# USE OF CLOUD COMPUTING BY SMALL AND MEDIUM ENTERPRISES

Introduction

- Small and Medium Enterprises (SMEs) are the drivers of a nation's economy

- SMEs are leading the way for entering new global markets and for innovations in the emerging markets

- Cloud technology are well suited for SMEs as they do not have significant amount of resources and technical expertise to set up the appropriate infrastructure so as to compete with their larger competitors

KEY DRIVERS OF CLOUD COMPUTING ADOPTION IN SMEs
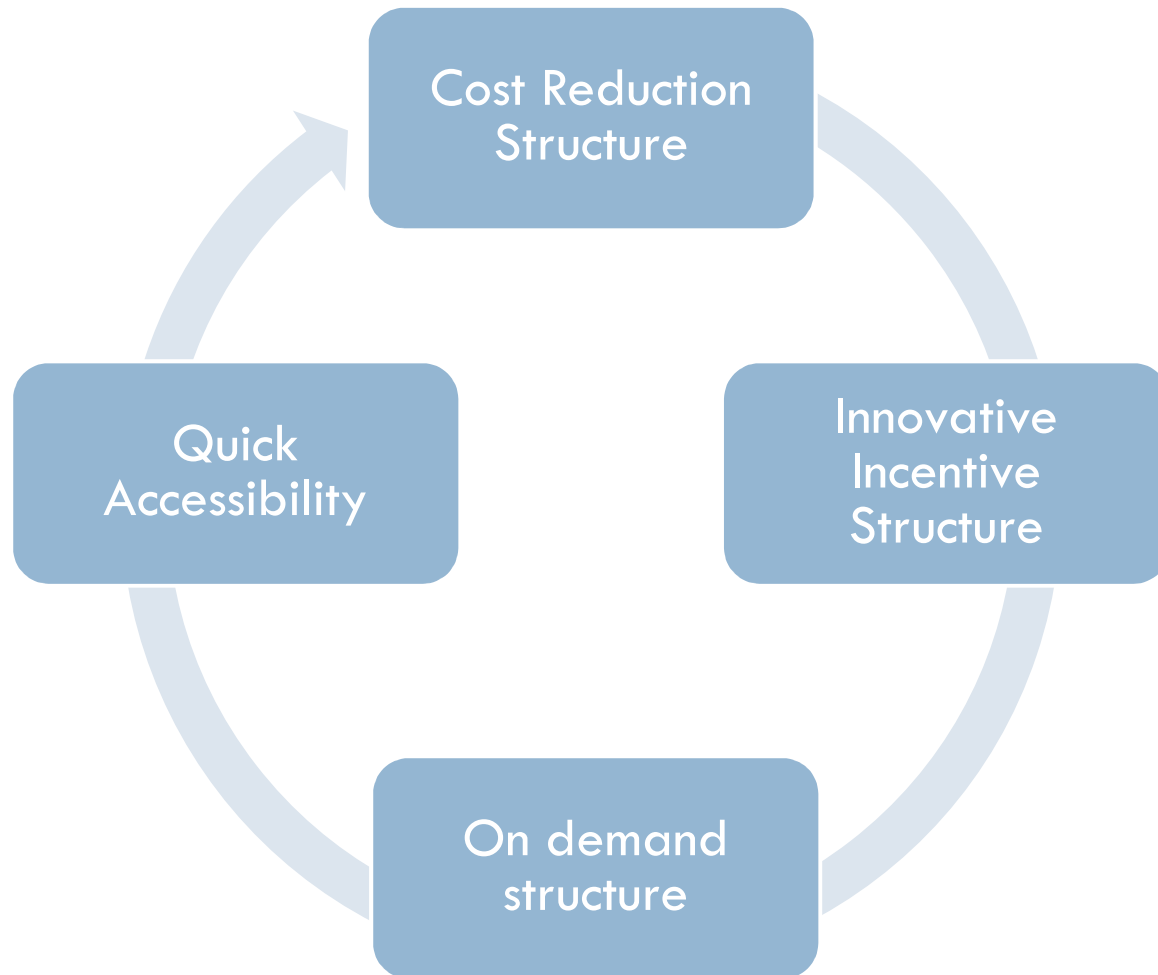
Cost Reduction Structure

- Cloud computing approach remarkably decreases the cost of entry for SMEs

- SMEs can benefit from compute-intensive business analytics that were available only to the largest of companies

- SMEs in the developing countries can compete and propose their new IT solutions globally

Source: Cloud computing - The business perspective, S. Marston et al, Decision Support System 51, 176-189, 2011.

