

## An Innovative Cloud Computing Infrastructure for e-Tourism

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### Abstract

*Cloud computing provides a variety of cloud services and has been used by more and more travellers. It's also a promising infrastructure which provides computation and storage resources as services. This research paper provides an approach on how to use Cloud computing in e-tourism, focusing on the implementation need and benefits. It also presents the architecture of e-tourism management system based on cloud computing infrastructure.*

### Keywords

*Cloud computing, e-tourism, infrastructure layer, content layer, application layer*

### I. Introduction

Cloud computing is emerging as a new trend in computational and storage resource allocation and provisioning technology [1]. A cloud can be used to provide inexpensive solutions with minimal infrastructure.

A cloud is a type of distributed data center which delivers infrastructures as services. It consists of massive resources, and provides some mechanisms to provide, reimage, workload rebalance, de-provide, and monitor those resources. It represents as one or more unified resource entities, and users/applications with services to access those resources without knowing the detailed information. [6]

The cloud computing deal with anything that involves delivering hosted service over the Internet. Cloud computing is applied more on the information technology today which helps the business reducing the cost for host computer. Cloud could provide a much more reliable and secure infrastructure [8]. The large host computer is made by collecting all small servers and computers on over the world. By using cloud computing, the

business does not need to own a host/server computer and payment for software licenses. Instead, the software will be transferred to a thousand of users through browser. The mobile device can serve as thin client.

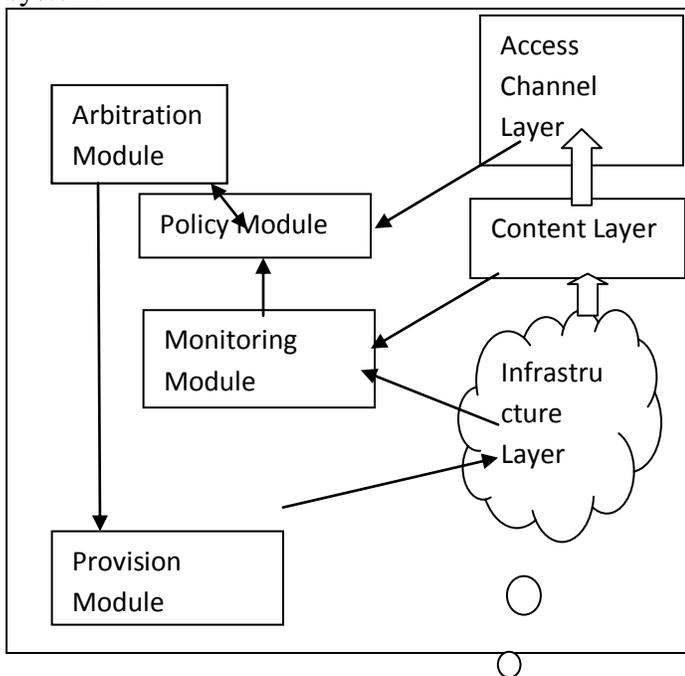
### II. Cloud Computing and E-tourism

The emerging cloud computing appears well-suited to meet the demand of a broad set of e-tourism service scenarios. Effective and timely communication between tourists, people, guides, government agencies, private agencies and other professionals is vital to good e-tourism services. In particular, the concept of shared infrastructure and services provides the foundation for supporting tourism service ecosystems.

The emerging cloud computing technologies provide a promising approach to address the IT needs for the future collaborative and coordinated e-tourism. Not only tourism services will be shared, but the associated tourism IT services will also be delivered to and consumed by the interconnected e-tourism system participants. By introducing dynamic infrastructure-as-a-service to the players needing a digital presences on the network, a pay-by-usage model can be deployed to address the concerns of the cost of the IT services and overcome the entry-cost barriers, in particular for the small and rural parties. Moreover, the common infrastructure can simplify the sharing and governance of the tourism information to better facilitate the transformation to people-centric service and evidence-based service.

### III. Proposed Architecture

The following figure 1 describes the proposed architecture for cloud based e-tourism system.



**Figure 1 Architecture for e-tourism System based on Cloud Computing Infrastructure**

Our proposed architecture contains three layers and four modules.

#### a) Access Channel Layer

The Access Channel layer is responsible for handling all the interactions between various users with the cloud based tourism applications and provides the users with rich internet application experience through its interface. This layer handles the construction and presentation of the user views, device handling of content, manages view states, controls the user access, manages the session and provides the right content for the right person through personalized content [8]. It consists of tourism services, systems tools, and so on.

#### b) Content Layer

It mainly consists of cloud based contents, such as web file systems, database systems, web

services, and so on. This layer exposes the standard interfaces and APIs of contents for higher layers.

