Revitalising your Data Centre by Injecting Cloud Computing Attributes

Ricardo Lamas, Cloud Computing Consulting Architect
IBM Australia

Today's datacenters face enormous challenges:

"I need to consolidate to reduce sprawl and OPEX."

"I need to ensure my services and products are available at all times."

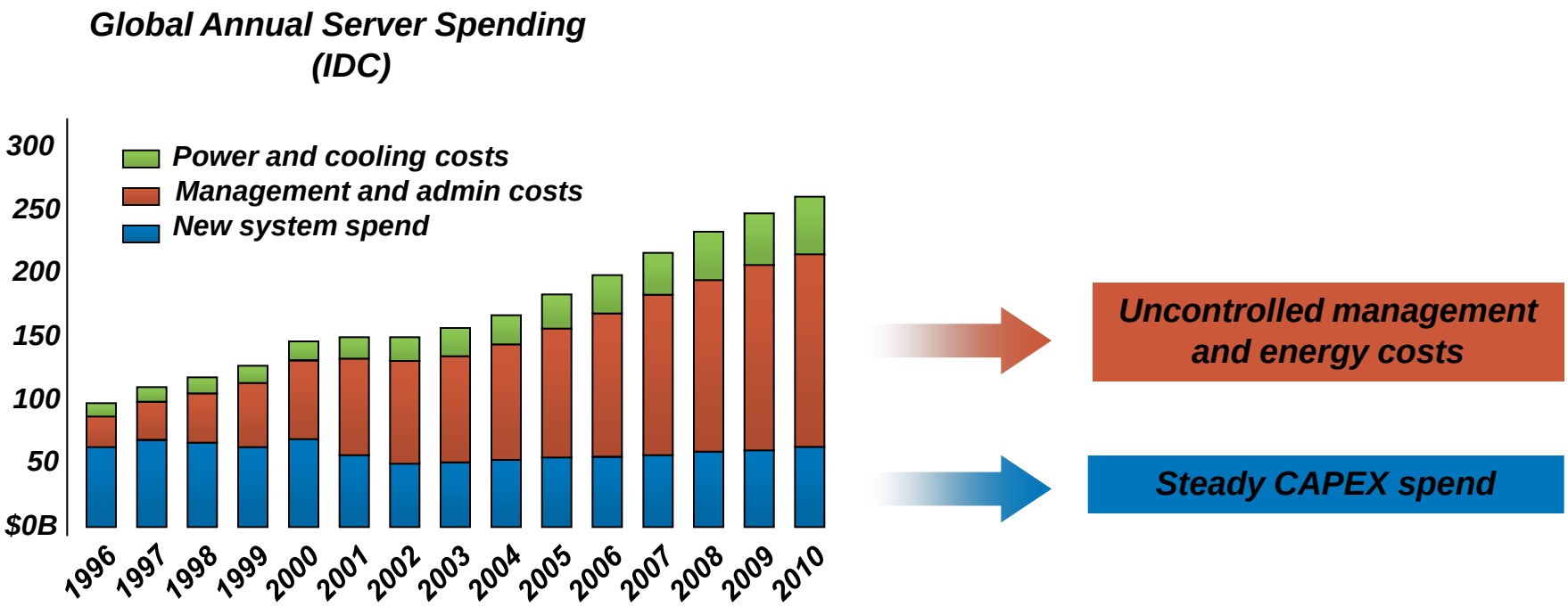
"I need to improve IT's ability to rapidly support business innovation and quickly adapt to changes."

"I need the flexibility to add and remove computing resources and pay according to usage."

Challenges

- Capital and operational expenses – space and power constraints
- Infrastructure fragile and problematic to change – many specialized skills and tools required
- Weeks to deploy new solutions – slow, manual provisioning

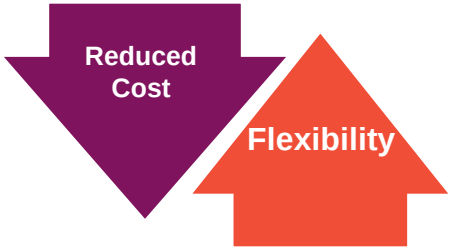
We are facing a crisis of complexity



To make progress, delivery organizations must address the server, storage and network operating cost problem, not just CAPEX

Source: IBM Corporate Strategy analysis of IDC data

Reduce Cost and Increase Flexibility…. How??



