

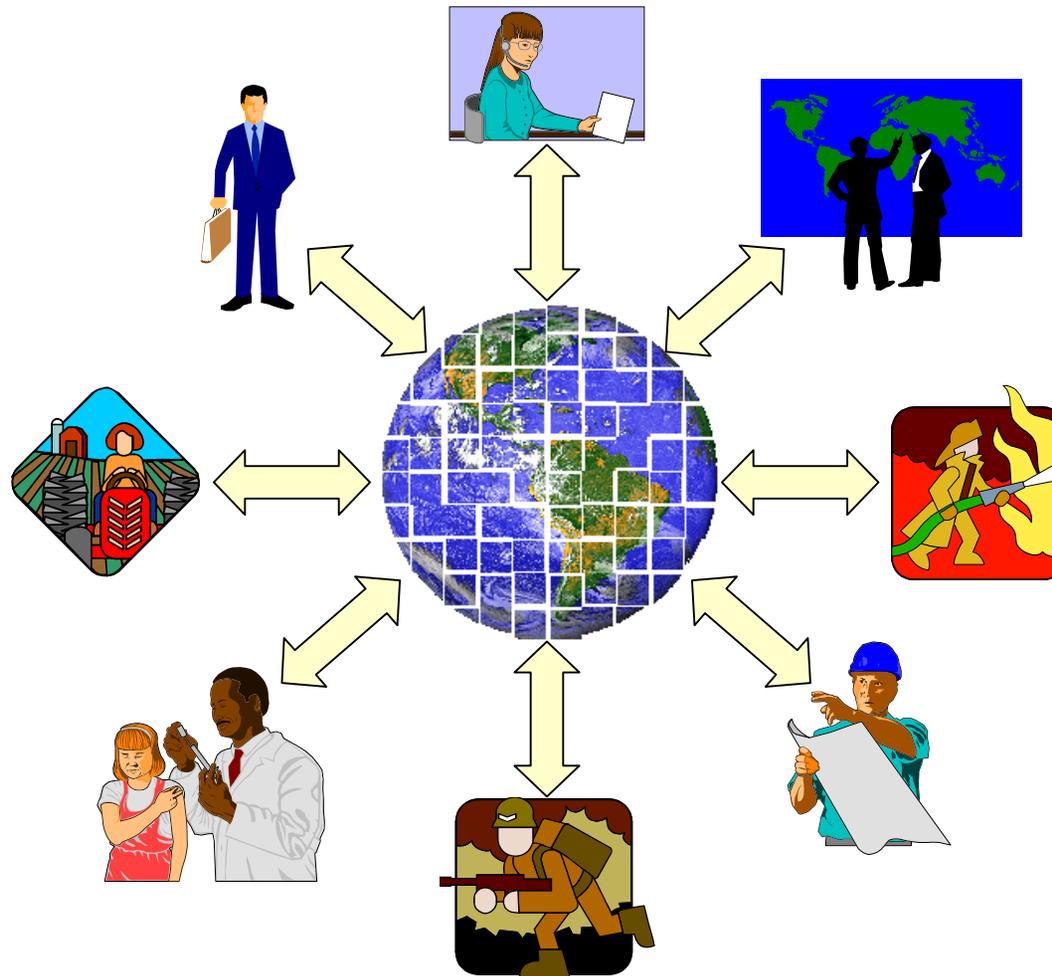


Digital Earth Reference Model v0.1

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Digital Earth

Human Activity Enabled by Geospatial Information



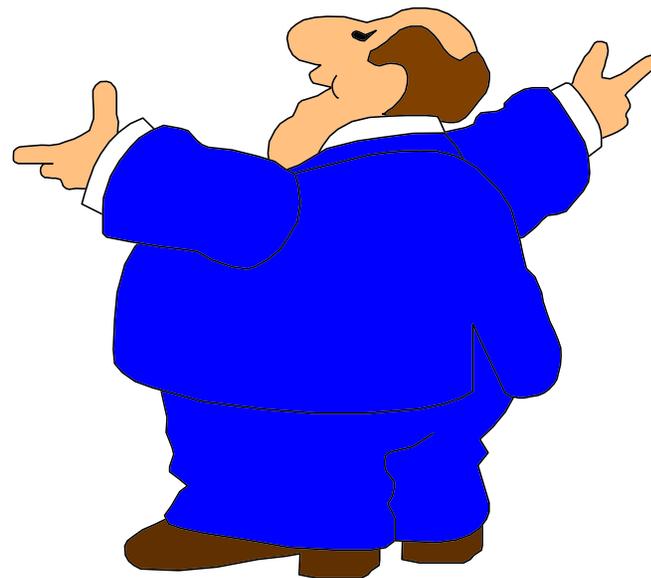
Digital Earth Reference Model v0.1

Guiding Considerations

- Digital Earth is a meta-system connecting existing systems into a coherent, interoperable whole
 - Connecting to Digital Earth must be easy and inexpensive
 - Digital Earth should have a resource multiplying effect for those that connect
- Digital Earth should enable and encourage commercial and public domain participation from the beginning
- Digital Earth should leverage existing resources wherever possible
- Digital Earth should utilize existing standards wherever practical

