IBM

Rethink IT. Reinvent Business.
Cloud Computing

The IBM SmartCloud Enterprise and hybrid solution for simple, secure integration and management of public & private clouds

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Pressures like workforce mobility and increasing productivity are placing greater demands on IT systems.

Increased expectations

52% CAGR growth in self-service channels

Increased demands

10x growth in digital data from 2007 to 2011.

Increased competition

2/10 of the world's largest companies in 2000 remain on that list today.
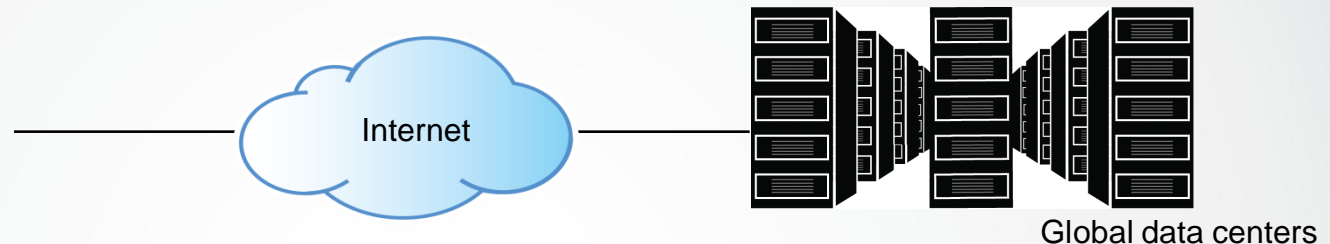
54%

of surveyed enterprise IT budgets in 2010 were spent on ongoing operations and maintenance costs.*

*Source: Forrester Research, Inc. "2011 IT Budget Planning Guide," October 7, 2010 by Craig Symons

IBM SmartCloud Enterprise - a dynamic cloud infrastructure service

Internet

Global data centers

Serving your end users, IT professionals and partners.

Enterprise class shared cloud infrastructure

- Highly virtualized, automated and standardized multitenant IT infrastructure with massive capacity and global reach.
- Provides virtual servers and storage in minutes

Pay-per-use with no up-front investment

- Resources billed per hour of usage, including selected software, with no capital expense or long term commitments required.

A flexible and feature-rich services platform

- Flexibility and features to support a myriad of workloads.
- An automated platform on which enterprises and their partners can base higher level services

IBM owned and operated

- Built to meet enterprise security, reliability and control requirements for on-demand IT resources

IBM SmartCloud Enterprise features and functions – at a glance
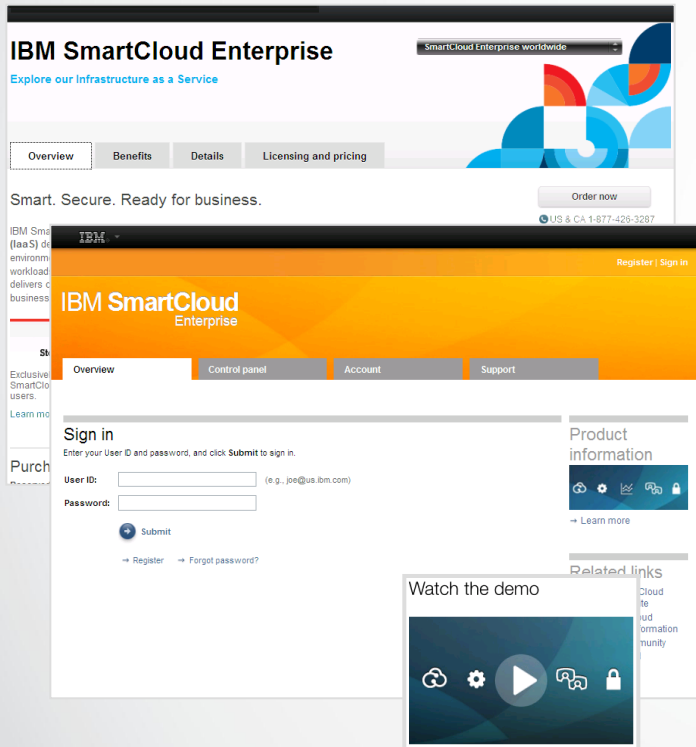
More at: ibm.com/cloud/solutions/enterprise

