Understanding SNMP (Simple Network Management Protocol)
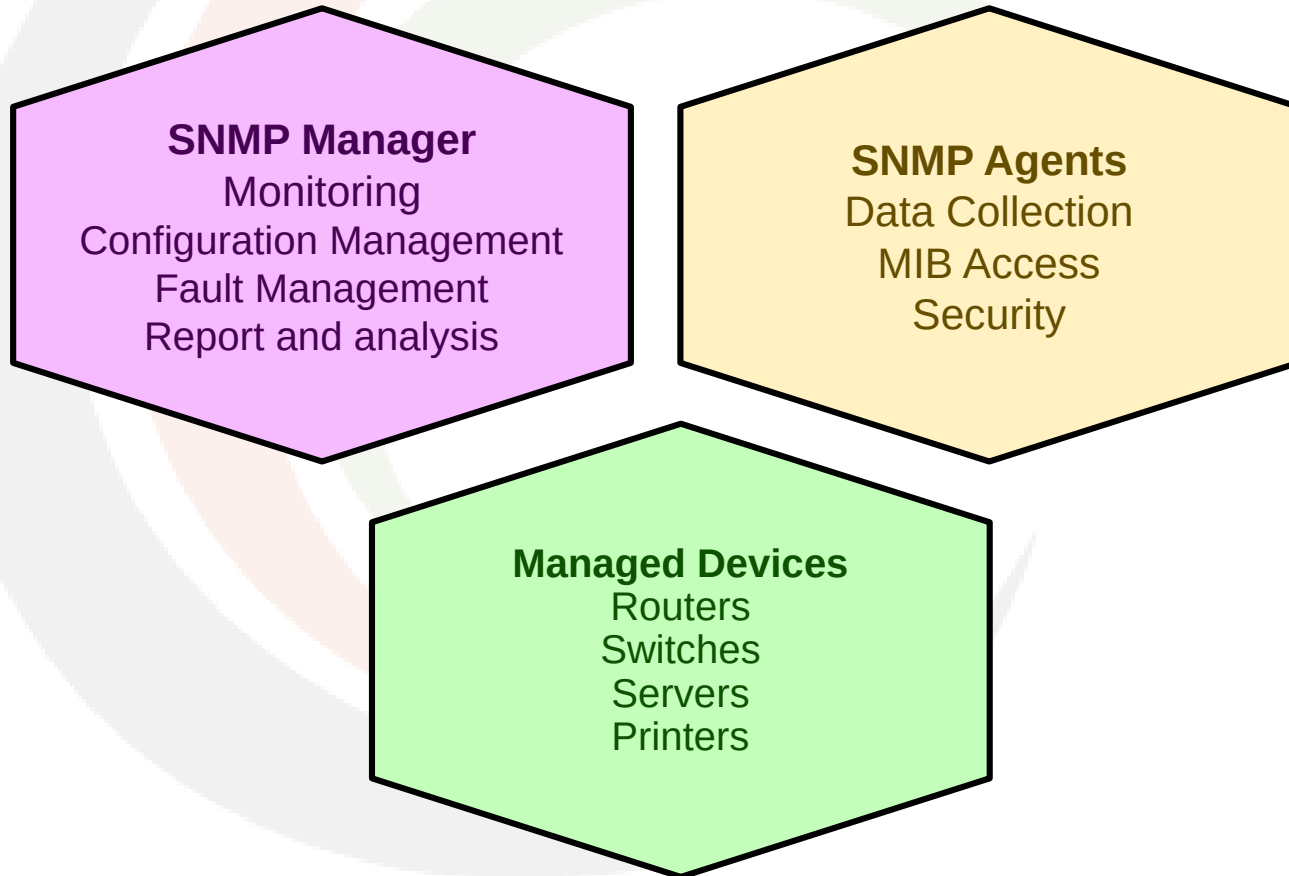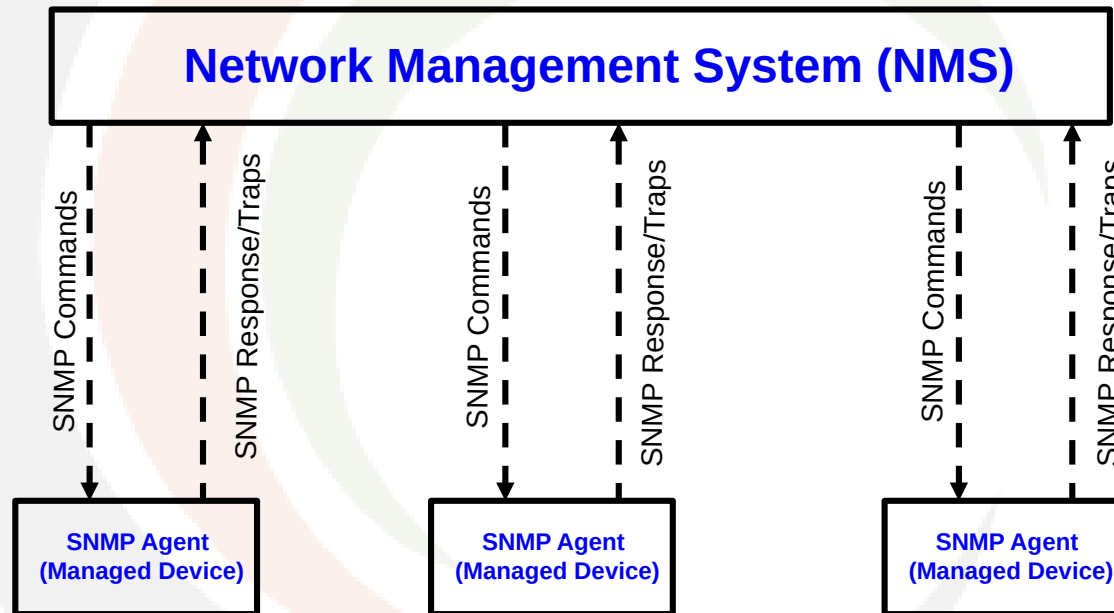
Introduction

