

Rethink IT. Reinvent Business.

Cloud Computing

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Top 10 Attributes of Cloud

1. Standards Based – Design once, deploy many
2. Virtualization – Atomic versus molecular
3. Versatile Workloads – From web to BPM
4. Versatile Deployments – Run in the right place
5. Elasticity – Grows to the right size
6. Density – Shared middleware (Admin:Tenant)
7. Security and Isolation – Get off of my cloud!
8. Resilient Discrimination – Biased and keeps going
9. Integrated – Extends beyond boundaries
10. Simplicity – Self service, appliance, hosted



- 10 of 29 Page: 1 | 2 | 3

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My Top 10 IBM Cloud Attributes
 gcuomo | Yesterday 12:34 PM | Tags: cloud | Comments (1) | Visits (117)

My Top 10 IBM Cloud Attributes
 Next week is IMPACT 2011. Robert LeBlanc will be hosting a general audience session on IBM Cloud. Jason McGee and I will be covering a part of this session called "Architecting the Cloud." In 15 minutes, Jason and I will split the time to share our Cloud Reference architecture (which I will

IBM Software
Impa
 Optimize to
 Deliver

1 Standards Based – design once, deploy many

- Freedom of choice
- SOA and service based
- Internet technologies – e.g., REST/HTTP, SOAP/HTTP
- Open Virtual Format

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Virtualization Alone is NOT Cloud



2 Virtualization – Atomic versus molecular

- Server virtualization uses Images, which are like “atoms”
- Enterprise Application virtualization requires image collections, which are like “molecules”
 - Atoms bound together with a purpose
 - Preconfigured, best practices
 - Patterns that capture topology and behavior

3 Versatile Workloads – From web to BPM

- Support pluggable run-times
- Enterprise Runtimes – JEE
- Script Centric – PHP, Ruby
- Integration – Messaging, ESB
- Business Centric – Rules, Events, BPM
- Tenant brings applications and policies, cloud provides the rest
- Policies for Scale, Security, Transactions



Versatile Deployments – Run in the right place

4

- IBM cloud supports multiple deployment platforms
- IBM & Non IBM hardware
- Automation scripts and published SPIs

5 Elasticity – Grows to the right size

- Reacts to demand
- Increase or decrease capacity to meet SLAs
- Data Caching and Replication
- Policies enable elasticity
- Business and Tenant



Density – Shared middleware

6

- Sharing Middleware is the foundation of PaaS
- How many applications can fit into a square foot of rack space
- Multi-tenancy is key to achieving density
- Dense, shared middleware improves Admin per Tenant ratio
- Drives down people cost and improves accuracy of deployments

7 Security and Isolation

- Tenant Isolation is almost an opposing force to density (or sharing)
- Isolation policies dictate which workloads can be co-located with others and how much dedicated resource an application gets
- Security at the edge of the cloud
- Intrusion detection and application firewall



Resilient Discrimination – Biased and keeps going 8

- The autonomic nature of clouds puts an extra emphasis on resiliency
- Keys to a resilient cloud
 - Redundancy via replication
 - Data Analytics (e.g., intelligent log mining)
 - Intelligent Workload Management – governs work based on business importance

9 Integrated – Extends beyond boundaries

- You have choices to build, partner or rent
- Hybrid solutions are the most prudent form of cloud computing
- Key to the success of hybrid solutions
 - API Integration, security, monitoring, governance
- Cast Iron hybrid integration provides thousands of pre-determined integrations for quick adoption of cloud services
 - Most popular scenario is data synchronization between public and private cloud services



Simplicity – Self Service, Appliance, Hosted

10

- Perhaps the most important and elusive of the attributes
 - Self-service, web-based portals, with first-class mobile support
 - Appliance delivery: Rack it, stack it, bring your own hardware, point the appliance at it, and away you go
 - Host it – www.ibm.com/smartcloud

IBM



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An Example with IBM Workload Deployer

