

## DAFTAR ISI

|                                                           |      |
|-----------------------------------------------------------|------|
| Lembar Judul Tugas Akhir.....                             | i    |
| Lembar Pernyataan Keaslian Tugas Akhir .....              | ii   |
| Lembar Pernyataan Persetujuan Publikasi Karya Ilmiah..... | iii  |
| Lembar Persetujuan dan Pengesahan Tugas Akhir.....        | iv   |
| Lembar Konsultasi Tugas Akhir .....                       | v    |
| Kata Pengantar .....                                      | vii  |
| Abstraksi .....                                           | ix   |
| Daftar Isi.....                                           | xi   |
| Daftar Simbol.....                                        | xiii |
| Daftar Gambar.....                                        | xiv  |
| Daftar Tabel .....                                        | xvi  |

### BAB I PENDAHULUAN

|                              |   |
|------------------------------|---|
| 1.1. Latar Belakang.....     | 1 |
| 1.2. Maksud dan Tujuan ..... | 2 |
| 1.3. Metode Penelitian ..... | 3 |
| 1.4. Ruang Lingkup .....     | 4 |

### BAB II LANDASAN TEORI

|                                         |    |
|-----------------------------------------|----|
| 2.1. Pengertian Jaringan Komputer ..... | 5  |
| 2.2. Topologi Jaringan .....            | 7  |
| 2.3. Perangkat Keras Jaringan .....     | 13 |
| 2.4. Perangkat Lunak Jaringan .....     | 25 |
| 2.5. TCP/IP dan Subnetting .....        | 30 |
| 2.6. Sistem Keamanan Jaringan.....      | 33 |

### BAB III PEMBAHASAN

|                                             |    |
|---------------------------------------------|----|
| 3.1. Tinjauan Perusahaan.....               | 40 |
| 3.1.1. Sejarah Perusahaan .....             | 40 |
| 3.1.2. Struktur Organisasi dan Fungsi ..... | 42 |
| 3.2. Analisa Jaringan .....                 | 44 |
| 3.2.1. Blok Jaringan .....                  | 44 |
| 3.2.2. Skema Jaringan .....                 | 49 |
| 3.2.3. Keamanan Jaringan Komputer.....      | 50 |
| 3.2.4. Spesifikasi Perangkat Keras .....    | 51 |
| 3.2.5. Spesifikasi Perangkat Lunak.....     | 54 |
| 3.3. Permasalahan Pokok.....                | 55 |

|                                 |    |
|---------------------------------|----|
| 3.4. Pemecahan Masalah .....    | 55 |
| 3.5. Analisa Usulan.....        | 57 |
| 3.5.1. Skema Usulan .....       | 58 |
| 3.5.2. Konfigurasi Usulan ..... | 59 |
| 3.5.3. Analisa Biaya.....       | 67 |

#### **BAB IV PENUTUP**

|                      |    |
|----------------------|----|
| 4.1. Kesimpulan..... | 68 |
| 4.2. Saran .....     | 69 |

|                                  |    |
|----------------------------------|----|
| DAFTAR PUSTAKA .....             | 70 |
| DAFTAR RIWAYAT HIDUP.....        | 71 |
| SURAT KETERANGAN PKL/RISET ..... | 72 |

## DAFTAR SIMBOL

|                                                                                     |                       |
|-------------------------------------------------------------------------------------|-----------------------|
|    | Server                |
|    | Mainframe             |
|    | Router                |
|    | Hub                   |
|  | Switch                |
|  | Bridge                |
|  | Modem                 |
|  | Communication Link    |
|  | Wireless Access Point |
|  | Firewall              |

## DAFTAR GAMBAR

|                                                         |    |
|---------------------------------------------------------|----|
| Gambar II.1 Topologi Bus .....                          | 4  |
| Gambar II.2 Topologi Ring.....                          | 5  |
| Gambar II.3 Topologi Star .....                         | 6  |
| Gambar II.4 Topologi Tree .....                         | 7  |
| Gambar II.5 Topologi Mesh.....                          | 8  |
| Gambar II.6 Komputer Server.....                        | 10 |
| Gambar II.7 Komputer User .....                         | 11 |
| Gambar II.8 <i>Hub</i> .....                            | 12 |
| Gambar II.9 <i>Switch</i> .....                         | 13 |
| Gambar II.10 <i>Bridge</i> .....                        | 14 |
| Gambar II.11 <i>Router</i> .....                        | 15 |
| Gambar II.12 <i>Access Point</i> .....                  | 16 |
| Gambar II.13 Kabel.....                                 | 17 |
| Gambar II.14. <i>Network Interface Card (NIC)</i> ..... | 18 |
| Gambar II.15 Modem.....                                 | 19 |
| Gambar II.16 <i>Konektor</i> .....                      | 20 |
| Gambar II.17 <i>Reapeter</i> .....                      | 20 |
| Gambar III.1 Struktur Organisai .....                   | 42 |
| Gambar III.2A Blok Jaringan LT 2.....                   | 45 |
| Gambar III.2B Blok Jaringan LT 4.....                   | 46 |
| Gambar III.3 Pengelompokan Topologi 1 .....             | 47 |
| Gambar III.4 Pengelompokan Topologi 2 .....             | 48 |
| Gambar III.5 Pengelompokan Topologi 3 .....             | 49 |
| Gambar III.6 Skema Jaringan .....                       | 50 |
| Gambar III.7 Skema Usulan Jaringan 1 .....              | 57 |
| Gambar III.7 Skema Usulan Jaringan 2 .....              | 58 |
| Gambar III.8 Router Mikrotik OS.....                    | 59 |

|                                                              |    |
|--------------------------------------------------------------|----|
| Gambar III.9 IP <i>PPTP Server</i> .....                     | 60 |
| Gambar III.10 IP <i>PPTP Client</i> .....                    | 61 |
| Gambar III.11 Mengaktifkan <i>PPTP Server</i> .....          | 62 |
| Gambar III.12 Memberikan <i>username dan password</i> .....  | 63 |
| Gambar III.13 Menambahkan <i>interface PPTP Client</i> ..... | 64 |
| Gambar III.14 Konfigurasi <i>Client Head Office</i> .....    | 65 |
| Gambar III.15 Konfigurasi <i>Client Branch Office</i> .....  | 66 |
| Gambar III.16 Konfigurasi <i>Limit</i> .....                 | 67 |
| Gambar III.17 Konfigurasi <i>Limit</i> .....                 | 68 |
| Gambar III.18 Konfigurasi <i>Limit</i> .....                 | 69 |

## DAFTAR TABEL

|                                                      |    |
|------------------------------------------------------|----|
| Tabel II.1.IP Kelas A .....                          | 26 |
| Tabel II.2.IP Kelas B.....                           | 27 |
| Tabel II.3.IP Kelas C.....                           | 27 |
| Tabel III.1.Spesifikasi Komputer <i>Server</i> ..... | 52 |
| Tabel III.2. Spesifikasi <i>Switch</i> .....         | 52 |
| Tabel III.3.Spesifikasi <i>Access Point</i> .....    | 53 |
| Tabel III.4.Spesifikasi <i>Router</i> .....          | 53 |
| Tabel III.5.Spesifikasi PC <i>Client</i> .....       | 54 |
| Tabel III.6.Analisa Biaya .....                      | 70 |