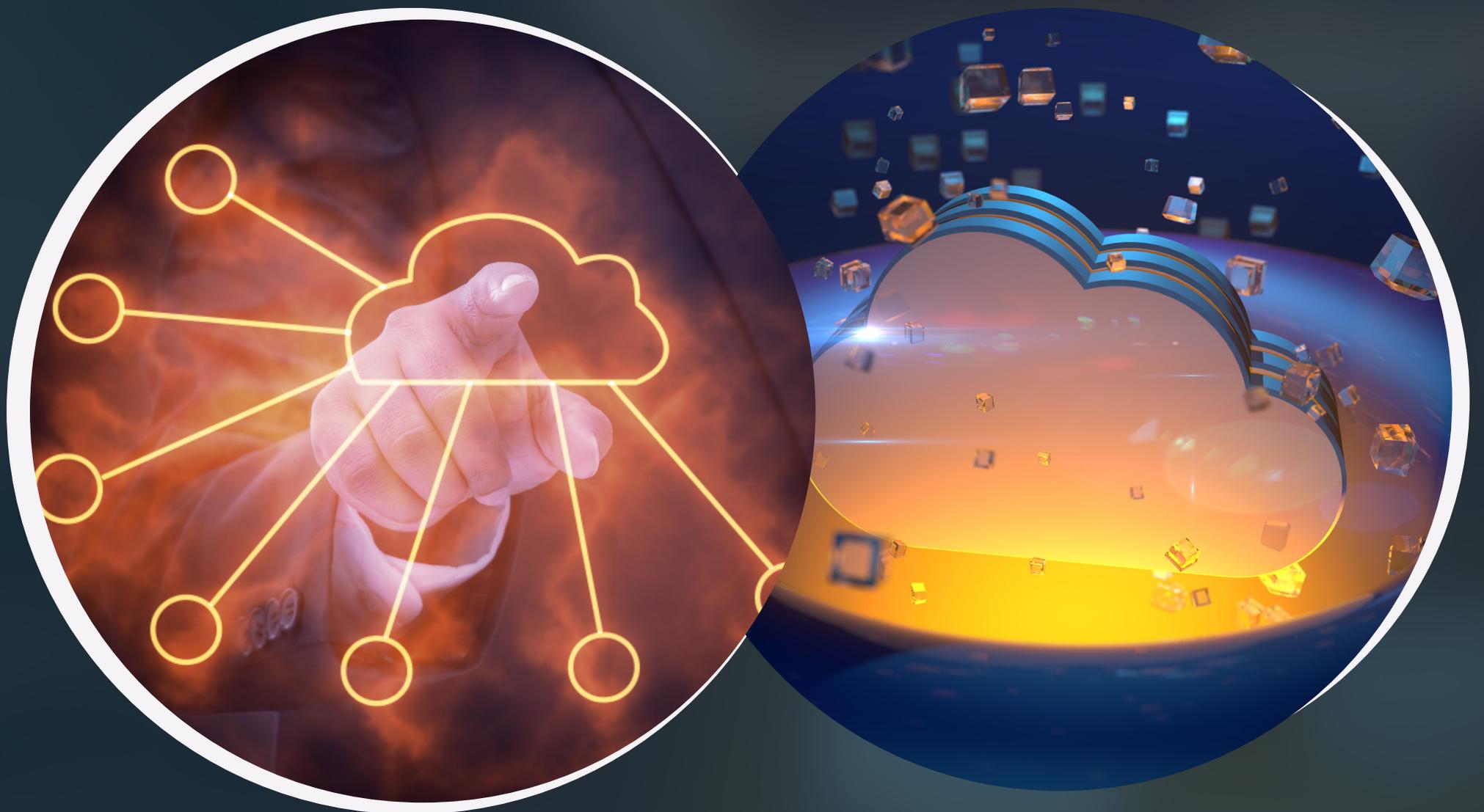


Cloud Computing: Shaping the Future of Healthcare



»» Swipe to read more

Healthcare sector has been at the forefront of adopting cloud technology

Cloud computing in healthcare is the practice of storing, managing & **processing health-related data on remote servers** in contrast to setting up an on-site data center with servers or hosting data on a PC

