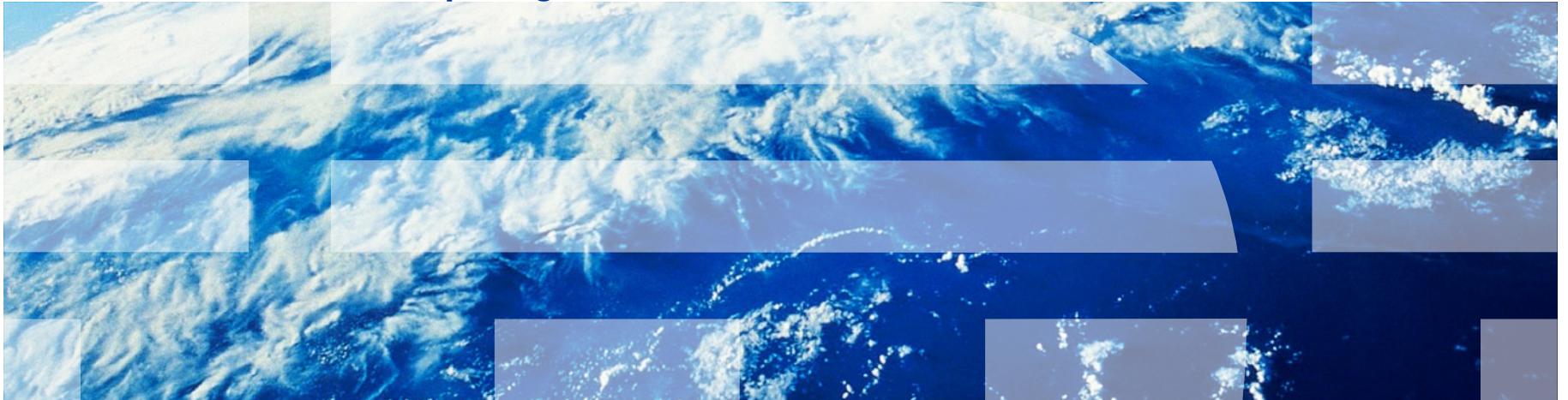


Getting hold of the cloud:

