Cloud Computing

National Institute of Technology Silchar

Course Code: CS-1482

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Outline

Benefits of Cloud Computing

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Cost Reduce Cost. **Pay-as-you-go** model reduce the cost of clients. Moreover, cloud computing reduces the initial establishment of business.

Storage Increases Storage. The user need not to worry about their storage size. Users are given elastic storage spaces.

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Storage	Increases Storage. The user need not to worry about their storage size. Users are given elastic storage spaces.
Flexibility	Better. The manageability of business, software, or anything in the cloud is much easier than traditional computing model. Due to cloud provider, the business become more flexible.
Disaster	An user need not to worry about their data. The cloud provider always ensure data recovery in disaster.
Maintenance	User need not to bear the cost of maintenance and hence, business become much easier.

Challenges of Cloud Computing

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Data Transfer Performance and data transfer rates become key issues as the distance between the data and the user increases.

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Bandwidth Not all data access patterns are well suited to the cloud, particularly if there are large distances to cover. In such cases, bandwidth becomes not only a challenge but a financial consideration.

Requirements User requirements are unlimited bandwidth, high performance, low-response time, and mission-critical data.

Storage Maintenance of storage.

Issues of Cloud Computing

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Security	Security & Data Availability
Costs	Costs.
Paerformance	Performance
Latency	Latency constraints
Manegement	Manageability

Security Security & Data Availability

Costs Costs.

Paerformance Performance

Latency Latency constraints

Manegement Manageability

Interoperability A serious concern exists today is: Most of todays on-premises applications use block protocols such as FC, iSCSI etc. But Cloud storage protocols predominantly speak only in the language of file protocols (CIFS, NFS) and both public and private storage clouds are accessed via REST [] HTTP-based, or SOAP APIs. the figure **??**, says that `http://cse.nits.ac.in/prasenjit/`

Contd.

Obstacles of Cloud Computing

There is always other side of a coin

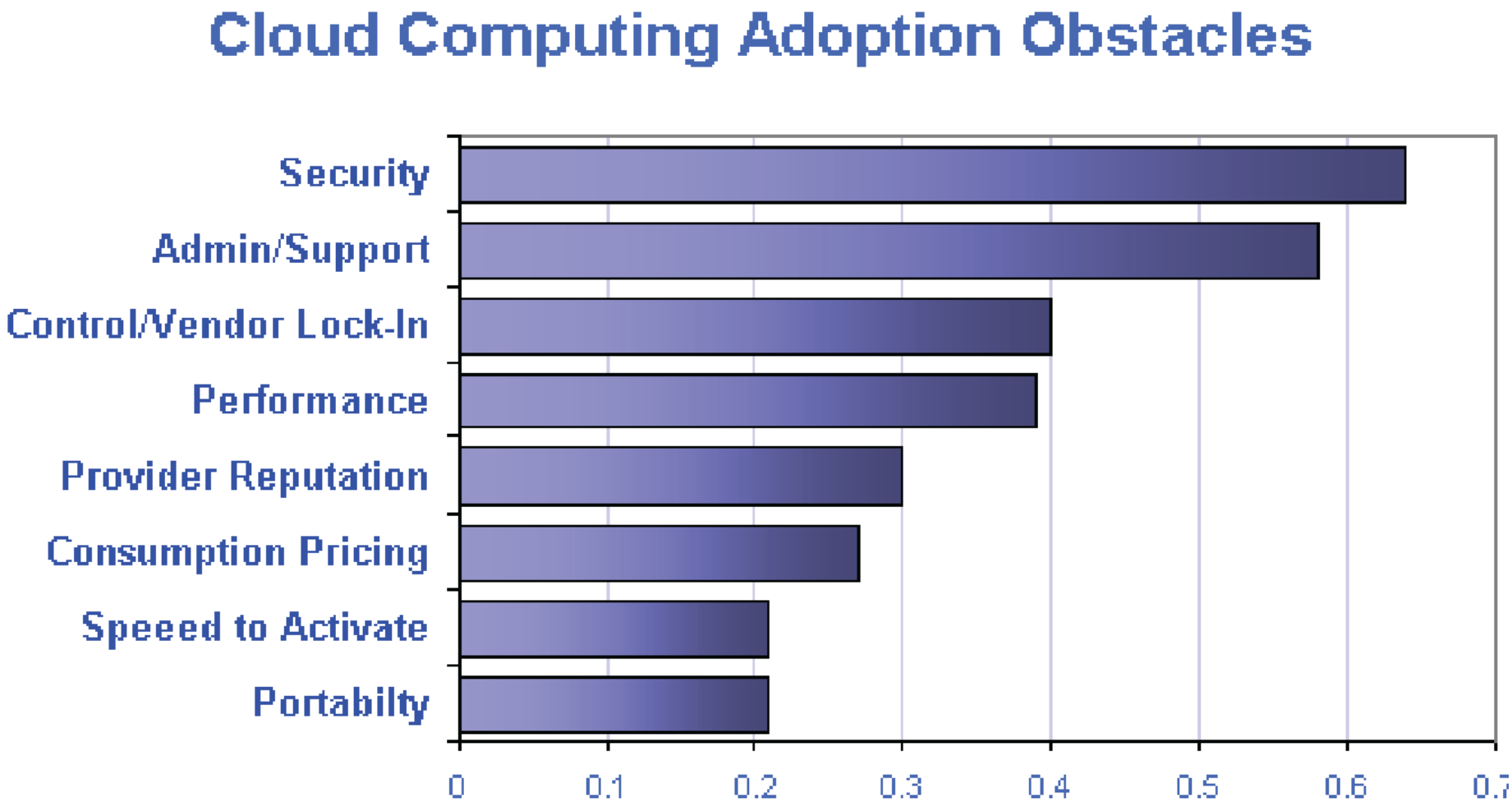

Figure: Obstacle of Cloud Computing

Organization Goals for Primary Storage

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Economic Improved storage economics Leverage appropriate tiers of storage according to the performance requirement of the data.

Performance consistency working set and hotspot data to be automatically tiered to the highest-performance tier of storage (SSD), whereas non working-set or non hotspot data is tiered to a lower performing tier dynamically

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Compression - Achieve higher levels of compression even when encountering single-byte insertion scenarios.

Data Reduction - Achieve 10X data reduction for specific storage workloads.

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Version control support Version control can be enabled, thanks to some companies' implementation of primary storage de-duplication, which minimizes storage capacity requirements and cost

Pay-as-you-grow use of cloud storage enables pay-as-you-grow capacity consumption, which minimizes cost of over-provisioned yet unutilized on-premises storage

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Optimal Cost Structure Using de-duplication, compression and encryption minimize cost for cloud storage capacity and cost for IO and data transfer,

Tape elimination Use Cloud Clones to enable consistent, point-in-time recovery snapshots and store independent copies in the cloud to eliminate need for tape


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Thank You