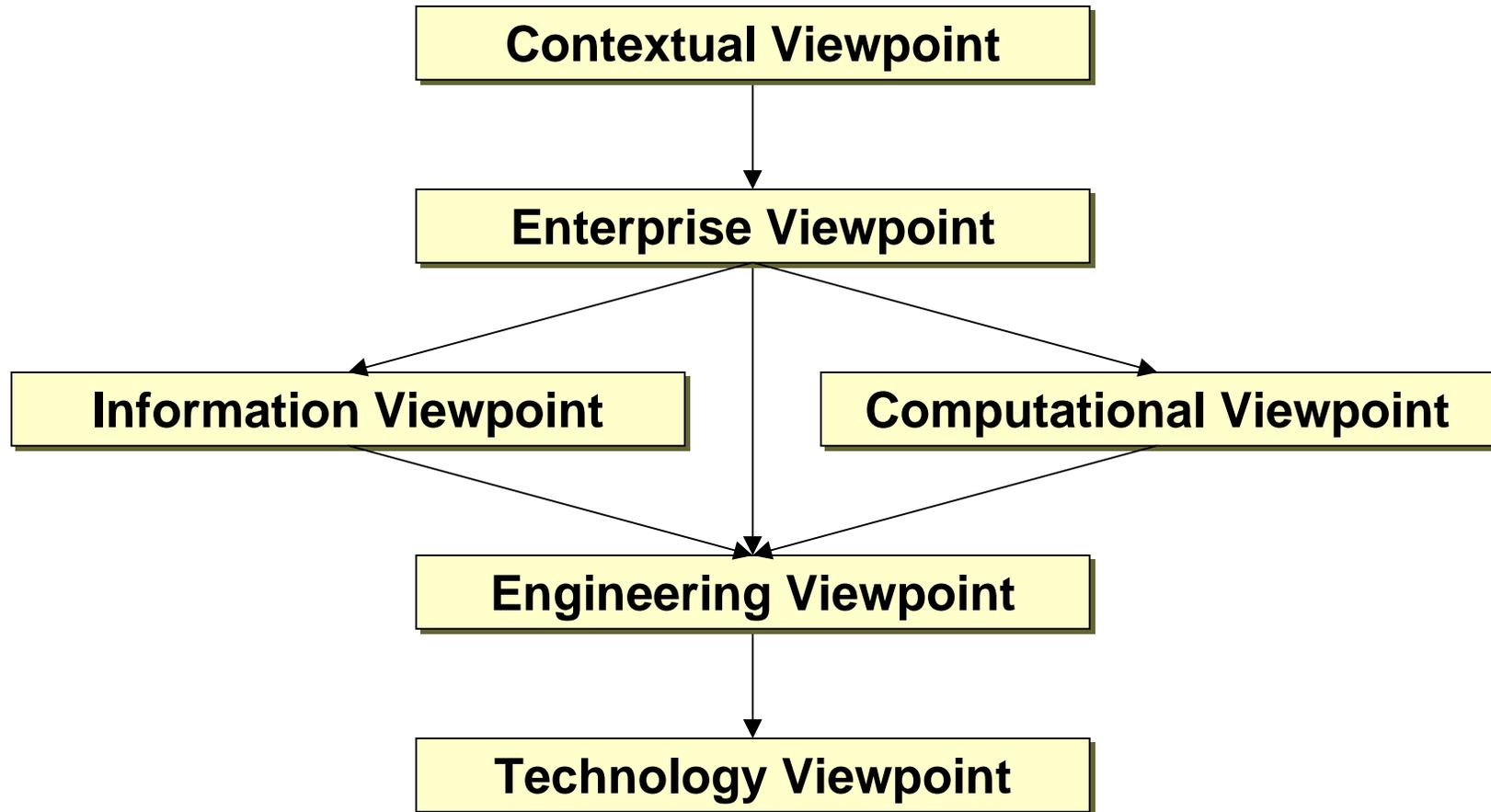
The Digital Earth Reference Model

Communicates Digital Earth Purpose and Design



