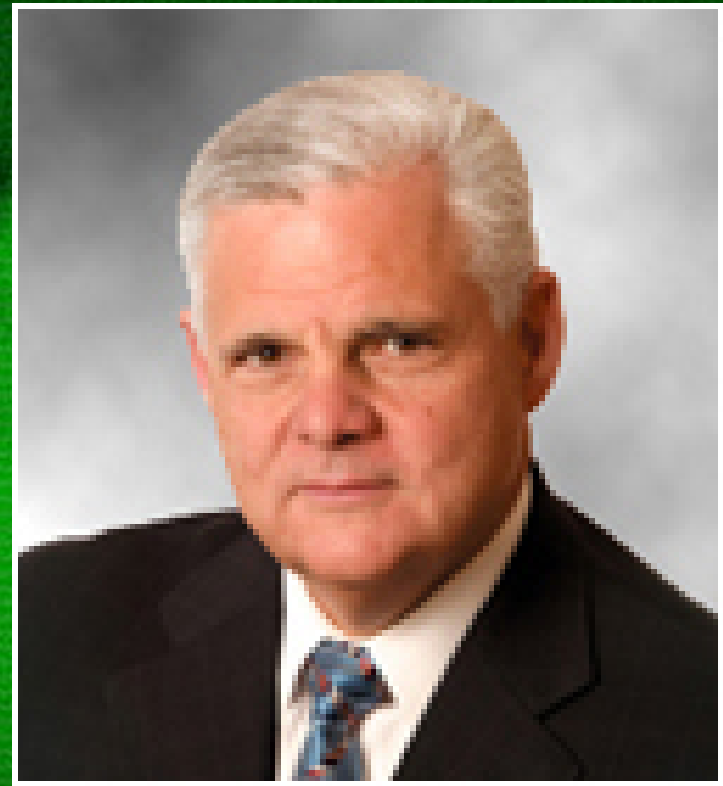


Joe Tucci

**⑩ Chairman,
President and
Chief Executive
Officer**

**⑩ EMC
Corporation**





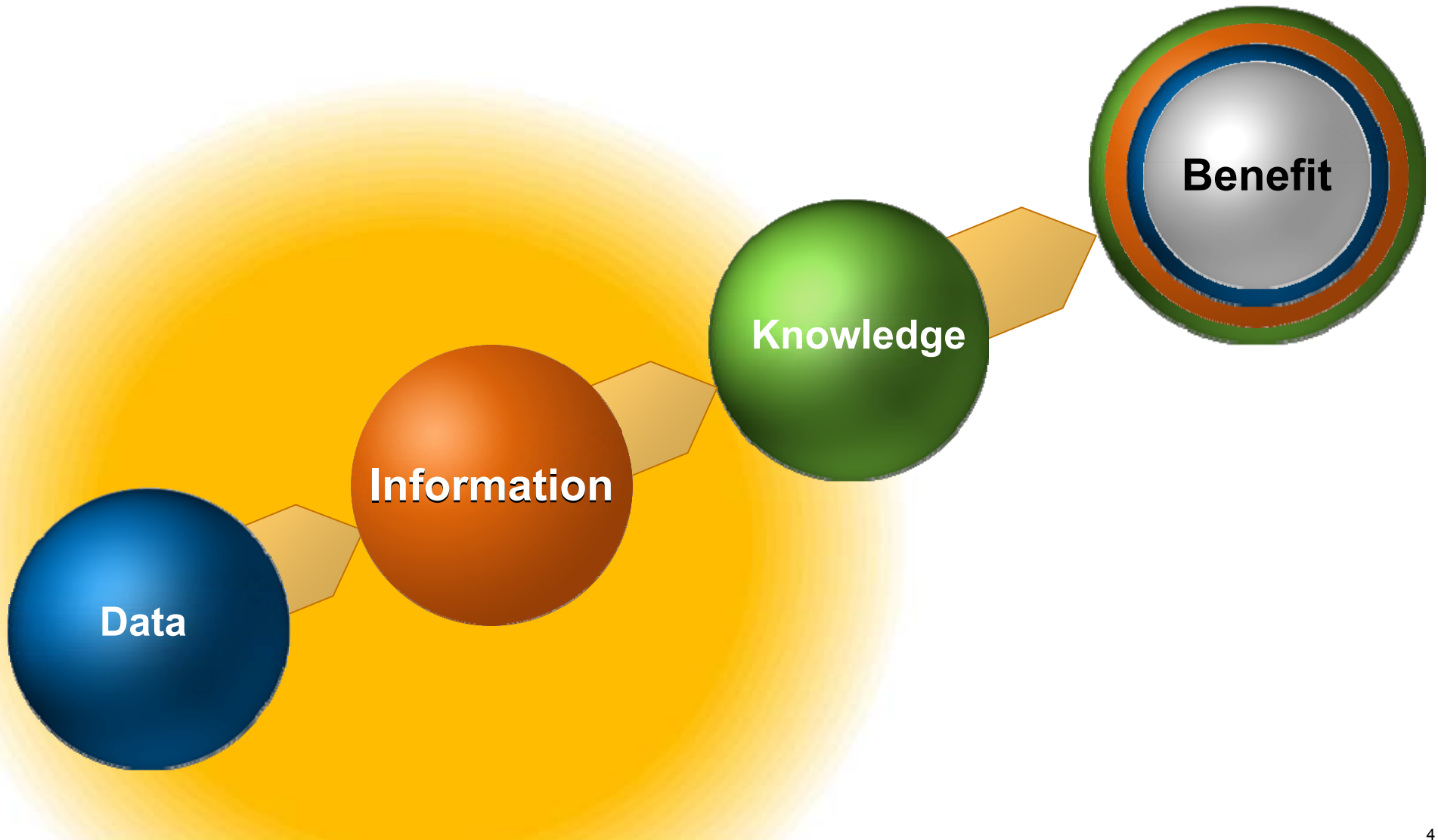
The Transformation to Information-centric Computing

