

# NORTH AMERICA HEALTHCARE CLOUD COMPUTING MARKET

– [By Applications (EMR, PACS, RIS, RCM, APB), By Deployment (Private, Public, Hybrid), By Service (SaaS, IaaS), By Pricing (Pay-As-You-Go, Spot), By End Users (Provider, Payers)]

– Forecast to 2018

## Report Description

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Related Reports

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# 1 INTRODUCTION

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## 1.1 OBJECTIVES OF THE STUDY

- To define and measure the North American market for cloud computing in healthcare, based on applications, deployment modes, service models, components, pricing models, end users, and geography
- To identify the key micro-markets and their drivers within the North American healthcare cloud market, which are expected to show impressive growth in the coming years
- To strategically analyze the market in terms of applications, services, and geography
- To identify market trends, gaps, and opportunities for all the stakeholders
- To strategically analyze the market structure and profile in detail all the key players in the micro-markets of the North American healthcare cloud computing market
- To track and analyze competitive developments such as alliances, joint ventures, mergers and acquisitions, client acquisitions, new product developments, and research and developments

## 1.2 REPORT DESCRIPTION

The healthcare industry has a plethora of information in the form of patient records, medical images, patient bills, prescriptions, insurance claims, and research data. The task for providers and other healthcare organizations is not only to store this data but also to process and maintain this data by using IT technology and make it available on-demand and across boundaries. For the healthcare industry, cloud computing as a technology has four offerings in the form of computation, storage, memory, and networking. Cloud computing is increasingly being adopted in the healthcare industry, owing to the increasing pressure to curtail healthcare costs, while maintaining the quality of care provided to patients.

The major factors driving this market are the legislative reform of the Patient Protection and Affordable Care Act (PPACA), the requirement of demonstrating meaningful use, ICD 10

transition, federal mandates on insuring every U.S. citizen, and proliferation of new payment models. Moreover, the benefits provided by cloud computing such as cost reduction, positive returns on investment, improved accessibility and mobility, improvements in storage technology, and greater flexibility and scalability of data are resulting in the increase in deployment of applications on cloud.

The North American Healthcare Cloud Computing Market is segmented on the basis of applications, deployment modes, services, pricing model, components, end users, and geography. The applications market includes clinical and non-clinical information systems applicable for the healthcare providers and payers industry. Clinical information systems are further classified into EMR, PACS, CPOE, RIS, LIS, PIS, and Others. Non clinical information systems include revenue cycle management, automatic patient billing, payroll, claims management, cost accounting, and others.

The market by deployment model is segmented into private, public, and hybrid clouds. The services market in cloud computing comprises software-as-a-service (SaaS), infrastructure-as-a-service (IaaS), and platform-as-a-service (PaaS). The pricing model market includes two majorly adopted models which are Pay-As-You-Go and Spot Pricing. The cloud computing market, by component, includes software, hardware, and services. The North American Healthcare Cloud Computing market by end user is categorized into healthcare payers and providers. Based on geography, the market is divided into the U.S. and Canada.

The major players in the North American Healthcare Cloud Computing Market include athenahealth, Inc., CareCloud Corporation, Carestream Health, Inc., ClearData Networks, Inc., Cisco Systems, Inc., Dell, Inc., EMC Corporation, Global Net Access (GNAX) Health, Hewlett-Packard Company, IBM Corporation, Iron Mountain, Inc., Merge Healthcare, Inc., Microsoft Corporation, Oracle Corporation, and VMware, Inc.

### 1.3 MARKETS COVERED

#### North American healthcare cloud computing market, by application

- Clinical Information Systems (CIS)
  - Electronic Medical Records (EMR)
  - Picture Archiving and Communication System (PACS)
  - Radiology Information System (RIS)
  - Computerized Physician Order Entry (CPOE)
  - Laboratory Information System (LIS)
  - Pharmacy Information System (PIS)
  - Others
- Non Clinical Information Systems (NCIS)
  - Revenue Cycle Management (RCM)
  - Automatic Patient Billing (APB)
  - Cost Accounting
  - Payroll
  - Claims Management
  - Others

