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Salih Abamor Tivoli Sales Team Leader Salih.abamor@tr.ibm.com

### A Non-IT View of Service Delivery Innovation

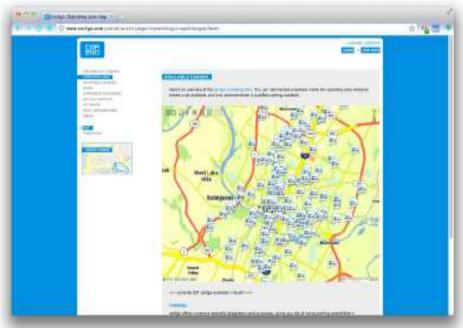




#### THE PERSONAL OPTION TO PUBLIC TRANSPORTATION.

Austin, Texas, Nov 16, 2010 car2go Austin Celebrates First Anniversary: With Approximately 15,000 Registered Members and Fleet Extension





Registration fee	\$35.00 plus tax
Per minute	\$0.35 plus tax
Per hour maximum	\$12.99 plus tax
Per day maximum	365.99 plus tax
Per mile after 150 mile per rental	45 cents, plus tax
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SHOP LISTEN & WATCH INTERACT VISIT

Business need: An international tennis tournament club accommodates nearly half a million spectators onsite, while simultaneously meeting the needs of the world's sporting media with over three quarters of a billion television viewers on 129 TV channels in 173 countries. To remain the premier tennis event – the tennis tournament club understood it had to build on its already global brand and increase its reach to a more diverse audience. Thus Club endeavors to engage its audiences by giving people the ability to share, interact with and connect to The Championships experience as though they were actually there – and to do this in new and exciting ways.

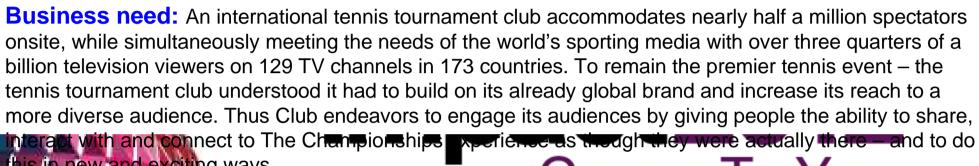
DRAWS & SCHEDULE

**PLAYERS** 

**Solution:** During the tournament the website saw a tremendous volume of traffic with 15 million unique visitors and 451 million page views. It also faced up to 80,000 cyber incidents each day. By providing a scalable, robust and secure website, these threats were mitigated, protecting data and ensuring the website was available and responsive 24/7. Their website runs on the IBM SmartCloud™ ™ Enterprise and SmartCloud™ Enterprise+ infrastructure allowing dynamic provisioning/deprovisioning of resources, ideal for fluctuating requirements across the sporting year.

Benefits: IBM Cloud services saved the club costs and energy as it was able to add or remove hardware and software as demand required. The solution benefits included a scalable, robust and secure website withstood up to 80,000 attacks each day of the tournament, had 15 million unique visitors and 451 million page views. The built-in data analytics allowed IBM to collect data about every game, set and match, providing real-time information to the media, spectators, online visitors and even the coaches.

SHOP



Comes To You

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### <u>Use Case: Initialize and administer a cloud infrastructure with IBM Systems</u>

#### **Cloud Project:**

Implement an Entry Cloud Infrastructure

#### **Preregs**

PowerVM, VMControl EE & Storage Control for Power; VMWare vSphere for System x

#### **Platform Support:**

Power systems / PowerVM / AIX & Power Linux guests System x / VMware / Linux & Windows guests





- Demonstrated 35x improvement for deploying new applications
- Implement private cloud on IBM hardware in 2-3 days
- Optimized for IBM hardware and provides workload balancing and VM mobility.
- Hypervisor choice future hypervisor transition allows clients to maintain value of investment
- Interoperability with systems management solutions through REST APIs
- Price Advantage fixed per server– scale with less expense and greater value for higher VM densities

