The ISV Business Case For The Windows Azure Platform

A Total Economic Impact Analysis

Project Director: Michael Speyer

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Executive Summary

In April 2011, Microsoft commissioned Forrester Consulting to examine the total economic impact and business case for independent software vendors (ISVs) to build applications on the Windows Azure platform. The purpose of this study is to provide ISVs with a framework to evaluate the potential financial impact on their businesses of building Windows Azure applications.

We found that the ISVs successfully moved their applications to the Windows Azure platform and used this as an opportunity to gain access to new customers and revenue opportunities. The ISVs were able to reuse much of their pre-existing code, thereby preserving their prior investments, and they were able to leverage their existing development skill sets.

Windows Azure Enables Rapid Implementation Of Cloud Applications

For this study, Forrester interviewed six ISVs that had developed applications on the Windows Azure platform, which includes service offerings of Windows Azure, Microsoft SQL Azure, and Windows Azure AppFabric. Based on the data gathered from these ISVs, we constructed a framework for evaluating the potential revenues, pricing strategies, and expenses associated with developing and selling cloud-based software-as-a-service (SaaS) applications.

From the interviews, we learned that the ISVs were able to do the following:

- **Reuse existing code.** The ISVs were able to port up to 80% of their existing Microsoft code onto Windows Azure by simply recompiling it.

- **Transfer existing coding skills to the Windows Azure environment.** ISVs that had application development skills in Microsoft technologies were able to leverage those skills without any retraining.

- **Leverage the Windows Azure flexible resource consumption model.** The ISVs tuned their applications to minimize Windows Azure resource usage and make it more predictable.

- **Use the Microsoft service-level agreement (SLA) to guarantee application availability and performance.** ISVs pointed to the Windows Azure SLA in order to overcome customer concerns around application uptime and performance.

- **Reach completely new customers.** Having cloud-based applications that could be offered globally allowed the ISVs to sell into new market segments and to geographically distant customers.

At the time of writing, the ISVs had been selling their Windows Azure-based applications for nine to 14 months. Our financial analysis determined the following:

- **Expenses.** The ISVs we interviewed experienced the following expenses related to their Windows Azure platform application:
  
  - **Initial code porting and development effort of eight to 12 person-months.** This represents the effort needed to port existing code to Windows Azure and develop the first working version on Windows Azure.
• Launch-ready application development effort of five to 24 person-months. Additional effort was required to re-architect code to optimize it for the Windows Azure platform, to use Windows Azure-specific features, and to build any additional functionality required to make the application customer-ready.

• Windows Azure operations expenses ranging from $400 per month to $2,500 per month. This represents the fees paid to Microsoft for Windows Azure platform services. Multiple factors contribute to the variance in the Windows Azure expense, including compute cycles, storage, bandwidth, and database consumption.

• Revenues and cost reductions. The ISVs we interviewed experienced the following financial benefits:

  o 70% to 80% reduction in hosting expenses. Those ISVs that had previously hosted applications for their customers using traditional server hosting were able to significantly reduce their hosting expenses while improving service delivery quality. Using the Windows Azure platform also eliminated the overhead associated with maintaining servers and multiple code instances.

  o Annual revenue growth rates of 20% to 250% for applications built on Windows Azure. These are completely new revenues from SaaS applications built on Windows Azure, and they were achieved in the first nine to 14 months of operations.

From our interviews, we synthesized a composite ISV, which is based on characteristics of the interviewed ISVs. For the three-year period of the financial analysis, the composite ISV experienced the expenses and revenues shown in Table 1.

<table>
<thead>
<tr>
<th></th>
<th>Initial Azure development expense [present value (PV)]</th>
<th>Azure operations expense (PV)</th>
<th>Revenues (PV)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>($220,500)</td>
<td>(28,045)</td>
<td>$1,952,216</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.

Factors Affecting Revenues And Expenses

Table 1 shows the revenues and expenses that the composite ISV experienced while porting its application to the Windows Azure platform, Windows Azure operations expenses, and revenues during the first 12 months of operations. These values take into account any potential uncertainty or variance that exists in estimating the expenses and revenues, as well as factors that may adversely affect business outcomes. The following factors were identified as those that can affect the results an ISV may experience:

• The cost needed to port and optimize applications for Windows Azure will vary. The variance will depend on the platform on which the pre-existing application was developed and the amount of recoding needed to take
advantage of the features and capabilities on the Windows Azure platform. We note that those ISVs that re-architected or rewrote portions of their code found this to be beneficial for multiple reasons, including positioning the application to take advantage of new and future Windows Azure capabilities, improving scalability, optimizing Windows Azure resource consumption, and optimizing the application architecture for multi-tenancy.

