Case Study: Implementing a Blockchain Using Microsoft Azure

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ABSTRACT

This paper outlines the procedure to implement a proof-of-concept Blockchain, using templates provided by a major Blockchain protagonist and using a leading Cloud platform (in this case, Microsoft Azure) to provision the infrastructure. The paper also attempts to discuss the issues discovered in the implementation process, alongside support, cost, and security considerations. In addition, procedures for further testing as well as the possibility of providing operational services to clients (e.g. for a third-party logistics company) are explored.

Keywords: Blockchain, Azure, Cloud Computing

1. INTRODUCTION

Two recent IT trends, Blockchain and the Cloud, natural go together, and are maturing alongside each other, albeit at different rates, being at different present levels of maturity.

The Cloud gathered support as result of massive economies of scale and consequential reduction in costs. The business model is suited both to the titans of the global IT sector, and other organisations seeking to reduce total cost of ownership of IT. With proven reliability, rather fortuitously accompanied by increasing internet bandwidths, the ubiquity of end-user devices, and constant expansion of hardware capability, the Cloud has become feasible and mainstream.

Blockchain on the other hand, meandered through the Bitcoin melee, gathering open-source disciples with fervour based on the promise of "disintermediated and trust-less shared ledgers", and as "the future computer of everything", with smart contracts and other innovative ideas. When the very same major global IT companies decided to adopt Blockchain services as part of their Cloud platforms (building on the idea of reducing the cost of shared-data and the social-cost of transactions), Blockchain gathered further growth momentum. Since a number of Cloud-based services offer initially free proof-of-concept trials, it is difficult not to give it a try.

It is within this context, at the nexus of two growth trajectories, that this Proof-Of-Concept Blockchain implementation is based: to document the process by which a basic Blockchain is created, and then consider aspects relevant to this technology. As ideas and skills are gained, the goal is to move from concept, to operational Blockchains.

Whilst there is plenty of fervour, it is still largely a creative exercise to 'discover' a viable use-case for this technology. According to Czepluch, Lollike, and Malone (2015), "Innovative solutions that have potential societal impact are still being researched and discovered every day."

The idea for this case-study was borne of a speech by R Tyler Smith of BHP Billiton to the International Blockchain Week 2016 conference (Tyler Smith, 2016), regarding the potential of Blockchain to massively reduce the bureaucratic overhead costs of many different mining companies, each separately fulfilling their reporting obligations to third-world countries.

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