IBM Workload Deployer

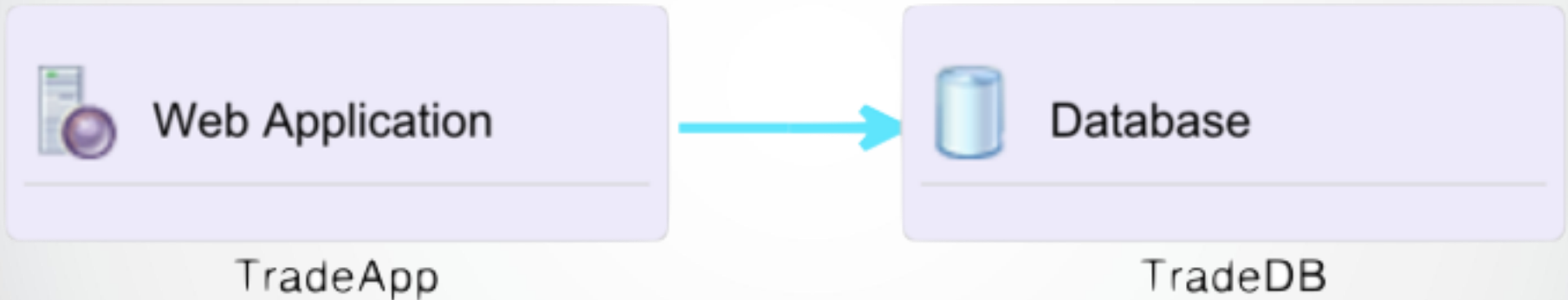
- Workload Patterns
- Bring-your-own Hardware
- Improved time to value through faster deployment
- End-to-End Lifecycle Management
- Elasticity
- Simplicity
- Ready-to-Run Appliance Packaging

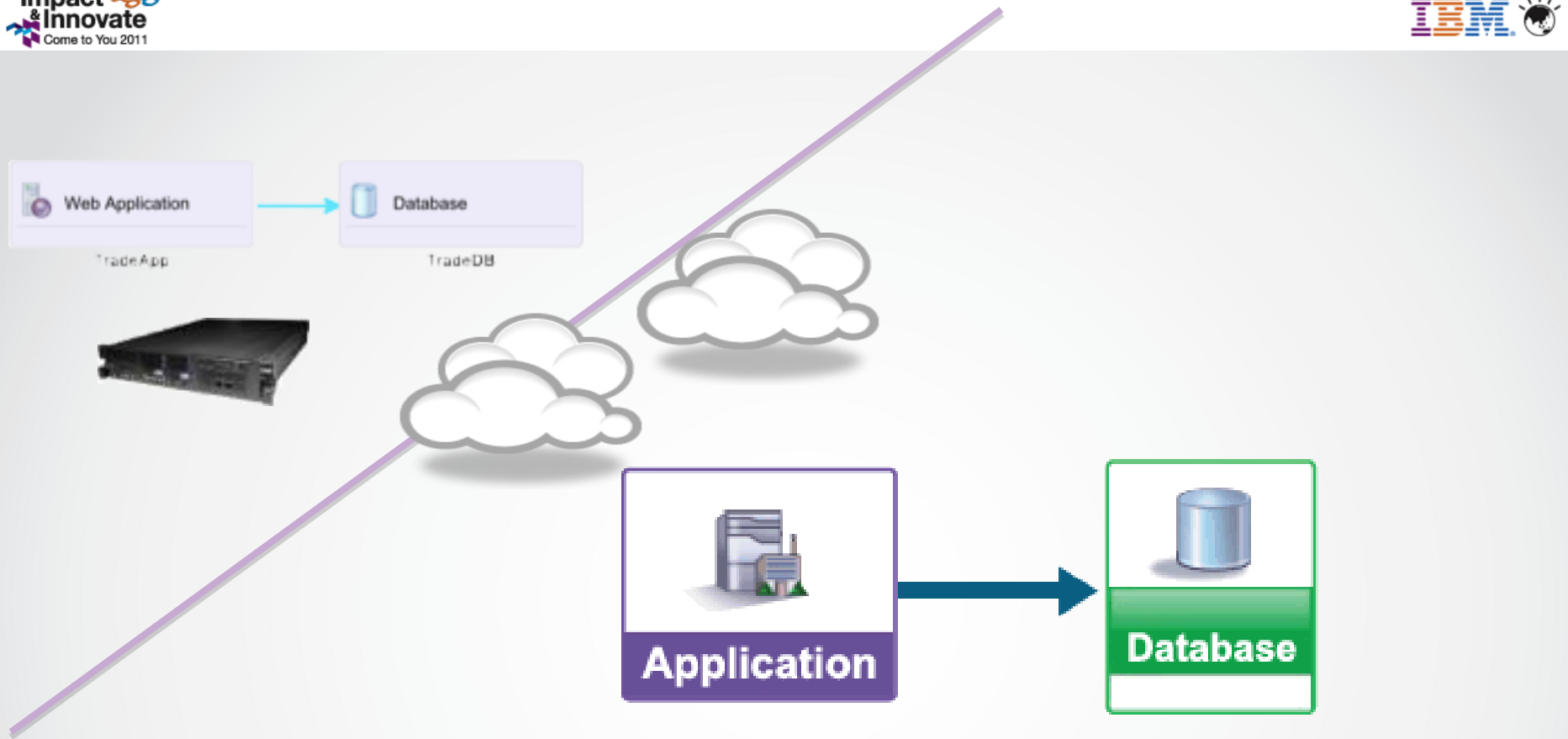


- 4 Versatile Deployments
- 3 Versatile Workloads

IBM Workload Deployer

2 Virtualization





Deployed
to the
Cloud

IBM Workload Deployer
Deployment ID :d-ad8837d6-76f4-4790-accb-e38676996cf8

Virtual Machine Monitoring
Middleware Monitoring
Operation
Configuration
Logging

Normal Warning Critical Help

application_proxy-elb.1	9.42.77.3	↓
application_wxs-catalog.1	9.42.77.5	↓
application-was.1	9.42.77.6	↓
database-db2.1	9.42.77.4	↓

