



Revving up the Engine of Virtualisation: The Gear Shift for Cloud Computing

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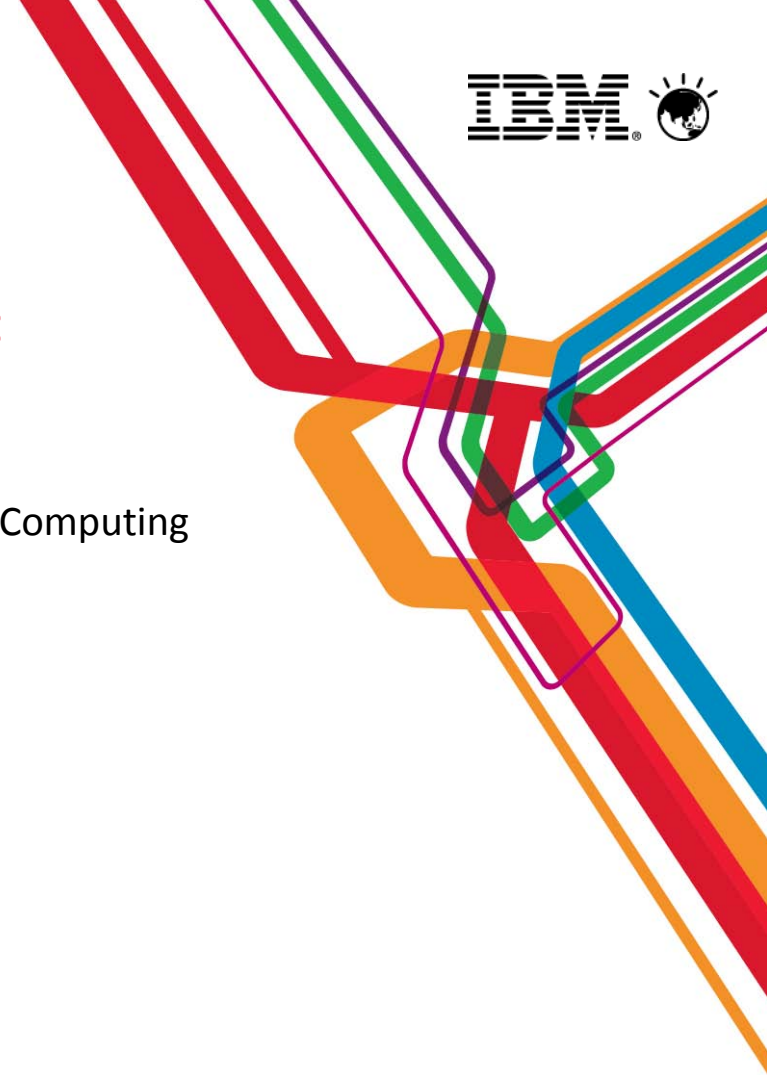
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Revving up the Engine of Virtualisation: The Gear Shift for Cloud Computing

- How are you doing with your Virtualisation? Good probably.
- Hypervisor? Check!
- Lots of activity? Check?
- Expense under Control? Hmmm, Next?
- Meeting the Business Objectives and Deadlines? Errr!

For many of us virtualisation has been a long journey, we can see the end of the tunnel (or is that just oncoming traffic?) and the Business is demanding more. Now! What, in practical terms can we do next to leverage our virtualisation, and exploit the 'Cloud Advantage'.

Roadmap Milestones



Beyond Virtualisation

Speed Delivery

#2 priority is to align Cloud delivery to the velocity of the business.

