

# Dynamic Infrastructure

## Designed for a Smarter Planet – Information Infrastructure



# IBM's strategy to transform IT and the data center is about creating a *dynamic infrastructure* ....

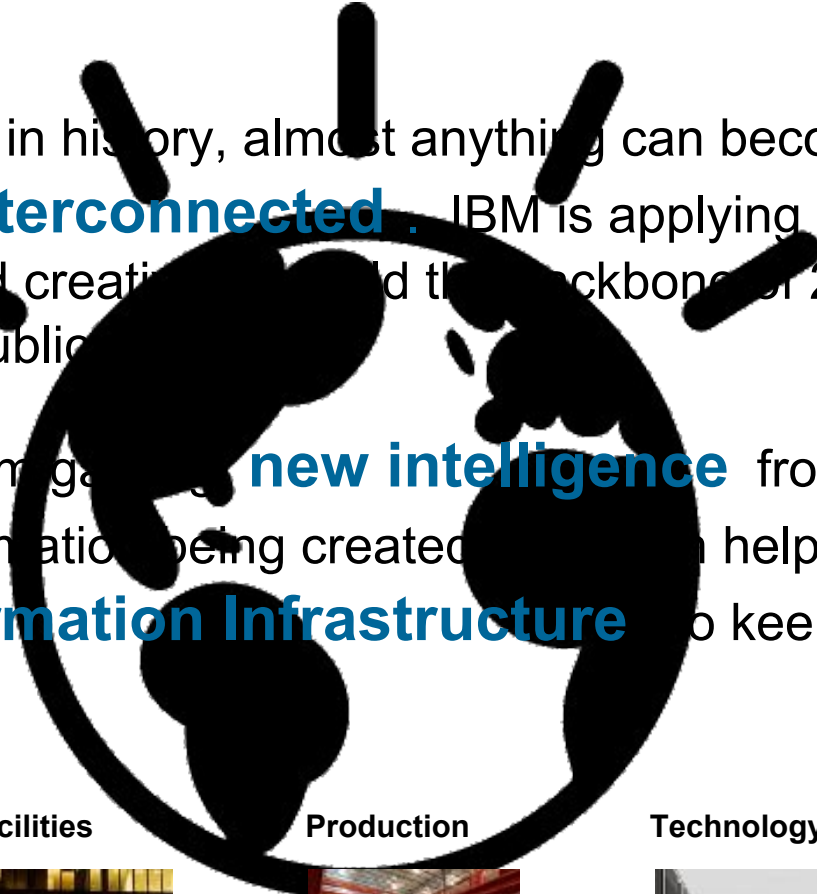


.....supporting smarter business and IT service delivery that improves service, reduces cost and manages risk

## Building A Smarter Planet

For the first time in history, almost anything can become **digitally aware and interconnected**. IBM is applying its expertise, global scope and creativity to build the backbone of 21st century industries and public services.

Value comes from gaining **new intelligence** from the vast amounts of information being created. We help you **build a smarter Information Infrastructure** to keep you in control.



Mobility



Facilities



Production



Technology



Communications



# IBM Information Infrastructure

Innovative, Integrated, Available Today

***Manage information more effectively*** and ***mitigate information risks*** with a ***dynamic infrastructure*** that efficiently and securely stores, protects and optimizes access to information

## Information Compliance



***Mitigate information risks***

## Information Availability



***Deliver continuous access to information***

## Information Retention



***Support information retention policies***

## Information Security



***Securely share information***

# As the world gets smarter....



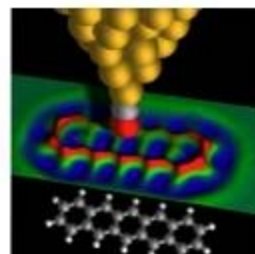
Smart traffic systems



Intelligent oil field technologies



Smart food systems



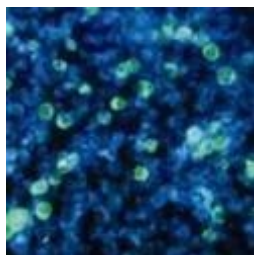
Smart healthcare



Smart energy grids



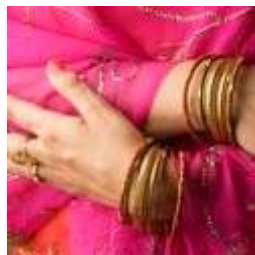
Smart retail



Smart water management



Smart supply chains



Smart countries



Smart weather



Smart regions



Smart cities

...demands on the infrastructure will grow.

## Is today's infrastructure built for what's coming?

### 30 billion

Estimated number of RFID tags produced annually in 2010, embedded in products, buildings, fleets, passports – even animals.

### 1 trillion

Internet connected devices will leap from 500M in 2006 to 1 Trillion by 2011.