#### North American healthcare cloud computing market, by pricing model

- Pay-as-you-go
- Spot Pricing

#### North American healthcare cloud computing market, by deployment model

- Public Cloud
- Private Cloud
- Hybrid Cloud

#### North American healthcare cloud computing market, by component

- Software
- Hardware
- Services

#### **North American healthcare cloud computing market, by service model**

- Software-as-a-Service (SaaS)
- Platform-as-a-Service (PaaS)
- Infrastructure-as-a-Service (IaaS)

#### **North American healthcare cloud computing market, by service model**

- Providers
- Payers

#### **North American healthcare cloud computing market, by geography**

- U.S.
- Canada

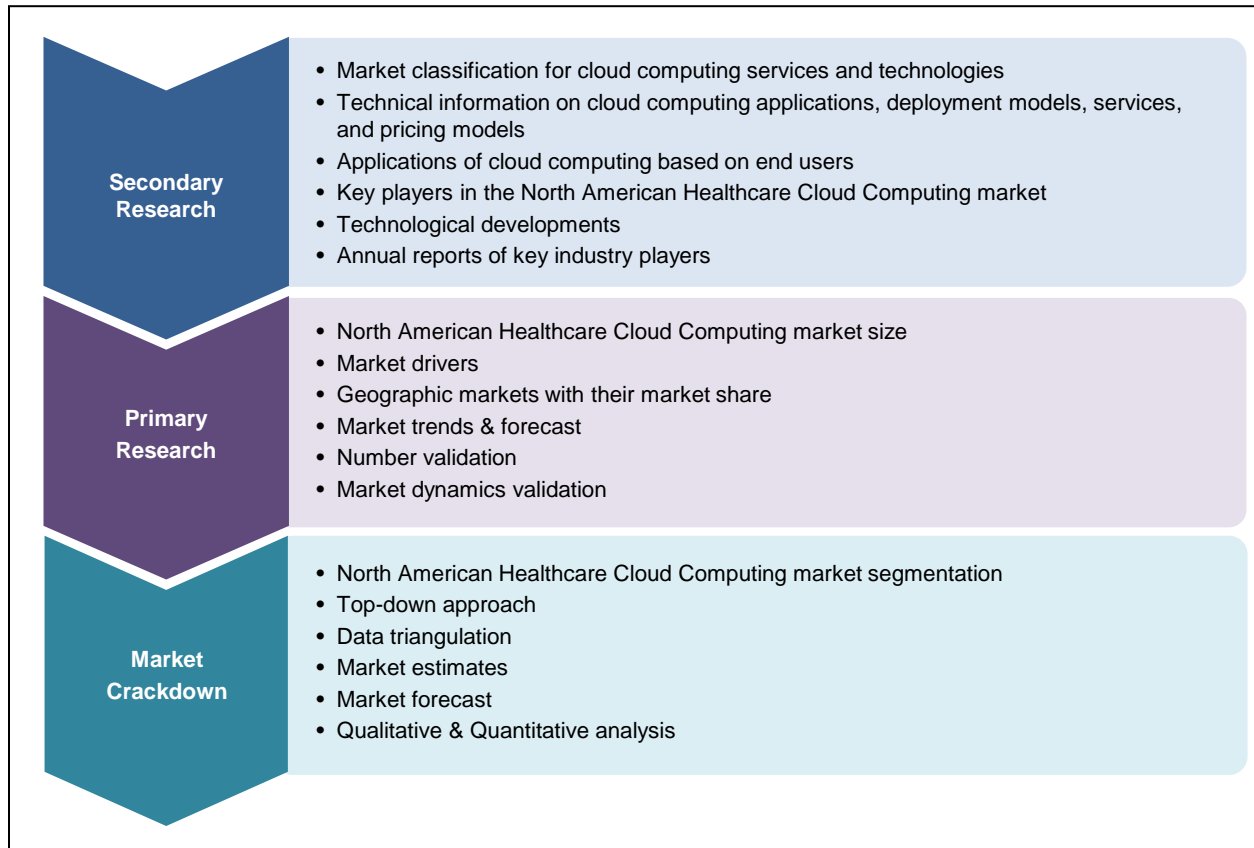
### **1.4 STAKEHOLDERS**

- Healthcare IT Service Providers
- Healthcare Insurance Companies/Payers
- Healthcare Institutions/Providers (Hospitals, Medical Groups, Physician Practices, Diagnostic Centers, and Outpatient Clinics)
- Research and Development (R&D) companies
- Business research and consulting service providers
- Medical research laboratories
- Research and Consulting Firms
- Venture Capitalists
- Government Agencies
- Life Science Companies
- Health Information Exchanges
- Accountable Care Organizations