IBM & Cloud Computing

John Easton

UK & Ireland Cloud Computing Technical Leader



Cloud is important to IBM

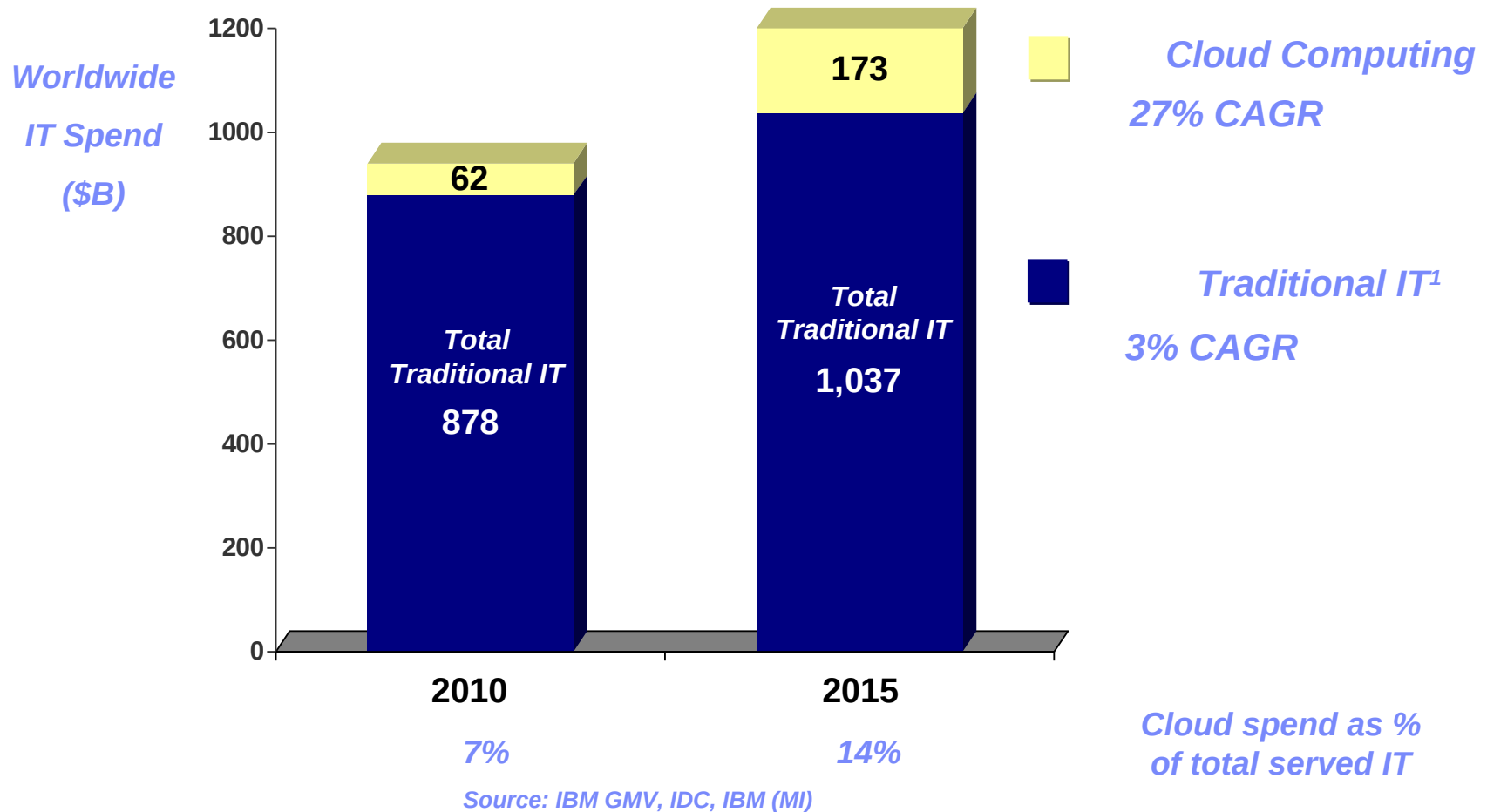
IBM Corporation strategy



UK & Ireland transformation



Cloud is a small slice of total market, but growing rapidly



“What is a Cloud?” depends on from where you are looking



Virtualised ▶

*Higher utilisation
Economy of scale benefits
Lower capital expense*

Standardised ▶

*Easier access
Flexible pricing
Reuse and share
Easier to integrate*

Automated ▶

*Faster cycle times
Lower operating expense
Optimized utilisation
Improved compliance
Optimised security
End user experience*

◀ *Elastic*

Resources scale up and down by large factors as the demand changes

◀ *Rapidly provisioned*

IT capacity & capabilities are rapidly provisioned using Internet standards without transferring ownership of resources

◀ *Flexible pricing*

Utility pricing, variable payments, pay-by-consumption and subscription models make pricing of IT services more flexible

◀ *Standardised Offerings*

Uniform offerings readily available from a services catalogue on a metered basis

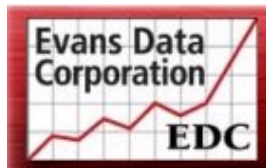
IBM Position on Cloud



IBM wins big in Vegas

Forget the slot machines and blackjack – IBM took home the top prize based on its strong enterprise cloud capabilities, with the ['Best of Interop' for cloud computing award](#) from InformationWeek Analytics and Interop.

- ✓ Cloud is core to IBM's Dynamic Infrastructure & Smarter Planet strategy and IBM will strive to be a market Leader in Cloud computing
- ✓ IBM will play in all Cloud markets
- ✓ IBM will take a phased approach to match market demands
- ✓ Initially hosted service offerings will be deployed regionally, local capacity will be delivered based on demand
- ✓ IBM will fully support its partner ecosystem in the development and deployment of Cloud offerings



IBM is the top choice of developers for Private Clouds, according to Evans Data's recently released Cloud Development Survey 2010.

Almost 30% identified IBM as the top PrivateCloud provider, in this survey of over 400 software developers released end of June.

