An ISO/IEC 42010 (IEEE Std 1471) Annotated Bibliography

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1 Introduction

This is an annotated bibliography of papers, reports and books pertaining to ANSI/IEEE Std 1471 (now also international standard ISO/IEC 42010). It was originally prepared for ISO/IEC JTC 1/SC 7 WG 42, the Architecture working group of the Systems and Software Engineering Subcommittee of ISO. WG 42 is the body performing the joint ISO and IEEE revision of IEEE 1471 as ISO/IEC 42010.

Pertaining to includes documents which were inspirations for IEEE 1471, citations of IEEE 1471, and documents inspired by IEEE 1471. In some cases, the relationship is provided in the annotations.

Please send any additions or corrections to the author at r.hilliard@computer.org.

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An eloquent argument for the need for multiple, extensible viewpoints in architectural description: "Unfortunately, in contrast to building architectures, we have yet to agree on what the appropriate software structures and views should be and how to represent them. One of the reasons for the lack of consensus on structures, views, and representations is that software quality attributes have matured (or are maturing) within separate communities, each with their own vernacular and points of view."

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The use of concerns in IEEE 1471 derives from the phrase *separation of concerns* in software engineering. The earliest use of this phrase appears to be in this 1974 paper by Dijkstra: "Let me try to explain to you, what to my taste is characteristic for all intelligent thinking. It is, that one is willing to study in depth an aspect of one's subject matter in isolation for the sake of its own consistency, all the time knowing that one is occupying oneself only with one of the aspects. We know that a program must be correct and we can study it from that viewpoint only; we also know that it should be efficient and we can study its efficiency on another day, so to speak. In another mood we may ask ourselves whether, and if so: why, the program is desirable. But nothing is gained—on the contrary!—by

tackling these various aspects simultaneously. It is what I sometimes have called "the separation of concerns", which, even if not perfectly possible, is yet the only available technique for effective ordering of one's thoughts, that I know of. This is what I mean by "focussing one's attention upon some aspect": it does not mean ignoring the other aspects, it is just doing justice to the fact that from this aspect's point of view, the other is irrelevant. It is being one- and multiple-track minded simultaneously."

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