## 1.5 RESEARCH METHODOLOGY

**FIGURE 1**

### RESEARCH METHODOLOGY STEPS



Source: MarketsandMarkets Analysis

## 1.5.1 SECONDARY AND PRIMARY RESEARCH METHODOLOGY

### 1.5.1.1 Secondary Research

Secondary sources were used to identify and collect information useful for this extensive technical and commercial study of the North American Healthcare Cloud Computing market.

The following non-exclusive list of secondary sources was referred to:

#### **Associations/Organizations/Institutes:**

Cloud Computing Association (CCA), Healthcare Information and Management Systems Society (HIMSS), American Health Information Management Association (AHIMA), American Medical Informatics Association (AMIA), California Association of Public Hospitals and Health Systems (CAPH), Federally Qualified Health Centers (FQHCs), General Physician Hospital Organization (GPHO), The Cloud Computing Association (CCA), The Institute of Electrical and Electronics Engineers (IEEE) Computer Society, Certification Commission for Health Information Technology (CCHIT), Information Technology Association of Canada (ITAC), American Medical Informatics Association (AMIA), American Statistical Association, and Canadian Health Care Anti-fraud Association (CHCAA), among others

- **Key Players:** Annual Reports/SEC Filings, Investor Presentations, Press Releases
- **Other Sources:** White Papers, Journals/Magazines, and News Articles, among others
- **Paid Databases:** Factiva, Thomson Reuters, Hoovers, and others

This information was used to gauge the technical, market-oriented, and commercial aspects of the North American Healthcare Cloud Computing market.

The secondary research involved three major activities, including:

#### **Background Study**

- To build a basic understanding of cloud computing applications and services
- MarketsandMarkets data repository analysis, followed by drawing and updating data tables by using current information



- Identifying data gaps and key players in each of the segments

### **Market Understanding**

- Identifying stakeholders and key decision makers in different geographies
- Selection criteria of key decision makers
- Analyzing competitive landscape
  - Major players with their product portfolios
  - Strategies adopted by players to position their products
- Geographic market analysis

### **Trends**

- Identifying and analyzing the key products, services, and trends to draw notes and include the consideration in the final forecasts
- Major drivers, barriers, and opportunities prevailing in the market

#### **1.5.1.2 Primary Research**

Industry experts such as CEOs, presidents, vice presidents, directors, marketing directors, marketing managers, and related key executives from various key companies and organizations in the healthcare cloud computing industry were interviewed, to obtain and verify both qualitative and quantitative aspects of this research study.

- A robust primary research methodology has been adopted to validate the contents of the report and to fill in the gaps
- A telephonic and e-mail communication mode was adopted to conduct interviews (questionnaires were designed and sent to primary participants as per their convenience)



**FIGURE 2**

**SAMPLING FRAME: PRIMARY RESEARCH**

Key Opinion Leaders		U.S.	Canada	Total
Presidents, CEOs, Vice Presidents, Directors, Senior Managers	Supply Side	XX	XX	<b>XX</b>
Product/Sales/Marketing/Business Development/HCIS Service Delivery/Project Managers or Specialists, Business Intelligence Consultants		XX	XX	<b>XX</b>
Healthcare providers (Hospitals, Medical Groups, Physician Practices, Diagnostic Centers, and Outpatient Clinics)	Demand Side	XX	XX	<b>XX</b>
Healthcare payers (Health Insurance Companies)		XX	XX	<b>XX</b>
<b>Total</b>		<b>XX</b>	<b>XX</b>	<b>XX</b>