### 10x

A 10-fold increase in digital data between 2006 and 2011 – with over 80% of that in unstructured formats

### 1 in 3

Business leaders frequently make critical business decisions with incomplete information or information they don't trust.

### 70¢ per \$1

70% on average is spent on maintaining current IT infrastructures versus adding new capabilities.

### 33% will leave

33% of consumers notified of a security breach will terminate their relationship with the company they perceive as responsible.

## A smarter approach to IT will require a dynamic infrastructure...

### TODAY'S INFRASTRUCTURE...

Silos lead to a disconnected business and IT infrastructure.



Islands of computing create inefficiencies & underutilized assets.



Struggle with regulatory compliance, information integrity and security.



Resource constraints, difficulties managing complexity and change.



### A DYNAMIC INFRASTRUCTURE...

- Integrates visibility, control, and automation across all business and IT assets.

- Is highly optimized to do more with less.

- Addresses the information challenge.

- Manages and mitigates risks.

- Utilizes flexible delivery choices like clouds.

...one that improves service, reduces cost and manages risk.

## A dynamic infrastructure must support the growing need to:

- *Make informed, real-time decisions at the point of impact:*
  - Workload optimized systems that better align technology to the business.
- *Manage service delivery across more instrumented and interconnected business and IT processes and assets:*
  - A more integrated approach to Service Management.
- *Change the storage economics and enable information-led growth:*
  - New cloud-enabled information services and innovative storage technologies.

**Mobility  
Infrastructure**



**Facilities  
Infrastructure**



**Production  
Infrastructure**



**Technology  
Infrastructure**



**Communications  
Infrastructure**



**DYNAMIC INFRASTRUCTURE**

## New Information Infrastructure solutions enable significant cost reduction and information-led transformation.

- IBM extends its Information Infrastructure technology leadership with significant advancements in **deduplication**, **virtualization**, **solid-state storage**, and **encryption**.
- All-new private cloud storage integrated solution can provide cost effective, long-term **information retention and compliance** support.
- IBM Information Infrastructure advancements for Mainframe clients can **support new information-driven workloads** more effectively.
- IBM continues its “no compromises” approach to delivering robust Information Infrastructures for mid-sized environments, with expanded disk **virtualization**, **encryption**, and **performance** options.

## Clients report stunning success with IBM Information Infrastructure solutions.

“We replaced a broad mix of storage from different vendors with two XIV systems from IBM. Service levels improved, and the **temperature in our data center dropped 6 degrees Fahrenheit.**”

Greg Johnson, CTO,  
Virginia Commonwealth University Health System

“In the past 3 years, INTTRA has **grown 200% while reducing its compute footprint by 50 percent and reducing its power costs by 30 percent.**”

Anthony Costa, Managing Director of  
Global Infrastructure and Corporate Systems, INTTRA

“We get 12 to 1 data reduction with ProtecTIER. Our **backup window shrank immediately** . Now, the typical **restore request takes 5 minutes** .”

Karl Barth, Director of Systems and Operations,  
Fox Chase Cancer Center

“To help [our growers] capitalize on what may be very brief windows of opportunity, we need to **deliver the kind of always-on service they expect from their banks.**”

Mathew Regan, Operations Manager,  
Co-Operative Bulk Handling Group Ltd.

# How can I reduce IT costs and risks while improving information availability?

## Challenges

- Data growth continues unabated, 25% to 50% a year.
- IT budgets flat or decreasing.
- Increased use of rich content and unstructured data.
- More security and compliance regulations impacting IT.

## Solution

IBM extends its Information Infrastructure technology leadership with significant advancements in **virtualization**, **solid-state storage**, and **encryption**.

## Benefits

- Reduce storage acquisition costs by up to 70% for rapid ROI, shrink backup windows, and improve restore performance.
- Increase storage utilization by up to 30% with storage virtualization.
- Improve throughput up to 300% using just 10% solid-state storage.
- Improve security with drive-level encryption.



Information Compliance



Information Availability



Information Retention



Information Security

## IBM Information Infrastructure enhancements can help improve throughput and security while controlling costs.

### Solid-state Storage

- Improve throughput up to 8x with solid-state storage, available for all IBM servers.
- Smart use of solid-state storage can gain up to 4x throughput with just 10% solid-state.
- **New** performance monitoring and analytics for solid-state optimization on DS8000.
- **New** solid-state option for SAN Volume Controller achieves up to 800,000 IOPS.

### Storage Virtualization

- Simplify storage management.
- Increase storage utilization by up to 30%.
- Reduce energy costs through efficient use of tiered storage.
- **Enhanced** SAN Volume Controller v5 adds solid-state option, Reverse Flash Copy, multi-site mirroring, iSCSI, and faster internal processors.