- **Windows Azure platform operations expenses will vary.** Windows Azure expenses are driven by multiple factors, including compute time, storage needs, database needs, and bandwidth used. The consumption of these resources will vary from application to application and the number of customers.

- Revenues will vary with sales and marketing effectiveness.

**Disclosures**

The reader should be aware of the following:

- The study is commissioned by Microsoft and delivered by the Forrester Consulting group.

- Forrester makes no assumptions as to the potential return on investment that other organizations will receive. Forrester strongly advises readers to use their own estimates within the framework provided in the report to determine the appropriateness of an investment in Windows Azure.

- Microsoft reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester’s findings or obscure the meaning of the study.
TEI Framework And Methodology

Introduction
Based on the information provided in the ISV interviews, Forrester has constructed a Total Economic Impact™ framework for those ISV partners that wish to develop and run applications on Windows Azure (Azure). The objective of the framework is to identify the expense, revenue, flexibility, and risk factors that affect the investment decision.

Approach And Methodology
Forrester took a multistep approach to evaluate the business case for Windows Azure (see Figure 1). Specifically, we:

- Interviewed Microsoft marketing personnel as well as Forrester analysts to gather data relative to Azure and the marketplace for Azure.
- Interviewed six ISV partner organizations that have developed and are selling applications on Windows Azure, to obtain data with respect to expenses, revenues, and risks.
- Designed a composite ISV based on characteristics of the interviewed ISVs (see Appendix A).
- Constructed a financial model representative of the interviews using the TEI methodology. The financial model is populated with the expense and revenue data obtained from the interviews as applied to Azure applications.

Forrester employed four fundamental elements of TEI in modeling the Windows Azure service:

1. Expenses.
2. Revenues.
3. Flexibility.
4. Risk.

Please see Appendix B for additional information on the TEI methodology.
Analysis

Interview Highlights
A total of six interviews were conducted for this study. We interviewed business owners, chief technology officers, and chief marketing officers. The primary characteristics of the interviewed companies are summarized in Table 2.

Table 2
Profiles: ISVs Interviewed

<table>
<thead>
<tr>
<th>ISV</th>
<th>Location</th>
<th>Years in business</th>
<th>Pre-Azure products</th>
<th>Azure product</th>
<th>Markets served</th>
<th>Reasons for pursuing cloud product strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>US</td>
<td>8</td>
<td>Energy management platform. Offered hosted solution. Discontinued.</td>
<td>Energy management</td>
<td>Retail, hospitality, commercial real estate, private label</td>
<td>Scalability, reduce or eliminate hosting costs</td>
</tr>
<tr>
<td>No. 2</td>
<td>EU</td>
<td>20</td>
<td>Point-of-sale systems. Served local markets. No new development</td>
<td>Point-of-sale system</td>
<td>Retail, global</td>
<td>Competitive differentiation, reach new market segments and geographies</td>
</tr>
<tr>
<td>No. 3</td>
<td>EU</td>
<td>10</td>
<td>Reservation systems, hosted solutions. Serves local market. No new development</td>
<td>Reservation systems</td>
<td>Retail, recreation. Serve a broader EU market.</td>
<td>Reduce hosting costs. Eliminate need for separate software release for each customer</td>
</tr>
<tr>
<td>No. 4</td>
<td>EU</td>
<td>3</td>
<td>Web agency, platform for publishing HTML content to mobile devices. Global markets.</td>
<td>Platform for publishing HTML content to mobile devices</td>
<td>Diversified, global</td>
<td>Reach new market segments, reduce upfront costs for customers, reduce hosting expense</td>
</tr>
<tr>
<td>No. 5</td>
<td>US</td>
<td>3</td>
<td>Multiple publishing products</td>
<td>Print and publishing</td>
<td>Small and medium business, private label</td>
<td>Scalability, specific Azure features</td>
</tr>
<tr>
<td>No. 6</td>
<td>US</td>
<td>24</td>
<td>Multiple products</td>
<td>IT management</td>
<td>Highly diversified, private label, global</td>
<td>Scalability, reach global customer base</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.
Reasons For Choosing Azure

After making the decision to pursue a cloud-based product strategy, the interviewed ISVs needed to select an appropriate development and hosting platform. Their reasons for choosing Azure were influenced by business goals, prior experience with hosted solutions, competing platform-as-a-service (PaaS) environments, and their existing coding skill sets. Specifically, we found that the ISVs wished to:

- **Leverage their existing code base, developed using Microsoft technologies.** Five of the six ISVs had developed their pre-Azure applications using Microsoft technologies such as Microsoft .NET, Microsoft Visual Studio, Microsoft SQL Server, and Windows Server. They wished to reuse as much code as possible while minimizing the effort to port the code to a new platform.