Digital Earth Reference Model

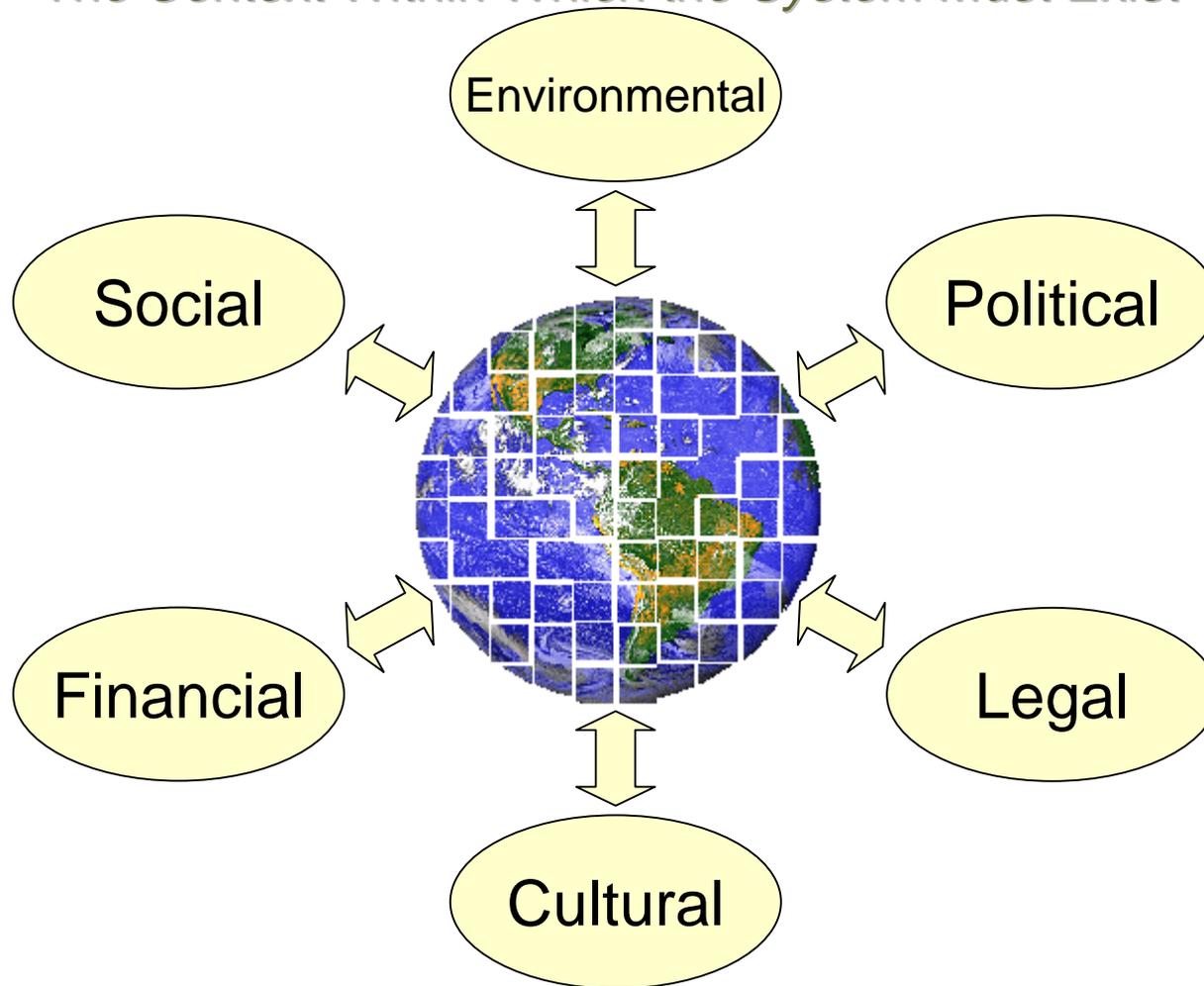
Defines Six Viewpoints for Digital Earth



