महानगर टेलीफोन निगम लि॰
(भारत सरकार का उद्यम)
Mahanagar Telephone Nigam Ltd.
(A Government of India Enterprise)
CIN: L32101DL1986GOI023501

स्वच्छ भारत
एक कदम स्वच्छता की ओर

MTNL/RA/TRAI-C.P./Cloud Computing/2016
Dated 25.07.2016

To,

The Advisor (F & EA)
TRAI, New Delhi

Sub. : Comments on TRAI Consultation Paper dated 10.06.2016 on "Cloud Computing".

TRAI issued Consultation paper on 10.06.2016 on the aforesaid subject and asked the various stakeholders to comment on the issues involved in the consultation paper. In this reference following comments are submitted for consideration:

Question 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.

MTNL COMMENTS:

a. As cloud based services are available in many flavors, any of the flavors can be used to conceptualize a design for the application being designed to run. Since cloud services do not involve setting up of data center by the application designer, the application planned can be faster rolled out and thereby services can be rolled out quickly.

b. Application vendors who offer the services as mentioned can reduce the cost by offering the applications on cloud as this does not involve capex and infrastructure arrangement. Service providers offering cloud services can offer packages which are on opex based and shall help

application vendors to roll out services quickly.

   c. New service if available on cloud can easily be expanded as cloud infrastructure is designed for easy scalability and elasticity.

Question 2. Please indicate with details how the economies of scale in the cloud will help cost reduction in the IT budget of an organization?

MTNL COMMENTS: The issue has already been addressed in Consultation Paper, hence no comments are submitted.

Question 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?

MTNL COMMENTS: The following major parameters may be considered while selecting type of cloud deployment model:

- Availability / *On demand access*
- Response Time/ *Data Intensive*
- User Rating
- Price
- Network Performance
- System Performance
- Financial Credit
- Security of data
- Migration
- Sharing of Resources
- Scalability & Rapid Elasticity
- Location of data server (within country for outside or within own premise)

The decision of parameter for large business and SMEs depends on type of application being hosted, compatibility of cloud service provider infrastructure and platform, and cost benefit analysis of individual organization. Organization will prefer to host their website/application, which are to be used by the public users, but for their internal applications like ERP, HR modules etc., the above parameters along with cost of data bandwidth is required to be considered by organizations.

Due to cost-benefit analysis, security and other challenges with cloud service provider, large business centers may prefer their own data centers, while SMEs due to cost consideration may prefer cloud service.

Question 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?

MTNL COMMENTS: Technology and platform independent APIs may be prescribed for smooth migration of application and data for the cloud service providers, so that change over of cloud service providers is glitch free.

Question 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?

MTNL COMMENTS: From a legal perspective, it is imperative that the service provider remains in the role of a data processor and the customer in the role of the data controller. The cloud customer is the data controller as long as it decides what data to upload, download, access, transfer, delete and otherwise process. The following provisions in policy may provide for effective control of customer over his data:

- Knowledge: cloud computing service provider also has to provide key information about storage locations, processing practices and subcontractors.
- Access controls: to ensure that only those who are authorized to access the data can do so. Sensitive data must also be protected in storage and transfer. Encrypting the data can help to do this. (Limits to Access- Govt. and law enforcement requests).
- Authorization: Change management controls to ensure that data can't be changed without proper authorization.
- Backup and recovery controls: Many security breaches come from problems in data backup. It is important to maintain physical and logical controls over data backup.
- Security control (encryption key provided to subscriber): Data security controls are provided automatically, transparently, and easily, without customers having to change their operations, and encryption should be non disruptive to the customer's applications and business practices
- Access, retention, protection and portability of data, on termination of contract.
- Data destruction controls: to ensure that when data is permanently deleted it is deleted from everywhere, including all backup and redundant storage sites.

Question 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?

MTNL COMMENTS: The technical standards for such services are already available in market and may be used for interoperability.

