



Cloud Computing; Development and Commercial Applications

Data, Analysis and Forecasts to 2019



GMR Data.com

Contents

1. Executive Summary

- 1.1 Global Cloud Market Overview
- 1.2 Chapter Breakdown
- 1.3 Research and Analysis Methods
- 1.4 Drivers and Restraints of the Global Cloud Technology Market
 - 1.4.1 Drivers
 - 1.4.2 Restraints

2. Technology and Applications of Cloud Computing

- 2.1 Introduction to Cloud Computing
 - 2.1.1 Multi-tenant Architecture
 - 2.1.2 Economies of Scale
 - 2.1.3 Rapid Implementation and Deployment
 - 2.1.4 Access and Connectivity
- 2.2 Cloud Service Models
 - 2.2.1 Infrastructure as a Service (IaaS)
 - 2.2.2 Platform as a Service (PaaS)
 - 2.2.3 Software as a Service (SaaS)
 - 2.2.4 Summary
- 2.3 Key Deployment Models
 - 2.3.1 Private
 - 2.3.2 Public
 - 2.3.3 Hybrid
 - 2.3.4 Community
- 2.4 Security
- 2.5 Benefits and Concerns
 - 2.5.1 Benefits
 - 2.5.1.1 Geolocation and Flexibility
 - 2.5.1.2 Business Intelligence
 - 2.5.1.3 Competitiveness
 - 2.5.1.4 Startup Culture
 - 2.5.2 Concerns
 - 2.5.2.1 Data Lock-in
 - 2.5.2.2 Supplier Transparency

- 2.5.2.3 Distribution and Licensing
- 2.5.2.4 Taxation and Royalty
- 2.5.2.5 Market, Service Model, and Deployment Review

3. Research and Development

- 3.1 Areas of Focus
 - 3.1.1 IaaS, PaaS, and SaaS
 - 3.1.2 Security
- 3.2 Opportunities and Challenges
 - 3.2.1 Opportunities
 - 3.2.2 Challenges
- 3.3 Forecasting R&D

4. Leading Companies in the Global Cloud Market

- 4.1 Asset-rich IT giants
 - 4.1.1 IBM
 - 4.1.2 Microsoft
 - 4.1.3 Cisco
 - 4.1.4 Oracle
 - 4.1.5 EMC
 - 4.1.6 HP
- 4.2 Agile Providers
 - 4.2.1 Alibaba
 - 4.2.2 Amazon Web Service (AWS)
 - 4.2.3 Google
 - 4.2.4 VMWare
 - 4.2.5 Salesforce
 - 4.2.6 Dropbox
 - 4.2.7 Box
- 4.3 Telecommunications Providers
 - 4.3.1 AT&T
 - 4.3.2 Verizon Terremark
 - 4.3.3 Telefonica
- 4.4 Hosting Providers
 - 4.4.1 HYVE
 - 4.4.2 Rackspace
 - 4.4.3 Digital Ocean

- 4.4.4 WP Engine
- 4.5 Recent Market Entrants
 - 4.5.1 CloudDock
 - 4.5.2 Domo

5. Leading Countries / Regions in the Global Cloud Market

- 5.1 Overview of Regional Cloud Market Projections
 - 5.1.1 Regional Cloud Markets by IaaS
 - 5.1.2 Regional Cloud Markets by Business Applications
 - 5.1.3 Regional Cloud Markets by Web Tools and Applications
 - 5.1.4 Regional Cloud Markets by Hosting Services
- 5.2 Breakdown of Regional Cloud Market Projections
 - 5.2.1 North America
 - 5.2.2 Europe
 - 5.2.3 Asia-Pacific
 - 5.2.4 Middle East and Africa
 - 5.2.5 Latin America

6. PEST Analysis

- 6.1 Nation and Government
 - 6.1.1 Cybercrime Legislation
 - 6.1.2 Regulation and Trade Partnerships
 - 6.1.3 Surveillance and Security
 - 6.1.4 Big Data
 - 6.1.5 Directory of Services
 - 6.1.6 Citizen Engagement
- 6.2 Healthcare - eHealthcare, Cloud Access Locations & Lack of Interoperability
- 6.3 Education – Digital Literacy, ELearning & Social Enterprise Initiatives
- 6.4 Telecommunications – Benefit of Service Aggregation, Real-Time Monitoring and Secure Networks
- 6.5 Media- Multi-Platform Content Accessibility, Personalisation and Revenue Generation