VIRTUALIZATION

- Consolidation and virtualization of all infrastructure assets.
- Virtualization management and workload automation.
- Infrastructure wide virtualization with integrated service management.

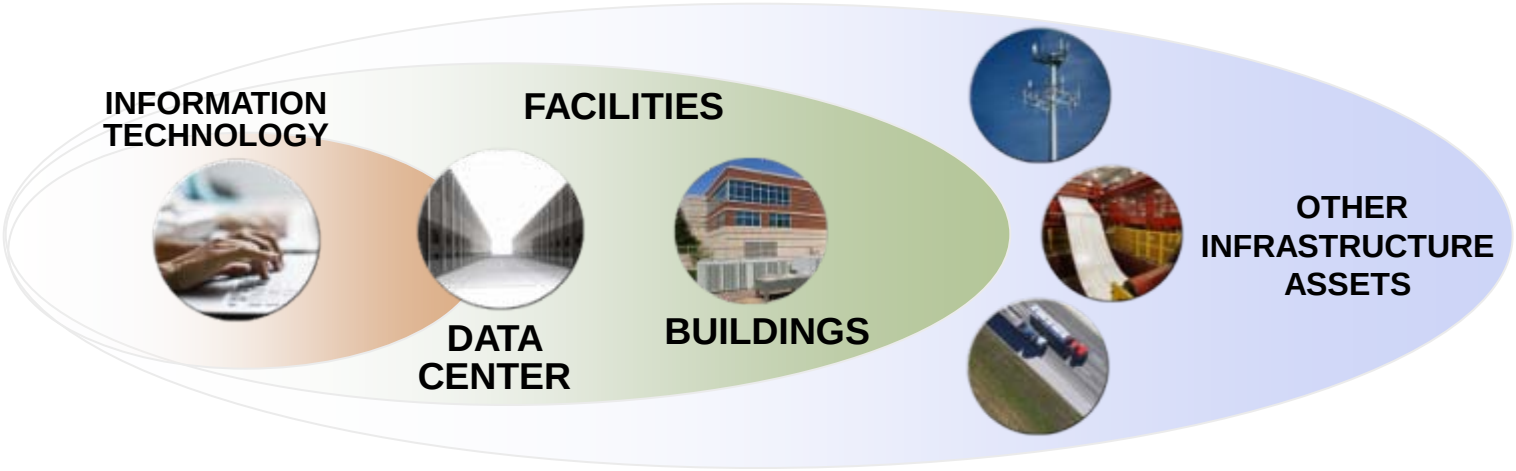
ENERGY EFFICIENCY

- Addressing the energy efficiency of the IT equipment.
- Extend existing data center investment with green design.
- Proactive energy management across the infrastructure.

