

## DAFTAR ISI

Abstrak .....	i
Abstract .....	ii
Lembar Pengesahan .....	iii
Lembar Pernyataan Orisinalitas .....	iv
Lembar Persembahan .....	v
Kata Pengantar .....	vi
Daftar Isi.....	1
Daftar Gambar.....	5
Daftar Tabel .....	9
<b>BAB I PENDAHULUAN.....</b>	<b>11</b>
I.1 Latar Belakang .....	11
I.2 Rumusan Masalah .....	13
I.3 Tujuan Penelitian.....	13
I.4 Batasan Penelitian .....	13
I.5 Manfaat Penelitian.....	14
I.6 Sistematika Penulisan.....	14
<b>BAB II TINJAUAN PUSTAKA .....</b>	<b>15</b>
II.1 Microsegmentation .....	15
II.2 Firewall.....	15
II.2.1 <i>Firewall</i> Tradisional .....	16
II.2.2 Next-Generation Firewall .....	16
II.3 Insider Attack .....	16
II.4 Denial of Service (DoS) & Distributed Denial of Service (DDoS) .....	16
II.5 ICMP & ICMP Flood Attack .....	17

II.6	Service Quality across Independently Managed Networks (SEQUIN) .	18
II.6.1	One-way Delay.....	18
II.6.2	IP Packet Delay Variation.....	19
II.6.3	Packet Loss.....	19
II.6.4	Capacity.....	19
II.6.5	Maximum Transmission Unit (MTU) .....	19
II.7	Virtualization.....	20
II.8	PPDIOO.....	21
II.9	GNS3.....	22
II.10	QEMU & KVM .....	22
II.11	VMware .....	23
BAB III	METODOLOGI PENELITIAN .....	24
III.1	Model Konseptual.....	24
III.2	Sistematika Penelitian.....	25
III.3	Gambaran Penelitian.....	29
BAB IV	PEMBAHASAN PENELITIAN.....	30
IV.1	Kebutuhan Penelitian.....	30
IV.2.1	Kebutuhan Perangkat Keras Fisik.....	30
IV.2.2	Kebutuhan Perangkat Keras <i>Virtual</i> .....	30
IV.2.3	Kebutuhan Perangkat Lunak.....	31
IV.2	Topologi Sistem Jaringan .....	32
IV.3.1	Topologi Non-Microsegmented.....	32
IV.3.2	Topologi <i>Microsegmented</i> .....	34
IV.3.3	Konfigurasi Alamat IP .....	35
IV.3	Perancangan Pengujian .....	35
IV.3.1	Skenario 1 .....	35

IV.3.2 Skenario 2 .....	39
IV.4    Konfigurasi Sistem .....	41
IV.4.1 Topologi Non-Microsegmented.....	41
IV.4.2 Topologi <i>Microsegmented</i> .....	44
BAB V    PENGUJIAN DAN ANALISIS PENGUJIAN.....	56
V.1    Pengujian Fungsionalitas Sistem.....	56
V.2    Pengujian Keamanan .....	59
V.2.1 Data Normal .....	60
V.2.2 Skenario 1.....	63
V.2.3    Skenario 2 .....	73
V.3    Pengujian Quality of Service.....	80
V.3.3    One-way Delay.....	81
V.3.4    IP Packet Delay Variation.....	85
V.3.5    Packet Loss .....	88
V.3.6    Capacity.....	92
V.4    Pengujian Resource Utilization .....	96
V.4.3    Firewall CPU Utilization .....	96
V.4.4    Firewall Memory Utilization .....	96
V.4.5    Server CPU Utilization .....	97
V.4.6    Server Memory Utilization .....	97
V.5    Analisis Pengujian.....	98
V.5.3    Analisis Pengujian Fungsionalitas .....	98
V.5.4    Analisis Pengujian Keamanan .....	98
V.5.5    Analisis Pengujian <i>Quality of Service</i> .....	99
V.5.6    Analisis Pengujian Resource Utilization.....	102
V.5.7    Analisis Keseluruhan .....	104

BAB VI	KESIMPULAN DAN SARAN .....	106
VI.2	Kesimpulan .....	106
VI.3	Saran .....	106
DAFTAR PUSTAKA	.....	107