Creating New Business Models through Cloud Computing for Telecom

2010

IBM

> *"Clouds will transform the information technology (IT) industry…*
> *profoundly change the way people work and companies operate."*

The Economist

- *A new paradigm for consumption and delivery of IT based services*
- *Enhanced User Experience (Self Service UI)*
- *Flexible Pricing (Pay Per Usage)*
- *Enables flexible Delivery- and Sourcing Models (Private-, Public, & Hybrid Clouds)*
- *Automated Provisioning and Elastic Scaling*

  on a highly virtualized Infrastructure
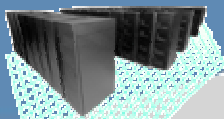
High Quality User Experience

2009

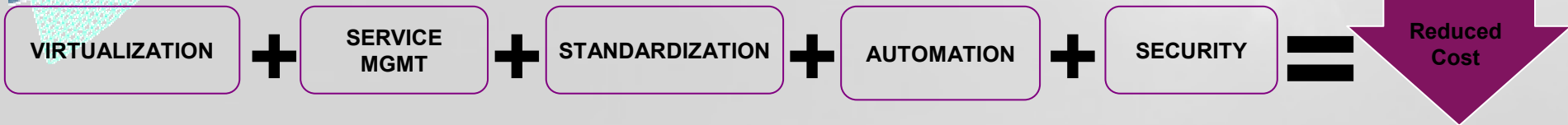**Cloud Computing**

Software as a Service

Utility Computing

1990
Grid Computing

Significantly Improved Supply Economics

| VIRTUALIZATION | + | SERVICE MGMT | + | STANDARDIZATION | + | AUTOMATION | + | SECURITY | = | Reduced Cost |

Consider Three Dimensions to a Cloud Business

CLOUD SERVICES

Business Process as a Service (BAAS)	Customers consume business services (Back Office Acctg) via Web-centric Service Integration on multi-tenant and shared infrastructures, without the need to own the assets.
Software as a Service (SAAS)	Customers use applications from multiple client devices through a Web browser on multi-tenant and shared infrastructure without the need to own the assets
Platform as a Service (PAAS)	Customers use programming languages, tools and platforms to develop and deploy applications on multi-tenant, shared infrastructure without owning underlying resources
Infrastructure as a Service (IAAS)	Customers use processing, storage, networks, other resources with ability to rapidly and elastically provision & control resources without the need to own/manage assets

DELIVERY

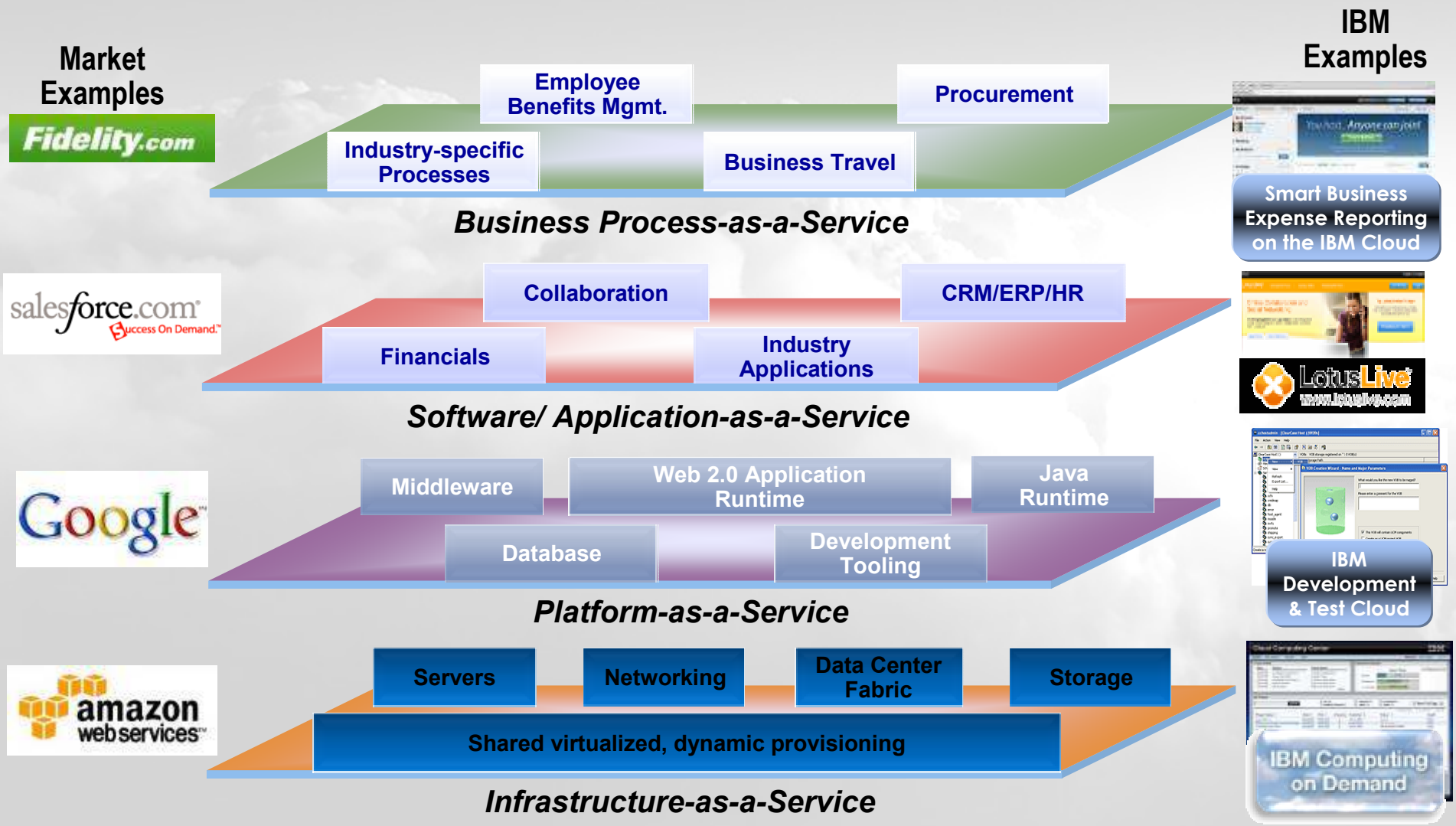|	
Public Clouds	Service provider makes resources, such as applications and storage, available to the public over the Internet. (i.e. rented by the hour, month etc.)
Private Clouds	A Cloud Architecture (end user provisioned, provider managed, consumption based) behind the firewalls of an enterprise
Hybrid Clouds	Cloud Architecture tailored to meet the needs of an enterprise. (i.e. some service like trade promotions validation executed in the firewall with external services like graphics)