- **Reduce and control hosting costs.** Those ISVs that had offered hosted solutions for their pre-Azure customers realized that the hosting costs did not scale linearly as the number of hosted customers increased. They had also experienced the cost and hassle of managing servers and maintaining multiple instances of their code. Azure offered the potential to control the hosting expense while eliminating the need to maintain servers and multiple code instances.

- **Provide separate installation instances for customers that required it.** In cases where customers had concerns around data privacy or where a customer private-labeled the ISV’s product, Azure would allow the ISV to create a completely separate application instance for the customer.

- **Leverage specific Azure features.** After performing their due diligence, some ISVs realized that they could improve the architecture and performance of their code by taking advantage of specific Azure features that were not readily available in other PaaS environments. These features specifically included SQL Azure, Windows Azure blob storage, and Service Bus.

- **Offer an SLA that is backed by Microsoft.** Smaller ISVs that planned to sell to large sophisticated customers needed a mechanism to offer a strong SLA. Azure would allow them to offer an SLA backed by Microsoft.

The Azure Development Experience

Of the six ISVs we interviewed, five ported their existing applications from a .NET environment and one ported from a Java environment. The ISVs’ Azure development experience varied, depending on their existing products, the amount of application re-architecture undertaken, and the amount of new code that was written to support the product in a SaaS environment. We found that the ISVs:

- **Ported 80% to 85% of their .NET code to Azure.** The porting of existing code to Azure was done to obtain a first working version of the application on Azure. Code that required rewriting was done because of differences between the Azure and prior environment (e.g., Azure versus Windows Server 2008) or to take advantage of specific Azure features. The ISVs found that porting from .NET was relatively easy, usually requiring a simple code recompile. The Java porting experience was similarly described as relatively straightforward. According to one ISV, they “developed their first platform in four years ... re-architected for Azure over a nine-month period” and “reused a lot of code because it was directly portable.”
• **Invested eight to 12 person-months to develop the first working version on Azure.** This represents the effort needed to perform the initial code port and perform any necessary code rewrites. We found that the effort needed to port .NET and Java code fell into the same range.

• **Rewrote portions of their code after performing the initial port.** Code rewriting was done to bring the applications to a launch-ready state. The reasons for code rewriting included optimizing the code for Azure resource usage, leveraging Azure capabilities like Service Bus and blob storage, re-architecting for multi-tenancy, and introducing new application features. The investment in code rewriting varied widely, ranging from five person-months to two person-years. We recognize that code rewriting was not a "one-time" activity, and the ISVs were continually investing in Azure code development.

• **Made additional, variable investments to “industrialize” their applications.** “Industrialization” implies adding functionality like automated provisioning, configuration, user onboarding, or application-driven metering needed to make the application fully operational in the cloud environment. The degree of industrialization undertaken varied widely. Some ISVs, particularly those with a small user base or simple configuration needs, performed user onboarding and configuration manually and had no need to develop this functionality.

*Composite ISV*

Based on the interviews with the six ISVs Microsoft provided, Forrester constructed a TEI framework, a composite ISV, and an associated analysis, which illustrate the areas financially affected. A full description of the composite ISV can be found in Appendix A.

The composite ISV that Forrester synthesized from the interviews represents a 10-year-old company. Prior to developing products on Azure, its primary product was an on-premises application that was sold using a traditional license-based model. The primary market for the composite ISV’s on-premises products is the logistics and warehouse management industry, selling mainly to midsized and large enterprises.

To grow the company’s revenues, the owners wanted to develop a product that would allow them to reach new market segments, such as small businesses, or geographically distant customers. The owners, noting an increasing interest among their customers and prospects for applications that are delivered from the cloud, decided to pursue a cloud-based application strategy. In particular, the owners believed that a cloud-based strategy would allow them to reach new market segments and achieve competitive differentiation relative to their larger competitors.

The composite ISV had prior experience managing applications for its customers. It had learned that this approach would not work well for its proposed product because the hosting costs did not scale linearly with the number of customers. After reviewing other PaaS and infrastructure-as-a-service (IaaS) offerings, the composite ISV chose Azure because the platform could scale easily, allowing the company to support large use cases. It would allow the ISV to address the cost challenges associated with hosted solutions, and the owners believed that their on-premises products would port relatively easily to Azure because it was developed using Microsoft technologies (.NET, Visual Studio, SQL Server).
Framework Assumptions

Table 3 provides the model assumptions that Forrester used in this analysis.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Metric</th>
<th>Calculation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Senior .NET developer annual salary</td>
<td></td>
<td>$85,000</td>
</tr>
<tr>
<td>A2</td>
<td>Salary overhead multiplier</td>
<td></td>
<td>1.2</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.

