

Contents

1	What is the Cloud?	1
1.1	Introduction	1
1.2	History of Cloud Computing	2
1.3	How Does the Cloud Work?	3
1.3.1	Virtualization	3
1.3.2	Clustering	5
1.3.3	Grid Computing	6
1.3.4	Cloud Architecture	7
1.3.5	Cloud Operation	8
1.4	Cloud Service Models	9
1.4.1	Infrastructure-as-a-Service	9
1.4.2	Platform-as-a-Service	10
1.4.3	Software-as-a-Service	10
1.5	Cloud Deployment Models	11
1.6	Why Choose the Cloud?	12
	References	13
2	About Cloud Security	15
2.1	Introduction	15
2.2	Why Is Cloud Security Different?	17
2.3	Famous Attacks on Cloud	18
2.3.1	History of Denial of Service Attacks on the Cloud	18
2.3.2	Other Attacks	20
	References	22
3	Security Threats in Cloud Computing	25
3.1	Introduction	25
3.2	Data Breaches	25
3.3	Data Loss	27
3.4	Account or Service Hijacking	28
3.5	Insecure Interfaces and APIs	29
3.6	Threats to Availability	30

3.7	Malicious Insiders	31
3.8	Abuse of Cloud Service	32
3.9	Insufficient Due Diligence.	33
3.10	Shared Technology Vulnerabilities.	34
3.11	Other Threats	35
	References	37
4	Security Attacks in Cloud Computing.	41
4.1	Introduction	41
4.2	Denial of Service Attacks	41
4.3	Attacks on Hypervisor	44
4.4	Resource Freeing Attacks	45
4.5	Side-Channel Attacks	46
4.6	Attacks on Confidentiality.	47
4.7	Other Attacks	48
	References	48
5	General Cloud Security Recommendations	51
5.1	Introduction	51
5.2	General Security Recommendations	52
	References	54
	Index	55



<http://www.springer.com/978-3-319-41410-2>

Elements of Cloud Computing Security

A Survey of Key Practicalities

Alani, M.M.

2016, XI, 55 p. 7 illus., Softcover

ISBN: 978-3-319-41410-2