INFRASTRUCTURE

|	
Delivery Services, Software and Hardware	IBM delivery services, technologies business services in support of cloud computing that are required to help companies build deploy and integrate cloud computing architectures within their existing IT infrastructure

IBM and Market Examples within the 4 major categories of Cloud Computing services that have emerged

Market Examples

IBM Examples

Employee Benefits Mgmt.	**Procurement**
Industry-specific Processes	**Business Travel**

Business Process-as-a-Service

Smart Business Expense Reporting on the IBM Cloud

Collaboration	**CRM/ERP/HR**
Financials	**Industry Applications**

Software/ Application-as-a-Service

Middleware	**Web 2.0 Application Runtime**	**Java Runtime**
	Database	**Development Tooling**

Platform-as-a-Service

IBM Development & Test Cloud

Servers	**Networking**	**Data Center Fabric**	**Storage**
	Shared virtualized, dynamic provisioning		

Infrastructure-as-a-Service

IBM Computing on Demand

The Cloud Market is growing at a faster pace than the Traditional IT Market

- Cloud spending = CAGR of 26% through 2013

- Traditional IT spending = CAGR of 4%

- Spending on applications, software, storage, servers

- Cloud spending = 10% of total IT spend by 2013

- Cloud growth rate = 6X that of traditional IT spending
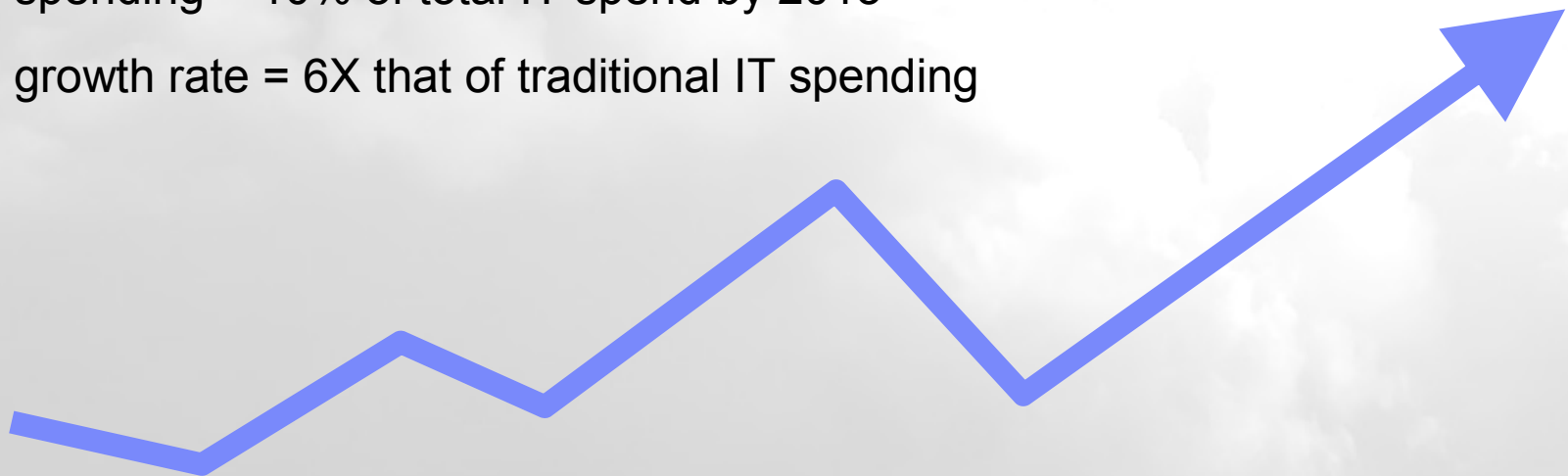
Source: IDC, Directions 2010, March 4, 2010, Adapt or Vanish: The Impact of Cloud Computing on the IT Channel Ecosystem
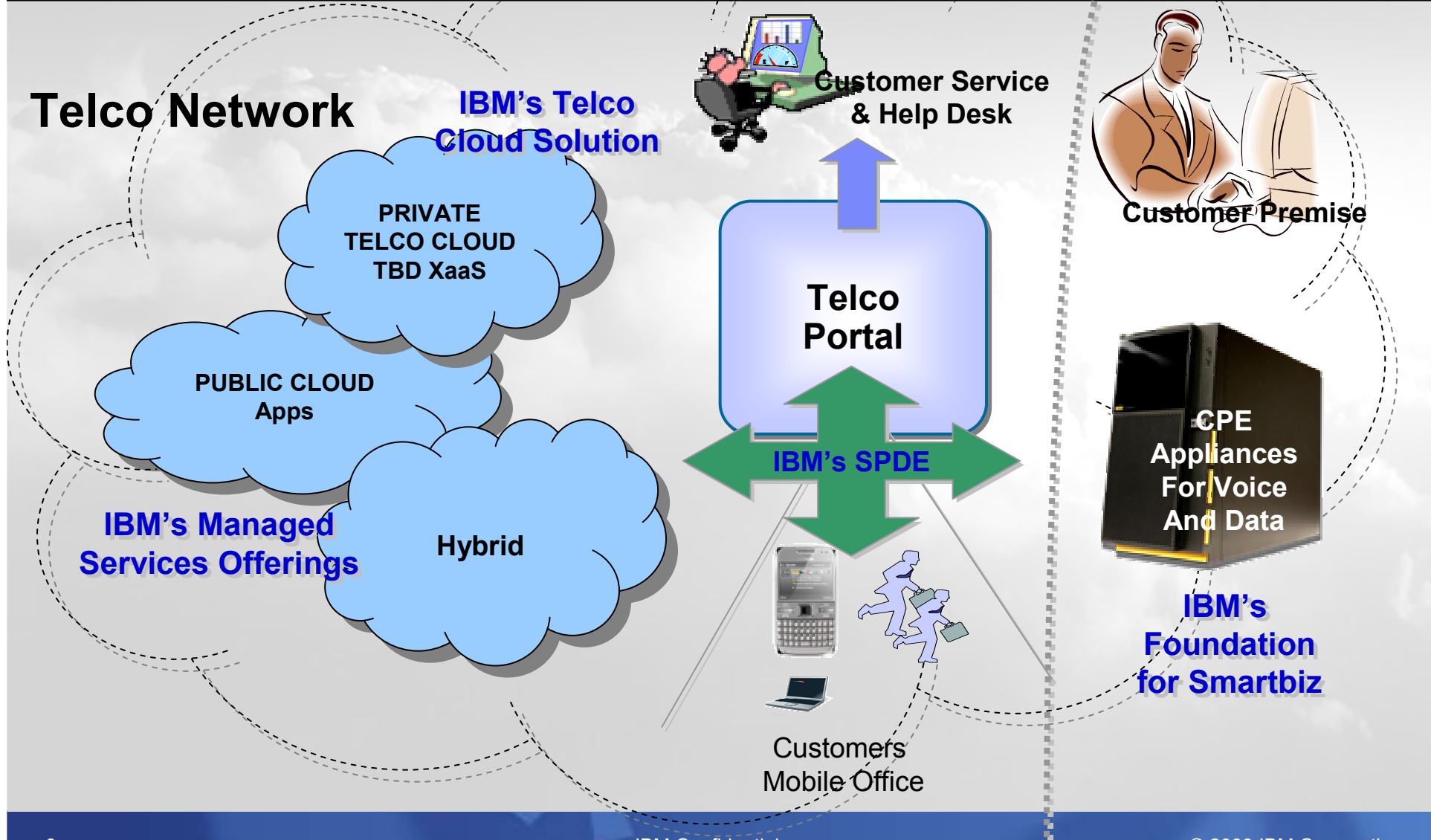
Why would a Service Provider look at "Cloud Offerings"