Joe Tucci
Chairman, President and CEO

DISA Customer Partnership Conference 2008
May 6, 2008



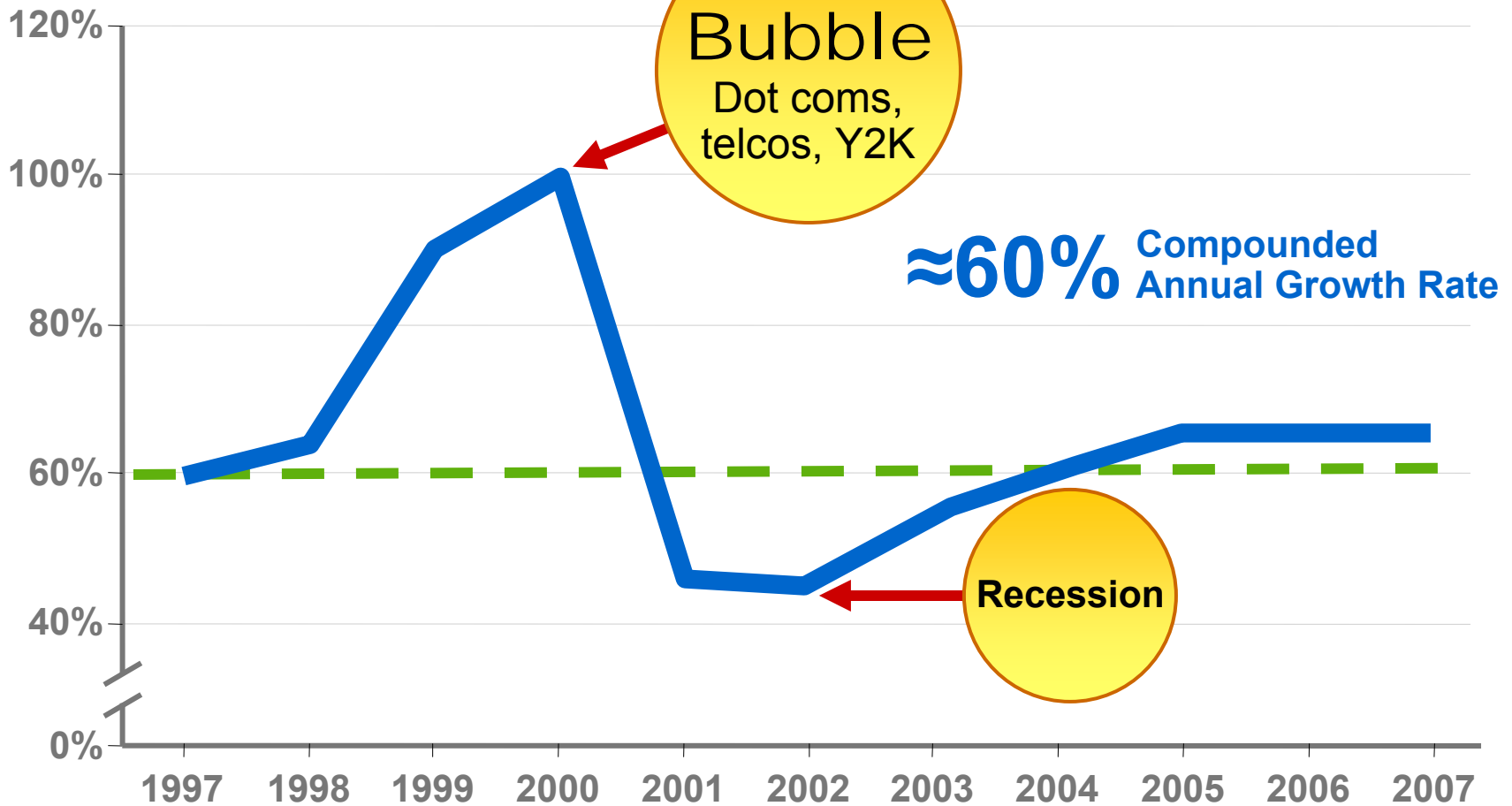
information



Worldwide Information Growth is Relentless

Stored on Disk Arrays

Annual TB Growth



Source: IDC and EMC estimates

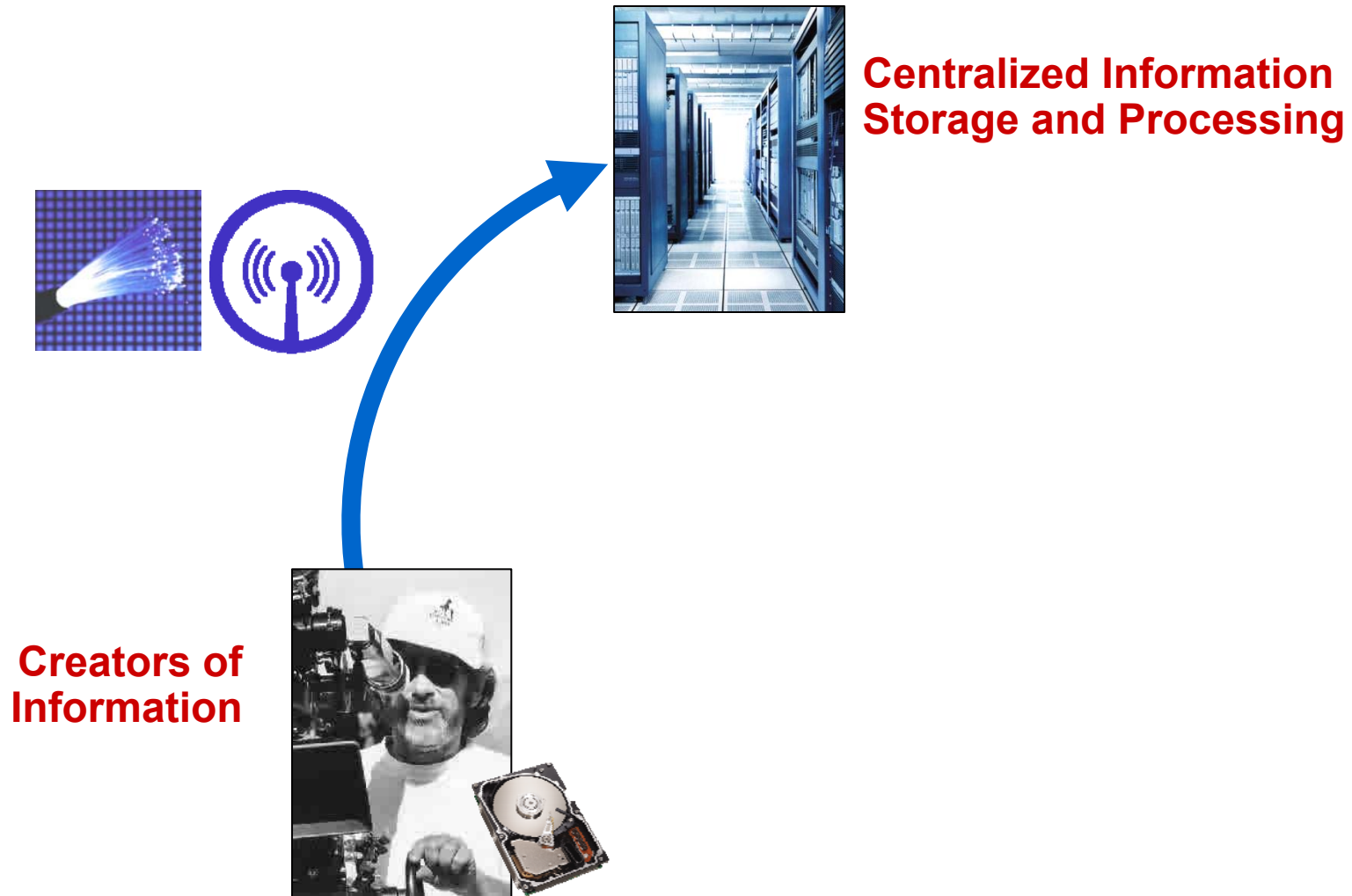
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The Virtuous Cycle of Information