43% want more efficiency in cloud service delivery

Optimize QoS

54% are unsure of how many cloud services were being used

70% report little confidence in the ability to monitoring cloud services usage

44% say lack visibility into cloud access points as the top security concern

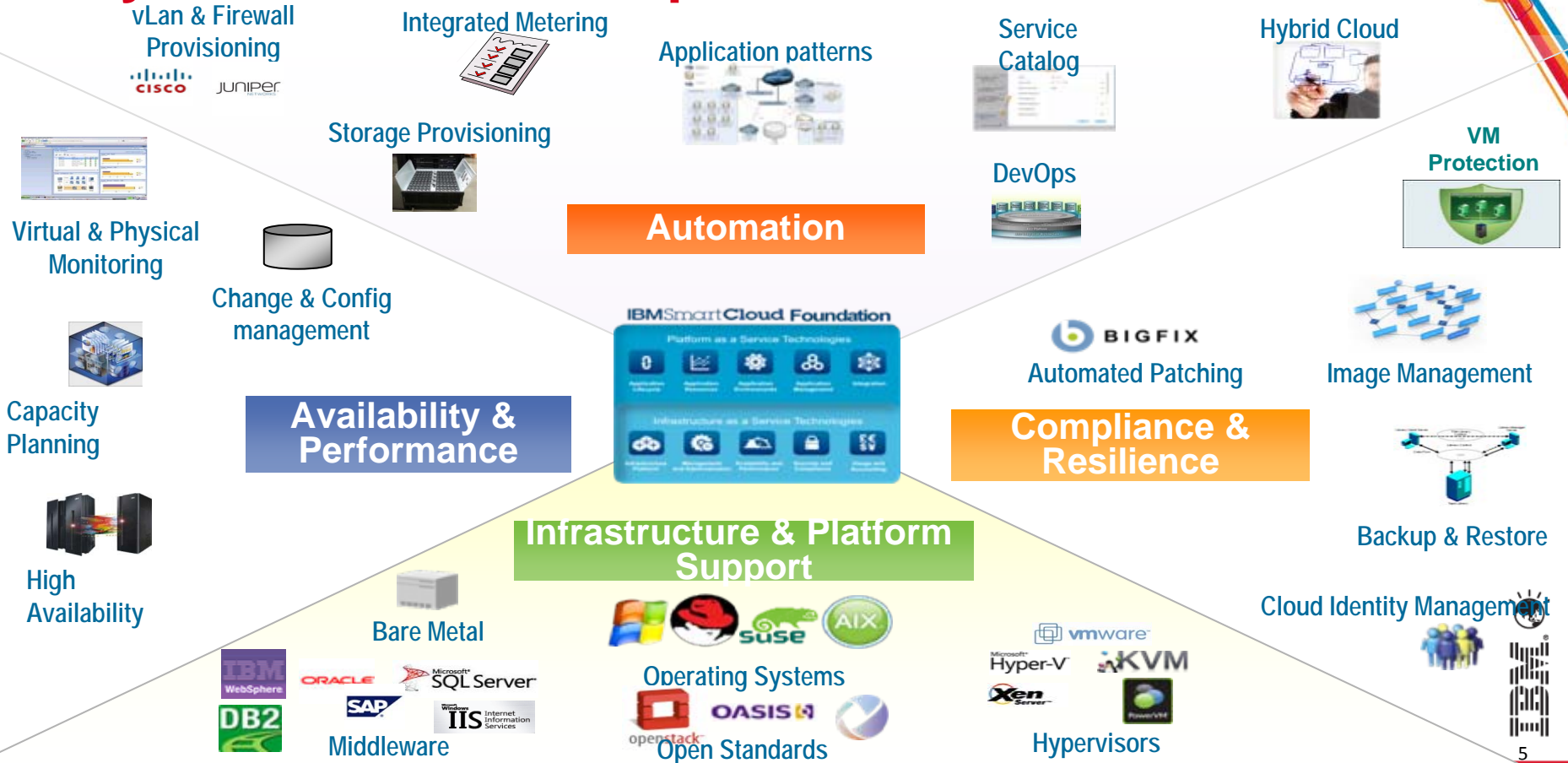
Control Complexity

40% loss of control and governance is a top concern

80% focused on Cloud processes and management processes [#1 rank]

45% need more dynamic control of storage due to Cloud by 2015

Key Elements of Enterprise Virtualisation & Cloud



Journey to Cloud (some key markers)

- Cost Avoidance
- VM Sprawl Management
- Automated Remediation
- Workload Placement
- Faster Provisioning
- User Enablement
- Security

Innovation vs Cost Reduction

The case for innovation

Cost savings fund new IT services and projects for more clients

More developers enter the market with ready access to IT, best practices, tools and processes

New applications increase the speed, volume, and quality of innovation

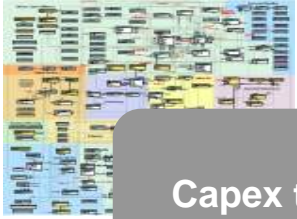
New business models, operating models, technology and organizational designs foster innovation



The case for cost reduction

- IT costs reduced through virtualization, standardization and automation
- Cloud development environments reduce the cost of tools and software with as-a-service delivery
- More applications can be developed for lower costs and consistent quality
- New IT services and applications enable business and operating model change to further reduce costs

