IT OUTSOURCING VENDOR PROFILE OF:

TCS – Data Center Outsourcing Services

1. Background

Tata Consultancy Services (TCS) is the largest IT services vendor headquartered in India. In its fiscal year 2013, ended March 31, 2013, the company generated revenues of $11,568m, up 13.7% from FY 2012.

IT infrastructure services has been one of TCS' growth engines in recent years, up from ~$530m in FY 2010 to ~$1.3bn in FY 2013, a CAGR of ~36%, and it now contributes 11.5% of overall revenues.

Data center outsourcing services are part of TCS's infrastructure services, accounting for 60% of the IT infrastructure service business. These services have been growing well at a CAGR of ~34% over the past four years.

Data center outsourcing services are often provided as part of:

- Larger IT infrastructure management services deals, for example Malaysia Airlines and 4U Group
- Full-scope IT outsourcing megadeals. Examples include Nielsen Company and Pearl Group/Phoenix.

2. Revenue Summary

Exhibit 1 shows estimated approximate data center outsourcing revenues and growth for the last three fiscal years.

EXHIBIT 1

Estimated Data Center Outsourcing Revenues FYs 2011 – 2013

	FY 2013	FY 2012	FY 2011
IT Infrastructure Services Revs ($m)	1,330	1,020	770
Revenue Growth	30%	32%	46%
Data Center Outsourcing Revs	790	610	460
Revenue Growth	30%	33%	39%

NelsonHall Estimates

In FY 2013, data center outsourcing services accounted for ~60% of TCS' overall IT infrastructure services revenue, and nearly 7% of the company's overall revenue.

Management of Unix servers accounts for the larger part of TCS' data center outsourcing revenues. Estimated FY 2013 revenues by server type are:

- Unix-based servers: $340m
- Windows-based servers: $210m
- Linux-based servers: $135m.

3. Key Offerings

TCS offers a broad set of data center services with a value proposition based on standardized delivery processes in its delivery centers and low pricing through offshore delivery: on average 70% of TCS data center outsourcing services are delivered from offshore.

Exhibit 2 lists TCS' data center services.

EXHIBIT 2

Profile of TCS Data Center Outsourcing Offerings

Services	Processes	Current % of Operations
Datacenter Management	Design, build/migration and management Consolidation of data centers, servers & storage Virtualization of servers, storage, apps & databases Logical security	20%
Systems Management	Server & storage management Platform support – Solaris, AIX, Linux and Windows Database management Mainframe & AS400 operations & management Backup & restore services	40%
Managed Hosting	Global managed hosting Environment migration to cloud Colocation services Managed storage & backup Disaster recovery & business continuity services	20%
DC Systems Services	Firewall, DMZ, IDS/IPS, WAN and internet Applications and middleware Database Servers Storage	15%
DC Facilities Services	TCS/Partner hosting and colocation Green field DC build	5%

Source: TCS

At over 70%, system management and the associated systems services (managed hosting and DC systems service) account for the majority of work undertaken by TCS in data center outsourcing.

The services are offered using different models:

- Dedicated services, provided by a dedicated team working on the client's contract. The teams are typically based at a TCS delivery center, where an operational delivery center (ODC) is set up specifically for the client. These are mostly located offshore with systems that are logically secured from others, and firewalls that separate the client's systems from those of TCS and other clients. Currently 90% of DC work is delivered using this model, with offshoring being the main driver for outsourcing
- On-site/offshore model, a blended model where a TCS team delivers some part of the services on-site to the client. These include those in charge of project governance, those providing support to project activities, and a core team of senior managers interacting with the client's business units on requirements. The on-site teams typically deliver 30% of the work with the rest delivered from offshore. The offshore teams deliver data center monitoring and operations
- On-site/shared offshore – this model offers all the same capabilities as the above except the offshore services are delivered on a shared services basis to multiple clients from one of TCS' integrated command centers. Service governance is imposed on processes and logical security provided to separate systems for each client. All shared services contracts are delivered from India, in Mumbai and Chennai. Shared services currently represent 10% of TCS' contract profile
- 100% delivery on-site at customer location: this represents a very small minority of TCS' data center contracts.

3.1 Technologies Supported

Technologies that are supported within TCS data centers include:

- Operating systems: Unix, Linux and Windows
- Network and NOC
- Databases
- Middleware.

TCS uses continuous monitoring of operations and automated alerts, seeking to identify operational and performance issues before they can affect clients. TCS provides technical support via email, web and phone in >30 languages. If required, TCS will also provide chat.

3.2 Pricing

The majority (80%) of TCS' data center services are delivered on a fixed-price, managed services basis with performance managed through SLAs. Variations on this theme include:

- Revenue share with TCS meeting the costs of the data center
- Gradual cost reduction based on generated/targeted savings.