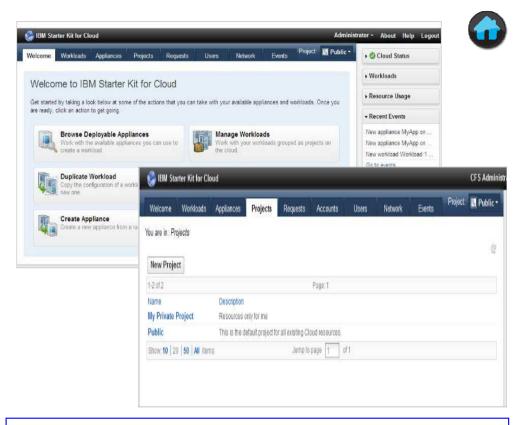
### <u>Use Case: Administer and manage cloud projects for users and groups</u>

#### **Pre-regs**

PowerVM, VMControl EE & Storage Control for Power; VMWare vSphere for System x

#### **Platform Support:**

Power systems / PowerVM / AIX & Power Linux guests System x / VMware / Linux & Windows guests



- Intuitive interface for cloud administration typically used by IT ops, IT infrastructure admins or new role of cloud administrator.
- Allows for assignment of resources based on projects and roles: owner, user, viewer.
- Basic metering of VM per hour and project budgeting available for accountability or billing.
- Improves IT operations productivity
- Facilitates standardization of VMs driving down configuration errors

### <u>Use Case: Self-provision stable, predictable workloads</u> (no workflows required)

#### **Cloud Project:**

#### **Pre-reqs:**

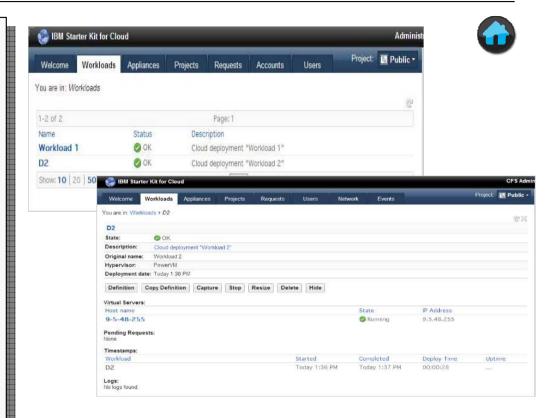
PowerVM, VMControl EE & Storage Control for Power; VMWare vSphere for System x

#### **Platform Support:**

Power systems / PowerVM / AIX & Power Linux guests System x / VMware / Linux & Windows guests

Sales Kit

Competitive content



- Improves time-to-market for applications through automated self-service deployment or standardized application images
- Intuitive easy-to-learn interface for end users
- Roles-based security allows for management and view functions
- Personalization of user interface through the use of REST APIs

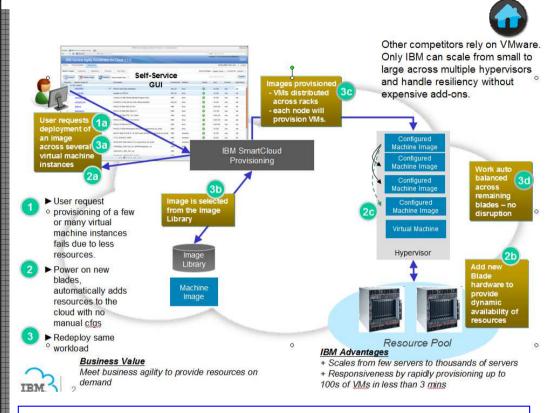
#### Use Case: Rapid, parallel scaling to thousands of VMs

#### **Audience:**

Users: Operations team, Line of Business

#### Pre-regs:

x86 servers, hypervisors



- Power up and forget: Scale up cloud infrastructure with no manual configuration and rapid cross domain provisioning
- Choice through extensive hypervisor (x86 today) and platform support
- 99.9% system availability
- Responsiveness by rapidly provisioning up to 100s of VMs in less than 3 mins
- Scale from few to 1000s of VMs to meet business demands