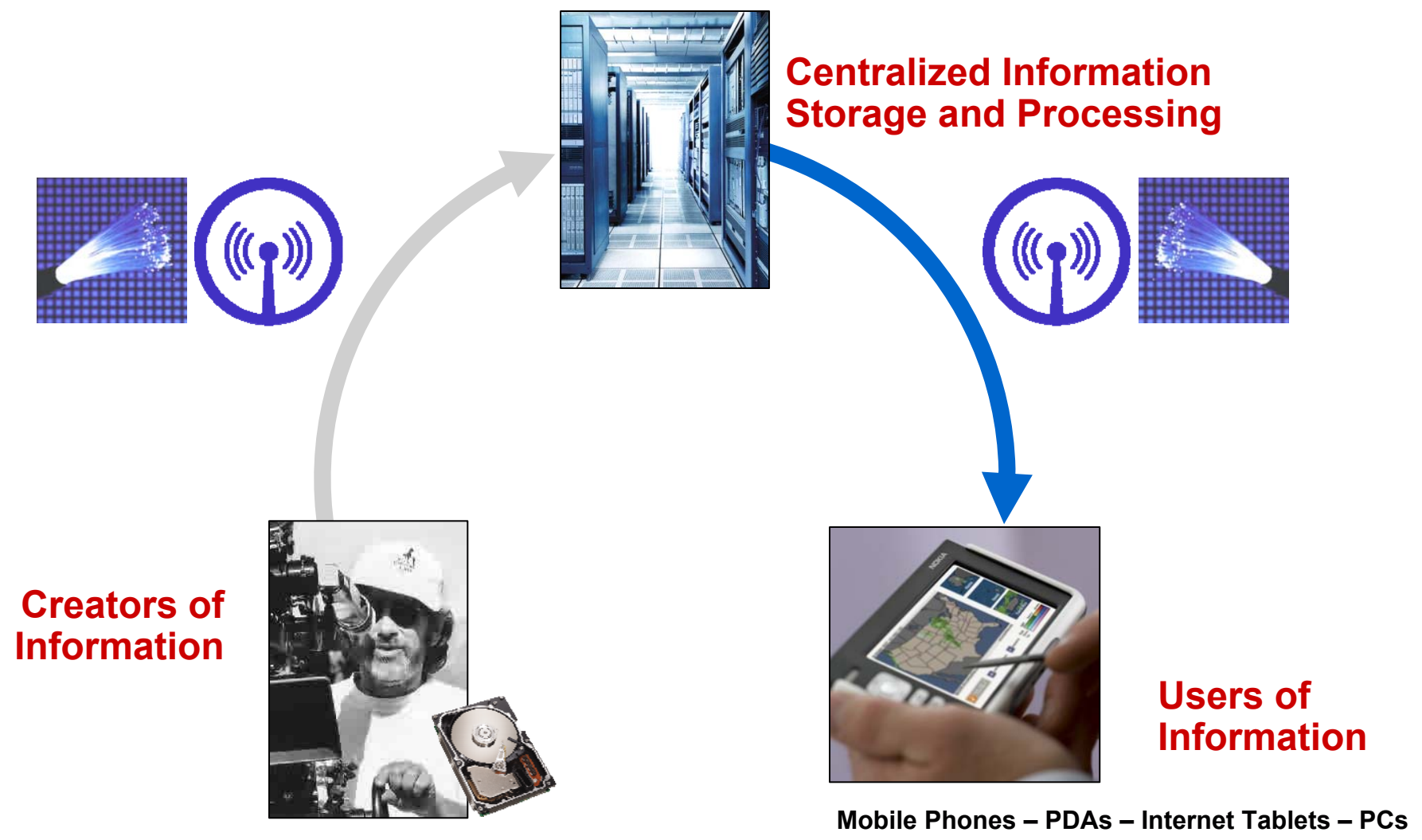
Creators of Information



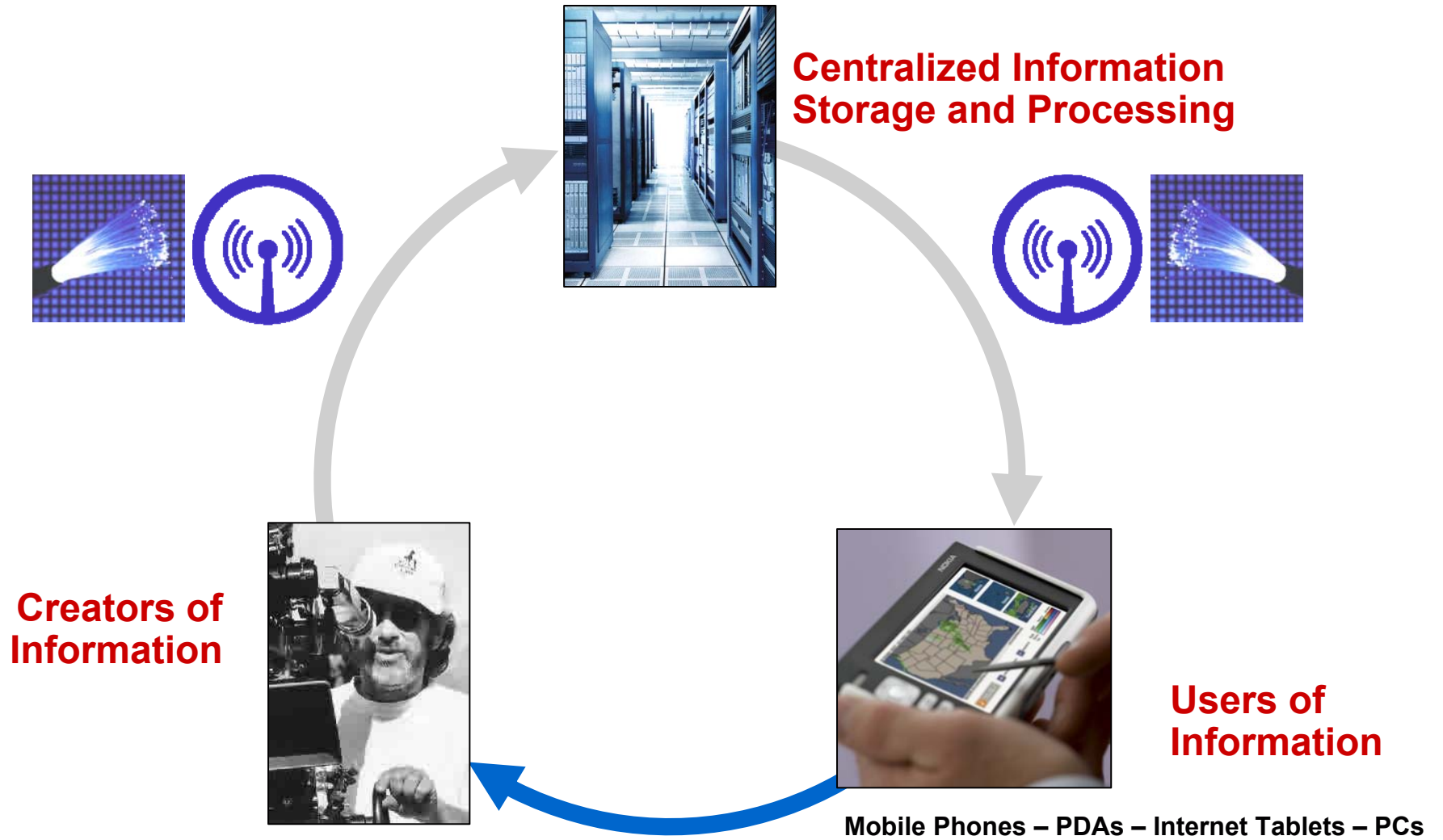
The Virtuous Cycle of Information



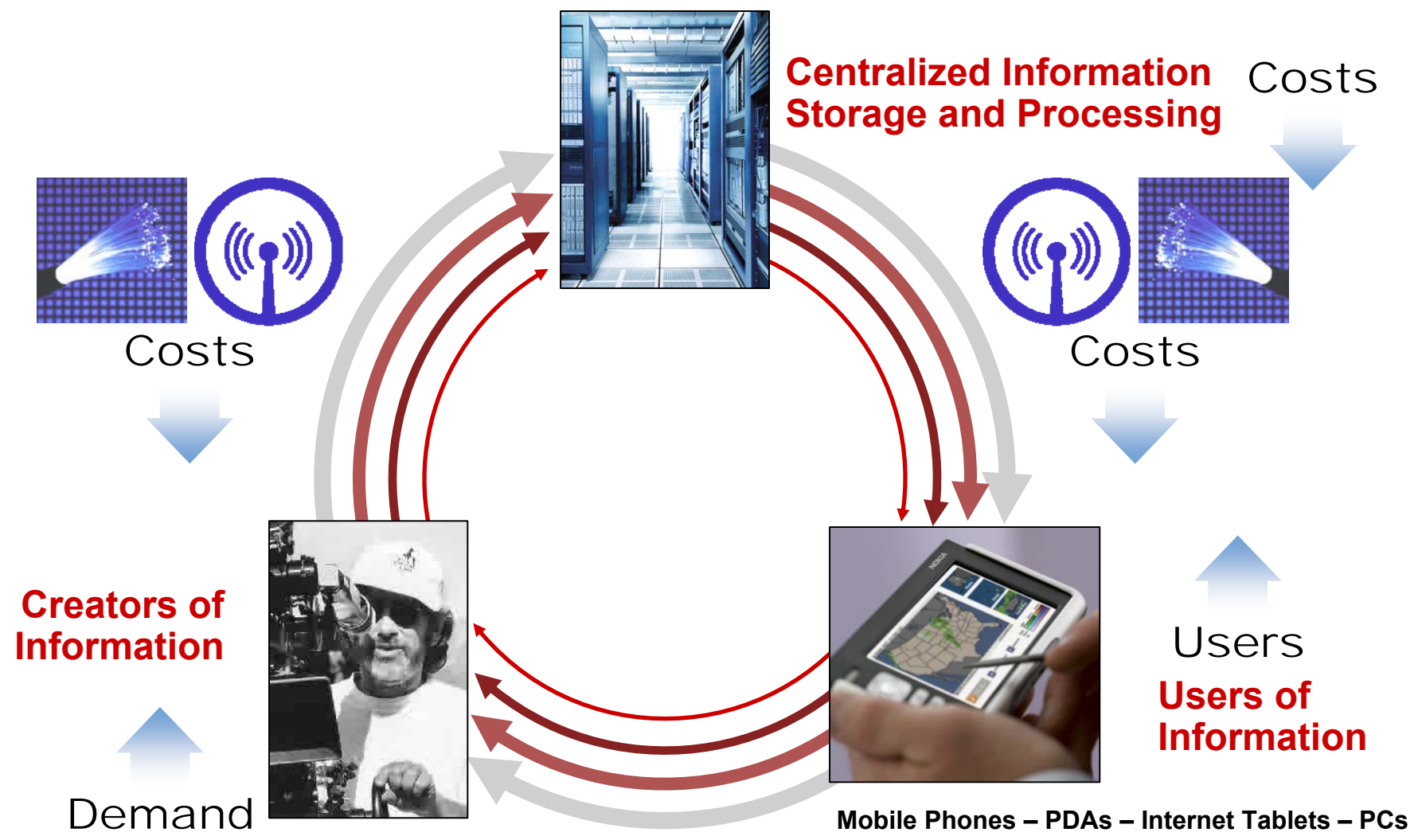