Quick Accessibility

- Cloud Computing can give quick access to hardware resources with no requirement for upfront capital investments

- Faster time to market in many businesses

- Startups like 37 Signals (web designing), Jungle Disk (on-line storage), Gigavox (podcast), SmugMug (photo website) realized with investments in IT that are order of magnitude lesser than that required a few years ago

Source: Cloud computing - The business perspective, S. Marston et al, Decision Support System 51, 176-189, 2011.

Innovation Incentives Structure

□ Cloud Computing can lower IT barriers to innovation, as can be witnessed from many startups like the online applications such as Facebook and Youtube to the more focused applications like TripIt (travel related) or Mint (for finance)

Source: Cloud computing - The business perspective, S. Marston et al, Decision Support System 51, 176-189, 2011.

On Demand Structure

☐ Cloud computing makes it easier for SMEs to scale their services according to client demand. As they notify to need renting new resources, the required resources are delivered quickly through the internet

Source: Cloud computing - The business perspective, S. Marston et al, Decision Support System 51, 176-189, 2011.
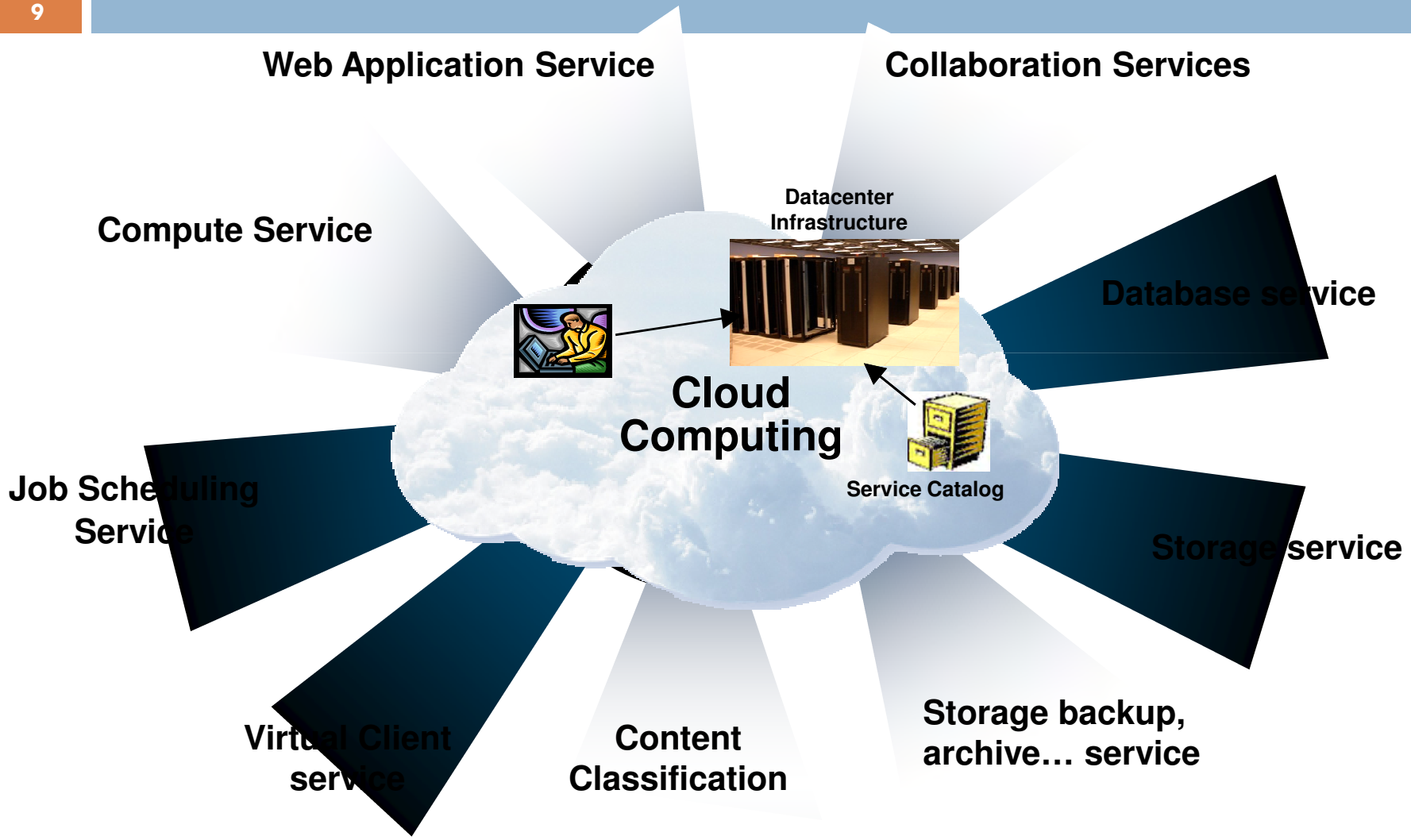
New Applications and Services