1

Components supply

Services

IT and business consulting, systems integration, outsourcing, and other services used to develop and support cloud services and infrastructure

Software

Application, platform, information management, system management, development tools, and other software used to set-up and operate cloud services and infrastructure

Hardware

Servers, storage and networking hardware used to build cloud services and infrastructure

2

Infrastructure services

Platform as a Service (PaaS)²

- Customers use programming languages, tools and platforms
- to develop and deploy applications on multi-tenant, shared infrastructure
 - with ability to control deployed applications and environments
 - without the need to manage or control the underlying resources

Infrastructure as a Service (IaaS)²

- Customers use processing, storage, networks, other computing resources
- with ability to rapidly and elastically provision and control resources
 - to deploy and run software and services
 - without the need to manage or control the underlying resources

3

Business services

Business Process as a Service (BPaaS)

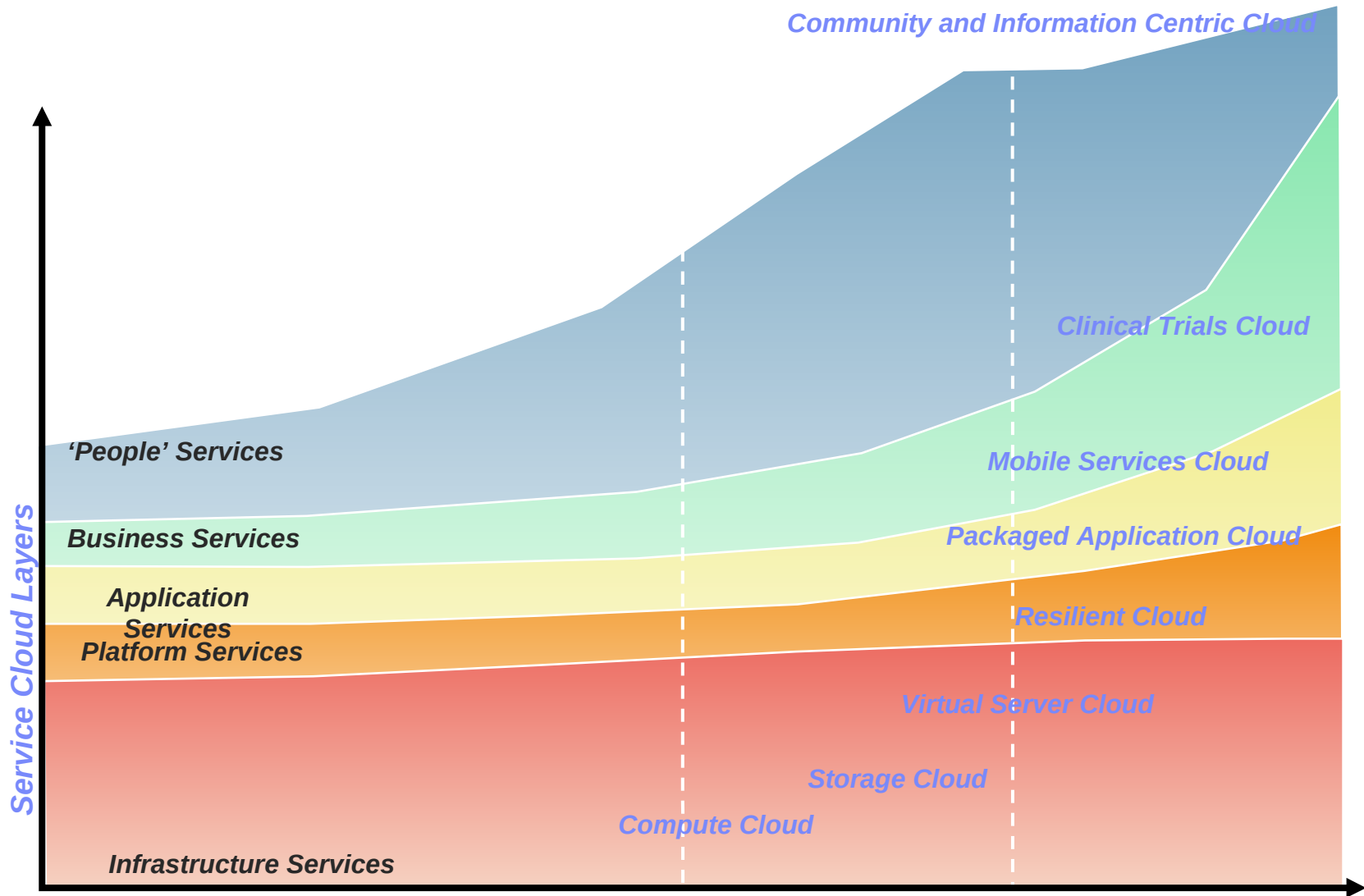
- Customers consume business outcomes (Eg, payroll processing, HR)
- by accessing business services via Web-centric interfaces
 - on multi-tenant and shared infrastructures
 - without the need to manage or control the underlying resources

