

# Contents

## Part I The China Dream

<b>1</b>	<b>Silk Road Revisited .....</b>	<b>3</b>
<b>2</b>	<b>Cloud Determinism .....</b>	<b>7</b>
<b>3</b>	<b>Connecting the Possibilities.....</b>	<b>11</b>
3.1	Making Technology Simple with System Integration on a Cloud Infrastructure .....	11
3.2	Making Business More Agile Through Application Integration on a Cloud Platform.....	12
3.3	Delivering Solutions with Data Integration in a Cloud Service Market .....	13
3.4	The Path to Global Ascension .....	14

## Part II Cloud Evolutions

<b>4</b>	<b>Influencing User Changes .....</b>	<b>23</b>
4.1	Changes in an Enterprise IT Department .....	25
4.2	Chargebacks—The ROI of an IT Center.....	26
4.3	Open-Source Software and Hardware .....	26
4.4	Cloud Service Provider, a New Role for IT Vendors.....	27
4.5	Forming a New IT Pattern .....	30
<b>5</b>	<b>Classifications and Characteristics .....</b>	<b>33</b>
5.1	Classification Based on the Deployment Model and Usage Scope .....	33
5.2	Classification by Service Levels and Service Types of Cloud Computing .....	35
5.3	Common Features of Cloud Computing .....	37
5.4	Common Cloud Characteristics .....	38

<b>6</b>	<b>Computing Styles .....</b>	<b>41</b>
6.1	Host System and Centralized Computing.....	41
6.2	Utility Computing.....	42
6.3	Personal Computing .....	43
6.4	Distributed Computing .....	43
6.5	Grid Computing.....	44
6.6	Cloud Computing and Grid Computing .....	47
6.7	Cloudburst.....	48
6.8	Driving Forces for Cloud Computing .....	49
6.9	High-Performance Computing (HPC) Clouds.....	53
6.10	Cloud, Big Data and Internet of Things (IOT) .....	55
<b>7</b>	<b>Cloud-Onomics .....</b>	<b>57</b>
7.1	Overview on Cloud's Value .....	57
7.1.1	The Value of Infrastructure-as-a-Service (IaaS) .....	57
7.1.2	Value of a Platform-as-a-Service (PaaS) .....	59
7.1.3	The Value of Software-as-a-Service (SaaS).....	61
7.2	Economics of Public Clouds .....	62
7.2.1	Pay-for-Use .....	62
7.2.2	Economic Analysis on a Migration to Cloud Platform.....	65
7.3	Return-on-Investment (ROI) Analysis of Private Clouds .....	66
7.3.1	Benefits of Private Clouds .....	66
7.3.2	Case Studies on Customer Benefits and ROI of Cloud Computing .....	66
7.3.3	ROI Analysis on Hardware .....	67
7.3.4	ROI Analysis on Software .....	69
7.3.5	ROI Analysis of Automated Deployment .....	70
7.3.6	ROI Analysis on Higher Productivity .....	71
7.3.7	Return on System Management .....	72
7.3.8	How to Track Return on Investment (ROI) .....	72
<b>8</b>	<b>Progressing International Standards .....</b>	<b>75</b>
8.1	Current Situation of Cloud Computing Standardization .....	76
8.1.1	Open Cloud Consortium .....	76
8.1.2	Distributed Management Task Force (DMTF).....	77
8.1.3	Enterprise Cloud Buyers Council .....	78
8.1.4	Cloud Security Alliance (CSA).....	78
8.1.5	Open Cloud Manifesto .....	79
8.1.6	China Electronics Standardization Institute (CESI) .....	79
8.1.7	China Cloud Industry Alliance .....	80
8.2	How Standards Influenced an Enterprise's Purchasing Decisions .....	80
8.3	China on Cloud Standards .....	81

