The Value Proposition of Middleware for Cloud

Redefining Business Value and IT Delivery

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New York City
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Agenda
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- Characteristics of Middleware on the Cloud
- Cloud Computing – Just Right with IBM Middleware
  - IBM Middleware Cloud Solution Portfolio
- Better Business Outcomes
- Summary & Call to Action
Evolution of Cloud Computing

Common Attributes of Clouds:
Enhanced user experience, Elastic scaling, Automated provisioning, Highly virtualized, Flexible Pricing

58% CIOs believe cloud computing will cause a radical shift in IT...
47% already using or actively researching. – CIO Magazine
Innovations are enabling *services-based solutions* to provide faster time to value, better integration and smarter deployment.
There are a number of building blocks for cloud computing and middleware is one of them.

- Standards
- Service Level Agreements
- Semantic Web
- Rapid Provisioning
- Middleware
- Network & Bandwidth
- Elastic Scalability
- Web Services
- Advanced Virtualization
- Utility Pricing
- Autonomic Computing
- Distributed Computing
- Grid Computing
- Outsourcing
- Parallel Computing
Characteristics of the right Middleware and Cloud Computing

- Instant Provisioning
- No Lock-in
- Services Driven
- Federation
- Application Agnostic
- Utility Billing
- Virtualised
- T/I/P Integrity
- Reusability & Scalability
## Challenges and Needs

### Do These Sound Familiar

<table>
<thead>
<tr>
<th>Low CAPEX &amp; TCO, Predictable cloud</th>
<th>Traditional IT resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay as you go usage models Time to</td>
<td>Encourages business to operate as lone ranger</td>
</tr>
<tr>
<td>value in weeks Rapid prototyping</td>
<td>Data portability &amp; interoperability</td>
</tr>
<tr>
<td>Flexibility gains Central security &amp;</td>
<td>Provider trust &amp; security</td>
</tr>
<tr>
<td>compliance Automatic updates &amp;</td>
<td>Network latency &amp; availability</td>
</tr>
<tr>
<td>updates Easy to customize &amp; use</td>
<td>IT, cloudy day</td>
</tr>
<tr>
<td>No infrastructure Virtualized &amp;</td>
<td>transparency</td>
</tr>
<tr>
<td>abstracted Federated, interoperable</td>
<td>Disaster recovery tbd</td>
</tr>
<tr>
<td>Low risk, simple implementation No</td>
<td>questions Data security &amp; privacy</td>
</tr>
<tr>
<td>physical or geographic limits</td>
<td>concerns Questionable regulatory control</td>
</tr>
<tr>
<td>service oriented Low maintenance</td>
<td>Lack of audit, governance &amp; security</td>
</tr>
<tr>
<td>short learning curve, Increased,</td>
<td>accountability Questionable reliability &amp; performance</td>
</tr>
<tr>
<td>scalability increased, self-service</td>
<td>Lack of management tools</td>
</tr>
<tr>
<td></td>
<td>Lack of integration with internal infrastructure</td>
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</tbody>
</table>
Cloud computing...

**Flexible Delivery Models**

**Public**
- Service provider owned and managed.
- Access by subscription.
- Delivers select set of standardized business process, application and/or infrastructure services on a flexible price per use basis.

**Private**
- Privately owned and managed.
- Access limited to client and its partner network.
- Drives efficiency, standardization and best practices while retaining greater customization and control.

**Hybrid**
- Access to client, partner sources
- **Governance**
  - Standardization, capital preservation, flexibility and time to deploy
  - ... Customization, efficiency, availability, resiliency, security and privacy

...service sourcing and service value
The Architecture Supports Multiple Deployment Models

**Enterprise Data Center**
- Private
- IBM implements on client premises
- Client runs/manages
- Managed Private Cloud
- IBM operated
- Enterprise owned
- Mission critical
- Packaged applications
- High compliance
- Internal network

**Enterprise Data Center**
- Managed Private Cloud
- IBM provided
- Enterprise operated
- Mission critical
- Packaged applications
- High compliance
- Internal network

**Enterprise**
- Hosted Private Cloud
- IBM owned and operated
- Third-party owned and operated
- Standardization
- Centralization
- Security

**Enterprises**
- Mixed shared and dedicated resources
- Shared facility and staff
- Virtual private network (VPN) access