### Encryption

- Improve security with little or no overhead:
  - Drive-level encryption for disk and tape
  - Automated encryption key management
- More encrypting drive options:
  - **New** DS8700 enterprise storage.
  - **New** DS5020 Express.
  - **New** 600GB encrypting drive for DS5000.

# How can I leverage mainframes for information-led transformation?

## Challenges

- New workloads with rich content and unstructured data.
- Significantly higher data volumes expected.
- Migrating from other platforms with minimal disruption.

## Solution

IBM offers Information Infrastructure advancements for Mainframe clients to support new information-driven workloads more effectively.

## Benefits

- World-class stability, scalability, resiliency and economics.
- Innovative technology and services to support new workloads more effectively.
- The original “cloud” platform.



Information Compliance



Information Availability



Information Retention



Information Security

## How can a small IT staff with a limited budget compete and win in the global economy?

### Challenges

- Executives want leading features and capabilities.
- Staff is too small for “high maintenance” solutions.
- Budget realities require fast deployment and rapid ROI.

### Solution

IBM continues its “no compromises” approach to delivering robust Information Infrastructures for mid-sized environments, with expanded disk **virtualization**, **encryption**, and **performance** options.

### Benefits

- Increase storage utilization by up to 30%.
- Improve security with little or no overhead.
- Improve performance with smart use of solid-state storage and disk controller cache.
- Drive new efficiencies with right sized storage optimization services, now available through Business Partners.



Information Compliance



Information Availability



Information Retention



Information Security

## IBM continues its “no compromises” approach to delivering robust Information Infrastructures for mid-sized environments.

### Storage Virtualization

- Simplify management of SAN disk arrays.
- Increase storage utilization by up to 30%.
- **Enhanced** SAN Volume Controller v5 with new solid-state option, Reverse Flash Copy, multi-site mirroring, iSCSI and faster chips.

*Express Advantage:* SAN Volume Controller Entry Edition now with faster processors and Flash Copy

### High Throughput Options

- Significantly improve the performance of hard-to-tune, disk-bound applications without tuning
- **Enhanced** DS5000 with new solid-state storage option.
- **Enhanced** N series models feature expanded Performance Accelerator Module cache memory, which can improve response time by up to 35%.

*Express Advantage:* New DS3950 Express. Updated N series N3300 Express and N3600 Express

### Encryption

- Improve security with little or no overhead:
  - Drive-level encryption for disk and tape.
  - Automated encryption key management.
- **New** 600GB encrypting drive for DS5000.
- **Enhanced** new encrypting drive option for DS5100 and DS5300.

*Express Advantage:* New DS5020 Express with optional encrypting drives

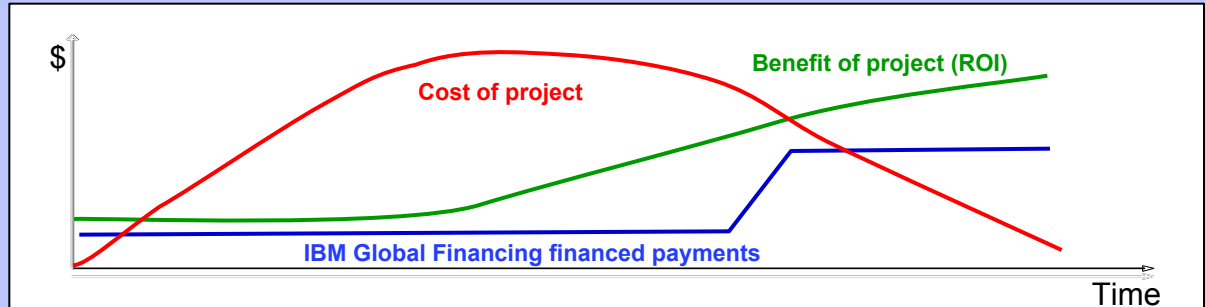
### Optimization and Integration Services

- Improve your ability to plan and optimize storage resources.
- **New** Business Partner enablement for:
  - global insight, version 2.0
  - transformation strategy, including new rapid version

*Express Advantage:* RAPID version of transformation strategy service offering

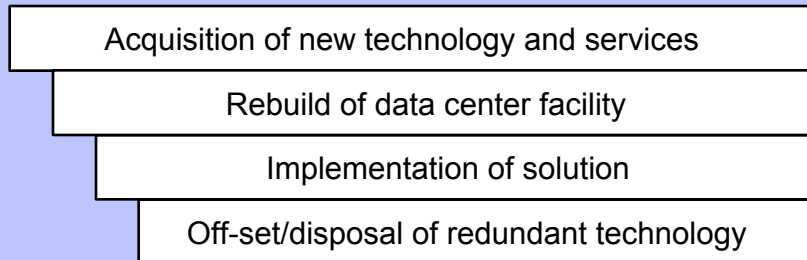
# IBM Global Financing offers a funding and IT disposal strategy that delivers value throughout the IT lifecycle.