Software as a Service (SaaS)²

- Customers use applications (Eg, CRM, ERP, E-mail)
- from multiple client devices through a Web browser
 - on multi-tenant and shared infrastructure
 - without the need to manage or control the underlying resources

1. Sourced from Forecast: Sizing the Cloud; Understanding the Opportunities in Cloud Services, Gartner, March 18, 2009 modified by IBM/BCG 2. Sourced from National Institute of Standards and Technologies; Draft NIST Working Definition of Cloud Computing, May 14, 2009 modified by IBM/BCG

There are major opportunities at all levels of the stack, and the Cloud will grow rapidly especially at the top layers (Application, Business and People)



These three themes – and the related client challenges – span the full cloud plan-build-deliver capabilities



Establish a cloud strategy & architecture



Enable cloud service delivery



Deliver cloud services



Expanding IBM's cloud offerings and partner ecosystem



Address security and risk management concerns with IBM's security experience, focus, software and frameworks



Drive business transformation, leveraging IBM's deep industry expertise, assets and capabilities

IBM Cloud Computing Offerings – Current Portfolio

Existing and new or enhanced offerings are aligned against the new lifecycle construct

Plan

- IBM Strategy and Change Services for Cloud Providers
- IBM Strategy and Change Services for Cloud Adoption
- IBM Infrastructure Strategy and Design Services for Cloud Computing
- IBM Data Center and Facilities Strategy Services—data center strategy and plan
- IBM Networking Strategy and Optimization Services - network application optimization for cloud computing
- IBM Networking Strategy and Optimization Services – network infrastructure optimization for cloud computing- **NEW**
- IBM Converged Communications Services for Unified Communications as a Service – strategy and assessment - **NEW**
- IBM Professional Security Services-cloud security strategy roadmap – **NEW**
- IBM Professional Security Services -cloud security assessment – **NEW**
- IBM Application Security Services for Cloud Computing – **NEW**
- IBM Deployment and Planning Automation (Rational) – **NEW**

Build

- IBM Application Development Services for Cloud Computing - **NEW**
- IBM Data Center Family™ solutions—data center design services (for cloud computing)
- IBM Testing Services for Cloud
- IBM Security Consulting Services in support of Cloud Computing
- IBM Network Integration Services – data center network security and application and network performance optimization
- IBM Cognos® 8 Business Intelligence
- IBM Service Delivery Manager (Tivoli) - **NEW**
- IBM Proventia Virtualized Server Security
- IBM Rational® Software Delivery Services
- IBM WebSphere® Hypervisor Edition portfolio
- IBM WebSphere® Virtual Enterprise
- IBM WebSphere® CloudBurst Appliance
- IBM WebSphere® DataPower Secure Cloud Connector – **NEW**
- IBM System z Solution Edition for Cloud computing
- IBM zEnterprise
- IBM iDataplex
- IBM CloudBurst 2.1 –
-for System x - **ENHANCED**
-for Power - **NEW**
-for CSP2 - **NEW**
- IBM Smart Analytics System
- IBM Information Archive
- IBM Smart Business Development and Test Cloud
- IBM Smart Analytics Cloud
- IBM Smart Business Storage Cloud
- IBM Smart Business Desktop Cloud
- IBM Municipal Government Cloud – **FOAK**
- IBM Cloud Service Provider Platform (CSP2)–**NEW**

