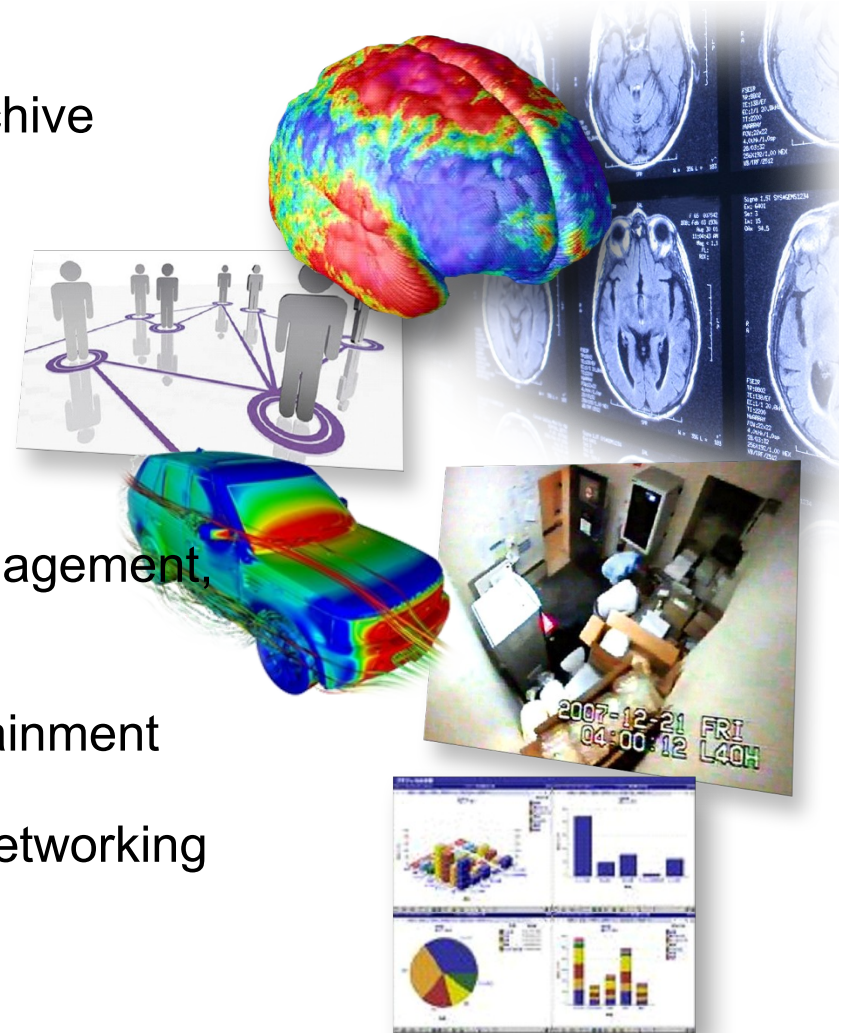


The Data Juggernaut meets IBM

PCTY2010 
Pulse Comes to You

Economic Downturns Affect Budgets But Not Data Growth

- **Medical imaging** for active data and archive
- **Digital simulations** in pharmaceutical, automotive, aerospace
- **Rich content** records in insurance, construction, realty
- **Video capture** for security, process management, education
- **Content distribution** in Media & Entertainment
- **Rich text E-mail, Web 2.0** and Social Networking
- **Analytics** in Financial services

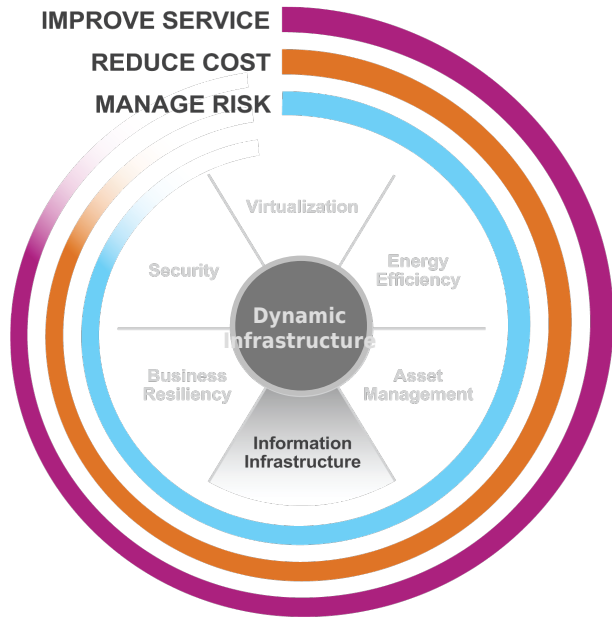


The key question for our clients...