### <u>Use case: Control image sprawl with rich analytics and image lifecycle management</u>

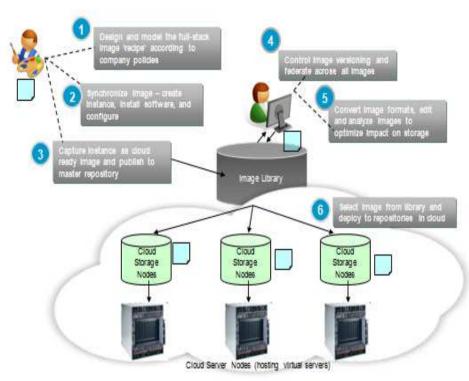
#### Pre-reqs:

x86 servers / , XEN / Linux guests, KVM / Linux & Windows guests, VMware / Linux & Windows guests

Sales Kit

Competitive content





- Reduced data storage through federated library image analysis and single instance storage can reduce image storage costs by up to 80%
- Reduced risk of using non-compliant images that could have security exposure
- Over 70% reduction in labor through automated image lifecycle management
- Heterogeneous, federated image library management providing single source of control across all images.
- Simplified creation of rich, full stack images saving significant (up to 90%) admin time verses OS only images

### <u>Use Case: Deploy highly available, fault tolerant cloud</u> infrastructure

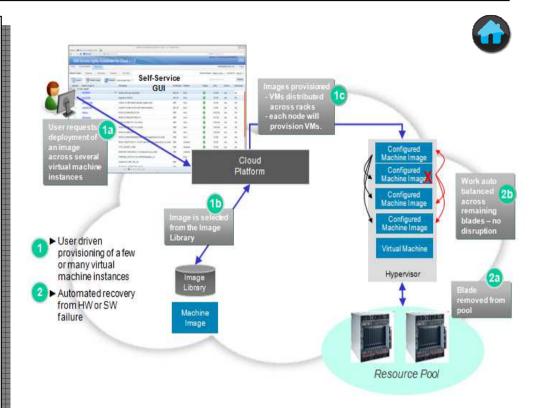
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#### Pre-regs:

x86 servers, IBM SmartCloud Provisioning, RHEL ISO IBM SmartCloud Provisioning

Sales Kit

**Competitive content** 



- Zero downtime, tolerates hardware failures driving higher customer satisfaction
- Power up and forget: Scale up cloud infrastructure with no manual configuration and rapid cross domain provisioning
- Choice through extensive hypervisor and platform support
- 99.9% system availability
- OOTB fault tolerance capability which is deployed during installation.
- Ability to add resources with no manual intervention.

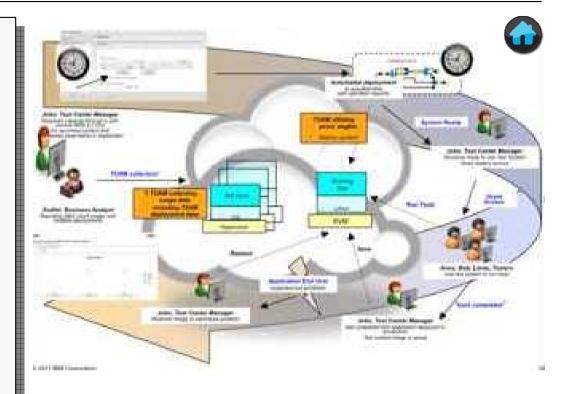
### <u>Use Case: Orchestrate services and automate runbook activities</u> across a multi-tenant infrastructure

#### Pre-reqs:

x86(VMWare, KVM, Xen, Hyper-V), Power Systems (PowerVM), System Z (zVM)

Sales Kit

Competitive content



- Integrate compute, network, storage and application delivery: enable organizational integration
- Standardization of service design and full automation of service delivery reduce operational costs and increase speed of service delivery
- Hybrid cloud integration.

### <u>Use Case: Advanced Monitoring and Capacity Planning of the</u> cloud infrastructure

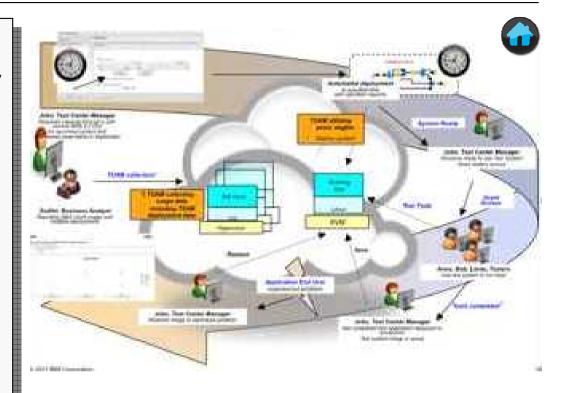
IT Admins can utilize capacity analysis reports to make informed, timely decisions regarding hardware expenditures and perform what if analysis. Advanced monitoring includes both real time and historical analysis of capacity metrics to assist in VM placement. IT Admins can also meter resource usage for chargeback to the consuming end users.