Cloud Portal: ibm.com/cloud/enterprise

Features and functions:

Choice of nine virtual (Intel) server configurations

Choice of operating systems:

- Linux; Red Hat, Novell SUSE or bring your own
- Windows Server 2003 and 2008

Software image choices:

- Pick a preconfigured IBM or IBM Partner image
- Import, clone or copy an existing Linux image
- Customize with software bundles using cloud tools

Dynamically attach/detach multiple blocks of persistent storage with up to 10 TB each.

Object storage providing highly accessible and secure Internet file system with nearly unlimited capacity

Virtual servers accessible directly from the Internet or isolated in VPN environments.

Cloud service framework (Paas/Saas hosting)

Premium support services as a supplement to forums, with optional add-on operating system support

Choice of six sites: US (2), Canada, Germany, Japan and Singapore with massive capacity.

Payment options:

Pay-as-you-go

- Per hour usage charges for virtual servers, storage, software images, VPN environments and static IP addresses
- Full billing details downloadable from the cloud portal

Reserved capacity package options.

You can launch your own cloud services for internal or commercial use with the IBM SmartCloud Enterprise services framework

Framework for developing, provisioning and managing cloud services:

- You build a service by creating a **'Service Instance Descriptor'** containing the system specifications, scripts, terms and documentation for launching a service instance..

- **'Service Instances'** are the actual systems, consisting of instances, storage and other components, that together deliver the service.

- The 'Creating and Customizing Services' guide contains full documentation.

In just three steps, you can launch **PaaS** (Platform as a Service) and **SaaS**

(Software as a Service) services.

A good way to start realizing the cost benefits of cloud is to segment your application portfolio into tiers.

Yes

Strategic

| Tier 3 | Tier 1 |
| Tier 4 | Tier 2 |

No

No ← **Yes**

Mission critical
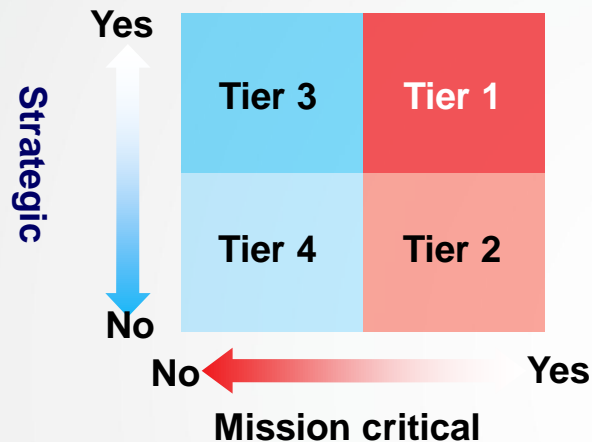
- Most clients have many Tier 4 and relatively few Tier 1 applications.
- Start by migrating Tier 4 applications to the cloud environment, moving lowest-risk applications first.
- Apply lessons learned to subsequent migrations of higher tier applications.

| Application Class	Not strategic or mission critical	Strategic but not mission critical	Mission critical	Key – Most critical
Typical distribution	55%	20%	20%	5%
Availability required	Low 95% or less	Medium 95-98.5%	High 98.5-99.7%	Very high Never down
Support effort	Best effort	Business hours	24*7	24*7
Monitoring	No monitoring	Basic server	Infrastructure	Application level