Based on ISO/IEC 10746: Open Distributed Processing - Reference Model

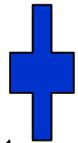
Contextual Viewpoint

The Context Within Which the System Must Exist

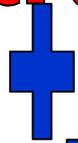


Enterprise Viewpoint
The Parts of Digital Earth

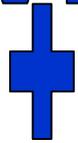
Applications



Infrastructure



Services

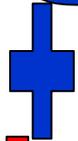


Sources

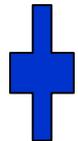


Enterprise Viewpoint
The Parts of Digital Earth

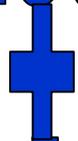
Users



Developers



Intermediaries

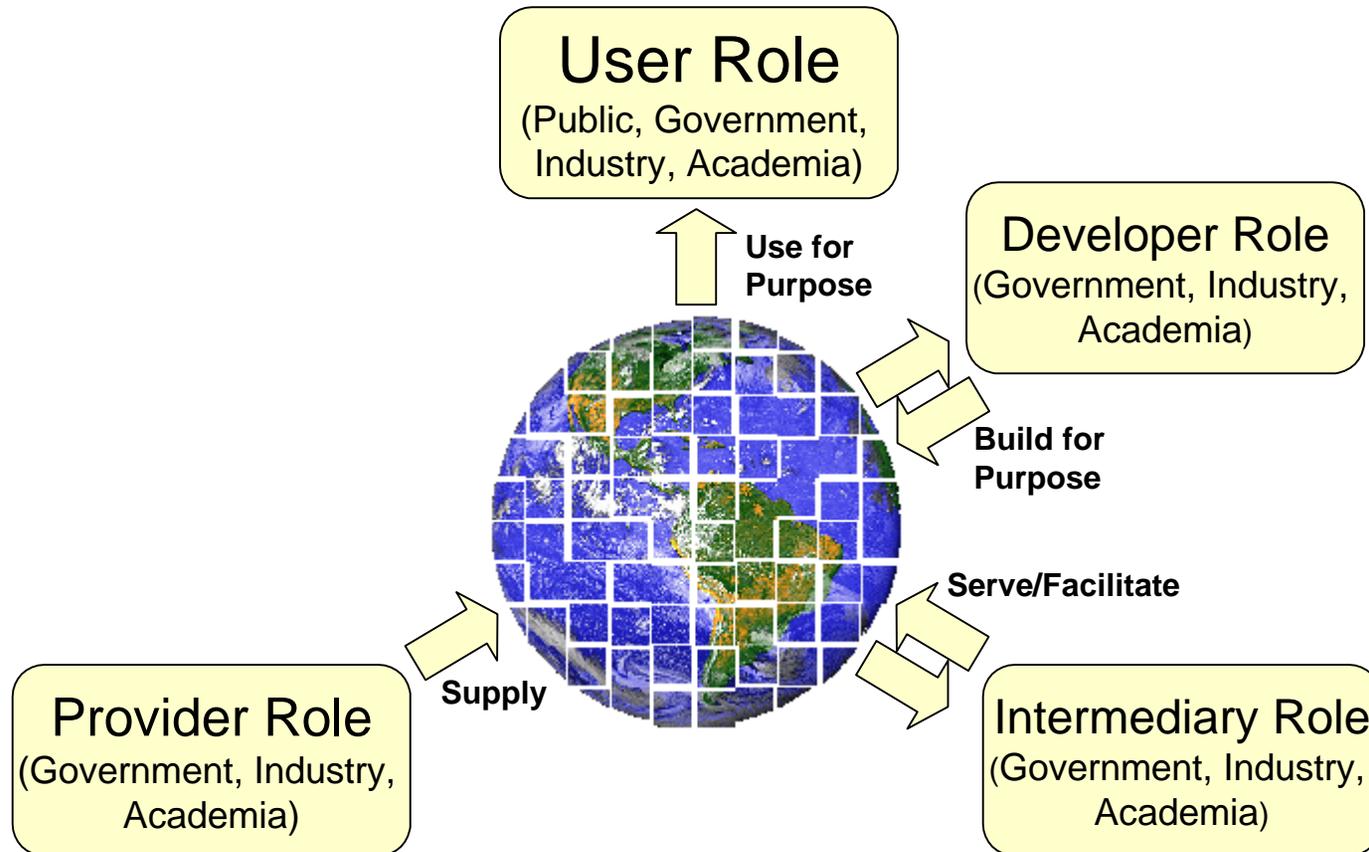


Providers



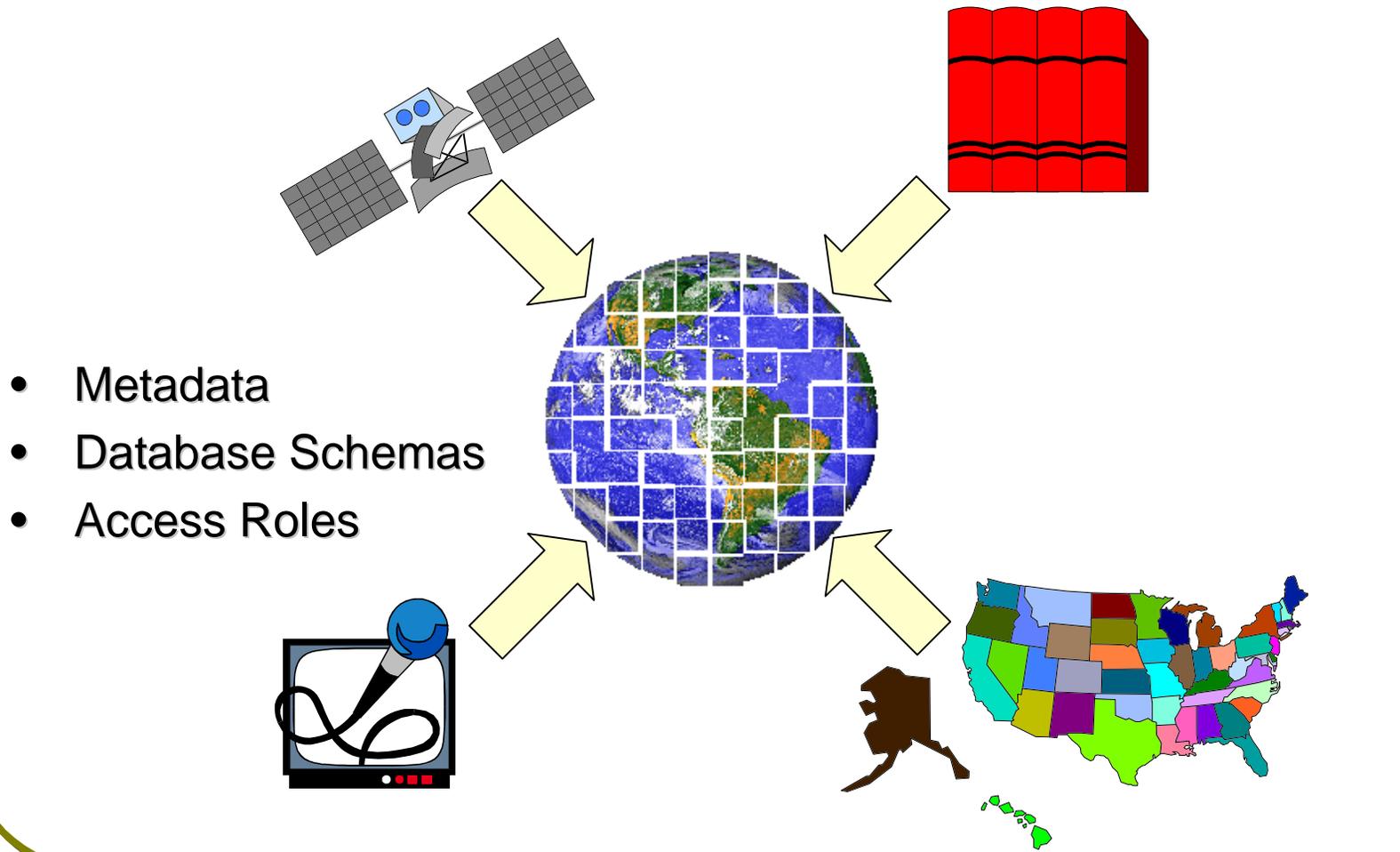