- Service Providers are losing landline connections to mobile and cable operator's- they need to give their customers a reason to stay
  - It is easy to change to other broadband providers like the cable companies
  - It is easy to lose voice services to mobile

- Service Providers are seeing reduced ARPU from their customers as competition increases-
  - Packaging by VoiP and Cable companies has reduced costs if clients use more services from a single provider
  - Cable companies and other providers are now targeting small businesses

- Telco's have long believed they were the integration point for Converged Communication Services- However, most telco's have not delivered on combining IT Services with Communication Services- THIS IS YOUR CHANCE

THE TELCO VIEW: Telco's have traditionally owned access to SMB Customers and can grow their share of IT Services in that Market Segment- Telco's are not only protecting their Turf, Telco's are pursuing new revenue opportunities by introducing IT Based Services

Telco Network

IBM's Telco Cloud Solution

Customer Service & Help Desk

Customer Premise

PRIVATE TELCO CLOUD TBD XaaS

PUBLIC CLOUD Apps

Telco Portal

IBM's Managed Services Offerings

Hybrid

IBM's SPDE

CPE Appliances For Voice And Data

IBM's Foundation for Smartbiz

Customers Mobile Office

Where to Start

Telco Portal

Enablement
Your customers gateway

IBM's SPDE Framework offers the tools and expertise necessary to enable the Portal and other Necessary functions required to provide:
-automated ordering
-provisioning
-and billing

IBM's SPDE Environment

Secure, Self-Serve Portal / CSP's Route to Market

- • **Applications and Capabilities available from the IBM Public Cloud and other App Providers**

- ▪ *IBM   Cloud Platform Solution for CSP's*

  This Solution is a framework with IBM and Partner Components Provided with Services to consult and implement

- • **LotusLive**
  An online social networking and collaboration service
- • **IBM Foundations for Smartbiz-**
  CPE Appliance for SMB providing a Gateway for communication and other SaaS offerings

- - **IBM's Managed Services offerings through GTS**
    - - **Information Protection Services (IPS)**
    - - **Managed Security Services**
   - - **ERMIS**
    - - **Hosted Desktop**
    These are mature hosted offerings- Rebranded or co-branded today

CSPs Can Leverage Private Clouds to Reduce Costs and Optimize IT.
Top Ideas: Development/Test, Server/Storage Optimization, Analytics, Virtual Desktop

EXAMPLE: Private clouds can support end-to-end application lifecycle management: design, development, test, deployment.

