サーバレスアーキテクチャーの適用によるシステム開発期間短縮効果の検証

－ビジネスアジリティは向上するのか－

IA−001：サーバレスアーキテクチャーのビジネス適用：石野 大輔

Verifying the effectiveness in reducing development period on serverless architecture

— Can business agility be improved －

IA-001：Applying Serverless Architecture to Business：Daisuke Ishino

新たなデジタル技術が日々開発されている状況の中，企業は競争力強化のため，新技術を活用してビジネス モデルを素早く創出することが求められている．近年，ビジネスアジリティを向上させるアーキテクチャーと してサーバレスアーキテクチャーが注目されている．本論文では，サーバレスアーキテクチャーの適用により，ビジネスアジリティが向上するのか検証した．検証で得られた結果から，ビジネスアジリティ向上の是非と今後の課題・展望について述べる．

While new digital technologies are applied every day, companies are required to create business models quickly by utilizing these new technologies to enhance their competitiveness. In recent years, serverless architecture has been attracting attention as an architecture to improve business agility. In this paper, we examine whether business agility can be improved by applying a serverless architecture. This paper discusses the pros and cons of the improvement of business agility and future issues and prospects based on the results of the verification．

Key Words & Phrases ：デジタルトランスフォーメーション，サーバレスアーキテクチャー，ビジネスアジリテ ィ，開発期間の短縮，ドキュメント作成量の削減

Digital Transformation, Serverless Architecture, Improvement of business agility, Reducing development period, Reducing the amount of documentation

１．はじめに

In recent years, new digital technologies are being developed day by day, and businesses that make full use of digital technologies have been created not only in the IT industry but also in various industries to increase corporate value. In this situation, companies are required to speed up their digital transformation in order to maintain and strengthen their competitiveness. According to the "DX Digital Transformation Report" by the Ministry of Economy, Trade and Industry, many Japanese managers are aware of the necessity of DX and are making efforts such as establishing a digital department to promote DX. However, many companies have invested to some extent, such as repeating PoC, but it has not led to actual business transformation. It is pointed out that even if new digital technology is introduced, its effect is limited because of the limited utilization and linkage of data in the existing system, which becomes obsolete, complicated and black box. It is estimated that up to 12 trillion yen in economic losses will occur between 2025 and 2030 if existing aging and complicated systems continue to be used as they are.

提出日：2020 年 08 月 31 日

Unless the problems surrounding existing IT systems are resolved, full-scale deployment of DX will be difficult. As the renovation of existing IT systems is a large-scale and long-term project, it is not possible to obtain the effect quickly. There is a need to use new digital technologies to build business logic that must be frequently modified or newly created so that it can quickly keep pace with the changes in business models.

In recent years, serverless architecture has been attracting attention as an architecture to improve business agility. A key feature of serverless architecture is that it allows cloud providers to take on more responsibility and allows users to focus on building business logic and developing applications. In this paper, we examine whether the application of a serverless architecture improves business agility by designing and constructing an actual model system. The improvement of business agility in this paper means to shorten the period of development until the release of the service, and in conclusion the service can be provided more quickly.

Chapter 2 describes the characteristics of serverless architecture, and Chapter 3 and 4 describe the results of the verification of the serverless architecture in terms of the amount of documentation and system build work time. In addition, the future prospects are described based on the issues and problems identified in the verification process in chapters 5 and 6.

２．サーバレスアーキテクチャーとは

In this paper, the two terms "serverless" and "serverless architecture" are defined and agreed with the definitions in the 2019 JGS paper "Proposal for a Process to Study the Application of Serverless Architecture".Serverless refers to the concept of building and executing applications that do not require server management, and there are two typical ways to realize it: Function as a Service (FaaS) and Backend as a Service (BaaS). The system configuration that combines these FaaS and BaaS features is a serverless architecture [2].

2.1 サーバレスの特徴

Although there are various characteristics of the serverless system for each cloud service providers, the following two features are described here.

(1)No need to build and operate a server

As shown in Figure 1, the infrastructure required to run applications, such as servers and runtimes, is operated and managed under the responsibility of cloud service providers. Therefore, users do not need to build a server or configure middleware, and the workload for operation and management can be significantly reduced.

(2) Flexible scalability

Since automatic scaling is possible according to the processing volume, there is no need to allocate excessive resources in case of high load. In addition, the system can flexibly respond to unexpected loads and perform stable operations.

*ＪＧＳ研究 2020 プロジェクト・チーム論文*