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Lessons Learned: Business agility through open standards & cloud

经验谈：开放标准、开放云计算与敏捷业务



主题

1. 与时俱进的标准化过程

-- 推动业务发展的崭新标准化方法

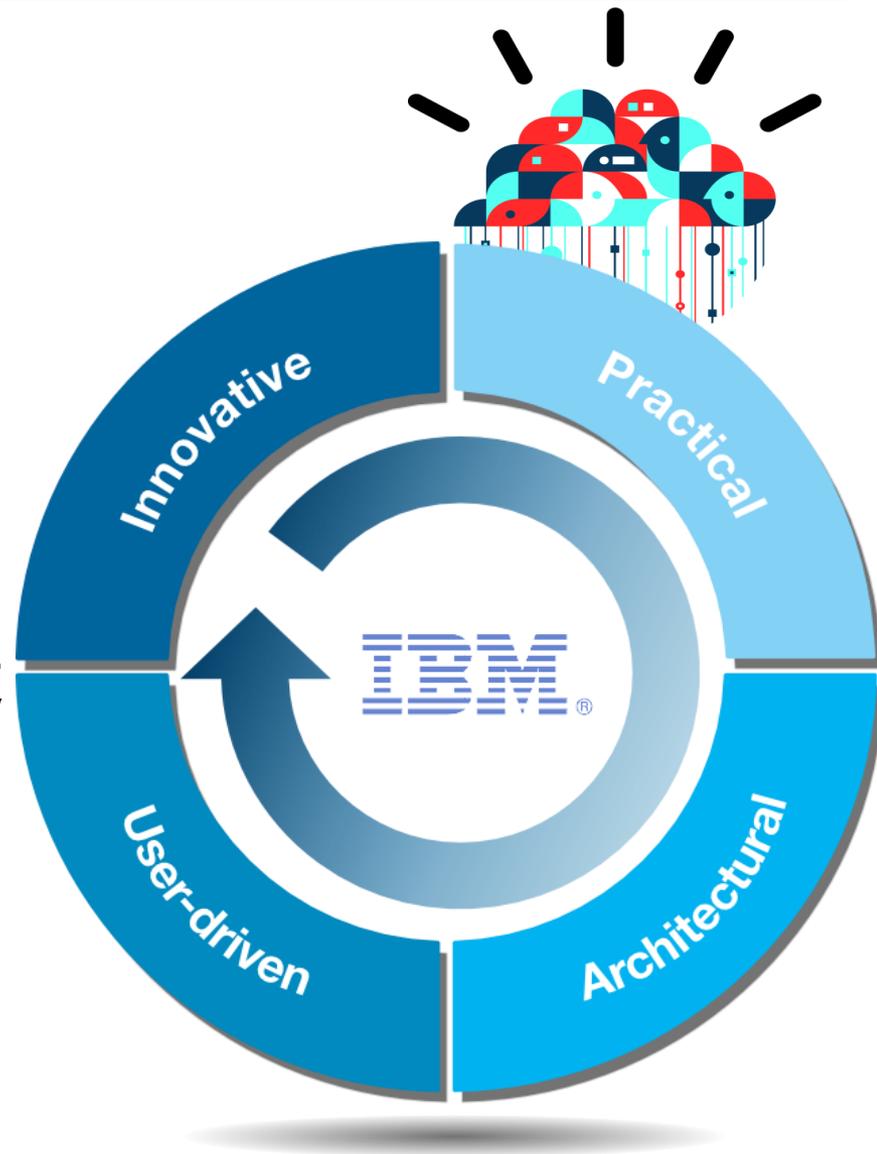
*It's not your parents standards process
- A new approach to standards drives
business results.*