IBM SmartCloud Enterprise can support a myriad of workloads

Application development

- Transient applications
  - Demo and Proof of Concept
  - Training
  - Migration of technology
- Multisite, outsourced development and test
  - Access from multiple sites, remote locations, etc.
  - Walled off external and contractor resources
- Cloud deployment of Rational Team Concert**™**
  - Collaborative development
  - Process facilitation
  - Source control
  - Defect management
- IBM Rational® tools for requirements gathering, asset storage and governance, build automation and more.
- A site for collaboration with partners and vendors, outside everyone's firewall

Testing and quality assurance

- Regression, build and verification, endurance etc. tests
- Cloud deployment of IBM Rational quality manager - test management
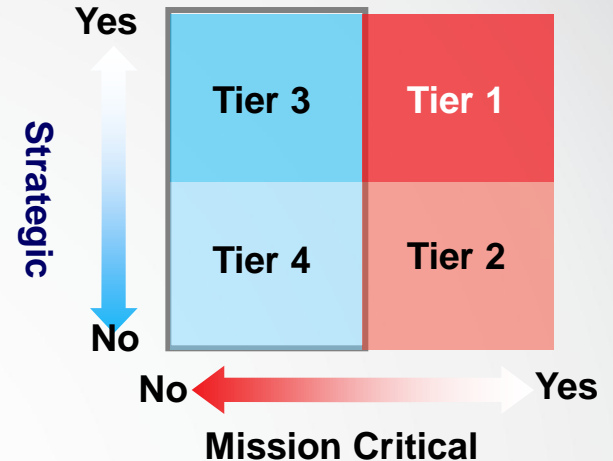
Production workloads

- Stateless web applications
- Social media/Information Sharing
- Batch processing
- Transcoding and rendering
- Projects and labs on the cloud

Operations and infrastructure

- Spillover or burst infrastructure
- Disaster recovery
- Quick deployment of new projects
- Dynamic workload processing – grid resource in the cloud
- 'What if' scenarios to evaluate results of swapping out components
- Move development and test environments out of data center to free up resources for production use

Increasingly, organizations are turning to hybrid cloud solutions to reap the benefits of both private and public cloud resources

A hybrid solution utilizes a seamless and transparent combination of public and private clouds.

- Highly virtualized on-premise infrastructure augmented with public cloud resources for enhanced efficiency, scalability and dependability
- Seamless integration across internal and public resources by extending security, control and transparency over all assets and environments regardless of location

Customer challenges:

- Lack of control over all owned resources
- Lack of visibility into overall costs and data relocation
- Company data and resources may not be properly handled or safeguarded
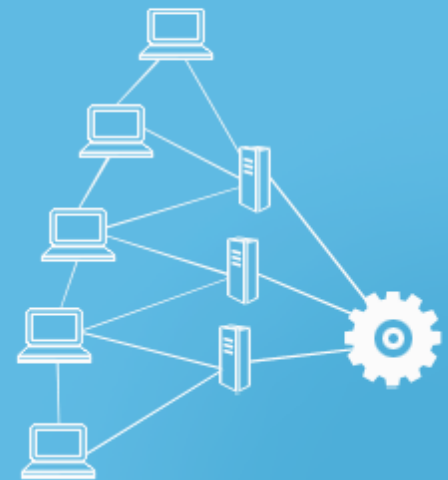
IBM's solution for hybrid cloud computing addresses the challenges

With integration technology from Cast Iron and Tivoli's enterprise management capabilities, IBM's hybrid solution offers:

- **Control and management**: Define policies, monitoring and performance rules for the public cloud in the same way as on-premise resources. As a result, organizations can more easily control costs, IT capacity and regulatory concerns.

- **Data Integration:** Monitor, provision and integrate to support "cloud bursting"--dynamic relocation of workloads from private environments to public clouds during peak times.