Enterprise Viewpoint

Roles and Activities in the Enterprise the System Serves



Information Viewpoint

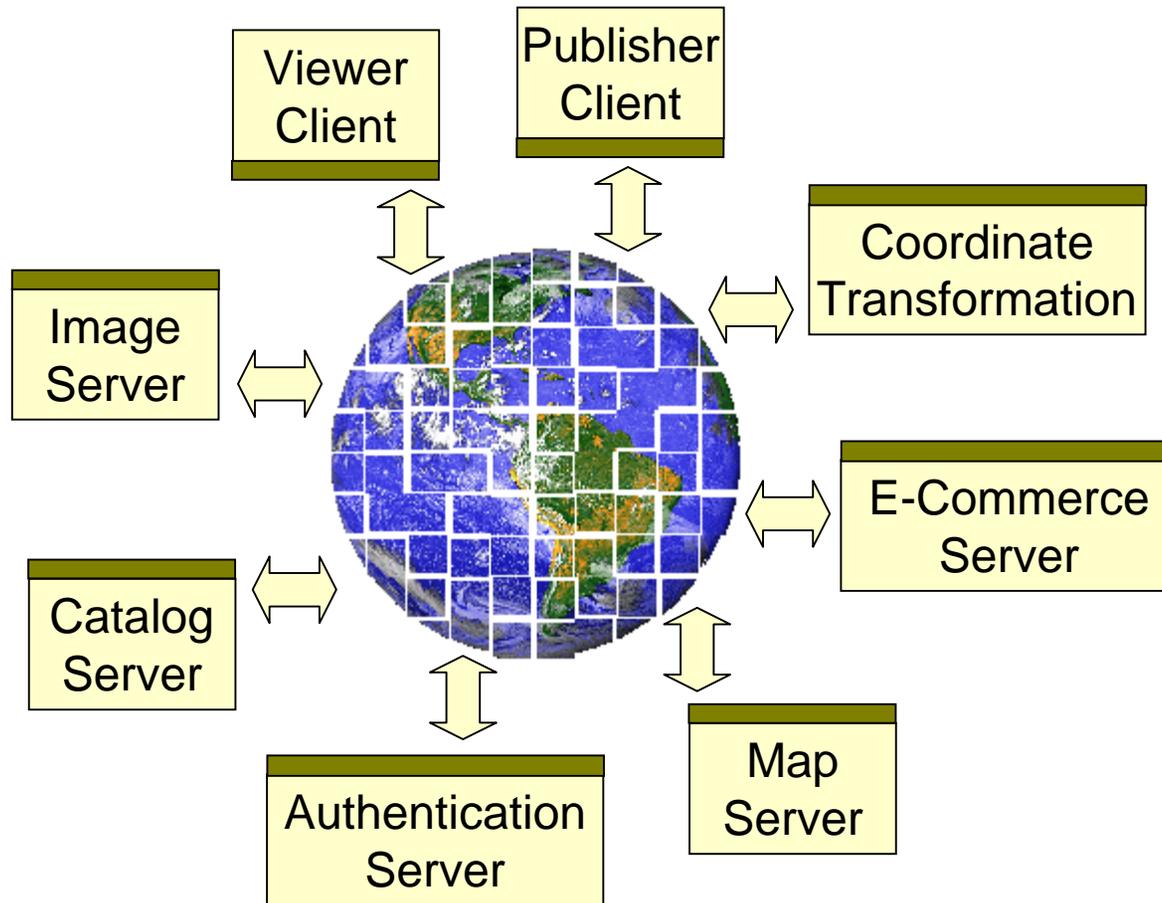
The Semantics of the Information that the System Manages



Digital Earth Reference Model v0.1

Computational Viewpoint

Distribution-Enabled Functional Decomposition (Objects & Interfaces)