Source: MarketsandMarkets Analysis

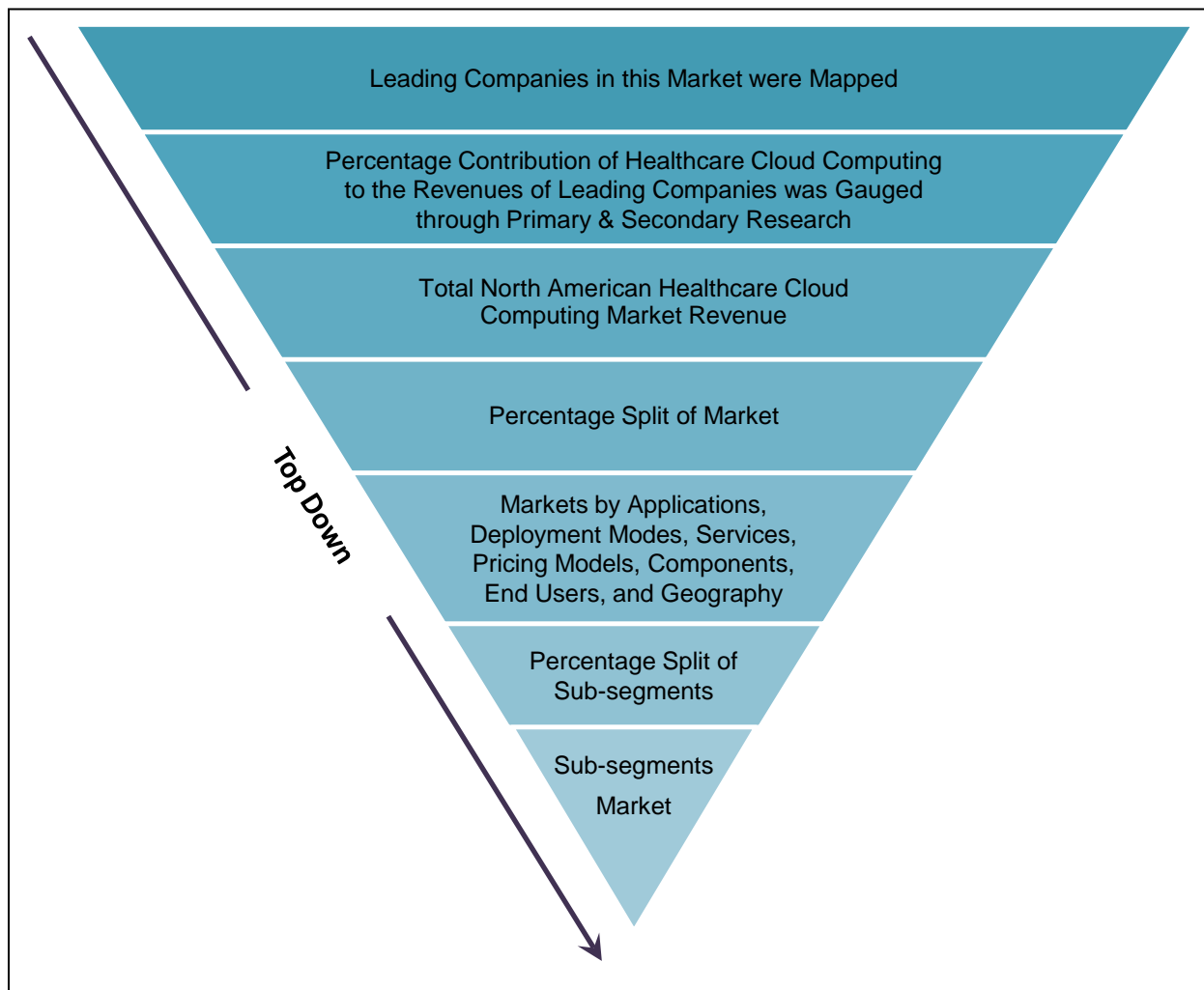
**1.5.2 MARKET SIZE ESTIMATION**

A top-down approach was used to arrive at the North American Healthcare Cloud Computing market size. A bottom-up approach was not feasible for this research study. This market is highly fragmented and healthcare cloud computing revenue for each sub-segment was difficult to obtain. Most of the companies in this market are privately owned and do not disclose their revenues in the public domain. Other big giants such as IBM, Oracle, and Microsoft do not provide their revenues from the healthcare cloud computing market in their annual reports. Thus, extensive primary research was done to derive the healthcare cloud computing revenue of market players whose revenue is not available publicly. In addition, primary research in terms of direct competitors of companies along with secondary data (developments, product offerings, investments) was utilized to determine the leading players in this market.