For both patients & physicians, perks of cloud computing go hand in hand. **Cost savings, improved privacy, enhanced patient care** via collaboration & interoperability are just a few of the positives

83% of healthcare industry is already implementing cloud services in some form post 2020, with IT, BFSI, Telecom & media industries driving explosive growth

As per reports, global spending on cloud computing in healthcare sector is expected to be ~ **\$35 Bn in 2022**

Global Cloud Computing Market

CAGR 16%
(2021-2026)



Thinking of deploying a cloud? Here's how you can

By Distribution Model

Software as a service (SaaS)

Cloud provider makes complete software for client & deploys system remotely



Infrastructure as a service (IaaS)

Complete infrastructure is provided by service provider including OS



Platform as a service (PaaS)

Service provider deploys complete solution, the cloud is provided by the service provider, client is free to operate/create their own operations/applications



By Deployment Model

Public

General public can use the technology



Private

Only one particular client can use the technology



Hybrid

Technology combines several clouds of different access options by use of encryption keys



Community

A particular group with similar interests & objectives can use technology

Indian Govt cloud for data sharing

Revenue of global healthcare cloud market was **\$11.6 Bn in 2020**, with SaaS holding lion's share

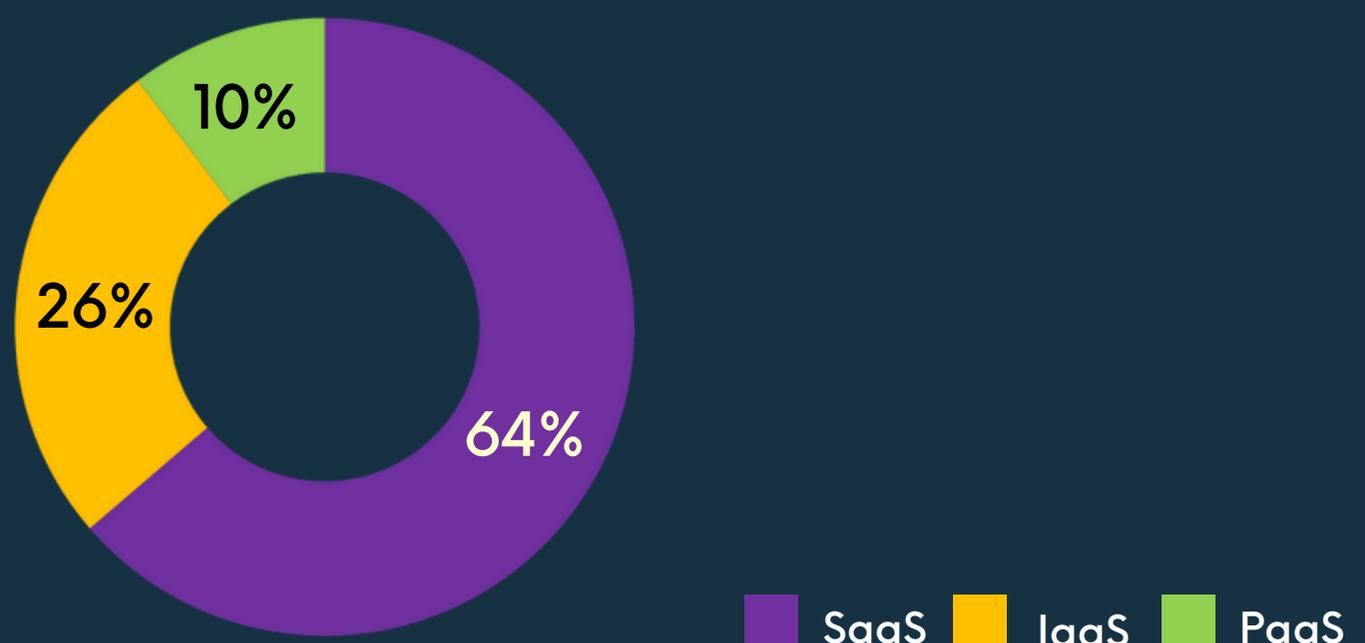
Growing number of providers & payors transitioning to more SaaS healthcare computing services to manage rising inpatient data has resulted in **high usage of SaaS** cloud services

