



RSM/COAI/2016/184
September 05, 2016

Shri. U. K. Srivastava
Pr. Advisor
The Telecom Regulatory Authority of India
Mahanagar Door Sanchar Bhawan
Jawahar Lal Nehru Marg (Old Minto Road)
New Delhi-110002

Subject: TRAI Consultation Paper on Cloud Computing

Dear Sir,

1. This is with reference to the TRAI Consultation Paper dated June 10, 2016 on Cloud Computing.
2. In this regard, please find enclosed our response for your kind perusal.

We hope that our views and submissions will merit the kind consideration and support of the Authority.

Regards,

Rajan S. Mathews
Director General

CC : Shri. Ram Sewak Sharma, Chairman, TRAI
: Shri. Sudhir Gupta, Secretary, TRAI



**COAI comments on TRAI Consultation Paper
On
Cloud Computing
Released on June 10, 2016**

At the outset we submit that cloud computing pertains primarily to data storage, computing and IT related activities and is outside the scope of activities under various telecom licenses. There is no pre-condition of a telecom license for doing cloud computing activity. We thus believe that in our view this subject falls outside the ambit of TRAI Act.

Notwithstanding the above, our submissions are given below:

Preamble

1. Cloud computing is a style of computing in which dynamically scalable and often virtualised resources are provided as a service over the Internet.
2. Access to digital products and services, such as cloud applications, provide small and medium enterprises (SMEs) with cutting edge services at competitive prices, enabling them to participate in global supply chains and directly access customers in foreign markets in ways previously only feasible for larger companies.
3. In fact, the Internet can be a great equalizer, lowering the barrier for market entry, and enabling small companies to compete globally using the same tools as large and established companies.
4. The truly scalable data storage and processing capabilities that the cloud provides makes big data analytics an affordable possibility for the public sector and SMEs.
5. The cloud services in India are at a nascent stage, hence flexible and light touch regulation for emerging and innovative technologies and business models is crucial to take advantage of the social and economic benefits of the digital economy.
6. It is therefore important that all providers of cloud services have appropriate policies and practices in place that: are compliant with applicable laws, are consistent with relevant industry best practices and use meaningful and reasonable efforts to address and deter the use of their services to engage in illegal activity.
7. With respect to the telecom operators, we submit that there are some restrictive clauses in the license that do not allow the TSPs to leverage the benefits of cloud services for/on behalf of their customers. The telecom operators are only allowed to use cloud services as an Enterprise.
8. The license restricts the telecom operators to send any user identifiable information outside India. This is creating reluctance in TSPs to avail the benefits of cloud for their subscribers. However, similar or more information pertaining to identification of the

subscribers is being sent outside India through subscribers themselves or through handsets or websites*.

9. We also submit that the provisions of the IT Act are also applicable to the TSPs and hence any separate provision in the license may not be required.
10. We strongly recommend that the framework which TRAI endeavors to formulate after this consultation should address the above concerns of the telecom service providers should promote agility, lower costs and interoperability with sufficient protection to the consumers.

Issues for Consultation

1. What are the paradigms of cost benefit analysis especially in terms of:
 - a. accelerating the design and roll out of services
 - b. Promotion of social networking, participative governance and e-commerce.
 - c. Expansion of new services.
 - d. Any other items or technologies. Please support your views with relevant data.

COAI Response

1. Cloud computing services focus primarily on optimum utilization of the resources available on a cloud (e.g. infrastructure or platform of a cloud service provider) instead of physical deployment at its own end by actual user.
 2. In case of social networking platform, cloud computing provides an opportunity to effectively manage the content and database (i.e. by using several cloud servers) without incurring heavy costs on the infrastructure.
 3. Cloud can provide scalability by automatic resource optimization as per the demand of the user and hence provide expansion of services on the go. As the technology and platform services are being accessed through cloud computing which actually uses the resources available on cloud saving cost and time in planning and deployment of the required service and infrastructures.
 4. Cloud services are inherently global in nature, and India's policies should aim at creating Indian CSPs which are globally competitive.
 5. The maximum potential of cloud computing for economic and social benefit may be realised by the creation of conducive regulatory framework which supports innovation and encourages cloud adoption.
2. Please indicate with details how the economies of scale in the cloud will help cost reduction in the IT budget of an organisation?

COAI Response

1. Cloud computing is based on the virtualization of the IT servers instead of the physical deployment of servers. Utilizing the cloud allows the customer to acquire infrastructure on-demand, which means the organization only pays for what they use.