The discount rate used in the present value (PV) and net present value (NPV) calculations is 10%, and the time horizon used for the financial modeling is three years. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult with their respective company’s finance department to determine the most appropriate discount rate to use within their own organizations.

Expenses

The ISVs incurred costs in three primary areas:

- Initial application porting and code rewriting to obtain the first working Azure version.
- Code rewriting to optimize the application for Azure to obtain a launch-ready version.
- Azure operations.

Additional costs associated with marketing, business development, ongoing development of the Azure application, and supporting pre-Azure applications are not included in this analysis because they either do not relate directly to Azure or would have been incurred anyway.

Initial Code Porting And Development To Obtain First Working Version

Porting the existing application code to Azure was the first step the ISVs took to get a working Azure application. The ISVs we interviewed described the initial code porting experience as easy, requiring a simple code recompile. The ISVs were able to port 80% to 85% of their code without rewrites. The ease of porting code was highly valuable because it allowed the ISVs to preserve much of the multimillion-dollar investments in their original code. For example, one ISV had spent $15 million on application development, which represents a cumulative development expense over a three-year period, including initial development on other PaaS platforms. It estimated that its Azure development effort required 10 person-months to obtain a working Azure application.
Most of the ISVs estimated the effort needed to port their applications to Azure to be in the eight to 12 person-month range. This includes the effort needed to rewrite code that did not port successfully.

For the composite ISV, we assume that it will be able to port 80% of its existing code base and will rewrite the remaining code to resolve differences between the original environment and Azure. Examples of where differences may exist include Windows Server 2008 and SQL Server. We assume that the initial porting and development effort will take 12 person-months. Assuming a .NET developer salary of $85,000, the initial Azure development expense is $102,000 (see Table 4).

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Metric</th>
<th>Calculation</th>
<th>Per period</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Number of developer months needed to perform initial application porting</td>
<td></td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>Developer fully loaded monthly rate</td>
<td>A1*A2/12</td>
<td>$8,500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bt</td>
<td>Azure development expense</td>
<td>B1*B2</td>
<td>$102,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bto</td>
<td>Total (original)</td>
<td></td>
<td>($102,000)</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>($102,000)</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.

Development Effort To Obtain A Launch-Ready Application

After developing their first working Azure applications, the ISVs invested additional resources to optimize the code for the Azure environment. We found that the reasons to optimize the code fell into two categories:

- **To minimize Azure resource consumption.** ISVs wanted to both minimize Azure resource consumption and to be able to predict Azure resource consumption. We learned that this was essential because the Azure resource expense directly affected the ISVs’ pricing model and profitability. Optimizing the code was an iterative process, which continued after the Azure application was launched. Forrester encourages readers to carefully examine their application’s Azure resource usage and optimize their code appropriately.

- **To leverage specific Azure features (such as Service Bus or blob storage) and ensure that the code was appropriately architected.** This effort allowed the ISVs to implement scalable, robust applications that performed well in the Azure environment.
The effort needed to optimize the code was highly variable because each application has its unique requirements. The optimization efforts reported to us by the ISVs ranged from five person-months to two person-years. This effort was usually spread out among multiple developers over a six- to 12-month period. This included all testing, verification, and quality assurance tasks.

For the composite ISV, we assume that the code optimization effort will take 15 months. This yields a code optimization expense of $127,500 (see Table 5).

### Table 5
Launch-Ready Application Development Expense

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Metric</th>
<th>Calculation</th>
<th>Per period</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Number of developers months needed to develop launch ready application</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>Developer fully loaded monthly rate</td>
<td>A1*A2/12</td>
<td>$8,500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ct</td>
<td>Launch-ready application development cost</td>
<td>C1*C2</td>
<td>$127,500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cto</td>
<td>Total (original)</td>
<td>($127,500)</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td></td>
<td>($127,500)</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.

### Azure Operating Expense

The Azure operating fees that the ISVs pay to Microsoft are highly variable, ranging from $10 per month per customer to $2,600 per month inclusive of all customers. There are numerous drivers of variance, including compute time, storage consumed, and bandwidth. ISVs that experienced relatively high transaction volumes or that stored large amounts of data (e.g., images, video, PDFs) experienced higher Azure expenses. For most ISVs, the Azure costs scaled with number of customer units (a "unit" could be a location, user, device, etc.) and how efficiently their applications consumed Azure resources.

