



Education Industry

Data Center and Cloud Battle Card



Education – DC and Cloud Battle Card



Industry Overview

India is the **second largest market** for **e-learning** products and services **after the USA**. The **digitalization of content and delivery** methodologies has been instrumental in changing the country's education sector



1

The **e-learning** industry in India is witnessing a **growth rate of 25% YoY**, and is projected to be an **INR 139.1 Bn** industry by **2021**

2

The Indian market for **ICT** for government and private schools reached **INR 52.4 Bn** and **INR 18.9 Bn**, respectively (2017)

3

Over 2016–2020 **digital classrooms** are expected to register a **CAGR of 13%** in India

4

The Indian education sector invested around **INR 260–300 Bn*** on **ICT infrastructure** (2018)

** Ballpark estimation based on primary inputs*

Industry Drivers

India's education sector is growing rapidly due to the **emergence of smart classrooms**, adoption of **gamification**, increase in **internet and smartphone penetration**, and **digital-friendly government policies**

Digital-friendly Government Policies / Initiatives

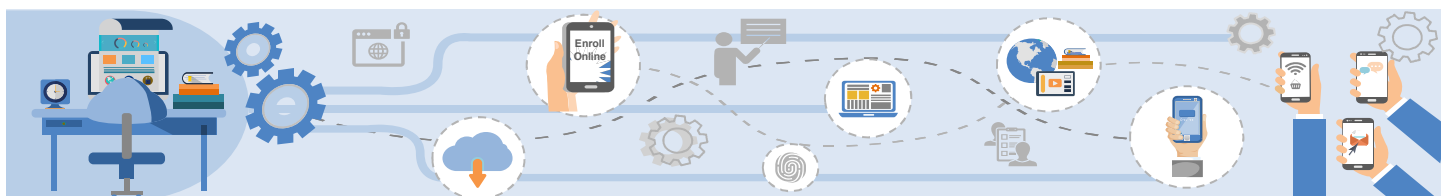
- **SWAYAM PRABHA**, a group of 32 DTH channels to broadcast **high-quality** educational content in various languages
- Setting up of **National Optical Fiber Network (NOFN)** to enable **faster data transmission**

Increasing Cloud Adoption

- Cloud-based platforms are helping **classrooms go paperless** and driving **operational efficiencies**
- Growing integration with connected classroom devices is driving demand for **edge computing**

Gamification

- Players are incorporating features, such as badges and leader boards, to make **learning more interesting**
- The global gamification market is estimated to register a **CAGR of 30.31%** in **2019–2024**



Internet and Smartphone Penetration

- Internet users in **India** are expected to almost double to **730 Mn** by **2020**, from **432 Mn** in **2018**
- India is the world's third-largest smartphone market; Its number of users is estimated to reach **4.4 Bn** by **2022**

MOOC Enrollment

- India has the **second largest Massive Open Online Course user base** after the USA
- **SWAYAM**, an **interactive learning portal** with over 1,000 courses, can be **accessed by anyone, anywhere, and at any time**

Smartboards-enabled classrooms

- Enables students to access notes **on their tablets in real-time** through the **cloud**
- The government spent **INR 355 Bn** to **equip government schools** with **smartboards** (2018)

Challenges & Hindrances for IT Adoption

Managing applications during the admission process and adhering to **regulatory compliances** are the key challenges faced by the industry. The **high cost of IT implementation** is a major roadblock for digital education providers

Institutional Challenges

Institutions believe that **managing admission is a key challenge**, followed by **fluctuating regulatory guidelines (42%)**, and **intense competition (36%)**

77%

Institutions believe that **IT can address their problem areas**, but see **IT implementation as expensive**

60%

Key Obstacles to IT Adoption

High cost of purchase / upgrade

81%

Lack of knowledge / skills among students / staff

49%

Inadequate services and support from vendors

35%

Lack of knowledge around value-addition potential of IT or education related apps