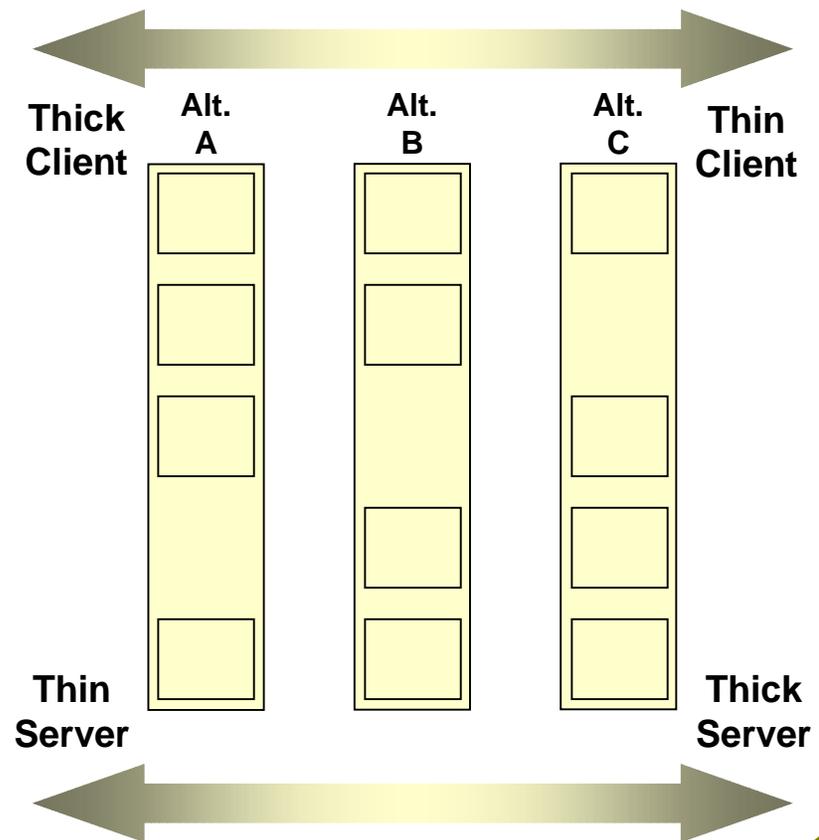


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Engineering Viewpoint

Interfaces “Adjusted” by Engineering Considerations

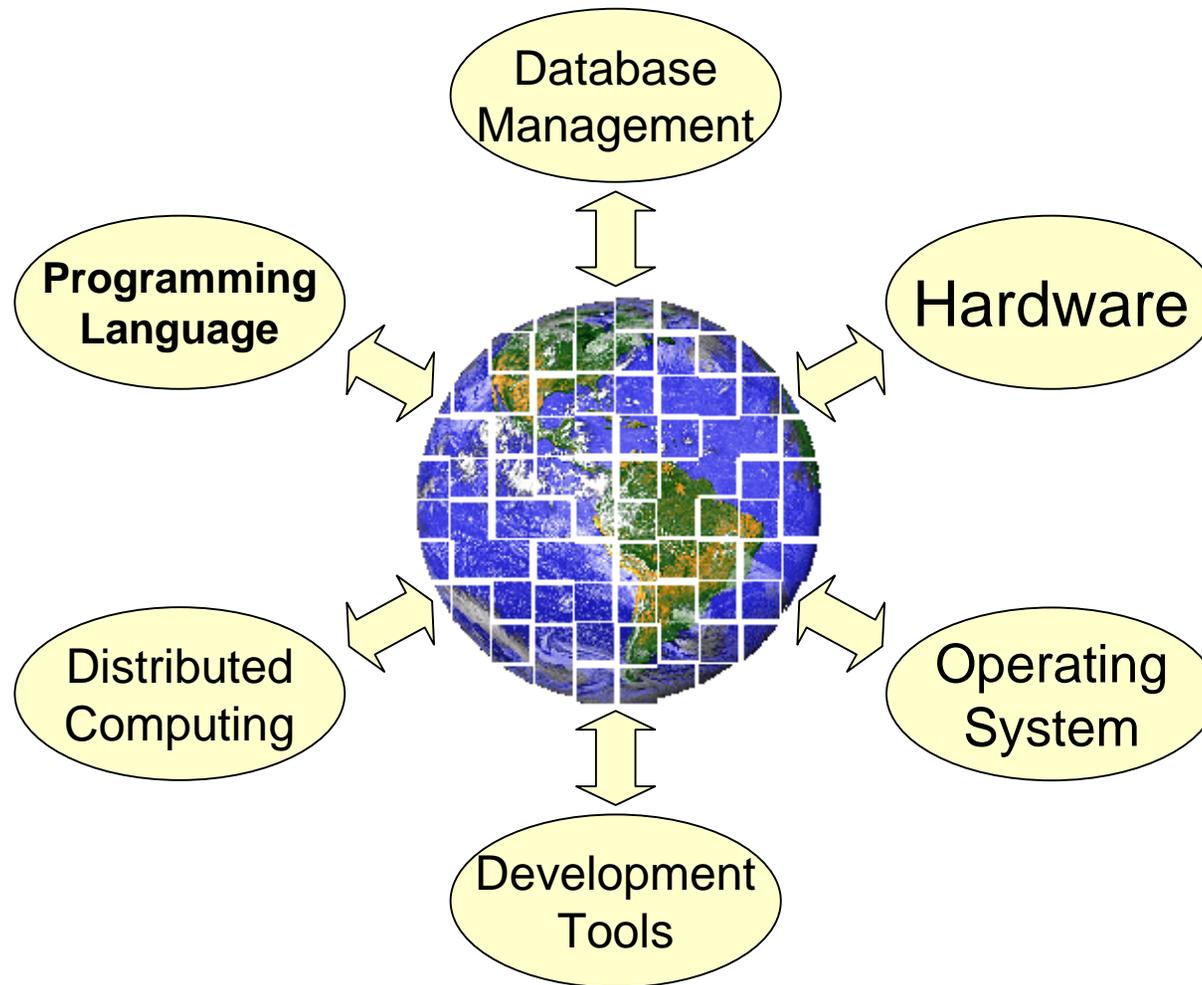
- Digital Earth Infrastructure should support a wide range of architectural and engineering alternatives...
 - from a lower end consumer PC... to a high-end scientific workstation
 - from users connecting via 28.8k modems... to researchers on the gigabit network
 - from vanilla web browsers... to custom-built 3D visualization interfaces
 - from HTTP... to COM... to CORBA