For the composite ISV, we assume that its pre-Azure hosting expense was $3,000 per month. Assuming a 75% savings, the composite ISV’s Azure expense will be $9,000 annually. We assume that this expense will grow 25% annually as usage increases. This yields a total three-year expense of $34,313 (see Table 6).
Table 6
Azure Operating Expense

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Metric</th>
<th>Calculation</th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Pre-Azure annual hosting expense</td>
<td>$3,000 × 12</td>
<td>$36,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>Percentage hosting expense saved with Azure</td>
<td>75%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td>Average Azure expense growth rate</td>
<td>0%</td>
<td>25%</td>
<td>25%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ct</td>
<td>Azure operating expense</td>
<td>C1 × (1 - C2)</td>
<td>$9,000</td>
<td>$11,250</td>
<td>$14,063</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cto</td>
<td>Total (original)</td>
<td>$0</td>
<td>($9,000)</td>
<td>($11,250)</td>
<td>($14,063)</td>
<td>($34,313)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.

Total Expenses
For the composite ISV, the total costs of porting the application to Azure, creating a launch-ready product, and Azure fees are $263,813 (see Table 7).

Table 7
Azure Development And Operating Expense

<table>
<thead>
<tr>
<th>Costs</th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial code porting and rewriting cost</td>
<td>(102,000)</td>
<td></td>
<td></td>
<td></td>
<td>(102,000)</td>
</tr>
<tr>
<td>Launch-ready application development cost</td>
<td>(127,500)</td>
<td></td>
<td></td>
<td></td>
<td>(127,500)</td>
</tr>
<tr>
<td>Azure operating expense</td>
<td>(9,000)</td>
<td>(11,250)</td>
<td>(14,063)</td>
<td></td>
<td>(34,313)</td>
</tr>
<tr>
<td>Total</td>
<td>($229,500)</td>
<td>($9,000)</td>
<td>($11,250)</td>
<td>($14,063)</td>
<td>($263,813)</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.

Revenues And Cost Reductions
The interviewed ISVs monetized their Azure products by charging monthly fees or by selling licenses when the product was white-labeled. The revenues that each ISV experienced depended on:
• Pricing strategy.
• Sales and marketing strategy.

Pricing Strategy

The ISVs’ pricing strategies were driven by numerous variables including growth and margin objectives, industry served, competitive forces, and short-term business objectives. In most situations, the Azure services consumed by each of the ISV’s customers varied little, and customers were charged the same rate irrespective of the Azure operating expense. In situations where Azure services consumption was high and variable, the ISV adopted a variable pricing strategy that allowed it to pass the variance in Azure expense onto the customer. In situations where the application was private-labeled or run as a separate instance, the customer was directly responsible for the Azure expense.

The ISVs’ pricing strategy is summarized in Table 8.

Table 8
ISV Azure Application Pricing Strategies

<table>
<thead>
<tr>
<th>ISV</th>
<th>Base price</th>
<th>Comments</th>
<th>Azure product</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>$10/month/location</td>
<td>Fixed pricing</td>
<td>Energy management</td>
</tr>
<tr>
<td>No. 2</td>
<td>€49/month/seat</td>
<td>Fixed pricing</td>
<td>Point-of-sale system</td>
</tr>
<tr>
<td>No. 3</td>
<td>€150-€200/month</td>
<td>Pricing varies with usage.</td>
<td>Reservation systems</td>
</tr>
<tr>
<td>No. 4</td>
<td>€500/month minimum</td>
<td>Pricing varies with usage.</td>
<td>Platform for publishing HTML content to mobile devices</td>
</tr>
<tr>
<td>No. 5</td>
<td>Negotiated. Revenue share or service fee plus revenue share.</td>
<td>Pricing is variable.</td>
<td>Print and publishing</td>
</tr>
<tr>
<td>No. 6</td>
<td>$1-$3/month/object</td>
<td>Pricing varies with services consumed and number of objects.</td>
<td>IT management</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.

Revenue And Margins

At the time of writing, the ISVs we interviewed collected revenues ranging from $600,000 to $3 million in a nine- to 12-month period after launching their Azure products, and they experienced revenue growth rates ranging from 20% to 250%. The ISVs emphasized that they were managing their Azure products for growth, not profitability. The gross margins that the ISVs were experiencing at the time of writing were highly variable, as was the way in which gross margin was calculated. One profitable ISV had gross margins of 60%-65%. One soon-to-be profitable ISV projected
gross margins (inclusive of Azure charges and cost of sales) of 90%. We found no common factors that explain the variance in revenues and profitability, because each ISV’s situation was unique.

We observed the following actions that the ISVs took that helped contribute to revenue growth:

- **Promoted the Azure product before it was ready for customer use.** This tactic was used for a variety of purposes, including competitive differentiation, giving customers time to consider adopting a cloud offering, and generating awareness in new market segments.