Cloud innovation and cost drivers create value



Capex to Opex



Lower IT
Operating and
Capital Costs



Fine grained IT
services with very
rapid provisioning

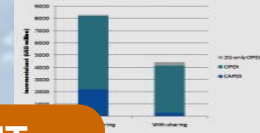
Cloud Game Changers



Standardization
enabled by
integrated service
management



Faster access to the
latest technology
and powerful
computing



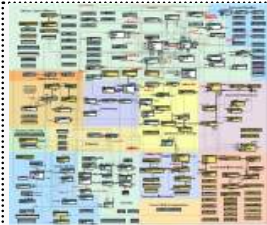
Removing IT
complexity from
end users

Cost Drivers



Lower IT Operating and Capital Costs

- Optimize, consolidate, reduce servers and energy costs
- Reduce labor costs and provisioning time
- Improve capital utilization and reduce license costs
- Improve quality, reduce software defects
- Reduce end user IT support costs



Capex to Opex

- Avoid upfront infrastructure cost and financial risk; replace with monthly operating expense
- Move from today's typical IT capital budget model (35% applications, 60% infrastructure, 5% other) to a more flexible cost model



Standardization enabled by integrated service management

- Reduce application complexity
- Reduce deployment, administration, and support costs
- Eliminate barriers to making changes and upgrades
- Drive controls and compliance to mitigate risk



Innovation Drivers



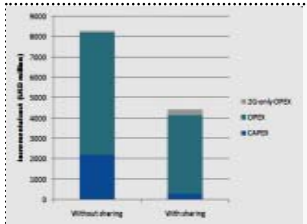
Fine grained IT services with rapid provisioning

- Developers share a cost efficient IT environment
- Services are available when they are needed, for as long as they are needed, from any device anywhere that has network connectivity
- New tools, environments, and services become available to all developers



Faster access to the latest technology and powerful computing

- Resources and funding is available for ideas and applications that were previously too expensive
- Lower costs encourage experimentation and innovation
- Large compute and storage intensive applications become affordable and available



Remove IT complexity from end users

- End Users get rapid access to easy-to-use services without worrying about technical details
- Technology becomes almost invisible to the end user
- Optimization and standardization creates efficiency, allowing all users to focus on productivity and innovation

IBM SmartCloud Foundation

IBM SmartCloud Foundation



AUTOMATION

- Integrated lifecycle management of cloud services (DevOps)
- Collaborative service development, testing and service provisioning
- Customized workload patterns tied to provisioning engine

CONTROL

- Simplified administration enabling rapid, scalable provisioning while controlling image sprawl
- Reduce service disruptions with integrating service desk, change & maintenance management
- Lower costs and improve overall performance by virtualizing and better controlling storage resources

VISIBILITY

- Improved visibility into the performance of cloud resources and services optimizing usage & QoS
- Health analytics for capacity planning and workload placement improving utilization
- Secure the Cloud by enforcing policy-based access controls, including from mobile devices

NEW!

