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Information technology — Distributed Application Platforms and Services (DAPS) — General technical principles of Service Oriented Architecture

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

In exceptional circumstances, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide to publish a Technical Report. A Technical Report is entirely informative in nature and shall be subject to review every five years in the same manner as an International Standard.

Attention is drawn to the possibility that some of the elements of this Technical Report may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC TR 30102 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology,* Subcommittee SC 38, *Distributed application platforms and services (DAPS)*.

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Introduction

Service Oriented Architecture (abbreviated SOA) is an architectural style that supports service orientation and is a paradigm for business and IT (see 3.1.40). This architectural style is for designing systems in terms of services available at an interface and the outcomes of services. A service is a logical representation of a repeatable business activity that has specified outcomes, is self contained, may be composed of other services and is a “black box” to consumers of the service (see 3.1.14).

To enable this co-operation and collaboration business-oriented SOA takes ‘service’ as its basic element to constitute and integrate information systems so that they are suitable for a wider variety of application requirements. Some of the benefits of using SOA are improvement in the efficiency of development of information systems, efficiency of integration and efficiency of re-use of IT resources. It also enables agile and rapid response of information systems to ever-changing business needs. Many companies across many industries world-wide have developed SOA enterprise architectures, solutions and products.

This report is intended to be a single set of SOA technical principles, specific norms, and standards for the world-wide market to help remove confusion about SOA, improve the standardization and quality of solutions, as well as promote effective large-scale adoption of SOA. The benefits of this technical report contribute to improving the standardization, interoperability, and quality of solutions supporting SOA.

This technical report defines the basic technical principles and reference architecture for SOA rather than being focused on the business aspects. It also discusses the functional, performance, development, deployment, and governance aspects of SOA. This technical report can be used to introduce SOA concepts, as a guide to the development and management of SOA solutions, as well as be referenced by business and industry standards.

This technical report includes the following clauses:

Clause 3 – terminology – defines terms used when discussing or designing service oriented solutions. Terms defined here are used in some unique fashion for SOA. It does not define terms that are used in general English manner.

Clause 4 – Concepts and Principles – articulates basic SOA concepts and expands on the key terms in clause 3.

Clause 5 – SOA Technical Framework – documents an overview of a reference architecture for building SOA based solutions.

The targeted audience of this technical report includes, but is not limited to, standards organizations, architects, SOA service providers, SOA solution and service developers, and SOA service consumers who are interested in adopting and developing SOA.

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Information technology — Distributed Application Platforms and Services (DAPS) — General technical principles of Service Oriented Architecture

1 Scope

This Technical Report describes the general technical principles underlying Service Oriented Architecture (SOA), including principles relating to functional design, performance, development, deployment and management. It provides a vocabulary containing definitions of terms relevant to SOA.

It includes a domain-independent technical framework, addressing functional requirements and non-functional requirements.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply

2.1 Definitions

2.1.1
actor
person or system component who interacts with the system as a whole and who provides stimulus which invoke actions

NOTE See ISO/IEC 16500-8:1999, 3.1.

2.1.2
architecture
fundamental concepts or properties of a system in its environment embodied in its elements, relationships, and in the principles of its design and evolution ISO/IEC/IEEE 42010:2011, 3.2). ISO/IEC 40210:2011

2.1.3
choreography
omposition whose elements interact in a non-directed fashion with each autonomous member knowing and following an observable predefined pattern of behavior for the entire (global) composition

NOTE See Bibliography Reference [21].

2.1.4
collaboration
omposition whose elements interact in a non-directed fashion, each according to their own plans and purposes without a predefined pattern of behavior

NOTE See Bibliography Reference [21].

2.1.5
composition
result of assembling a collection of things for a particular purpose

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