<b>9</b>	<b>Safeguarding Cloud Data</b> .....	83
9.1	Technical Measures for Securing Cloud Computing .....	84
9.2	Data Isolation .....	87
9.3	Data Encryption .....	88
9.4	Data Protection .....	88
9.5	Tiered Security Control .....	89
9.6	Network Isolation .....	89
9.7	Disaster Recovery Management .....	90
9.8	The Non-technical Side of Cloud Security .....	90

### **Part III In-Market Experimentation**

<b>10</b>	<b>Case Study: Wuxi Binhu Cloud Computing Center Accelerates Service Creation</b> .....	95
10.1	From Textile to Software .....	95
10.2	Program Construction .....	97
10.3	IBM .....	99
10.4	Value Proposition .....	99
10.5	Lessons Learned .....	104
10.6	Development and Testing in Banks .....	106
10.7	Cloud Computing Internet Data Centers (IDC) .....	107
10.8	IDCs in the Telecom Industry .....	108
10.9	Conclusion .....	109
<b>11</b>	<b>Case Study: Enterprise Cloud Platforms Support Service Deployment and Hosting</b> .....	111
11.1	Background .....	112
11.2	Value Proposition .....	113
11.3	Viable Cloud Application – Enterprise Data Center Clouds .....	114
<b>12</b>	<b>Case Study: Dongying Builds a Smarter City Platform for Service Connectivity</b> .....	119
12.1	Background .....	119
12.2	Construction Requirements .....	120
12.3	Construction Program .....	120
12.4	Yellow River Delta Cloud Computing Center Platform .....	120
12.5	Public Service Platform for Development and Testing .....	121
12.6	The Role of a Government .....	122
12.7	Smarter Cities .....	124
12.8	Other Governmental Applications .....	127

<b>13</b>	<b>Case Study: Beijing University of Technology High-Performance Cloud Injects Indigenous Innovation into Research and City Planning .....</b>	<b>129</b>
13.1	Background .....	129
13.1.1	Construction Requirements .....	130
13.2	Education and Scientific Research .....	130
13.3	Value Proposition .....	131
<b>14</b>	<b>Cloud Factories .....</b>	<b>133</b>
14.1	Cloud Builders .....	133
14.1.1	IBM .....	133
14.1.2	Amazon AWS .....	146
14.1.3	Google .....	149
14.1.4	Microsoft .....	150
14.1.5	Huawei .....	152
14.2	Service Marketplaces .....	157
14.2.1	Alibaba .....	158
14.2.2	Baidu .....	160
14.2.3	Tencent .....	161
<b>15</b>	<b>Planning Implementation .....</b>	<b>165</b>
15.1	Cloud Selection .....	165
15.2	Cloud Type Selection .....	166
15.3	Public Cloud Requirements .....	166
15.4	Private Cloud Requirements .....	167
15.5	Reference Architecture for Cloud Computing Scenarios .....	169
15.6	Selecting Hardware Type .....	171
15.7	Selecting Server Virtualization Technologies .....	172
15.8	Service Management Platforms .....	174
15.9	Implementing Process .....	177
15.10	Cloud Operations .....	178
15.11	Organizational Architecture .....	178
15.12	Cost Accounting and Billing .....	179
15.13	System Operation and Maintenance .....	179
<b>Part IV The Elements of Success</b>		
<b>16</b>	<b>State of Affairs .....</b>	<b>185</b>
<b>17</b>	<b>The Art of Cloud Wars .....</b>	<b>189</b>
17.1	User Engagement .....	192
17.1.1	Developers .....	192
17.1.2	Buyers .....	192
17.1.3	Merchants .....	193
17.1.4	Partners .....	193

17.2	Follow Form, and Function Will Follow .....	194
17.3	The Importance of Branding .....	196
<b>List of Contributors</b> .....		203
<b>Epilogue—Dreams in Motion</b> .....		205
<b>Bibliography</b> .....		207

China Cloud Rising

China's Journey Towards Technology Supremacy

Zhu, J.

2014, XI, 208 p. 72 illus., 26 illus. in color., Hardcover

ISBN: 978-3-642-53744-8