Deliver

Software and Business Process as a Service

- IBM Blueworks Live – **NEW**
- IBM Smart business expense reporting on the IBM Cloud
- IBM LotusLive Collaboration Suite – **ENHANCED**
- IBM Smart Business End User Support – Self-enablement portal

Platform as a Service

- Cast Iron Systems - - **ENHANCED**
 - IBM WebSphere DataPower Cast Iron Appliance XH35 – **NEW**

Integrated Development and Test Environment

- IBM Testing Services for Cloud – application virtualization – **NEW**
- IBM Testing Services for Cloud – performance testing – **NEW**
- IBM Rational Load Testing on the IBM Cloud – **NEW**
- IBM Smart Business Development and Test on the IBM Cloud – v 1.2 – **ENHANCED**

Infrastructure as a Service

- IBM Smart Business Desktop on the IBM Cloud
- IBM Tivoli® Live – Service Manager – **NEW**
- IBM Tivoli® Live – Service Monitoring
- IBM Federal Community Cloud (U.S.) – **NEW**

Delivering cloud security and resiliency

- IBM Managed Security Services - Hosted vulnerability management – **NEW**
- IBM Managed Security Services - Hosted security event & log management – **NEW**
- IBM Managed Security Services - Hosted eMail and Web Security
- IBM Managed Security Services-X-Force hosted threat analysis service
- IBM Information Protection Services – managed backup cloud – **ENHANCED**

Consulting

Software

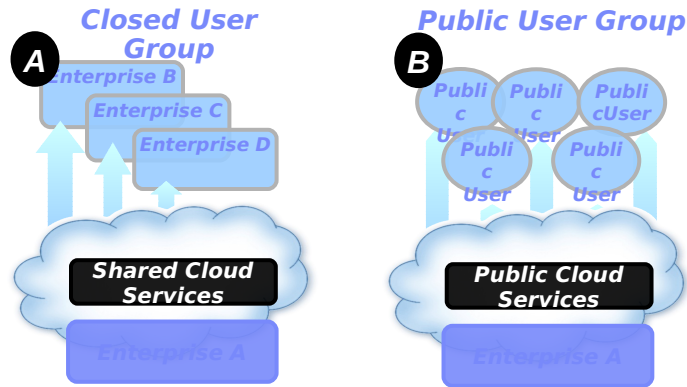
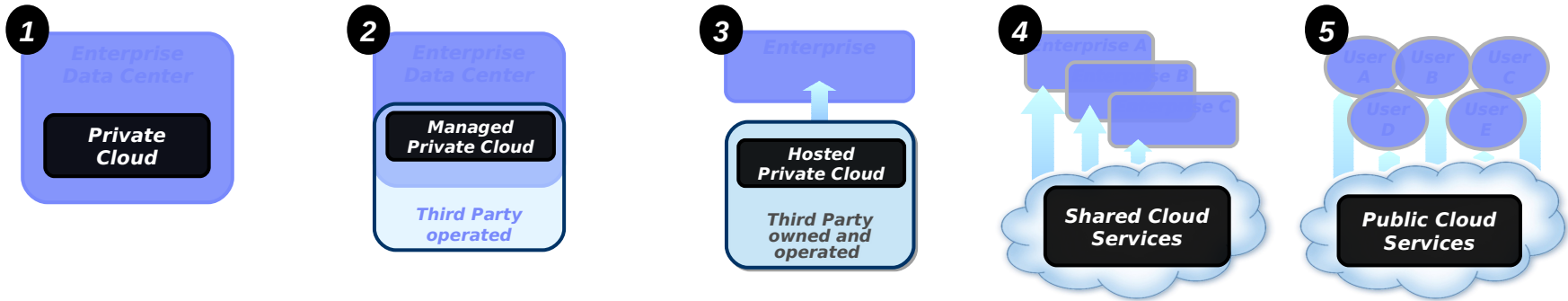
Hardware

IBM Smart Business Systems

IBM Smart Business Cloud Services

IBM Smart Business on the IBM Cloud

Five co-existing cloud delivery models – plus two others?



The Enterprise as the Provider to external parties

Cloud will be adopted based on workloads

Ready for Cloud...