**Users**
- Shared resources
- Elastic scaling
- Pay as you go
- Public Internet

Data resides outside client’s firewall
Business & IT need to become smarter … about delivering “services” – i.e. XaaS
Cloud is a Services Oriented Approach (soa) to Infrastructure, Middleware and Applications...
The evolution of Middleware... from atomic units to advanced software patterns

**Patterns:** describe combinations of middleware working in concert to solve a business problem

**Pattern:** Based *Middleware* is optimized for automatically assembling software components into dynamic middleware services
“Self-service” Clouds plus Middleware Standards drives lower costs and unlocks business productivity
Cloud Computing without “Middleware” Governance

"Wild West" Services: EXTREMELY DIFFICULT TO GAIN CONTROL OVER
- The most common case of a degenerated cloud services
- Services proliferate wildly because no formal service-definition process is in place
- Every piece of software is exposed as a Web service, but there’s no central registry
- Nobody knows how many services are in place, where they are or what they do
- No leverage and no reuse

"Duplicated” Services: SUPERFICIALLY EFFECTIVE BUT LIMITED REAL SAVINGS
- More difficult to contain business services often duplicated twice or more
- Rewarding mechanisms for reusing and creating reusable services is vague
- Little reuse while maintenance costs multiply, much higher than needed
- Savings companies could achieve would multiply if they reduced the level of duplication

"Shelfware” Services: A WASTE OF RESOURCE, WON’T DELIVER BENEFITS
- Few applications actually use Public services. Most applications remain as they are
- Little buy-in from business units, no agreed-on application architecture companywide
- Reuse is a promise that’s never kept
IBM Middleware Cloud Solutions Portfolio
Redefining Business Value and IT Delivery
Deep History Behind Today’s Core Technology

Delivering Progressively on Valuable Business Needs

- 2005: SOA Foundation
- 2000-2005: WebSphere Portal
- WebSphere Commerce
- 1999: WebSphere Application Server V3.0
- 1998: Enterprise Java Server
- 1994: TXSeries/Encina
- Distributed CICS
- 1994: Java V1.0
- 1996: Enterprise Java Server
- 1996: San Francisco Projects
- 1994: Distributed Computing Environment
- 1991: Distributed SOM
- 1991: OMG CORBA
- 1992: Distributed Computing Environment

Distributed Component Design

Transaction Management

Internet Based Computing
Continuing to Build on Solid Middleware (SOA) Foundation

Robust and Consumable with Requisite Transactional Integrity

2010: Business Agility

Business User Tools

Business Intelligence and Performance Management

Connectivity

Business Rule Management and Business Event Processing

Process Modeling and Optimization

Process Automation and Integration

End-to-End Processes

Continuously Optimize
The IBM Offerings Portfolio Maps to Cloud Workloads

Currently Mapping to Seven Workloads
1. Development and Test
2. Collaboration
3. Analytics
4. Desktop and Devices
5. Infrastructure Compute
6. Infrastructure Storage
7. Business Services
Common Challenges that Middleware on the Cloud can solve

**Takes too long to create middleware infrastructures**
- The average lead time to get a new application environment up and running is 4-6 weeks
- Approvals, procurement, shipment, HW installation, license procurement, OS installation, application installation, configuration

**Creating middleware infrastructures is a manual and error-prone process**
- 30% of bugs are introduced by inconsistent configurations
- These bugs are often of the most difficult variety to detect
- They often emerge when moving between dev/test, QA, production

**Poorly utilized resources driving up hardware & labor costs**
- Because it’s so expensive to set up an environment, there is an incentive to hold onto them even when no longer needed “just in case.”
- Future environments = new hardware, instead of recycling returned hardware, and this takes time and money
The Portfolio is Based on a Common Architecture

*IBM’s architecture enables and supports enterprise-grade services across cloud deployment models*

- Common infrastructure to provide computing and storage resources
- Common middleware platform, BSS and OSS services to operate and manage
- Range of IBM and partner services
- “Public cloud” with multiple service on-ramps for clients, hosted in key data centers worldwide
- “Private cloud” implementation and hosting services for clients and data centers (including Strategic Outsourcing - hosting)
## IBM Cloud Services Portfolio (Middleware Based)