- An end to end financing strategy for your total project and IT lifecycle.
- Accelerate ROI.
- Gain access to capital.



IBM Project Financing, IBM Open Infrastructure Offering

Planning/consulting | IBM FMV leases, Sale-leaseback, Asset Recovery



Post-project financing of hardware, software and services, leasing-based IT refresh, pre-owned equipment

Life cycle management financing and asset disposal

Actual financing rates are based on client's credit rating, financing terms, offering type, equipment type and options. Other restrictions may apply.

# INTTRA

## Supporting the global supply chain with IBM

### Business challenge:

INTTRA provides an industry-leading e-commerce platform for the ocean containerized shipping industry. Serving 30 of the world's leading carriers and more than 20,000 customer locations around the world, INTTRA requires a robust IT infrastructure that delivers high performance—and the scalability to support a company that has grown more than 1100 percent in the last seven years.

### Solution:

Working with IBM Premier Business Partner VSS, Inc., INTTRA has consolidated their servers on IBM BladeCenter® and IBM Power Systems™ servers, and has achieved a 95 percent virtualization rate by virtualizing at every tier. INTTRA uses IBM System Storage™ DS8100 and DS8300 enterprise disk storage systems as part of a larger tiered storage strategy that currently provides capacity for 120 TB of data.

### Benefits:

- Reducing the data center footprint by 50 percent
- Reducing energy costs by 30 percent
- Providing the capacity to support a phenomenal annual rate of growth

*“We take advantage of all of the latest technology to make absolutely certain that each time we upgrade, we leave less of a footprint behind.”*

— Ken Bloom, president and CEO, INTTRA

### Solution components:

- IBM System Storage™ SAN Volume Controller
- Tivoli Storage Productivity Center and Tivoli Storage Manager
- IBM System Storage™ DS8100 and DS8300
- IBM BladeCenter® E, LS20, and LS21
- IBM Power® 570



## Nexans Network Solutions NV

### Storage virtualization delivers optimum storage flexibility



- ▶ Smooth migration of storage to a new SAN infrastructure with minimum downtime. Data migration had to be completed in a matter of hours.
- ▶ Support round the clock operations
- ▶ Improve flexibility for the future in terms of expanding storage

#### ***Solution***

- IBM System Storage™ SAN Volume Controller (SVC)
- IBM System Storage™ DS3400 disk system
- IBM Business Partner AXI in Willebroek, Belgium

#### ***Result***

- Enhanced performance
- Centralized management of storage
- High availability, via synchronous replication between two locations
- Improved Disaster Recovery capabilities

*“Most of the data was transferred during office hours. The intelligence of the IBM SAN Volume Controller meant that everyone was able to access the information needed without any trouble – even during the migration process.”*

— Thierry Claeys, Network Administrator

## Koninklijke Bibliotheek - (National Library of the Netherlands)

Preserves information



- ▶ Collect, maintain and preserve an archive of all publications (books, papers, periodicals, scientific publications) issued in The Netherlands
- ▶ Store & retrieve electronic publications on a large scale
- ▶ Required Long Term Preservation

### ***Solution***

- IBM Content Manager, Tivoli Storage Manager, WebSphere Application Server, DB2, AIX
- IBM p570 system, IBM DS6800 storage system, IBM 3584 Tape Libraries, Plasmon G638 Optical Library
- IBM Global Services and Almaden Research Laboratory

### ***Result***

- Estimated savings of \$5m (USD) per year by avoiding manual cataloging and storing
- Preservation of and improved access to the national cultural heritage of The Netherlands
- Better, easier and faster access to information

## City and County of Honolulu

### IBM Information Infrastructure Delivers Results



- ▶ Older systems running on hardware and operating systems that were no longer supported
- ▶ Unable to consistently provide reliable services to citizens
- ▶ Ineffective Disaster Recovery infrastructure



### **Solution**

- New ERP application from CGI
- Updated IT infrastructure with new Disaster Recovery site
- Total Solution components:
  - Servers: P570, P505, and z9
  - Storage: DS8100 disk, SAN Volume Controller, 3310 Tape Library
  - Services: Sirius Computer Solutions, an IBM Premier Business Partner
  - Leasing: IBM Global Financing

### **Result**

- New servers and storage improved scalability, performance, and availability
- Increased flexibility through virtualization and partitioning
- Able to meet audit requirements
- Recognition
  - Biggest Mover award by Inc. Magazine
  - Beacon award for IBM Business Partner

***“It’s a great partnership when you can work together, test the waters, and develop a migration path that didn’t exist.”***

*Gordon Bruce, CIO*

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