Architecting for Agility

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Introduction

Being first has its benefits: as an IT manager, reducing the time it takes to bring a new product or service to market is among the greatest contributions you can make to your business. Imagine the strategic advantage your company would gain, not to mention the cost savings, if it were able to release a new offering within days instead of weeks or months.

Yet, at a time when technical infrastructures are becoming increasingly complex as customers demand more offerings, as much as 65 percent to 90 percent of the typical IT department's budget is spent on maintaining existing systems. This means that some organizations devote as little as 10 percent of their technology resources to innovation, and progress toward new offerings is extremely slow.

Ironically, IT, which is supposed to add efficiency and speed to business operations, often does the opposite. Most businesses find that IT complexity increases when they add new functionality and, as a result, wind up in a downward spiral, where change becomes more costly and time-consuming as customer expectations continue to increase.

What can an organization do to survive, let alone increase innovation? In the current economic environment, increasing IT funding is not likely the answer. Using IT funding more effectively and innovatively, however, may be.

If your business is experiencing the crunch from increased technological complexity coupled with accelerated customer demand for new offerings, a framework for achieving agility can help. The right architecture holds the key to agility and should be viewed as a strategic imperative for the IT organization. Your organization can achieve this imperative and increase agility greatly by adopting four key architectural elements.

Four Essential Elements of an Agile Architecture

1. **Flexible Infrastructure**—A flexible infrastructure forms the foundation for an agile architecture, allowing you to scale storage, computing, and network capacity (up or down) as needed to meet business demand efficiently. A flexible infrastructure is enabled by:

   - **Virtualization**—optimizing hardware usage.

   - **Standardization**—simplifying hardware maintenance and changes.

   - **Pervasive Connectivity**—empowering companies to deploy new capabilities nearly anytime, anywhere based on customer demand.

2. **Flexible Services**—Flexible services provide a set of reusable building blocks from which new applications can be built rapidly on top of the flexible infrastructure. Flexible services are enabled by:

   - **Modular Components**—these can be assembled to build more complex applications. Rationalizing existing applications and eliminating redundancy to provide a set of fundamental business services that can be used both internally and by partners are essential to establishing a good set of modular components.

   - **Canonical Model**—a model that specifies a single version of business objects and data: one customer, one product master, one "version of the truth."

   - **Rightsourcing**—determines which services should be provided by technologies in-house and which ones should be outsourced. Common, basic services currently maintained in-house may be provided more effectively by an external entity that has experience and the ability to scale services, simplifying your organization's services footprint.

3. **Flexible Service Orchestration**—Flexible service orchestration empowers the organization, including business users, to assemble flexible services into powerful, new market offerings with record speed. Orchestration is enabled by:

   - Intuitive, user-friendly Business Process Management (BPM) tools that allow users to specify and test business rules and logic visually, leaving the details of integration to an IP fabric, network-based platform.

   - Menu-driven user interface and workflow tools that allow for the creation of user interfaces and workflow steps with no programming skills required. Empowering business users both with this capability and with user-friendly BPM tools can unlock the door to a new level of innovation, speed, and efficiency in bringing new offerings to market.

   - Rich Business Activity Monitoring (BAM) tools that provide insight into how current processes are working and feature automated response capability to adjust to changing business conditions spontaneously.

4. **Governance**—Governance ties together the elements of an agile architecture and ensures that immediate flexibility does not trump long-term strategy. The foundation of good governance is a sound Enterprise Architecture program that defines the goals and standards for the infrastructure and services and how they will increase agility. In addition, rigorous testing and change-control tools and procedures are especially important, given the speed of technological change and the increased numbers of individuals directly involved with technology.

Agility in Action

It is easy to discuss architectural agility in a theoretical sense, but what does this mean for your business? How can you justify investing in an agile architecture at a time when all spending is facing increasing scrutiny?

Think for a moment about a telecommunications company that wants to release a new offering such as interactive gaming. The traditional implementation approach calls for a lengthy process. First, the business struggles to define requirements and communicate them to IT. Then, a long development and test cycle ensues, exacerbated by an inflexible architecture. With an agile architecture, on the other hand, business users could specify the computational logic for this offering through flexible service orchestration without writing any code. The logic could then be implemented quickly in a flexible infrastructure. Instead of waiting months in a project management queue, the new offering is tested and ready in days, IT efforts are reduced, and collaboration between the business and IT is strengthened.

Similarly, consider the web-based retailer that experiences seasonal spikes. For example, as year-end holiday shopping ramps up, order volumes quadruple and current systems max out. The company does not want to make further investments in infrastructure just to support seasonal spikes, or fail to meet holiday demand and lose additional revenue. A virtualized infrastructure, however, can enable the business to scale applications quickly to extend capacity in time of need and, at the same time, cut day-to-day operational costs.

Architectural agility plays a particularly important role at Cisco by enabling us to integrate the companies we acquire quickly and seamlessly. We have acquired roughly 130 businesses to date, but the modular, scalable nature of our infrastructure and applications—created from a manageable number of core building blocks and a network-based infrastructure supported entirely by IP—eliminates much of the pain associated with integration.

"As Cisco has increased architecture agility over time, we have been able to achieve some amazing feats," says Tim Merrifield, who has led IT integration for 96 Cisco acquisitions. This agility enables Cisco to integrate new acquisitions fully, even as Cisco approaches 70,000 employees. "If we closed a deal Thursday for a company with a similar business model, the following Monday, the company would be fully integrated with a brand new Cisco infrastructure," explains Merrifield.

Getting Started

Redesigning your existing architecture from the ground up to embody the four elements of agile architecture can be a significant investment, and few businesses can afford to take a big-bang approach, especially in the current economic environment. Most organizations, however, can begin making changes toward a more agile architecture in parallel with existing projects. For example, laying the foundation with a virtual infrastructure while implementing a new e-commerce system enables a company not only to scale to meet the needs of the new system, but also to apply a flexible infrastructure to other areas.

Small steps can yield big results over time. Remember, stopgap measures only add complexity and eventually slow IT progress. Architecting for agility, however, is the best way to use technology to truly enable your business to accelerate into the future.

More Information

The Cisco Internet Business Solutions Group (IBSG), the global strategic consulting arm of Cisco, helps CXOs and public sector leaders transform their organizations—first by designing innovative business processes, and then by integrating advanced technologies into visionary roadmaps that address key CXO concerns.

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