

QUESTION 3/1

Access to cloud computing: Challenges and opportunities for developing countries

1 Statement of the situation or problem

Cloud computing is a concept in the world of multimedia, and one towards which the world is now gradually moving, in view of the many powerful advantages it offers. This concept can be summarized as a model enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service-provider interaction.

For many countries, cloud computing represents a possible solution to the lack of adequate computing resources and it has achieved remarkable growth in many of the most developed countries, particularly after the adoption of this trend by mobile-telephone operators and manufacturers. Cloud computing is considered by key industry leaders to be the next technological revolution of the twenty-first century.

The main key characteristics of cloud computing are economies of scale (infrastructure sharing) and flexibility of use.

2 Question or issue for study

- a) Discuss infrastructure needs for supporting and enabling access to cloud services, and highlight best practices for developing such infrastructure.
- b) Examine definitions and characteristics of cloud computing and its future trends.
- c) What are the features of networks that support effective access to cloud-computing services?
- d) Building and developing a sufficient group of existing frameworks to support investment in infrastructure for cloud computing, taking into consideration relevant standards recognized or under study in the other two ITU Sectors.
- e) Costs associated with the adoption of cloud computing.
- f) Develop case studies of successful cloud-computing platforms used in developing countries.

3 Expected output

- a) Yearly progress report on the above study items.
- b) A progress report midway through the study cycle.
- c) A final report for the Question that includes:
 - Analysis of the factors influencing effective access to support cloud computing.
 - A set of guidelines, such as policy or technical approaches, among others, for facilitating infrastructure deployment, which could be delivered, *inter alia*, through training seminars in accordance with the ITU-D programme on Capacity building.
 - A handbook on infrastructure supporting cloud computing in developing countries. This handbook will be the result of study group collaboration between ITU-T Study Group 13 and the rapporteur group dealing with this Question as part of ITU-D Study Group 1.
 - Draft Recommendation(s), as appropriate and if justified.

4 Timing

The interim report on this Question is expected by 2016. The final report is expected in 2017 at the end of the ITU-D study period.

5 Proposers/sponsors

Arab States; African States.

6 Sources of input

- 1) Results of related technical progress in relevant ITU-T study groups, in particular Study Group 13.
- 2) ITU publications on cloud-computing services.
- 3) Relevant reports of national and/or regional organizations in developing and developed countries.
- 4) Contributions on experiences with providing access to cloud-computing services in developed and developing countries.
- 5) Relevant inputs from service providers and manufacturers.
- 6) Relevant inputs from BDT programmes related to cloud computing.

7 Target audience

a) Target audience

Target audience	Developed countries	Developing countries¹
Telecom policy-makers	Yes	Yes
Telecom regulators	Yes	Yes
Service providers/operators	Yes	Yes
Manufacturers	Yes	Yes

b) Proposed methods for implementation of the results

The work of the rapporteur group will be conducted and publicized through the ITU-D website as well as through documents and appropriate liaison statements. The results of the work will also be used by relevant BDT programmes as components of the toolkit BDT uses when solicited by Member States and Sector Members to support their efforts to migrate to cloud-computing services.

8 Proposed methods for handling the Question

The Question will be handled by a rapporteur group of ITU-D Study Group 1.

9 Coordination and collaboration

In order to coordinate effectively and avoid duplication of activities, the study should take into consideration:

¹ These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition.

- outputs from the relevant ITU-T study groups, in particular those made available by ITU-T Study Group 13;
- the relevant outputs from ITU-D Questions;
- inputs from the relevant BDT programmes.

10 Relevant programme

The relevant programmes will be the programmes on Policy and regulatory environment, Capacity building, Cybersecurity, ICT applications and Telecommunication/ICT networks.

11 Other relevant information

As may become apparent within the life of the Question.