Capability	From
Server / Storage Utilization	10-20%
Self service	None
Test Provisioning	Weeks
Change Management	Months
Release Management	Weeks
Metering/Billing	Fixed cost model
Standardization	Complex
Payback period for new services	Years

Cloud accelerates business value across a wide variety of domains.
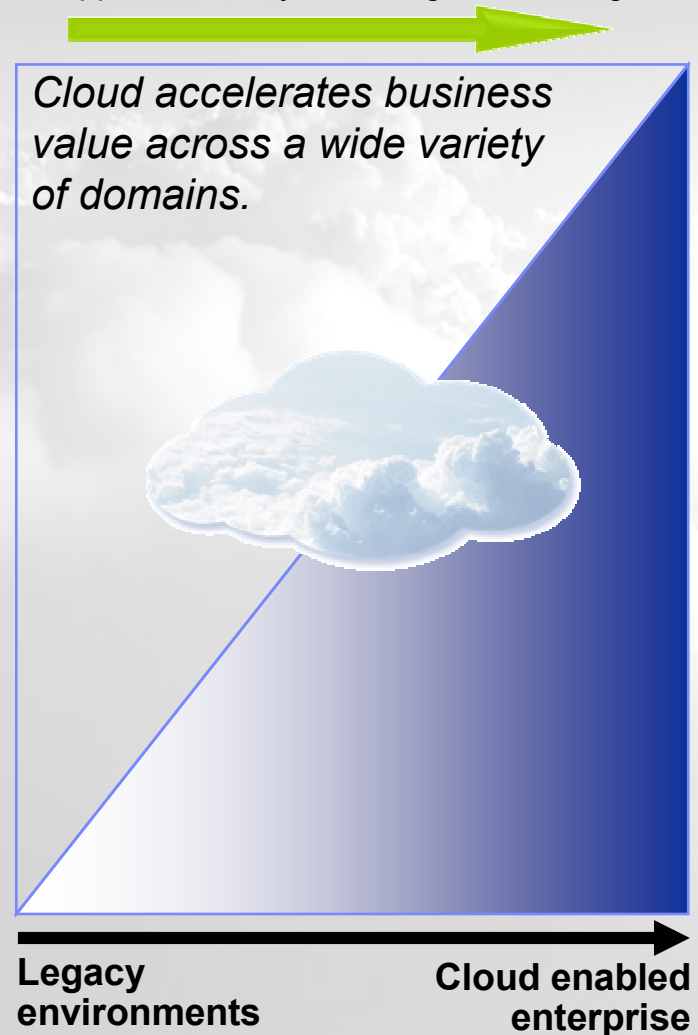
To
70-90%
Unlimited
Minutes
Days/Hours
Minutes
Granular
Self-Service
Months

Legacy environments → **Cloud enabled enterprise**

Cloud Computing Offers CSPs Adopter AND Provider Benefits

Cloud computing enables service innovation and a differentiated customer experience, while creating a lower IT cost structure with increased flexibility, scale, and resiliency.

Customer Environment:

- Offer expanded set of differentiated, on-demand services with increased value and stickiness for consumer, SMB, enterprise
- Improve ability to leverage assets and rapidly respond to new opportunities and threats (e.g., launch new services in days)
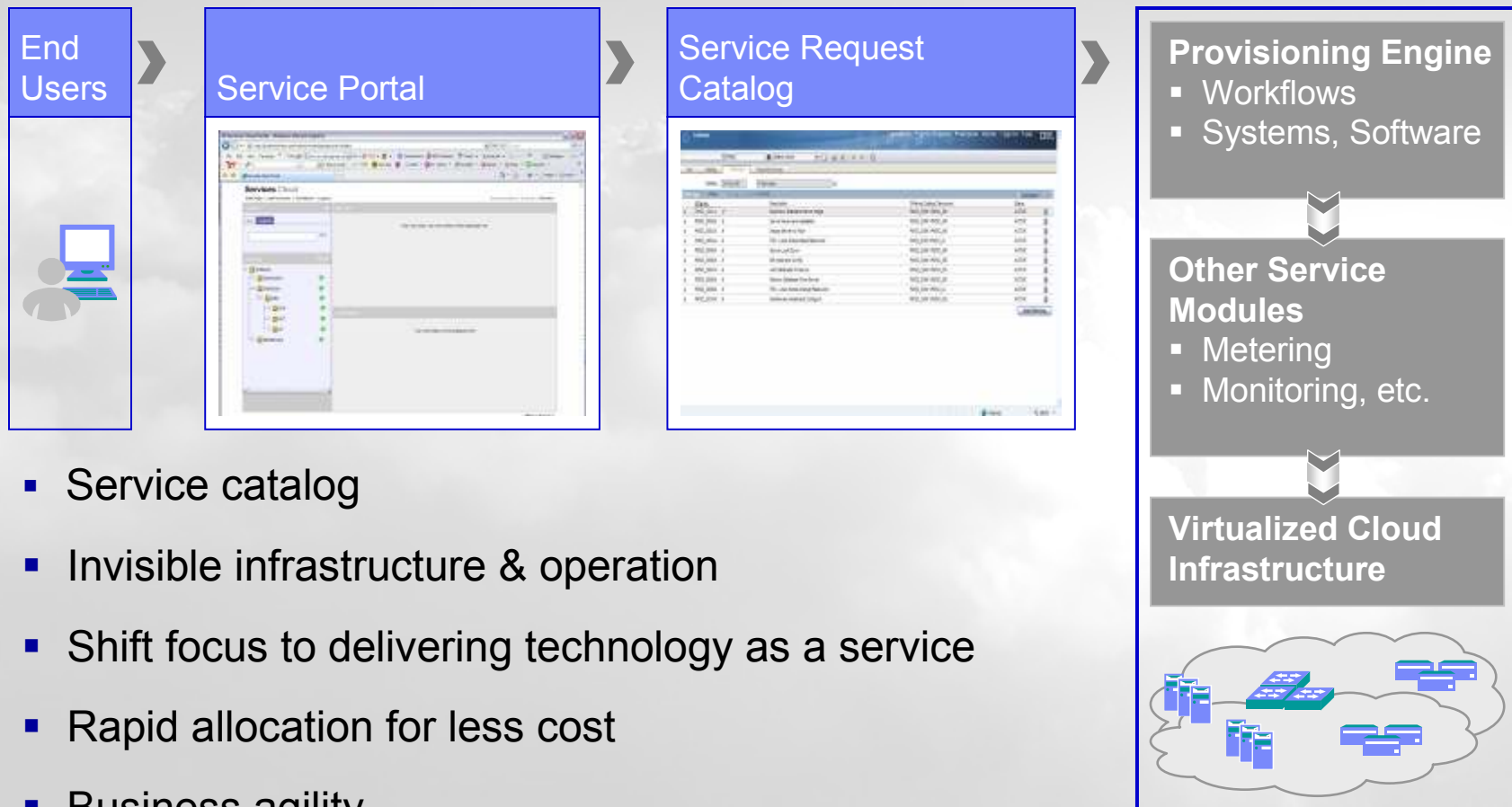
Business Environment:

- Seamlessly integrated, end-to-end
- Lower, balanced, fixed and variable costs
- Enables new innovative services & business models
- Improved ability to capitalize on partner ecosystem

Network and IT Environment:

- Integrated network/IT for optimal resource utilization
- Standardized, highly automated, non-disruptive, elastic
- Green; updated to save energy, space, people, $$$

Having the right Service Environment is Critical to Success: Characteristics and Requirements to deliver Cloud

End Users

Service Portal

Service Request Catalog

Provisioning Engine
- Workflows
- Systems, Software

Other Service Modules
- Metering
- Monitoring, etc.

Virtualized Cloud Infrastructure

- Service catalog

- Invisible infrastructure & operation

- Shift focus to delivering technology as a service

- Rapid allocation for less cost

- Business agility

- Services which can be metered

Asian Telecommunications Company (SKT)

Business Problem

- Proactive project to have a Cloud host business partners' mobile services

- The Cloud should support both development/test and production environments

- Advanced requirements, like Reservation support and composite topology support

- Aggressive timeline for project, with only 4 months from engagement to production
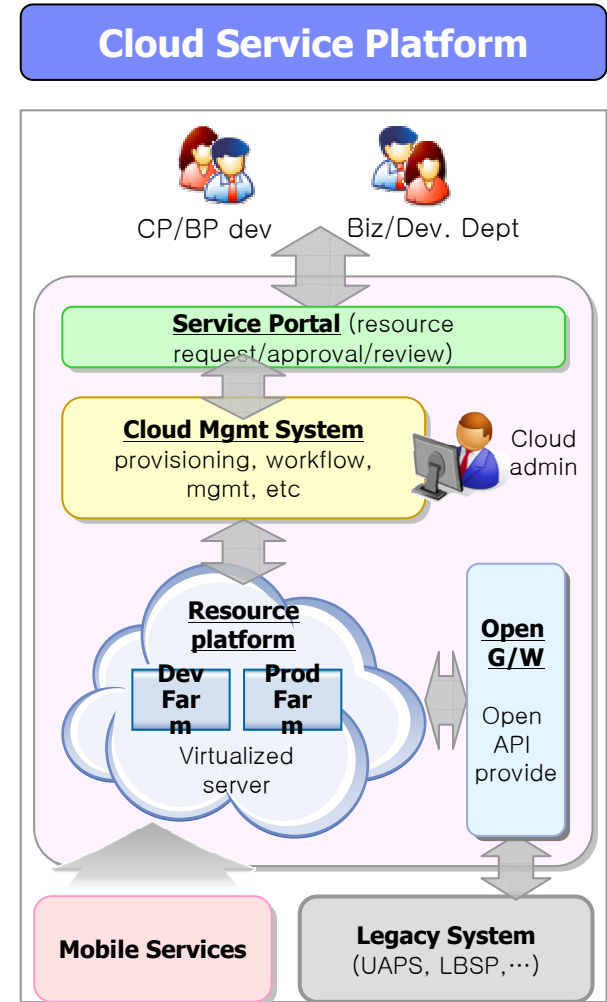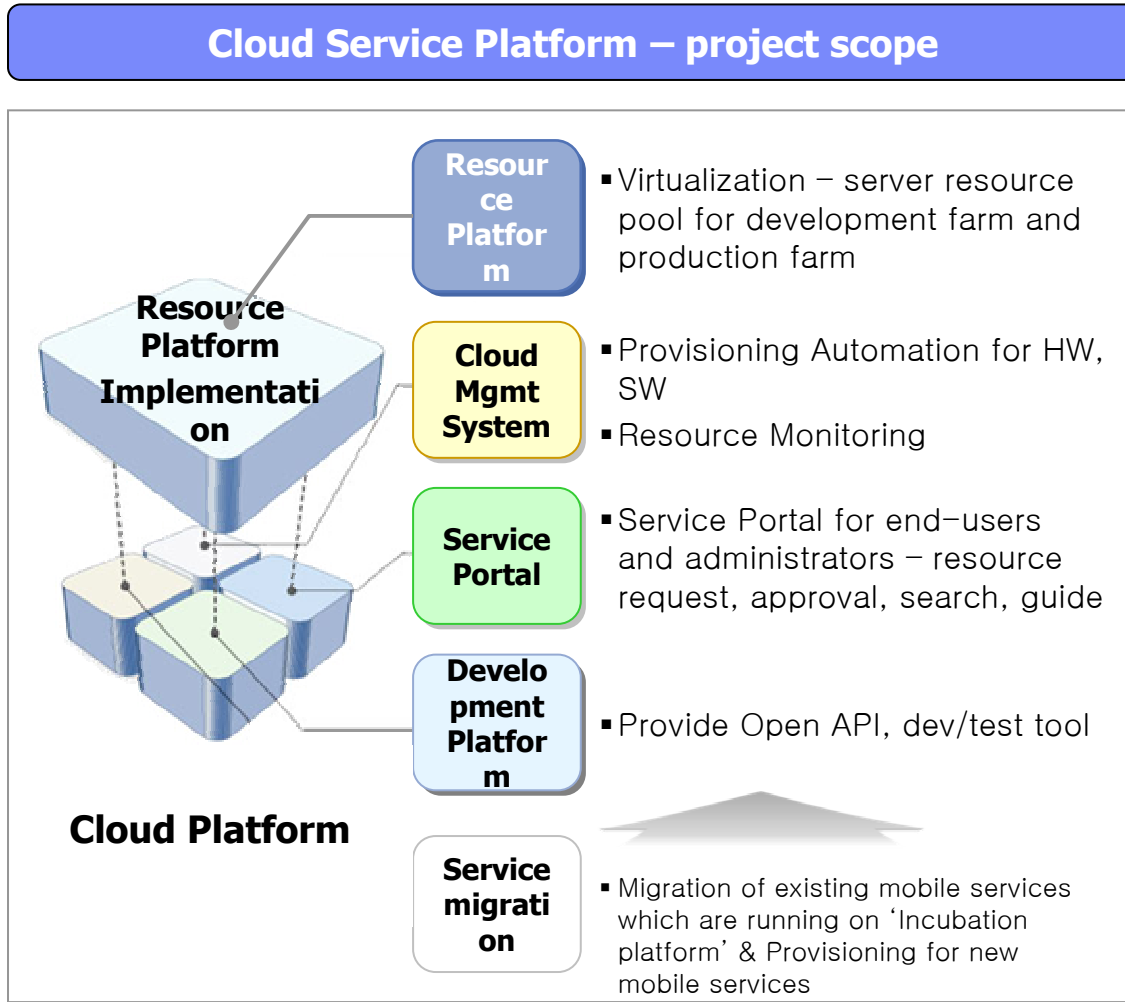
Lessons Learned

