The Agile Service Provider: Breaking the Barriers to Offering New Services and Technologies

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Executive Summary

The purpose of this paper is to discuss the importance of business agility for service providers and how it enables them to:

- Quickly design, test, implement and offer new services to drive top-line growth and improve cash flow
- Embrace new and disruptive technologies efficiently and effectively
- Continue to support the current services and underlying technologies

This paper will outline a business architecture approach for achieving and maintaining agility, discussing the high-level transition process and elaborating further on the specific benefit areas including:

- Increased business model flexibility
- Increased strategic options
- Accelerated time to market
- Improved operational efficiencies

Audience

This document is intended for multiple audiences:

- Decision makers - Business values offered by an agile model are mapped against service provider business goals.
- Business owners - An agile business architecture is presented, enabling the consumption of new business models and market leading technologies.
- Technical architects - High level functional architectures and systems are introduced, describing how current technical deployments can be folded into an overall agile ecosystem.

About the Author

Tom Davies is a Technical Solutions Architect at Cisco Systems, spanning OSS, orchestration, and fulfillment architectures and technology. Prior to joining Cisco, Tom spent more than 15 years working with both hardware and software vendors as well as system integrators, helping them to consult on, design, and implement OSS products and solution architectures. He is a certified enterprise architect.

Business Agility: What Is It and Why Is It Important?

Service providers (SPs) are under enormous business pressure. Average revenue per customer is often on a declining trajectory, margins are shrinking and cash flow is decreasing.

Over-the-top players such as Amazon are delivering web-based services at an ever increasing pace and lower cost, pushing SPs toward the “just connectivity provider” corner. At the same time, system integrators are positioning themselves as the preferred end-to-end supplier for complex information and communications technology (ICT) services and are moving into head-to-head competition with SPs.
Delayed Reactions…
One of the underlying reasons SPs find themselves in this position is an inability to rapidly and cost effectively bring new and innovative services to market - a lack of agility.

Due to legacy environments and reduced internal inertia that has grown over years, it typically takes a service provider 9 to 12 months to bring to market a new service of medium complexity. For highly complex services a time-to-market of plus or minus 36 months has been seen. This is no longer acceptable in the current highly dynamic market environment.

Why So Slow?
The willingness of SPs to offer innovative services on cutting edge technology is not in doubt.

Unfortunately, many SPs not only have large legacy networks to maintain, but just as importantly, a multitude of element and network management systems leveraged by numerous higher level operational support system (OSS) stacks.

Many of these stacks are highly engineered to efficiently fulfill a specific set of operational functions, but they also represent a tight bottleneck to supporting new services and technology in a timely manner.

One also needs to consider that in the current SP operating environment, processes are often hard-wired around the technical capabilities and features of the underlying management platforms.

As a result, each time a new service or service variation needs to be introduced, a reengineering of the combined IT tools and processes is required. Such activity typically results in multiple months of development cycles, high costs, and a lengthy time to market for that new service.

This operational readiness, for a service of medium complexity, can consume as much as 50 percent of the overall time to market cycle.¹

Figure 1 presents an illustrative overview of the typical product development activities and their respective efforts.

Figure 1. Typical Product Development Activities and Effort

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¹ Source: Cisco IBSG.
The resultant cost per service (in terms of capital and operational expenditure) and time to market cause the SP to become uncompetitive in relation to the speed and cost that other players in the market can operate.

Add to this shifts in business models toward new technology trends such as Software Defined Networks (SDN) and Network Function Virtualization (NFV) that provoke massive and rapid technology change - and the complexity increases. Static business architectures, constrained by the technical systems in place to support them, are no longer desirable or even maintainable.

**Time for Change**
For many service providers, there is a huge and immediate sense of urgency for change; to become more adaptive and agile to market demands and direction. SPs need to find answers to how they can:

- Rapidly introduce new IP/cloud-based communications, collaboration, and entertainment services into the market with high quality, efficiency, and scalability
- Easily integrate third-party capabilities into service offerings to gain strategic and economic advantage
- Quickly adapt to changing market environments through service innovation

Transforming the business by adopting an Agile Business Architecture provides the solution to these needs.