- What happens when exponential data growth requirements run into the reality of my budget?
 - **Scale** – Our clients can't afford to scale the infrastructure the way they always have. They must reduce the marginal cost/effort of adding capacity.
 - **Operational Complexity** – Our clients must be able to manage the infrastructure with minimal, or maybe even negative, resource growth.

There are some fundamental technical problems that need to be solved in order for clients to affordably manage data growth

Information Infrastructure Solutions



- **Scaling flexibly** helping clients meet data growth demands
- **Improving asset utilization** helping clients get more productive use out of their infrastructure
- **Increasing operational productivity** helping clients get more productive work out of their staff
- **Innovating for tomorrow** solving the problems our customers will experience beyond today

Data Growth... Meet the IBM Information Infrastructure

Information Infrastructure

IBM offers

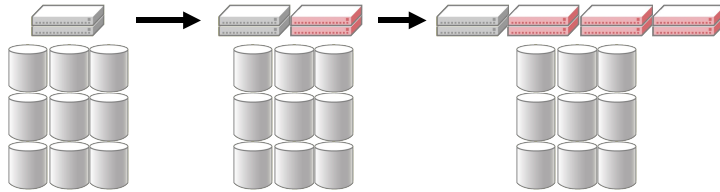
Scaling flexibly

- Next generation block storage systems
- **Clustered block virtualization**
- Smarter use of solid state technology
- Large scale, file-based storage infrastructures



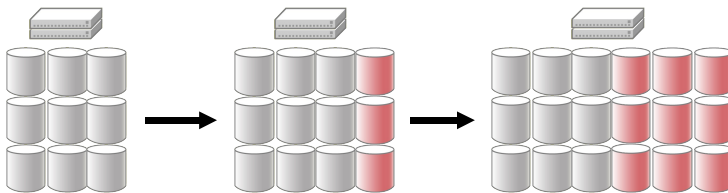
Scalability: SVC Block Virtualization

Dynamically scale performance



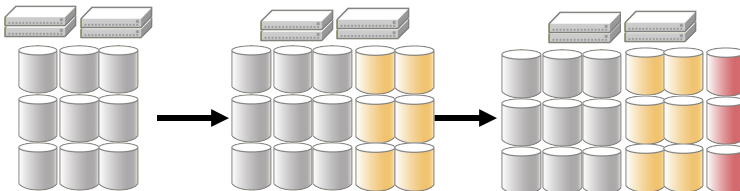
- ✓ For performance sensitive applications, dynamically add more performance to your existing capacity by adding controller pairs
- ✓ ...or mix with additional capacity...

Dynamically scale capacity



- ✓ For high capacity applications such as archiving, dynamically add capacity by adding disk enclosures
- ✓ ...or mix with additional performance...

Scale capacity in tiers

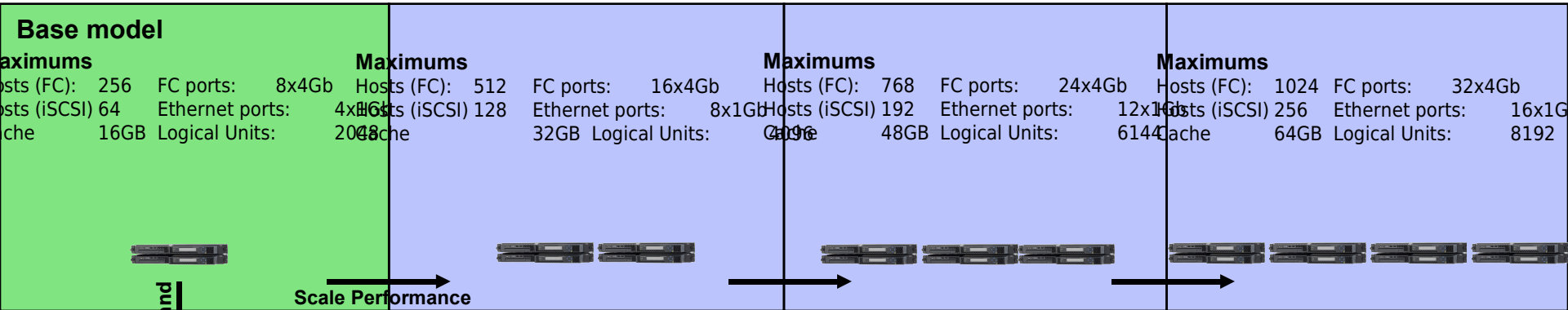


- ✓ Implement a tiered storage infrastructure...
- ✓ ...with common management interfaces and software functions

