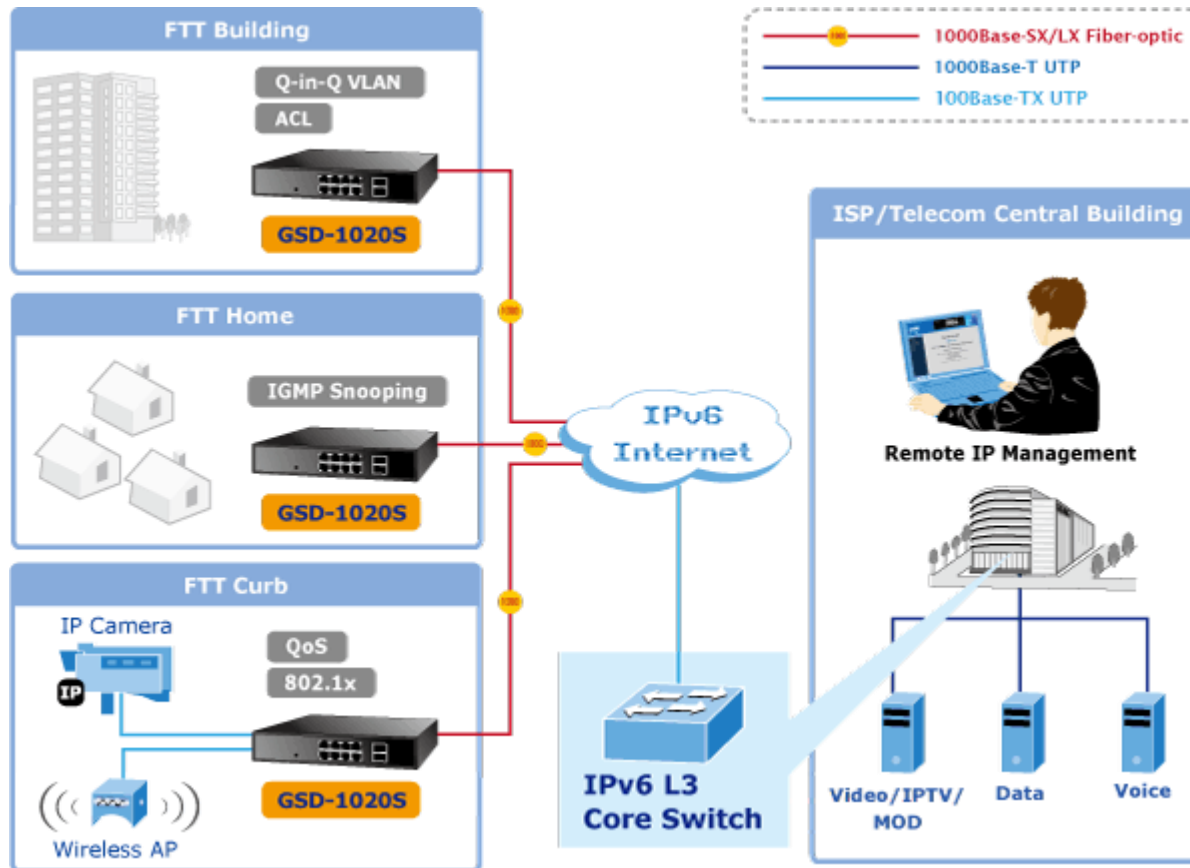
Applications

◆ **MTU Switch**

✓ In an MTU/MDU application, the advanced functionality of the GSD-1020S eliminates traditional issues associated with the use of Ethernet. Users can be separated with advanced VLAN functionality to enhance security. The flexible mini-GBIC 1000Base-SX/LX module options make the GSD-1020S one of the best and most cost-effective Switch solutions for multi-tenant service providers.
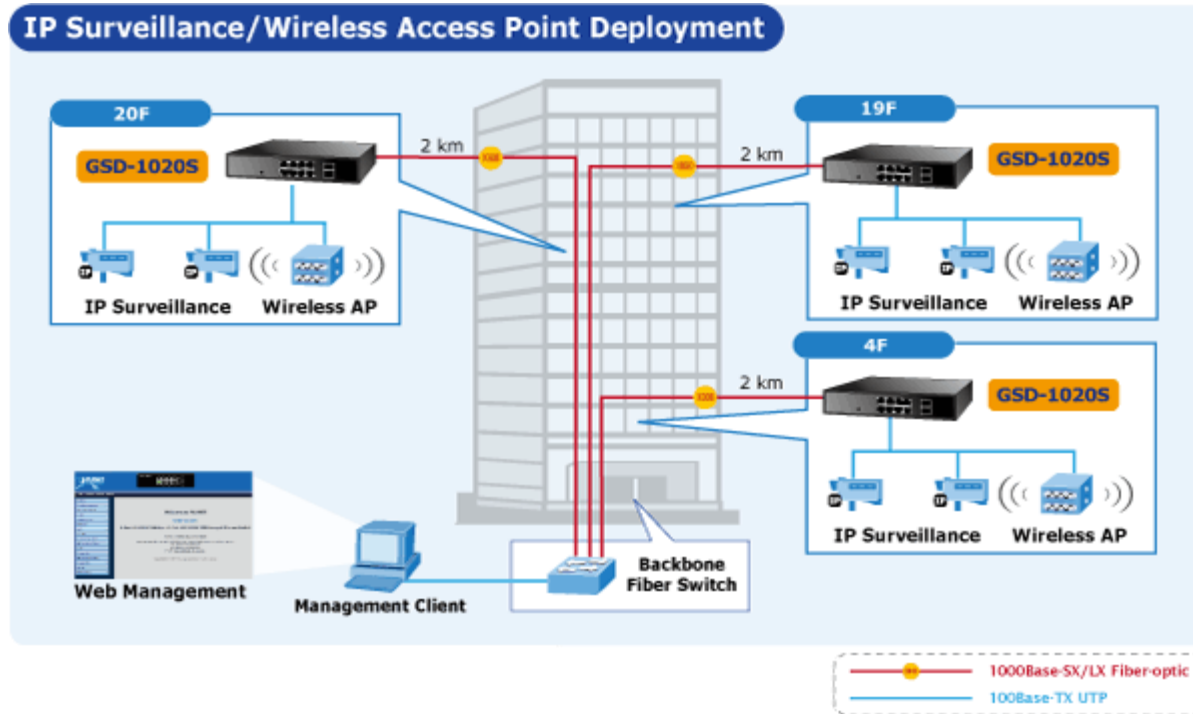
Product Comparison

Model Name	GSD-802S	GSD-1020S	WGSD-10020
Outlook			
Feature	Web Smart	L2 Managed	L2+ Managed
Hardware			
10/100/1000Base-T	8	8	8
SFP Slots	2 x 1000Base-X (Combo)	2 x 100/1000Base-X	2 x 100/1000Base-X
Console	-	-	DB9 to RS-232
Dimensions	10-inch, 1U height 217 (W) x 135 (D) x 43.5 (H) mm	10-inch, 1U height 217 (W) x 135 (D) x 43.5 (H) mm	13-inch, 1U height 330 (W) x 155 (D) x 43.5 (H) mm
Layer 3 Functions			
IP Interfaces	-	-	128
Routing Table	-	-	32
Routing Protocol	-	-	IPv4 Static Routing IPv6 Static Routing
