Smarter Infrastructure and the Private Cloud in Financial Services
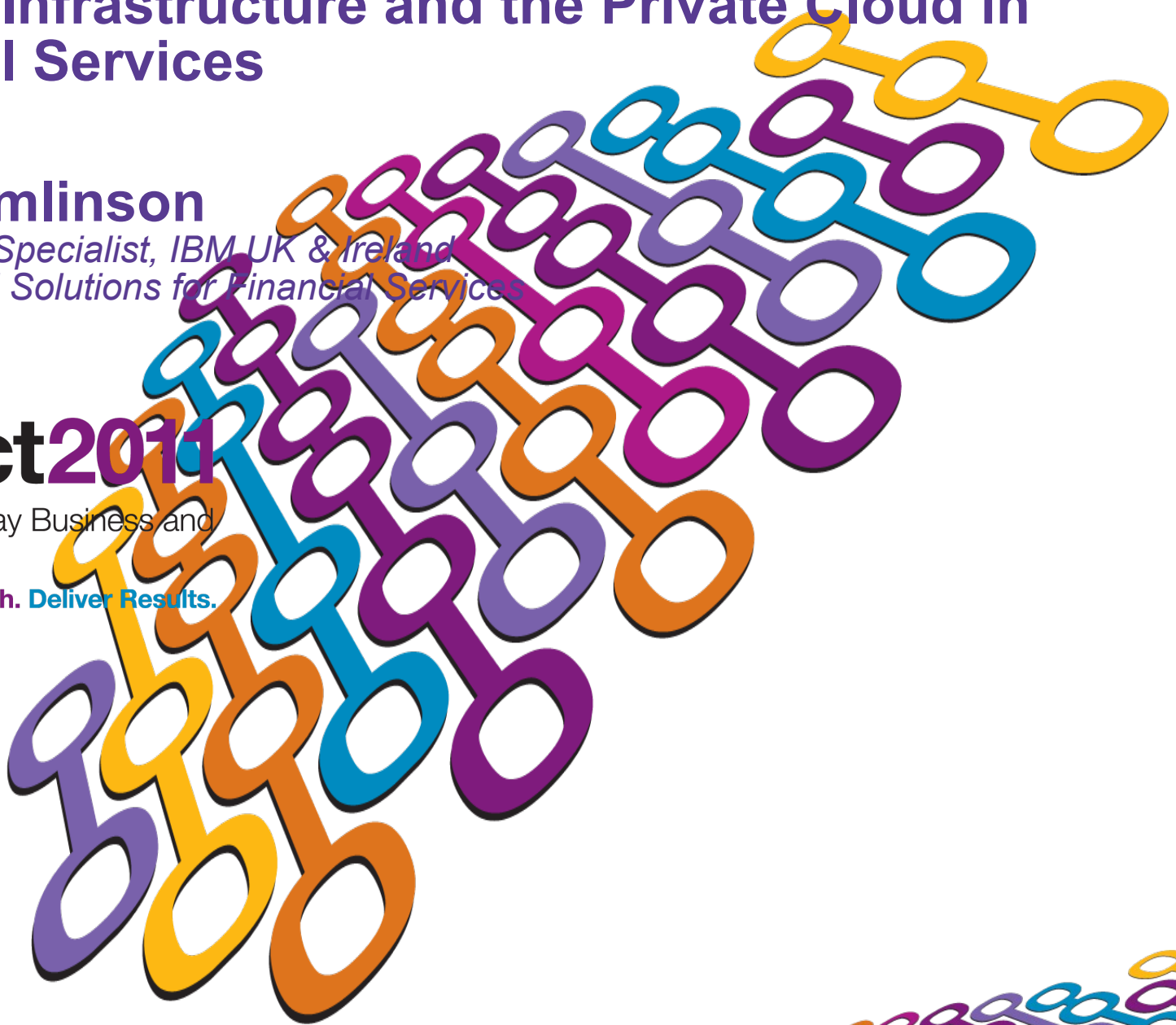
Mark Tomlinson
Executive IT Specialist, IBM UK & Ireland
Private Cloud Solutions for Financial Services

IBM Software

Impact2011

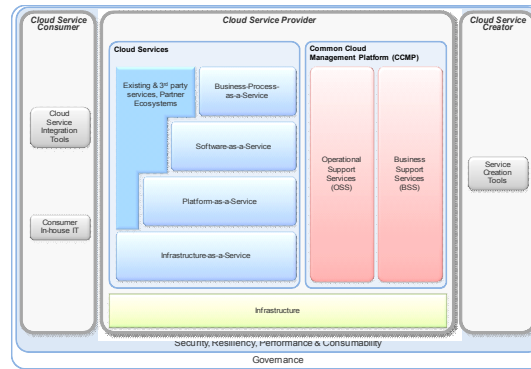Changing the Way Business and
IT Leaders Work

Optimize for Growth. Deliver Results.

Discussion topics

Cloud drivers and key workloads for Financial Services ecosystem

IBM's recommended Cloud adoption approach

Latest IBM offerings and Financial Services case studies

Reinvent the business model

Drive a simplified and streamlined agile enterprise that balances growth, efficiency and business resiliency

Focus on the customer

Optimize data and leverage analytics to cultivate client-centricity, build trust and drive profitable growth

Integrate risk management

Achieve compliance objectives while mitigating operational risk, fighting crime and optimizing financial returns

