A Study of Progressive SVG Maps Transmission on Smartphone

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ABSTRACT

In recent years, Web-based geographic information system has been widely employed in tour guide and medical surveillance Web service. Traditional e-maps were transmitted using Bitmap formats, which transmit huge data in transferring a large map and suffer image quality loss easily. How to transmit graphic information to mobile devices efficiently and appropriately is worth to study. Smartphones have limited low electric power, low computation and small screen, so they have problems in processing a large number of Bitmap format images. SVG (Scalable Vector Graphics) is a XML-based 2D Web Graphics standard, which has all advantages of XML and offers rich multimedia and high resolution graphics to the Web. Recently, SVG is adopted to non-PC devices (PDA、Smartphone and other mobile device) and has shown to be an idea visual interface for GIS applications, even on small screen handheld devices. However, the problem of how to generalize SVG map on the Web to reduce its transmitting time and computation on small devices still remains an interesting research topic. In the past, progressive transmission techniques were applied to Bitmap formats successfully. But how to apply these techniques to SVG map remains an unexplored area. This paper addressed the problems in using Progressive Transmission and LOD (Level of Detail) techniques to display SVG map on smart-phones. We developed an effective scheme to deliver high quality SVG map to smartphones to assist users surfing SVG map promptly.

Keywords : Smartphone ; SVG ; Level-of-Detail ; Progressive Transmission

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