Architecting the Architecture: Chief Enterprise Architect to the Rescue

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FOCAL POINT

A growing body of knowledge for applying architectural concepts to complex software systems will assist IT organizations (ITOs) in attaining the benefits of reducing costs and increasing quality (e.g., adaptability, reusability, flexibility, reliability, interoperability). CIOs are increasingly considering the chief enterprise architect to lead the development and adoption of a unified, cost-efficient, and effective architecture that provides interoperability and adaptability. However, too little attention is paid to the software architecture analysis method (SAAM) and the importance of the characteristics and attributes of the chief enterprise architect, who is necessary for the successful deployment of a cohesive, enterprisewide IT architecture.

META Trend: The need to derive business value from information assets will force information architecture to mature within 60% of Global 2000 organizations by 2006, up from the current 40%. Information architects will formally articulate principles and actionable models that enable the CIO to focus on custodianship and stewardship of information, thus improving the enterprise's discovery of real opportunities to save time and money.

CONTEXT

CIOs need a chief enterprise architect who can develop and deploy an enterprisewide strategy. They must ensure that the IT architecture covers IT and business architecture for all the elements inside the organization, as well as partners and companies that are doing business with the enterprise. The position is of such importance that it demands a chief enterprise architect who possesses the proper qualities, skills, business acumen, experience, and discipline to ensure business and IT architecture alignment.

Leading Global 2000 (G2000) organizations dominate their markets through engaged, active governance (e.g., senior-management participation versus policy lists), process, and architecture (business, information, application, and services). By 2005/06, we expect more than 30% of the G2000 to place a greater level of importance on the role and responsibilities of the chief enterprise architect, enterprise architecture (EA) to move to center stage, and the SAAM process to be adopted to ensure business application integration and better alignment and with the business's needs. To date, many enterprisewide architecture efforts have not had a strong chief enterprise architect, the necessary architecture governance discipline, or SAAM process in place. The end result is an architecture that has run amok - complex applications and processing platforms, high operating costs, and poorly integrated (or leveraged) IT investment portfolios that are inadequately aligned with the business needs.

Since the late 1990s, there has been a concerted effort to assess, consolidate, and simplify IT architecture to reduce both complexity and costs. SAAM is one of the drivers of this trend, led by the chief enterprise architect. Business leaders and stakeholders are increasingly demanding that business and IT architecture models be developed in

conjunction with the architecture team. Indeed, the most savvy ITOs place a premium on business and IT infrastructure modeling of the core IT discipline, and they perform a software architecture review analysis (SAAM) periodically to ensure architecture “best fit” effectiveness, efficiency, and adaptability.

Herein Lies the Underlying Problem

The qualities assessed in architecture reviews and assessments are usually identified as feasibility, functionality, security, reliability (fault-tolerant, correctness, fault-tolerance, safety, etc.), performance (load, response time), scalability, usability, portability, etc. But all too often, the architecture review and assessment process is ill-defined or haphazard at best:

· No clearly defined assessment process
· No clearly defined decision-making authority or governance process
· No clearly defined architecture principles or buy-in by the ITO and its constituents
· No coherent architecture strategy
· No clearly stated benefits associated with the process

CIOs and their chief enterprise architects should start with SAAM.

Addressing the Problem With SAAM

To be successful, the SAAM architecting effort must first address a strategic business objective of the key sponsor. Other critical success factors (CSFs) include the following:

· Hiring the right individual with the requisite attributes to lead the function as the chief enterprise architect with a well-defined role and areas of responsibilities (see subsequent section)
· Promoting and adopting common architecture principles through an enterprisewide governance committee
· Creating an architecture team able to “sell” the architecture benefits and lead the assessment, modeling, and deployment process
· Inculcating an ITO and client willingness to “buy into” (follow) and contribute immediate value to developers (users of the architecture)

The SAAM Approach

The SAAM approach (www.sei.com) consists of the following five main activities:

· Characterizing a canonical functional partitioning for the domain
· Mapping the functional partitioning onto the architecture’s structural decomposition
· Choosing a set of quality attributes with which to assess the architecture
· Selecting a set of concrete tasks that test the desired quality attributes
· Evaluating the degree to which each architecture provides support for each task

By using SAAM, the chief enterprise architect can apply a general architectural analysis method to evaluate user interface architectures and sharpen the focus on linking business and IT models, driving toward a common enterprise vision. SAAM should become a systemic part of business and IT process review as it applies to architecture evaluation and decision making.

Final Words Regarding SAAM

SAAM Framework and Critical Success Factors

The architecture (framework) is more likely to be accepted and successful if based on the following three primary criteria:

· Whether there are architecture advocates at all levels of the organization
· Whether the architecture is woven into the culture
· Whether there is both IT executive leadership (CIO) and customer involvement

CSFs include interpersonal and team communication and ownership, visioning, teamwork, business acumen, a good match between technology and business strategy, a principles-based organization, a working governance model, validation of requirements during each step of the process, and an architecture that is understood and accepted by all (see Delta 2391). In some cases, the architecture might not fit a line of business's (LOB) needs, so the ITO must have a means for dealing with the outliers (e.g., supporting commercial, off-the-shelf software requires an IT budget chargeback of $200 per hour).