#### b) Infrastructure Layer

This acts as the resource pool of cloud based tourism system. This infrastructure is managed by cloud computing platform. Hardware and software virtualization technologies are used to ensure the stability and reliability of the infrastructure. Supplying computation and storage capacities for higher layer, it is the energy source of cloud based tourism system.

#### Monitoring module

Monitoring module keeps track of the executions of requests, the real-time configuration information, resource utilization, the health of CPU, memory, I/O, and so on [6].

#### Policy module

Policy module establishes and maintains the e-tourism strategies, the run-time and resource scheduling strategies. According to the data from monitoring module and the strategies of its own, policy module establishes specific solutions, and then triggers provision module. Policy module also decides which request to get higher priorities on resource scheduling according to some tourism policies [6].

#### Arbitration module

Few of the Arbitration module policies are made by experts manually, requests from users are completed, and some disputes among various peoples within the tourism system are solved. Arbitration module adjusts, and improves the resource allocation and management. It also establishes usage modes for different kinds of users based on the conditions. Arbitration module is an efficient complement to the policy module, while the privilege of its policy is higher than the one in the policy module [6].

#### Provision module

Provision module starts the execution of resource allocation solutions set by the policy module and arbitration module, and deploys resources referred to users automatically in a short time. If the request comes from a user, some related

information such as IP, user name and password will be supplied [6].

#### IV. Cloud based e-Tourism System

Cloud based tourism system provides individuals with a quick transaction-based device for managing tourism related information. The users receive the information, including food and beverage, shopping, insurance, foreign transaction, commission charges and entertainment details.

Cloud based e-tourism arrangement allows traveller to stay at home, local community, and hotels. This cloud based tourism system is used for use by people, government agencies, private agencies, and other professionals, as well as by peoples and devices used to monitor travellers. Multimedia inputs, outputs with text, images, and speeches are to make the system more attractive and effective.

This system uses a mobile device for transmitting details to the cloud infrastructure which could be accessed by the peoples using their mobile/laptop/pc.

Every tourism agencies provides the actual services for the cloud based tourism system. The devices accessing services from the agencies can be desktop or server computers as well as PDAs or smart phones.

Every tourism agencies contains Tourism and travel-related services includes services provided by hotels and restaurants, travel agencies and tour operator services, tourist guide services and other related services. The following figure 2 shows the cloud based e-tourism system.

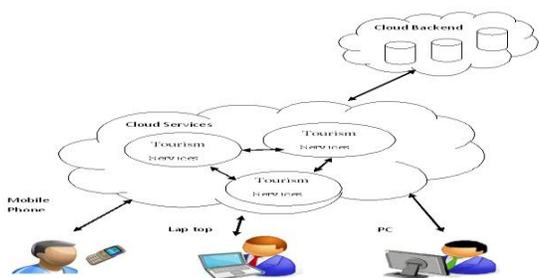


Figure 2 Cloud Based e-Tourism System

#### V. Cloud based e-Tourism System Process Flow

Peoples submit the details such as name, food and drink, activities, events and shopping details to the cloud services. Once the corresponding details are inserted, an Alert/SMS would be sent by the cloud to the travellers with the traveller Id, who can then see the details by using the application embedded in his mobile. After analyzing the details the tourism authorities would submit the details to the transport and the hotels who had submitted the traveller details. Information regarding transport and hotels would help them to communicate the details to the traveller and to deliver the details to the traveller's mobile phones. A local database on the agencies mobile also made available to store details of the traveller, which could be used when there is low mobile network connectivity. Details will be updated at public cloud the SMS alert will then be sent to hotel and transport, who will arrange to deliver.

#### VI. Benefits of the proposed system

This system provides tourism related information to be shared among a various community including travellers, government agencies, private agencies, hotels and, insurance companies, etc.

This cloud based e-tourism system is used for use by public and private tourism agencies, and other professionals, as well as by customers and other digital devices used to monitor travellers. Inputs and outputs are given by multimedia text and images with voice. So this system is more attractive to the users.

This system provides increased accuracy and efficiency, better communication among e-tourism agencies, and reduced risk of errors. Effective Decision Making by providing secured access to Travellers Electronic Records at anytime and anywhere.

#### VII. Conclusion

Cloud computing infrastructure and related mechanisms allow for the stability, equilibrium, efficient resource use, and sustainability of cloud based tourism system. Cloud based tourism has

been demonstrated to reduce cost and improve the quality of care for customers. Our cloud based tourism system provides user-friendly interfaces for busy e-tourism professionals and customers. In future we can add more agencies in the cloud and we can take more care depends upon the traveller's condition.

### VIII. References

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