

EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Data Management Systems (4)

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THE DIGITAL GLOBE: A SCALABLE SERVICE-BASED PLATFORM ALLOWING ACCESSIBILITY
TO AND CONTRIBUTION TO GLOBAL CONTENT USING A UNIFIED ARCHITECTURE**Abstract**

The Digital Globe is the realization of a platform that will provide unprecedented access to satellite imagery and information derived from satellite imagery. From a user perspective, The Digital Globe exposes DigitalGlobe's one billion square kilometer satellite imagery archive for user-specific applications. Not only does it expose the raw imagery for manipulation and specialized processing for end users, it also exposes derived information layers and allows global contribution to an ever-expanding portfolio of applications and content. This paper describes the unified architecture created to support the robust platform required to enable the vision of The Digital Globe. This unified architecture was designed to integrate optimized collection, processing, storage, and accessibility of imagery in the core DigitalGlobe ground system with a scalable service-based platform to allow multiple clients to access and contribute to The Digital Globe.

The Digital Globe was designed as a multitier architecture with the focus on user interaction. The presentation layer encompasses how users will access The Digital Globe and includes interfaces to mobile, web, or desktop users for consumption and interaction with The Digital Globe content. The application layer facilitates the workflows and interactions required for the numerous types of applications available. An example of an application for The Digital Globe is a manual analytics service which provides imagery to user who can create an information data layer based on the imagery (e.g. identifying damaged buildings after a disaster). The service layer provides common use services to application workflows including the capabilities to search, fetch, index, discover, and monitor content. The data layer contains the content for The Digital Globe, which is imagery, derived information layers, and cataloged metadata.

The unified architecture was designed to allow all of the aspects of The Digital Globe to work together and scale in each layer appropriate to new product offerings. The initial instance of The Digital Globe has been designed for two specific product offerings, but creates a robust framework to allow exponential growth into the thousands of applications.