Smart financial organizations are doing so by drawing on the power of Cloud computing
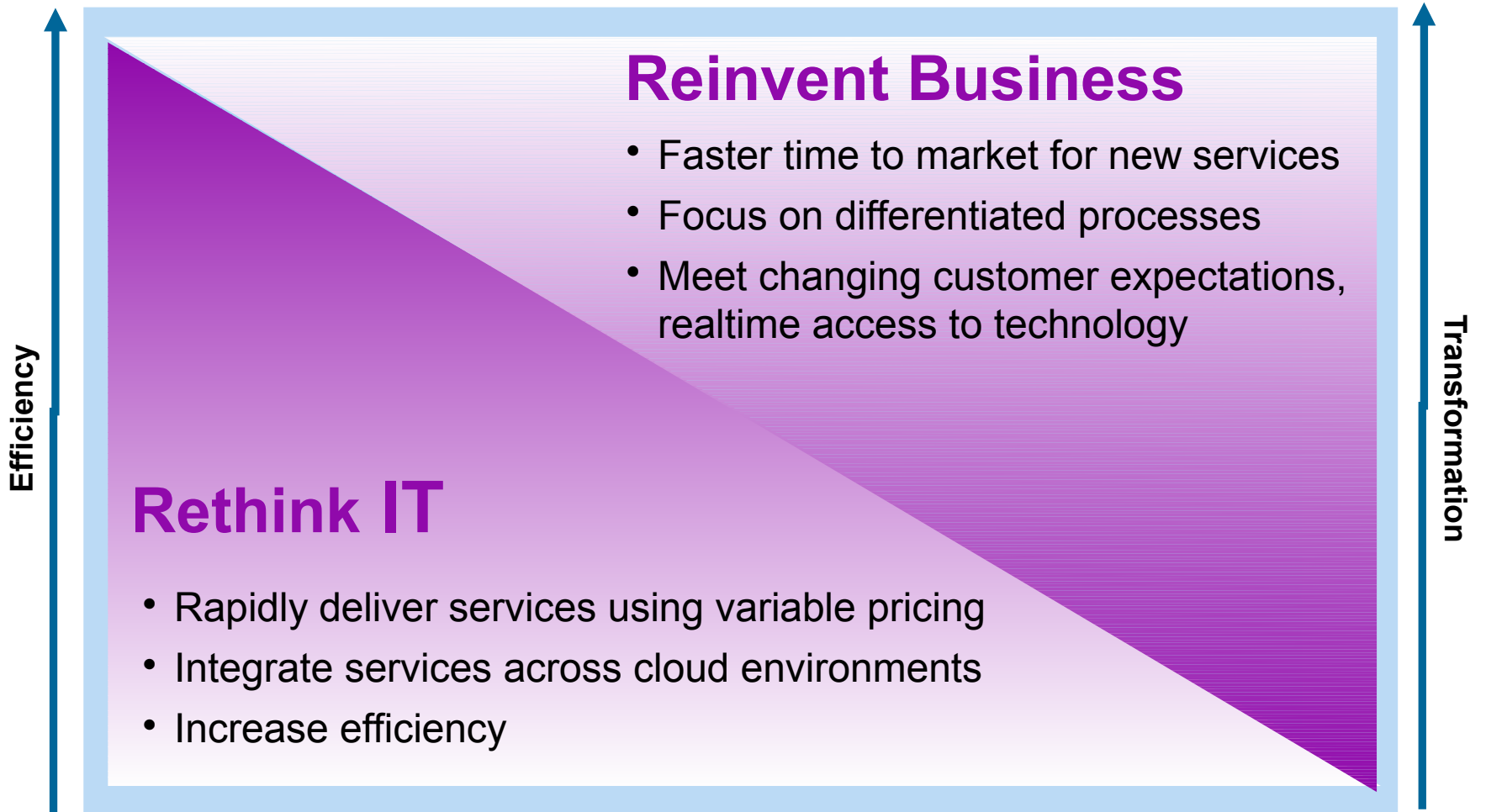
Growing demands of IT from the business

Business user's experience of IT in their personal lives:

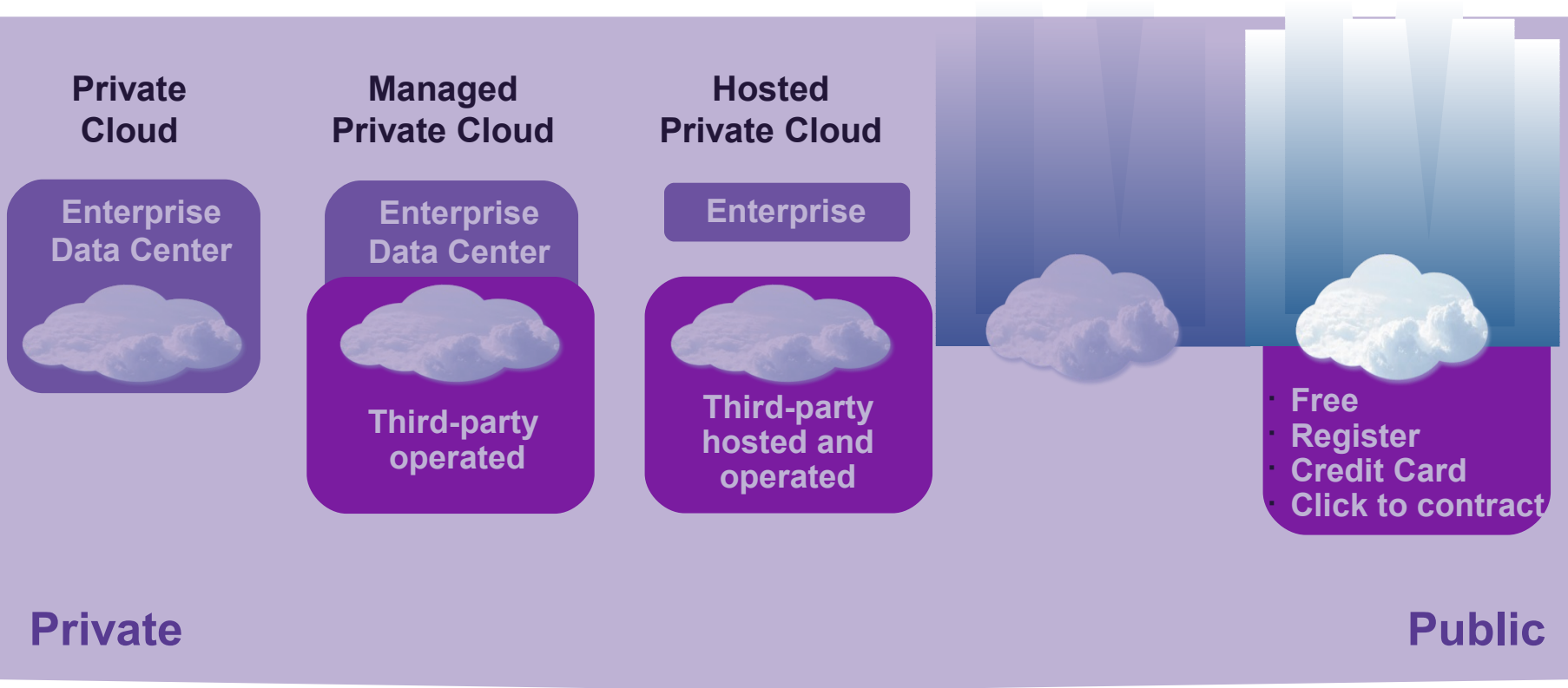**Many business user's experience of IT in their work lives:**