With the **2nd largest market share**, IaaS adoption has accelerated to meet patient demands for online and digital interactions

PaaS is catching up to SaaS & IaaS as enterprises & digital health start-ups continue to invest towards novel business models to suit consumer demand for healthcare services at any time, from any location

Cloud service providers have been expanding relationships with Independent Software Vendors, System Integrators, Cloud Managed Service Providers, telecommunications, & network service providers

2020 Global Market Share of Cloud Healthcare Service



How and who of the Healthcare Clouds

Streamline & strengthen security

Reduced risk of loss of patient data, enhances patient care



Record Keeping

Collaboration amongst hospitals & HCPs to leverage synergies



Cost-effective

Shifts IT budgets from CapEx to OpEx, hence focus funds on patient care also reduces data storage costs

Big Data & Analytics

Process patient data to predict diseases & patients at risk



Medical Research & RWE

Researchers can leverage data points to gather actionable insights

Scalability & Connected Medical Devices

HCP perform remote procedures, interconnect medical devices to leverage synergies



Top Healthcare Cloud Players



AWS leads \$180 Bn global cloud market with an outstanding growth

What works for



Has about **18,000 offerings** under its belt

Cloud app integration with **MacOS, Android and other software's**

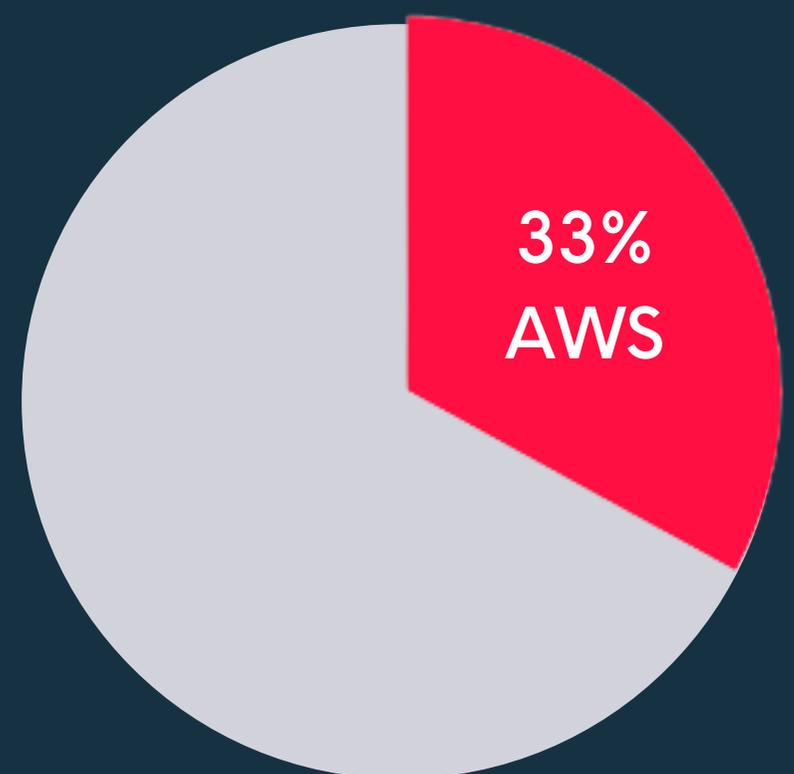
Developer & manager tools in single cloud

Available in **44 different geographies**

Flexible pricing model with decentralized Mx of data (provides multi-region backups)

Cloud Computing Global Market Share

(Q4 2021)