✘ What is SNMP?
✘ Importance of SNMP.
✘ Purpose of the presentation.

Components of SNMP

SNMP Manager
Monitoring
Configuration Management
Fault Management
Report and analysis

SNMP Agents
Data Collection
MIB Access
Security

Managed Devices
Routers
Switches
Servers
Printers

SNMP Operation

SNMP Commands

- ✘ Get
- ✘ GetNext
- ✘ GetResponse
- ✘ GetBulk
- ✘ Set
- ✘ Trap

Management Information Base (MIB)

✘   What is MIB?
✘   Importance of MIBs in SNMP.

Versions of SNMP

✘   SNMPv1

✘   SNMPv2

✘   SNMPv3

Security Consideration

✘   SNMPv1 and SNMPv2 security:
Community strings.
✘   SNMPv3 security.

SNMP Use Cases

Network Monitoring
LibreNMS
Nagios
Zabbix
SolarWinds

Performance Monitoring
Grafana
New Relic

Fault Management
Cisco Prime Infrastructure
Splunk
Dynatrace

Configuration Management
Ansible
Puppet
Chef

SNMPv2 Agent Configuration on Cisco

Define SNMP Community Strings	
Syntax	snmp-server community <community-string> <access-level>
Command	snmp-server community MyCommunity ro
Specify SNMP Trap Destinations	
syntax	snmp-server host <trap-destination> <community-string>
Command	snmp-server host 192.168.122.2 MyCommunity
Set SNMP Version	
syntax	snmp-server version {1	2c	3} [auth	noauth	priv]
Command	Snmp-server version 2c

SNMPv3 Agent Configuration on Cisco

Define SNMPv3 Usernames	
Syntax	snmp-server user <username> <group> v3 auth [md5 | sha] <auth-password> priv [aes | des] <priv-password>
Command	snmp-server user admin ReadGroup v3 auth sha MyPass priv aes 128 PrivPass
Specify SNMPv3 Groups	
syntax	snmp-server group <group> v3 auth access <acl>
Command	snmp-server group ReadGroup v3 auth access 10
Configure SNMPv3 Views	
syntax	snmp-server view <view-name> <mib-tree> included
Command	snmp-server view SNMP_VIEW iso included

SNMPv3 Agent Configuration on Host

1

- **Pre-installation Steps**
  Update and upgrade the OS.

  # apt update && apt upgrade

2

- **Installation**
  Install the package from repo.

  # apt install snmp
  # apt install snmp-mibs-downloader

3

- **Basic Configuration**
  Configuration files are located in *'/etc/snmp/'* directory.

  Main configuration file: *'/etc/snmp/snmp.conf*

  Add a community string to snmp.conf file
  rocommunity MyPass 192.168.122.0/24

  Add the SNMPv3 user:
  # net-snmp-create-v3-user -ro -a SHA -x AES -A NetManage admin

4

- **Starting SmokePing**
  Enable and start the service using systemd.

  # systemctl enable –now snmpd

  # systemctl status snmpd

Querying an SNMP agent

- ✘ snmpget
- ✘ snmpwalk
- ✘ snmpbulkwalk
- ✘ snmpstatus
- ✘ snmptable

Conclusion

✘ Recap of topics covered.

Q&A

Thank You

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