New workloads made possible by clouds...

Analytics

Collaborative Care

New workloads made possible by clouds...

Medical Imaging

Infrastructure Storage

Financial Risk

Information intensive

Industry Applications

Energy Management

Collaboration

Isolated workloads

Sensitive Data

Mature workloads

Workplace, Desktop & Devices

Highly customised, Not standardised

Business Processes

Not yet virtualised 3rd party SW

Disaster Recovery

Complex processes & transactions

Pre-production systems

Development & Test

Regulation sensitive

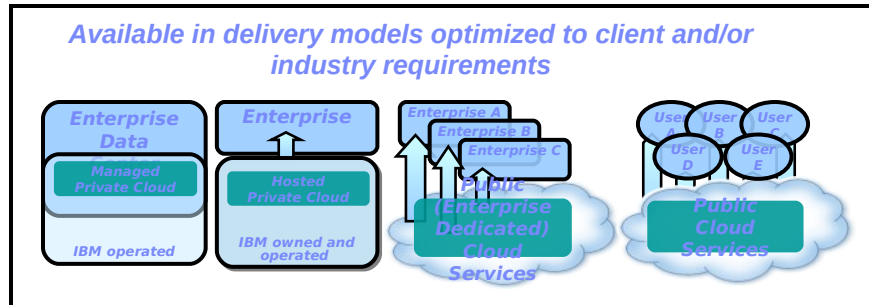
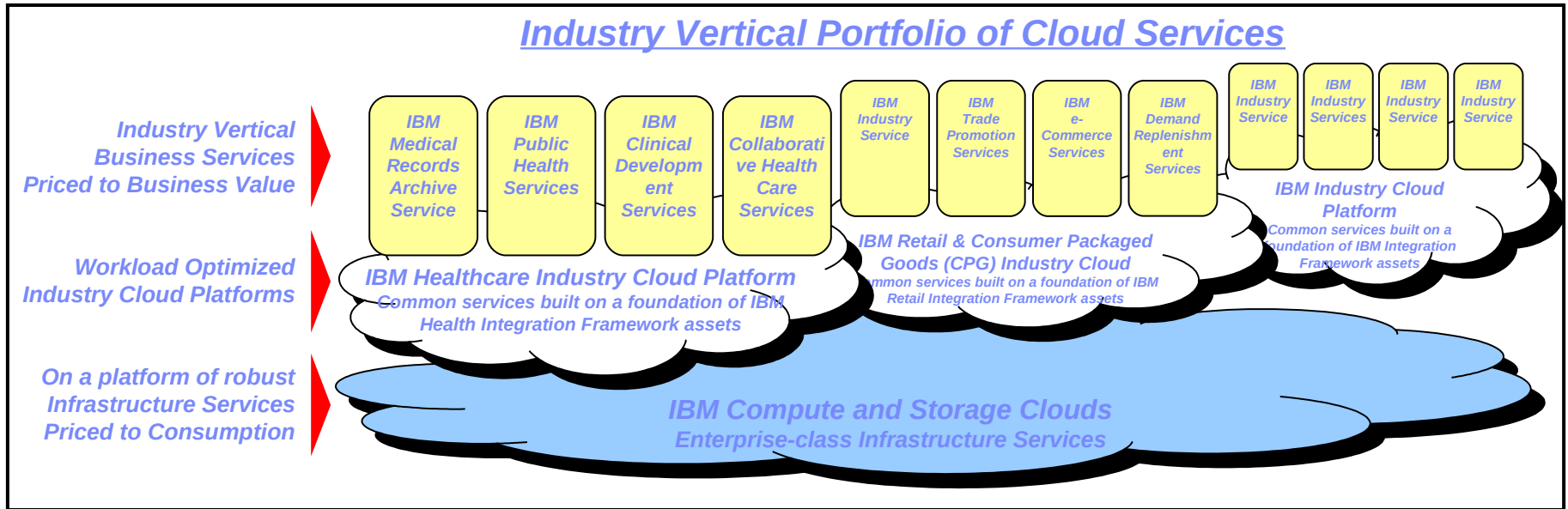
Batch processing

Infrastructure Compute

Challenging SLAs

May not yet be ready for migration...