The Virtuous Cycle of Information



The Virtuous Cycle of Information



The Virtuous Cycle of Information



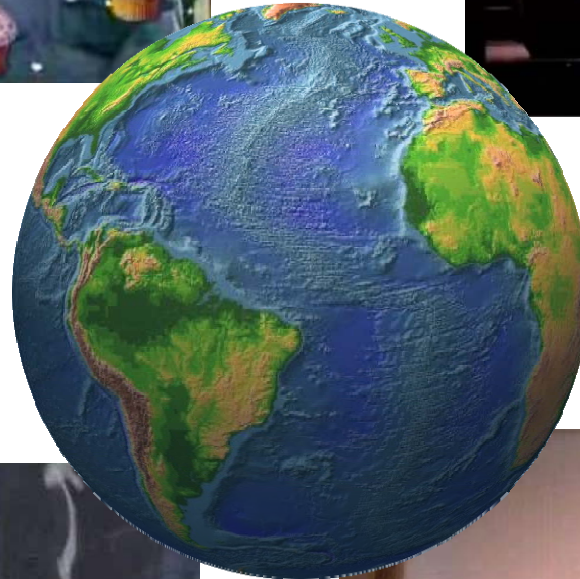
The Melding of Creators and Individuals is Explosive!

EMC²
where information lives[®]

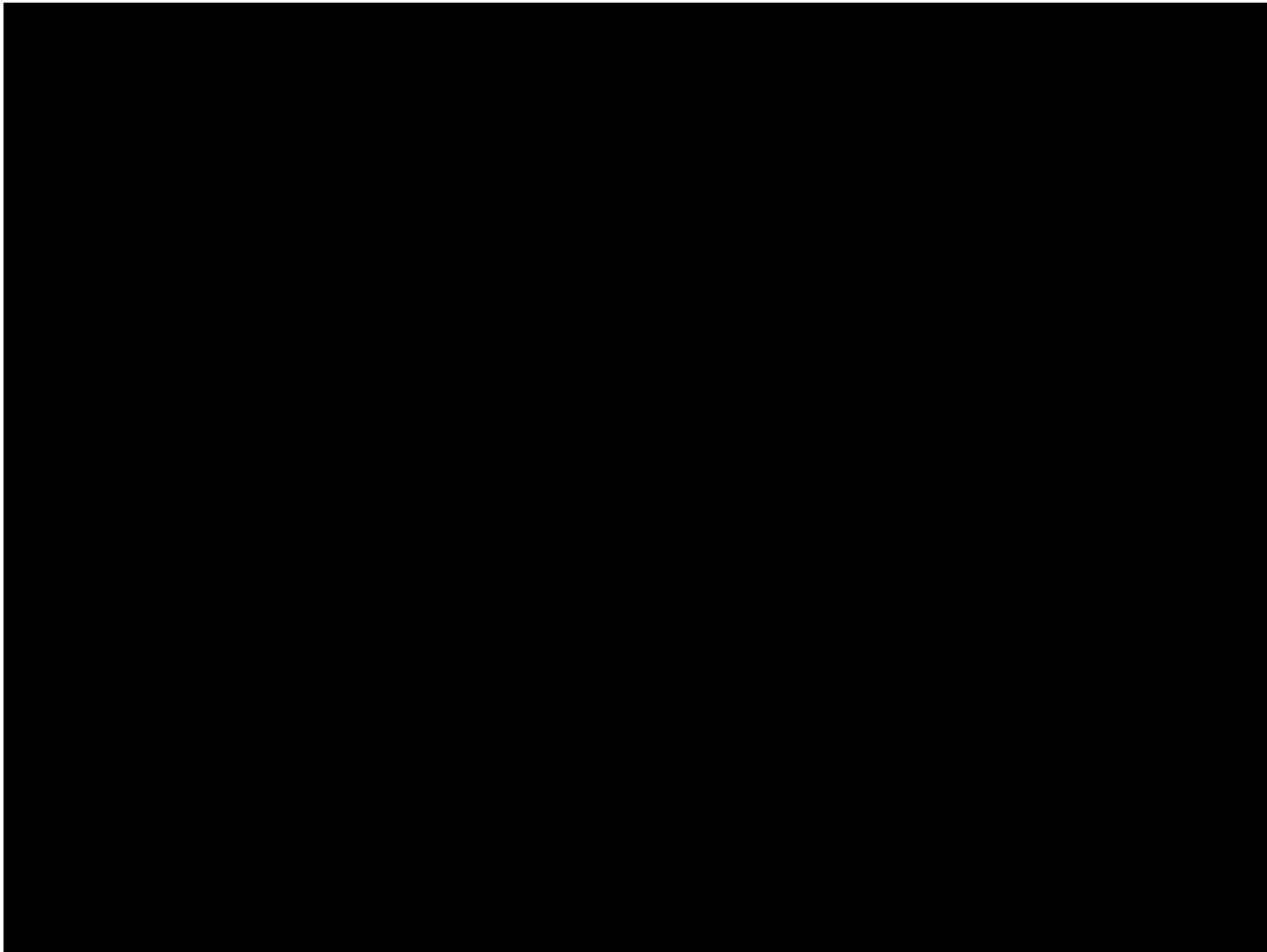


The Melding of Creators and Individuals is Explosive!