☐ Location aware Mobile applications (involving humans as well as sensors)

☐ Parallel batch processing (Google's MapReduce and Hadoop)

☐ Business analytics (use computer resources to understand customers, buying habits)

☐ Offloading of compute-extensive desktop applications

Source: Cloud computing - The business perspective, S. Marston et al, Decision Support System 51, 176-189, 2011.

Examples of Different Types of Services

Web Application Service

Collaboration Services

Compute Service

Datacenter
Infrastructure

Database service

**Cloud
Computing**

Service Catalog

**Job Scheduling
Service**

Storage service

**Virtual Client
service**

**Content
Classification**

**Storage backup,
archive… service**

Source: IBM

The Cloud Offers a Better Model for Application Development

Comparison to Build Custom Brand Promotions Application

	force.com platform as a service	Microsoft .net
Development Time	**100 Hours**	**4,000 Hours**
Time to Deploy	Instant	4 Weeks
No Hardware and Software	☑	
No Maintenance Required	☑	
No Extra Development Required	☑	
IT Administration Console	☑	
Analytics	☑	
Internationalization	☑	
Authentication & Security Model	☑	
Mobile Device Deployment	☑	
Compliance Audit Trail	☑	
End User Usability Rating	★★★★	★★

Cloud Computing Offers wider Choices

Low Cost: Subscription Model: **Pay as You Go**

Simplicity: Focus on **Innovation** not Infra

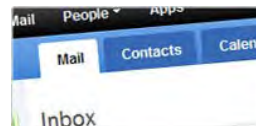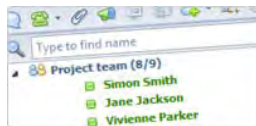**Ease Of Use:** Build and Deploy Apps **Instantly**

Global Development, Global Deployment

Source: Fortune 500 Media Corporation Evaluation

Most significant opportunity for cloud services will be in applications

	2012	2013	2014	2014 Share
Applications	15,332	17,470	20,580	37.1%
Development	4,325	6,075	8,618	15.5%
Systems Infrastructure	7,194	8,877	11,345	20.5%
Servers	4,960	6,000	7,548	13.6%
Storage	4,098	5,414	7,366	13.3%
Total	35,911	43,837	55,457	100%

1. Applications (SaaS) was the largest segment representing 37.1 % in 2014. By 2018 the market will grow from $55 B to $ 127B

2. The Applications segment includes messaging, conferencing, and team collaboration software and business applications (e.g., CRM, ERP, financial, PLM, and SCM), delivered via the cloud services model

3. Communications and collaboration applications lead the way for market entry – followed by opportunities for business applications
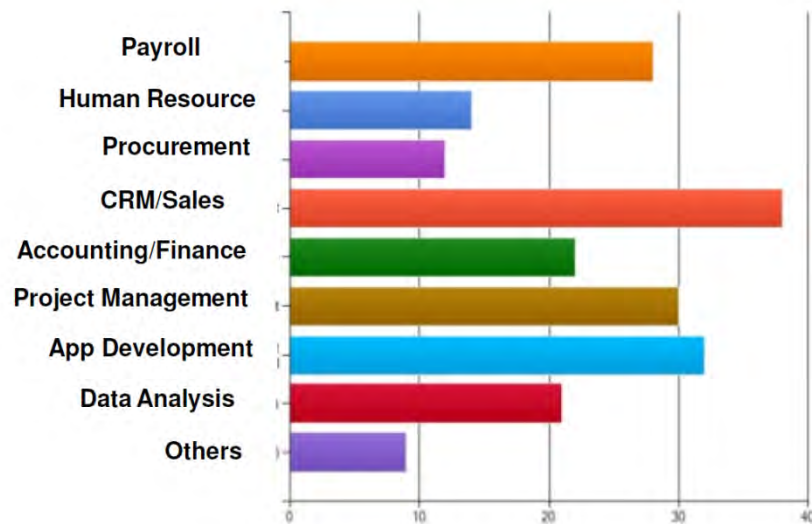
Type to find name
Project team (8/9)
Simon Smith
Jane Jackson
Vivienne Parker