“Industry Clouds”



- Industry Vertical Services are one component of IBM Cloud Computing Strategy
- 1) Workload-optimized offerings & components
 - 2) Unified service management
 - 3) Infrastructure & platform services
 - 4) Analytics solutions
 - 5) Industry vertical services
 - 6) Business applications suite

IBM Cloud Computing Reference Architecture - V2

Represents the aggregate experience across hundreds of cloud client engagements and the implementation of IBM-hosted clouds

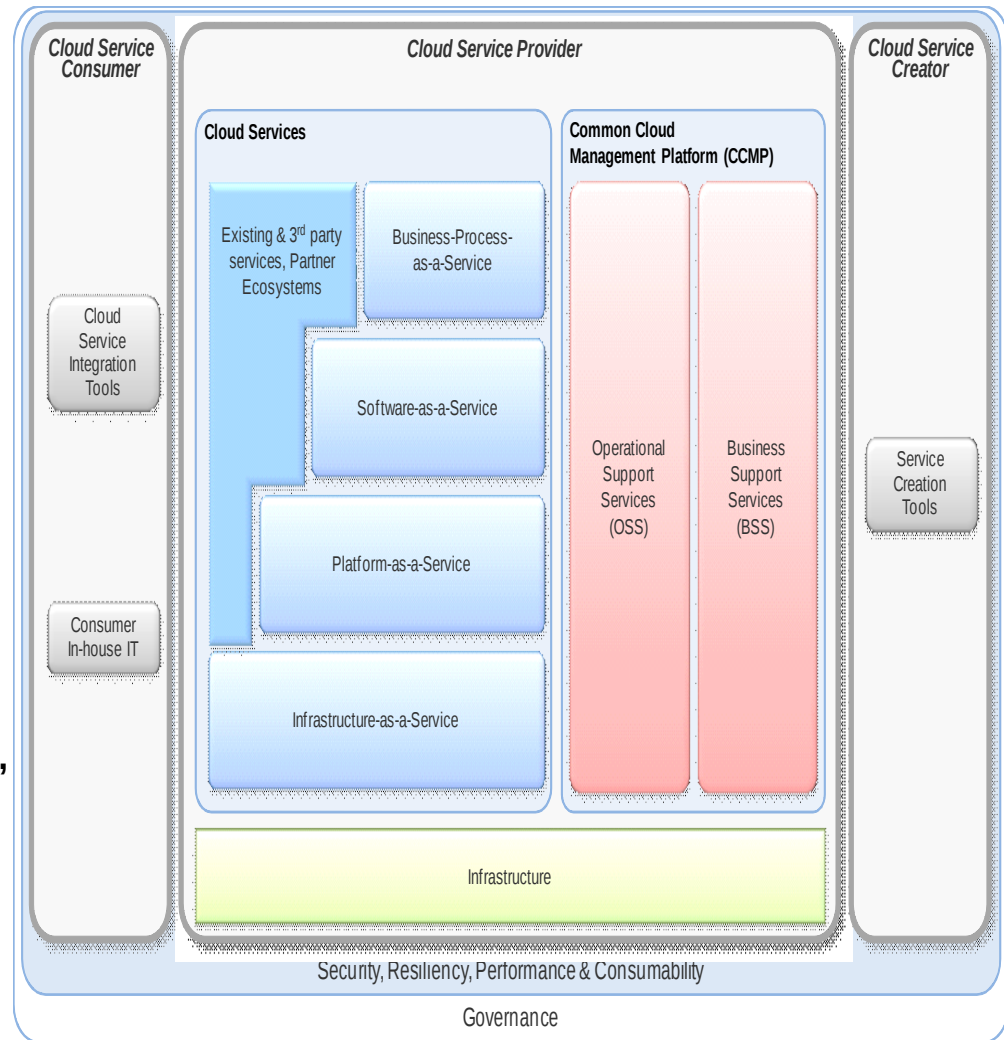
- Based on knowledge of IBM's services, software & system experiences, including IBM Research

