CHAPTER 5: RIP

Routing & Switching

THE EVOLUTION OF DYNAMIC ROUTING PROTOCOLS

- Dynamic routing protocols used in networks since the late 1980s
- Newer versions support the communication based on IPv6

Routing Protocols Classification

	Interior Gateway Protocols				Exterior Gateway Protocols
	Distance Vector		Link-State		Path Vector
IPv4	RIPv2	EIGRP	OSPFv2	IS-IS	BGP-4
IPv6	RIPng	EIGRP for IPv6	OSPFv3	IS-IS for IPv6	BGP-MP

DISTANCE VECTOR OR LINK-STATE ROUTING PROTOCOLS

Distance vector protocols use routers as sign posts along the path to the final destination.

A link-state routing protocol is like having a complete map of the network topology. The sign posts along the way from source to destination are not necessary, because all link-state routers are using an identical map of the network. A link-state router uses the link-state information to create a topology map and to select the best path to all destination networks in the topology.

TYPES OF ROUTING PROTOCOLS

ROUTING PROTOCOL CHARACTERISTICS

	Distance Vector				Link State	
	RIPv1	RIPv2	IGRP	EIGRP	OSPF	IS-IS
Speed Convergence	Slow	Slow	Slow	Fast	Fast	Fast
Scalability - Size of Network	Small	Small	Small	Large	Large	Large
Use of VLSM	No	Yes	No	Yes	Yes	Yes
Resource Usage	Low	Low	Low	Medium	High	High
Implemenation and Maintenance	Simple	Simple	Simple	Complex	Complex	Complex

TABEL NILAI DEFAULT ADMINISTRATIVE DISTANCE (AD) PADA ROUTER CISCO

Route Source	Default Distance Values
Connected interface	0
Static route	1
Enhanced Interior Gateway Routing Protocol (EIGRP) summary route	5
External Border Gateway Protocol (BGP)	20
Internal EIGRP	90
IGRP	100
OSPF	110
Intermediate System-to-Intermediate System (IS-IS)	115
Routing Information Protocol (RIP)	120
Exterior Gateway Protocol (EGP)	140
On Demand Routing (ODR)	160
External EIGRP	170
Internal BGP	200
Unknown*	255

OVERVIEW RIPV2

- Open Standar Protokol
- Classless Routing Protokol
- Mendukung VLSM
- Mendukung Autentikasi
- AD = 120
- Metric : Hop Count (terbaik= paling kecil)
- Hop Count Max 16
- Digunakan untuk organisasi kecil
- Update secara periodik