Amazon HealthLake

HealthLake is a fully managed, HIPAA-compliant service that enables healthcare/life sciences clients to **consolidate their health data** from various silos & formats into a single AWS data lake & extract insights using analytics & ML

When compared to other cloud services, it offers healthcare interoperability, allowing clients to **develop & see dashboards** as they see fit

Riding on Azure cloud growth, Microsoft generated a revenue of **\$46 Bn**

What works for Azure

Enhanced flexibility and speed with integrated delivery pipeline

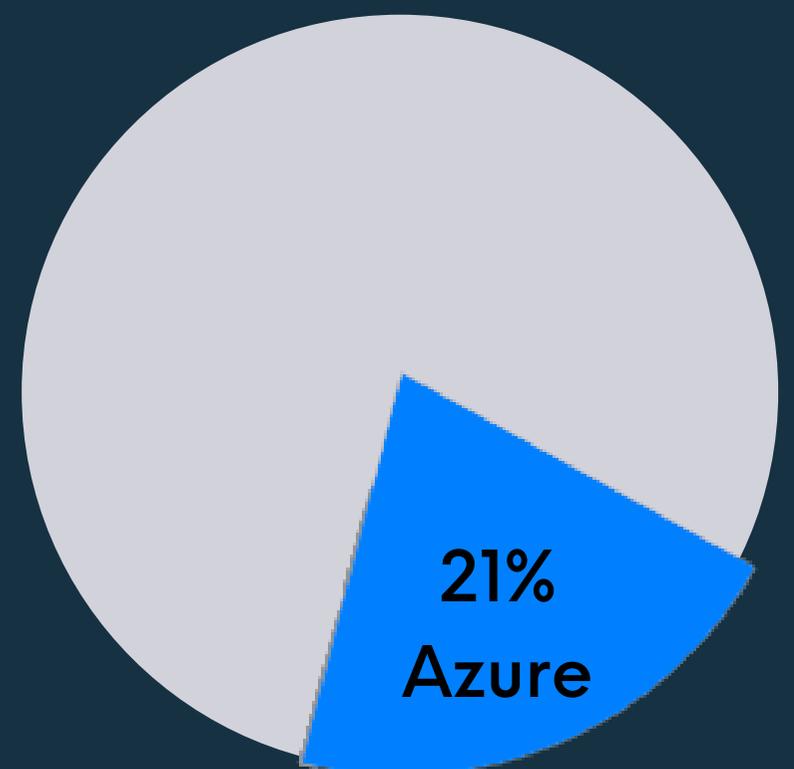
Built-in apps that support variety of coding languages

Low down-time owing to robustness of servers with **Low on-demand pricing**

Has almost **80% of Fortune 500** companies as its customers like Johnson Controls, Polycom, Fujifilm, HP, Honeywell, Apple

Cloud Computing Global Market Share

(Q4 2021)



Microsoft Azure Cloud

Helps healthcare providers by employing complex SQL & Non SQL queries (coding) to gather deeper insights using its Azure architecture

Microsoft Healthcare cloud has announced addition of **Azure Healthcare APIs** to its interoperable data services for health & life sciences industries

Customers using PaaS can use Azure Healthcare APIs to ingest, manage & persist data on Microsoft Cloud

