

The Benefits of Moving Beyond Virtualization: Optimizing with Cloud - IBM SmartCloud Foundation

Building a solid foundation for cloud



Business without **LIMITS 2012**

[6th September 2012, New Delhi]



On today's Smarter Planet, organizations are taking new approaches to optimizing increasingly dynamic business services, processes & relationships



**Build operating
dexterity**

**Reinvent customer
relationships**

**Uncover new
Profit opportunity**



Cloud enables Innovation and Business Transformation while managing change and complexity

Enduring relationships

Gain customer insight and use it to improve products & services



Speed & dexterity

Create new models of self-service and deployment
For new products & services

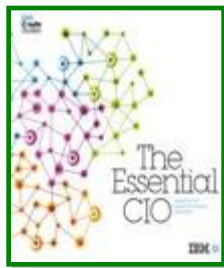
IT without boundaries

Simplify access to information and services improving outcomes



Value creation

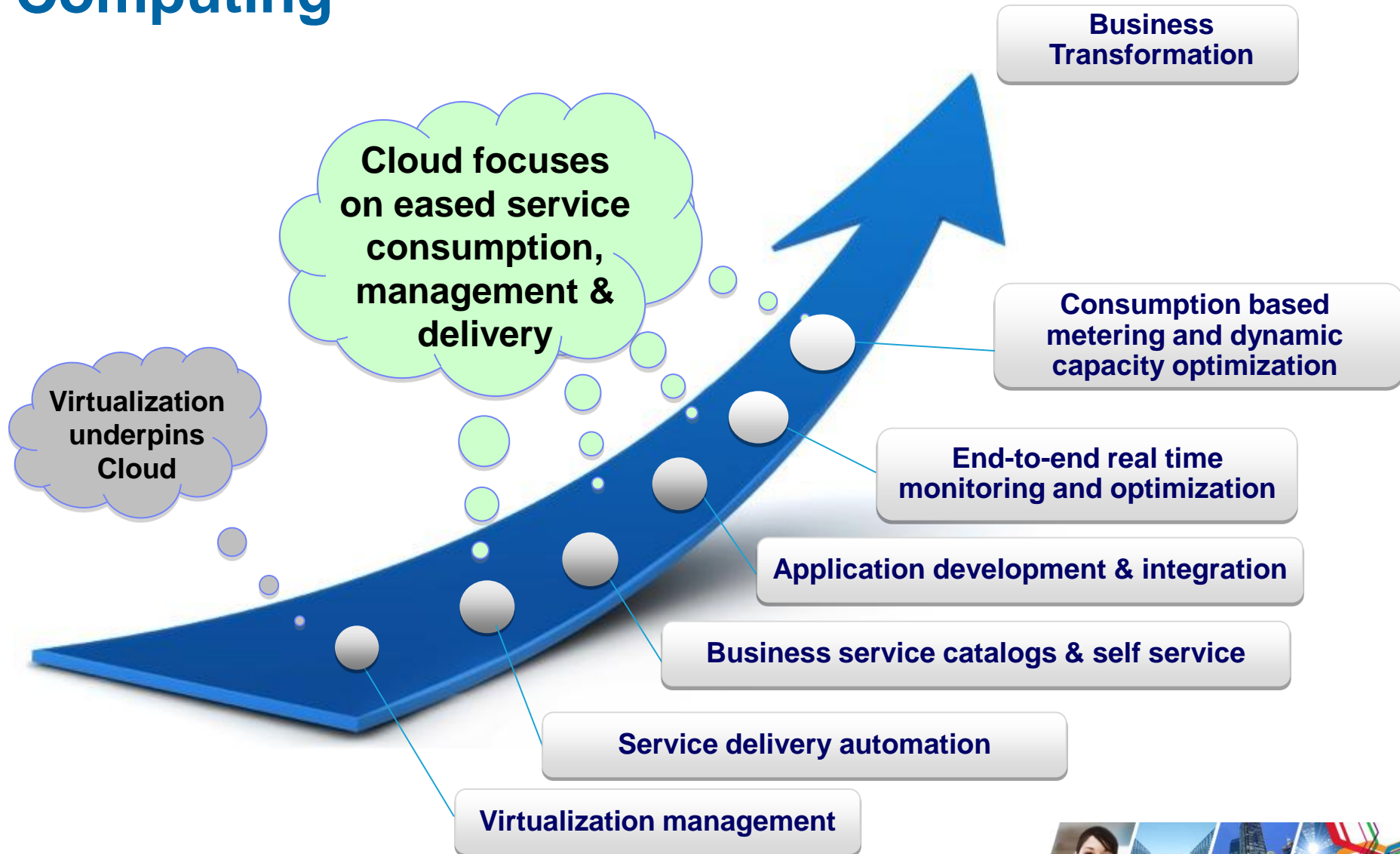
Define and deliver new business value in real time



