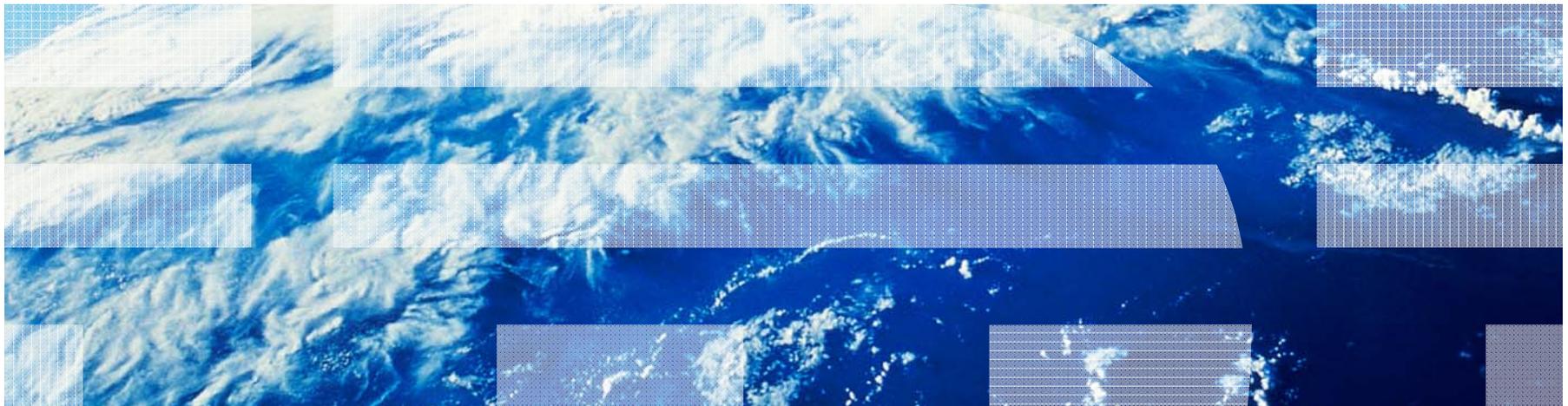Michael R. Mott, Distinguished Engineer, Federal Systems

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Library of Congress Presentation

Module #2: Storage in the 3-5 year horizon of the limits imposed by physics.

- Module 2: Storage Directions and Products -- In this module we will examine the direction and capability that technological limits may impose upon future products.   Additionally we will consider the impact of these changes upon a digital-information storage architecture.

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Mission Needs for Storage Architecture*

- Mission: The Library's mission is to make its resources available and useful to the Congress and the American people and to sustain and preserve a universal collection of knowledge and creativity for future generations.
- A few selected priorities
  - **"repository** of a universal *collection of human knowledge* and the *creative work* of the American people
  - "make this material available and to identify, analyze and synthesize the information it contains to make it useful to the lawmakers
  - "All other **services and activities** [… to ..] support the core mission of maintaining and continuing to build on the world's greatest treasury of recorded human knowledge
  - "knowledge [navigator services] by *helping more people find appropriate materials in a swelling sea of unsorted information*
  - "effective security systems that ensure adequate access and at the same time provide maximum protection
- Digital era changes the relationship between media and information

*http://www.loc.gov/ndl/mission.html

Discontinuity in Processor Design

In a power-constrained environment, designing processors for increased clock speed yields diminishing returns

Historic Price/Performance model is changing in 3-5 year time frame

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Architecture Becomes Key Solution Element for a Smart Planet

- **Architecture paradigm changing from building to river**
  - Evolution over time
  - River changes the landscape
  - Landscape tells river how to flow
- **What is architecture**
  - All architecture is design
  - All design is not architecture
  - The difference: architecture is design + concerns of the entire system
- **Provides backbone for managing evolution of an enterprise through time**