

LIST OF FIGURES

Figure 1. 1 Schema Methodology	5
Figure 2. 1 Visual Model Cloud Computing [28]	16
Figure 2. 2 Architecture Business Continuity and Disaster Recovery [31]	19
Figure 2. 3 ASR Architectural Components [32]	20
Figure 3. 1 Flowchart of Cloud-Based Disaster Recovery Research Process	38
Figure 3. 2 Azure Site Recovery Model	39
Figure 3. 3 AWS Elastic Disaster Recovery Model	40
Figure 3. 4 Research Framework for Cloud Based Disaster Recovery Analysis	41
Figure 3. 5 Cloud-Based Disaster Recovery System Infrastructure Design	44
Figure 3. 6 Application Logic Design	45
Figure 3. 7 Portal Azure Site Recovery	49
Figure 3. 8 DRaaS Infrastructure Schema for Azure Virtual Machines Using ASR	50
Figure 3. 9 Portal AWS Elastic Disaster Recovery	51
Figure 3. 10 DRaaS Infrastructure Schema for AWS Virtual Machines Using EDR	52
Figure 4. 1 Average Recovery Time Objective (RTO) by scenario for AWS and Azure	73
Figure 4. 2 Average Recovery Point Objective (RPO) by scenario for AWS and Azure	74
Figure 4. 3 Trade-off between Relative Cost Index and Performance Index (1000/RPO) across failure scenarios on AWS and Azure	78
Figure 4. 4 Comparison of average Total Cost of Ownership (TCO) for AWS and Azure across the three disaster recovery scenarios	82
Figure 4. 5 Average network delay for AWS and Azure under each disaster scenario	90
Figure 4. 6 Average latency (round-trip time) for AWS and Azure in the three scenarios	91
Figure 4. 7 Average throughput achieved during recovery operations	92
Figure 4. 8 Average packet loss observed in each scenario	93
Figure 4. 9 Correlation between Network Delay and RTO	97
Figure 4. 10 Warm standby Disaster Recovery Architecture Amazon Web Service (AWS)	107
Figure 4. 11 Active/Passive Disaster Recovery Architecture Azure	108
Figure 4. 12 Topology Design for AWS	113