Cloud allows financial services companies to rethink IT and reinvent the way they do business

Efficiency (vertical axis, left)

Transformation (vertical axis, right)

Reinvent Business

- Faster time to market for new services
- Focus on differentiated processes
- Meet changing customer expectations, realtime access to technology

Rethink IT

- Rapidly deliver services using variable pricing
- Integrate services across cloud environments
- Increase efficiency

The Economics of Computing are Changing

Spectrum of deployment options for Cloud

**Private
Cloud**

**Managed
Private Cloud**

**Hosted
Private Cloud**

Enterprise
Data Center

Enterprise
Data Center

Enterprise

Third-party
operated

Third-party
hosted and
operated

· Free
· Register
· Credit Card
· Click to contract

Private

Public

Hybrid

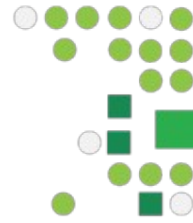# Virtualization is just one of the primary building blocks for Private Cloud delivery

Automated ▶

Faster cycle times
Lower operating expenses
Optimized utilization
Improved compliance
Optimized security
End user experience

Breakthrough agility and reducing risk

Standardized ▶

Easier access
Flexible pricing
Reuse and share
Easier to integrate

Higher quality services

Virtualized ▶

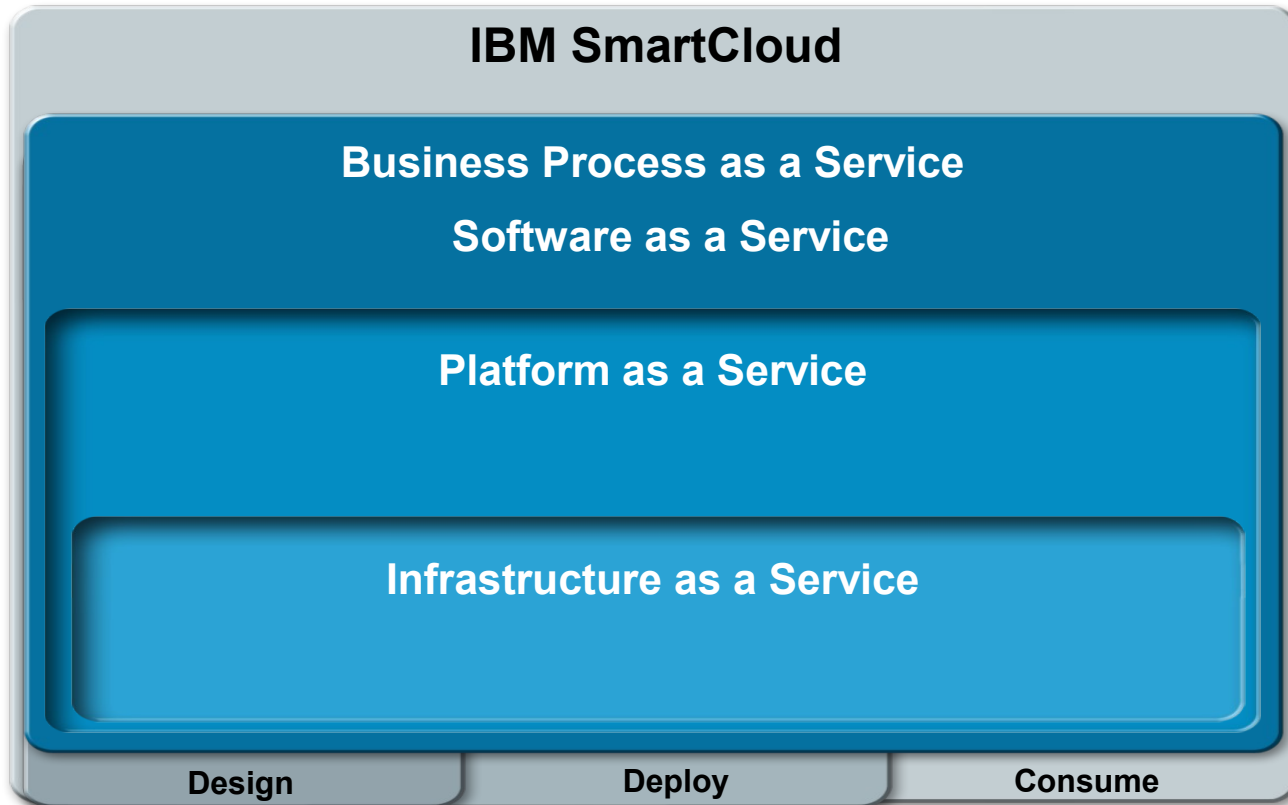Higher utilization
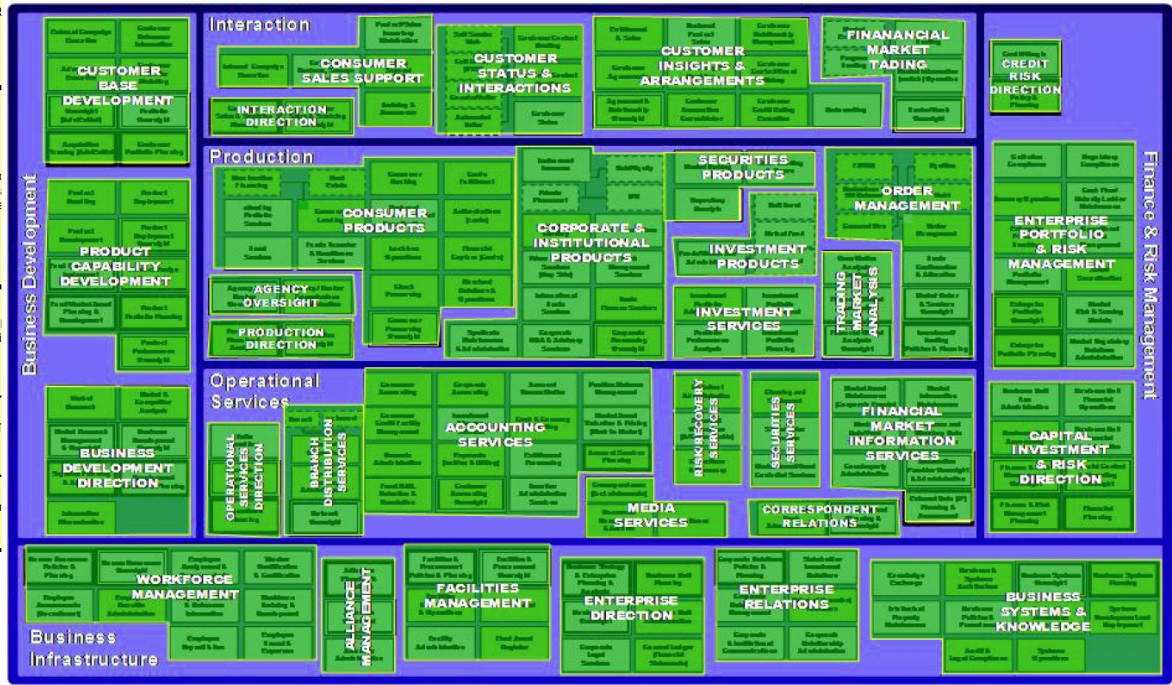Economy of scale benefits
Lower capital expense