Digital Earth Reference Model v0.1

Technology Viewpoint

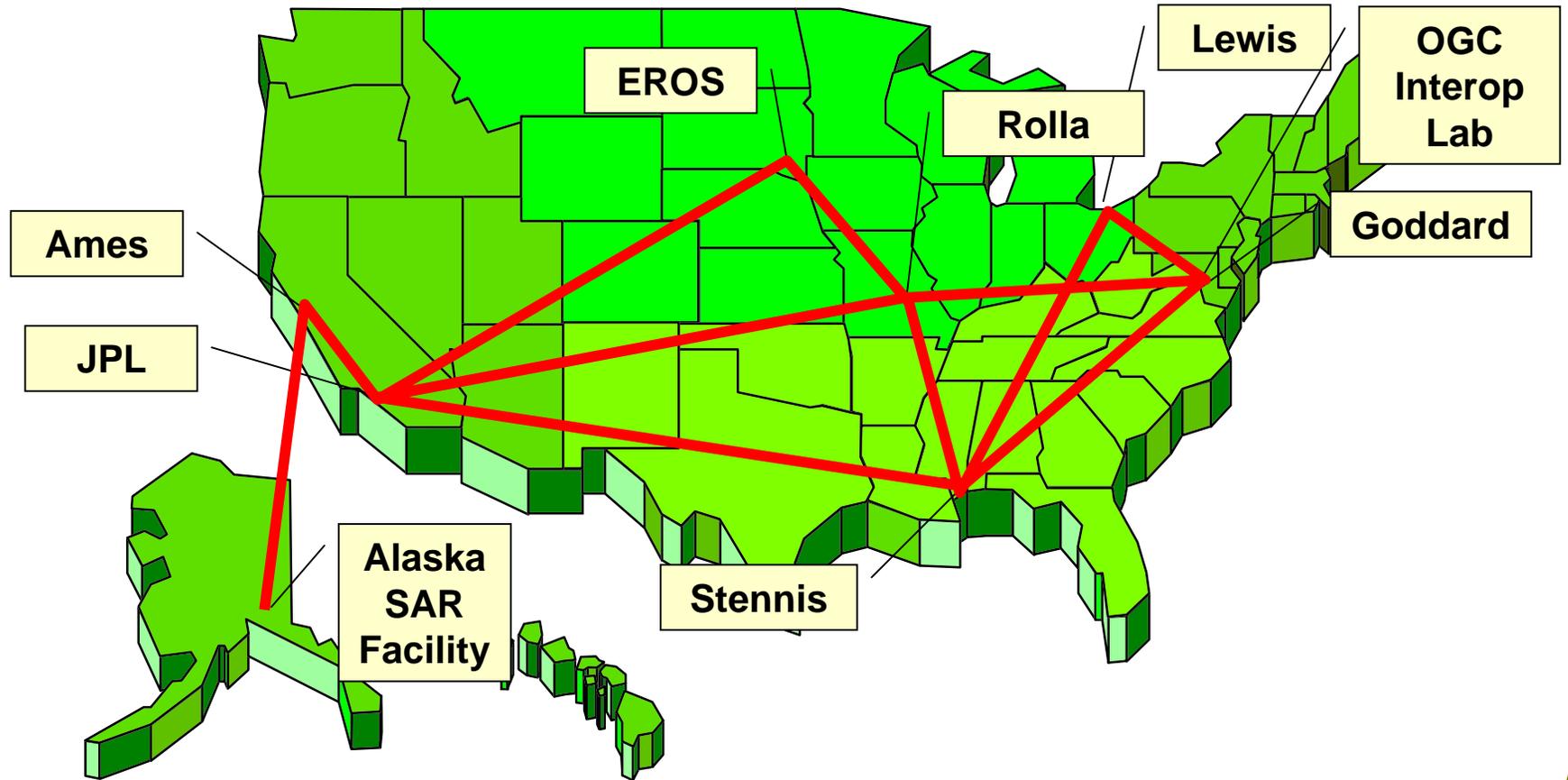
Focus on Technology Choices



Digital Earth Reference Model v0.1

Technology Viewpoint

Distributed Facility Locations (Notional)



Summary

- The Digital Earth Reference Model communicates the purpose and design of Digital Earth
- The DERM
 - describes the context for the Digital Earth meta-system and the roles within the “enterprise” that it serves
 - details the Digital Earth Infrastructure from a “data” and a “computing” standpoint
 - defines the engineering and technology choices and their effect on the Digital Earth Infrastructure
- The Digital Earth Reference Model activity should be the light that illuminates the pathway to realizing a truly useful and operational Digital Earth