- Lock down requirements very early in the engagement

  - Functional requirements

  - Managed environment details and configuration

- When upgrading code levels during a project, very careful planning of the migration steps is vital
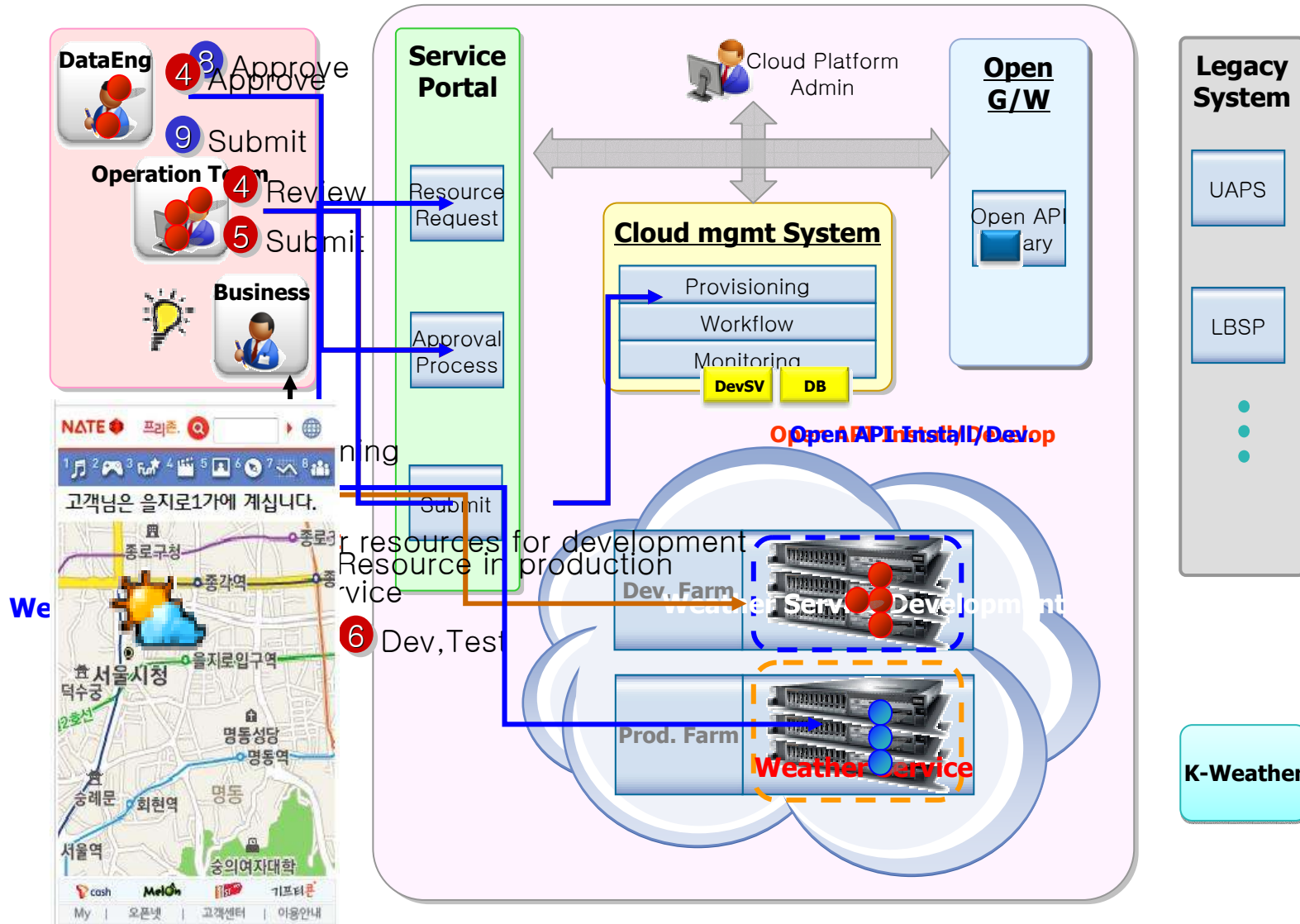
Solution Overview