**Enabling New Delivery Models**

<table>
<thead>
<tr>
<th>Analytics</th>
<th>Collaboration</th>
<th>Development and test</th>
<th>Desktop and devices</th>
<th>Infrastructure compute</th>
<th>Infrastructure storage</th>
<th>Business services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Smart Business on the IBM cloud</strong></td>
<td>IBM Lotus Live NEW - IBM Lotus® iNotes®</td>
<td>Smart Business Development and Test on the IBM Cloud</td>
<td>IBM Smart Business Desktop Cloud</td>
<td>IBM Computing on Demand</td>
<td>IBM Information Protection Services</td>
<td>BPM BlueWorks (design tools)</td>
</tr>
<tr>
<td><strong>IBM Smart Business Services</strong></td>
<td>IBM Smart Analytics Cloud</td>
<td>Lotus Foundation</td>
<td>IBM Smart Business Test Cloud</td>
<td>Smart Business End User Support</td>
<td>IBM Managed Security</td>
<td>Smart business expense reporting on the IBM cloud</td>
</tr>
<tr>
<td><strong>IBM Smart Business Systems</strong></td>
<td>IBM Smart Analytics System</td>
<td>IBM CloudBurst ™ family</td>
<td>IBM Smart Business Desktop Cloud</td>
<td>IBM Smart Business Storage Cloud</td>
<td>IBM Information Archive</td>
<td>IBM Smart Business for Small or Midsize Business (backed by the IBM Cloud)</td>
</tr>
</tbody>
</table>

**Smart Business on the IBM cloud**

- Standardized services on the IBM cloud
- IBM Lotus Live NEW - IBM Lotus® iNotes®
- Smart Business Development and Test on the IBM Cloud
- IBM Smart Business Desktop Cloud
- IBM Computing on Demand
- IBM Information Protection Services
- BPM BlueWorks (design tools)
- Smart business expense reporting on the IBM cloud
Smart Business Development & Test on the IBM Cloud
Offering at a Glance

Why Dev/Test on the Cloud:
- Creates a more efficient test environment that improves productivity and reduces costs
- Assessment of the current test environment to project savings and ROI
- Creation of a self-service portal with Catalogue of services
- Integrated service management platform combining service request management, provisioning / de-provisioning, and change and configuration management
- Clients can leverage their existing systems or the IBM Cloud “appliance”

Customer Benefits:
Reduce IT labour cost by 50% for configuration, operations, management and monitoring of test environments
Reduce test provisioning cycle times from weeks to minutes

www.ibm.com/cloud/developer
Rational Jazz

“Instant on” collaborative Application Lifecycle Management

IBM Rational Software Delivery Services for Cloud

- Technology preview available now; Trial subscription available in June
- Comprehensive collaborative ALM Solution
- Integrated capabilities of Rational Insight, Requirements Composer, Team Concert, Build Forge, Quality Manager, more!

- Flexible deployment options
  - Hosted Public Cloud Offerings
  - Hosted Private Cloud Offerings
  - Integrates with GTS Test Services for Cloud
  - New capabilities will be added over time
Enabling Clouds with Middleware

- **WebSphere delivers proven technologies & services to build clouds...**
  - Challenge: Assess the maturity of each pillar, determine how to incrementally pursue the cloud
  - It’s more than just buying products, customers must establish operational & app dev discipline
Middleware Services in the Cloud

- Offer ready-to-run WebSphere Solutions as cloud services
- Lowers barriers of entry and allows customers to get started quickly
- Ideal for prototypes, proof-of-concepts, development, and test
IBM WebSphere CloudBurst Appliance

Image Management, Pattern Assembly and Deployment of SOA images in an Enterprise Private Cloud

- Cost-effective – reduce hardware, software, and administration costs
- Automate management of WebSphere products in a private cloud
- Fast deployment and repeatability with pre-defined WebSphere patterns
- Usage tracking for chargeback and management reporting
- Secure appliance based on widely adopted WebSphere DataPower foundation
- Manages entire lifecycle of WebSphere Images and Patterns with associated licenses
- Integrates with Rational development tools, Tivoli management software
Addressing Challenges in Middleware Deployment

Cloud / Topology Shaping … with WebSphere Cloudburst Appliance + Hypervisor Editions of IBM Middleware (Virtual Images) + Patterns