4. Delivery Capability and Partnerships

As at end FY 2013, TCS has ~8.7k personnel (~3% of its workforce) globally engaged in data center service delivery. These work in Centers of Excellence (CoEs) structured around specific technology expertise (e.g. Windows, Linux, storage and backup). CoE teams also have architects skilled in multiple technologies (e.g. storage) from different companies such as EMC or Hitachi. To improve data center performance, core architects review clients' operational environments, business needs, usage and applications and recommend the technology that best matches the customer's requirements. Once the design work is done, the work gets passed to delivery units for implementation. The core design teams are based in TCS delivery centers in primary cities in India, including Mumbai, Chennai, Bangalore and Delhi. Some delivery units are located at clients' sites. Services are standardized on ITIL and clients are provided with reports and dashboards for service monitoring and performance visibility. Exhibit 3 provides details of the scale of TCS' data center operations.

EXHIBIT 3

Scale of TCS Operations

Key Facts	Numbers
Servers Supported (Unix, Windows and iSeries)	525k
MIPS with 500+ TB of Mainframe Storage, 50+ LPARs, zSeries HW & z/OS	100k
Storage Supported	>125 Petabytes
Network Equipment Managed	430k

Source: TCS

Exhibit 4 gives a breakdown of the data center workforce by technology area.

EXHIBIT 4

Headcount by Technology Specialization

Technology	Headcount	Prop'n (%)
Unix	3,700	43
Windows	2,375	27
Linux	1,500	17
Storage	950	11
Mainframes	175	2
Total	8,700	100

Source: TCS

Exhibit 5 lists the locations of TCS' delivery centers used to provide data center services. These centers outside India primarily deliver dedicated services. They house ODCs that are set up to deliver dedicated services to clients. The centers in Mumbai and Chennai also offer shared services.

EXHIBIT 5

Locations of TCS' Delivery Centers That Provide Data Center Services

Geography	Location
North America	• Cincinnati • Midland • Montreal • Troy
Central & South America	• Guadalajara • Queretaro • Quito • Montevideo
EMEA	• Budapest • Madrid • Peterborough
APAC	• Bangalore • Chennai • Dalian • Delhi • Hangzhou • Hong Kong • Hyderabad • Kolkata • Manila • Mumbai • Pune • Shanghai • Singapore • Yokohama

Source: TCS

The delivery centers in India and China are used for large-scale end-to-end delivery services. The regional delivery centers in Hungary, Mexico, Uruguay and Ecuador are for client-specific requirements. As well as providing facilities for dedicated ODCs, the nearshore delivery centers in the U.S., Canada, U.K., Spain, Japan and Singapore are used to cater for specific requirements such as data protection, other regulatory compliance and language support.

English is supported from India. The nearshore centers also deliver services that require proximity, such as user support.

4.1 Knowledge Sharing and Collaboration

TCS employees deployed on data center services use a knowledge sharing system called Nomax, which holds content such as policies, operating procedures and system specifications.

They can also use TCS' enterprise social networking platform – called Knome – for collaboration and communication. Specialist staff are members of a data center community on Knome; this is part of TCS' corporate "Vivacious Enterprise" initiative set up with the objectives of connecting staff and rewarding them by gamifying processes. Knome is part of the company's approach to nurturing a culture that encourages entrepreneurship and co-innovation that could lead to discovery for process improvements, and increase the flow of feedback up and down the organization.

4.2 Partnerships

TCS has global alliances with a number of partners, including technology companies such as Microsoft, HP, IBM and EMC, and cloud infrastructure providers such as Amazon, Terremark (a division of Verizon), CBTS and Phoenix NAPS.

The technology alliances enable TCS to train staff in the latest technologies from these suppliers. Its CoEs provide training facilities and labs where new solutions are developed and tested. Typically, partners also invest in the labs to keep TCS staff up-to-date with their technologies.

The infrastructure suppliers help TCS speed up the process of establishing data center capabilities in new geographies; e.g. where it does not have facilities already or for specific client requirements.

Partners do not get involved in client-facing activities, except in scenarios such as audits of data center services for regulatory compliance.

4.3 Data Centers

TCS mostly uses co-located facilities in order to deliver data center capabilities in locations that are required by clients. Co-located data center facilities represent 75% of TCS' overall capabilities.

TCS takes space in the form of dedicated cages in colocation facilities and takes on the responsibility of the systems held within that space, including layout, design, governance and logical security. The colocation partner handles other aspects such as physical security, facilities management and DR.

Around 20% of TCS' current data centers are partner data centers and 5% are its own.

Exhibit 6 lists the locations of TCS' data centers and hosting partners.