MEMORY

Real-time(M)

Historical(M)

CPU

Real-time(%)

Historical(%)

NETWORK

Bytes Transmitted Per Sec Bytes Received Per Sec

DISK

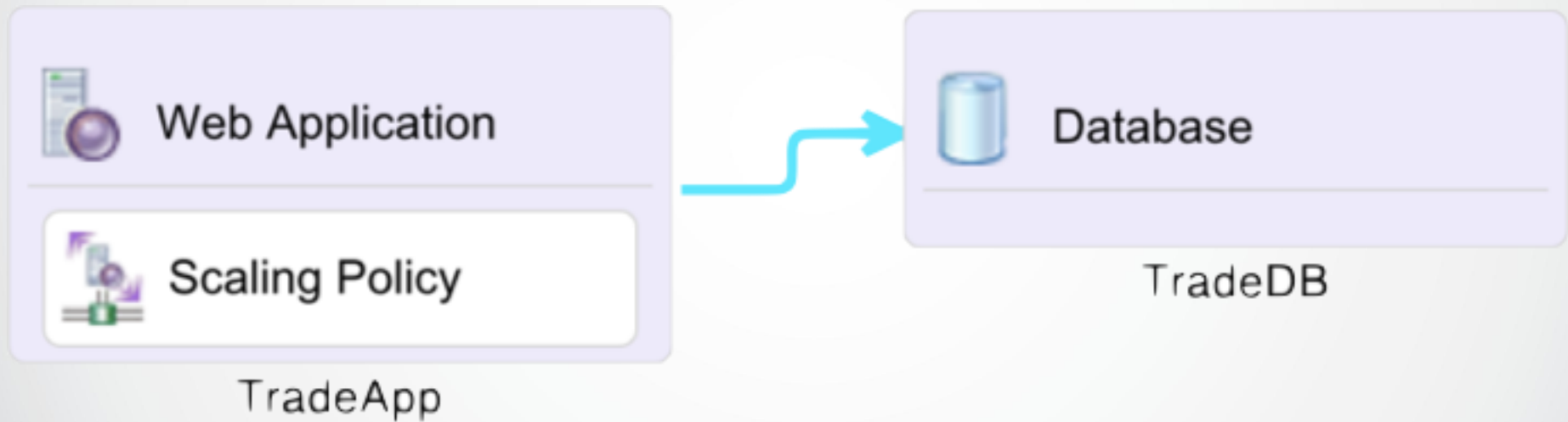
Blocks Reads Per Second Blocks Written Per Second

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Cloud

IBM Workload Deployer

5 Elasticity





Scaling Policy

Initial instance number: *
2

Enable session caching: *

Scaling Setting

Instance number range of scaling in/out: *
1 10
Range: 1 - 5

Minimum time (sec) to trigger add/remove: *
120

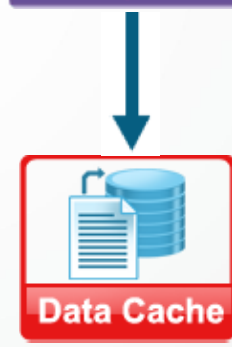
Application Scenario

Basic

Scaling in/out when CPU usage is out of threshold range(ms): *
9% 100%
Range: 20% - 80%



8 Resilient Discrimination



Deployed to the Cloud

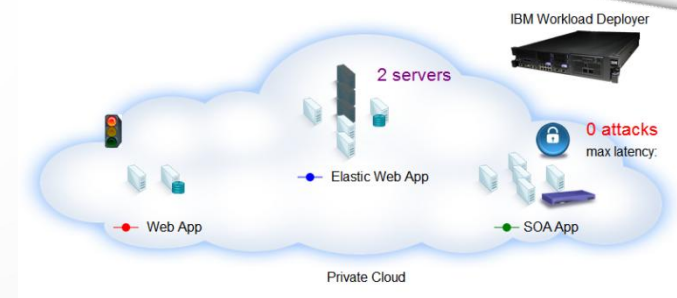
Architecting the Cloud

IBM's Cloud Architecture is delivering real client value

- Standards based – giving freedom of choice
- Versatility around workloads and deployment platforms
- Qualities of Service
- Flexible Deployment Models

IBM's Cloud Offerings simplify the delivery of these capabilities

- For example, IBM Workload Deployer





ibm.com/smartcloud