- **Security:** Enable better control of users' access by synching the user directories of on-premise and cloud applications. The automated synchronization means users can only gain entry to the information they are authorized to access.
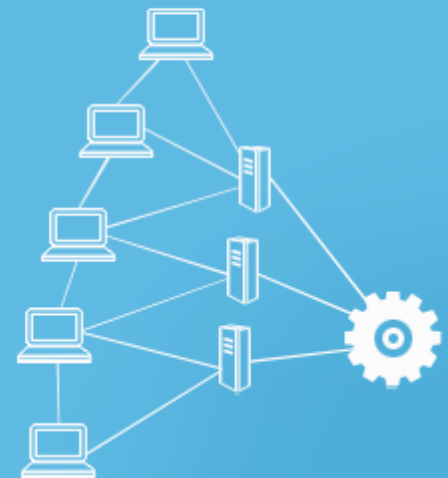
Introducing IBM's hybrid cloud solution

IBM's hybrid cloud solution consolidates and simplifies the integration and management of on-premise and cloud computing resources. The IBM hybrid cloud solution includes:

➢ **WebSphere Cast Iron Software**

Enables companies to seamlessly integrate on-premise and public clouds. Enhancements to this platform include a complete multi-tenant cloud service that clients can use to design, run and manage all cloud integrations, as well as a new virtual appliance that can be installed on existing servers.

➢ **Service Management Extensions for Hybrid Cloud**

Helps clients monitor and secure the management of resources on both public and private clouds. With Tivoli software for hybrid clouds, clients can now manage off-premise resources to the same standard--with the same infrastructure--as resources inside enterprise walls.
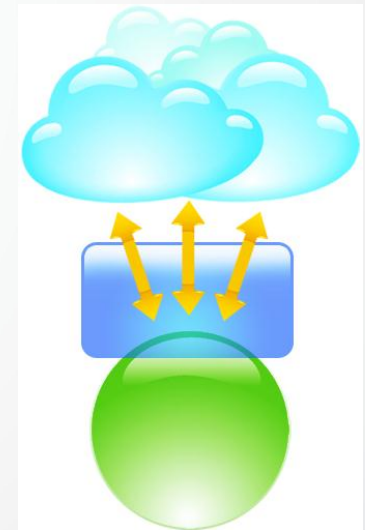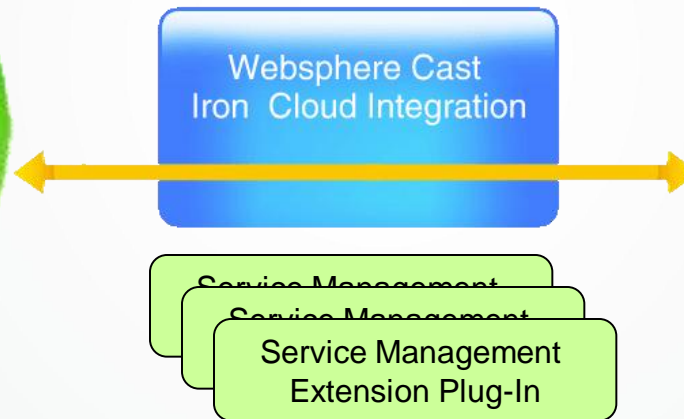
IBM Hybrid cloud solution Delivers

Integration of On-Premise Service Management and Applications…

**Simplified, Enabled and Controlled by Hybrid Cloud Integrator**

…for Cloud Service Usage.

Provisioning

Monitoring

Directory Integration

Governance

Websphere Cast Iron Cloud Integration

amazon
webservices™

IBM

Service Management

Service Management

Service Management Extension Plug-In

Results:

- Visibility into off-premise "cloud" infrastructure using the same UI as those on premise.
- Increased client confidence in the management of off –premise resources
- Access to applications enabled across all vendors.