Doing more with less

Cloud workload classifications

IBM SmartCloud

Business Process as a Service

Software as a Service

Platform as a Service

Infrastructure as a Service

| Design | Deploy | Consume |

IBM is using its Component Business Models to help clients identify candidate workloads in financial services

IBM Life & Pensions Insurance CBM

IBM Universal Banking CBM

Focusing on the full financial services ecosystem including utilities, exchanges and ISVs

Result - Candidate workloads suitable for cloud delivery (Banking example)

Fraud	Payroll	Reference Data	Reconciliations	Collateral Management	Clearing & Settlement Services

Product Processing	Credit Checking	Payment Processing	Collaboration	Client Relationship Management	Securities Processing

HR Services	Market Data	Corporate Actions	Custody Services	Risk Analytics

Software and Business Process as a Service

Test Services	Asset Management	App Dev Svcs	Utilities

Integration Services	Web Application Sourcing	Web Scale Analytics	Situational Applications

Platform as a Service

External Compute Service	Backup & Archiving Services	Desktop Services	Storage

Proof of Concepts	Database Services	Email Services

Infrastructure as a Service

Workload deployment models are evolving

Individual Deployment

- Application
- Middleware
- Operating System
- Hardware

Consolidation & Virtualization

Shared Hardware

App	App
MW	MW
OS	OS

Shared Hardware

Virtualized Applications

App	App	App
MW	MW	MW
OS	OS	OS

Shared Infrastructure
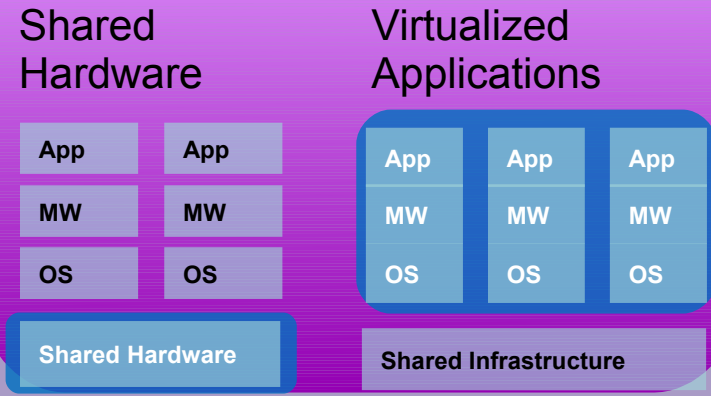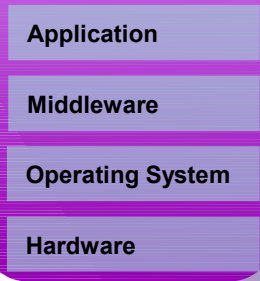
Standardization & Automation

Integrated Middleware Platform & Image Management

App	App	App	App

Integrated Middleware Platform

Image Management

Shared Infrastructure
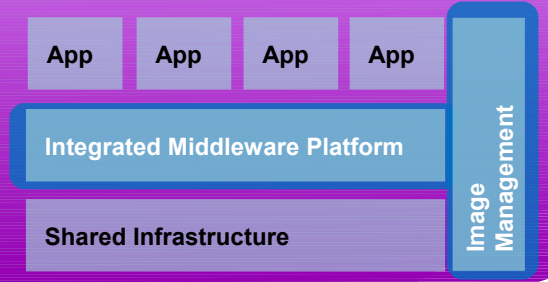
The benefits of cloud can be realized across the entire application lifecycle - with development and test providing early wins across all industries

Project Initiation	Require-ment Analysis	Design	Development	Test	Deployment	Production

Value Delivered: From traditional   To
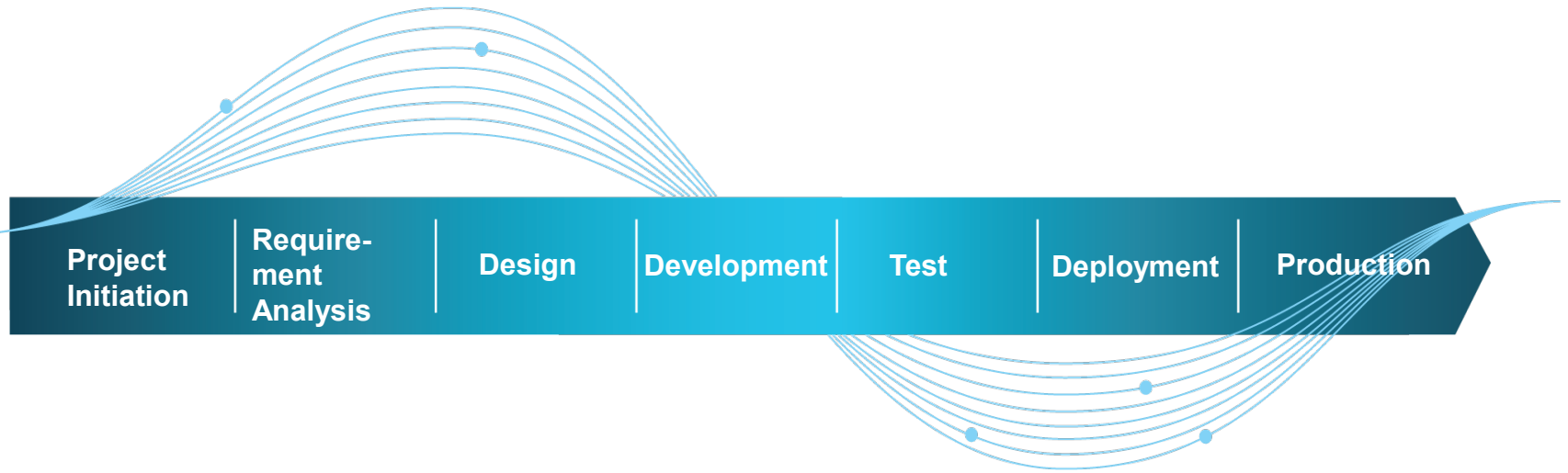
	Weeks	Minutes
Test provisioning	Weeks	Minutes
Release management	Weeks	Minutes
Change management	Months	Days or hours
Application delivery management	1 operator for 10 apps	1 operator for 100 apps