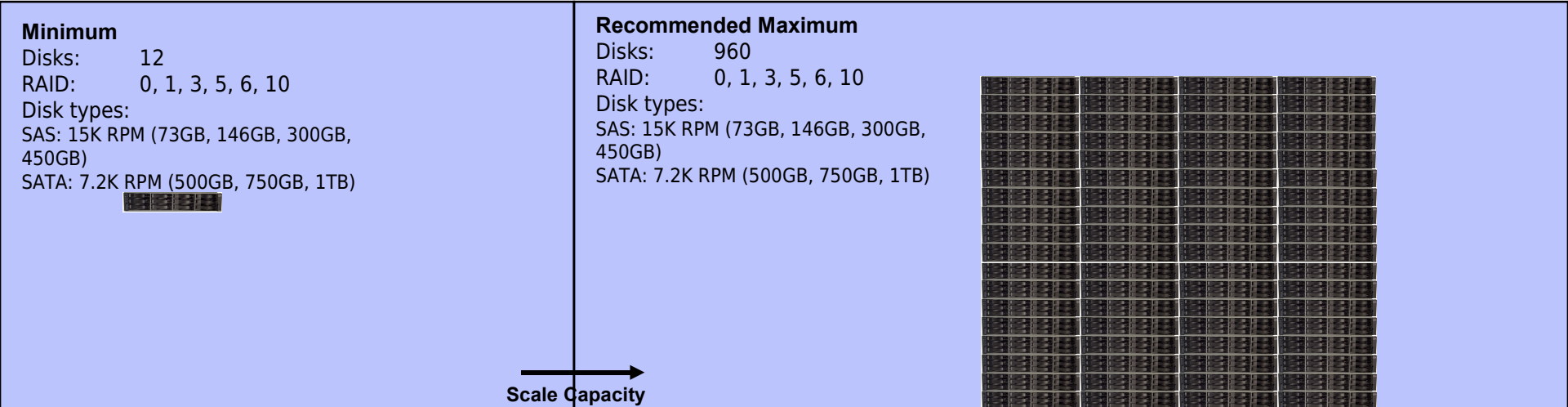
IBM Virtualized Disk Solution

Seamless scalability

SVC 8A4 "Controller"



DS3400 "disk capacity"



Scalability: Customer case study

One of the Largest Financial Institutions in the United States

Business challenge:

The Bank's storage scale is measured in petabytes. Storage capacity is leased from multiple vendors to introduce competition and reduce capital costs. However, technology turns and leases end – meaning new storage must be leased and data must be migrated. **The disruptive nature of migrating data between traditional arrays often resulted in the Bank having to extend leases month-to-month incurring significant cost.**

Solution:

Virtualization with IBM System Storage SAN Volume Controller. With over 2PB of tiered Fibre Channel and SATA storage now virtualized, the Bank can transparently migrate data from old technology to new arrays, meeting lease termination dates and saving significant cost in lease extensions. Because migration is transparent, application uptime is also enhanced. Because virtualization is heterogeneous, the Bank can further leverage its multi-supplier strategy to keep costs down for its virtualized IBM XIV, and EMC DMX and CLARiiON storage.

Benefits:

- Reduction in lease extension costs
- Tested 30% increase in storage utilization
- Improved application uptime

Solution components:

- IBM® SAN Volume Controller
 - FlashCopy
 - Global Mirror
 - Thin provisioning
 - Transparent data migration
- IBM XIV® Storage System