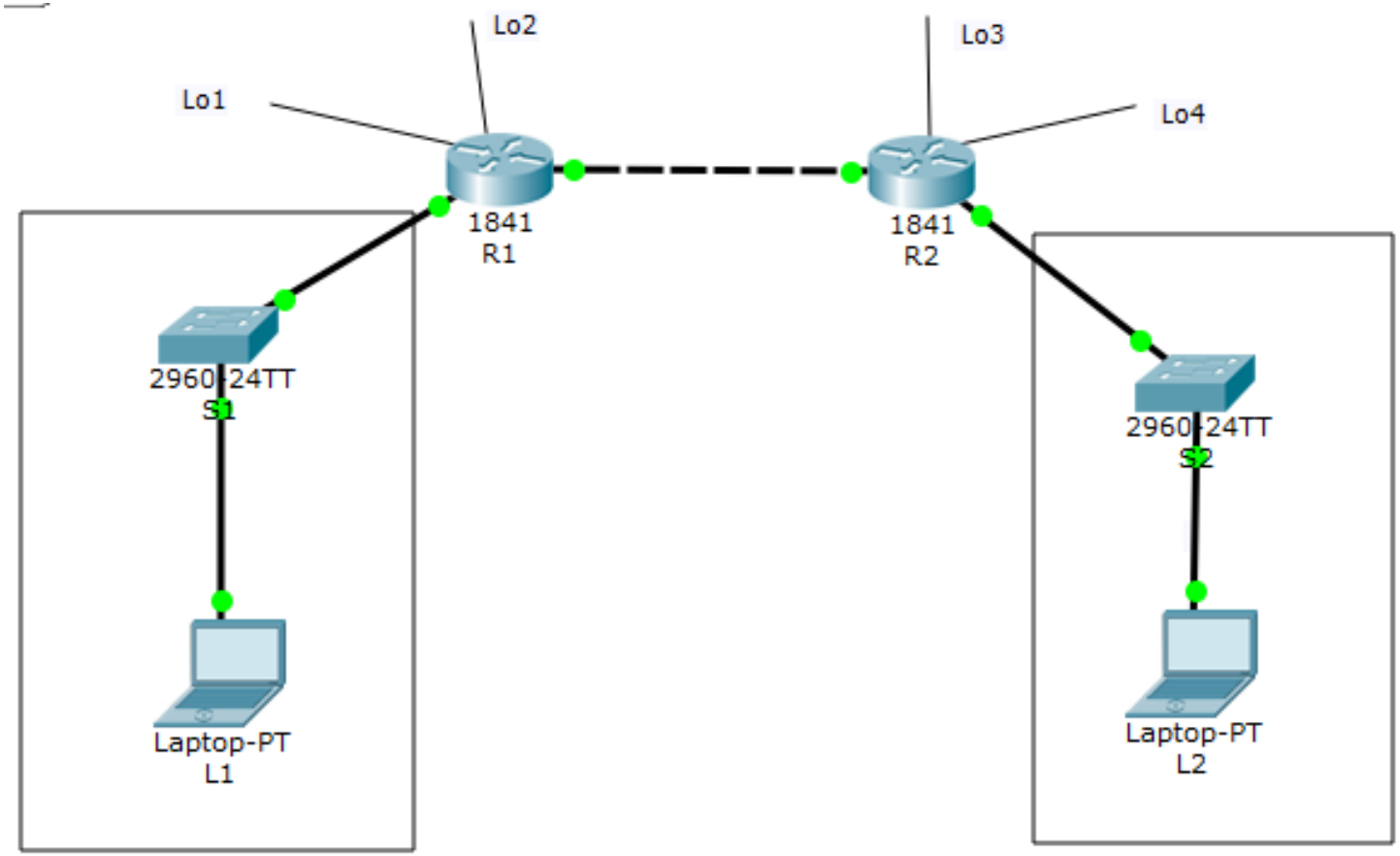
KEUNTUNGAN RIPV2

- Mudah di konfigurasi
- Tidak memerlukan desain seperti OSPF
- Tidak kompleks
- Less overhead

KERUGIAN RIPV2

- Utilisasi bandwidth sangat tinggi
- Terbatas pada jumlah hop count
- Tidak scalable
- Konvergensi rendah

KONFIGURASI



TABEL ADDRESSING

Perangkat	Interface	IP Address	Subnet Mask	Default Gateway
R1	Fa0/0	192.168.1.254	255.255.255.0	N/A
	Fa0/1	12.12.12.1	255.255.255.0	N/A
	Lo1	172.16.1.1	255.255.255.0	N/A
	Lo2	172.16.2.2	255.255.255.0	N/A
R2	Fa0/0	192.168.2.254	255.255.255.0	N/A
	Fa0/1	12.12.12.2	255.255.255.0	N/A
	Lo3	172.16.3.3	255.255.255.0	N/A
	Lo4	172.16.4.4	255.255.255.0	N/A
S1	N/A	VLAN 1	N/A	N/A
S2	N/A	VLAN 1	N/A	N/A
Laptop 1	NIC	192.168.1.1	255.255.255.0	192.168.1.254
Laptop 2	NIC	192.168.2.1	255.255.255.0	192.168.2.254

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Thank you very much for your kind attention