- **Developed new sales channels.** This was almost always necessary if the ISV’s intention was to reach new, broad or geographically distant markets. The channels that the ISVs developed were unique to each ISV but included systems integrators, Web agencies, building automation specialists, and companies that wished to private-label the application.

- **Made it easy for customers to try the product.** This included tactics such as “try and buy”, a free version with limited features, time-limited trial versions, and proof-of-concept deployments.

To model the revenues for the composite ISV, we assume that it charges an average initial setup fee of $500 to assist the customer in performing the initial data load and configuration work and a monthly fee of $200. Assuming customer growth rates of 150% in Year 2 and 100% in Year 3, the composite ISV generates $1,450,000 annually by the end of Year 3 (see Table 9).

### Table 9
Cloud Application Revenue Model

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Metric</th>
<th>Calculation</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>Average customer setup fee</td>
<td>$500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D2</td>
<td>Average monthly revenue per customer</td>
<td>$200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D3</td>
<td>Number of customers</td>
<td>100</td>
<td>250</td>
<td>500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dt</td>
<td>Azure application revenues</td>
<td>D3*(D1+(D2*12))</td>
<td>290,000</td>
<td>725,000</td>
<td>1,450,000</td>
<td></td>
</tr>
<tr>
<td>Dto</td>
<td>Total (original)</td>
<td>$290,000</td>
<td>$725,000</td>
<td>$1,450,000</td>
<td>$2,465,000</td>
<td></td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.

**Reduction In Hosting Expense**

Three of the ISVs we interviewed had provided application hosting services for their customers before switching to Azure. They either hosted the servers themselves or rented hosting facilities from commercial server hosting providers.
The common problem that these ISVs faced was that the hosting costs did not scale linearly with the customer count. Also, the ISVs had the overhead of managing multiple code instances, which was seen as overly burdensome.

After porting their applications and a portion of their customer base to Azure, the ISVs we interviewed told us that their hosting expenses were reduced by 70% to 80%. The ISVs did not identify any specific reasons behind this reduction. They believed that expense differences between Azure and their previous hosting environments would not close, because the Azure hosting expense scaled more linearly than traditional hosting.

Assuming a 75% savings in hosting expenses, the composite ISV will save $27,000 annually (see Table 10).

### Table 10
**Reduction In Hosting Expense**

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Metric</th>
<th>Calculation</th>
<th>Per period</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>Annual hosting expense prior to Azure</td>
<td></td>
<td>$36,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>Percentage reduction in hosting expense</td>
<td></td>
<td>75%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Et</td>
<td>Hosting expense saved</td>
<td>E1*E2</td>
<td>$27,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eto</td>
<td>Total (original)</td>
<td></td>
<td>$27,000</td>
<td>$27,000</td>
<td>$27,000</td>
<td>$81,000</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.

### Total Revenues
The total Azure-related revenues for the composite ISV are $2,465,000 (see Table 11).

### Table 11
**Cloud Application Revenue Model**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azure application revenues</td>
<td></td>
<td>290,000</td>
<td>725,000</td>
<td>1,450,000</td>
<td>2,465,000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$290,000</td>
<td>$725,000</td>
<td>$1,450,000</td>
<td>$2,465,000</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.
**Flexibility**

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for some future additional investment. This provides an organization with the “right” or the ability to engage in future initiatives but without the obligation to do so.

For this study, we have not calculated the value of any flexibility benefits. However, we believe that Azure will offer an ISV a platform upon which it can incrementally grow its business after it has made the initial investment to develop an Azure application. Specifically, an ISV may be able to leverage its knowledge around developing cloud applications on Azure to create new applications.

**Variance And Risk**

Forrester defines two types of risk associated with this analysis: external risk and internal risk. External — or “business” risk — arises from forces or circumstances over which the ISV has limited control. Internal — or “execution” risk — refers to the risk over which this partner has some control.

Both business and execution risk can affect the potential expenses and revenues a partner may experience. Risk also accounts for the variance or uncertainty in data that we gather during the interview process. The greater the variance or uncertainty, the wider the potential range of outcomes for expense and revenue estimates.

Quantitatively capturing business risk, execution risk, and variance and directly adjusting the financial estimates result in more meaningful and accurate estimates and a more accurate projection of the financial results. In general, risks affect expenses by raising the original estimates, and they affect revenues by reducing the original estimates. The risk-adjusted numbers should be taken as “realistic” expectations, as they represent the expected values considering risk.

We identified the following business risks:

- **The cost needed to port applications to Azure and develop launch-ready products will be variable.** This will depend on the amount of code that ports successfully, the amount of application recoding needed, and any additional functionality needed to develop a launch-ready product. We encourage ISVs to examine their code before converting to Azure in order to estimate the porting effort.