EMC²
where information lives™



PLAY NUMA NUMA VIDEO



Question:
*How much information
was created in 2007?*

A New Vocabulary for Measuring Information

1 Megabyte = 1 million bytes

a small novel

1 Gigabyte = 1 billion bytes

Beethoven's 5th Symphony

1 Terabyte = 1 trillion bytes

all x-rays in a large hospital

1 Petabyte = 1,000 terabytes

*half the contents of all U.S.
academic research libraries*

1 Exabyte = 1,000 petabytes

*Five exabytes = all the words
people have ever spoken*

1 Zettabyte = 1,000 exabytes

*As many bytes as there are
grains of sand on all the
world's beaches*

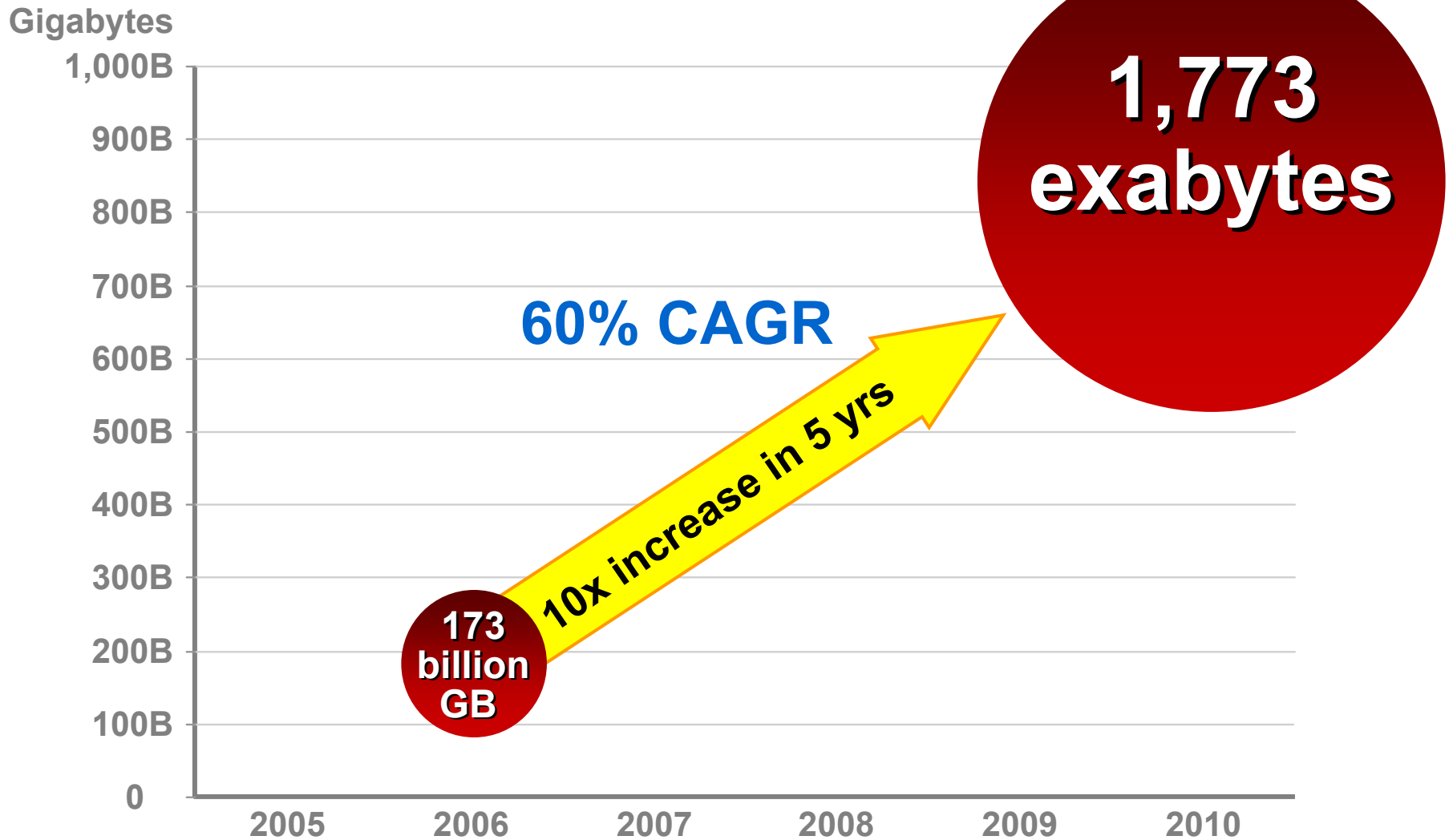
Zettabyte: 1,000,000,000,000,000,000,000 bytes

Question:
*How much information
was created in 2007?*

Answer: *2.25 x 10²¹ bits, or
281 exabytes, or
281,000,000,000,000,000,000 bytes*

***Equivalent to four million times the information in
all the books ever written!***

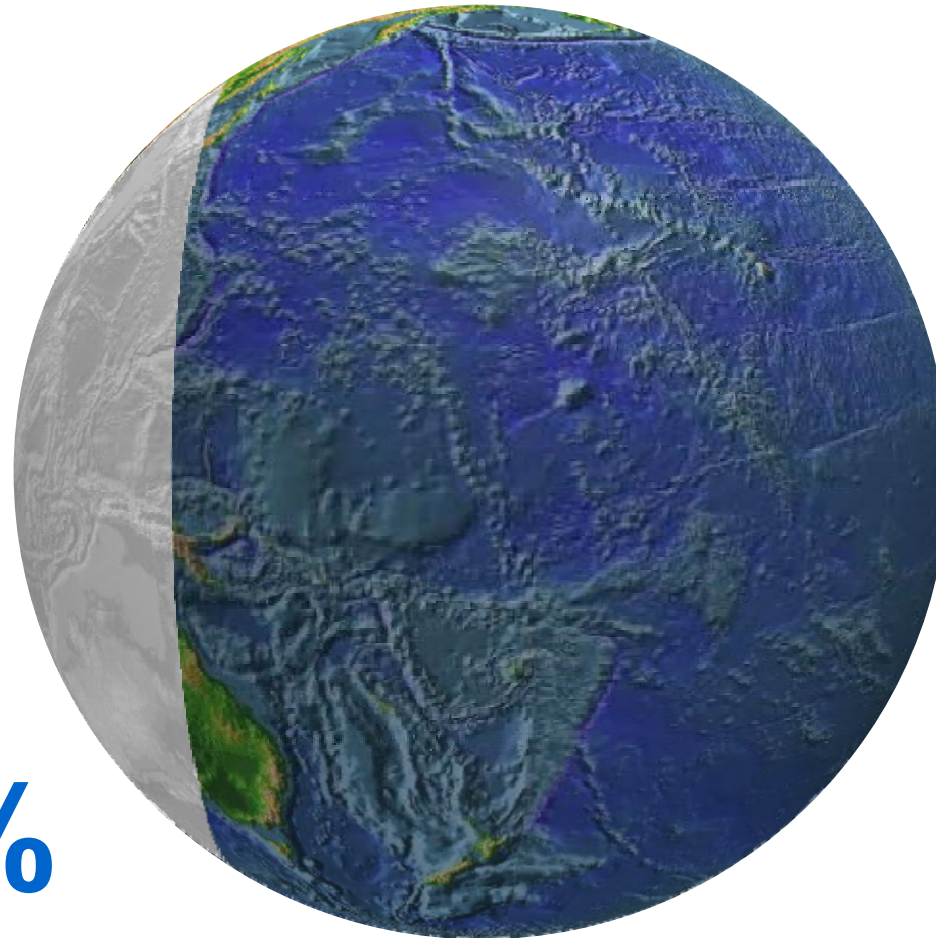
More New Information Coming Each Year



Source: IDC, "The Expanding Digital Universe," Sponsored by EMC, March '07

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The Digital World in 2010



70%
created by
individuals

85%

the responsibility
of organizations
for information's
security, privacy,
reliability, and
compliance