68% ranked Cloud Computing as their most important initiatives for the future



Organizations are now moving beyond virtualization to higher value stages of Cloud Computing

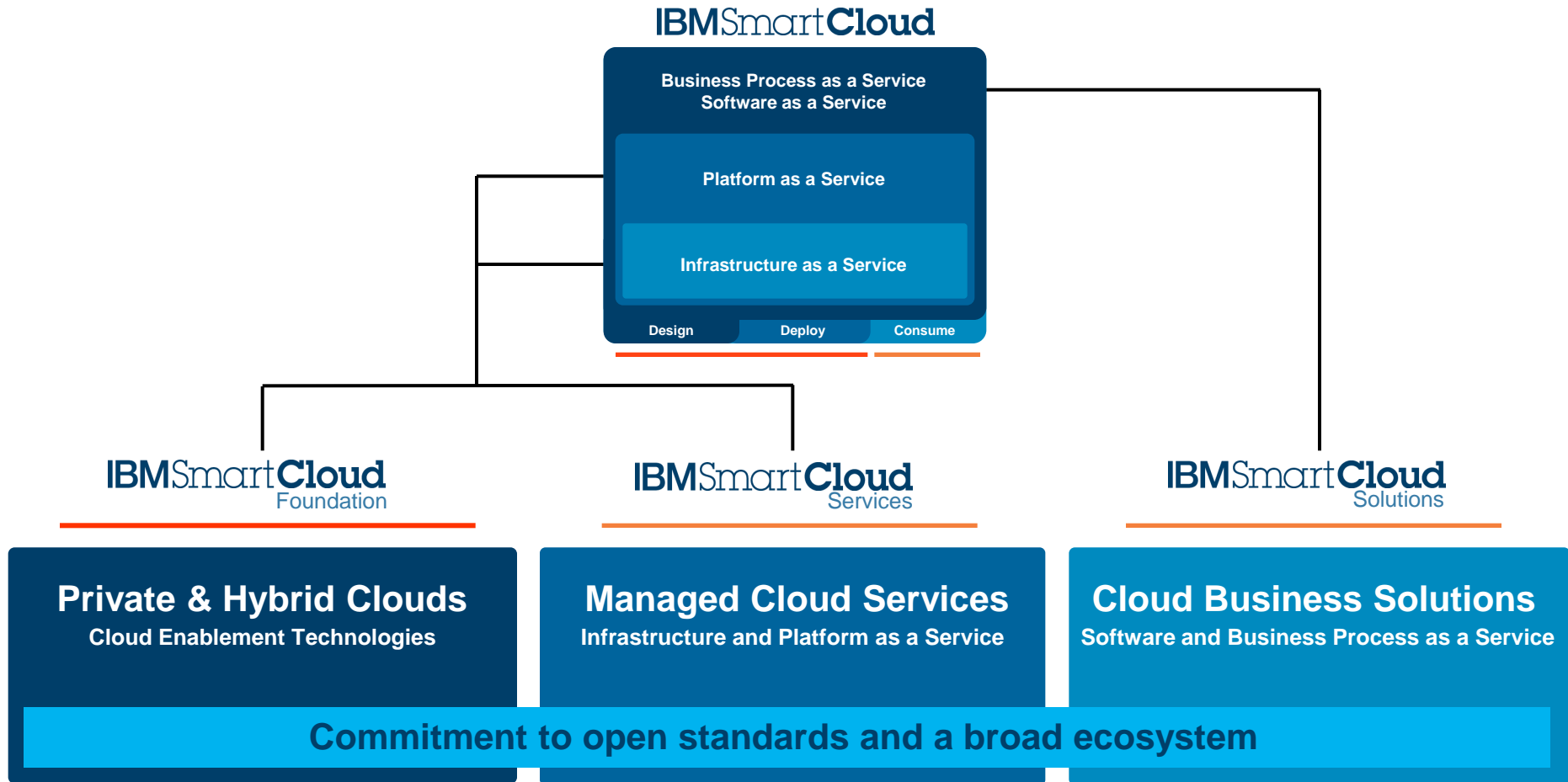


Creating a cloud environment requires a strong foundation – beginning with the underlying systems – all the way up the stack

- **SLAs not enough - Trust but verify!**
- **Complexity managed from the bottom up**
- **Innovation at every layer (hdwr/sfwr)**
- **Choice of platform & performance**
- **Commitment to Open Standards**



IBM cloud capabilities are built upon a common platform, with open standards, and are flexible to meet your business and IT needs



IBM Smart Cloud Foundation

Infrastructure as a Service Technologies

A policy-based, scalable environment for managing cloud computing resources and services “on demand”

Platform as a Service Technologies

Cloud middleware & tools to build, integrate and run cloud services



With IBM SmartCloud Foundation, we are helping clients build scalable private cloud environments with unparalleled time-to-market, integration and management

- Resilient to the **velocity** of **changing business needs**
- **Choice & flexibility** in hybrid environments
- Enterprise-class, **workload-aware** services
- Built-in **analytics** for improved insight and decision making

IBM SmartCloud Foundation



With IBM SmartCloud Foundation, we help companies build scalable private cloud environments

IBM SmartCloud Foundation

Platform as a Service Technologies



Lifecycle



Resources



Environments



Applications



Integration

Infrastructure as a Service Technologies



Infrastructure



Administration



Performance



Security



Usage

- *Hybrid connectivity*
- *Workload aware deployment*
- *Middleware patterns*
- *Workload management*
- *Scaling and elasticity*
- *Intuitive and simple administration*
- *Enterprise class image management and provisioning*
- *Monitoring and analytics*



Accelerate application delivery with purpose-built services