Mail   People ▾   Apps
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Inbox

crm

HUMAN RESOURCES

Product Life Cycle Management, Supply Chain Management, Enterprise Resource Planning

Services being delivered via Cloud by SMEs

Fast Moving Applications on Cloud Platform

Which IT services/Applications supporting business processes are most likely to be outsourced to a Cloud Computing service provider?

MOST USED ENTERPRISE CLOUD APPS

1 Facebook — Social
2 Google Drive — Cloud storage
3 Google Gmail — Webmail
4 Twitter — Social
5 iCloud — Cloud storage
6 Google Docs — Productivity
7 YouTube — Consumer
8 LinkedIn — Social
9 Dropbox — Cloud storage
10 Microsoft OneDrive — Cloud storage
11 Salesforce — Customer relationship management/sales force automation
12 Cisco WebEx — Collaboration
13 Evernote — Productivity
14 RingCentral — Telecom
15 Okta — Security

Source: Netskope Cloud Report 2015

RapidCompute a Cloud Service Provider in Pakistan

RapidCompute is an example of an IaaS cloud service provider that has transitioned from providing critical infrastructure to managing mission critical services

- Cloud for data backup (ownCloud to provide a dropbox type service)

- Cloud for Disaster Recovery and business continuity

- Provides open source and proprietary email (Atmail, Microsoft Exchange etc) as a hosted service

- Hosts databases such as Microsoft SQL, MySQL and Oracle to cut down licensing and maintenance costs for SMEs for complex database backed solutions

- Provide a test case for local software houses to showcase cloud enabled applications quickly to prospective customers such as retail POS solutions

Arbisoft-SME Case Study from Pakistan

- Forward-looking software house in Lahore established in 2007

- Deevlop Smartphone apps, interactive enterprise apps, and search analysis

- 100+staff with Multi million dollar revenue

- One of the Fastest growing software house in Pakistan

Source: http://www.pitb.gov.pk/sites/pitb.gov.pk/files/Cloud_Comp_Nahil_CCS2013_0.pdf
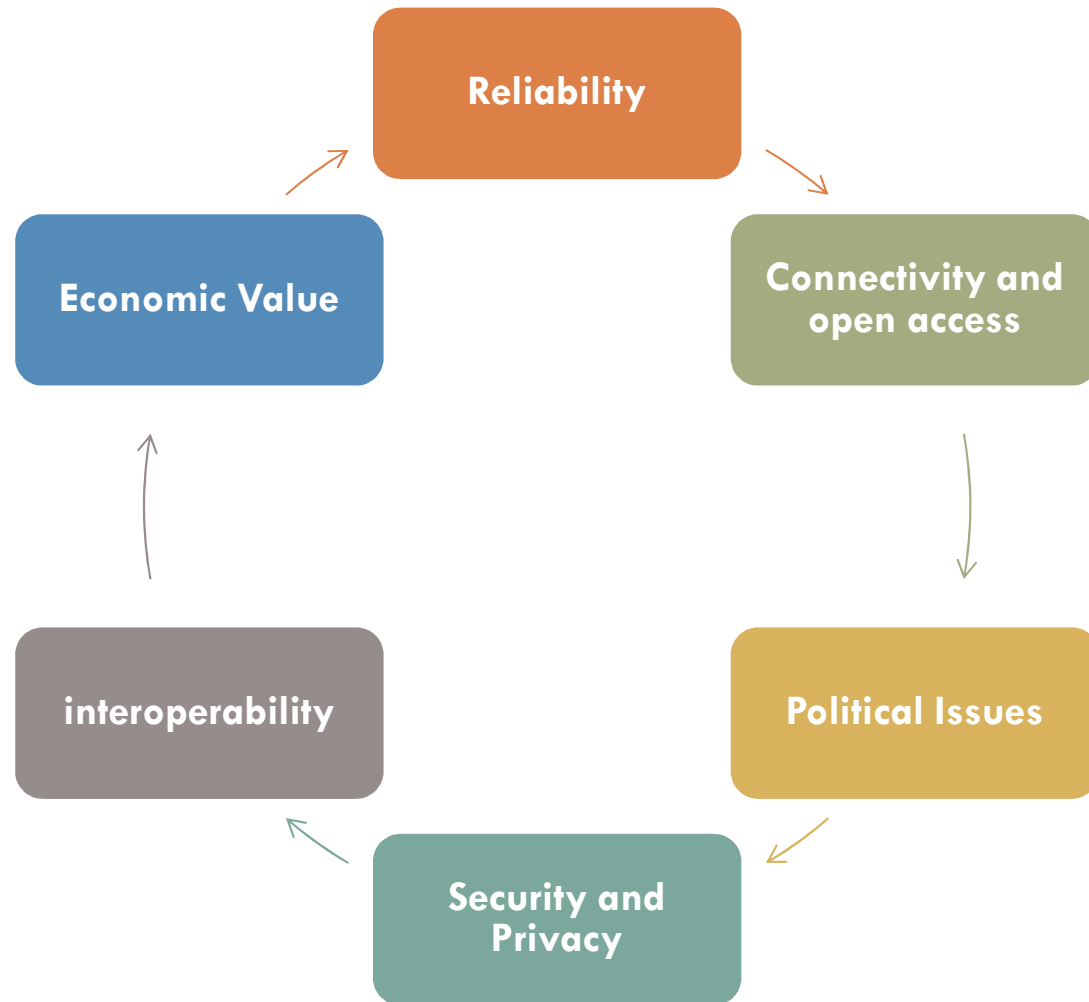
Atbisoft-100% Cloud Adoption