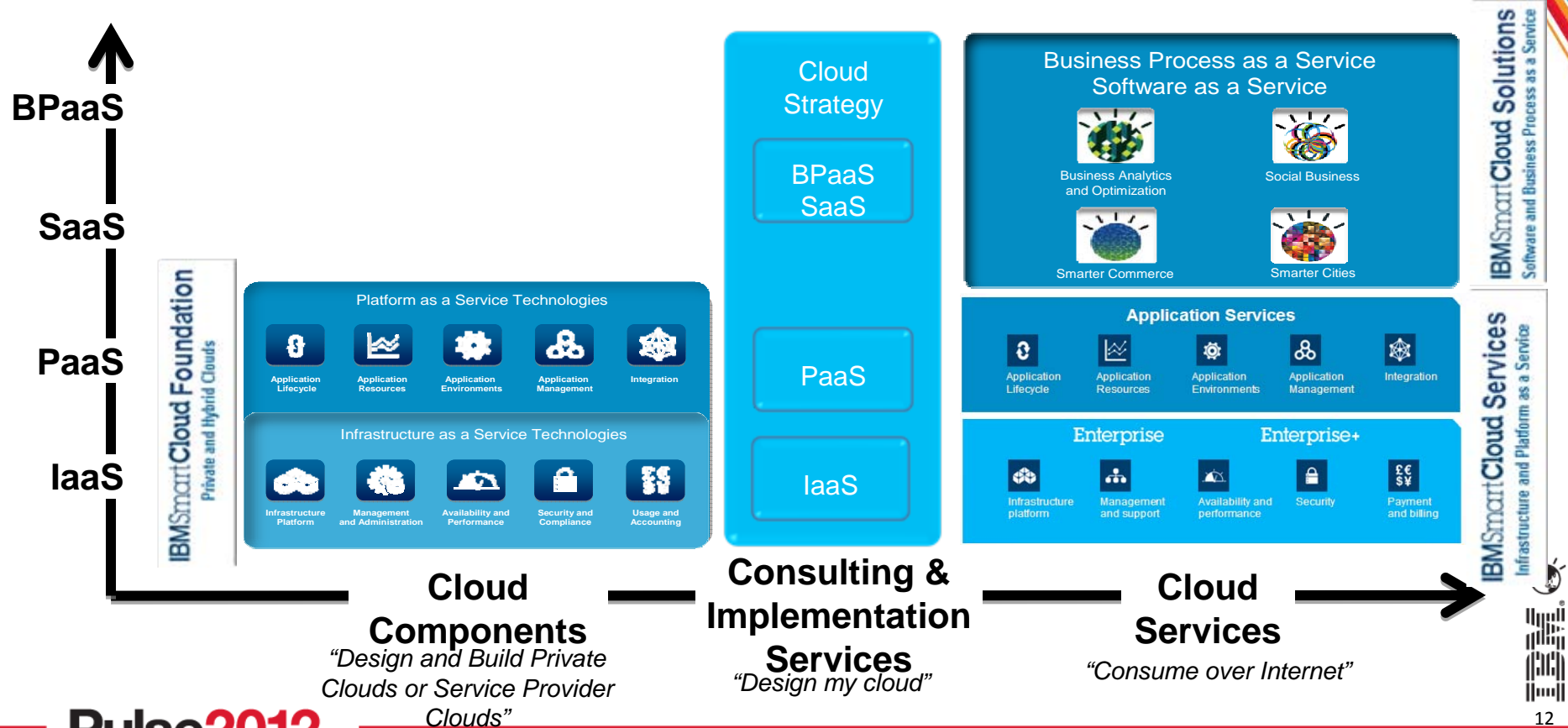
- IBM SmartCloud Control Desk
- IBM SmartCloud Storage Continuous Delivery
- IBM SmartCloud Virtual Storage Center

Updated

- IBM SmartCloud Provisioning
- IBM SmartCloud Monitoring
- IBM Identity/Access and IBM End Point Manager



IBM SmartCloud Portfolio - mapped





Dutch Cloud

- Rapid service delivery with high degrees of automation.
- Customer isolation for multi-tenancy.
- Customer and management traffic separation.
- Integration with IBM V7000 storwize for non-local storage.
- Easily extensible platform, supporting simple customisation.
- Highly scalable and able to recover autonomously from failures without interruptions to the service (no outages).
- Ability to “brand” the portal/GUI for specific customers.
- Ability to support a reseller model, and segregate resources.
- It works...consistently, reliably, quickly, and with minimal administration.

Customer Deployment Scenarios

Rapid service delivery of IaaS & PaaS Problem:

Customers want to respond quickly to business events, and need to provision new server resources in a few minutes. **Benefit:** SCP Allows us to provide a new level of responsiveness and agility that customers are finding extremely beneficial to them, and driving more revenue for us. (It's a differentiator)

Development of Sharepoint Services Problem: One of customers uses high end laptops for the development of Sharepoint sites for its customers – due to their hardware & storage constrained IT environment. **Benefit:** SCP allow us to offer Sharepoint PaaS images that can not only be provided quickly, but with regular versioning on images for snapshots. This offers a huge cost saving to the customer and improved agility.

Disaster Recovery of IaaS & PaaS

Problem: Customer wants DR capability for IaaS for the provision of 200 machines within an SLA of 60 mins. Typically this is done by having dedicated hardware on warm/cold standby.