The following figure shows an illustrative representation of the overall market size estimation of the North American Healthcare Cloud Computing Market.

**FIGURE 3**

**MARKET SIZE ESTIMATION METHODOLOGY**



Source: MarketsandMarkets Analysis

The total market size was triangulated by calculating the percentage share of healthcare in the global cloud computing market, followed by percentage share of the North American market in the global healthcare cloud computing market.

All the percentage shares, splits, and breakdowns were determined by using secondary sources and verified through primary sources. All the possible parameters that affect the markets covered in this research study have been accounted for, viewed in extensive detail,

verified through primary research, and analyzed to get the final quantitative and qualitative data. This data is consolidated and added with detailed inputs and analysis from MarketsandMarkets.

### 1.5.3 MARKET FORECAST

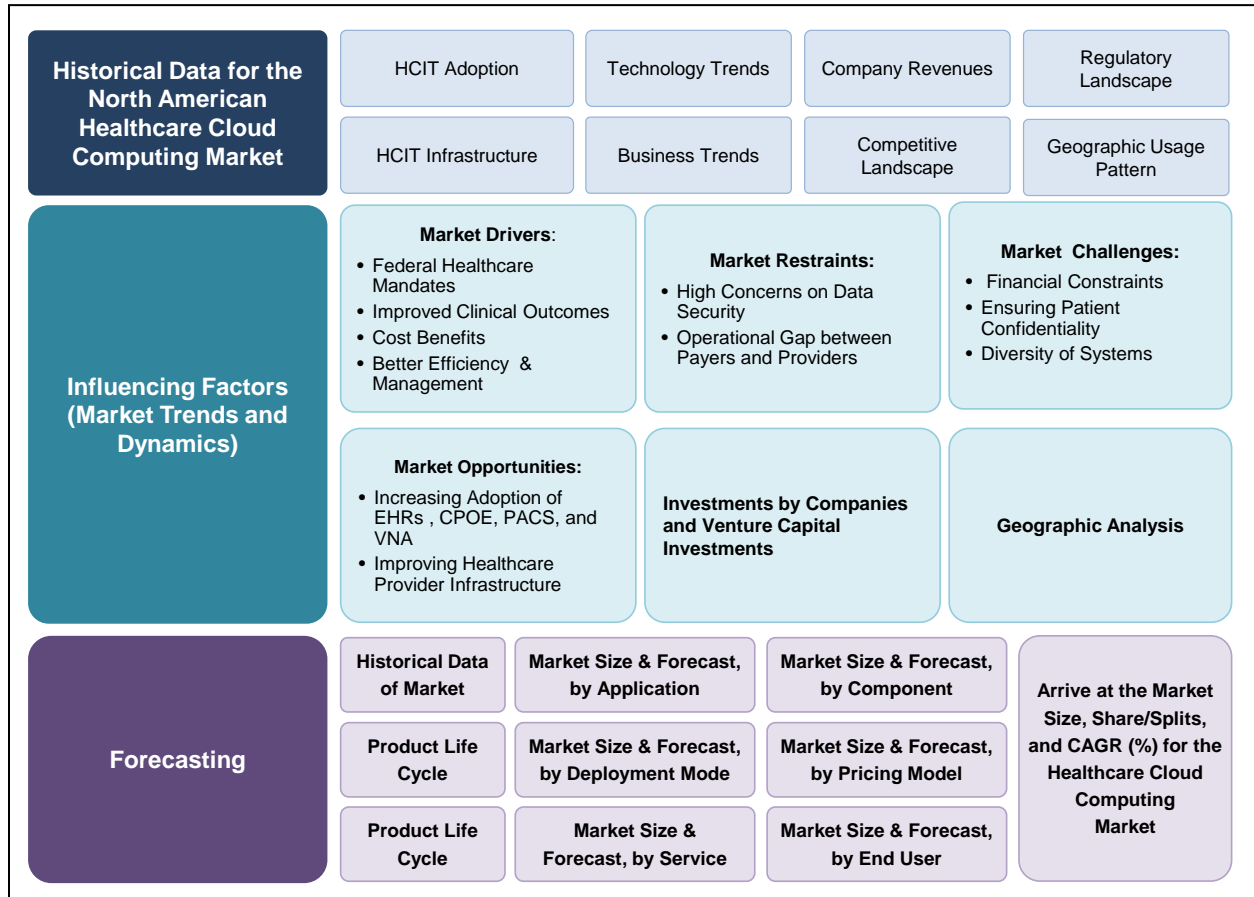
The market forecasts for various segments and sub-segments have been derived on the basis of:

- Federal mandates (HIPAA, HITECH Act, ICD 10 conversion, Meaningful Use)
- Healthcare infrastructure and trends
- Conferences/awareness programs
- Statistics on number of healthcare providers, by geography
- Technological advancements/application area horizon/competitive intensity
- Traction areas in respective segments and sub-segments
- Issues involved/barriers in adoption

The following illustrative figure shows the market forecast methodology applied in making this report:

**FIGURE 4**

**MARKET FORECAST METHODOLOGY**



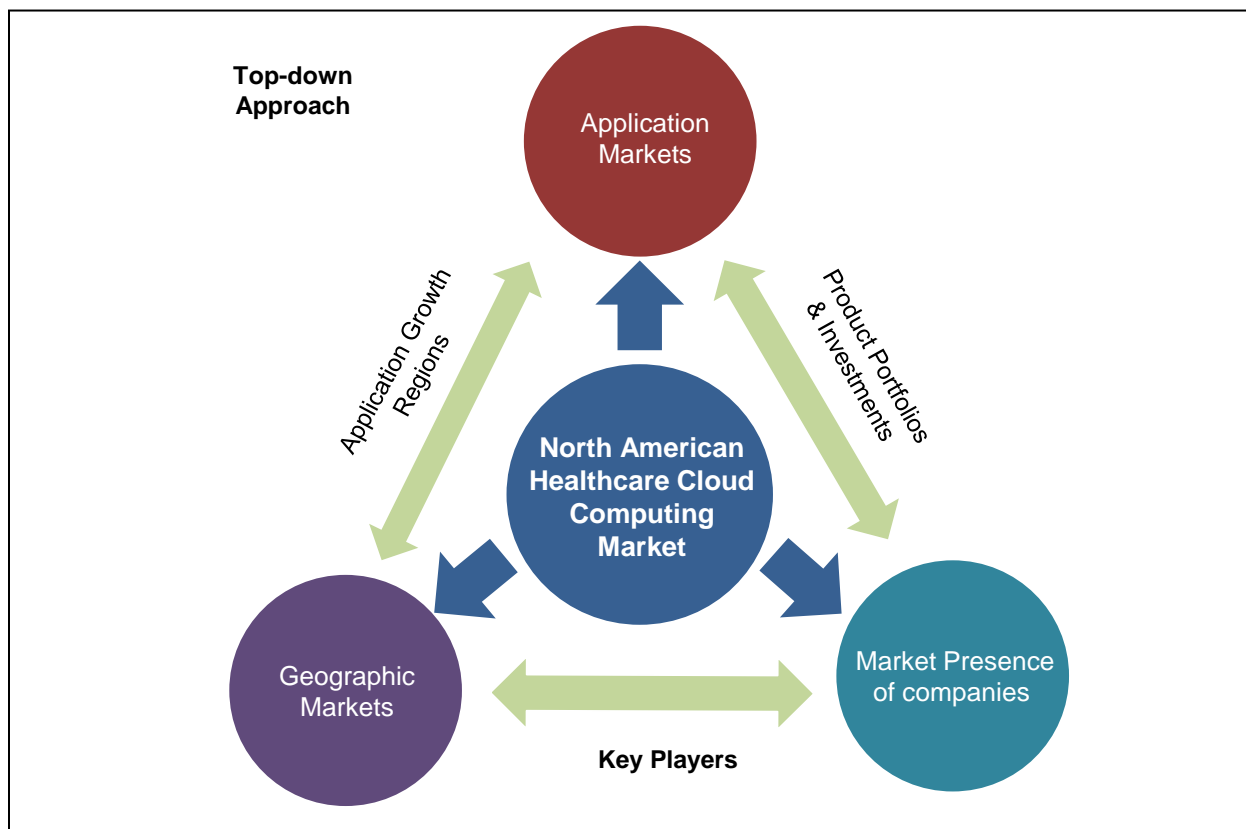
Source: MarketsandMarkets Analysis

**1.5.4 MARKET CRACKDOWN & DATA TRIANGULATION**

After arriving at the overall market size from the market size estimation process explained above, the total market was split into several segments and sub-segments by various types of classifications. In order to complete the overall market engineering process and to arrive at the exact statistics for all the market segments and sub-segments, the data triangulation and market crackdown procedures explained below were implemented, wherever applicable. The following figure shows the market crackdown structure and the data triangulation methodology implemented in the market engineering process for making this report.

**FIGURE 5**

**DATA TRIANGULATION METHODOLOGY**



Source: MarketsandMarkets Analysis

The figure shows the market statistics model derived for the major segments of the market (by application, deployment mode, services model, pricing model, component, end user, and geography) using the overall healthcare cloud computing market statistics, via a top-down procedure. The percentage splits of the sub-segments categorized under the applications, deployment mode, services model, pricing model, component, end user, and geographic markets were used to arrive at the market size of each individual sub-segment.

Thus, data was triangulated among seven major categories, namely, market size by application, deployment mode, services model, pricing model, component, end user, and geography.

#### 1.5.4.1 Key Data Points from secondary sources

Data Point	Description
Market revenue	Company Financials, SEC Filings, Magazines, Journals, Press Releases, Paid Databases, Expert Interviews, and MarketsandMarkets Data Repository
Market revenue of companies	Annual Reports, SEC Filings, Company Websites, Investor Presentations, Public Databases, and MarketsandMarkets Data Repository
