

Chapter 63

Regulatory Aspects of Cloud Computing in Business Environments

Michael Losavio

University of Louisville, USA

Pavel Pastukhov

Perm State University, Russia

Svetlana Polyakova

Perm State University, Russia

ABSTRACT

Cloud computing allows us to solve problems of information on a global scale and of a full range of tasks. Cloud computing has many advantages, but the reliability of data protection is a major concern of provider-client, industry, and governmental regulation. These information systems must comply with existing standards and anticipate new standards of information security. The legal process must distinguish who is responsible for what within a dynamically changing infrastructure significantly different from traditional models. The authors first examine the models and substance of regulation as established by service-level agreements between cloud providers, their clients, and their clients' customers. The authors discuss industry self-regulation and government regulations regarding data protection, privacy, criminal and tort law, and intellectual property law complicated by the inherent cross-jurisdictional nature of cloud computing.

INTRODUCTION

“Cloud computing” turns devices into portals to power and service all over the world all the time. It offers significant advantages in service availability and security. The issues of cloud security, trust and regulation for business are *generally* the same as with any information and informatics

business. But with the benefits there are enhanced risks from the novelty of the technology, its provision and its use that may segment and distribute control of systems and data to others than owners and the needed diligence in the oversight of the provision and use of cloud services. (Harbour, 2010) The challenge to security and trust is maintaining useful services from anywhere all of the

DOI: 10.4018/978-1-4666-6539-2.ch063

time in a distributed, heterogeneous environment of systems, services and users. For informatics services this is assurance that the confidentiality of their information is protected, the integrity of their data is maintained and it is available for use as needed. These reflect the on-demand power and elasticity cloud computing offers.

The initial, fundamental regulation of those engaged in cloud computing comes from internal regulation within the relationship of cloud provider and cloud user/client and the cloud client and that client's customer. In other words, a user/client uses a provider they trust to provide timely and reliable services to *their* downstream customers who, in turn, may have *their* downstream customers. If the cloud provider fails, the clients/customers fail, or, at best, take their business where greater reliability can be found in the services they need.

As with many business alliances within informatics, regulation and compliance may be first handled by the service providers themselves and, over time, may evolve as a collaborative/contractual relationship between providers and users. This may vary with the relative market power of the cloud provider and the user, especially individual consumers. When this challenge seems unmanageable, state regulation and industry self-regulation may step in to enforce appropriate levels of performance.

The role of central bodies in engaging with a broad commercial technology is seen in the widely-cited definition of cloud computing put forth by the National Institute of Standards and Technology (NIST) (US).

DEFINITION OF CLOUD COMPUTING

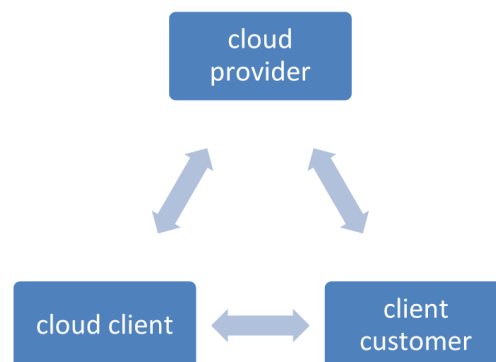
Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort

or service provider interaction. This cloud model promotes availability and is composed of five essential characteristics, three service models, and four deployment models. (Mell, 2011)

This encapsulation of essential characteristics serves to highlight the commercial and functional advantages of cloud services. The cloud's services are always available on-demand with broad network access, a pooling of resources while elastically growing or shrinking as needed with measurement and monitoring of the services provided. Service model components are the software, platforms for applications and infrastructure options. Services may be keyed to individual organizations, communities, the general public or to various combinations of these entities.

Obligations and rights relating to cloud activities may vary with the roles of those affected by them. The primary parties would be the cloud provider, that provider's client and that client's customers and clients. Each would carry with them the respective rights and obligations given by whichever respective jurisdiction(s) oversee their activities, of which there may be several. These may be defined, created or limited by statute, case law and contract. Each primary party may have rights and obligations to the other parties, as seen in Figure 1.

Figure 1. Interrelated rights and obligations of primary cloud parties



12 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/regulatory-aspects-of-cloud-computing-in-business-environments/119912

Related Content

Cloud Computing in the 21st Century: A Managerial Perspective for Policies and Practices

Mahesh S. Raisinghani, Efosa Carroll Idemudia, Meghana Chekuri, Kendra Fisher and Jennifer Hanna (2015). *Advanced Research on Cloud Computing Design and Applications* (pp. 188-200).

www.irma-international.org/chapter/cloud-computing-in-the-21st-century/138505

From Cloud Computing to Fog Computing: Platforms for the Internet of Things (IoT)

Sanjay P. Ahuja and Niharika Deval (2018). *International Journal of Fog Computing* (pp. 1-14).

www.irma-international.org/article/from-cloud-computing-to-fog-computing/198409

Energy and Carbon Footprint-Aware Management of Geo-Distributed Cloud Data Centers: A Taxonomy, State of the Art, and Future Directions

Atefeh Khosravi and Rajkumar Buyya (2017). *Advancing Cloud Database Systems and Capacity Planning With Dynamic Applications* (pp. 27-46).

www.irma-international.org/chapter/energy-and-carbon-footprint-aware-management-of-geo-distributed-cloud-data-centers/174754

Feedback-Based Fuzzy Resource Management in IoT-Based-Cloud

Basetty Mallikarjuna (2020). *International Journal of Fog Computing* (pp. 1-21).

www.irma-international.org/article/feedback-based-fuzzy-resource-management-in-iot-based-cloud/245707

Chemometrics: From Data Preprocessing to Fog Computing

Gerard G. Dumancas, Ghalib Bello, Jeff Hughes, Renita Murimi, Lakshmi Viswanath, Casey O. Orndorff, Glenda Fe G. Dumancas, Jacy O'Dell, Prakash Ghimire and Catherine Setijadi (2019). *International Journal of Fog Computing* (pp. 1-42).

www.irma-international.org/article/chemometrics/219359