Technological Foundations of GSDI: High Performance Spatial Platforms

Xavier Lopez
Director, Spatial and Location Technologies
Oracle Corporation

ABSTRACT

Geographic information technologies are rapidly transitioning from desktop solutions to a new class of enterprise location systems that are delivered via the Web and wireless. In addition, new safety and security requirements now demand that spatial applications be highly scalable, reliable and secure as organizations deliver content services to hundreds, and thousands of users. The emerging GSDI infrastructure is being built upon spatially-enabled data and services that are routinely being incorporated into an organization's mainstream computing architecture. While GIS technology may play a contributing role, the important changes are the underlying IT infrastructure that is becoming location-enabled. This paper highlights these underlying changes taking place in software architectures that will enable this new class of enterprise-class location services.

INTRODUCTION

Interest in spatial information is on the rise. This interest is both stimulated and realized by the increasing use of geographic information systems, online mapping systems and other geographically referenced information on the Internet, the Global Positioning System, location based services, and navigation systems. The increasing complexity and diversity of georeferenced data, combined with continued progress in information technology, generally make geospatial data an important information source for many commercial, scientific and public sector decision making activities. Increased commercial opportunities for using geospatial information, an increased rate of technological advances, a reduction in costs, and an expanding demand for novel applicationsare all on the horizon. National mapping agencies play a critical role in these advances by providing much of the core spatial datasets essential for these emerging applications. As the missions and products of NMAs change from analog to digital, it is important that NMAs understand their new customers, partners, and uses of their digital data products. This paper examine one important application area – location aware computing or commonly referred to as location based services (LBSs).

Location-Based Services (LBSs) consist of a broad range of services that incorporate location information with contextual data to provide a value-added experience to users on the Web or wireless devices. In contrast to the passive fixed Internet, users in the mobile environment are demanding personalized, localized, and timely access to content and real-time services. Targeted data, combined with location determination