Enterprise Security Architecture: Approaches and a Framework

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INTRODUCTION

• Information Technology cannot be architected in enterprise without addressing security issues.
• Enterprise security architecture will be needed in compliant with enterprise IT architecture.
• The question arise that, how we can deal with security in enterprise architecture. Is it a part of EA? If so, where is its arrangement in total EA processes? At next sections, after a brief look at EA concept, we try to answer these questions.

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<th>Traditional Business Version</th>
<th>Electronic Business Version</th>
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<td>Handwriting Signature</td>
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<td>Visual identification of individual and business partners</td>
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**ENTERPRISE ARCHITECTURE**

- The literature of Enterprise Architecture (EA) shows many definitions for this term. More commonly, when we are referring to the Enterprise Architecture, we are referring to the models, documents, and reusable items (as components, frameworks, objects, and so on) that reflect the actual architecture [5].

- However, moreover EA is defined as a framework or “blueprint” for how the enterprise achieves the current and future business objectives.

![Diagram: NIST1 Hierarchy of EA](image)
EA FRAMEWORKS

• In large and complex enterprises, the use of a comprehensive framework for defining and expanding the vision and mission of the enterprises in all aspects of the enterprise is required.

• EA Frameworks offer some structured and organized frames for thinking and analyzing the enterprise.

• An architecture framework provides a structure and a common set of semantics that enforce consistency across the wide range of participants in enterprise architecture initiatives who typically come from diverse areas of the business [8].

Fig 2: Zachman framework for Enterprise Architecture adapted from [18]
If we consider the enterprise security as a critical and complex issue in today’s enterprises, so we could apply the concept of architecture to the term of enterprise security.

It means that enterprise security architecture contains models, documents, and reusable items (as components, frameworks, objects, and so on) that reflect the actual security goals, policies, objectives, processes, mechanisms and technologies.
THREE APPROACHES TO ESA

1) Security as a Technical issue

2) Security as a 7th abstraction in Zachman Framework

3) Embedding security in EA

Fig 3: Security as an integral part of EA in all layers

Fig 4: Security Architecture embedded in Zachman framework
CONCLUSIONS

• There is a consensus about the importance of security issues among IT practitioners, but they are not agreed about the security architecture and its relations to Enterprise Architecture.

• One approach looks for it as a domain in enterprise technical architecture. But this approach addresses security in the technology context only and does not support integration of security requirements into business solutions from inception.

• Another approach, considers security as a complete viewpoint with its own models to be integrated into solutions but separate from the business process, information and technology viewpoints. Planning this way will take longer and will not produce the high quality of doing things in a more unified way.
CONCLUSIONS

• Alternatively to building a security-only viewpoint, architects can organize security requirements, principles, patterns, components and bricks (that is, the elemental standards and technologies) into the appropriate primary EA viewpoint artifacts. This approach is that one the authors think run effectively and proposed a framework around it.

• Ultimately, it seems that the organizations use security architecture effort separated from enterprise architecture. This could not be a rational decision because of no comprehensiveness, redundancy of effort which leads to both incomplete enterprise and security architecture.


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