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Scaling flexibly

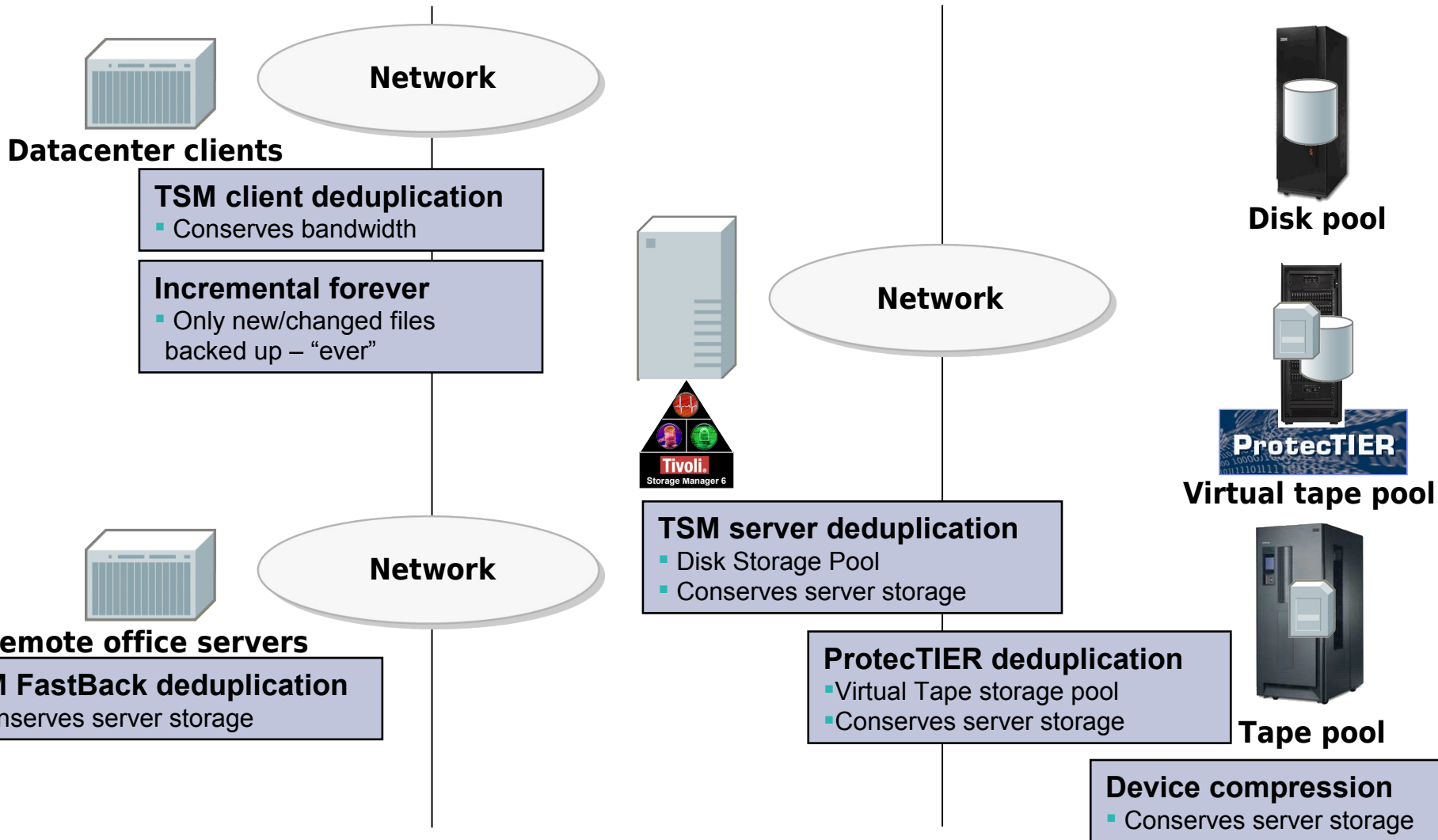
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Improving asset utilization

- Storage Virtualization
- **Deduplication and other data reduction techniques**



Asset Utilization: Deduplication+



Asset Utilization: Customer case study

Industry Canada

Business challenge:

Industry Canada's mission is to foster a growing, competitive, knowledge-based Canadian economy. In 1996, the organization's IT staff implemented IBM® Tivoli® Storage Manager to protect critical SAP-based financial data. Today, Tivoli Storage Manager runs more than 30,000 backup schedules on a monthly basis, backing up nearly 200 terabytes of changed data from 400 UNIX®, Windows® and Netware-based servers.

Industry Canada needed to reduce the data stored for file server backups – and the time required to recover file servers.

Solution:

Virtual tape and data de-duplication with IBM TS7650 ProtecTIER. By coupling Tivoli Storage Manager with a TS7650 virtual tape library, Industry Canada was able to dramatically reduce the amount of data stored in the backup pool. In addition, recovery times for the largest file servers were reduced by over 60%.

Benefits:

- Reduced storage requirements for backup pools
- Tested over 60% reduction in recovery times for large file servers

“Our testing showed that the transition to Tivoli Storage Manager 6.1 will be transparent to our user community and our operational staff. This is a huge relief, enabling us to take advantage of valuable new capabilities with no business interruption.”