This is different from the practice of procuring ICT resources which must be purchased and installed in fixed quantities based on an estimate of future demand

2. Outsourced clouds allow organizations to begin using an application without the up-front costs of equipment acquisition. Additionally, cloud providers are able to provision their hardware, power, and other computing resources at scale more efficiently.
 3. Thus, cloud helps in lowering the cost of running technology, it allows for a shift from capital expenditure to operating expenditure and lowers the total cost of ownership of IT resources. This helps in overall reduction in the IT budget of an organization.
3. What parameters do the business enterprises focus on while selecting type of cloud service deployment model? How does a decision on such parameters differ for large business setups and SMEs?

COAI Response

1. The major focus areas for selecting cloud services by business enterprises is based on economic consideration, service agreements, operational characteristics, accessibility, performance, security and transition feasibility. These requirements and their priorities vary from organization to organization based on their business requirements.
 2. In case of large business enterprises, the main focus would be on the performance and security of their database. Large organizations usually prefer in-house capabilities to cater their needs.
 3. However in case of Small and Medium size Enterprises, the prime area of the focus would be cost saving, which can be best met through the cloud services as it involves lesser cost and easy accessibility as compared to conventional non-cloud services.
4. How can a secure migration path may be prescribed so that migration and deployment from one cloud to another is facilitated without any glitches?

COAI Response

1. In cloud services the inter-operability from one cloud to another will depend on the protocols and technical standards being followed by the respective cloud. In case of migration from one cloud to another, it is important that the data being transmitted is properly encrypted and it transmitted through a secured media.
2. The above is already ensured in the IT Act 2008 vide which the cloud platforms are already governed. Any migration and deployment from one cloud to another is between the CSP and the user and their contractual arrangements would have clause to ensure continuity of operations. The cloud providers should have the flexibility to offer different approaches to migration for their customers, and the Government should allow market forces and industry best practices to prevail in such conditions.

5. What regulatory provisions may be mandated so that a customer is able to have control over his data while moving it in and out of the cloud?

COAI Response

1. It is respectfully reiterated that this issue is not within the jurisdiction of TRAI, as the Regulator cannot govern the relationship of the customer with the cloud service provider.
-
6. What regulatory framework and standards should be put in place for ensuring interoperability of cloud services at various levels of implementation viz. abstraction, programming and orchestration layer?

COAI Response

1. Whilst reiterating that these issues do not come within the ambit of TRAI, it is submitted that promoting interoperability between cloud services is important in providing a boost to long-term adoption of cloud technologies. Interoperable platforms set the stage for economies of scale to set in and provide maximum value for industry as well as consumer welfare.
 2. As it has already been stated that this service is at an early stage of industry development, any mandatory regulatory framework is likely to inhibit innovation and slow the industry growth at a local level. Regulating cloud computing interoperability is not something that has been undertaken elsewhere.
 3. While standards for interoperability must be encouraged, the segment is premature for mandatory interoperability norms or standards to be implemented. Any attempt to impose mandatory or inorganically-selected standards at present would only affect flexibility, innovation, and impede growth of the sector. It is better that industry best practices are followed at this stage.
-
7. What shall be the QoS parameters based on which the performance of different cloud service providers could be measured for different service models? The parameters essential and desirable and their respective benchmarks may be suggested.

COAI Response

1. The TRAI, under the Act, can only lay down QoS standards for a licensee. The Cloud Service Providers are not Licensees.
2. The Quality of Service (QoS) parameters should be based on the business requirements as well as the nature of the sensitivity involved with the information. The same may be related to the availability, performance and response time of the respective cloud systems.
3. However, at present the relationship between a CSP and its consumer, quality of services, interoperability standards between CSPs should be left to the industry and free market mechanisms.

8. What provisions are required in order to facilitate billing and metering re-verification by the client of Cloud services? In case of any dispute, how is it proposed to be addressed/ resolved?

COAI Response

1. There is a wide range of user requirements and expectations on cloud computing services. These should be built in the contract of the CSP and the customer. Hence, billing and metering requirements should be driven by market forces and not prescribed.
 2. A possible option may be that Cloud services be billed using a utility model for ICT resources, whereby customer usage is metered on the basis of their usage of computing power, storage, and data transfer over the network. The customer may be billed on the basis of agreed pricing models for the usage of these ICT resources.
9. What mechanism should be in place for handling customer complaints and grievances in Cloud services? Please comment with justification.