2. 达成敏捷业务的开放标准与开放云计算之道

*Business agility through open standards &
cloud*

3. 经验谈：成功应用云计算的三部曲

*Lessons learned: 3 steps to successful
adoption of cloud computing.*



在世界各地，业务发展都面临前所未有的快速变化



80%

的CEO 预计未来将有重大变革和大胆举措
turbulent change & bold moves



64%

的CIO 预计将同业务主管一起来推动创新和掌控变化
drive innovation & manage change



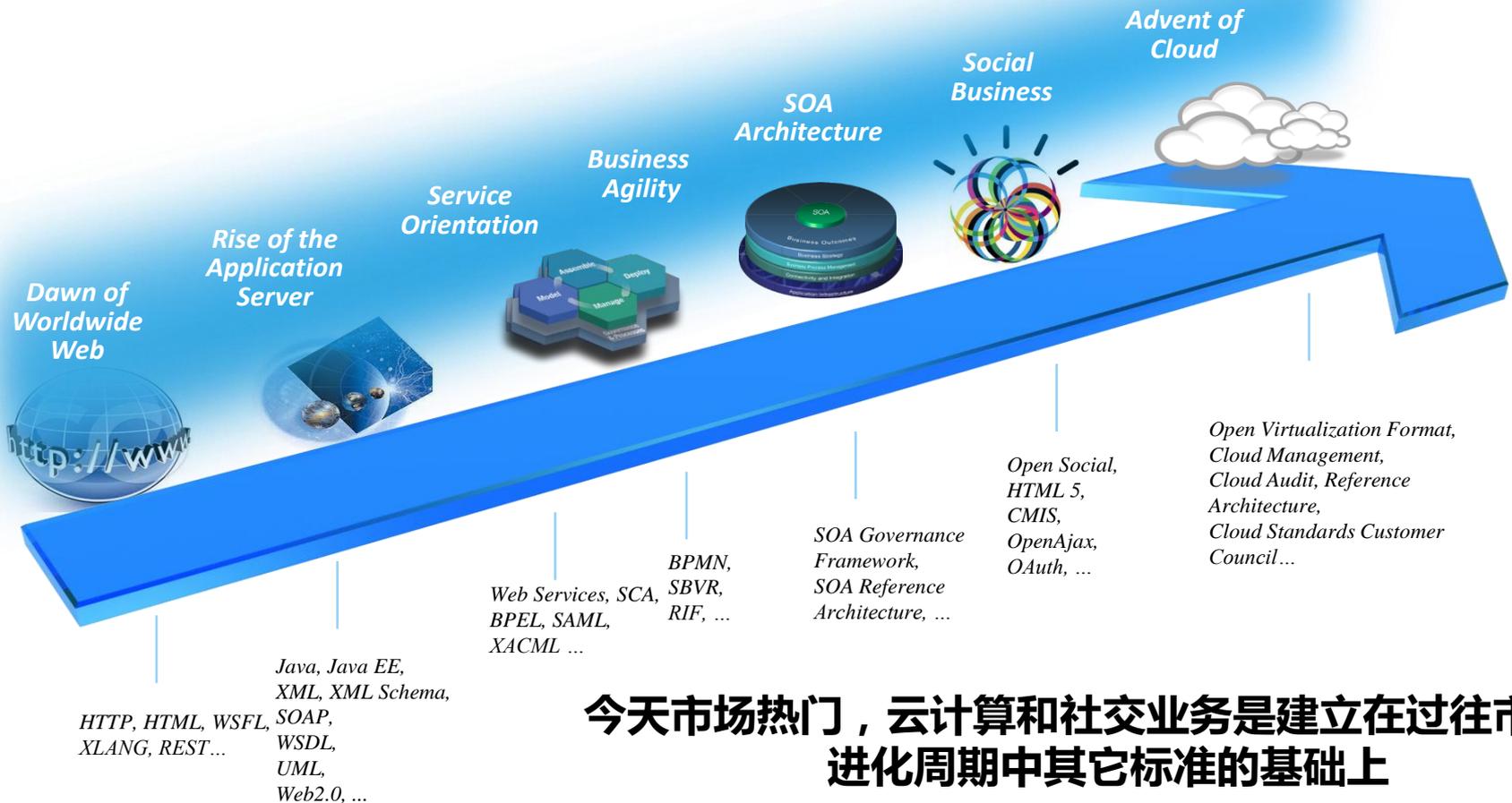
54%

的IT 预算被用于维持当前运维，创新所需投入严重不足
limiting investments in innovation

* 来源: IBM 全球CEO调研报告

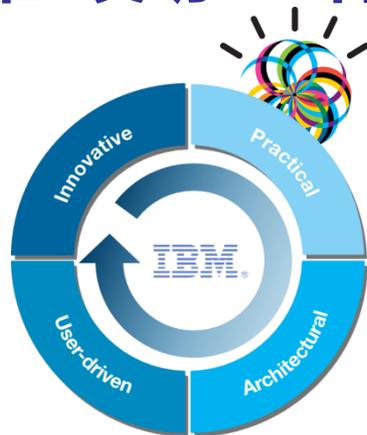
Standards allow enterprises to manage & leverage change across market evolution cycle

标准使得企业有能力应对甚至利用市场进化周期



今天市场热门，云计算和社交业务是建立在过往市场进化周期中其它标准的基础上

开放标准: 发明? “再” 发明?



“再” 发明标准
reinventing standards

还是

利用现有标准
using existing standards

厂商推动的标准化
vendor-driven standards

还是

用户推动的标准化
customer-driven standards

私有的云计算技术
proprietary Cloud Computing tech

还是

可互操作的云计算技术
Interoperable Cloud Computing tech

还是某种折中...?

智慧的标准化进程：互操作、灵活、用户驱动 A Smarter Approach to Standards Development

Interoperable. Flexible. Customer Driven.