Other Frameworks

SAAM is a specialized evaluation method used to evaluate architectures for modifiability (and portability, extensibility, maintainability, and functionality). Although it is not the only architecture method, it is the most relevant to organizations striving for adaptability. Other frameworks include the following:

· Active Reviews for Intermediate Designs (ARID), a method for testing the feasibility and suitability of a set of services provided by a portion of architecture. ARID is useful for evaluating a partial design.
· Architecture Tradeoff Analysis Method (ATAM) is based on a set of attribute-specific measures of the system - some analytic, based on formal models (e.g., performance, availability), and some qualitative, based on formal inspections (e.g., modifiability, safety, security).

Principles Are Important, Too

We recommend that teams adopt a principles-based, business-driven approach leading to a conceptual architecture; those principles can make the transition to formal modeling easier, because of a focus on priorities. At the same time, principles alone are not enough. Successful implementation of any architecture - conceptual, business, or technical - requires clear analysis of capability gaps within IT. Once these gaps are assessed, the principles can guide the engineering activities to provide guidance while the details are worked out. Ultimately, the architecture principles provide a road map for IT that will enable greater enterprise optimization.

The DNA of the Chief Enterprise Architect Is Important

Based on our experience and research, the chief enterprise architect must have the following skills (see Figure 1):

· Good domain knowledge
· Good communicator/listener
· Good persuader
· Good project-management skills

Figure 1 — Chief Enterprise Architect Job Description

Chief Enterprise Architect

The incumbent does the following: 1) leads the architecture and design implementation effort for the organization; 2) provides technical and architectural direction to the software team; 3) leads the architecture and design efforts through delivery and test phases; 4) develops technological road maps, while keeping up-to-date with emerging technologies, and recommends business directions based on these technologies; 5) translates complex business problems into sound technical solutions; 6) provides technical leadership; and 7) is responsible for conducting the overall systems design and management of the business architecture and application technical architecture. The chief enterprise architect must constantly remain attuned to emerging technologies and recommend business directions based on those technologies to the director for enterprise architecture. This individual must assume a strong leadership position concerning standards and may be called on to represent the architecture group on the IT steering committee.

Technology experience should include at least 5-8+ years of hands-on experience in the architecture domain.

Responsibilities

- Provides technical and architectural direction to the software development team
- Demonstrates commitment to sound development process
- Is responsible for the translation and construction of complex business problems into sound technical solutions
- Ensures that development efforts are adhering to analysis, design, and development standards
- Manages day-to-day issues and tasks related to the development life cycle of the project
- Is responsible for providing insight and guidance on overall system design and provides technical leadership to development staff as required
- Is responsible for business object architecture and application technical architecture
- Develops technology road maps for architecture and development groups
- Documents and communicates architectural requirements within a distributed development environment
- Collaborates on strategy and architecture with development managers, LOB managers, and senior IT staff
- Is responsible for promoting the architecture agenda and selling it to LOB and IT management staff

Source: META Group

The chief enterprise architect must have a clear and compelling vision and champion the cause for enterprisewide architecture. Such individuals must exhibit the experience and political adeptness to avoid or manage the common pitfalls on the path to success. The most common impediments to success include poor leadership, poor communication inside/outside the architecture team, not enough “selling” of the architecture benefits (e.g., common infrastructure, reusability, pattern matching), and the architecture team’s losing touch with the product team’s problems, thus limiting the ability to effectively manage political intransigence.

Although conducting SAAM is extremely important, it is also important that the skills and experience level of the chief enterprise architect match the needs of the ITO and business. One without results in a suboptimal architecture or one that looks good on paper but is not formally adopted or followed.

Sound Architecture Enables Better Decision Making

If the ITO links the corresponding IT infrastructure blueprint to how the business operates, it puts senior management in a better position to make quality decisions on initiatives, including those for IT (e.g., which projects need to go forward, which need to be held in abeyance - or terminated - which are high priority). As a direct consequence of a targeted, consistent architecture focus, CIOs will be better positioned to drive forward a more cost-effective and resource-efficient ITO and, ultimately, the enterprise as a whole.

The chief enterprise architect/architecture team must seek to bridge the schism between high-level business models and detailed technical models, to ensure that context is preserved. They must also ensure that information is accurate to yield more effective and rapid decision making.

Bottom Line: Structural improvement and maintenance of cost-effective enterprisewide software architecture require a

software architecture review assessment (SAAM), producing improvement plans, and support in carrying out these plans. The chief enterprise architect is responsible for executing the architectural vision for all IT systems.

Business Impact: Architectural representations of systems are effective in driving understanding of broader system and business concerns by abstracting away from details of the system and enabling an enterprise IT framework.

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