Risk analytics – to support regulations such as Basel III and Solvency II - is also proving attractive for cloud-based delivery

Prescriptive Analytics

Predictive Analytics

Descriptive

Stochastic Optimization
How can we achieve the best outcome including the effects of variability?

Optimization
How can we achieve the best outcome?

Predictive modeling
What will happen next if?

Forecasting
What if these trends continue?

Simulation
What could happen?

Alerts
What actions are needed?

Query/drill down
What exactly is the problem?

Ad hoc reporting
How many, how often, where?

Standard Reporting
What happened?

Breakaway

Differentiating

Competitive

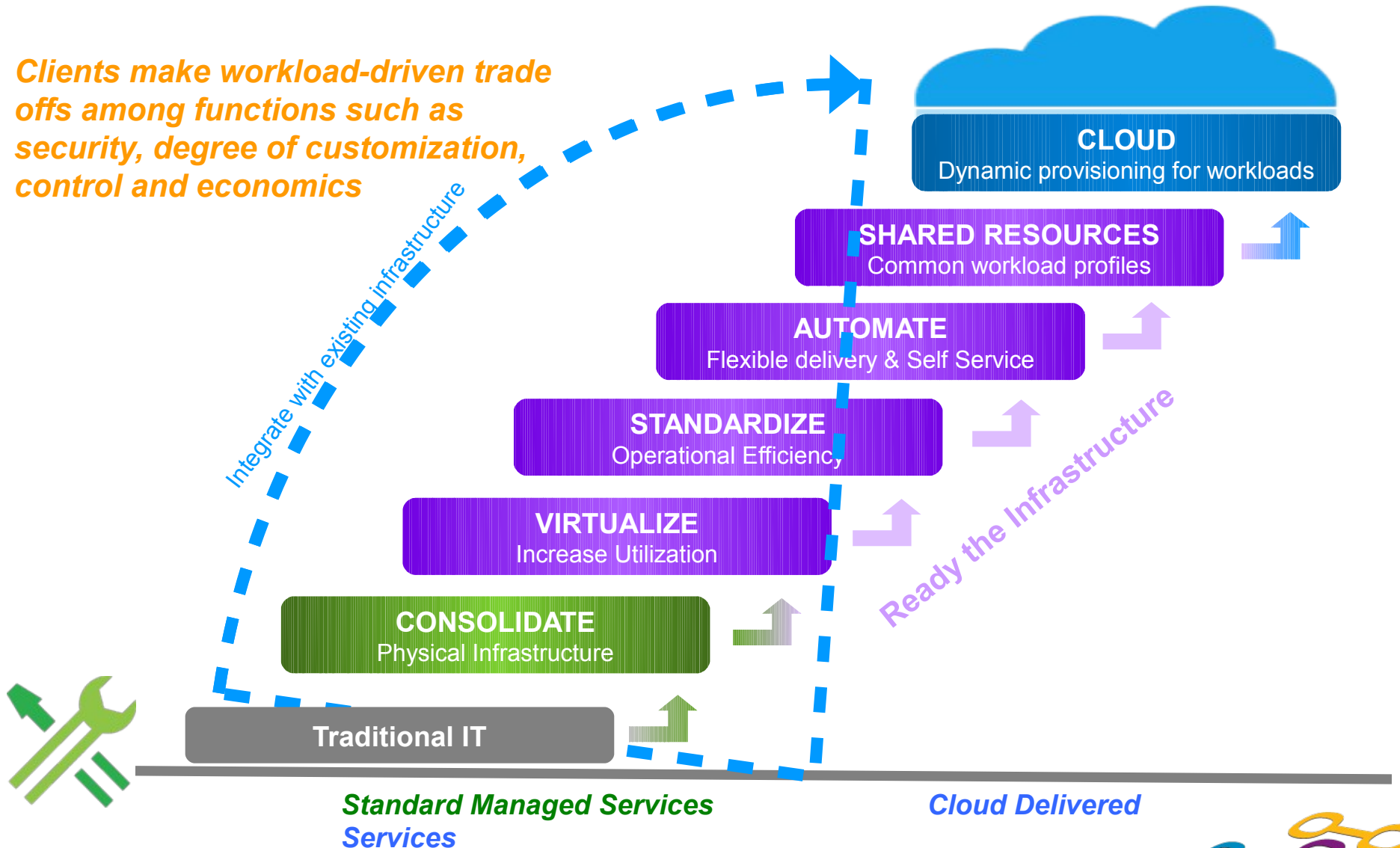**Foundational**

low
Complexity

low
Business Advantage

Adapted from Competing on Analytics, 2007

The journey from traditional environments to Cloud can be in one step or an evolution

Clients make workload-driven trade offs among functions such as security, degree of customization, control and economics

