

# Chapter 46

## Use of Cloud, Multimedia, and QR Codes to Enhance Print Maps

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### ABSTRACT

*Quick response (QR) codes are two-dimensional codes. They are machine-readable optical labels which contain information of the object on which they are attached. Due to their large storage capacity and faster readability, they are becoming more popular than one-dimensional bar codes. They are widely used in creation of inventories, product tracking, document management, etc. With the widespread use of smart phones, QR codes are becoming more popular. QR code interpreting apps are freely available and all modern smartphones are equipped with a camera and internet to process and interpret these codes. The value of printed maps can also be enhanced by using QR codes. This chapter reviews how the value of printed or hard copy maps can be enhanced by adding QR codes that have multimedia content placed on the Cloud.*

### INTRODUCTION

Maps are tools with the help of which the situation of the particular area can be visualized topographically and thematically. Now day's web interactive maps are more popular than print or hard copy maps. Google Maps and Bing Maps are best examples of such websites, where a user can PAN, zoom and query the data. Multimedia data like images, video, music, animations, slide shows, documents, and website links

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etc. can be linked to the map features. One such example is the 2012 U.S. presidential campaign website (<https://www.google.com/maps/d/viewer?mid=zNvDJoOATiic.kpXHGGQXy0L58>) where YouTube videos are linked to the map features. In Google Earth also we can see various examples of images being linked to the map features. These are examples of multimedia maps where the multimedia is attached or embedded in the maps. Multimedia helps the user to grasp information faster and it improves user experience also. These types of maps help to present geographical information in an intuitive manner. In such web portals the maps as well as the multimedia content is placed on the internet or a web server. As these maps are digital they can be viewed only on a computer or a mobile device.

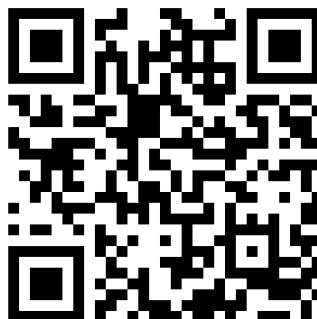
Cloud computing is a style of computing where IT related capabilities (software, infrastructure, platform) are provided as a service through the internet. The important features of the cloud are its low cost, flexibility, fast deployment and scalability. Nowadays people can leverage the cloud facilities like getting storage, access to application software and also processing power. One of the best examples of cloud is the Google Docs application where you can create, manage and store your documents, spreadsheets and presentations online using a simple browser.

Quick response (QR) codes are two dimensional codes. They are machine readable optical labels which contain information of the object on which it is attached. Due to its large storage capacity and faster readability, it is becoming popular day by day than a one dimensional bar code. Figure 1. It consists of a square grid in which black dots are arranged on a white background. Information in the form of URL, text, numbers, email, SMS, visiting card, location and images, etc can be converted into a QR code and a QR code scanning software along with an imaging device like a camera is required to read and interpret the code.

QR codes are becoming popular today and we can see them on various products like magazines, books, medicines, rail tickets, household products etc and the advantage of using them is that they can be printed on paper, cloth, wood, plastic, cardboard and any type of opaque surface. A QR code on a product e.g. medicine bottle, can be scanned with the help of a QR code scanner app in the mobile phone and the details regarding the medicine like manufacturing, composition and expiry etc can be viewed by the consumer in a web page. It can also be used by the seller or the manufacturer for billing and inventory purpose.

QR codes are being used in diverse applications worldwide. Ashford (2010) has improved the library processes by using QR codes. Massis (2011) describes it as a motivating technology for libraries to enhance their own offerings to users with greater potential and possibilities. UC Irvine libraries has

*Figure 1. QR code*



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