28%

Factors Influencing Vendor Selection

Product Quality

85%

Brand Recognition / Technology Leader

74%

Pricing / Rol Models

71%

Post-sales Support

58%

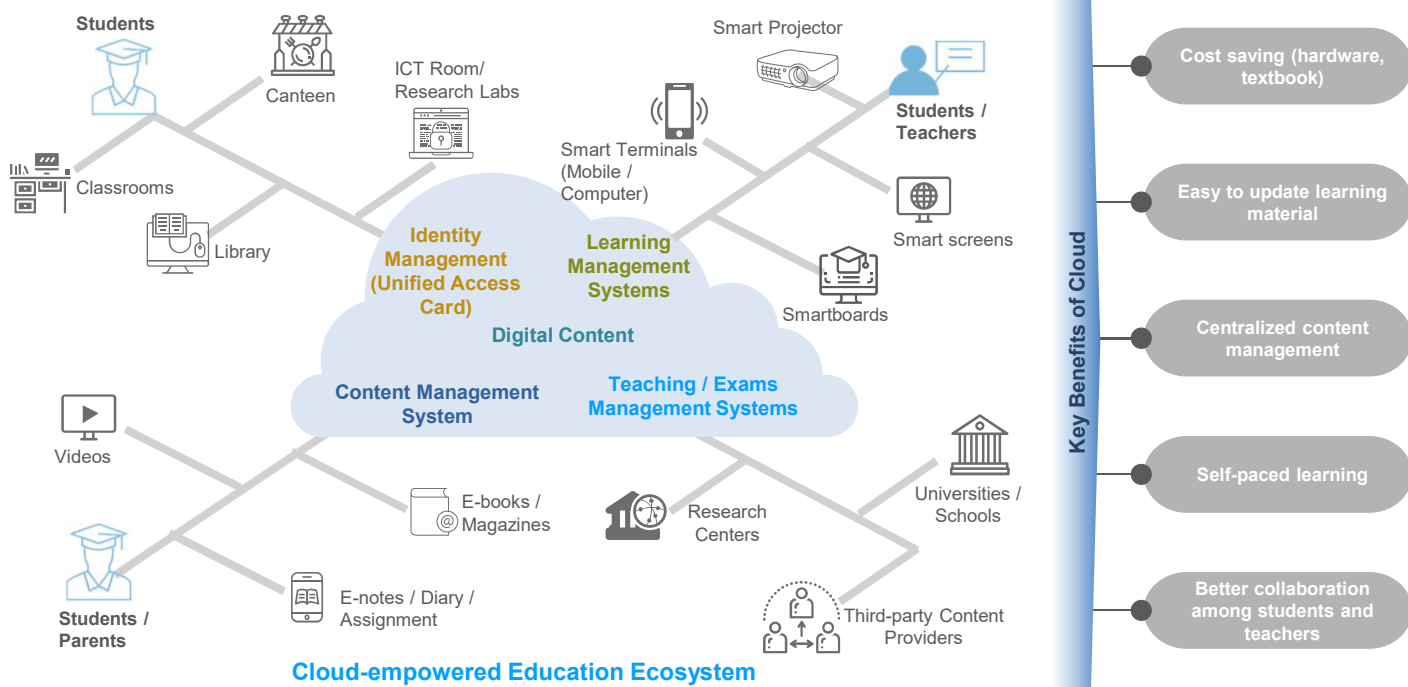
Survey: TCS ION – Over 750 interviews with the end-users or institutions or technology partners

Education – DC and Cloud Battle Card



Cloud-centric Education Ecosystem

Digitalization of content; technology-enabled **smart classrooms**; **collaboration** with universities / schools; and need to access **content anytime, anywhere**, are creating **exciting opportunities** for cloud and data center providers



Cloud-powered Education Ecosystem

Conversation Triggers

Increasing adoption of **on-demand education**, coupled with the emergence of start-ups that provide **interactive** and **immersive content**, will drive the **growth of cloud infrastructure** in India

Impact on Demand: High (filled circle), Medium (half-filled circle), Low (empty circle)

Infrastructure Enablers

Technology/ Trend	Conversation Triggers	Data Protection	Cloud Services	Transformation	DC Colo	Migration
Online Tutoring	<ul style="list-style-type: none"> The online tutoring market in India is expected to register a CAGR of 30% between 2016 and 2020 The paid user base will grow 6x to 9.6 Mn by 2021, from 1.6 Mn in 2016 	Medium	High	Medium	Low	Medium
Big Data and Learning Analytics	<ul style="list-style-type: none"> The global education and learning analytics market is expected to grow to INR 504.1 Bn by 2023, from INR 184.6 Bn in 2018, at a CAGR of 22.6% Edtech start-up Junyo uses real-time data analytics to help educators find better learning solutions 	Medium	High	Medium	Medium	Medium
Gamification	<ul style="list-style-type: none"> The gamification segment of the education market is projected to reach INR 127.8 Bn in 2018–2023, at a CAGR of 32% Increasing adoption of digital learning and use of cloud to enable web-based gamification solutions will be the key drivers of gamification Edsix Brain Lab is using gamified solutions to engage students 	Medium	High	Medium	Low	Medium
Simulation-based learning, AR / VR	<ul style="list-style-type: none"> The simulation-based learning market in India is expected to register a CAGR of 100% in 2016–2020 The global VR market in the education sector is expected to accelerate at a CAGR of 59% in 2018–2022 Google is partnering with content providers, such as PBS, to create VR experiences Impactall Solutions, an e-learning stat-up company, is converting textbooks into VR study material 	Medium	High	Medium	Low	Medium
Hybrid Cloud	<ul style="list-style-type: none"> Cloud computing in the education sector is estimated to grow to INR 1.8 Tr by 2021, from INR 577.23 Bn in 2016, at a CAGR of 25.6% Due to the challenges involved in collaboration among various educational institutes, hybrid cloud is the preferred choice Byju has partnered with AWS to use its cloud platform to deliver content to users through its website and mobile app 	High	High	Medium	High	Medium