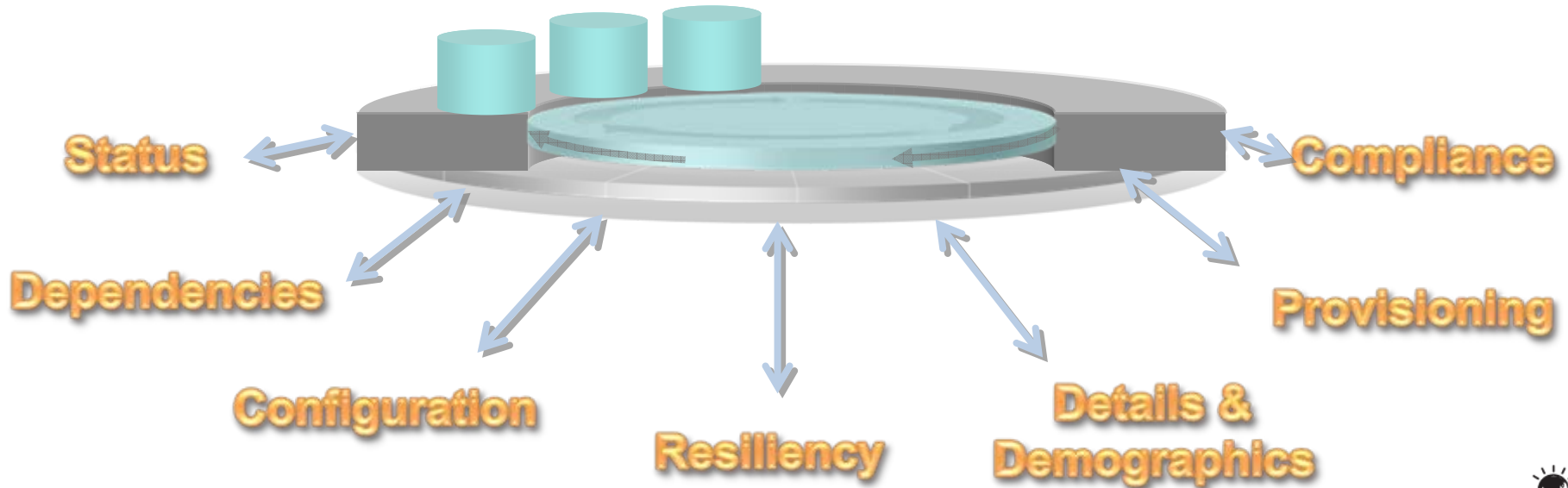
Benefit: SCP means that we do not need dedicated hardware, but just ensuring we have sufficient total capacity available. This increases our utilisation rates / improves costs.

Partner Reseller Model Problem: Business partners don't want to own idle capacity, but do want to scale up quickly to respond to their customer needs.

Benefit: SCP supports a reseller model where presentation UI can be branded, quotas set for soft limits and dedicated resources can be assigned to support delivery for different partners.