WORKLOAD OPTIMIZED

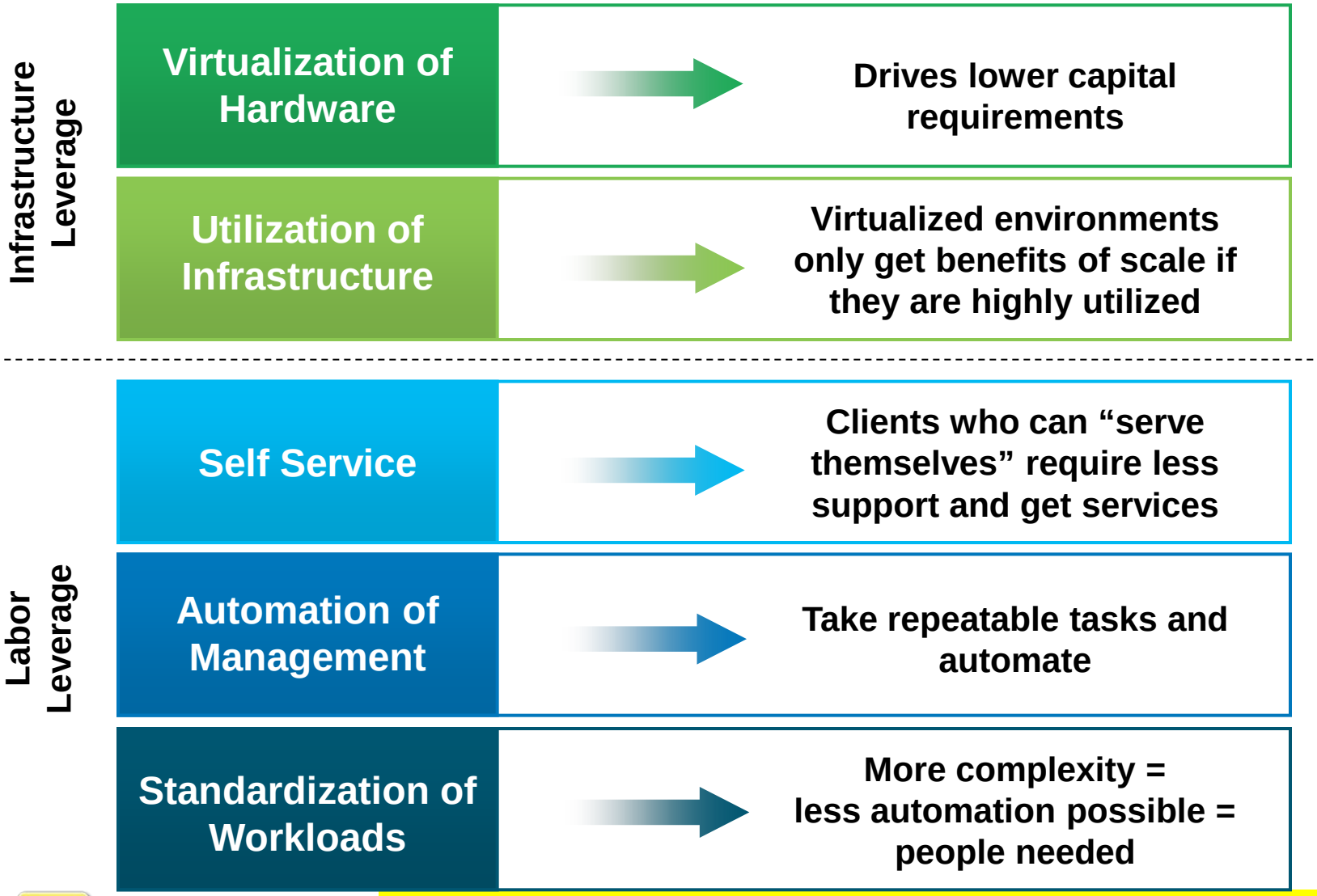
- Intelligent system choice based on workload characteristics.
- Purpose built solution optimized for workloads.
- Integrated heterogeneous systems for multiple workloads.

Energy efficient infrastructure to reduce costs and minimize your energy footprint.



- **IT Efficiency** - Reduce costs and improve service with energy efficient servers, storage, and virtualization.
- **Green Data Center Design** - Defer capital expenses and reduce operational costs with Data Center services.
- **Energy Management** - Measure and control energy use across the IT and business infrastructure.

