

Short Subject

Inter-Enterprise Architecture

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Abstract

This article introduces the notion of Inter-Enterprise Architecture (IEA) in response to the current evolution of the business environment and landscape associated with the adoption of common shared services, cloud computing, and social networking. The IEA describes the context, business environment, collaboration channels, partnership opportunities, influential components, and relationships across enterprises and business organizations in a selected business domain or service domain for a targeted enterprise or business organization. The IEA enables an enterprise or business organization to understand its position in today's networked business world. Due to the open and dynamic nature of service adoption and collaboration, and the autonomy of current enterprise structure, culture, and operating environments, it is necessary to explore how a business should be architected across boundaries to effectively respond to the common service and collaboration environment. It is becoming more important for a business to be agile and able to incorporate collaboration elements across organization boundaries. If Enterprise Architecture (EA) is like a city plan, the IEA is more like a plan for a metropolitan area.

This article discusses the subject areas for IEA to address, the impact of common service facilitation, public cloud, and social media to enterprises, the challenges, and the possible transitions necessitated by IEA adoption. Some examples will be provided as well.

Keywords

Enterprise Architecture, cloud computing, collaboration, common service, Inter-Enterprise Architecture, Service-Oriented Architecture, Service-Oriented Enterprise, Service-Oriented Infrastructure

INTRODUCTION

Businesses and the world economy are so much more interdependent nowadays due to global networking and boundary-less information flow. We can see that today's influences on and dependencies of an enterprise often lie far beyond the enterprise boundary. The trend of common service commoditization will add the mutual dependencies of service providers, service consumers, and service facilitators. Partnership and collaboration are the essence of this emerging dynamic. The evolution of the Internet and enabling technologies encourage such changes, such as the current popular efforts of SOA, cloud computing (see References), and social networking platforms (e.g., LinkedIn, Facebook, Twitter, YouTube).

It is essential for enterprises and business organizations to understand their business context, environment, landscape, collaboration channels, partnership opportunities, influential components, and relationships across enterprises and business organizations. The Inter-Enterprise Architecture (IEA) is introduced for this purpose.

THE EVOLUTION OF THE ENTERPRISE LANDSCAPE

The enterprise landscape is evolving due to the shift towards a new paradigm and the new opportunities it presents. This trend is illustrated in Figure 1.

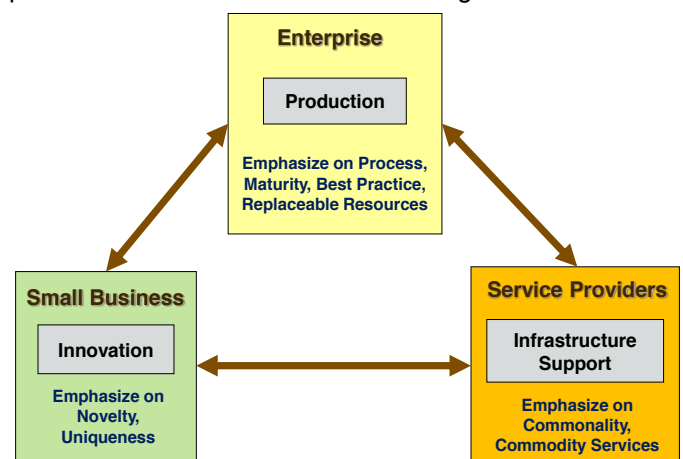


Figure 1: The Enterprise Landscape Evolution

We can see that the inter-enterprise restructuring is happening to fit the new economy and the changing paradigm.

The roles and responsibilities for the players are evolving. The focuses for good-sized enterprises are more on productivity, process-driven, maturity, and industrialization with replaceable components and resources, while the tasks of innovation are moving to small companies that will likely be acquired by large companies as they mature. Infrastructure services are forming and separating from enterprise business, becoming a business itself to provide common commodity services. The IEA is helpful in identifying such services and providing corresponding descriptions for businesses, both large and small, to have a clearer picture for effective business propositions and game plans. IEA is helpful in being aware of business context, environment, mutual dependencies, collaboration, and partnership opportunities.