Integrate with existing infrastructure

Ready the Infrastructure

CLOUD
Dynamic provisioning for workloads

SHARED RESOURCES
Common workload profiles

AUTOMATE
Flexible delivery & Self Service

STANDARDIZE
Operational Efficiency

VIRTUALIZE
Increase Utilization

CONSOLIDATE
Physical Infrastructure

Traditional IT

Standard Managed Services
Services

Cloud Delivered

IBM can help you adopt Cloud computing

Plan ⟶ **Build** ⟶ **Deliver**

Cloud Strategy **Private Clouds** **Cloud Integration** **Cloud Services**
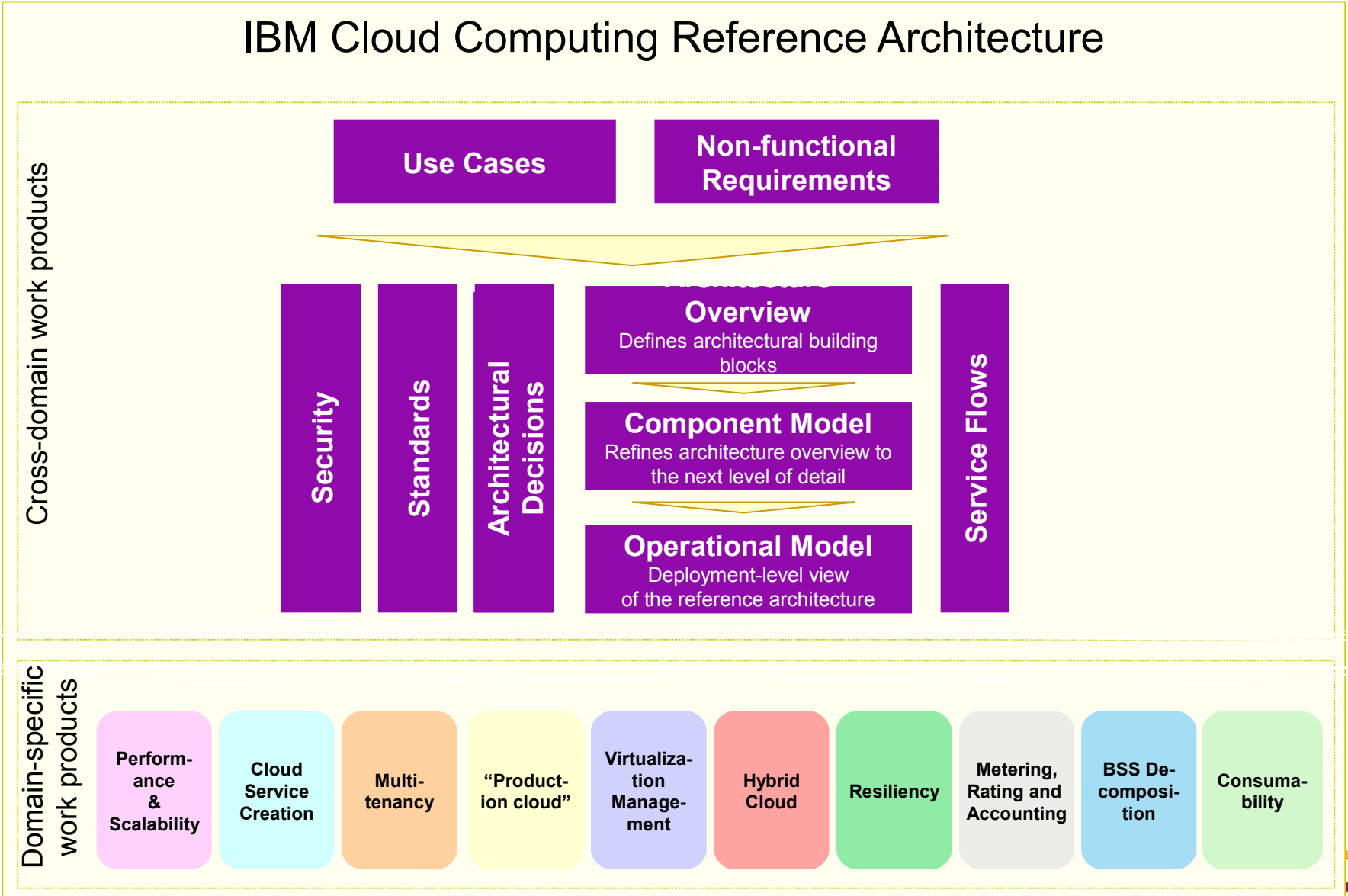
IBM Cloud Computing Reference Architecture

Cloud Service Consumer

- Cloud Service Integration Tools
- Consumer In-house IT

Cloud Service Provider

Cloud Services

- Existing & 3rd party services, Partner Ecosystems
- Business-Process-as-a-Service
- Software-as-a-Service
- Platform-as-a-Service
- Infrastructure-as-a-Service

Common Cloud Management Platform (CCMP)

- Operational Support Services (OSS)
- Business Support Services (BSS)

Infrastructure

Cloud Service Creator

- Service Creation Tools

Security, Resiliency, Performance & Consumability

Governance

Structure of the IBM Cloud Computing Reference Architecture

IBM Cloud Computing Reference Architecture

Cross-domain work products

- **Use Cases**
- **Non-functional Requirements**

- **Security**
- **Standards**
- **Architectural Decisions**

Architecture Overview
Defines architectural building blocks

Component Model
Refines architecture overview to the next level of detail

Operational Model
Deployment-level view of the reference architecture

- **Service Flows**

Domain-specific work products

| Perform-ance & Scalability | Cloud Service Creation | Multi-tenancy | "Product-ion cloud" | Virtualiza-tion Manage-ment | Hybrid Cloud | Resiliency | Metering, Rating and Accounting | BSS De-composi-tion | Consuma-bility |

CCRA Focus on Cloud Security

Cloud Service Consumer

Cloud Service Integration Tools

Consumer In-house IT

Cloud Services

Existing & 3rd party services, Partner Ecosystems

Business-Process-as-a-Service

Software-as-a-Service

Platform-as-a-Service

Infrastructure-as-a-Service

Common Cloud Management

Operational Support Services (OSS)

Bu... S... Servi...

Infrastructure

Security

Security Event Management	Software, System & Service Assurance	Access & Identity Lifecycle Management
Security Policy	Data and Information Protection	Governance
Threat & Vulnerability Management	Security Entitlement	Data policy enforcement

Resiliency

Data Resiliency

Configuration for Resiliency

Resiliency Monitoring / Analysis

Security, Resiliency, Performance

Governance

Thought Leadership White Paper — Cloud Computing

Cloud Security
Who do you trust?