#### Audience:

Users: IT Admin

#### Pre-regs:

x86(VMWare, KVM, Xen, Hyper-V), Power Systems (PowerVM), System Z (zVM)



- 20% improvement in total cloud delivery cost using capacity optimization algorithms
- **100s** of out of the box reports and pre-configured alerts rapidly accelerating implementation time
- Mean time to resolution, multi-fold improvement through integrated cross domain insight
- Create simple, intuitive reports in created in minutes
- Out of the box support for metering OS CPU, memory and storage of reserved resources

### <u>Use Case: Complex provisioning of network and storage in a cloud infrastructure.</u>

IT Admins can integrate advanced network configuration such as firewall and load balancer configuration to the VM provisioning process. IT Admins can attach storage resources to VMs at provisioning time.

#### Audience:

Users: IT Admin

#### Challenge(s) this Scenario Addresses:

- •Removes the need for manual changes to network and storage after the VM is configured.
- •Eliminates process handoffs between provisioning and network/storage operations.

#### **Cloud Project:**

Implement an Advanced Cloud Infrastructure

#### Pre-regs:

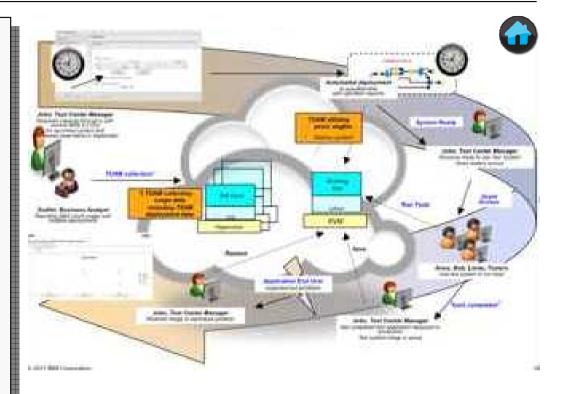
x86(VMWare, KVM, Xen, Hyper-V), Power Systems (PowerVM), System Z (zVM)

#### What you Sell

**ISDM** 

Sales Kit

Competitive content



- The cloud delivery platform can adapt to existing network topologies. No need for network re-design
- IT Process can be automated as part of a provisioning work flow.
- Reduced operational cost by centralizing administrative tasks

<u>Use Case: Pre-built application pattern deployment with policy</u> driven QoS

Pre-regs:

VMWare ESX, PowerVM, zVM

Co-regs:

WAS, DB2, Portal, WPS, WMQ, WMB HV edition softwares

#### Virtual Applications At a Glance



.ear file



.ddl file



policies

Scaling policy

High Availability
Clustering
Caching policy
Routing policy
JVM policy

#### Virtual Applications in IBM Workload Deployer



- · Full life cycle management
- Multi-server environment deployed as an atomic unit
- Individual components wired to one another
- Ready-to-use environment

- Minimal input required for application deployment
- Consistent and repeatable patterns providing predictable success effectively increasing savings in labor, reducing operational expense
- Virtual application and virtual system (multi-product platform topology) patterns lowering TCO and providing high value
- Focused business application development by letting IWD handle end-to-end application deployment and management
- Increased business agility with virtual applications and reduced time to market from days to hours
- Highly optimized full life cycle management for virtual applications
- Policy driven application behavior providing elasticity during peak demands, high availability

