

DAFTAR ISI

| | |
|--------------------------------------|------|
| LEMBAR PENGESAHAN | i |
| LEMBAR PERNYATAAN ORISINALITAS | ii |
| ABSTRAK | iii |
| ABSTRACT | iv |
| KATA PENGANTAR | v |
| LEMBAR PERSEMBAHAN | vi |
| DAFTAR ISI | vii |
| DAFTAR GAMBAR | xi |
| DAFTAR TABEL | xiii |
| DAFTAR SINGKATAN | xiv |
| DAFTAR ISTILAH | xv |
| DAFTAR LAMPIRAN | xvii |
| BAB I PENDAHULUAN | 1 |
| I.1 Latar Belakang | 1 |
| I.2 Perumusan Masalah | 2 |
| I.3 Tujuan Penelitian | 2 |
| I.4 Batasan Penelitian | 3 |
| I.5 Manfaat Penelitian | 3 |
| I.6 Sistematika Penelitian | 3 |
| BAB II TINJAUAN PUSTAKA | 5 |
| II.1 Pendahuluan | 5 |
| II.2 Keamanan Sistem Informasi | 5 |
| II.2.1 Threat | 6 |
| II.2.2 Eksploitasi | 6 |
| II.3 Eksperimen | 6 |

| | | |
|---------|---|----|
| II.4 | <i>Walkthrough</i> | 7 |
| II.5 | Lubuntu | 7 |
| II.6 | <i>Vulnerable Machine</i> Sunset: 1 | 7 |
| II.7 | <i>Activity Diagram</i> | 7 |
| II.8 | <i>Data Flow Diagram</i> | 8 |
| II.9 | <i>Attack Tree</i> | 8 |
| II.9.1 | <i>Metrics</i> | 12 |
| II.9.2 | <i>Attack Trees with SAND gate</i> | 13 |
| II.10 | Pengukuran <i>Walkthrough</i> | 13 |
| II.10.1 | Pengukuran <i>Time</i> | 14 |
| II.10.2 | Pengukuran <i>Cost</i> | 14 |
| II.10.3 | Pengukuran <i>Frequency</i> | 14 |
| II.11 | Penelitian Terdahulu | 15 |
| BAB III | METODOLOGI PENELITIAN | 18 |
| III.1 | Model Konseptual | 18 |
| III.2 | Sistematika Penelitian | 19 |
| III.2.1 | Fase Pendahuluan..... | 21 |
| III.2.2 | Fase Hipotesis | 21 |
| III.2.3 | Fase Perancangan | 21 |
| III.2.4 | Fase Pengujian dan Pengumpulan Data | 21 |
| III.2.5 | Fase Analisis | 21 |
| III.2.6 | Fase Akhir | 21 |
| III.3 | Strategi Pengumpulan Data | 22 |
| III.4 | Strategi Pengolahan Data | 22 |
| III.5 | Strategi Evaluasi..... | 22 |
| BAB IV | PERANCANGAN DAN SKENARIO PENGUJIAN | 23 |