EXHIBIT 6

TCS' Data Center Locations

Geography	Location	Hosting Partner
North America	Cincinnati	CBTS
	Dallas	Terremark
	Miami	Terremark
	New York	TCL
	New Jersey	TCL
	Portland	TCL
	Santa Clara	TCL
	Silicon Valley	Terremark
Central & South America	Santo Domingo	Phoenix NAPS – opening soon
	Sao Paulo	Terremark
EMEA	Amsterdam	Terremark
	Brussels	Terremark
	Frankfurt	Aggregation and distribution center hosted by Terremark
	London	One operated by TCL and another hosted by Terremark
	Liverpool	TCL
	Madrid	One hosted by TCL and one by Terremark
	Paris	TCL
	Tenerife	Phoenix NAPS – opening soon
APAC	Chennai	TCL
	Delhi	TCL
	Hong Kong	Aggregation and distribution center hosted by Terremark
	Mumbai	TCL

Source: TCS

The data centers are SAS-70 (type 2), HIPPA and PCI certified, and provide:

- Multilevel security
- 2N power with UPS and diesel generators to support peak operations
- FE-25 fiber suppression and VESDA detection systems
- 24x7 staffing.

TCS uses a deployment model that provides shared services remotely and dedicated teams locally to the client. For infrastructure services, including data centers, remote capabilities include integrated command centers (ICCs) with built-in ITIL 3 standards. ICCs collect data from automation tools including asset and incident management, CMDB and operational reporting to provide service status and SLA reporting and monitoring information. The information is used to populate services dashboards to provide real-time information on services to clients. See Section 4.4 for an overview of these tools.

4.4 Tools

TCS uses a number of tools to automate the delivery and monitoring of data center services. These tools are used internally to deliver the services. Benefits of these tools include increases in productivity; for example, ratio of servers managed per head has increased by 60-70% over a number of years. Exhibit 7 lists the core set of tools used by TCS for data center services.

EXHIBIT 7

Core Tools Used by TCS for Data Center Services

Tool	Functionality
Netasthra	A web-based portal for a holistic view of information from various enterprise system management tools
i-Atlas	An asset discovery tool and a CMDB for determining the IT infrastructure components of an enterprise
CCM.net	Helpdesk/service desk tool. Provides information on support operations & access to support-related knowledge repositories for use by agents. Incident routing and escalations capabilities enforced within SLAs & prioritization of requests
e-Predict	Used for SLO violation detection and monitoring. It provides automated root-cause and what-if analysis for enhancing infrastructure performance and capacity
e-Support	Analyzes historic data to identify patterns in incidents, response times and performance. Provides functionality for identity authentication, finding experts to resolve problems, SLA tracking and measurement
eTransform	Uses process mapping and analytics to explore options for change (e.g. for server consolidation) and automates the derivation of the effective target state by considering various dimensions such as servers, networks, storage, end-user computing and data centers, etc. It provides schedules for migrating to the target state along with support for a business case

Source: TCS

TCS has invested in its own IP for operational performance analysis and monitoring that allow it to identify patterns that can lead to problems and, accordingly, take preventative action.

5. Target Markets

TCS' primary target markets for data center outsourcing services are medium and large companies. TCS has 180 clients for data center outsourcing services.

Examples of TCS' larger clients include General Motors, Neilson and Sony.

TCS' top sectors for data center services are:

- BFSI
- Retail
- Hi-tech manufacturing
- Life sciences
- Healthcare.

TCS' HPC data center services are targeted at the automotive, government, engineering, aerospace, energy and life sciences sectors, as well as scientific and climate change research communities.

TCS is increasing its focus on data center services in North America, working with partners such as Terremark and Phoenix NAPS to increase the speed of deployments. The company is about to open a new data center in partnership with Phoenix NAPS in Virginia.

TCS is increasingly targeting emerging and growing economies in APAC, MEA, and LATAM, including building on its cloud capabilities in Australia and implementing data centers in Tenerife and Santo Domingo. It is seeing some growth in data center revenue share from these regions and from India.

Exhibit 8 shows TCS' estimated data center services revenues by region.

EXHIBIT 8

Estimated Data Center Outsourcing Services Revenues

Region	FY 2013 Revenue Share
North America	51%
Europe	21%
India	19%
APAC	7%
LATAM	2%

Estimated by NelsonHall

TCS' data center services revenues are growing, outside Europe.

Benefits that TCS has realized for clients include:

- Data center footprint reduction, e.g. ~90% for clients such as Sony
- Increasing the level of server virtualization, e.g. from 30% to 72% for Nielsen
- Reduction in electricity consumption
- Carbon footprint reduction.