"Cloud" is a new consumption and delivery model
The attributes & economics of Cloud

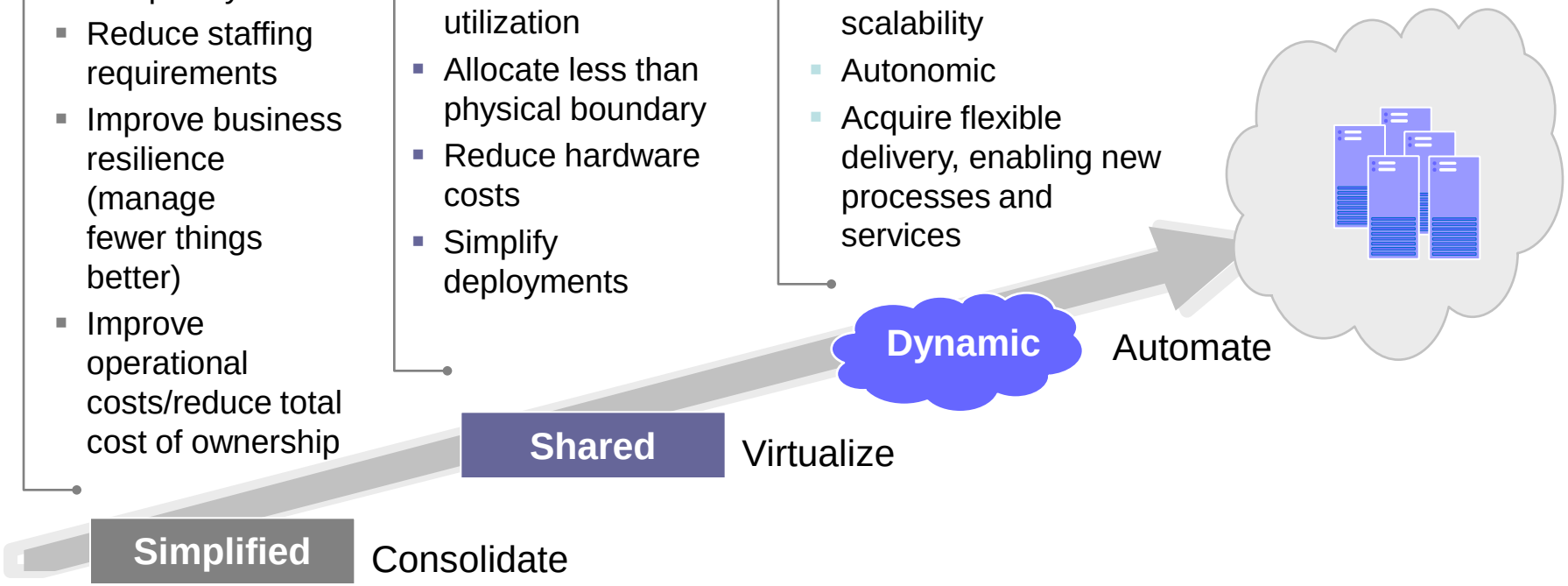


Create a Roadmap for Cloud as Part of the Existing IT Optimization Strategy

- Reduce infrastructure complexity
- Reduce staffing requirements
- Improve business resilience (manage fewer things better)
- Improve operational costs/reduce total cost of ownership

- Remove physical resource boundaries
- Increase hardware utilization
- Allocate less than physical boundary
- Reduce hardware costs
- Simplify deployments

- Standardize services
- Dramatically reduce deployment cycles
- Gain granular service metering and billing
- Obtain massive scalability
- Autonomic
- Acquire flexible delivery, enabling new processes and services

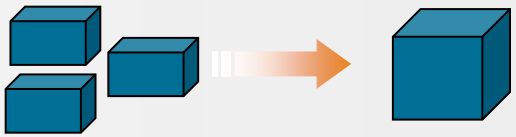


Consolidation Approaches

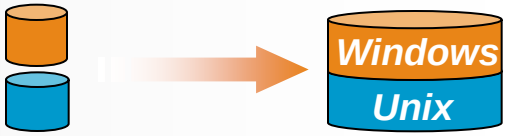
Consolidation and Virtualization

Reducing the number of sites.

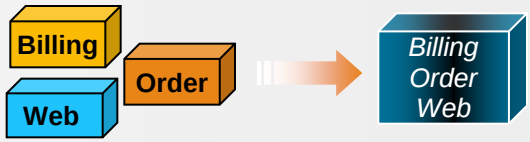
Reducing the number of servers.



Centralize data from different sources.



Migrate several applications into fewer applications.