| | | |
|--------|--|----|
| IV.1 | Perencanaan dan Persiapan..... | 23 |
| IV.1.1 | Perangkat Keras | 23 |
| IV.1.2 | Perangkat Lunak..... | 23 |
| IV.1.3 | Platform Eksperimen..... | 25 |
| IV.1.4 | Daftar IP Address | 26 |
| IV.2 | Skenario Pengujian..... | 26 |
| IV.2.1 | Skenario <i>Attack Tree</i> Sunset: 1 Secara Umum | 26 |
| IV.2.2 | Skenario Perumusan <i>Activity Diagram</i> dan <i>Data Flow Diagram</i> Berdasarkan <i>Walkthrough</i> | 28 |
| IV.3 | Perumusan <i>Activity Diagram</i> Berdasarkan <i>Walkthrough</i> | 30 |
| IV.3.1 | Hasil Perumusan <i>Activity Diagram</i> Berdasarkan <i>Walkthrough</i> 1 . | 30 |
| IV.3.2 | Hasil Perumusan <i>Activity Diagram</i> Berdasarkan <i>Walkthrough</i> 2 . | 33 |
| IV.3.3 | Hasil Perumusan <i>Activity Diagram</i> Berdasarkan <i>Walkthrough</i> 3 . | 36 |
| IV.3.4 | Hasil Perumusan <i>Activity Diagram</i> Berdasarkan <i>Walkthrough</i> 4 . | 39 |
| IV.3.5 | Hasil Perumusan <i>Activity Diagram</i> Berdasarkan <i>Walkthrough</i> 5 . | 42 |
| IV.4 | Perumusan <i>Data Flow Diagram</i> Berdasarkan <i>Walkthrough</i> | 45 |
| IV.4.1 | Hasil Perumusan <i>Data Flow Diagram</i> Berdasarkan <i>Walkthrough</i> 1 | 45 |
| IV.4.2 | Hasil Perumusan <i>Data Flow Diagram</i> Berdasarkan <i>Walkthrough</i> 2 | 47 |
| IV.4.3 | Hasil Perumusan <i>Data Flow Diagram</i> Berdasarkan <i>Walkthrough</i> 3 | 49 |
| IV.4.4 | Hasil Perumusan <i>Data Flow Diagram</i> Berdasarkan <i>Walkthrough</i> 4 | 51 |
| IV.4.5 | Hasil Perumusan <i>Data Flow Diagram</i> Berdasarkan <i>Walkthrough</i> 5 | 54 |
| IV.5 | Pengukuran <i>Time</i> pada Eksperimen <i>Walkthrough</i> | 56 |

| | | |
|----------------|--|-----|
| IV.5.1 | Hasil Pengukuran <i>Time Walkthrough</i> 1 | 56 |
| IV.5.2 | Hasil Pengukuran <i>Time Walkthrough</i> 2 | 58 |
| IV.5.3 | Hasil Pengukuran <i>Time Walkthrough</i> 3 | 59 |
| IV.5.4 | Hasil Pengukuran <i>Time Walkthrough</i> 4 | 60 |
| IV.5.5 | Hasil Pengukuran <i>Time Walkthrough</i> 5 | 61 |
| BAB V | ANALISIS | 63 |
| V.1 | Analisis <i>Attack Tree</i> Berdasarkan Pendekatan CubeSat <i>Security Attack Tree Analysis</i> dan SAND <i>gate</i> | 63 |
| V.1.1 | Analisis <i>Attack Tree</i> Pada <i>Walkthrough</i> 1 | 64 |
| V.1.2 | Analisis <i>Attack Tree</i> Pada <i>Walkthrough</i> 2 | 69 |
| V.1.3 | Analisis <i>Attack Tree</i> Pada <i>Walkthrough</i> 3 | 74 |
| V.1.4 | Analisis <i>Attack Tree</i> Pada <i>Walkthrough</i> 4 | 79 |
| V.1.5 | Analisis <i>Attack Tree</i> Pada <i>Walkthrough</i> 5 | 84 |
| V.1.6 | Perumusan <i>Attack Tree</i> Gabungan Berdasarkan 5 <i>Walkthrough</i> .. | 89 |
| V.2 | Analisis Perbandingan <i>Metrics</i> | 91 |
| V.2.1 | Analisis Perbandingan <i>Time Metric</i> | 91 |
| V.2.2 | Analisis Perbandingan <i>Cost Metric</i> | 93 |
| V.2.3 | Analisis Perbandingan <i>Frequency Metric</i> | 95 |
| V.2.4 | Pemeringkatan <i>Attack Tree</i> Berdasarkan Perhitungan <i>Time Metric</i> dan <i>Cost Metric</i> | 99 |
| BAB VI | KESIMPULAN DAN SARAN | 100 |
| VI.1 | Kesimpulan..... | 100 |
| VI.2 | Saran..... | 101 |
| DAFTAR PUSTAKA | | 102 |
| LAMPIRAN | | 104 |