The IBM Cloud Computing Reference Architecture is reflected in the design of

- IBM-hosted cloud services
- Clouds IBM implements for clients
- IBM cloud appliances
- IBM cloud service management products

Focus on cloud specifics such as radical cost reduction while achieving high degrees of security, reliability, scalability and control

Consists of 21 detailed documents representing best-of-industry knowledge and insight on how to architect, design and implement clouds



*Internal IT
centric*

An Evolution of Information Technology

- *Changing the economics of IT*
 - *Automating service delivery*
- *Radically exploiting standardization*
- *Rapidly deploying new capabilities*

*Operational
Efficiencies*

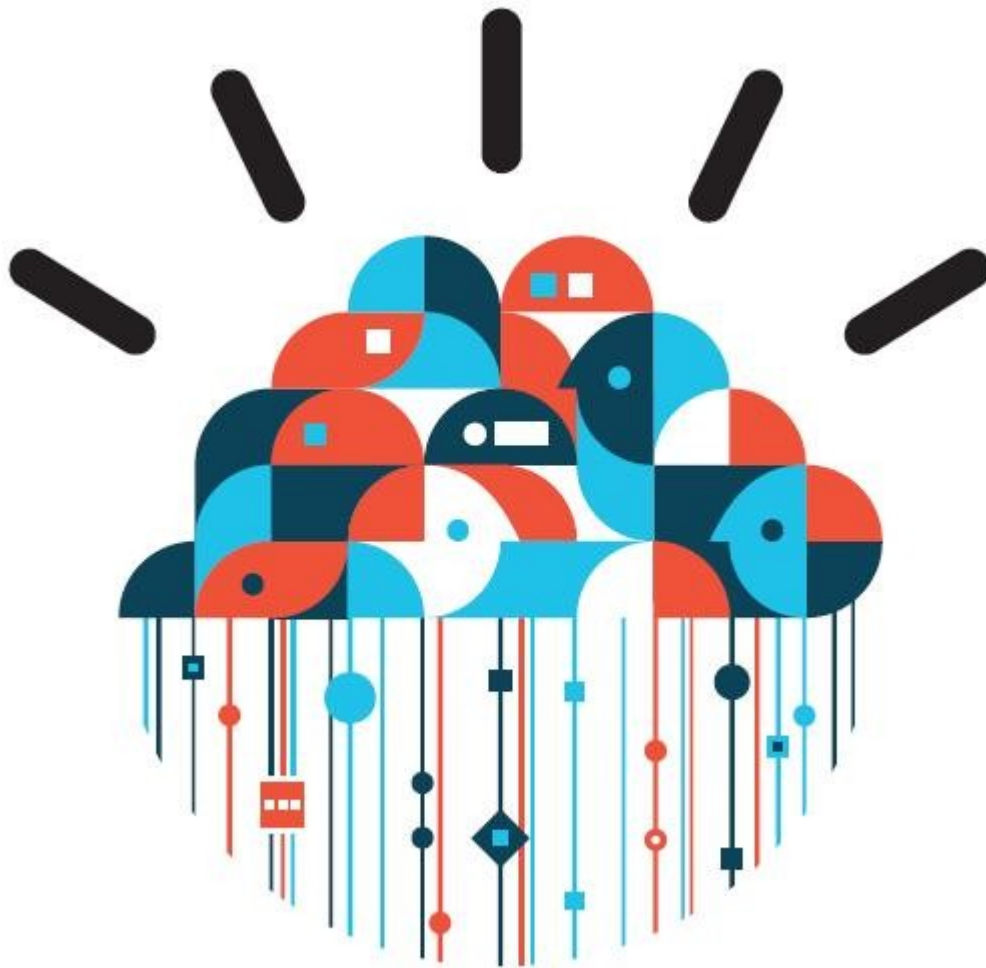
*Business
and
Process
centric*

- *Create new business models*
- *Enable speed and innovation*
- *Re-engineer business processes*
- *Support new levels of collaboration*

*Industry
Transformation*

An Enabler of Business Transformation

*and providing an opportunity for IT to be a
catalyst of transformation.*



Questions?
Thoughts?
Comments?

For more information, please visit:
ibm.com/cloud