ISO/IEC 20547-4:2020 (E)

Information technology — Big data reference architecture — Part 4: Security and privacy

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 Symbols and abbreviated terms

5 Overview

5.1 Big data security and privacy concerns
5.2 Security and privacy objectives

6 Security and privacy aspects of BDRA user view

6.1 Governance activities
6.1.1 Purpose
6.1.2 Prepare for and plan BD-S&P governance effort
6.1.3 Monitor, assess and control BD-S&P governance activities
6.1.4 Establish BD-S&P governance objectives
6.1.5 Direct BD-S&P
6.1.6 Monitor and assess compliance with BD-S&P governance directives and guidance
6.1.7 Review implementation of BD-S&P governance directives and guidance and prepare for change
6.2 Management activities
6.2.1 Purpose
6.2.2 Prepare for and plan BD-S&P management effort
6.2.3 Monitor, assess and control the architecture management activities
6.2.4 Develop BD-S&P management approach
6.2.5 Perform management of BD-S&P
6.2.6 Monitor BD-S&P effectiveness
6.2.7 Update the BD-S&P management plan
6.3 Operation activities
6.3.1 BD-S&P solution design activities
6.3.1.1 Purpose
6.3.1.2 Prepare for and plan the BD-S&P solution design effort
6.3.1.3 Monitor, assess and control the BD-S&P solution design activities
6.3.1.4 Characterize problem space and associated problems
6.3.1.5 Establish BD-S&P solution objectives and evaluation criteria
6.3.1.6 Synthesize potential solution(s) in the solution space
6.3.1.7 Characterize solutions and the trade space
6.3.1.8 Formulate candidate BD-S&P solution(s)
6.3.2 BD-S&P solution evaluation activities
6.3.2.1 Purpose
6.3.2.2 Prepare for and plan the BD-S&P solution evaluation effort
6.3.2.3 Monitor, assess and control the BD-S&P solution evaluation activities
6.3.2.4 Determine evaluation criteria
6.3.2.5 Determine evaluation methods and integrate with evaluation objectives and criteria
6.3.2.6 Establish measurement techniques, methods and tools
6.3.2.7 Review evaluation-related information
6.3.2.8 Analyse BD-S&P solution attributes and assess stakeholder value

6.3.2.9 Characterize BD-S&P solution(s) based on assessment results
6.3.2.10 Formulate findings and recommendations
6.3.2.11 Capture and communicate evaluation results
6.3.3 BD-S&P solution enablement activities
6.3.3.1 Purpose
6.3.3.2 Prepare for and plan the BD-S&P solution enablement effort
6.3.3.3 Monitor, assess and control the BD-S&P solution enablement activities
6.3.3.4 Manage the BD-S&P solution process enablers
6.3.3.5 Develop and establish enabling capabilities and resources
6.3.3.6 Deploy capabilities and resources for use by the other BD-S&P activities
6.3.3.7 Improve BD-S&P solution enablement capabilities and resources
6.4 Security and privacy aspects of big data roles

7 Guidance on security and privacy operations for big data

7.1 General
7.2 Guidance at organization level
7.2.1 General
7.2.2 Standard guidance on requirements
7.2.3 Standard guidance on risk management
7.2.4 Standard guidance on controls
7.2.5 Standard guidance on lifecycle operations
7.3 Guidance at ecosystem level
7.3.1 General
7.3.2 Guidance on data processing chain
7.3.3 Guidance on risk management
7.3.4 Guidance on lifecycle operations

8 Security and privacy functional components

8.1 Overview
8.2 Functional components for both security and privacy
8.3 Functional components for privacy
8.4 Multi-layer functions for security and privacy

Annex A (informative) Examples of security and privacy threat classification

Annex B (informative) Examples of security and privacy control classification

Annex C (informative) Examples of ecosystem and resulting coordination of security and privacy operations

C.1 Mapping organizations of the ecosystem to BDRA
C.2 Ecosystem coordination
C.3 Coordination of security and privacy threats between marketplace and service provider
C.4 Coordination of risks between marketplace and service provider
C.5 Coordination of controls between marketplace and service provider

Annex D (informative) Examples of security and privacy controls per BDRA roles

D.1 Examples of security and privacy controls for big data application provider (BDAP)
D.2 Examples of security and privacy controls for big data provider (BDP)

Page count: 59