"Through 2010, IT infrastructure consolidation will remain the focus of IT infrastructure and operations cost reduction initiatives."

*-- Gartner**

* Source: Gartner, Inc. "IT Infrastructure Consolidation: Best Practices." Gartner Symposium/ITxpo 2006. Jay Pultz. October 8–13, 2006.

Virtualization is an enabler for emerging delivery methods

Platform Virtualization

- Server, storage, network, application, and client
- Increase asset utilization
- Lower power consumption
- Reduce time to value
- Simplify change
- Introduces new challenges
  - Proliferation of virtual images
  - More platform specific management tools
  - Individual entity focus
  - Server/storage hot spots
  - Software cost issues

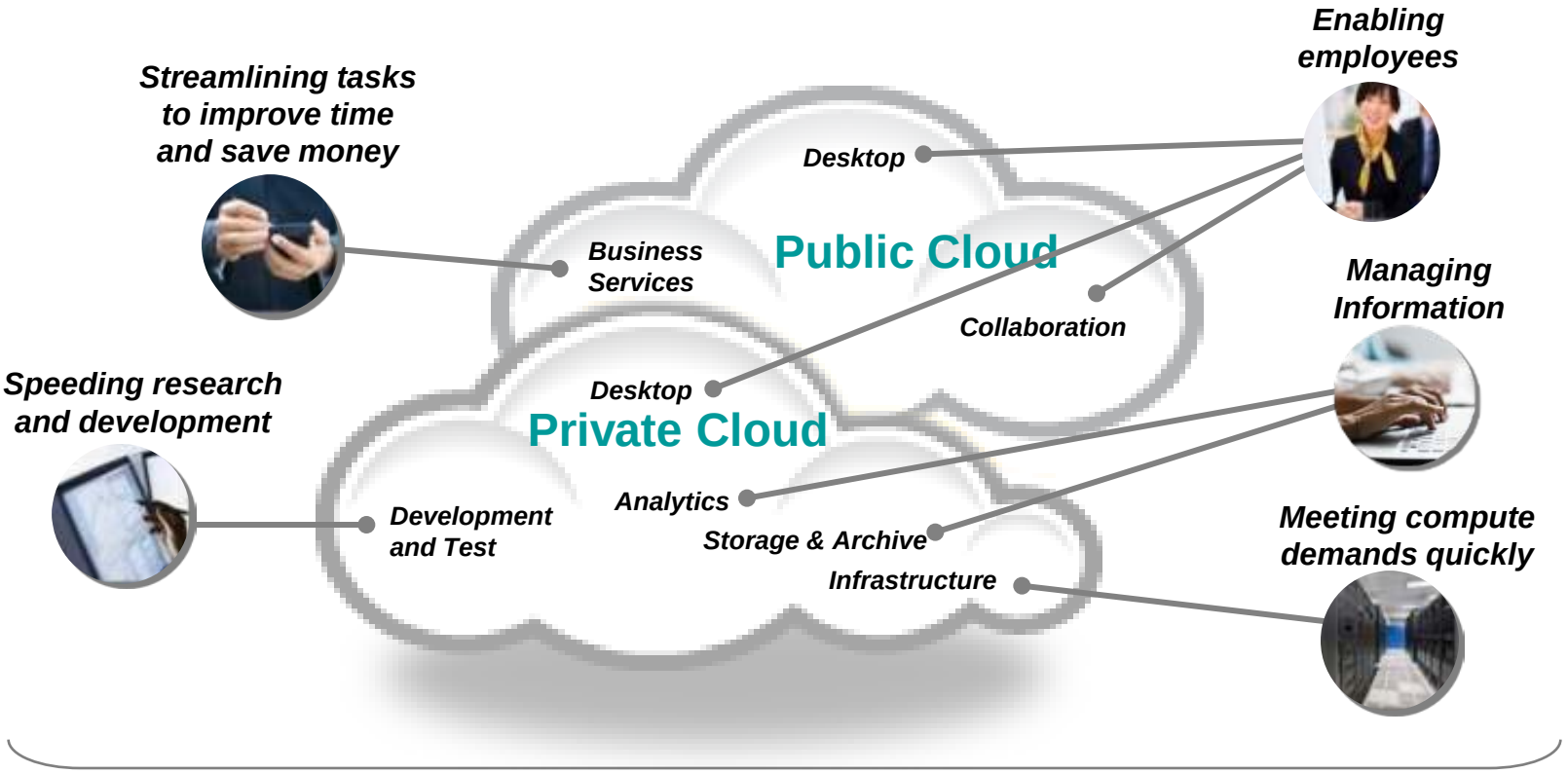
System Pools

- Capture and catalog virtual images in libraries
- Standardize virtual image building blocks
- Manage many as one
- Automatic placement of new workloads
- Share resources optimally
- Aggregate monitors and event management
- Durable across HW generations
- Improve resilience over single system implementations
- Eliminate planned downtime with system mobility

Cloud

- Self service
- Built on top of system pools
- Elastic scaling
- Pay by usage
- Always available
- Internal, external, hybrid
- Simplified user interface
- Assure SLA achievement
- Integrated virtualization management with IT processes

Optimising business workloads with the delivery option that fits, including cloud computing.