7. Expert Opinion

- 7.1 BCC Risk Advisory
- 7.2 Autodesk
- 7.3 Armor5
- 7.4 CloudDock

List of Tables

- Table 1.1 Drivers & Restraints of the Global Cloud Market
- Table 2.1 Trends in the Evolution of IT Services
- Table 2.1.2: Share of Global Data Centre Workloads
- Table 2.1.3: Cloud Storage Users, 2014-2019
- Table 2.4: Key Security Elements and Risks
- Table 2.5: Benefits & Concerns of Cloud Features
- Table 2.5.2.5: Global Cloud Market, 2014-2019
- Table 3.2: Overview of R&D opportunities and challenges in the Global Cloud Market
- Table 3.3: Global Cloud Market Projections, 2014-2019
- Table 4.1.1: IBM Cloud Revenue Projections, 2014-2019
- Table 4.1.6: IBM Cloud Revenue Projections, 2014-2019
- Table 4.2.2: AWS Revenue Projections, 2014-2019
- Table 4.2.4: VMWare Operating Income Projections, 2014-2019
- Table 4.3: Telecommunications Revenue Projections, 2014-2019
- Table 5.1.1: Regional Breakdown of Global Cloud Market, 2014-2019
- Table 5.1.2: Cloud Datacentre Workloads
- Table 5.1.3: Percentage Share of Cloud Data Centre Workloads
- Table 5.1.1.1: Regional Breakdown of Global Cloud Market for IaaS, 2014-2019
- Table 5.1.2.1: Regional Breakdown of Global Cloud Market for Business Applications, 2014-2019
- Table 5.1.3.1: Regional Breakdown of Global Cloud Market for Web Tools and Applications, 2014-2019
- Table 5.1.4.1: Regional Breakdown of Global Cloud Market for Hosting Services, 2014-2019
- Table 5.2.1.1: Total Market Share for North America
- Table 5.2.1.2: Total Market Share for North America, % of overall workloads
- Table 5.2.2.1: Total Market Share for Europe
- Table 5.2.2.2: Total Market Share for Europe, % of overall workloads
- Table 5.2.3.1: Total Market Share for Asia-Pacific

Table 5.2.3.2: Total Market Share for Asia-Pacific, % of overall workloads
Table 5.2.4.1: Total Market Share for Middle East and Africa
Table 5.2.4.2: Total Market Share for Middle East and Africa, % of overall workloads
Table 5.2.5.1: Total Market Share for Latin America
Table 5.2.5.2: Total Market Share for Latin America, % of overall workloads
Table 6.1: Summary of National and Governmental Aspects
Table 6.3: Summary of Educational Aspects

List of Figures

Figure 2.1.2: Share of Global Data Centre Workloads
Figure 2.1.3: Cloud Storage Users, 2014-2019
Figure 2.5.2.5: Global Cloud Market, 2014-2019
Figure 3.3: Forecast of Market Share in Cloud Services, 2014-2019
Figure 4.1.1: IBM Cloud Revenue Projections, 2011-2019
Figure 4.1.5: EMC's IT Cloud Strategy and Infrastructure Evolution
Figure 4.1.6: HP Cloud Revenue Projections, 2011-2019
Figure 4.2.2: AWS Revenue Projections, 2014-2019
Figure 4.2.4: VMWare Operating Income Projections, 2014-2019
Figure 4.3: Telecommunications Revenue Projections, 2014-2019
Figure 5.1.1: Regional Breakdown of Global Cloud Market, 2014-2019
Figure 5.1.2: % Share of Cloud Service Market in 2014, by Region
Figure 5.1.3: % Share of Cloud Market in 2019, by Region
Figure 5.1.4: Growth in Cloud Traffic, by Region
Figure 5.1.5: % Share of Cloud Data Centre Workloads, 2014-2019, by Region
Figure 5.1.6: % Share of Cloud Data Centre Workloads in 2014, by Region
Figure 5.1.7: % Share of Cloud Data Centre Workloads in 2019, by Region
Figure 5.1.1.1: Regional Breakdown of Global Cloud Market for IaaS, 2014-2019
Figure 5.1.2.1: Regional Breakdown of Global Cloud Market for Business Applications, 2014-2019
Figure 5.1.3.1: Regional Breakdown of Global Cloud Market for Web Tools and Applications, 2014-2019
Figure 5.1.4.1: Regional Breakdown of Global Cloud Market for Hosting Services, 2014-2019
Figure 5.2.1.1: Total Market Share for North America
Figure 5.2.1.2: Total Market Share for North America in 2014
Figure 5.2.1.3: Total Market Share for North America in 2019

Figure 5.2.1.4: Total Market Share for the US / North America, 2014-2019, % of overall workloads

Figure 5.2.2.1: Total Market Share for Europe

Figure 5.2.2.2: Total Market Share for Europe in 2014

Figure 5.2.2.3: Total Market Share for Europe in 2019

Figure 5.2.2.4: Total Market Share for Europe, 2014-2019, % of overall workloads

Figure 5.2.3.1: Total Market Share for Asia-Pacific

Figure 5.2.3.2: Total Market Share for Asia-Pacific in 2014

Figure 5.2.3.3: Total Market Share for Asia-Pacific in 2019

Figure 5.2.3.4: Forecast Total Market Share for Asia-Pacific, 2014-2019, % of overall workloads