Further as the industry is in developing stage in India, hence light touch regulation may be adopted, and guidelines may be issued regarding interoperability issues for both cloud service provider and user.

Question 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.

MTNL COMMENTS: Service Consistency and high availability, Accuracy of Service, Fault Tolerance, Recoverability, latency, least MTTR. As the industry is in evolving phase, the benchmarks may be decided at subsequent stages or may be left between the contracting parties.

Question 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?

MTNL COMMENTS: For Indian CSPs, billing and metering regulations may be issued by Regulator, for which regular audits may be conducted by the regulator. The dispute resolution may be governed by the existing dispute resolution provisions in telecom services.

Question 9. What mechanism should be in place for handling customer complaints and grievances in Cloud services? Please comment with justification.

MTNL COMMENTS:

    a. Call Centers
    b. I-CRM
    c. SMS
    d. Dedicated – support / complain handler

Question 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.

MTNL COMMENTS: The cloud shall ensure the following security aspects:
1. Logical Security
2. Personnel Security
3. System Security
4. Network Security
5. Physical and Environmental Security
6. Data security

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

MTNL COMMENTS:
- CSP shall treat all documents/data/software or part of them, which one may provide, as strictly confidential and maintain secrecy for the same.
- CSP shall not publish, disclose any information about, make available or otherwise dispose of the document/ data/ software or any part or parts thereof to any third party, directly or indirectly without prior written consent of the customer.
- CSP shall restrict access to the documents/ data/ software only to those of their employees to whom it will be felt necessary and relevant and shall draw the provision of this undertaking to the personal attention of those of its employees to whom access to the document/data/software will be granted.

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

MTNL COMMENTS: Please Refer comments at 4 & 10.

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

MTNL COMMENTS:

Role & Responsibility of CSP :
1. Physical Access Control
2. Monitoring
3. System and network security
4. Access control policy
5. Password management
6. System Access Control

7. Secure Log on procedures
8. System Time and Synchronization
9. Logs
10. Protecting from Attacks and malware etc.
11. Protecting application services transactions
12. security audits
13. maintaining SLA
14. Legal and Regulatory compliance

User Responsibility:

1. Development Cycles
2. Outsourced development
3. Password management

Question 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?

MTNL COMMENTS: The agreement between CSP and customer may cover the necessary provisions, which bars the CSP from moving the data across border.

Further existing Information Technology Act, and cyber laws may be amended suitably to take proper action for such incidents.

Question 15. What polices, 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?

MTNL COMMENTS: If the cloud is hosted in different country, the onus of Lawful interception will fall on ISP, hence the existing framework for LIS for ISPs may be amended suitably.

Question 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.

MTNL COMMENTS: The cloud service industry is in evolving stage and promotes innovation. Hence it is proposed that it may be mandated that the CSPs establishing infrastructure in country, should intimate all the necessary

details regarding offered services, to concerned government authorities, prior to offering the services.

The best legal practices/provisions worldwide may be followed.

Question 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?

MTNL COMMENTS: It should be identical to the provisions in present licensing framework for telecom services.

Question 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 centers in India. (c) Encouraging business and private organizations utilize cloud services (d) to boost Digital India and Smart Cities incentive using cloud.

Question 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?

MTNL COMMENTS: In view of security aspect of data, it is proposed that all e-governance projects should be hosted on dedicated cloud owned by Government or PSUs. Although the NOFN project for effective connectivity is already in implementation stage.
To promote the cloud computing in India, set-ups like SEZ may be promoted.
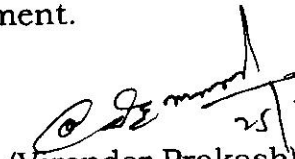
Question 20. What infrastructure challenges does India face towards development and deployment of state data centres in India? What should be the protocol for information sharing between states and between state and central?

MTNL COMMENTS: No comments.

Question 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?

MTNL COMMENTS: The issue is prerogative of the Government.

(Virender Prakash)
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