- Local language service catalog portal for end users

- Customer solution had 7 main requirements:

  - Request & provision single virtual machine

  - Request & provision multiple heterogeneous virtual machines

  - Request & provision virtual machines with application software

  - Request & provision virtual machines and allow user to select application software to be installed

  - Request & provision a 3-tier application stack including operating system on a virtual machine

  - Request & provision software stack on pre-provisioning virtual machine

  - Request & provision changes in CPU, memory & disk to existing virtual machines
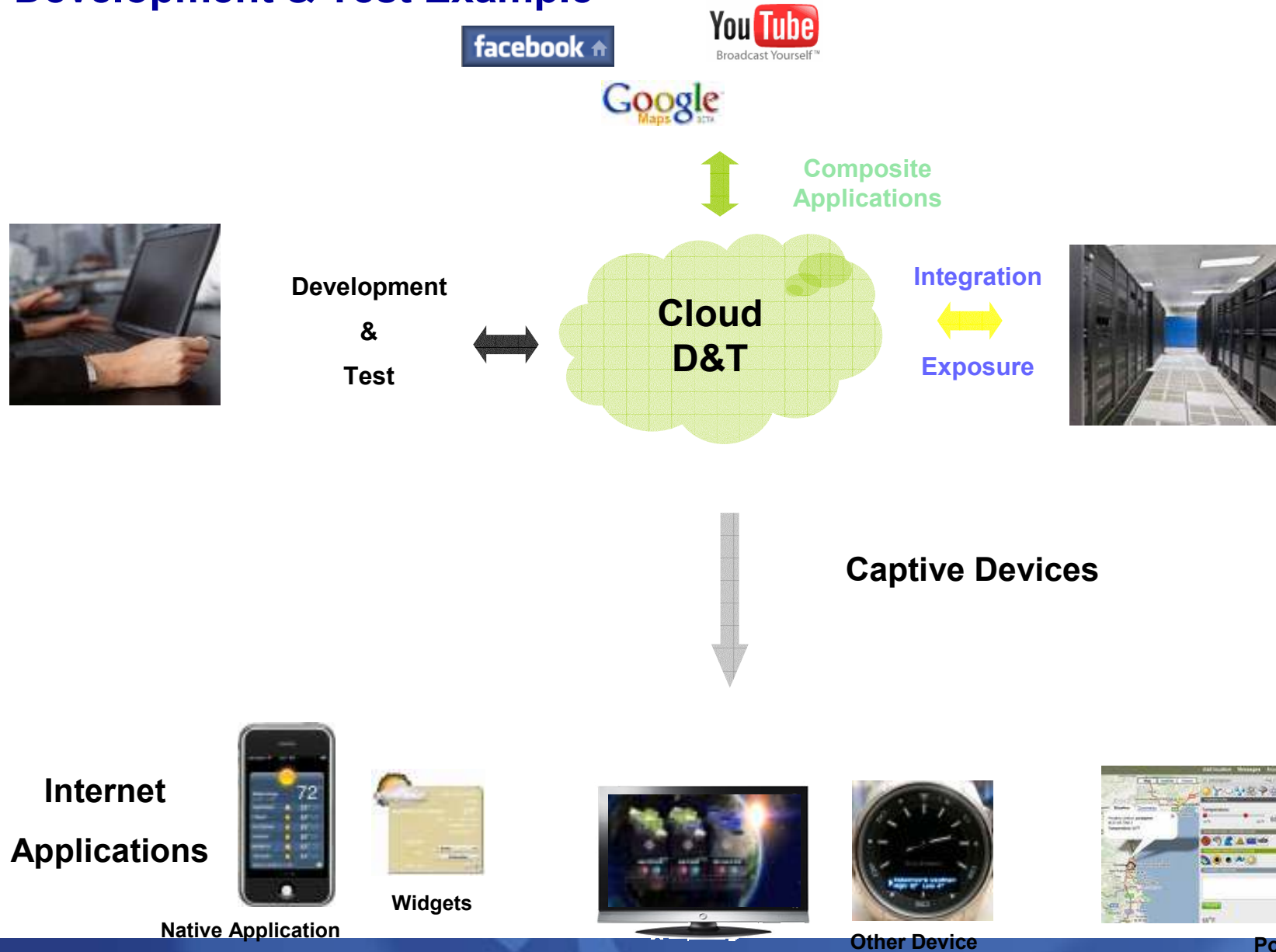
Project Scope

Cloud Service Platform – project scope

Resource Platform Implementation

Cloud Platform

Resource Platform	▪ Virtualization – server resource pool for development farm and production farm
Cloud Mgmt System	▪ Provisioning Automation for HW, SW ▪ Resource Monitoring
Service Portal	▪ Service Portal for end-users and administrators – resource request, approval, search, guide
Development Platform	▪ Provide Open API, dev/test tool
Service migration	▪ Migration of existing mobile services which are running on 'Incubation platform' & Provisioning for new mobile services

Cloud Service Platform

CP/BP dev   Biz/Dev. Dept

Service Portal (resource request/approval/review)

Cloud Mgmt System provisioning, workflow, mgmt, etc   Cloud admin

Resource platform
Dev Farm   **Prod Farm**
Virtualized server

Open G/W
Open API provide

Mobile Services

Legacy System (UAPS, LBSP,···)