Information in Healthcare: Data in a Large Hospital



= **1** PB-scale
database of
stored images

+ **3** TB/week

Information Needs to be Stored

Speed



Very fast

Cost



Low

Available



High

**Environmentally
friendly**



“Green”

Flash Drive Performance Compared to Traditional Disks

I/Os per Second

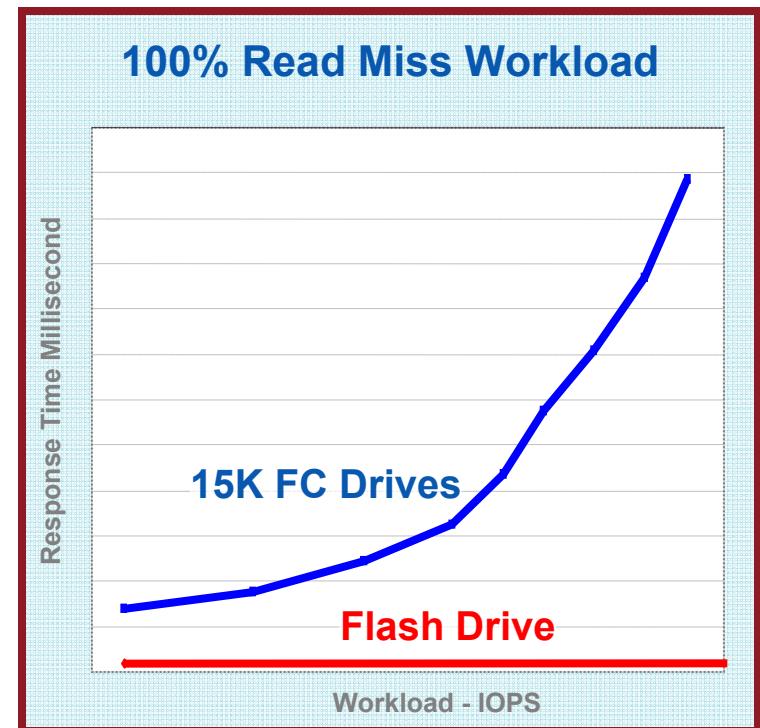


**One Flash Drive
equals the IOPS
of 30 15K FC disks**

Flash Drives Provide Game Changing Capabilities

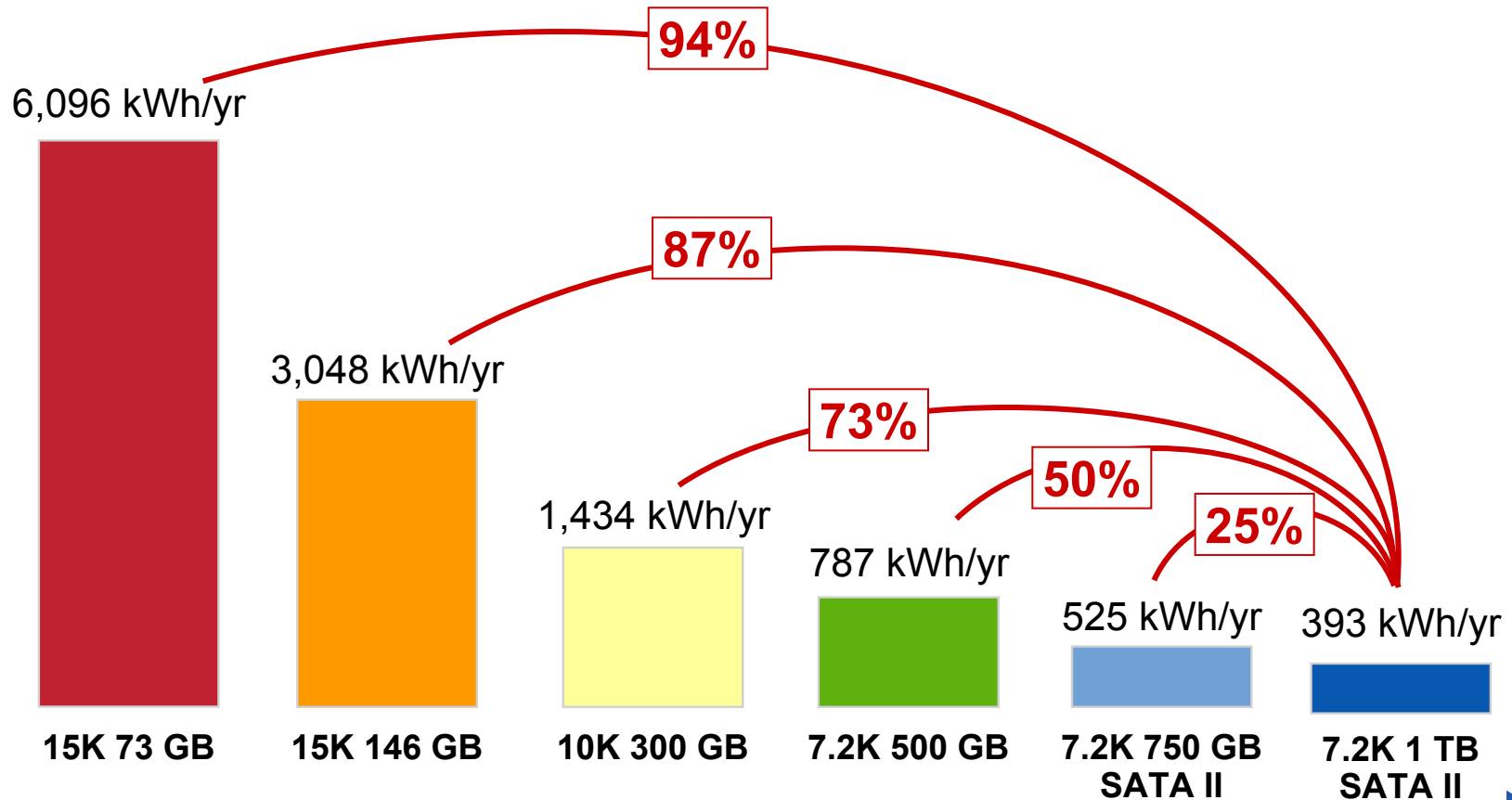
Unprecedented Storage Characteristics

- Performance – 30x More IOPS
- Response Time – 10x faster (1ms)
- Power – 98% less power per IO
- Weight – 58% less per TB
- Flexibility – Variable sizes
- Reliability - No moving parts