COAI Response

1. These issues should be addressed by the appropriate Authority having jurisdiction. In principle, there should be a structured layered grievance redressal mechanism for handling customer complaints and redressal of grievances. Consumer should be allowed to register its grievance through IVR to call centre, e-mail or through web portal. Some other ways to resolve complaints is through 24X7 telephonic, chat and web support provided by cloud service providers to raise the complaints/tickets for support.
 2. However, we believe that approaches to customer complaint and grievances should not be prescribed but driven by market forces in these competitive markets.
10. Enumerate in detail with justification, the provisions that need to be put in place to ensure that the cloud services being offered are secure.

COAI Response

1. The government's approach to cloud regulation should be characterised by a capability to support new and innovative business models, market diversity, and the freedom to innovate.
2. In most cases, privacy and security standards are built into the contractual terms of service provision. These are largely sufficient to ensure that business and consumer interests are protected. In addition, existing IT regulations ensure that prescribed security standards are maintained while providing recourse in case of negligence by service providers.
3. In this regard, there is presently no requirement for any aspect of the emerging cloud segment to be regulated by imposing mandatory regulations. At present, contractual provisions ensuring access, specifying location of storage, and defining other

obligations are sufficient to protect the interests of consumers vis-à-vis service providers.

11. What are the termination or exit provisions that need to be defined for ensuring security of data or information over cloud?

COAI Response

1. The exit strategy should cover a normal termination, such as that at expiration of the service agreement, and also an unexpected termination. Removal of data from a cloud vendor either due to expiry of contract or any other reason should be covered in detail while setting up the SLA.
2. Security of data would be governed by the standards and obligations agreed to between the parties with respect to storing and processing of data in a cloud environment. Existing IT regulations mandate a data security baseline.
3. However, at present, there is no necessity for termination or exit provisions to be defined to ensure security as these are contractually ensured.

12. What security provisions are needed for live migration to cloud and for migration from one cloud service provider to another?

COAI Response

1. In most cases, privacy and security standards are built into the contractual terms between the CSP and a customer. These are largely sufficient to ensure that business and consumer interests are protected. In addition, existing IT regulations ensure that certain minimum standards are maintained while providing recourse in case of negligence by service providers.
2. Thus, there is no requirement for further regulation to ensure privacy or security. Instead, the government may encourage adoption of privacy standards by encouraging systems such as voluntary certification and self-regulation to develop.
3. At the same time, regulators may adopt a strong stance against misleading business practices which deceive consumers with respect to privacy and security standards adopted by service providers. However, even such enforcement may be carried out through existing consumer protection frameworks.

13. What should be the roles and responsibilities in terms of security of (a) Cloud Service Provider (CSP); and (b) End users?

COAI Response

1. In general, there should be a shared security model: both CSP and Customers should be responsible for cloud security. Customers should be responsible for security in the cloud which includes the security of data, applications, operating systems, and network and firewall configurations. CSP should be responsible for

security of the cloud meaning compute and storage resources, as well as databases, networking and other components.

2. There are three aspects of security: Confidentiality, Integrity and Availability and these should be shared amongst the CSP and the customer. Confidentiality should be responsibility of CSP, Integrity should be shared responsibility and Availability should be CSP responsibility.
 3. The terms and conditions have been already laid down in various laws like Information Technology Act, Companies Act 1956 and Copy Right Act and these will be applicable to Cloud service providers and also the customers of the Cloud service.
14. The law of the user's country may restrict cross-border transfer/disclosure of certain information. How can the client be protected in case the Cloud service provider moves data from one jurisdiction to another and a violation takes place? What disclosure guidelines need to be prescribed to avoid such incidents?

COAI Response*

1. The cloud service provider should provide the user with information on their data location policies. The movement of data would be protected both by contractual provisions as well as prevailing data privacy laws. Governments should not limit the location of data or restrict cross border data flow as they limit the efficiency and efficacy of cloud services and limit user choices and necessary safeguards may be built if required.
 2. At present, contractual provisions ensuring access, specifying location of storage, and defining other obligations are sufficient to protect the interests of consumers' vis-à-vis service providers. The regulatory approach to cloud regulation should be characterised by a capability to support new and innovative business model, market diversity, and freedom to innovate.
 3. Thus, there is presently no requirement for any aspect of the emerging cloud segment to be regulated by imposing mandatory regulations. However, the Government may ensure consumer rights are protected by prescribing voluntary disclosure guidelines and transparency norms in relation to location of storage and movement of cloud-data carried out cross-border.
15. What policies, systems and processes are required to be defined for information governance framework in Cloud, from lawful interception point of view and particularly if it is hosted in a different country?

COAI Response

1. Existing frameworks under Indian Information technology and criminal law (including Mutual Legal Assistance Treaties – MLAT) are sufficient to address any requirements in relation to lawful interception. Thus, there is no need for any additional regulation at this point as it would lead to overly burdensome compliance with no corresponding benefits.