- **Azure operations expense may be variable.** Azure expenses are driven by resource consumption, including compute time, storage needs, database needs, bandwidth, and the number of users. ISVs can control this expense by optimizing their applications for resource usage or offsetting this expense with price increases.

We identified the following execution risk, which will affect revenues:

- Revenues are variable, subject to sales and marketing effectiveness.

Table 12 shows the values used to adjust for the variance and uncertainty in the expense and revenue estimates. The TEI model uses a triangular distribution method to calculate risk-adjusted values. To construct the distribution, it is necessary to first estimate the low, most likely, and high values that could occur within the current environment. The risk-adjusted value is the mean of the distribution of those points. Readers are urged to apply their own risk ranges based on their own degree of confidence in the expense and revenue estimates.
Table 12
Expense Variance Adjustments

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Low</th>
<th>Most likely</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of person-months needed to port application to Azure</td>
<td>10</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Number of person-months needed to develop a launch-ready application</td>
<td>12</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>Percentage hosting expense saved with Azure</td>
<td>70%</td>
<td>75%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.
**Financial Summary**

The total expenses and revenues experienced by the composite ISV are shown in Table 13.

**Table 13**
Expense And Revenues

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
<th>Present value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenses</td>
<td>($229,500)</td>
<td>($9,000)</td>
<td>($11,250)</td>
<td>($14,063)</td>
<td>($263,813)</td>
<td>($257,545)</td>
</tr>
<tr>
<td>Revenues</td>
<td>$290,000</td>
<td>$725,000</td>
<td>$1,450,000</td>
<td>$2,465,000</td>
<td>$1,952,216</td>
<td></td>
</tr>
</tbody>
</table>

Source: Forrester Research, Inc.
Windows Azure: Overview

According to Microsoft, the Windows Azure platform includes a cloud services operating system and a set of developer services, which provide the functionality to build applications that span from consumer Web to enterprise scenarios. Windows Azure and SQL Azure are the key components of the Windows Azure platform. The Windows Azure platform includes the following developer services:

- **Compute**: Web and Worker roles to host applications around the world.
- **Database**: Highly available and scalable relational cloud database service.
- **Virtual machines**: Deploy custom Windows Server 2008 R2 images to Windows Azure.
- **Storage**: Persistent and durable storage in the cloud via four core services.
- **Content delivery network**: Deliver high-bandwidth content through 24 global physical nodes.
- **Caching**: Distributed, in-memory application cache service.
- **Virtual network**: Networking functionality to connect on-premises and cloud applications.
- **Service bus**: Secure messaging capabilities for distributed and hybrid applications.
- **Access control**: Standards-based service for identity and access control.
- **Business intelligence**: Develop and deploy operational reports to the cloud using familiar tools.
- **Marketplace**: Buy and sell finished applications, data sets, components, and more.
Appendix A: Composite Organization Description

In this TEI study, Forrester has created a composite ISV to illustrate the quantifiable revenues and expenses, risks, and flexibility of developing and running applications on the Azure platform. The composite ISV was derived from the six ISV interviews conducted for this study.

Background: Pre-Azure Business Environment
The composite ISV is a 10-year-old company. Prior to developing products on Azure, its primary product was an on-premises application that was sold using a traditional license-based model. The primary market for the composite ISV’s on-premises products is the logistics and warehouse management industry, mainly midsized and large enterprises. The market for the composite ISV’s application is mature and is dominated by a few large players.

The company’s total annual revenues were $3 million. Its primary revenue source was software license sales and maintenance fees. Other revenue sources include application hosting and professional services engagements. To support its application hosting business, the company rented facilities from large hosting providers. Professional services engagements were required to integrate the product with its customers’ broader IT environment.

Reasons for Pursuing A Cloud-Based Product Strategy
To grow the company’s revenues, the owners realized that they needed a product that would allow them to reach completely new markets. Its larger competitor had a strong presence outside of the company’s local market, making it difficult to break into different geographies with its on-premises product. At the same time, the owners believed that these same competitors were so large that they had lost some of their nimbleness, particularly when it came to pursuing smaller market segments. The owners, noting an increasing interest among their customers and prospects for applications that are delivered from the cloud, decided to pursue a cloud-based application strategy. In particular, the owners believe that a cloud-based strategy would allow them to do the following:

- Reach new market segments and geographies.
- Achieve competitive differentiation relative to the company’s larger competitors.
- Allow the business to scale rapidly without incurring the overhead costs associated with traditional hosted solutions.
- Make it easy for prospects to try out its solution.
- Make it easier to sell the application by dramatically reducing the upfront costs for the customer.