— Ralph Zimmerling, Chief Informatics Office, Industry Canada

Solution components:

- IBM® Tivoli® Storage Manager 6
- IBM System Storage™ TS7650A ProtecTIER® Deduplication Appliance
- IBM TotalStorage® 3494 Tape Library
- IBM TotalStorage 3592 Tape Drive

Canada

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Increasing operational productivity

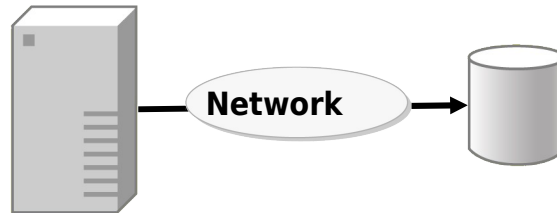
- **Storage operations management**
- Unified recovery management

▪ Ultra scale



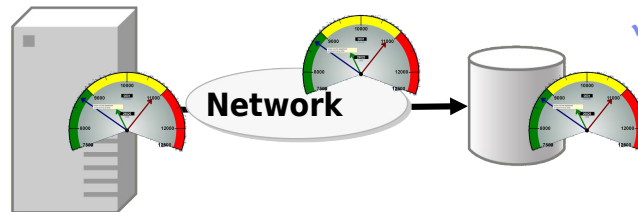
Productivity: TPC Storage Operations Mgmt

Visualize the SAN



- ✓ From virtual machines to the physical server they reside on, through the SAN, to the disk systems ...
- ✓ Physical topology and logical data path
- ✓ Health/Status Monitoring
- ✓ Event Management
- ✓ Device Capacity Mgmt

Analyze performance



- ✓ Isolate application I/O performance problems
- ✓ Policy based Alerting
- ✓ Report on performance history

Productivity: Customer case study

Fortune 100 Diversified Health Insurance Company

Business challenge:

The Insurer's storage scale is measured in petabytes. Scale had made the job of maintaining visibility into the utilization and effective operation of the storage infrastructure a near impossibility. Traditional, manual management processes were not scaling. **The Insurer wasn't getting optimal use out of its significant capital investment in storage infrastructure.**

Solution:

Visualization, Control, and Automation with Tivoli Storage Productivity Center. With 2PB of storage now managed, the Insurer can visualize the entire storage topology, leverage analytics to aid in provisioning storage for new applications, monitor overall health, and report on performance and capacity utilization. These tools have allowed the Insurer to deal with continued storage growth, improve the storage environment quality of service, and do these things without parallel growth in the storage management staff.

Benefits:

- Simplified problem isolation and 25% reduction in mean-time-to-repair for performance related issues
- Effective management of storage assets and capacity resulting in deferred capital expenditures for new storage
- Improved overall quality and health of the storage environment

Solution components:

- IBM® Tivoli® Storage Productivity Center
 - Standard Edition
- IBM System Storage™ DS8000®

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Innovating for tomorrow

- ~~New delivery models~~
 - **Ultra scale**
-

Ultra scale: IBM Information Archive

Next Generation Information Retention Solution

*A unified and simplified cloud-ready **Smart Business System** that will adapt as business needs evolve. Immediate value delivered from day one.*

Start archiving in 1 day or less

- Easy to implement, configure and manage

Begin optimizing your storage infrastructure immediately

- Offload primary storage
- De-duplication built-in
- Optionally migrate to tape for additional cost and energy savings

Retain with confidence

- Protect and secure your information

Quickly locate and retrieve information for litigation support

- Index and search on data and meta data

Application friendly

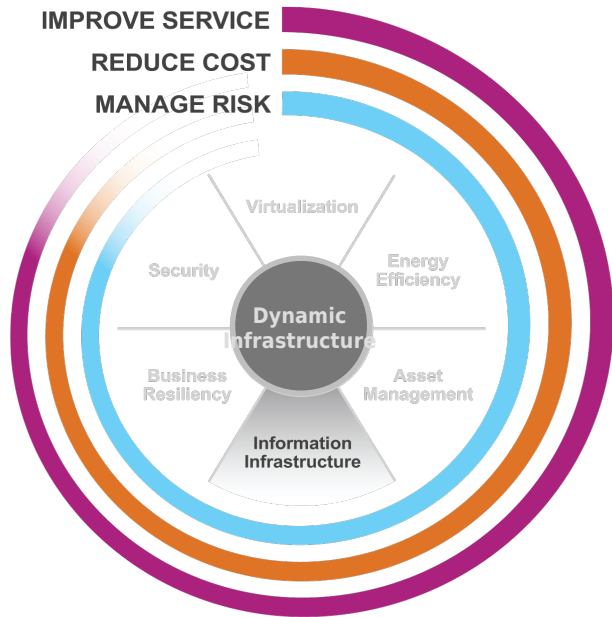
- Supports standard file system interfaces
- Supports IBM ECM policy sharing

Modular and highly scalable

- Up to 304 TBs with disk and PBs with attached external tape



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