Ranking 3rd, Alpha-bets big on Google health cloud

What works for

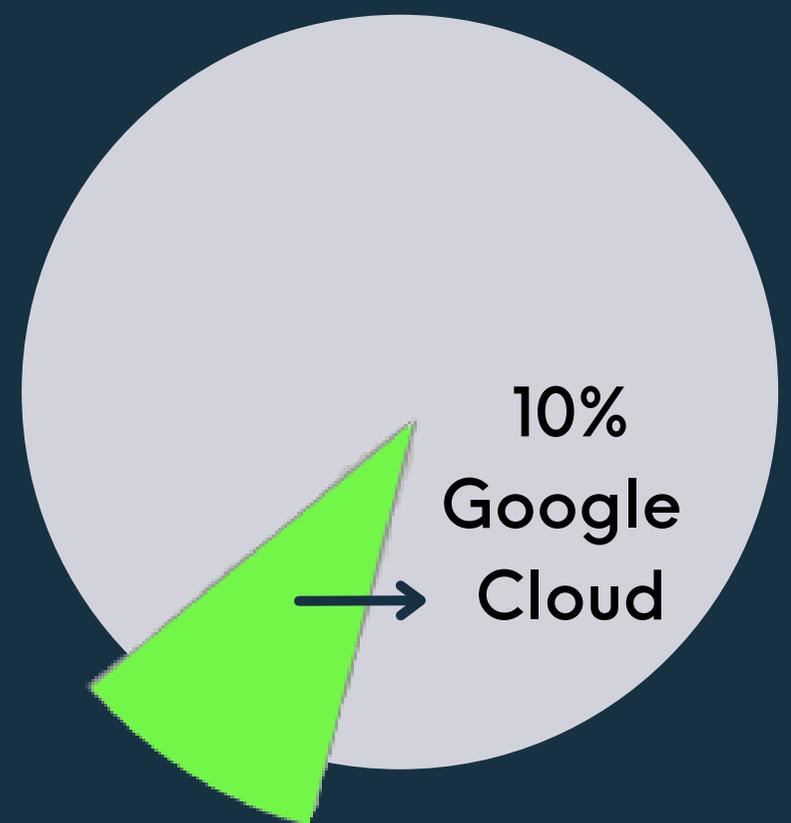
Massive adv is their commitment to achieving uptime upwards of **99.99%**

Most significant difference between Google Cloud hosting and other providers is their worldwide network

Their network is easily one of the **largest** in world, rivalling both Microsoft & Amazon's global infrastructure

Cloud Computing Global Market Share

(Q4 2021)



Google Cloud Platform

In 2020, Google launched **Cloud Healthcare API**, a service that allows health care apps & solutions developed on Google Cloud to share data

In 2021, Google cloud introduced new interoperability platform: **Healthcare Data Engine**, built on core features of cloud healthcare API

It makes healthcare data more useful by enabling an interoperable, longitudinal record of patient data & giving clinical insights in **FHIR** format, the healthcare industry standard

IBM now plays **Sherlock** in the Healthcare Market

What works for



Actively works with multiple service providers to provide agility, uses “**data first**” approach

Pricing policy is highly flexible, provides mix & match pricing based on client usage

Only cloud provider with a specialized hardware-security module that uses the highest-level encryption certification & keep-your-own-key (KYOK) technology

Cloud Computing Global Market Share

(Q4 2021)



IBM Cloud

IBM Watson Health uses AI, data analytics, cloud computing, and other technologies to aid customers with medical & clinical research, and healthcare solutions

Currently, **3000+ organizations** are using IBM Watson cloud!

Going forward, **IBM Hybrid is the best bet** for IBM cloud market, as it provides agility to IBM Watson Health by helping it work on multiple environments unlike other clouds

Rapid inroads of cloud services in the Indian healthcare industry



Indian Cloud computing market will grow at a CAGR of 15% up to 2024, IaaS would be the growth driver with ~16% CAGR



Cowin, Aarogya Setu, MyGov Saathi, Curfew ePass & COVID Data repository have been some of the recent strides made for boosting cloud adoption in India



NITI Aayog recently published a paper to set up India's 1st AI-specific cloud computing infrastructure – AIRAWAT (AI Research, Analytics & Knowledge Assimilation platform) to guide research & development of emerging technologies



Upcoming cloud projects for India:-

- E-Gram Panchayat
- Kisan Suvidha
- Health ID Card link to DigiLocker
- MeghRaj for vehicle tagging under NHA
- Indian Railways engaged with RailTel to implement HIMS across all of its 695 health facilities

Leading Players

ARTELUS

conSURE
MEDICAL

e-Zest

LiveHealth

Predible

SIG { } TUPLE

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qure.ai