Energy-Efficient Storage Design

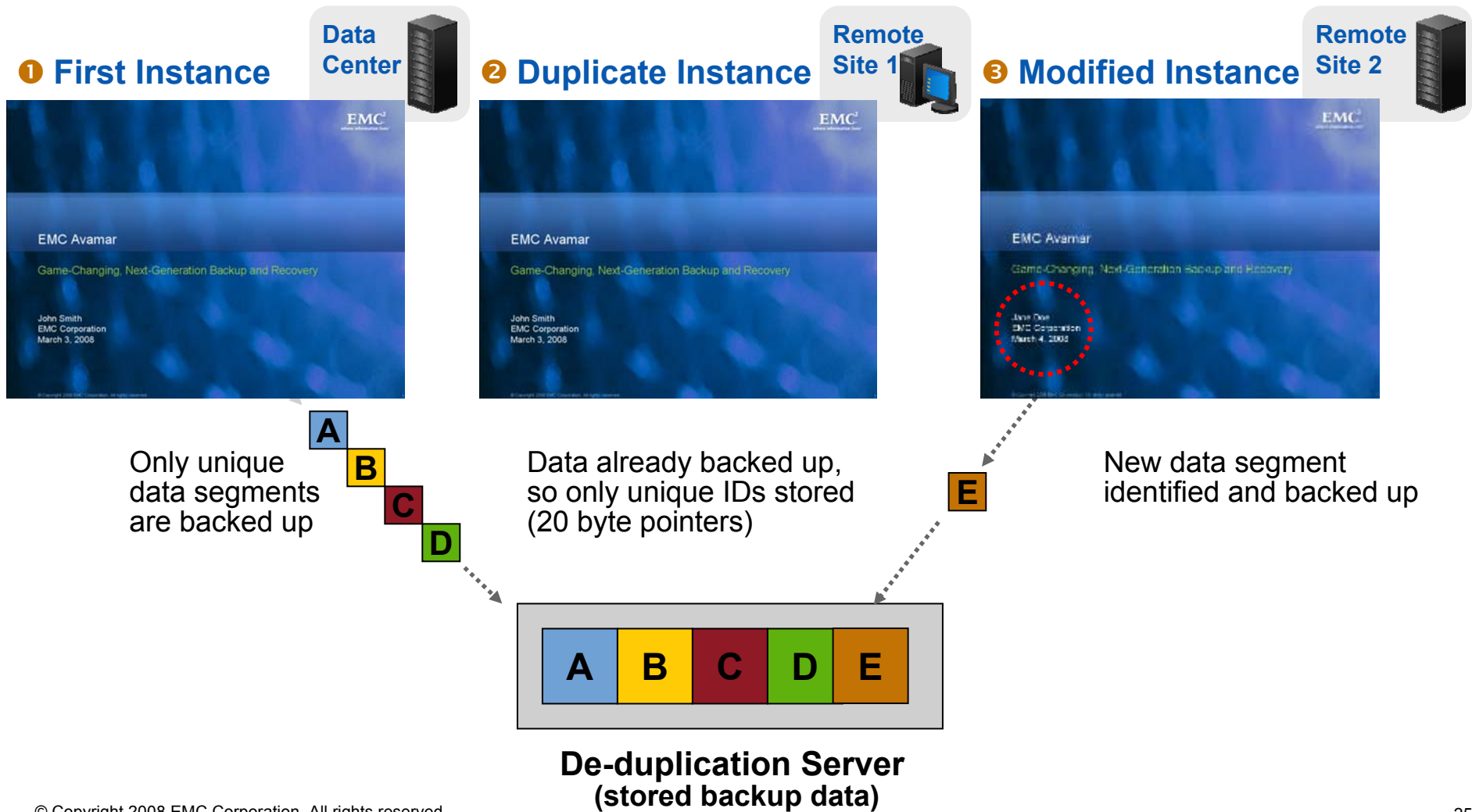
1 TB Data on Different Capacity/Performance Drives



High Capacity Disks Consume Less Energy

Data De-Dup - How it Works

Simple Example of Global Source-based Data De-duplication



Information Needs to be Protected

Assure Continuous Availability

- Operational recovery
 - Clones, snaps, CDP
- Disaster recovery
 - Remote replicas
- Speed of recovery
is of the essence
 - (Backup to Tape) → (Backup to Disk)
- Cost is important
 - Data de-duplication
(VTL, LAN, Tier 3, at the source)
- SaaS “Data Vault” option

Assure the information is secure

- Assess Risk
 - Service engagement
- Protect Identities
 - Strong authentication
 - Access control
- Protect data
 - Encryption
 - Centralized key management
 - Data loss prevention
- Secure information management
 - Incident and event monitoring

Information Needs to be Surrounded by Intelligence

Unstructured information

- Capture and ingest
- Classify and tag
- Rich repository functionality
 - Logical info storage
 - Check in/out, version control
- Workflow and BPM
- Collaborate
- Multichannel Output Management
 - Web, self-service portals, email, reports
- Archive and retain
 - Compliance
 - eDiscovery
 - Automated policy management

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Manage All Data Types in Place

- Classify and tag
- Automated policy management
- Digital rights management

Information Needs to be Virtualized and Managed

Virtualize

- x86 Virtual Infrastructure
- File virtualization
- Global namespace
- Virtual provisioning
- SAN virtualization

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- x86 Virtual Infrastructure
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Resource Management

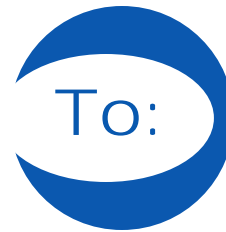
- Coordinated Element Management
 - Storage, Server, Network, App
- Problem management
 - Root cause
 - Problem automation
- Change and compliance mgmt
 - Automated provisioning
 - Change management
- Process orchestration
 - ITIL enablement
 - Service management



Information trapped inside devices and applications

Fragmented views of information

Policies applied haphazardly



Ability to use and manage information across silos

Consolidated views of information

Common policies and safeguards followed everywhere

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