- Workload patterns
- Scalable, elastic runtimes
- Virtual applications
- Virtual systems

Simplify cloud application delivery with shared services

- Databases, data streams
- Message routing

Collaborative application development for predictive and error-free deployment

- Deployment planning & automation
- Change & config management
- Requirements management
- Design & development
- Quality management

Improve utilization, cost and performance of server, storage and networking assets

- Unified server, storage and network mgmnt
- Virtual machine mobility and management
- Energy consumption monitoring & mgmnt
- Workload optimized platforms

Command center for flexible, automated cloud service delivery

- Resource orchestration and management
- Image lifecycle management
- Service Catalogue
- Provisioning

Optimize the deployment and management of 3rd party and in-house applications

- Workload patterns for 3rd party applications

Manage and integrate traditional, private and public cloud services

- Application & Data Integration
- Hybrid public & private clouds

Understand cloud service and resource usage, managing against financial metrics

- Usage metering
- Accounting
- Payments
- Billing

Protect cloud services and data against threats, maintain compliance to mandates

- Security Information & Event Management
- Access & Identity Management
- Intrusion Prevention



Holistically see and understand quality of service metrics and continuously improve

- Monitoring & Analytics
- Event management
- Backup & Recovery
- High Availability



Accelerate application delivery with purpose-built services

- IBM PureApplication System
- IBM Workload Deployer
- IBM WebSphere Virtual Enterprise
- IBM WebSphere Portal Hypervisor
- IBM WebSphere Application Server Hypervisor
- IBM WebSphere Message Broker Hypervisor
- IBM WebSphere Process Server Hypervisor
- IBM WebSphere Business Monitor Hypervisor
- IBM Lotus Web Content Mgmt Hypervisor
- IBM Transactional Database Pattern for Cloud
- IBM Data Mart Pattern for Cloud