创新为要 *Innovative*

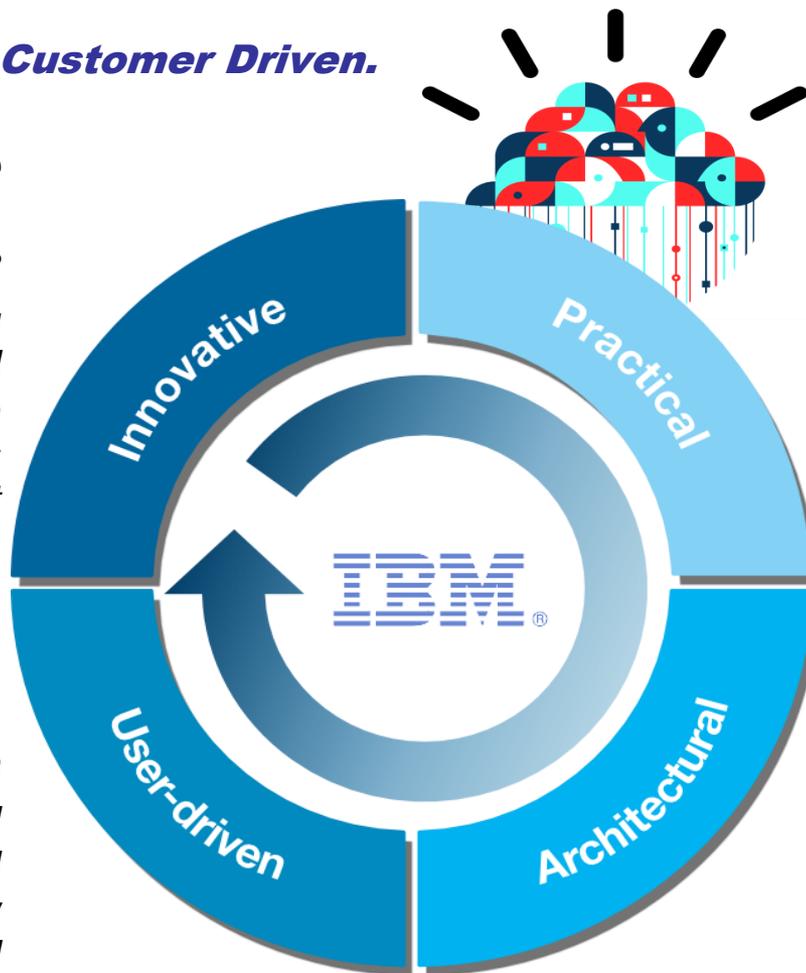
*Open standards for cloud:
Invention? Reinvention?*

*Cloud computing is changing
the economics of IT and
requires a rethinking of how we
all engage in standards
development*

**Cloud
Standards
Customer
Council**

用户至上 *User-driven*

*The members of the Cloud
Standards Customer Council
create a cross-industry view
into market-leading Cloud
use cases and best practices*



Practical 实用为先

*Business success is not
theoretical. Practical cloud
computing is grass roots
plain and simple: it involves
leveraging real world
implementations of standards
& open source*

Architectural 架构为纲

*Standards allow enterprises
to manage change across
market evolution cycles
extending the value of
customers' services based
architectures and
investments*

标准化的版图正在改变。

目前，多种标准化模式在不断自身演化中不断实践

行业标准组织

Industry standards organizations

Industry like automotive, retail, and communications engage their ecosystems and embrace their common challenges answering the question: *How do we solve common problems with software standards?*

国际标准组织

International standards organizations

In both national or international bodies, increasingly the global community is engaged to identify new technology directions that will yield the market growth critical for today's economy.

自发性协助团体

Ad hoc specification collaborations

Whether two companies or twenty-two developers, specification collaboration often starts with a simple idea. Increasingly innovative models of ad hoc collaboration are emerging to shape the IT landscape.

软件标准协会

Software standards consortia

Software consortia continue to generate strong IT sector participation and generate the software interoperability standards critical to compete in today's integrated global economy.