Layer 2 Features			
Switch Fabric	16Gbps / non-blocking	20Gbps / non-blocking	20Gbps / non-blocking
Switch Throughput	11.9MppsMpps@64Bytes	14.8MppsMpps@64Bytes	14.8MppsMpps@64Bytes
MAC Address Table	8K	8K	8K
Jumbo Frame	9K	9k	9K
Link Aggregation — Static	4 Trunks / 8 Ports	8 Trunks / 8 Ports	5 Trunks / 10 Ports
Link Aggregation — LACP	4 Trunks / 8 Ports	8 Trunks / 8 Ports	5 Trunks / 10 Ports

Product Comparison

Model Name		GSD-802S	GSD-1020S	WGSD-10020
Layer 2 Features				
VLAN	802.1Q	■	■	■
	Port-based	■	-	■
	Protocol-based	-	■	■
	MAC-based	-	-	■
	IP-Subnet Based	-	-	■
	Q-in-Q	-	■	■
	GVRP	-	■	-
	Voice VLAN	-	■	■
	MVR	-	-	■
	Private VLAN	-	■	■
Active VLAN (1q/port)		64	256	255
Spanning Tree		802.1w	802.1D/1w/1s	802.1D/1w/1s
STP BPDU Guard		-	■	
BPDU Filtering		-	■	■
Port Mirror		■	■	■
Multicast				
IGMP Snooping		V1, V2	V2, V3	V1, V2, V3
IGMP Query mode		■	■	■
IGMP Filtering		-	■	■
IGMP Throttling		-	■	-
MLD Snooping		-	■	■
MLD Query mode		-	-	■
MLD Filtering		-	■	■
MLD Throttling		-	■	-
Max. Multicast Groups		64	256	255

