



SOHO SECURE NET: NETWORK DESIGN PROPOSAL

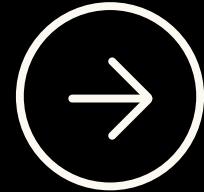
Present by NKugwa Mark William

INTORDUCTION

Company Name: SOHO SecureNet

Objective: Provide secure and reliable networking solutions for SOHO businesses.

Network Focus: High-performance internal infrastructure with essential networking services.





NETWORK TOPOLOGY OVERVIEW

Internet Connection: Router connects to ISP with a public IP (203.0.113.1).

Internal Network: Uses 192.168.1.0/24 subnet.

Wired & Wireless Devices:

PCs, printers, IP phones (wired)

Laptops and mobile devices (Wi-Fi)

Network Segmentation: Dedicated server segment.



NETWORK DEVICES



1. Router (192.168.1.1)

Connects LAN to the Internet

Acts as the default gateway

Provides DHCP and NAT services

2. Switch

Connects wired devices in the LAN

Ensures efficient data communication

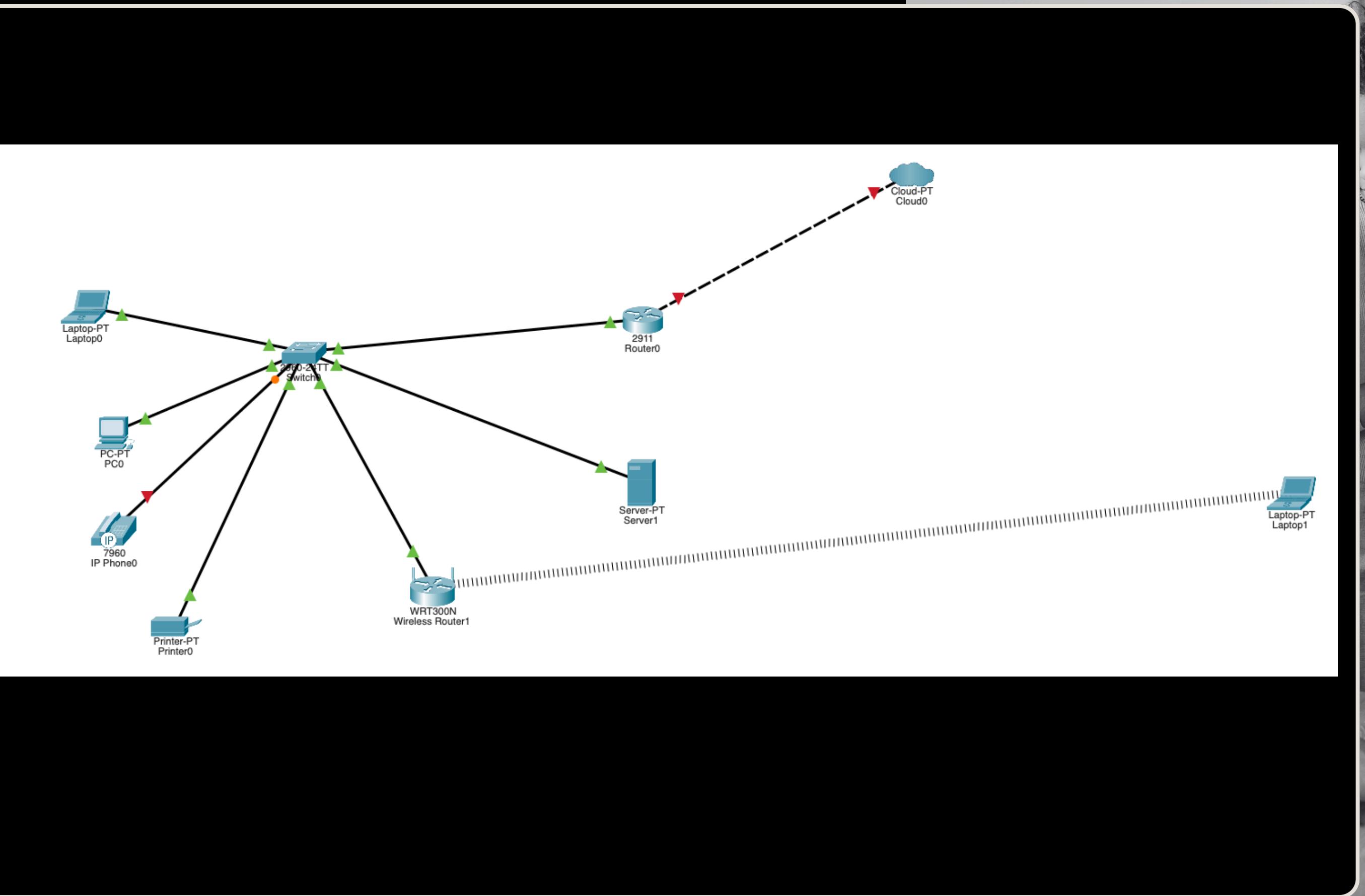
3. Wireless Access Point (192.168.1.5)

Provides Wi-Fi access for wireless clients

Uses WPA2 encryption for security



DIAGRAM OF THE NETWORK



IP ADDRESSING SCHEME



Device	IP Address	Subnet Mask	Default Gateway	Notes
Router (LAN)	192.168.1.1	255.255.255.0	N/A	Gateway for LAN
Router (WAN)	203.0.113.1	255.255.255.0	ISP Gateway	Internet connection
DHCP Server	192.168.1.2	255.255.255.0	192.168.1.1	Assigns IPs
DNS Server	192.168.1.3	255.255.255.0	192.168.1.1	Resolves domain names
Web Server	192.168.1.4	255.255.255.0	192.168.1.1	Hosts company website
Wireless AP	192.168.1.5	255.255.255.0	192.168.1.1	Provides Wi-Fi access
Printer	192.168.1.6	255.255.255.0	192.168.1.1	Shared network printer
IP Phone	192.168.1.7	255.255.255.0	192.168.1.1	Video conferencing
PC1	DHCP Assigned	255.255.255.0	192.168.1.1	Employee workstation
PC2	DHCP Assigned	255.255.255.0	192.168.1.1	Employee workstation

NETWORK SERVICES



DHCP (Dynamic Host Configuration Protocol)

Automatically assigns IP addresses to devices

DNS (Domain Name System)

Resolves www.company.com to 192.168.1.4

Web Server (192.168.1.4****)

Hosts the company's internal and external website

SECURITY MEASURES

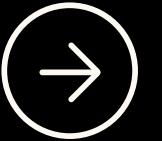


Firewall & NAT: Protects internal devices from unauthorized access

WPA2 Encryption: Ensures secure Wi-Fi connections

Access Control Lists (ACLs): Restricts external access to specific services

Port Forwarding: Allows external clients to access the web server securely



EXTERNAL CLIENT ACCESS

Public Web Server (192.168.1.4****) accessible from the internet.

Port Forwarding: <http://203.0.113.1> → 192.168.1.4

External Clients: Can access the company's website securely.



TESTING & VALIDATION

Ping Test: Internal clients successfully communicate (ping 192.168.1.4)

Web Access: Internal & external clients can load the webpage

DHCP Functionality: PCs and laptops receive IPs automatically

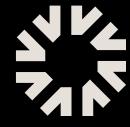


CONCLUSION

SOHO SecureNet provides a secure and scalable network design.

Reliable network services ensure smooth business operations.

Security measures protect against threats while enabling external access.



THANK YOU

for your time and attention

Present by NKugwa Mark
William