**IBM正和许多如OASIS、W3C、SC38这样的标准组织一起探索改革之路，
以达成“实用、严谨、创新”的纲领。**

开源、开放标准、开放架构..... 什么是开放计算？

开放标准

- 简化异构技术见的集成，促进信息共享
- 使用公开可获得的规范，提上互操作性

开放架构

- 采用诸如SOA等易于扩展业务流程的技术手段，加强协作
- 在公共规范的基础上创新

开放代码（开源）

- 利用社区开发机制，提升创新实力
- 加速开放标准应用实践



开放计算 Open Computing



云计算正在改变信息技术的经济学、正在加速向客户交付创新产品与服务

改进企业的速度、敏捷性和灵活性

改善安全、合规的掌控态势

无边界
交付信息技术能力

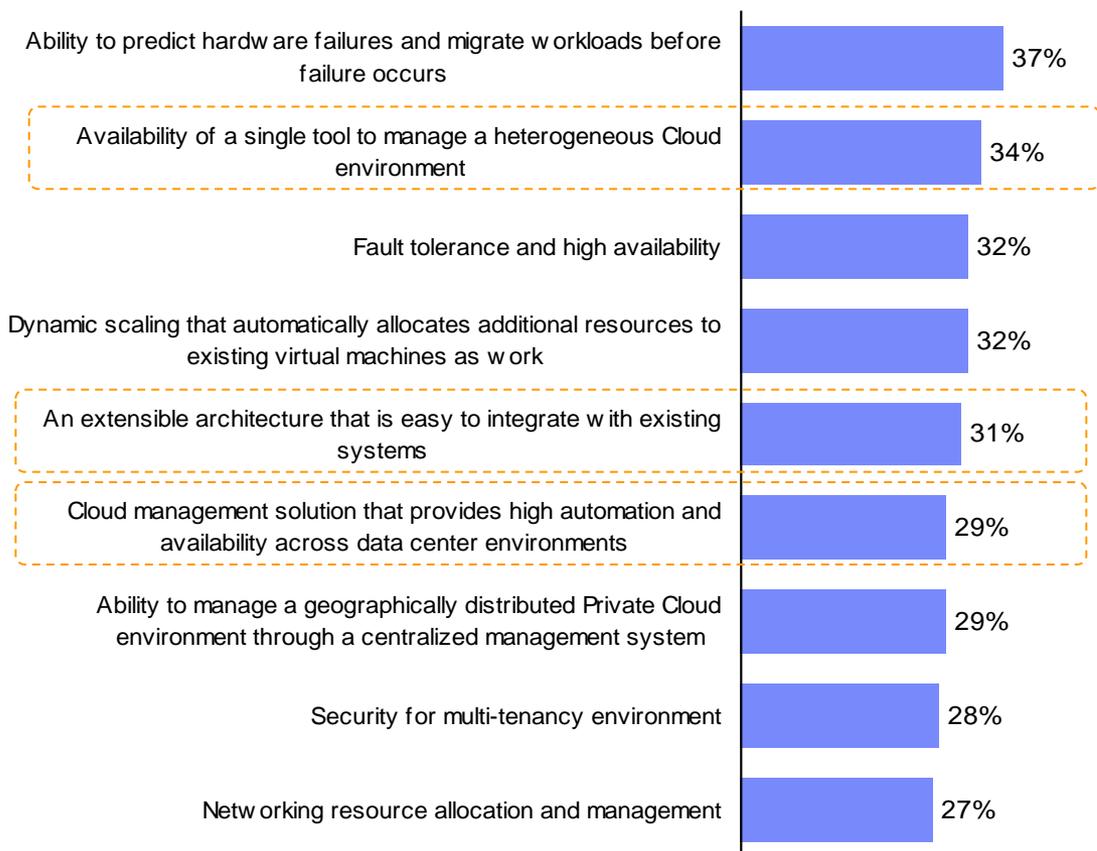
实时交付
新业务价值



标准化, 规范化, 减少不必要的复杂度

CIO: 混合云的应用大规模成长，显示对于互操作和开放性的强劲需求

Technology Features Most Often Rated As Differentiators Worth Paying Extra For
% Selecting



60%

的CIO打算使用云计算
与两年前相比提升33%

... 其中的大多数均为
混合云模式

非IT主管: 混合云应用的显著成长, 显示对于互操作、开放性的强劲需求

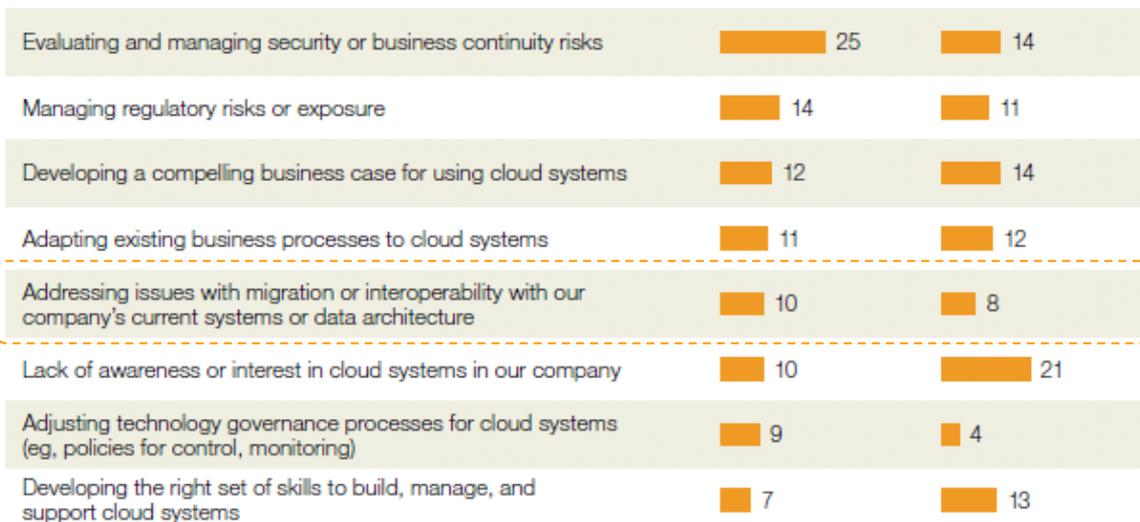
Exhibit 8

Barriers to cloud technology 应用云技术的障碍

% of respondents

Rank the top 3 barriers, if any, your company has overcome or still faces in realizing value from the cloud.

IT executives, n = 462 Non-IT executives, n = 264



60%

的CIO打算使用云计算
与两年前相比提升33%

... 其中的大多数均为
混合云模式

McKinsey Global Survey results:

How IT is managing new demands

Oct 2010

* 来源: IBM 全球CEO 研究报告



Architecture		✓	✓	✓			✓	
API	✓			✓		✓		✓
Virtualization	✓							
Management	✓	✓	✓			✓		✓
Storage						✓		✓
SLA		✓					✓	
Network	✓							
Security	✓	✓	✓		✓			



Dozens of new communities and organizations have formed around cloud standards including industries and governments

IBM Leadership / Participation

IBM Monitoring

The Cloud Standards Customer Council 云计算客户委员会



- 为各云标准研发机构提供客户为上的指导意见
Provide customer-lead guidance to the multiple cloud standards-defining bodies
- 确立基于开放标准的云计算的基础条件
Establishing the criteria for open-standards-based cloud computing