- Entire development activity on Amazon cloud (PaaS)

- All IT enterprise services (email, collaboration, calendars) are on GoogleApps cloud (SaaS)

- Using other cloud services (SaaS) such as drop box

Source: http://www.pitb.gov.pk/sites/pitb.gov.pk/files/Cloud_Comp_Nahil_CCS2013_0.pdf

KEY INHIBITORS OF CLOUD COMPUTING ADOPTION IN SMEs

Presently, some of the significant global technological and political powers are making laws that can have an inverse impact on development of the cloud solutions globally

Reliability

Connectivity and open access

Political Issues

Security and Privacy

interoperability

Economic Value

Expected Challenges for SMEs

Data Privacy and Confidentiality - Security

• Where will you data be located?

• What are the security features provided?

Poor Awareness

• SMEs are not typically aware of the pros and cons of the Cloud, but also how to negotiate with cloud providers

Contractual Issues and SLAs

• Liabilities, Vendor Lock in, Data Portability

SMEs & Cloud Computing

Standardisation: An opportunity AND a threat

The opportunity

- A ready made IT roadmap; everything has been considered security, scaling, consistency, performance & availability, version control, programming language

Things to watch

- Choosing a cloud is a decision point on the IT roadmap
- The leading clouds all have different 'flavours';
  - Google Apps is search optimised (python & big table)
  - Salesforce is Customer relationship orientated
  - Microsoft is versatile but it will continue the licensing arrangements...
  - Amazon – low complexity and high volume

Source: Easynet Connect

Latest News: Alibaba to invest $1B in Cloud Computing

Date: July 29, 2015 Chinese e-commerce giant Alibaba is planning a $1bn push into the cloud, taking on Amazon by expanding its cloud computing unit Aliyun into international markets

The company, often described as the "Chinese Ebay", is expanding its cloud computing arm from its current bases in China and Silicon Valley to the Middle East, Europe and Japan, in what is a direct competition with Amazon's rapidly growing rival, Amazon Web Services.

Alibaba's chief executive, Daniel Zhang, said in a statement that this additional $1bn investment was "just the beginning":

Cloud computing and Aliyun, which was spun off in 2012, are Alibaba's fastest growth areas.

Conclusions

❑ Cloud is the way to go due to the ubiquitous nature of internet

❑ Cloud makes economic sense as capital costs are minimal

❑ Enterprises spend $270 billion on software every year

❑ Forrester Research expects the global cloud computing market to reach $241 billion in 2020

❑ Subscription is becoming the only way of Software Sales. Cloud wins because there is no CAPEX and a predictable OPEX

❑ According to Gartner, most enterprises have part of their run-the-business software functionally executing in the cloud, using PaaS services

Thank You