An Integrative Platform Architecture

...Linking capabilities and views across solutions





**Integrated
development, test
and operations**



**Business
service
management**

PLATFORM INTEGRATIONS



**Integrated
asset and
configuration**



**Integrated
cloud
operations**



**Simplified solution
configuration,
maintenance and health**

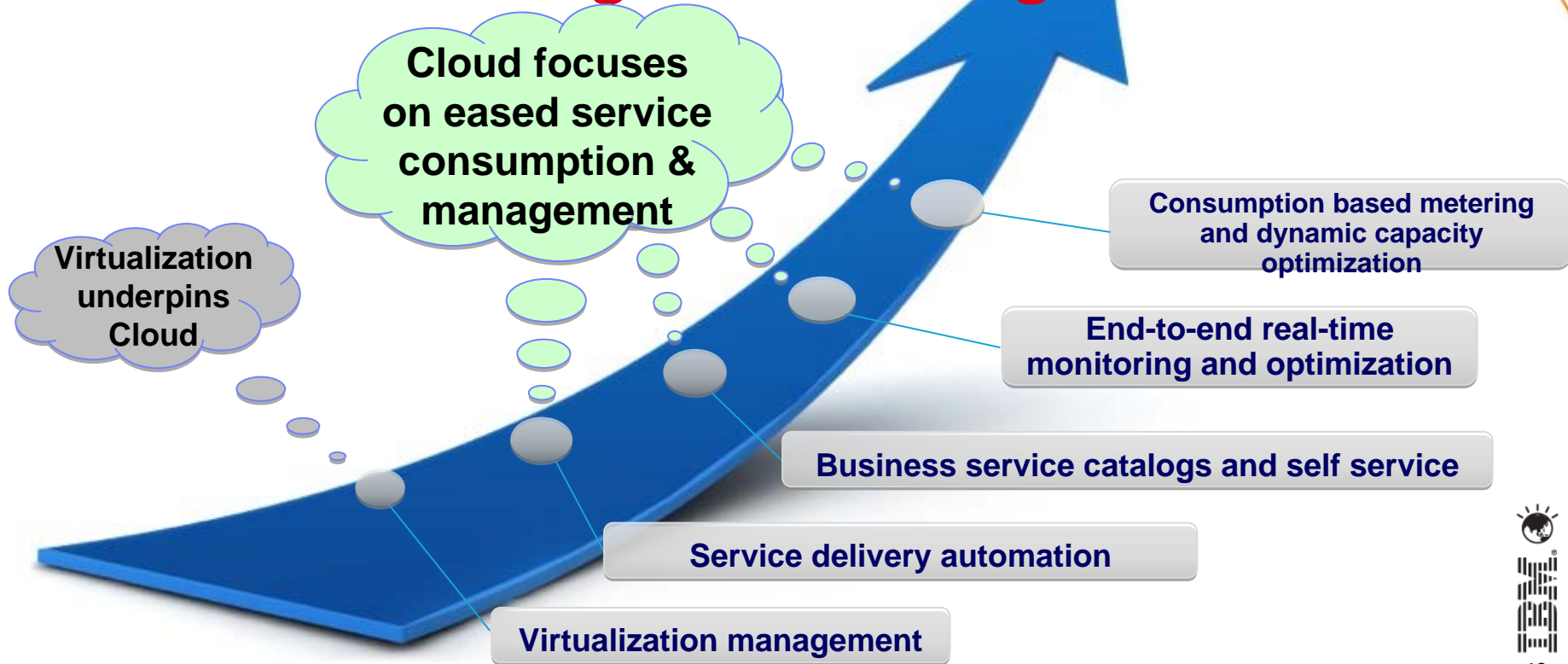
6 Shining Examples of Cloud Computing in Action

Cloud strategies should involve becoming a cloud service consumer or a provider of cloud-based offerings – or include elements of both. Cloud platforms make it viable for organizations to play both roles, blurring the lines between consumers and providers, IT and non-IT companies — and this may be the most disruptive element of all.

- 1. Through cloud cost flexibility, online marketplace gains access to more powerful analytics online**
- 2. Greater business scalability enables online video retailer to meet spikes in demand**
- 3. Greater market adaptability provides online entertainment platform the ability to reach any type of customer device**
- 4. Masked complexity enables access to services, no matter how intricate the technology they're built on**
- 5. With context-driven variability, “intelligent assistants” are possible**
- 6. Ecosystem connectivity enables information exchange across business partners**

Ref: 6 Shining Examples of Cloud Computing in Action - Forbes <http://www.forbes.com/sites/joemckendrick/2012/02/22/6-shining-examp...>

Organizations are now moving beyond virtualization to higher value stages of Cloud



Getting Started with Private or Hybrid Cloud

- Set cloud goals based on business objectives
- Adopt a portfolio view of your infrastructure
- Target workloads for private or hybrid cloud
- Evaluate cloud computing models
- Deploy a proof of concept (POC) based on a standard architecture

Rethinking IT For Innovation & Competitiveness

Simplify
Standardize
Automate

Complexity
Tools "du jour"
LoB bypassing classic IT

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Photographs shown may be engineering prototypes. Changes may be incorporated in production models.



DutchCloud Case Study

<http://tinyurl.com/dutchcloudcasestudy>



About Dutch Cloud

Dutch Cloud

- Founded in 2009 with HQ in The Netherlands.
- Team with long-term experience on Cloud Computing.
- 100% committed to IBM.
- Delivering “Private Clouds” (from a shared environment).

Focus on

- IaaS (Infrastructure as a Service).
- the SMB Market in The Netherlands.
- Partner Delivery Model (including Resellers).
- Complex architectures.
- Automation & Standardisation.
- Adding network integration (Dutch Cloud is also ISP).
- Adding simple tools; easy to use and easy to maintain.