2012年2月CSCC成立新的安全工作小组，

The Kroger Co. 和波音公司成为首届联席主席

- 研发代表客户关注点和困难点的优先级别云安全用户用例
- 引入安全架构标准，标识合规所需能力和备选方案
- 表彰云安全最佳实践

2012年2月CSCC成立新的SLA小组”

波音公司和IBM成为首届联席主席

- 撰写帮助企业IT部门分析SLA的实用参考
- 开发用于评价、比对不同厂商SLA的关键条件检查表
- 研究标准在提升不同云提供商的互操作性方面的作用

展望2012 的工作组 & 项目

用例: Entry, Provisioning, Orchestration & Continuous Delivery (DevOps)

差距分析: DMTF CIMI (IaaS API) & OASIS TOSCA

协调多个标准组织间的云计算用例和场景: DMTF, OASIS, SNIA, TME, TOG

健康卫生工作组 & 政府工作组

300+

公司、机构、团体的积极参与

50%

以上的成员为IT用户

2011 年度的成绩单:

- 云计算实用指南
- 云计算用户用例
- 云计算的业务模式.

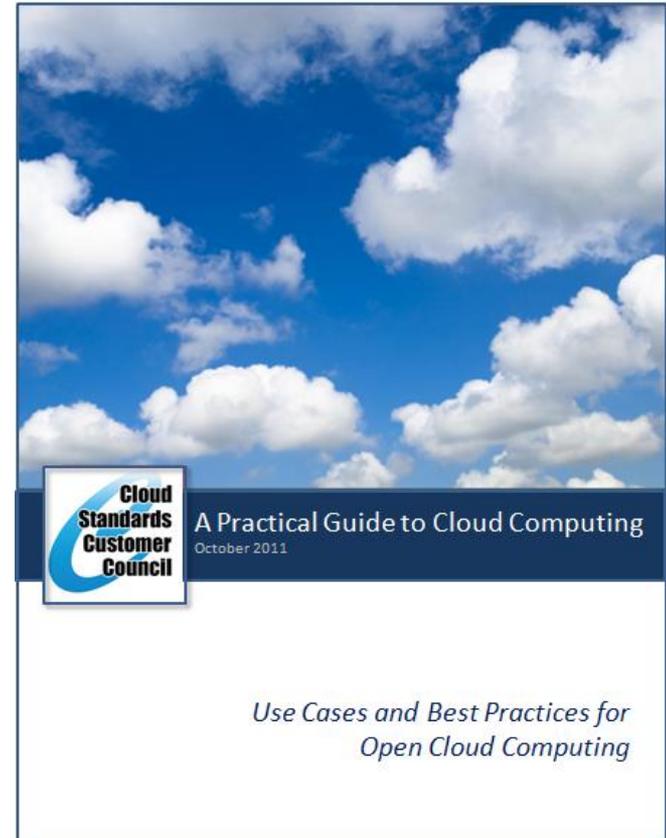
SmartCloud



CSCC云计算实用指南 Practical Guide to Cloud

《CSCC 云计算实用指南》详尽描述了成功导入云计算所需的规范性规划(prescriptive plan)和关键评价因素(key considerations)

- ✓ Assemble your (cloud consumer) decision team
- ✓ Develop business case and an enterprise cloud strategy
- ✓ Select cloud deployment model(s)
- ✓ Select cloud service model(s)
- ✓ Determine who will develop, test and deploy the cloud services
- ✓ Develop a proof-of-concept before moving to production
- ✓ Integrate cloud solution(s) with existing enterprise services
- ✓ Develop and manage Service Level Agreements (SLA)
- ✓ Manage the cloud environment



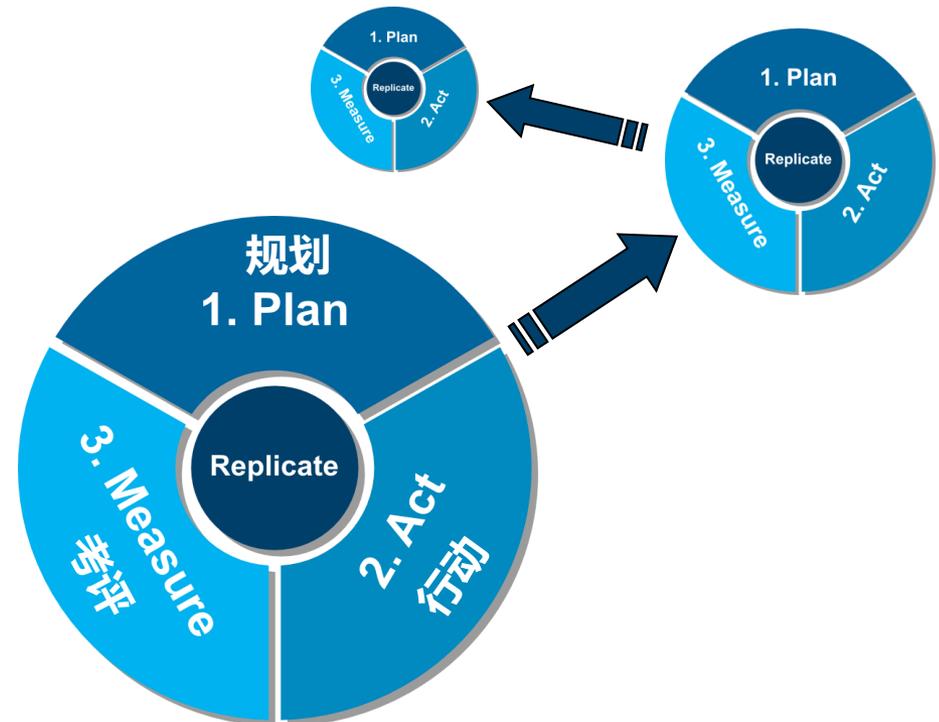
World wide launch & public release webcast hosted by Melvin Greer (Lockheed Martin – CSCC Steering Group Chair) on Oct 5, 2011