Figure 5.2.4.1: Total Market Share for Middle East and Africa

Figure 5.2.4.2: Total Market Share for Middle East and Africa in 2014

Figure 5.2.4.3: Total Market Share for Middle East and Africa in 2019

Figure 5.2.5.1: Total Market Share for Latin America

Figure 5.2.5.2: Total Market Share for Latin America in 2014

Figure 5.2.5.3: Total Market Share for Latin America in 2019

1.1. Chapter Breakdown

The chapters in this report cover the following topics:

Chapter 1 provides an executive summary and overview of the global cloud markets, explaining research and analysis methods and highlighting key drivers and restraints

Chapter 2 introduces cloud computing, outlining its various features, principal models, and key deployment models. It also examines issues surrounding security issues and emphasises benefits and concerns in detail.

Chapter 3 focusses on the main research and development areas over the forecast period 2014-2019 in terms of infrastructure, platforms, services, and security, foregrounding the capabilities and challenges represented by these developments. It also utilises core data to forecast the potential gains and costs of these developments.

Chapter 4 looks at some of the leading companies in the global cloud market in terms of size and type, as well as the state of newer market entrants, providing an overview of their core product and service offerings

Chapter 5 investigates the state of the global cloud market by region, providing forecasts on various datasets over the period 2014-2019 in these terms

Chapter 6 examines the political, economic, social and technological implications of the cloud computing market over the period 2014-2019, particularly with regard to government, healthcare, education, telecommunications, finance, and media

Chapter 7 gives transcripts of interviews with four companies in the global cloud market, revealing case studies based on expert opinion

1.2. Research and Analysis Methods

This report harnesses primary and secondary research. This study provides world and regional market forecasts and analyses of market drivers and restraints and principal developments. We also provide geographical breakdowns of the world market. Our analyses are original, benefiting from our consulting experts in industry, academia, and other roles such as technology incubators. Our analysts also refer to industry, data, company reports, new and trade articles, public health data, policy documents and other analysts' views. We conduct primary research by telephone interviews, correspondence, and face-to-face discussions.

Our report contains quantitative and qualitative analytical content, covering the present and future of technology markets. Although our report is market-centred, we include technical information. We include analyses of under-met market needs from the present looking forward. Our revenue forecasting assesses the magnitude and effects of driving and restraining forces, to determine annual growth and total sales across a series of years. We base our forecasts upon knowledge of financial performance, product/technology characteristics and other factors, as well as data and opinions gathered from our primary and secondary research.

Services and vendors listed in this report are provided for reference and constitute neither a complete list, necessarily, nor an endorsement of any specific vendor or service. Revenue figures in this report are for the respective world market, or market segment, unless stated otherwise. Tabulated revenue values for later years (2014 onwards) are whole-year predictions (January to December). Because of rounding, values may not add up exactly. Compound annual growth rate (CAGR) values are for 2014-2019. In this report, all revenue figures and market values are expressed in USD. Figures that did not originate in USD were calculated via current currency exchange rates; these rates were correct at point of publication and are subject to change.

5.2.4 Middle East and Africa

The aforementioned trends in North America, Asia-Pacific and Europe are to be considered in relation to the generally increased competitiveness of emerging regions such as the Middle East and Africa as well as Latin America.

GMR Data forecasts that the Middle East and Africa will grow over four-fold over 2014-2019, from \$5.5bn in 2014 to \$XXbn in 2019, at a CAGR of nearly XX%. Although global workloads in exabytes will increase at a CAGR of 60%, leading global growth rates over the period, the market share of overall workloads will decrease from 4% to 2% over the period, as investment and R&D in data centres is not estimated to apply to this region, although some of it may originate in this region. Growth in parts of the UAE, as well as Israel and the east coast of Africa, will drive R&D over the next 5-10 years.

Revenue growth in IaaS as well as business applications and hosted services will be particularly strong over the period, with CAGRs of between XX% and XX%. Web applications will grow more modestly, at XX%, but still suggests a substantial increase in activity over the public and private cloud. Innovation in these fields, then, will be strong and represent considerable investment opportunities for culturally-specific initiatives. By 2019, the market share between these aspects of enterprise cloud computing will be more balanced and regionally sustainable than in 2014.

Table 5.2.4.1: Total Market Share for Middle East and Africa (\$bn)							
Year	2014	2015	2016	2017	2018	2019	CAGR (%)
IaaS	1.5	XX	XX	XX	XX	XX	XX
Web	2	XX	XX	XX	XX	XX	XX
Hosted	0.5	XX	XX	XX	XX	XX	XX
Business	1.5	XX	XX	XX	XX	XX	XX
Total	5.5	XX	XX	XX	XX	XX	XX

GMR Data, 2014

Figure 5.2.4.2: Total Market Share for Middle East and Africa in 2014 (\$bn)