#### Use Case: Pattern based IBM middleware deployment

#### Challenge(s) this Scenario Addresses:

#### Pre-regs:

VMWare ESX, Power VM, zVM

#### Virtual Systems At a Glance



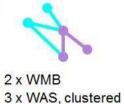












Description of

Middleware Topology

#### Virtual Systems in IBM Workload Deployer



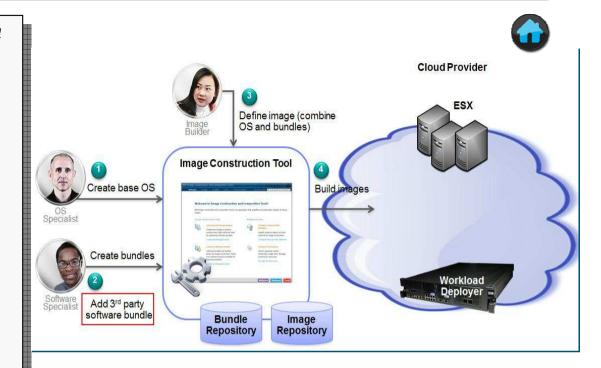
- Multi-server environment deployed as an atomic unit
- · Individual components connected to one another
- Ready-to-use environment

- 80% less time required for deploying and configuring IBM middleware. Consistent and repeatable middleware topologies available when required
- Full control over dispensed virtual systems providing complete flexibility to maneuver the environment post deployment
- Easy maintenance of middleware and OS

<u>Use Case: 3rd party software deployment support for application and middleware patterns</u>

Pre-regs:

VMWare ESX, Power VM, zVM



- Continue to utilize existing investments in non-IBM products
- Easy to create images using ICON tool to support 3<sup>rd</sup> party products
- Extensibility of application pattern via plugin development kit

## IBM Cloud Portfolio offers complementary strengths, comprehensive capability and is optimized to workload deployments

	IBM SmartCloud Entry	IBM SmartCloud Provisioning	IBM Workload Deployer	IBM Service Delivery Mgr IBM CloudBurst
Optimized for IBM Systems	✓			
Supports IBM and non-IBM platforms		✓	✓	✓
Self-service UI	✓	✓	✓	✓
Basic image manipulation: capture, copy, deploy, import/export, convert	✓	✓	✓	✓
High availability of the managed environment	system	арр	арр	арр
VM provisioning w/ network and storage connect	✓	✓		✓
Cloud administration and subscriber management	✓			✓
Image lifecycle mgmnt: versioning, provenance, federation, analytics, rich images		✓		✓
High scale rapid deployment, fault tolerant low touch management of VMs		✓		
Approvals, metering, accounting	basic		basic	advanced
Reservation/Quota management				✓
Service catalog extensibility (service template, topology, mgmt plans)				✓
Monitoring and Capacity Planning			✓	✓
Management across public/private cloud environments				✓
Optimized middleware pattern deployment, management, scaling			✓	

### Platform Support

	Management node	Managed nodes		
IBM SmartCloud Entry delivered by IBM Starter Kit for Cloud – Power	Power systems	Power systems / PowerVM / AIX & Power Linux guests		
IBM SmartCloud Entry delivered by IBM Starter Kit for Cloud - x	System x (BladeCenter or rack mount)	System x (BladeCenter or rack mount)/ VMware / Linux & Windows guests		
IBM SmartCloud Provisioning delivered by IBM Service Agility Accelerator	x86 servers / RHEL	x86 servers /		
		XEN / Linux guests		
		KVM / Linux & Windows guests		
		VMware / Linux & Windows guests		
ISDM / TSAM	System x (BladeCenter or rack mount)/ Power systems / System z / other vendors	System x & other x86/ VMware / Linux & Windows guests		
		System x & other x86/ KVM and Xen / Linux		
		System x & other x86/ Hyper-V/ Windows		
		Power Systems / PowerVM / AIX		
		System z / zVM / Linux guests		
IBM Service Delivery Manager / IBM CloudBurst	System x (BladeCenter, or rack mount)/ Power Systems / other vendors	System x & other x86/ VMware / Linux & Windows guests		
		System x & other x86/ KVM / Linux		
		Power Systems / PowerVM / AIX		
		System z / zVM / Linux guests (as an extension)		
IBM Workload Deployer	9005 appliance	x86 (VMWare), PowerVM (AIX), zVM (RHEL and SLES guest)		