Dutch Cloud Solution Architecture

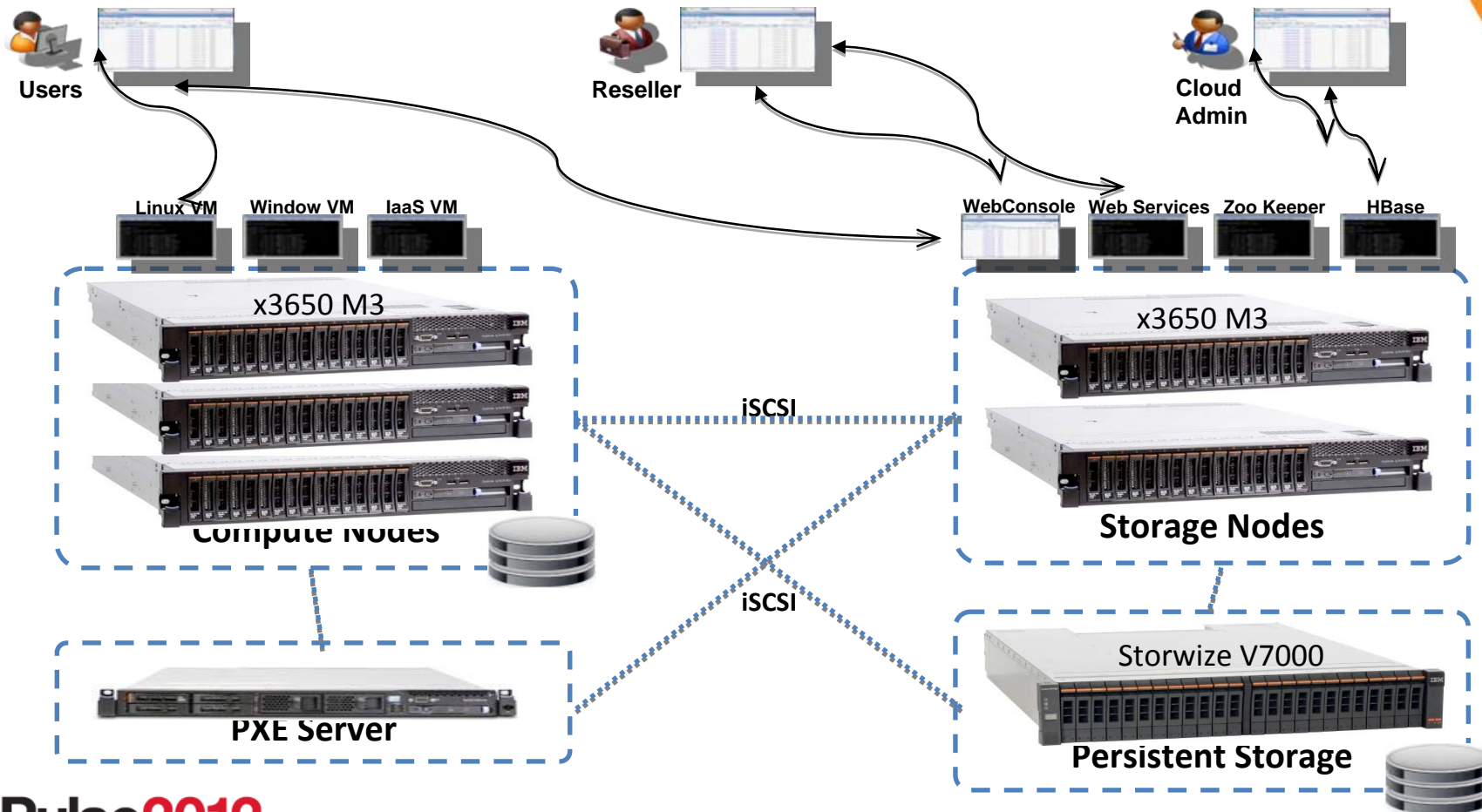
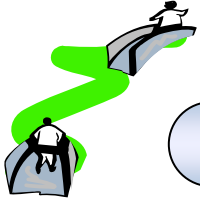


Image Sprawl



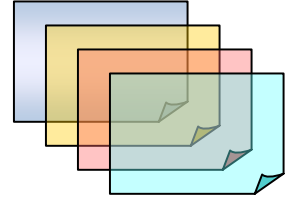
1

In the beginning, there was the **perfect image**...



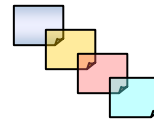
2

Then users starting **making changes** and “snapshots”...
...and what they put in the images is unknown...



3

Then they get copied to **multiple locations**...
...and some change again...



4

Then you need to apply a critical security patch...**how?** ... **where?**