Scenario

DataEng 4 8 Approve Approve

9 Submit

Operation Team 4 Review

5 Submit

Business

Service Portal

Resource Request

Approval Process

Submit

Cloud Platform Admin

Cloud mgmt System

Provisioning

Workflow

Monitoring

DevSV **DB**

Open G/W

Open API ary

Legacy System

UAPS

LBSP

OpenAPI Install/Develop

ning

r resources for development
Resource in production
vice

We

6 Dev,Test

Dev. Farm Weather Service Development

Prod. Farm **Weather Service**

K-Weather

Development & Test Example

IBM Confidential

Test & Development Cloud and Cloud Services

Development

&

Test

Cloud D&T

Dynamic

Provisioning

Process

Cloud Services

GUI exposure

Internet

Applications

Native Application

Widgets

TV

Other Device

Portlets

Test & Development / Telco Enablers

Development
&
Test

**Cloud
T&D**

Integration

Exposure

**Cloud
Services**

GUI
exposure

**Internet

Applications**

Native Application

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TV

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Portlets

Telco 2.0 - 2 Side Business Models

Partners
Development
$$$$

Cloud
T&D

Integration

Exposure

Publish

Process

Cloud
Services

GUI

$$$$
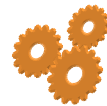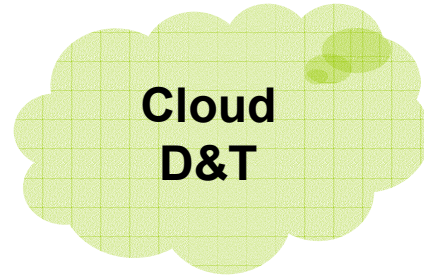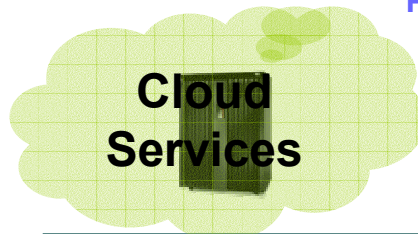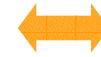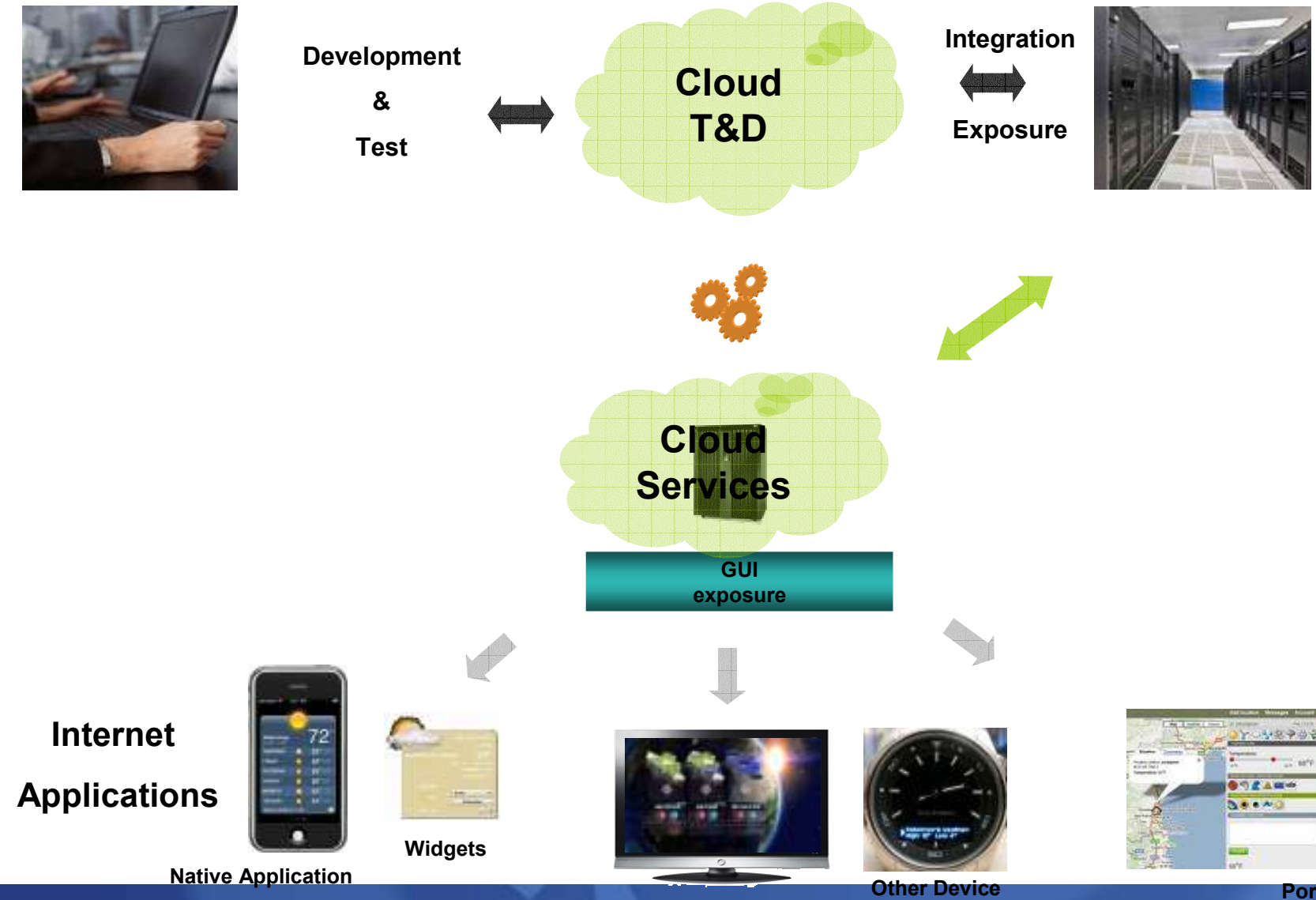
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