Service Comparison: Sify Vs. Competitors

Data Center Infrastructure

	Sify	Netmagic	CtrlS	Airtel	ST Telemedia	RCom
No. of DCs	9	11	6	10 (Nextra Data)	16	9
Uptime	100% since last 10 years	99.990%	99.995%	99.982%	99.990%	-
Experience	18+ Years	~20 Years	~10 Years	12+ Years	~15 Years	~17 Years
Certifications	ISO9001, ISO27001, ISO20000, PCI, HIPPA, TIA942, PCI DSS	ISO27001, ISO9001, ISO20000, TIA942	ISO20000-1, ISO 27001, ISO 22301 (Mumbai DC is LEED certified)	ISO 22301 / 27001 / 20000-1	ISO 27001 / 20000 / 14000, TIA 942	ISO 9001 / 20001 / 27001 / 50001 / ISO 18001

Areas of Offense

Areas of Defense



- STT GDC India does not have managed hosting or cloud services, but partners with Tata Communications to offer managed hosting and cloud to end clients.
- Netmagic's Noida and Chennai data centers operate on leased premises, which make customers vulnerable to security threats
- RCom's Bengaluru data center (in Peenya) has been facing accessibility and theft related problems
- Sify operates a national MPLS network, connecting 47 data centers, including third-party data centers. Through its interconnections with global carriers, Sify can also support Indian MNCs with international hosting and cloud requirements



- ST Telemedia and Airtel have more data centers than Sify Technologies. Further, Airtel is planning to build 10 data centers across India
- CtrlS claims that together, its three datacenters, support power capacity of 58 MW. The company is planning to launch two new DCs in Hyderabad (100 MW facility) and another two in Mumbai (60 MW facility).
- Netmagic leverages its parent company NTT Communications' improved managed and professional services capabilities to win complex projects
- CtrlS' data centers have been rated by 4 by ANSI/TIA-942

Cloud Portfolio Comparison

	Sify	TATA Comm.	Netmagic
Cloud Services Suite	<ul style="list-style-type: none"> • Goinfinit AWS (Public Cloud) • Cloudinfinit ✓ Enterprise Cloud ✓ VPE (Virtual Private Enterprise) 	<ul style="list-style-type: none"> • IZO Private Cloud (Enterprise Cloud) • Managed Services for Azure and AWS • Cloud Containers, Storage, and Analytics under 'As a Service' Model 	<ul style="list-style-type: none"> • Simplificloud (Public Cloud) • Private Cloud (Dedicated Private Cloud, Virtual Private Cloud, Integrated Hybrid Cloud Env.) • Migration as a Service, Managed Storage, Backup as a Service
Compute Environment	<ul style="list-style-type: none"> • Minimum Capacity of 48 vCPUs and 265 GB of vRAM Per Node • Offers a choice between HyperV and VMware hypervisors • BYOL policy for OS and DB (Windows Server, SQL Server, Red Hat, Oracle) 	<ul style="list-style-type: none"> • Hypervisor Support for KVM, VMWare ESXi, and HyperV • OS Support – Windows, Ubuntu, and RHEL • Database – MySQL and MongoDB 	<ul style="list-style-type: none"> • Hypervisor Support for VMware and HyperV • OS Support – Windows, RHEL, Ubuntu, SUSE, Debian • Database – MySQL, Oracle
Storage	Freedom of Choice between Three Tiers <ul style="list-style-type: none"> ✓ High-performance Tier ✓ Standard Tier ✓ Economy Tier Storage Type: NAS, Object, and All flash	<ul style="list-style-type: none"> • NetApp, EMC, and Cloudbyte Powered Storage services 	<i>Info unavailable</i>
Uptime (at infra level)	<ul style="list-style-type: none"> • 99.50% per VPE • 99.90% for VPE – HA • 99.95% VPE – HA + DR 	<i>Doesn't explicitly mention uptime commitment. Claims to offer enterprise-level SLAs</i>	<i>Doesn't explicitly mention uptime commitment. Claims to offer strong SLAs</i>
Connectivity	<ul style="list-style-type: none"> • IP Sec – VPN • SSL VPN Connectivity • Upto 100 Mbps Throughput • Global Cloud Connect (Cloud Connect Service) 	Connectivity through <ul style="list-style-type: none"> • Public Networks (Public IP) • Private Networks (IP Sec Tunnel, MPLS, GDE) • IZO Private and Public Connect (Cloud Connect Service) 	<i>Relies on NTT Communications to provide connectivity</i>