Simplify cloud application delivery with shared services

- IBM DB2 Hypervisor Edition

Collaborative application development for predictive and error-free deployment

- Rational Automation Framework
- Rational Software Architect Deployment Planning & Automation
- IBM SmartCloud Continuous Delivery / DevOps

Improve utilization, cost and performance of server, storage and networking assets

- IBM PureFlex System
- BladeCenter Foundation for Cloud
 - SmartCloud Entry (*Starter Kit*)
- IBM Server and Storage solutions
- IBM SmartCloud Virtual Storage Center

Command center for flexible, automated cloud service delivery

- SmartCloud Provisioning (*ISAAC*)
- TSAM/ISDM/SmartCloud Orchestration
 - Tivoli Provisioning Manager
 - SmartCloud Control Desk
- Tivoli Workload Scheduler for Virtual Data Centers

Optimize the deployment and management of 3rd party and in-house applications

- TBD from 3rd parties

Manage and integrate traditional, private and public cloud services

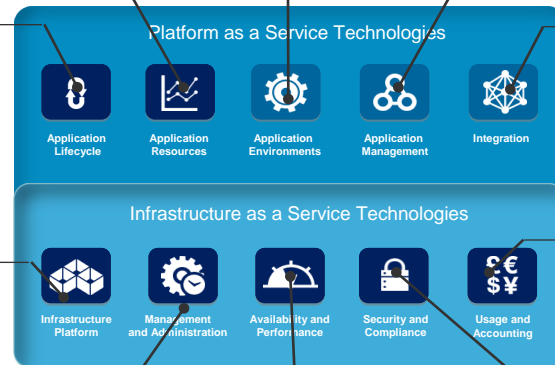
- IBM WebSphere Cast Iron Cloud Integration

Understand cloud service and resource usage, managing against financial metrics

- Tivoli Usage & Accounting Manager

Protect cloud services and data against threats, maintain compliance to mandates

- IBM Security Virtual Server Protection
- IBM Professional Security Services



Holistically see and understand quality of service metrics and continuously improve

- SmartCloud Monitoring (*ITM for VE*)
- Tivoli System Automation (Distributed)
- Tivoli Storage Manager for Virtual Environments
- SmartCloud Application Performance Management

Strategy, Design and Implementation Services

- GTS Infrastructure, Security, Network, Design and Strategy Services
- Smart Business Desktop Cloud
- GBS Strategy, Implementation, Appl Dev't and Testing Services
- * Smart Business Storage



The journey to cloud consists of key steps to drive a set of capabilities that transform an IT infrastructure

1 **Integrate**
Build an efficient IT infrastructure

2 **Automate**
Improve speed and dexterity

3 **Orchestrate**
Deliver IT without boundaries

- Consolidate and virtualize servers, storage, and networking
- Streamline systems management
- Deliver self-service provisioning
- Automate IT service deployment
- Simplify administration
- Increase agility by managing multi-tenant environments
- Speed innovation through seamless orchestration



Working with clients during all aspects of their cloud journey

1 **Integrate**
Build an efficient IT infrastructure

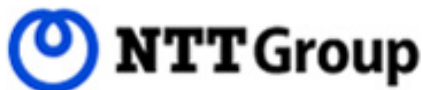
2 **Automate**
Improve speed and dexterity

3 **Orchestrate**
Deliver IT without boundaries

- Consolidating down to 5 datacenters from 200
- 70% reduction in annual licensing
- 30% reduction in TCO

- Improved new application time-to-market by 35x (3-4 months down to 2-3 days)
- Increased hardware utilization by 50%

- Reduced from 700 servers to only 16 IBM HX5 servers
- Reduced rack space by 94% from 578 to 32 units
- 97% reduction in energy costs



The time has come to rethink IT and reinvent business — with IBM SmartCloud

Ask the fundamental questions:

- Is your organization achieving the levels of innovation required to complete in today's environment?
- Is your organization able to nimbly put lucrative ideas into action?
- Does your organization incorporate the best ideas—even if they come from outside?
- Are you developing internal capabilities that would be better handled by others?

Go to ibm.com/smartcloud for more information.