Product Comparison

Model Name		GSD-802S	GSD-1020S	WGSD-10020
QoS				
QoS	L2 802.1p	■ / 4 queue	■ / 8 queue	■ / 8 queue
	L3 IP TOS / DSCP	■	■	■
	L4 TCP/UDP Port	-	■	■
	Strict / WRR	■ / ■	■ / ■	■ / ■
	DSCP Remarking	-	■	■
Storm Control	Broadcast	■	■	■
	Multicast	■	■	■
	Unicast	■	■	■
In / Out Bandwidth Control		-	■	■
Security				
Authenti cation	802.1X Port Based	■	■	■
	MAC Based	-	-	■
Guest VLAN		-	■	■
ACL		-	L2 / L3 / L4 (Supports IPv6 Address ACE)	L2 / L3 / L4
ACL Binding		-	Port-based	Port-/Policy-based
Port Security		-	■	■
IP / MAC Security		-	Static MAC / Binding	Static MAC / Binding
RADIUS		-	■	■
TACACS+		-	■	■
DHCP Snooping		-	■	■
DHCP Option82		-	■ (Supports user-define remote & circuit ID)	■
IP Source Guard		-	■	■
ARP Inspection		-	■	■
DoS Protection		-	■	■

Product Comparison

Model Name		GSD-802S	GSD-1020S	WGSD-10020
Management				
Management & Configuration		Web	Web, Telnet	Web, Telnet, Console
SSH / SSL		-	■ / ■	■ / ■
IPv6 Management		-	■	■
SNMP	V1/V2c	■ / -	■ / ■	■ / ■
	V3	-	■	■
	Trap	■	■	■
	RMON	-	4 Groups	4 Groups
Local/Remote Syslog		- / -	■ / ■	■ / ■
DHCP Relay		-	-	■
SMTP Event Alarm		-	-	■
Other Management		-	SNTP, LLDP	NTP, LLDP
Cable Diagnostic		■	■	■
Ping Test		-	IPv4/IPv6 Ping Test	IPv4/IPv6 Ping Test
Dual Image		-	■	■
Power Saving	Link down detect	■	■	■
	Length detect	■	■	■

Appendix

◆ **Available Modules:**

    ✓ **Gigabit SFP**

- **MGB-GT** SFP-Port 1000Base-T Module

- **MGB-SX** SFP-Port 1000Base-SX mini-GBIC module

- **MGB-LX** SFP-Port 1000Base-LX mini-GBIC module – **10km**

- **MGB-L50** SFP-Port 1000Base-LX mini-GBIC module – **50km**

- **MGB-L70** SFP-Port 1000Base-LX mini-GBIC module – **70km**

- **MGB-L120** SFP-Port 1000Base-LX mini-GBIC module-**120km**

- **MGB-LA10** SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-**10km**

- **MGB-LB10** SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-**10km**

- **MGB-LA20** SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-**20km**

- **MGB-LB20** SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-**20km**

- **MGB-LA40** SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-**40km**

- **MGB-LB40** SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-**40km**

Appendix

- **Available Modules:**

  - ✓ **100Base-FX SFP**

    - **MFB-FX** SFP-Port 100Base-FX Transceiver (1310nm) -2km

    - **MFB-F20** SFP-Port 100Base-FX Transceiver (1310nm) – 20km

    - **MFB-F60** SFP-Port 100Base-FX Transceiver (1310nm) – 60km

    - **MFB-FA20** SFP-Port 100Base-BX Transceiver (WDM,TX:1310nm) -20km

    - **MFB-FB20** SFP-Port 100Base-BX Transceiver (WDM,TX:1550nm) -20km

Appendix Sales Target

◆ Profitable Markets

- ✓ **Enterprise / SMB Office**
- ✓ **Hotel / Internet Cafe**
- ✓ **Government / Campus**
- ✓ **ISP / Telecom / Service Provider**
- ✓ **System Integrator**

◆ Profitable Products

- ✓ **Who needs cost-effective IPv6 manageable switch for next-generation IP network?**
- ✓ **Who needs Traffic Classification and Easy Management network solution ?**
  - • The one who prefers *WGSW-24040/28040 series*, which does not have too many ports.
- ✓ **Who needs full/secure managed switches that support SSH, SSL and SNMPv3?**
  - • The one who prefers *SGSD-1022/FGSD-1022* with all Gigabit ports.
  - • The one who prefers *GSD-802S* but needs more management features
- ✓ **Who needs Gigabit performance, and robust features but small size for space-limited environments?**

What is IPv6 ?

◆ **Internet Protocol version 6** (**IPv6**)

- ✓ IPv6 is the **next-generation Internet Protocol version** designated as the successor to IPv4, the first implementation used in the Internet that is still in dominant use currently.

- ✓ It is an **Internet Layer protocol** for packet-switched internetworks. The main driving force for the redesign of Internet Protocol was the foreseeable IPv4 address exhaustion.

- ✓ IPv6 was defined in December 1998 by the Internet Engineering Task Force (IETF) with the publication of an Internet standard specification, RFC 2460.

- ✓ IPv6 has a vastly larger address space than IPv4. This results from the use of a **128-bit** address, whereas IPv4 uses only **32 bits**.

Activating IP Power