Hybrid Cloud POC Generali-IBM

Network plan HybridCloud POC Generali
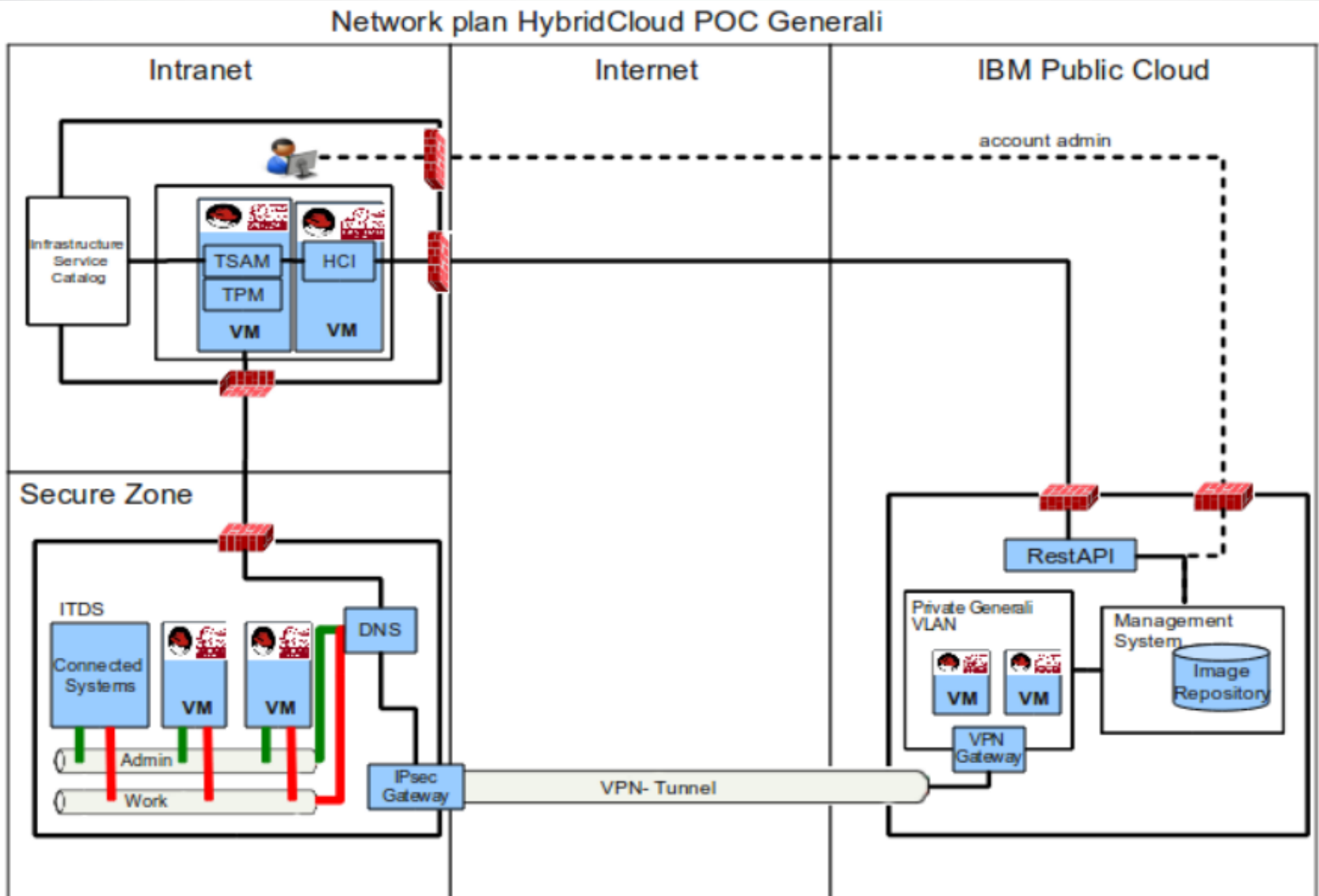
Next steps

▶ Get informed about Tivoli cloud solutions:
  ibm.com/tivoli

▶ IBM cloud adoption patterns

  ibm.com/ibm/resource/ibm_cloud_computing_patterns

▶ Join the community:
  Tivoli Service Management Connect

▶ Read Tivoli product-related content:
  ibm.com/developerworks/tivoli

▶ Get Tivoli education:
  www-01.ibm.com/software/tivoli/education

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