1. Dispense single virtual image or a pattern / topology
2. Run in virtual / cloud computing environment (IaaS)
4. Return capacity to available pool

At end of reservation, remove virtual image(s) from cloud
**IBM CloudBurst and WebSphere CloudBurst**

provide cloud management capabilities with different scopes

<table>
<thead>
<tr>
<th>Offering type</th>
<th>WebSphere CloudBurst Appliance</th>
<th>IBM CloudBurst</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Offering type</strong></td>
<td>Physical appliance</td>
<td>Bladecenter + set of pre-configured provisioning and management software + configuration services</td>
</tr>
<tr>
<td><strong>Applicable Scope</strong></td>
<td>Application middleware environments</td>
<td>General purpose cloud provisioning/management</td>
</tr>
<tr>
<td><strong>Hardware for cloud</strong></td>
<td>Bring your own (leverage underutilized assets in your datacenter)</td>
<td>Included in the offering (bladecenter w/ 3 blades in it)</td>
</tr>
<tr>
<td><strong>Items managed in cloud</strong></td>
<td>GA virtual images from IBM for select products</td>
<td>User-built images (whichever products customer chooses to build)</td>
</tr>
</tbody>
</table>
Complete Cloud Integration Platform

Complete Flexibility
- Cast Iron Cloud2™
- Physical Appliances
- Virtual Appliances

Total Connectivity
- TIP Exchange
- TIP Development Kit
- TIP Community

Complete Reusability
- TIP Exchange
- TIP Development Kit
- TIP Community

For All Types of Projects
- UI Mashups
- Process Integration
- Data Migration
Cast Iron OmniConnect

Bridges the Cloud and On Premise Worlds
IBM

Template Integration Processes

No Coding

Beyond Configuration

Preconfigured Templates Integration Processes (TIPs)

Configuration

1. Introduction
2. Oracle Table Creation
3. Edit Configuration Properties
4. Verify Oracle connectivity
5. Update the Oracle Table Information
6. Map the Database fields
7. Sample Input Data
8. Verify Integration
Augment Existing IBM Products
Websphere - BPM BlueWorks
A set of cloud-based BPM tools and content enabling Business Leaders, Business Analysts, and Business Professionals to experience the value of BPM by creating BPM Business Designs in the cloud, leveraging pre-built content, and collaborating through community tools.

1. **Access business & industry-specific content to understand the value of BPM**
   - Demos / Videos
   - Web casts / Pod casts
   - Best Practices
   - Papers / Case Studies

2. **Collaborate with the community and leverage pre-built strategies, processes, and measures**
   - Process Maps
   - Strategy Maps
   - Capability Maps
   - Business Measures

3. **Capture business intent, capabilities, & process in the cloud**

4. **Easy on-ramp to BPM suite to test & deploy process**

**Acquire Expertise, Map Strategy, Execute Processes**

Users can start at any entry points depending on their familiarity with BPM and what they want to do.
Inventory and Map Processes ... On the Demand (Cloud)
IBM BPM Blueprint

- **Intuitive, easy-to-use views** enable business users to document and analyze process details – immediately

- **Single, shared repository** becomes the “system of record” for process documentation – always up-to-date

- **Real-time collaboration and feedback** between teammates on “shared whiteboard”

- **Cloud-based access** makes it easy to add participants – on demand

- **Export process diagrams** to other modeling and implementation tools (WebSphere Business Modeler, WebSphere Lombardi Edition, …)
LotusLive – Software as a Service

**Web Conferencing**

- **LotusLive Meetings** *(Sametime Unyte Meeting)*
  Full-featured Web conferencing service includes polling, hand raising, record & playback.
  - Supports G1 languages
  - Integrated with more than 60 Business Partners

- **LotusLive Events** *(Sametime Unyte Events)*
  Internet-based event capabilities. Provides tools to create & manage webinars.