Reasons For Choosing Azure
The composite ISV had experience in managing hosted application delivery. It had learned that this approach would not work well for its proposed product because the hosting costs did not scale linearly with the number of customers. The company reviewed other PaaS and IaaS offerings and decided to use Azure. Its reasons for choosing Azure included the following:

- The platform could scale easily, allowing the ISV to support large use cases.
• Azure allowed it to address the cost challenges associated with hosted solutions.

• The on-premises products were developed using Microsoft technologies (.NET, Visual Studio, SQL Server) that fit well with the Azure environment. This would minimize the cost and time needed for its programmers to master a new environment. The owner believed that using Azure would result in a relatively lower cost to port existing code and to develop new code.

• Specific Azure features, such as SQL Azure and blob storage, were essential for the application’s architecture and would be difficult to replicate on other platforms.

• The company could leverage the Microsoft brand for its SLAs.

• Azure allowed the ISV to sell and operate separate installation instances for those customers that had data security concerns or who wanted to private-label the product.

• The owners wanted a single code base with a single revision release stream.

Appendix B: Total Economic Impact™ Overview

Total Economic Impact is a methodology developed by Forrester Research that enhances a company’s technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

The TEI methodology consists of four components to evaluate investment value: benefits, costs, risks, and flexibility.

Benefits
Benefits represent the value delivered to the user organization — IT and/or business units — by the proposed product or project. Often product or project justification exercises focus just on IT cost and cost reduction, leaving little room to analyze the effect of the technology on the entire organization. The TEI methodology and the resulting financial model place equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization. Calculation of benefit estimates involves a clear dialogue with the user organization to understand the specific value that is created. In addition, Forrester also requires that there be a clear line of accountability established between the measurement and justification of benefit estimates after the project has been completed. This ensures that benefit estimates tie back directly to the bottom line.

Costs
Costs represent the investment necessary to capture the value, or benefits, of the proposed project. IT or the business units may incur costs in the form of fully burdened labor, subcontractors, or materials. Costs consider all the investments and expenses necessary to deliver the proposed value. In addition, the cost category within TEI captures any incremental costs over the existing environment for ongoing costs associated with the solution. All costs must be tied to the benefits that are created.
Risk
Risk measures the uncertainty of benefit and cost estimates contained within the investment. Uncertainty is measured in two ways: 1) the likelihood that the cost and benefit estimates will meet the original projections, and 2) the likelihood that the estimates will be measured and tracked over time. TEI applies a probability density function known as “triangular distribution” to the values entered. At minimum, three values are calculated to estimate the underlying range around each cost and benefit.

Flexibility
Within the TEI methodology, direct benefits represent one part of the investment value. While direct benefits can typically be the primary way to justify a project, Forrester believes that organizations should be able to measure the strategic value of an investment. Flexibility represents the value that can be obtained for some future additional investment building on top of the initial investment already made. For instance, an investment in an enterprisewide upgrade of an office productivity suite can potentially increase standardization (to increase efficiency) and reduce licensing costs. However, an embedded collaboration feature may translate to greater worker productivity if activated. The collaboration can only be used with additional investment in training at some future point in time. However, having the ability to capture that benefit has a present value that can be estimated. The flexibility component of TEI captures that value.

Appendix C: Glossary
Discount rate: The interest rate used in cash flow analysis to take into account the time value of money. Although the Federal Reserve Bank sets a discount rate, companies often set a discount rate based on their business and investment environment. Forrester assumes a yearly discount rate of 10% for this analysis. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult their respective organization to determine the most appropriate discount rate to use in their own environment.

Net present value (NPV): The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

Present value (PV): The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total net present value of cash flows.

Payback period: The breakeven point for an investment. The point in time at which net benefits (benefits minus costs) equal initial investment or cost.

Return on investment (ROI): A measure of a project’s expected return in percentage terms. ROI is calculated by dividing net benefits (benefits minus costs) by costs.

A Note On Cash Flow Tables
The following is a note on the cash flow tables used in this study (see the example table below). The initial investment column contains costs incurred at “time 0” or at the beginning of Year 1. Those costs are not discounted. All other cash
flows in Years 1 through 3 are discounted using the discount rate (shown in Framework Assumptions section) at the end of the year. Present value (PV) calculations are calculated for each total cost and benefit estimate. Net present value (NPV) calculations are not calculated until the summary tables and are the sum of the initial investment and the discounted cash flows in each year.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Category</th>
<th>Calculation</th>
<th>Initial cost</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
</tr>
</thead>
</table>

Source: Forrester Research, Inc.