Nick Coleman, IBM Cloud Security Leader
Martin Borrett, IBM Lead Security Architect

IBM Professional Security Services for Cloud Computing

- IBM Cloud Security Strategy Roadmap
- IBM Cloud Security Assessment

Public Cloud:
The IBM SmartCloud enterprise-class service delivery platform will offer two tiers

IBMSmart**Cloud**

	Rapid access, multi-tenant solution scaled and priced based on usage.	Robust multi-tenant solution, including managed production services.
Workloads	Ideal for developing and deploying new application designs	Ideal for migration of traditional and higher availability applications
Operating system	Linux, Windows	Windows, Linux, AIX
Management level	Self service with advanced premium support	Fully managed from infrastructure to application
Availability	99.5%	99.9%
Security	Virtual and some physical isolation	Multiple levels of isolation
Software usage	Bring your own / pay as you go / free developer use	IBM provides operating system and tool licenses
Pricing	Hourly usage-based with reserved options	Monthly usage-based and fixed contract

New!

IBM centres deliver & manage Cloud services around the world

IBM Worldwide Support Centres

- 7 Cloud Data Centres
- 12 Cloud Labs
- 57 Global Delivery Centres
- 54 Global Command Centres

Hursley
Toronto
Boulder, CO
Dublin
Wroclaw, Poland
Ehningen, Germany
Silicon Valley, CA
Raleigh, NC
Beijing
Seoul
Tokyo
Hong Kong
Hanoi
Bangalore
Singapore
Sao Paulo
Johannesburg

Legend:
- IBM Cloud Lab
- IBM Cloud Data Centre

IBM SmartCloud Enterprise – available today

IBM SmartCloud Enterprise cost estimator

IBM ▾

Estimated total monthly charge (United Kingdom / GBP): £ 222

🔖 Snapshot

Software images	Virtual machine instances	Persistent storage	Internet data transfer	Network access options	Premium support

First, select the software images you want to run from the 'Software image' drop-down menu. Think of each line as a server type. The list of images includes standalone operating systems and operating systems combined with additional software, in 32- and 64-bit versions. For each image, the image name indicates the charge option associated with the image. PAYG stands for 'Pay as you go' and implies by-the-hour charges. BYOL stands for 'Bring your own license', i.e. you are bringing a license that you have already paid for.

Description for your reference	Software image	Hourly rate	Software monthly charges
Machine Use 1	IBM WebSphere Application Server Base V7.0.0.11/V7.0.0.9 for SUSE Linux Enterprise Ser ▾	£ 0.370	£ 27
Machine Use 2	IBM WebSphere Portal Server and Lotus Web Content Management Standard Edition V7.0. ▾	£ 2.539	£ 185
Machine Use 3	Please select the software image you want to run, then choose the virtual machine size on th ▾	£ 0	£ 0
Machine Use 4	▶ 📁 IBM Lotus images	£ 0	£ 0
Machine Use 5	▶ 📁 IBM Information Management images	£ 0	£ 0
Machine Use 6	▼ 📂 IBM Rational images	£ 0	£ 0
Machine Use 7	📄 IBM Rational Quality Manager SE 2.0.1 for Red Hat Enterprise Linux 5.4 (64-bit) - BYOL	£ 0	£ 0
Machine Use 8	📄 IBM Rational Build Forge 7.1.2 for Red Hat Enterprise Linux 5.4 (64-bit) - BYOL	£ 0	£ 0
Machine Use 9	📄 IBM Rational Build Forge Agent 7.1.2 for Red Hat Enterprise Linux 5.4 (64-bit) - BYOL	£ 0	£ 0
Machine Use 10	📄 IBM Rational Team Concert 3.0 ifix 1/2.0.0.2 for Red Hat Enterprise Linux 5.4 (64-bit) - BYOL	£ 0	£ 0
	📄 IBM Rational Reqmnt Composer 2.0.0.2 for Red Hat Enterprise Linux 5.4 (64-bit silver/gold/platinum) - BYOL		
	📄 IBM Rational Asset Manager 7.5.0.2 for Red Hat Enterprise Linux 5.4 (64-bit) - BYOL	software charge	£ 212

◀ Start over

Next ➡

IBM SmartCloud Enterprise case study in financial services

A leading retail bank

Simplified infrastructure management
for its IT research efforts with a
virtualized cloud architecture that
can readily support multiple operating
system instances, enabling research
teams to quickly and easily create
a virtual testing environment without
the delays common to typical
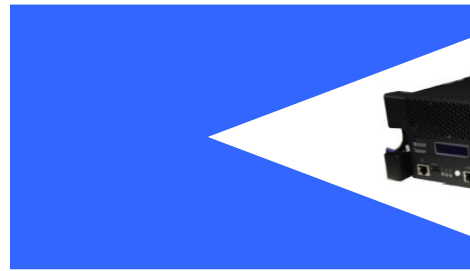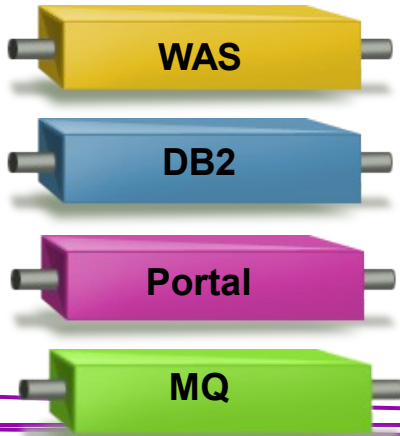configuration efforts.

Private Cloud: IBM Workload Deployer – dramatically reducing setup time for WebSphere

New!

Images

WAS

DB2

Portal

MQ

Next generation cloud management appliance, evolved from IBM WebSphere Cloudburst Appliance

Workloads & Patterns

Web App

Database

Deployment to customer-provided hardware

IBM Workload Deployer Application Builder – application design

IBM Workload Deployer Application Builder – scaling policy configuration

WebSphere Private Cloud financial services case study

FROM: CITIGROUP

Citigroup (US) built an internal cloud using the IBM WebSphere Cloudburst Appliance and Tivoli software solutions, enabling self-service request, automated provisioning, and internal chargeback capabilities, while at the same time boosting utilization rates and improving operational efficiencies.