2. However, adequate training and capacity development is required in order to effectively enforce existing provisions of law. This will ensure lawful interceptions activities are carried out effectively while ensuring service providers are not over-burdened with compliance requirements.

16. What shall be the scope of cloud computing services in law? What is your view on providing license or registration to Cloud service providers so as to subject them to the obligations thereunder? Please comment with justification.

COAI Response

1. In India, as cloud services are at an emerging stage, any restriction in the scope may hamper the expansion of these services. All individuals, organizations including telcos and non-telcos should be allowed to utilize the cloud platforms for all their respective database and information without any restrictions.

17. What should be the protocol for cloud service providers to submit to the territorial jurisdiction of India for the purpose of lawful access of information? What should be the effective guidelines for and actions against those CSPs that are identified to be in possession of information related to the commission of a breach of National security of India?

COAI Response

1. The maximum economic potential of cloud can only be realised if the same is permitted to be operated in a global setting with no restrictions on cross-border data flows. While national security and lawful access to information are legitimate policy goals, there currently exist robust domestic and international system to ensure that their ends are met. Existing systems for lawful access include IT legislation as well as procedures under MLATs entered into by various states. Mandating any restrictions on the cloud data or technologies that may be adopted, would disincentivise cloud adoption and increase the cost of doing business in the country.

18. What are the steps that can be taken by the government for:

- a. promoting cloud computing in e-governance projects.
- b. promoting establishment of data centres in India.
- c. encouraging business and private organizations utilize cloud services
- d. to boost Digital India and Smart Cities incentive using cloud.

COAI Response

1. The policy requirements for India should begin with encouraging sustainable innovation and emergence of best-practices – both technical and governance-related. The objective should be to create an enabling environment for private players to enter the data centre market and to meet the growing needs of data management in India.
2. At this time, the technical aspects of cloud are still emerging and hence there should be no mandatory legal provisions as these would only hamper the emergence of the sector and harm India's reputation as a hub for technical innovation. Policy should

also be tailored towards increasing investments and ensuring the ease of doing business.

3. In this regard, the Government should ensure close coordination and cooperation between all stakeholders in e-governance, investment promotion, and enhancing digital literacy. This will ensure that all views are represented as the segment further develops, and best-practices are allowed to emerge in consultative manner. In addition, public-private partnerships are an important tool in developing the segment by leveraging existing know-how and utilising respective expertise of the private and public sectors.

19. Should there be a dedicated cloud for government applications? To what extent should it support a multi-tenant environment and what should be the rules regulating such an environment?

COAI Response

1. Considering the huge database and security of the information involved, it is suggested that separate dedicated cloud could be maintained for government applications. As the Governance services required accessibility by multiple users at a particular instant of time, a highly multi-tenant technology must be implemented for the access of such services on cloud. The database and access of the same should be brought under the purview of the IT Act 2000 of India.
2. However, on the whole the governmental approach to cloud regulation should be characterised by a capability to support new and innovative business model, market diversity, and freedom to innovate. In this regard, there is presently no requirement for any aspect of the emerging cloud segment to be regulated by imposing mandatory regulations. Market forces should be permitted to operate freely and determine different product offerings.

20. What infrastructure challenges does India face towards development and deployment of state data centres in India? What should be the protocol for information sharing between states and between state and central?

COAI Response

1. India faces a number of infrastructural challenges toward development of state data centres including non-availability/reliability of power supply and water infrastructure, low levels of connectivity, and a number of compliance-related barriers in setting up business in India.
2. The government must adopt measures aimed at improving the ease of doing business through faster approvals, single window clearances, improved utility infrastructure, and dynamic policy-making. If these are implemented, India's potential to serve as a leading hub of technical innovation can be realised.

21. What tax subsidies should be proposed to incentivise the promotion of Cloud Services in India? Give your comments with justification. What are the other incentives that can be given to private sector for the creation of data centres and cloud services platforms in India?

COAI Response

1. Data centres incur one-time and recurring taxes that have a significant impact on long-term costs for any data centre. The capital-intensive nature of a data centre triggers relatively high sales taxes and property taxes. The Government policies should offer tax-incentives and duty refunds that will encourage service providers to open more of their operations within India.
2. Additionally, benefits may be provided in the form of subsidized electricity/water tariffs, and financial incentives to adopt renewable sources of energy and use indigenously manufactured inputs. However, these should be offered as incentives and not as mandatory requirements to ensure flexibility in business models, innovation, and sustainable growth of the cloud segment in entirety.

** Reliance Jio, which is also a member of COAI, has a divergent view on these points.*