http://www.cloudstandardscustomerCouncil.org/CSCC_PG2CC-10-04-11.pdf

成功应用云计算的三部曲

1. **规划 Plan** – Identify your cloud computing advocates and form a cross-functional team to develop your business case and articulate the expected returns from empowering processes with Cloud Computing
2. **行动 Act** – Develop a proof of concept by leveraging the appropriate technology that extend existing solution investments
3. **考评 Measure** – Obtain stakeholder agreement for the proof of concept and establish the metrics of success by which the project will be measured

Evaluate each implementation, replicate successes & build upon consecutive investments to grow a comprehensive cloud infrastructure program



Grounding the advice on a real success story!



*North Carolina State
University, circa 2004*

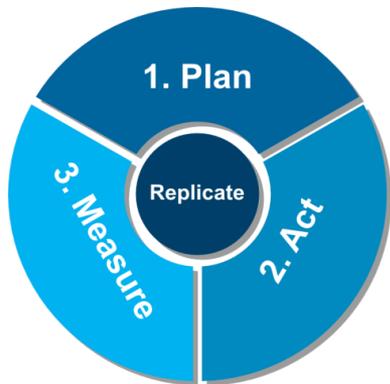
"We reached a critical point – at a time when we were confronting serious challenges to the campus' student computing model, the NC Supercomputing Center closed due to state funding cuts. Unfortunately, only 50% of the amount needed to solve both problems was available, leaving us with the option of doing both services poorly or inventing a novel solution without any reassuring evidence that one existed. We chose latter course of action, daunting being preferable to failure, and the rest is history."

*Mladen A. Vouk, Head of Computer Science, and Associate Vice-Provost for Information Technology
Samuel F. Averitt, Vice Provost Information Technology*

The successful adoption of cloud computing

第一步：规划

- *Establish a balanced IT / Business team, with members who are passionate about driving change & represent a diverse set of organizational interests*
- *Plan small, inexpensive, easy-to-action projects that are assured to be successful due to their simplicity*
- *Leverage each small success to build a transformational momentum that can be used to grow a larger program*