THE NOTION OF IEA

The IEA is an abstract presentation of a selected business domain, with coverage across the enterprises and business organizations in the domain, and with descriptions in terms of scope, context, environment, roles and responsibilities, structure, components, relationships, interaction mechanisms, business process flow, information flow, etc. Specifically:

- **Scope:** Describes a selected business domain or a service domain. A business domain can be healthcare, education, financial service, retail, etc. A service domain can include service providers, service consumers, and service facilitators.
- **Business context and environment:** Identify the context for the targeted enterprise/enterprises or business organization/organizations. Identify their associated business environment.
- **Roles and responsibilities:** Identify the roles and responsibilities of the players in the IEA scope.
- **Structure, components, and relationships:** Identify the structure and describe the influential components. Identify and describe the relationships between the components and to the targeted enterprise or business organization.
- **Interaction mechanisms:** Identify media, channels, and mechanisms for interaction and communications.
- **Business process flow and information flow:** Describe business and inter-business process flows, and describe business and inter-business information flows through identified media and channels.

THE IEA WITH OTHER CONCEPTS AND EFFORTS

The relationship of IEA with other popular concepts and efforts is illustrated in Figure 2.

The IEA is constructed above each individual Enterprise Architecture (EA), while Service-Oriented Architecture (SOA) is an architecture style and approach that can be applied to EA and IEA where appropriate (Zhao 2010). By applying SOA to EA, we have Service-Oriented Enterprise Architecture (SOEA) (Zhao 2010; Zhao 2007; Zhao 2006). To implement an SOEA, we can partition it into: Service-Oriented Infrastructure (SOI), Service-Oriented Applications (SOA), and Service-Oriented Enterprise (SOE). Cloud computing enables SOI from the technical point of view, while ITIL® enables SOI from the management point of view. Under cloud computing, we have Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). IaaS can be implemented by the combination of virtualized and physical computing environments, though the trend is moving towards virtualization to maximize the benefits.

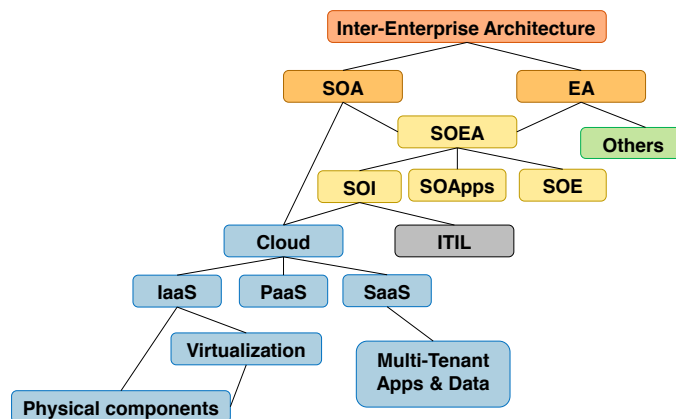


Figure 2: The Relationship of IEA with Other Concepts and Efforts

The IEA can facilitate the adoption of cloud computing by demonstrating the evolving landscape, business environment, and players for service provision, consumption, and facilitation, and demonstrating the environment and mutual dependencies for partnership and collaboration. It can help to describe inter-business structure for cloud computing adoption, either public or private. Also, it can guide the adoption of cloud computing by providing business cases, concept of operations, solution options, technical implementation options, flexibility for changes in vendors, and technologies.

IEA FOR ENTERPRISE TRANSITIONS

The IEA can guide an enterprise transition to the new paradigm, which enables IEA to be formed by intention instead of by accident from stove-piped implementations bounded inside each organization. It can make cloud computing and social media adoption more effective by identifying inter-business solutions and adapting to new



inter-business relationships and dynamics by design and by the effective usage of social media.

Examples of IEA for cross-enterprise cloud service adoption include: Shopping Mall on Cloud for cross-retailer efforts and Library on Cloud for cross-library efforts. Also, it can guide the solutions for business domain-oriented cloud. A public cloud implementation should be guided by an IEA, not the other way around.

ABOUT THE AUTHOR

Dr. Zhao is an enterprise-level chief architect, strategist, thought leader, and innovator, and was also an executive for Fortune 500 companies and a professor. She has over 20 years' work experience across academia, corporate research, the software industry, and consulting services, where she demonstrated strength in insight, vision, creativity, and discipline. She is a positive thinker and a motivational leader with experience in leading R&D, capability and intellectual property development, and consulting practice. She received a PhD in computer science and a Masters in mathematics from Arizona State University. She has six patents granted, four patents pending, and a number of invention disclosures and publications.

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