- Smart Business on the IBM Cloud – workload based services available from IBM's cloud
- Smart Business Cloud – private cloud services behind your firewall
- Smart Business Systems – pre-integrated, purpose built, ready to use

IBM's Own Journey

IBM IT Transformation

- *From 2002 through 2009, IBM's own IT investments delivered a cumulative benefit yield of approximately $4 billion. For every dollar invested, we saw a $4 cumulative benefit.*

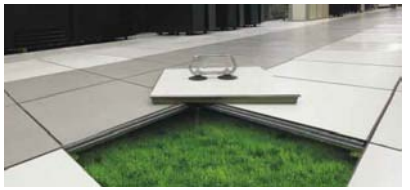
	1997	Today
CIOs	128	1
Host data centers	155	7
Web hosting centers	80	5
Network	31	1
Applications	15,000	4,700

Data Center Efficiencies Achieved

- *Consolidation and virtualization - thousands of servers onto approximately 30 IBM System z™ mainframes.*
- *Additional virtualization leveraging System p, System x and storage across enterprise.*
- *Substantial savings being achieved in multiple dimensions: energy, software and system management and support costs.*

Project Big Green

- *The virtualized environment will use 80% less energy and 85% less floor space.*
- *2X existing capacity, no increase in consumption or impact by 2010.*



Cloud-enabled on demand IT delivery solution

- *Self-service for 3,000 IBM researchers across 8 countries.*
- *Real time integration of information and business services.*

Case Study: IBM Technology Adoption Program uses cloud to help reduce expenses and drive innovation.

Business challenge:

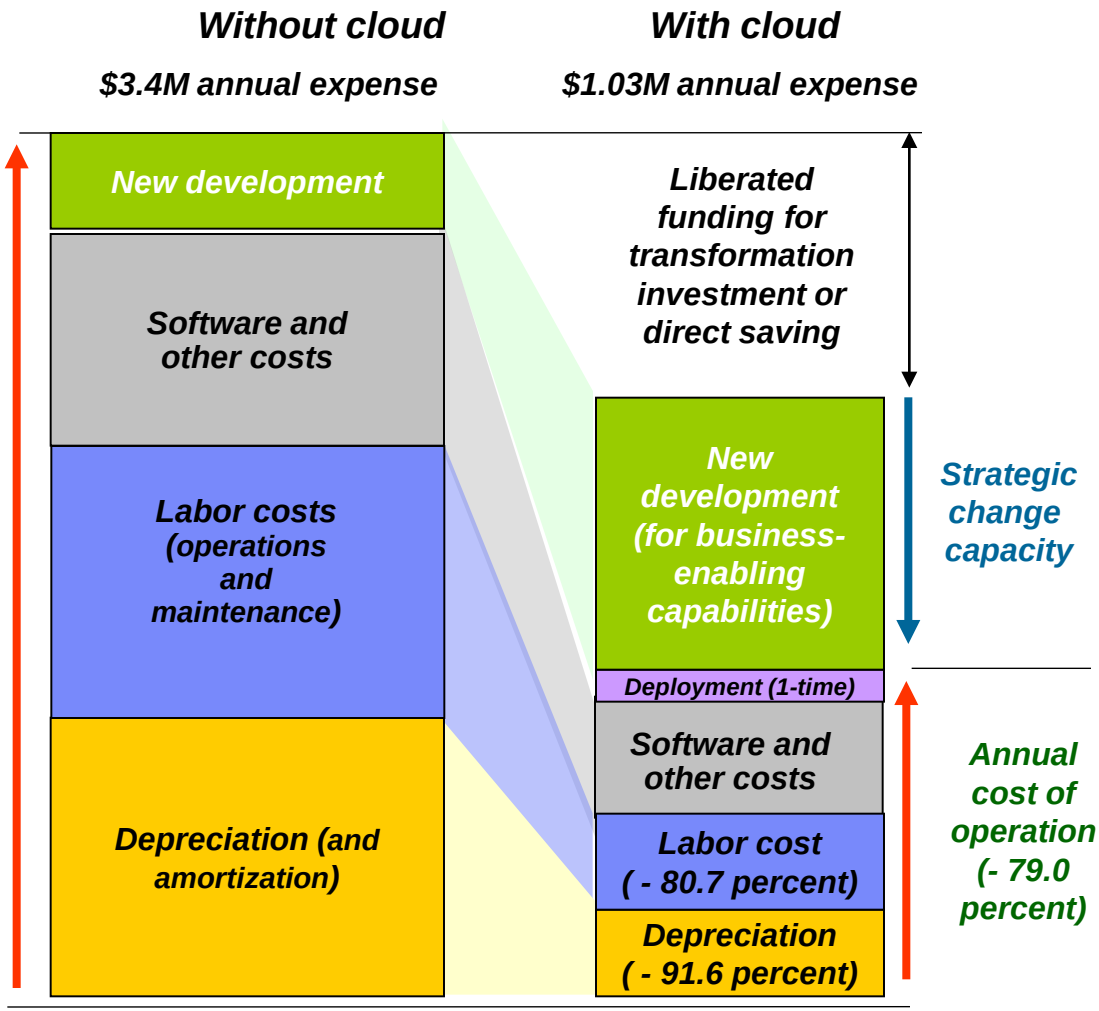
- ***Reduce operational expenses and capital investment in order to fund innovation***

Solution:

- ***Develop an internal "Collaboration Innovation" cloud using IBM technology***

Benefits:

- ***Dramatic labor (-80.7 percent) and capital depreciation (-91.6 percent) savings***
- ***One of IBM's most successful solutions with over 80,000 participants***



Note: 5-year depreciation period with 5 percent discount rate

What makes IBM's approach so unique?

Workload Optimized

- Infrastructure optimized for specific workloads, tasks, or services in ways that deliver orders of magnitude better performance, scale and efficiency.

Integrated Service Management

- Provides visibility, control and automation across the business and IT infrastructure to accelerate the delivery of high quality services.

Flexible Delivery Choices

- New delivery choices characterized by self-service, elastic scaling and rapid provisioning for optimal performance with reduced costs and risk.

…..looking at IT <u>service delivery</u> from the business' perspective

Get started with cloud computing — in the right way

Plan and prepare

Develop a cloud strategy and roadmap

- Assess cloud deployment models, service options and workloads
- ROI analysis
- Choose initial project

Condition your existing infrastructure for cloud

- Virtualize and automate existing systems
- Add service management, service catalog

Pilot and deploy

Start with an isolated cloud deployment

- Architect and implement low-risk workloads such as test and development, desktop, backup and recovery or storage
- Standardize workloads and supporting systems
- Deploy self-service portal

Extend and evolve

Roll out cloud across the enterprise

- Enable additional workloads on a private cloud
- Add new users
- Use trusted public cloud services to supplement business and IT workloads

Questions