With the IBM solution, Citigroup slashed server provisioning times from 45 days to less than 20 minutes, speeding development cycles and allowing the company to put new features and enhancements in the hands of customers more rapidly.
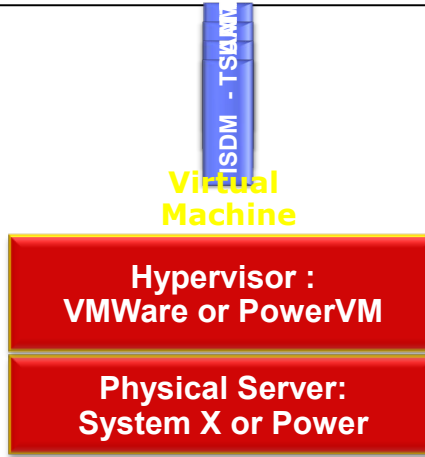
IBM Cloud management offerings

Tivoli Service Automation Manager

Virtual Machine

Hypervisor : VMWare or PowerVM

Physical Server: System X or Power

IBM Service Delivery Manager

IBM Cloudburst

Customizable

Rapid time to value

- IBM Virtual Server Protection for VMWare
- IBM High Scale Low Touch (HSLT) Open Beta
- Open Virtualization Alliance launched with HP, Intel and Red Hat

New!

Private Cloud management case studies in financial services

ING

ING needed to drive down IT costs dramatically and intensively improve their time to deliver new IT environments to the business.

An IBM Tivoli cloud management solution dramatically increased predictability, visibility, customer experience and enabled transparent cross-charging for resources.

NEDBANK

10x reduction in deployment time for test and development environments using IBM Cloudburst

Hybrid Cloud:
Tivoli and WebSphere Cast Iron preview

Integration of On-Premise Service Management and Applications…

Simplified, Enabled and Controlled by Hybrid Cloud Integrator
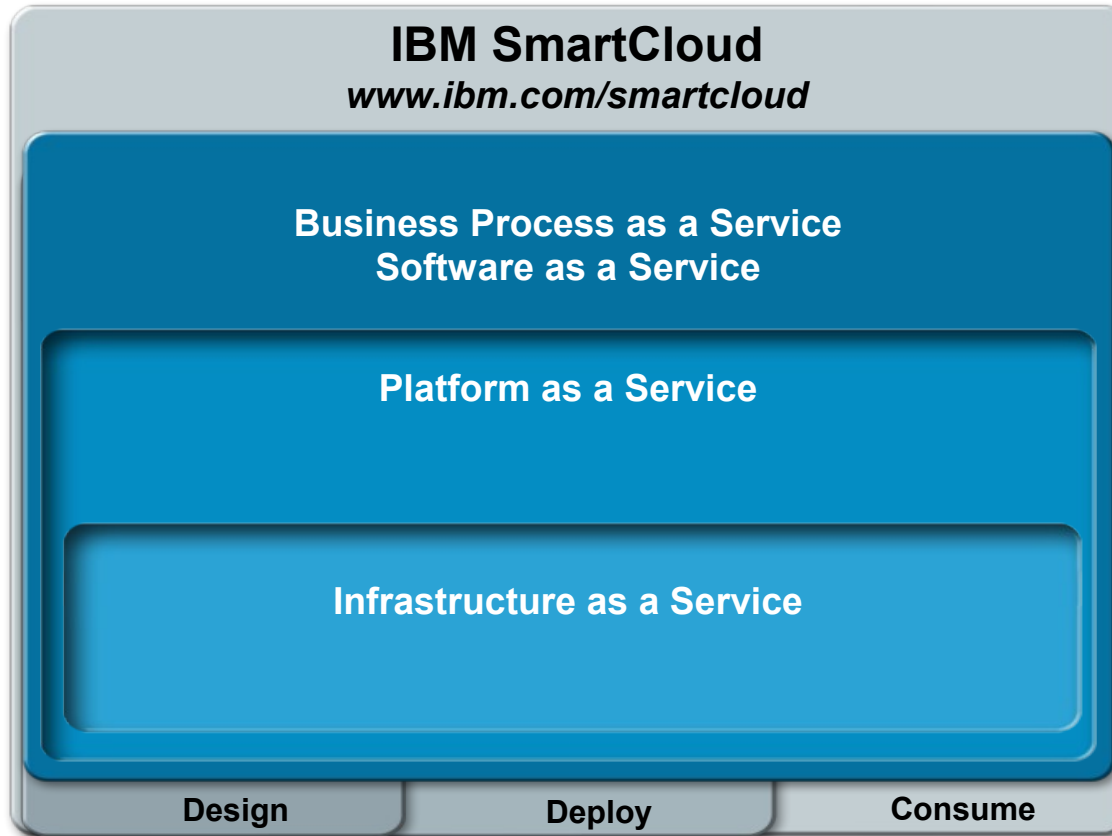
…for Cloud Service Usage.

Scenarios:

- User Provisioning / De-provisioning for Lotus Live via TDI

- Resource provisioning for Amazon EC2, IBM Compute Cloud via TSAM

- Integrated resource monitoring of Amazon EC2, IBM Compute Cloud

IBM provides a comprehensive set Cloud offerings today …..

IBM SmartCloud
www.ibm.com/smartcloud

Business Process as a Service
Software as a Service

Platform as a Service

Infrastructure as a Service

Design	Deploy	Consume

- *2k* successful cloud engagements in 2010

- *50%* of Fortune 10 and Fortune 50 working with IBM on private clouds

- *80%* of Fortune 500 companies using IBM cloud capabilities

"*IBM has one of the most comprehensive cloud portfolios*, with the cloud integrated throughout its many lines of business. Moreover, IBM's consulting arm has put them in touch with numerous early adopters and special use cases – all of which helps the company stay ahead of competitors." – Jeff Vance, Datamation

Recommended next steps for Cloud adoption

1. Come and see IBM's capabilities with a tour of our UK Hursley Cloud Lab

2. Ask your account team for a Cloud Exploration Workshop using our financial services-specific workload identification and prioritisation techniques

3. Try out IBM SmartCloud Enterprise for yourself

Both private and public Cloud computing is now in the mainstream for financial services organizations.

IBM is now ready – are you?