Cloud Portfolio Comparison

	Sify	TATA Comm.	Netmagic
Security	<ul style="list-style-type: none"> Integrated Security Services vFirewall IPS Protection Network DDoS Fortnox SIEM vUTM 	<ul style="list-style-type: none"> SIEM, ATP Cloud WAF, UTM, DDoS (Arbor), IDP, Firewall Audit & Optimization IDaaS, CASB, 2FA GRC Consulting, Vulnerability Assessment 	<ul style="list-style-type: none"> Detection and Mitigation of Targeted Attacks on Critical Applications Application Layer Detection and Mitigation (Powered by Arbor Networks) IPS / IDS SIEM
Reporting and Analytics	<ul style="list-style-type: none"> Dashboards, Online Reports, Alerts, Watermarks, and Help Desk Analytics for Infrastructure, Platform, and Applications 	<ul style="list-style-type: none"> Customized Reporting and Dashboards 	<ul style="list-style-type: none"> Customer Portal that Enables Configuration and Management of Cloud Environment
Backup and Recover	<ul style="list-style-type: none"> Cloudinfint Backup (Of Data to be Protected) DR on Geographically Distant Cloud Site 	<ul style="list-style-type: none"> Secure Cloud Backup Service 	<ul style="list-style-type: none"> Backup and Disaster Recovery Options
Managed Services	<ul style="list-style-type: none"> Integrated Managed IT Services (Single Partner Managing Cloud, Infrastructure, and Environment) 	<ul style="list-style-type: none"> Integrated Managed Services 	<ul style="list-style-type: none"> End-to-end Managed Services

Areas of Offense



- CtrlS has **limited experience in supporting third-party cloud services**, such as AWS and Microsoft Azure
- ST Telemedia and CtrlS **don't have their own network backbone**, and largely depend on partners for connectivity services; Sify has strong network presence in India
- Tata Communications has **discontinued its public cloud service (Instacompute)**, as it was not able to compete with hyperscale cloud providers

Areas of Defense

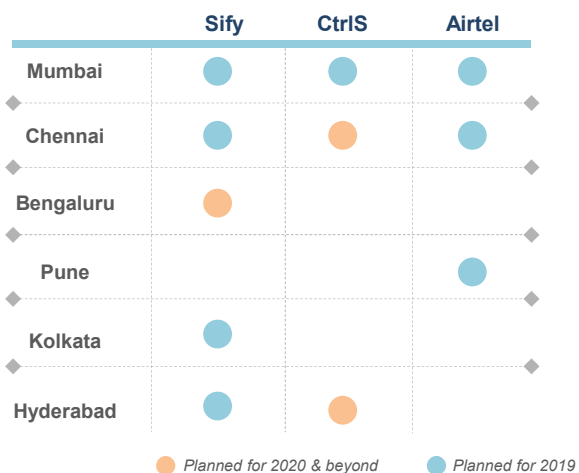


- Netmagic, after its integration with NTT Communications, **provides a comprehensive range of managed services and connectivity to major cloud service providers**
- Companies such as CtrlS, Netmagic, and Airtel **claim to offer uptime of 99.99% for their cloud services**
- Airtel is one of the **empaneled partners for India's central government and several state governments' cloud-based projects**; it poses serious competition to Sify, when it comes to government deals
- Reliance Jio is likely to **adopt an aggressive pricing approach**, similar to the one it adopted for its consumer services, for its enterprise IT / cloud services

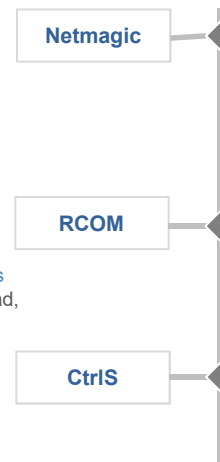
(Source : Primary Interview)

Competitors' Strategic Focus Areas

Sify, CtrlS, and Airtel have announced plans to build new data centers in India. Netmagic, RCom, and other companies opened new facilities in 2018