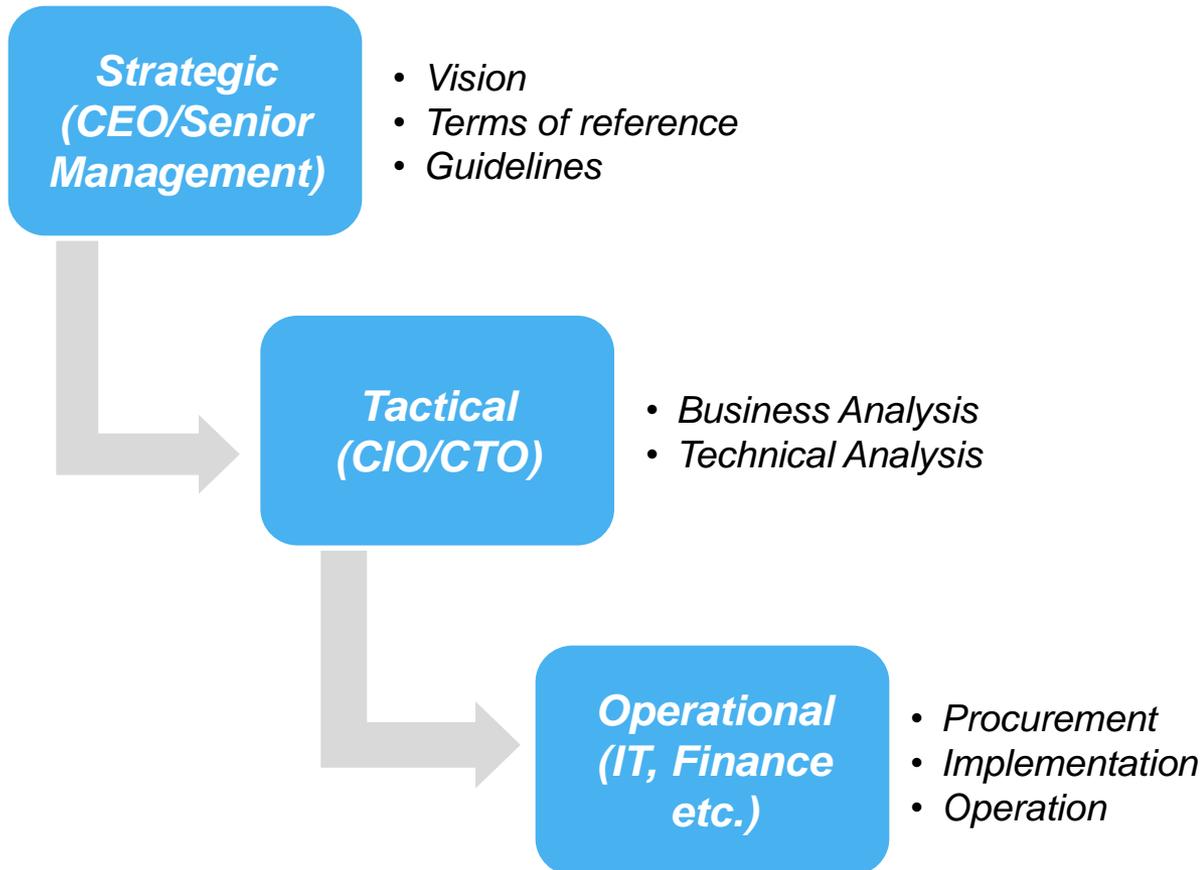


[The plan] would deliver the core functionality as soon as possible without the risks of a “big bang” approach.

*~Samuel F. Averitt
Vice Provost Information
Technology*

 **Assemble your (cloud consumer) decision team**

Bringing IT and line of business together to leverage the cloud



- **Business leaders will leverage cloud to increase sales/revenues**
- **Senior management leadership is critical**
 - Make final decisions
 - Accountable for success
- **Technical leaders drive detailed business and technical analysis**
- **Legal / Admin integral to team support**
- **Education is important at all levels and varies by recipient**



Develop business case and an enterprise cloud strategy

Key Elements of Strategic Planning

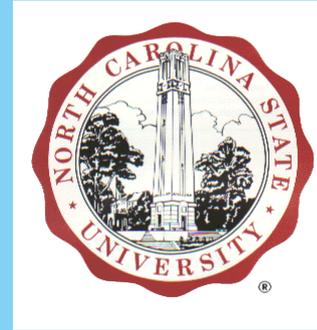
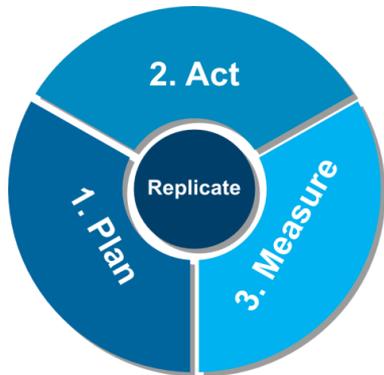
Educate the team	All team members (IT, business, operations, legal) must be educated on what cloud computing is and what it is not
Consider the existing IT environment	Develop a complementary cloud adoption strategy focusing on integrating and leveraging existing technologies and standards
Understand required services and functionality	Determine business justification and potential ROI and/or potential new revenue opportunities
Establish a long term plan	Reduce risk of vendor lock in and disconnected cloud services – avoid increased integration and maintenance costs
Identify clear success goals and metrics to measure progress	Define benchmarks for the existing service. Ensure objective of implementing new cloud service has been achieved. Metrics need to be agreed to by executives
Understand Legal/Regulatory Requirements	Consumers must understand responsibilities associated with national and supra-national obligations. Examples include: <ul style="list-style-type: none"> • Physical location of the data • Data Breach • Personal Data Privacy • Intellectual Property, Information Ownership • Law Enforcement Access
Track results for an extended time	Identify trends that may need to be addressed to improve existing service

Strategic plan reduces potential impacts and facilitates future decisions

The successful adoption of cloud computing

第二步：行动

- *Keep an overall view of the architecture in mind, but keep projects small and manageable*
- *Extend existing architecture before building from scratch to help build confidence for more complex projects*
- *Execute tasks crisply and avoid sacrificing quality for the schedule*



...the advantage [of the solution] is its extensibility and re-use of existing servers. There is almost no limit to the range of services we can offer... we can keep adding functionality to improve the experience

~Samuel F. Averitt
Vice Provost Information
Technology



Select cloud deployment model(s)

Establish criteria for selecting the right deployment model

	Private (on-site)	Private (outsourced)	Public
Criticality of cloud services	Mission critical, security sensitive services	Mission critical, security sensitive services	Non mission critical services
Migration costs	Managing cloud software may incur significant costs	Lower costs since cloud hardware and software provisioned and managed by provider	Similar to private (outsourced) with additional security precautions to be taken into account
Elasticity	Limited resources are available. Computing and storage capacity fixed.	Extensive resources are available	Generally unrestricted in their size
Security threats	Implement same level of security as non-cloud resources	Techniques need to be applied to subscriber's and provider's perimeter	Limited visibility and control over data regarding security
Multi-tenancy	Clients would typically be members of the subscriber organization	Similar to those for Private (on-site) cloud	Single machine may be shared by the workloads of any combination of subscribers



Select cloud service model(s)

	Large Organizations	Small / Medium Business
IaaS - Primary consideration is capital expense reduction and access to IT capacity that would otherwise not be available	Private (on-site) provides a good initial transition to IaaS with relatively low risk Private (outsourced) and Public can potentially deliver added business value	May not be feasible given insufficient ROI associated with consolidating a relatively small number of existing IT assets A direct move to SaaS may be advisable for many SMBs
SaaS - Benefit from the “pay-as-you go” concept, with highly scalable offering flexibility to companies to provision and de-provision based on business needs	Consider SaaS initially for non-critical business functions to deliver improved ROI Adopt new disruptive SaaS solutions to maintain or extend competitiveness	Evaluate and identify business processes that can be enhanced by cloud-based applications to improve competitiveness with larger organizations
PaaS - Integrated development and runtime platform optimized for creating, deploying and managing cloud applications	Analyze PaaS offerings in terms of TCO / ROI and risks such as vendor lock-in, interoperability, existing IT infrastructure	Assess in-house development resource to justify the expense of a PaaS environment A direct move to SaaS may be the best alternative for many SMBs