Qualitative information (market dynamics and market trends)	Annual Reports, SEC Filings, Cloud Computing Association (CCA), Healthcare Information and Management Systems Society (HIMSS), Centers for Disease Control and Prevention (CDC), California Association of Public Hospitals and Health Systems (CAPH), Federally Qualified Health Centers (FQHCs), General Physician Hospital Organization (GPHO), The Cloud Computing Association (CCA), The Institute of Electrical and Electronics Engineers (IEEE) Computer Society, Centers for Medicare & Medicaid Services (CMS), Journals, Press Releases, Investor Presentations, Healthcare Cloud Computing News Forums, Expert Interviews, and MarketsandMarkets Analysis

#### 1.5.4.2 Key Data Points from Primary sources

Data Point	Description
North American Healthcare Cloud Computing Market	The current contribution of the North American market to the global healthcare cloud computing market is XX%–XX%. The adoption of clinical information systems (CIS) is increasing as compared to non-clinical information systems (NCIS), mainly due to federal mandates. This has been driving the market for private clouds and SaaS services.
North American Healthcare Cloud Computing Market, by Geography	The U.S. was confirmed to account for the largest share (XX%–XX%) in the market and is expected to grow at the highest CAGR, owing to the increasing awareness about the

Data Point	Description
	benefits of cloud technology and requirement of digitization of patient records.
Drivers of the Market	Federal mandates for converting all patient and medical records to the digital format and cost benefits were identified as the main drivers by primary sources. These drivers are responsible for the high growth (CAGR of XX% from 2013 to 2018) of the market.
Restraining Factors	Although cloud technology is considered revolutionary for the healthcare market, primary sources indicated that security and maintenance of privacy of patient data are the restraining factors for the growth of this market.
Market Share Analysis	<p>The major players in the healthcare cloud computing market are athenahealth, Inc., CareCloud Corporation, ClearData Networks, Inc., IBM Corporation, Oracle, and Rackspace Holdings, among others</p> <p>It has been confirmed from the primary sources that the cloud computing market in healthcare has players not accounting for a market share of more than XX%. Hence, it is a fragmented market.</p>