**Collaboration**

- **LotusLive Engage** *(“Bluehouse”)*
  An integrated suite of Web collaboration and business networking solutions including:
  - On line Meetings
  - Files
  - Chat service
  - Activities
  - Survey Forms
  - Live Charts
  - Profiles and Contacts

- **LotusLive Connections**
  An integrated suite of Web collaboration and business networking solutions including:
  - Files
  - Chat service
  - Activities
  - Profiles and Contacts

**eMail**

- **LotusLive Notes** *(Lotus Notes Hosted Messaging)*
  Full-featured, dedicated hosted Email service. (rich client and browser)
  - Supports 27 Languages

  **Additional Add-ons**
  - LotusLive Mobile for Blackberry
  - LotusLive Sametime IM

- **LotusLive iNotes**
  Web-based Email service with personal calendar & shared contacts. Mobile sync capability.
  - Over 40 million mail users

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The information on the new products is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information on the new product is for informational purposes only and may not be incorporated into any contract. The information on the new product is not a commitment, promise, or legal obligation to deliver any material, code or functionality. The development, release, and timing of any features or functionality described for our products remains at our sole discretion.
### Cognos Live – Cloud Based Reporting

“I know what I’m looking for, create a query and format it to my needs”

**IBM Smart Analytics Cloud**

A multidimensional report (i.e.: report sourced from the cube) might be equivalent to thousands of conventional reports represented on paper – user quickly drills down, filter, and responds to prompts to customize the single report.
Tivoli - Core Components of Service Managed Clouds

For Locating and Requesting Services

- Secure User Centric Self-
  Service Portal, Automation
  engine and Catalog

Deploying Cloud Services

Managing Cloud Services

- Automated Provisioning and Image Management

- Monitoring, Security and Metering
Tivoli – Cloud Visibility, Control & Automation

Visibility across Application, Data and Underlying Infrastructure

Monitor Infrastructure Resources

How are infrastructure events affecting services?

Map Service Dependencies to Infrastructure

How are resources connected to provide business services?

Process and Technology Automation across Business Services

How are activities efficiently executed when delivering business services?

Align Assets and Resources to Business Priorities

How are resources being deployed to meet business demand?

Service Management Control Aligned to Business Priorities

Fulfill Service Requests

How effectively are requests for services being managed?

Provide Security and Compliance Solutions

How secure and compliant are my business services?

Understand User Service Experience

How are services meeting business user needs?

Provide Business Aligned Dashboards

What is the health of my business and the services that support it?
Intelligent Management in the Cloud

More Responsive: WVE, WCA, and TSAM can dynamically allocate resources to meet demands
More Optimized: WXS & WVE combined with ITM better utilizes system resources and lowers TCO
More Agile: WVE, WXS, & WCA better aligns IT capabilities with business needs
More Resilient: WVE & WXS prevents, isolates, and recovers from failures
Bringing the “Cloud Experience” to Reality
Businesses that implement Cloud Computing are seeing significant results.
Cloud Computing within IBM
Yielding a cumulative benefit to IBM in excess of $4.1B

IBM Technology Adoption Program (TAP)
http://www.tap.ibm.com/
Saving IBM over $3.5M per year

Self-service, on demand IT delivery solution for 3,000 IBM researchers across 8 countries

Enterprise class utility computing solution for clients

Systems platform testing for Enterprise Clients, SMBs, & ISVs

Cloud computing solution for IBM Learning Centers in Europe
Looking Ahead: Business Process Cloud

Leveraging key Cloud building blocks at where and when they are needed in specific business scenarios, and at the needed level of functionality, will allow our clients to reach new levels of agility/flexibility in its business …
Moving Towards a Reusable set of Middleware “Services” Approach on the Cloud

A factory-like model for the sourcing and assembly of local and remote software (Cloud Delivery) and functional services, content, and components into a Middleware oriented business environment
Summary & Call to Action

Cloud Adoption Advisor

The fields that are indicated by an asterisk (*) are required to complete this transaction, other fields are optional.

First Name: Hector
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Link: Cloud Assessment Tool
Summary & Call to Action

With a strategy, Cloud computing is a huge opportunity for the enterprise

- Lower costs, more responsive IT, optimized delivery
- Greater range of services and capabilities
- Greater visibility in billing / chargeback to LOBs
- Better control of the users’ systems, desktops, and services access

Developing a Cloud Computing Strategy & Plan is needed

IBM Technologies in support of Cloud Computing

- Service Management Center for Cloud Computing, IBM WebSphere Cloudburst Appliance
- Rational Software Delivery Services for Cloud Computing
- Networking, Virtualization & Imaging technologies, Service Catalog, User Access Control
- Service Management and Automation software
Strong Business Results
With
IBM Middleware and Cloud Computing