

Addressing Cloud Computing in Enterprise Architecture: Issues and Challenges

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ABSTRACT

This article discusses how the characteristics of cloud computing affect the enterprise architecture in four domains: *business*, *data*, *application* and *technology*. The ownership and control of architectural components are shifted from organisational perimeters to cloud providers. It argues that although cloud computing promises numerous benefits to enterprises, the shifting control from enterprises to cloud providers on architectural components introduces several architectural challenges. The diminishing control of an enterprise on the architecture ultimately causes service inflexibility and data confidentiality problems. The organisational control on the enterprise data and business processes, and the cloud providers control on technology and services are the two critical issues that need to be addressed in the changed architectural framework. This article identifies the architectural components along with the issues and challenges emerging from cloud-based enterprise architecture.

CONCLUSION

The cloud computing undoubtedly provides huge business opportunities to enterprises, however, in order to get full benefit of this new paradigm, enterprises need to re-model and restructure their existing processes to orchestrate the cloud-enabled requirements. The current enterprise architecture (EA) framework models only those computing and business components which are under the control of the enterprise. The characteristics and the business dynamics of cloud computing have certainly changed the way enterprises use information systems. This requires enterprises tying their enterprise architecture together with the service characteristics of cloud computing. In this integrated architecture, enterprises need to redefine the architectural components, redesign the data flows, control flows and transaction processes. In order to enjoy the benefits of cloud computing, enterprises need to change their processes or even discard many of their existing processes. We need a framework in which the data architecture of a cloud-based enterprise could address how enterprises like MediNova could extend its data control perimeter beyond its organisational perimeter. The new cloud-based enterprise architecture should include the new architectural components which provide enterprises the ability to manage, control and audit the services it consumes. Once we could handle the control issue, flexibility and security could be resolved much more efficient manner.

ENDNOTES

¹ The Open Group Architecture Framework (TOGAF). Version 9. OMG. 2009.

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