**Building an Agile Business Architecture**
It is becoming essential that SPs begin to move to a more Agile Business Architecture that:

- Provides a flexible and modular approach to supporting new services
- Reduces the interdependencies across systems and resources required for the service
- Supports new services on a technology-agnostic basis
- Reduces the complexity of fulfilling and assuring new and existing services

**It's All About the Principles**
To attain the above business targets, an agile business needs to adhere to a consistent set of guiding principles, irrespective of the service or technology to be supported, abstracting away the specific intricacies of the service or technology upon which it is based.

Such principles are presented in Table 1.

**Table 1. Agile Business Architecture - Principles and Characteristics**

<table>
<thead>
<tr>
<th>Principle</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology Agnostic End-to-End Service Orchestration</td>
<td>Abstracts service orchestration from underlying technology platforms. Contains the blueprint for product assembly and assurance. Manages service dependencies and &quot;advertises&quot; services to north bound entities.</td>
</tr>
<tr>
<td>Standardized Interface</td>
<td>Promotes consistent component assembly orchestration. Enables the removal of interdependencies across Service Suppliers. Provides measurements for key performance indicators (KPIs) and service-level agreements (SLAs).</td>
</tr>
<tr>
<td>&quot;Service Supplier&quot; Modularization</td>
<td>In order to provide a modular approach, relevant processes required to supply a certain service are grouped into self-contained Service Suppliers. A Service Supplier has full control of its internal production processes, tools and data model. There are little to no interdependencies between Service Suppliers. Service Suppliers may be in-house or external/third party.</td>
</tr>
</tbody>
</table>
Figure 2 depicts how these principles and their characteristics can be used to form an Agile Business Architecture to meet business targets.

**Figure 2.** Principle-Based Agile Business Architecture

![Principle-Based Agile Business Architecture Diagram]

**Working on Principle…**

Applying such principles and the resultant high-level architecture shown in Figure 2 within a service provider environment:

- The business is divided into a discrete set of domains or “factories” acting as a Service Supplier. The fulfillment and assurance of the services that a Supplier supports is completely contained within that Service Supplier entity, with minimal interdependency on any other Service Supplier’s products or service components.

  Each Service Supplier “advertises” for use the services it provides, along with the common characteristics of the service or service component. These characteristics are generally classified into three main areas:

**Table 2.** Service Suppliers: Service Characteristics

<table>
<thead>
<tr>
<th>Service Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifiable</td>
<td>What is the service, what does it provide, and what are the specific parameters (bandwidth, CPE type, etc.)?</td>
</tr>
<tr>
<td>Predictable</td>
<td>How will the service behave across operational environments? What are the requirements and parameter extremities for the service to continue to function at agreed upon levels?</td>
</tr>
<tr>
<td>Verifiable</td>
<td>How can service performance be measured and what KPIs can be collected?</td>
</tr>
</tbody>
</table>

- Service Suppliers can be internal or external (e.g., a third-party provider delivering Hosted Web Collaboration services).

- Standardized interfaces are used to communicate with all Service Suppliers. This allows the SP to quickly change the Service Supplier ecosystem and onboard or remove new or existing Service Suppliers. Additionally, the Service Supplier must be responsible for its own success and measured as such, while providing what is required to support the overall SP business strategy (e.g., meeting the required average time to complete service order, percentage fallout rate, cost of service delivery, etc.).
This combination of standardized supplier communication and minimal supplier interdependencies makes swap out nearly transparent and allows new suppliers to be integrated with ease.

- The technology-agnostic service orchestration layer is then free to orchestrate complex service offerings, spanning multiple Service Suppliers using different technologies within their domain. This orchestration layer presents services to different customer-centered market-facing business units, such as consumer, business, or wholesale for consumption.

The orchestration layer provides targeted end-to-end offerings that abstract away the complexity and intricacies of each Service Supplier, treating them as “black boxes” that simply fulfill and assure the service requests they have advertised.

