BSI Standards Publication

Information technology — Big data reference architecture

Part 1: Framework and application process

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National foreword

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Part 1: Framework and application process

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

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This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 42, *Artificial intelligence*.

A list of all parts in the ISO/IEC 20547 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The big data paradigm is a rapidly changing field with rapidly changing technologies. This dynamic situation creates two significant issues for potential implementers of the technology. First, there is a lack of standard definitions for terms including the core concept of big data. The second issue is that there is no consistent approach to describe a big data architecture and implementation. The first issue is addressed by ISO/IEC 20546. The ISO/IEC 20547 series is targeted to the second issue and provides a framework and reference architecture which organizations can apply to their problem domain to effectively and consistently describe their architecture and its implementations with respect to the roles/actors and their concerns as well as the underlying technology. This document describes the reference architecture framework and provides a process for mapping a specific problem set/use case to the architecture and evaluating that mapping.

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Information technology — Big data reference architecture —

Part 1: Framework and application process

1 Scope

This document describes the framework of the big data reference architecture and the process for how a user of the document can apply it to their particular problem domain.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC/IEEE 42010, *Systems and software engineering — Architecture description*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC/IEEE 42010 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
big data
extensive datasets — primarily in the characteristics of volume, variety, velocity, and/or variability — that require a scalable technology for efficient storage, manipulation, and analysis

Note 1 to entry: Big data is commonly used in many different ways, for example as the name of the scalable technology used to handle big data extensive datasets.

[SOURCE: ISO/IEC 20546:2019, 3.1.2]

3.2
reference architecture
in the field of software architecture or enterprise architecture, provides a proven template solution for an architecture for a particular domain, as well as a common vocabulary with which to discuss implementations, often with the aim of stressing commonality

[SOURCE: ISO/TR 14639-2:2014, 2.65]

3.3
framework
particular set of beliefs, or ideas referred to in order to describe a scenario or solve a problem

[SOURCE: ISO 15638-6:2014, 4.30]