- Netmagic opened new data centers, **one each in Mumbai and Bengaluru, in late 2018**
- Its Bengaluru data center spans across 250,000 sq. ft., while the Mumbai site spans across 300,000 sq. ft. The company plans to add 150 personnel to its current workforce of 1,270, as it looks to grow further
- RCom **opened a hyperscale data center in Mumbai in mid-2018**
- The company also **plans to build connected data centers in key hubs across India, including Bengaluru, Hyderabad, and Chennai**
- CtrlS is **investing ~INR 2 Bn on infrastructure expansion**, to target the BFSI sector
- The company is **setting up Tier 4 facilities in Hyderabad (~100 MW), Mumbai (60MW), and Chennai**; these will take its data center footprint to 5 million sq. ft. by 2020



Digitization and government initiatives are compelling data center service providers to **invest heavily in building new data centers**

Focus on Cloud Services

Increasing demand in India has led companies, such as Netmagic and CtrlS, to amplify their focus on cloud services

- Netmagic is [planning to target customers who are looking to adopt a multi-cloud environment](#). It plans to offer a one-stop solution for data migration to private, public, and third-party cloud services such as AWS, Google, and Microsoft
- CtrlS is also [investing heavily \(~INR 2 Bn\) in infrastructure](#) to tap the growing cloud market in India

Rise of Reliance Jio

After disrupting the consumer telecom space, [Reliance Jio is planning to step into the enterprise service segment](#), specially cloud, IoT, and network services

- Reliance Jio has [started testing its public and private cloud](#) within Reliance group companies
- It plans to develop a state-of-the-art green field data center in an upcoming 100-acre IT hub in Kolkata, West Bengal

Airtel Bets BIG on Datacenters

Bharti Airtel is preparing to play a bigger role in the enterprise segment through a new cloud and data center strategy, under which it will undertake the following

- Airtel's wholly-owned data center unit, Nextra Data Ltd, [is planning to set up 10 new data centers](#), including four in Pune, Chennai, Mumbai, and Kolkata
- The company's new data centers are being planned to tap the cloud opportunities that have [emerged following the Indian government's regulation on data localization](#)

Sify Technologies' Key USPs for Data Center Services

Build your own SLA

Sify's Golnifinit VPE allows customers to build their IT infrastructure with single or multiple nodes across one cloud site or distant cloud sites. This enables customers to build their private cloud for test / development with 99.50% SLA (single – site) alongside 99.90% SLA for production IT in HA architecture.

Managed Services

Sify offers an integrated managed services portfolio that includes services for captives, AWS, Microsoft Azure, and SAP infra. It extends a wide range of services, including disaster recovery, managed security, database management, and middleware management, and leverages ServiceNow and CA UIM (industry best tool platforms) to offer best-in-class ITSM and automation

Flexible Consumption Model

Sify's Private cloud (VPE) offers a combination of pricing models, as under

- Committed Model: Customers pay for a committed capacity for a minimum contract period, and scale up as their businesses require
- Metered Consumption: Customers' usage is metered on a monthly basis, and they are billed as per usage

Seamless Connect

Sify can provide seamless connectivity to datacenters and hyperscale cloud service providers (through Cleanconnect service), as it operates a national MPLS network that connects 45+ datacenters, including third-party datacenters. Its collaboration with global carriers also allows Sify to support Indian MNCs with their international hosting and cloud requirements

Expertise in Managing Third-party Cloud Environment

Sify has experience in supporting Microsoft environment and VMware; it is SAP-certified for hosting cloud, HANA, and application services, as well as SAP migration

Robust Data Center Infrastructure

- Data Centers are running on 100% uptime since 2008
- 3 to 4 distinct fiber entry paths to the Data Center building provides resiliency on fiber routes
- Truly Carrier Neutral: More than 90% of fiber links are from non Sify Telecom providers
- Power densities from 3 KW to 15 KW per cabinet
- Hyper scale Data centers from 12 to 36 MW in key cities providing ample expansion capabilities
- Multiple Internet Exchange Ecosystem facilitating OTTs and ISPs interconnect in Sify Data Centers
- Services include Prepaid bulk Fiber (as per specifications), single to 10+ cross connects on demand with minimum lead-time

Reach us now

“ We are building a world in which our converged ICT ecosystem and our “bring it on” attitude will be the competitive advantage to our customers”

- Telecom services
- Data center services
- Cloud & managed services
- Application integration services
- Transformation integration services

 marketing@sifycorp.com
 www.sifycorp.com
 Sify technologies limited
 @sifytech
 [+91 87504 42233](tel:+918750442233)