Many organizations face the challenge of staging a gradual adoption of cloud capabilities, incrementally advancing their IT environment



Determine who will develop, test & deploy cloud services

Maximize resources to accelerate Cloud adoption

▪ *Options*

- *In-house development and deployment*
- *Cloud provider development and deployment*
- *Independent cloud service development provider*
- *Off the shelf cloud service offerings*

▪ *Critical factors*

- *Cost*
- *Responsiveness*
- *Flexibility*

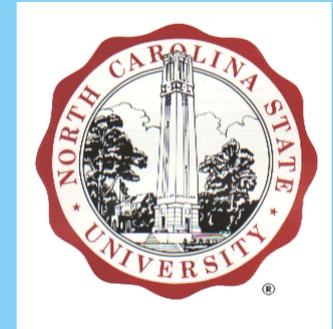
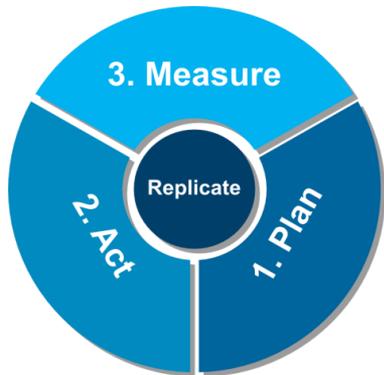
▪ *Considerations*

- *Available skills*
- *Start up considerations*
- *Updates to existing services*
- *Testing / deployment*

The successful adoption of cloud computing

第三步：考评

- *Identify clear, pertinent metrics that can be measured accurately without additional expense*
 - *Project cost vs. ongoing savings or revenue (ROI)*
 - *User experience metrics (response time, volume, usability)*
- *Ensure that measurements gauge success that is significant to stakeholders*
- *Measure consistently and honestly to make certain each project is truly having the desired impact*





Develop and manage Service Level Agreements (SLA)

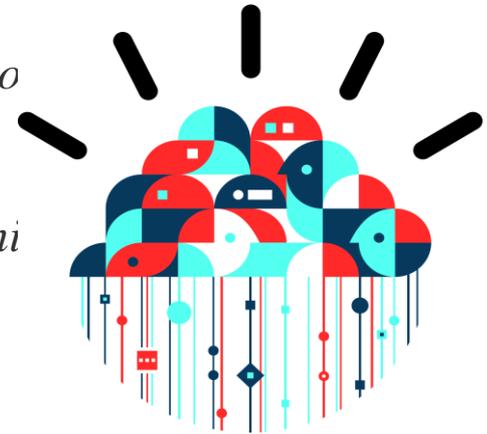
Key Elements of SLA Management

Assign core SLA team	<ul style="list-style-type: none"> • Must consist of members from IT, business, operations and legal • Must also understand the expectations of the cloud service
Develop SLA for contracted service	<ul style="list-style-type: none"> • Identifies elements which are critical to protecting the ongoing operations of the enterprise • SLA sets expectations for when issues must be resolved, and spells out any penalties and an exit strategy should the cloud provider not be able to meet the terms of the SLA
Define critical processes with the cloud provider	<ul style="list-style-type: none"> • Process to ensure issues which cause service to perform outside of the agreed to performance levels are resolved consistent with the SLA • Escalation process to elevate the visibility of issues, depending on impact, to the appropriate parties in both the cloud consumer and cloud provider organizations
Schedule regular review meetings with key stakeholders within the enterprise	<ul style="list-style-type: none"> • Objective is to review SLA status on an on-going basis • Increasing important as more cloud services are being implemented and/or the number of cloud providers increases
Schedule regular checkpoint meetings with cloud provider	<ul style="list-style-type: none"> • Establishes ongoing dialogue to ensure problems are addressed before they become major issues • Establish a trail on the status of the elements of the SLA
Maintain a continuous level of responsibility	<ul style="list-style-type: none"> • SLA does not absolve the cloud consumer of all responsibilities • Ongoing vigilance required to ensure that enterprise users continue to receive expected level of service

Take action on your cloud journey

Contact your local IBM rep

- Visit the IBM Cloud *virtual briefing center* for more information on o capabilities <https://events.unisfair.com/rt/ibm~cloudlaunch>
- Use the *Cloud Adoption Advisor* to identify cloud adoption opportuni <http://www.ibm.com/cloud/advisor>
- View demos of *IBM Workload Deployer*
<http://tinyurl.com/iwdDemos>
<http://www.youtube.com/watch?v=c4YEvw6BqnM>
- Join the *Cloud Standards Customer Council* for practical advice on architecting your open cloud:
 - Member Application: <http://www.cloud-council.org/application>
 - Practical Guide V1: <http://bit.ly/oINkU2>
 - Use Cases V1: <http://bit.ly/xeGOPk>



www.ibm.com/smartcloud

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