5.1 Client Examples

- Malaysia Airlines (MAS): a five-year contract awarded in 2010. IT infrastructure services in scope include management of MAS' data centers, IT networks and IT security
- 4U Group: a $100m contract awarded in January 2009 for services including: data center and desktop services; helpdesk; networks & comms; application support, maintenance, management and development; business support; and also third-party vendor management of all contracts in the organization's retail operations
- U.S media giant Nielsen: a 10-year full scope IT outsourcing and BPO contract awarded in 2007. The contract assured revenues of $1.2bn over a 10 year period. Approximately 70% of the revenues are for infrastructure and application services, with the remainder for BPO. The client's IT estate in 2007 included: > 40 data centers; 8.5k servers; 1.8k DB instances; 9 PB data; 48k mailboxes; and 9k MIPS. Initiatives undertaken by TCS to achieve the committed TCO reduction of 32% have included:
  - 12% from 90% offshore leverage (remote management from 6 centers) plus implementation of redesigned common processes. Services are delivered from the TCS center in Bangalore
  - 5% from increased productivity, including tools optimization and consolidation of 7 service desks to a single service desk
  - 15% from technology transformation (e.g. datacenter consolidation)
  - Rationalization of network vendors.

Other achievements to date include:

- Consolidation of 19 datacenters to three over 24 months (2008-2010)
- Increased virtualization from 30% to 72%
- Consumption-based storage solution to address growth (17 PB today)
- Mainframe MIPS optimization by 28%
- Re-architected global network.

6. Strategy

Historically, TCS had delivered IT infrastructure services primarily from India. The Nielson contract was the first time when it took over a client's data center services. It has since increased its focus on data center transformation and consolidation too. Examples include data center consolidation for Sony and Nielsen, where over 25 data centers were consolidated.

TCS' focus on its capabilities has since intensified on cloud, increasing automation and support for mobility.

Activities in support of this strategy have included the introduction of cloud infrastructure services for SMEs in India in 2011 and the opening of a data center in the U.K. to target opportunities for private cloud deployments across Europe. It has opened other centers such as the delivery center in Budapest that provides data center services for European clients. TCS is planning to do the same in North America and Australia. From these data centers it will support data center services such as server consolidation and virtualization as well as application hosting and management.

The strategy for growth in the cloud market includes offering cloud advisory, deployment and migration services. In the IaaS space, TCS has started to offer a cloud environment build and management service (EBMS) and DR cloud services.

7. Strengths and Challenges

7.1 Strengths

- Status as the largest Indian IT services company helps with recruitment and retention to maintain rapid growth
- Has a number of strongly positive public reference contracts that highlight the geographic diversity of its data center services; e.g. 4U Group (U.K.), Sony (Japan) and Nielsen (U.S.)
- Has a reputation for being client focused
- Well established and focused service delivery centers and a growing number of data centers across the globe
- Established low-cost, multi-shore delivery capability supported by standardized processes and tools
- Knowledge management and enterprise social network (Knome) implemented to help increase levels of collaboration and knowledge sharing within TCS. It encourages a degree of entrepreneurship that is unusual in an organization of this size
- Recruiting local managers and business development execs in regions as part of its localization strategy where cultural affinity and relationships matter
- Willingness to work with clients looking to dispose of onshore or captive operations (e.g. Pearl and Nielsen)
- Is a strong candidate for companies new to data center offshoring who are looking for an Indian tier 1 vendor with strong credentials
- Ability to use data centers of its sister company Tata Communications Ltd
- Strong partnerships for data center facilities.

7.2 Challenges

- Competing with major cloud providers as adoption of IaaS increases, thus reducing clients' data center requirements to support applications
- Needs to join up its data center services with more cloud-oriented requirements such as storage and archiving
- Gaining critical mass in some individual, significant European markets is a lengthy process
- Growth in emerging markets has been slower than anticipated
- As TCS targets more complex, larger-scale data center contracts it will face increasing competition from the major global vendors with global service delivery infrastructures
- Difficult to gain mindshare as a leading-edge innovation partner compared with competitors such as IBM, particularly when it comes to increasing the level of automation used in data center processes, e.g. in complex hybrid environments

- On the whole, prefers to develop software tools in-house or to partner rather than acquire, which can be a slower route to gain capabilities. Contrast the acquisition spree being made by Dell specifically to capture a bigger share of the market for migration to cloud services, e.g. to support application migration from older Unix systems to new Wintel platforms that can be better supported in IaaS environments.

8. Outlook

- Cross-selling cloud-based services to existing data center services clients
- Increasingly sophisticated and flexible pricing models
- Further development of cloud services portfolio
- Ramp-up of data center development in emerging geographies (e.g. Africa)
- Geographic spread of revenue is expected to continue to diversify with major pursuits for opportunities located outside of Europe; for example, with the iOn cloud computing-based IT services model for SMEs in India
- Achieve some degree of success in supporting non-linear growth opportunities (not tied directly to headcount growth) through increasing investment and use of technology, such as, analytics, in service delivery
- Ongoing emphasis on growth in emerging geographies.

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