**Figure 3. Agile Business Architecture Overview**

**Making Services Modular**

Structuring a service provider’s business architecture into a modular, building block, Service Supplier architecture provides powerful benefits:

- Allows for the simplified integration of new Service Suppliers in order to quickly, efficiently offer new services on cutting edge technologies.
- Existing Service Suppliers can be replaced without impacting any other supplier, technology, or unrelated service offering.
- Enables the SP to easily adopt new business models through the choices of Service Supplier, be it home grown or third party, implicitly using the technology trends these suppliers employ, such as SDN-based controllers and NfV deployment and management.
- Enables the creation of new service offerings, bundles, and packages in minutes, regardless of the disparate systems and technologies the Service Suppliers use to provide the service.
- Facilitates the quick and easy retirement of legacy Service Suppliers, their systems, and technology as they are no longer required or become outdated, simply by retiring the service offerings that use the legacy Service Supplier.
Putting It into Practice

Figure 4 takes a fairly complex service order example of infrastructure as a service (IaaS) with hosted voice and connectivity and applies it to the Agile Business Architecture introduced above.

**Figure 4.** IaaS with Hosted Voice and Connectivity Example

Using this agile architecture, operators can offer and customers can order services relevant to their market segment by utilizing an appropriate customer relationship management (CRM), product catalog, or portal.

This order is then received by the service orchestration layer. Typically this layer’s functionality would be provided by a Technical Service Catalog. The catalog should allow an SP’s service managers to quickly discover new Service Suppliers (and their services) through the standardized interface and combine these services with other services from other domain suppliers to offer new services in minutes.

It should also actively decompose and coordinate a service request to the relevant Service Suppliers that can support the fulfillment of it. This technical service catalog typically maintains a service inventory for customer-service relationships, reporting, assurance enrichment, etc.

Execution of orders across Service Suppliers (for example, a Service Supplier outputs an IP address that another Service Supplier depends upon for initiation) are also managed by the technical service catalog.

The service orchestration layer does not need to understand the underlying technology used by a certain Service Supplier or how the order is fulfilled, but it does understand the dependencies across the services. This ensures that the most efficient orchestration path can be calculated and executed; minimizing the length of time the customer-facing service takes to be delivered.
The Service Suppliers receive the service request into their individual factory and fulfil it.

The service orchestration layer manages the responses from the Service Suppliers and confirms completion of the entire service order back to the product catalog or portal along with any associated KPI or SLA data.

Summarizing, the essential functional architecture components in the Agile Business Architecture are presented in Figure 5.

**Figure 5. Agile Functional Architecture**

Employing solutions that can provide these functions whilst conforming to the key principles of business agility will provide the service provider with the necessary architectural building blocks to realize agility.

The transformational journey to an agile future can then begin…

**An Agile Service Provider: Clear Benefits**

There are huge benefits for service providers that are willing to adopt an Agile Business Architecture.

The Agile Service Provider can expect to:

- Create and offer new packages and new bundles of existing services with great ease and minimize the time to market down to a matter of hours.
- Actively pursue the latest service technologies without fear of heavy time and cost repercussions to offer and operate them.
- Increase the strategic options open to the business when choosing Service Suppliers and the functionality and technology that they utilize, be that home grown or third party.
- Retire legacy services and supporting systems easily and cleanly at any time.
- Dramatically simplify business and operational processes and reduce service and system interdependencies through modularization, lowering the cost of maintaining and operating the service provider business.

**Figure 6.** Traditional Operations Process Versus Agile Modularisation

Based on service provider engagements, the following statistics provide an overview of the typical improvements that are achieved by employing an Agile Business Architecture.²

- 20 percent reduction in new product development timelines due to lower system and technology interdependencies
- 19 percent reduction in order to cash times, with cleaner, modularized processes providing higher rates of efficiencies and less order fallout
- 15-30 percent reduction in overall operational costs

**Conclusions**

Adopting an Agile Business Architecture provides extensive and powerful benefits for service providers.

It is a transformational architecture for service providers that wish to offer and monetize new services, technologies, and business models, while reducing the related costs of operations.

The Agile Service Provider will empower itself to offer services that embrace cutting edge technology trends and to lead in the market that accompany these trends.

**See What Agility Can Do for Your Business…**

Transforming to an Agile Business Architecture requires commitment to undergo, in many cases major, transformations.

With considerable breadth and depth of experience in supporting service providers in achieving agility, Cisco can help your business achieve its goals.

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² Results will vary depending on the service provider’s specific situation, specific triggering events, and the level of engagement of key executive stakeholders. Statistics source: Cisco IBSG.
Providing business transformation consultancy combined with world leading software solutions and advanced services, Cisco will be with you at each step of your evolution to an agile future.

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