### 1.5.5 ASSUMPTIONS

Particular	Description
Overall Market Value	Market value (revenue) is calculated based on bottom up approach with the summation of the individual markets for applications that include clinical and non-clinical applications. This market has also been triangulated as per the overall trend in the U.S. cloud computing market in healthcare.
General Assumptions	<p>There will be no drastic changes in the market scenario during the forecast period</p> <p>There will be no changes in regulations which have a huge effect on the industry</p>

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## SAMPLE TABLES

**TABLE 1**

### NORTH AMERICAN HEALTHCARE CLOUD COMPUTING MARKET, BY APPLICATION, 2011–2018 (\$MILLION)

Application	2011	2012	2013	2018	CAGR% (2013–2018)
CIS	XX	XX	XX	XX	XX
NCIS	XX	XX	XX	XX	XX
Total	XX	XX	XX	XX	XX

Source: Press Releases, Cloud Computing Association (CCA), Healthcare Information and Management Systems Society (HIMSS), Centers for Disease Control and Prevention (CDC), California Association of Public Hospitals and Health Systems (CAPH), General Physician Hospital Organization (GPHO), The Cloud Computing Association (CCA), The Institute of Electrical and Electronics Engineers (IEEE) Computer Society, Expert Interviews, MarketsandMarkets Analysis

**TABLE 2**

### NORTH AMERICAN HEALTHCARE CIS MARKET, BY GEOGRAPHY, 2011–2018 (\$MILLION)

Region	2011	2012	2013	2018	CAGR% (2013–2018)
U.S.	XX	XX	XX	XX	XX
Canada	XX	XX	XX	XX	XX
Total	XX	XX	XX	XX	XX

Source: Press Releases, Cloud Computing Association (CCA), Healthcare Information and Management Systems Society (HIMSS), Centers for Disease Control and Prevention (CDC), California Association of Public Hospitals and Health Systems (CAPH), General Physician Hospital Organization (GPHO), The Cloud Computing Association (CCA), The Institute of Electrical and Electronics Engineers (IEEE) Computer Society, Expert Interviews, MarketsandMarkets Analysis

**TABLE 3**

**NORTH AMERICAN CLOUD COMPUTING MARKET REVENUE,  
BY DEPLOYMENT MODEL, 2011–2018 (\$MILLION)**

Deployment Model	2011	2012	2013	2018	CAGR% (2013–2018)
Private	XX	XX	XX	XX	XX
Public	XX	XX	XX	XX	XX
Hybrid	XX	XX	XX	XX	XX
Total	XX	XX	XX	XX	XX

Source: Press Releases, Cloud Computing Association (CCA), Healthcare Information and Management Systems Society (HIMSS), Centers for Disease Control and Prevention (CDC), California Association of Public Hospitals and Health Systems (CAPH), General Physician Hospital Organization (GPHO), The Cloud Computing Association (CCA), The Institute of Electrical and Electronics Engineers (IEEE) Computer Society, Expert Interviews, MarketsandMarkets Analysis

## RELEATED REPORTS

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➤ **WIRELESS HEALTH MARKET (WLAN, WMAN, WPAN, SENSORS, SMARTPHONE'S, TABLET PC, MOBILE APPS) - GLOBAL TRENDS, OPPORTUNITIES, COMPETITIVE LANDSCAPE & FORECASTS (2013 - 2018)**

According to the West Wireless Health Institute (WWHI), wireless health may be defined as “the use of wireless technologies for personal health management and health care delivery. Encompasses solutions that facilitate continuous access to health care information, expert advice, or therapeutic intervention enabled by ubiquitous telecommunication networks. Example applications include real-time monitoring, medication compliance and imaging”.

➤ **MOBILE HEALTH APPS & SOLUTIONS MARKET BY CONNECTED DEVICES (CARDIAC MONITORING, DIABETES MANAGEMENT DEVICES), HEALTH APPS (EXERCISE, WEIGHT LOSS, WOMEN'S HEALTH, SLEEP AND MEDITATION), MEDICAL APPS (MEDICAL REFERENCE) – GLOBAL TRENDS & FORECAST TO 2018**

mHealth is a successful integration of mobile technology and healthcare services that entail a revolution in the global healthcare solutions market. The global mHealth market is estimated to be valued at \$6.6 billion in 2013 and is expected to reach \$20.7 billion by 2018 at a healthy CAGR of 25.5%.



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