



Software Developer Delivers On-Demand Computing, Doubles Revenue in 18 Months

Overview

Country or Region: New Zealand
Industry: Professional services—IT services

Partner Profile

GreenButton delivers cloud computing to desktop software—enabling end users and software vendors to take advantage of on-demand, scalable computational power. GreenButton has 19 employees.

Business Situation

The company developed a solution that gives developers the opportunity to embed on-demand, high-performance computing into applications, but wanted a reliable, interoperable cloud service platform.

Solution

GreenButton developed its solution on the Windows Azure platform in 2010 and, by July 2011, had embedded the solution in six applications—delivering high-performance computing to millions of users.

Benefits

- Initially doubles revenue
- Helps customers reduce costs
- Enables smaller companies to compete commercially

“We have doubled our revenue in the past 18 months with the Windows Azure platform, and we expect that revenue to continue to grow as we enable GreenButton in more applications.”

Vivian Morresey, Chief Marketing Officer, GreenButton

GreenButton is an on-demand high-performance computing provider that saw an opportunity to deliver scalable computing to companies that require only occasional bursts of computing power. The company developed its namesake solution on the Windows Azure platform and worked with software vendors to add the GreenButton plug-in to applications. By using GreenButton with Windows Azure, software users can easily call on the power of cloud computing as needed. As a result of its innovation, GreenButton doubled its revenue and won the Microsoft ISV Partner of the Year Award for the Windows Azure platform. At the same time, the solution helps small businesses like Hand Turkey Studios reduce their costs while giving them the ability to compete with larger companies.



Situation

Founded in 2006, GreenButton (previously trading as InterGrid) is a member of the Microsoft Partner Network that provided on-demand, high-performance computing solutions initially for three focus areas: digital media, biotechnology research, and geoscience and engineering. The company which is based in New Zealand, also has offices in the United States. GreenButton was established as an easy way to extend high-performance computing to customers who need supercomputer processing on an intermittent basis only.

Historically, companies engaged with GreenButton for computational-heavy processing jobs for several months at a time, taking advantage of the more than 1,000 computer processors available at the New Zealand supercomputer center. However, GreenButton realized that, while it was easy for large companies to use the compute power from the supercomputer center for large projects, it was not cost-effective, nor easy, for smaller projects that might require only several hours of capacity. "While large companies are willing to make the investment for additional computing resources for several months at a time, smaller companies also have the need for ad-hoc increased computational capacity" explains Scott Houston, Chief Executive Officer at GreenButton. "For them, it's not easy, cost-effective, or efficient to set up an entire infrastructure that they might only use occasionally."

For instance, GreenButton serves companies that often render complex 3-D artwork and animations. One such customer is Hand Turkey Studios, a small animation studio in Richmond, Virginia, that grew from a one-man shop to a thriving four-person company in a few short months. The studio develops computer animations, primarily for

television advertisements and other marketing initiatives for a variety of companies. Hand Turkey Studios often uses Blender, an open source animation development suite, to create most of its animations.

Rendering the 3-D designs and animations that Hand Turkey Studios creates requires significant computer processing power and can take days to process. A four-second animation, for example, might use 120 still frames, which could take up to two-and-a-half days to render using the average personal computer that the studio uses. "If my most powerful computer is solely dedicated for a couple of days to rendering even a short animation, that means that I can't work on other projects during that time," explains Jason van Gumster, Owner at Hand Turkey Studios and the author of the book *Blender for Dummies*.

For larger projects that have short deadlines, Hand Turkey Studios can increase its computing power by rendering its animations at a third-party rendering server farm. While this offers the studio the computer power required to render animations more quickly than using its existing workstations, Hand Turkey Studios is still responsible for monitoring and maintaining the server infrastructure while it uses it. "As a small studio, we don't have the time to manage infrastructure," says van Gumster. "We need to focus our time on developing animations to complete jobs for customers." Similarly, the animation studio does not have the capital available to build its own infrastructure for rendering high-quality animations quickly like much larger studios do.

In response to growing customer needs, such as those of Hand Turkey Studios, who wish to have a simple way to access the scalable computational power of the cloud,

GreenButton developed an application programming interface (API) service that enables software vendors to natively embed the GreenButton service in to their applications directly. By using GreenButton, customers such as Hand Turkey can access the power from within the software applications making ability to access on-demand, high-performance computing literally, with the click of a button. Initially, thousands of users took advantage of the service, with all of the transactions processing through the GreenButton supercomputer center in New Zealand, but senior leadership at GreenButton knew that the challenge was how to extend the computing power to users worldwide.

Encouraged by the success, GreenButton saw a huge market opportunity if it could reach the more than 100 million end users worldwide across the industries that it serves. However, its resources at the New Zealand supercomputer center, while robust, were limited. The physical location was nearly to capacity, and building a new location was cost-prohibitive. In addition, to offer its solution at a global scale, GreenButton would need a global data-center presence to offer high performance to customers.

GreenButton is embedded in the open source 3D software Blender, enabling artists to easily take advantage of Windows Azure to render complex animations quickly.



Solution

Instead of building out its own infrastructure, GreenButton decided to find a cloud service provider that it could team with to offer an scalable on-demand computing solution for customers who need occasional bursts of compute power.

The company evaluated offerings from several cloud service providers: Amazon Elastic Cloud Compute (EC2), Rackspace, Google, and Windows Azure from Microsoft. After evaluating all of the services, GreenButton chose the Windows Azure platform. "The choice to go with the Windows Azure platform was a clear one, once we compared other services side by side," explains Houston. "None of the other cloud service providers offered us the combination of power and flexibility provided by Microsoft, and more importantly none has the level of service that Microsoft offers. Microsoft has a strong commitment to the cloud, and it is obvious that the company is in it for the long haul. That's what we need."

Building on its previous concept of embedding an API into applications for on-demand computing power, GreenButton migrated its namesake solution for the Windows Azure platform in early 2010. Windows Azure is the development, service hosting, and service management environment for the Windows Azure platform, which is hosted through Microsoft data centers. The GreenButton solution can be embedded in any software user interface so that any time an artist, engineer, or other employee needs to render a high-quality animation or drawing that might otherwise take hours to process, he or she can simply select the GreenButton icon to use Windows Azure compute power and render the animation in a matter of minutes.

“By using GreenButton with the Windows Azure platform, we processed batches of 10,000 images at a time, which took only three hours to complete. In all, it took less than five days to render the 1,250,000 images, instead of four months.”

Jason van Gumster, Owner, Hand Turkey Studios

Once a user selects the GreenButton icon, the job is sent to a Windows Communication Foundation web service, which is hosted in a web role in Windows Azure. The job is sent through the Windows Azure AppFabric Service Bus, which is used to broadcast system information, such as how many instances of Windows Azure are running. The job is then split into multiple tasks; for instance, if it is a frame-based rendering job, it is split into individual frames with each task as a single frame. Binary job data is stored in Blob Storage in Windows Azure, and additional job data is stored in Table Storage. Each task is then sent to the Queue service in Windows Azure, where it is picked up and processed by worker roles. Once the processing is complete, the GreenButton service sends an email message to the user, who can then download the rendered image or animation file.

In 2010, GreenButton first embedded its solution in Deep Exploration, a software application from Right Hemisphere that helps manufacturing companies unify, synchronize, and deliver visual product information. Just one year later, in June 2011, GreenButton was embedded in six software applications. The other applications that use GreenButton are:

- **Blender**—the open-source 3-D content creation suite that companies like Hand Turkey Studios use to create 3-D art and animations
- **Brazil**—rendering software from SplutterFish that is used for high quality, flexibility, reliability, and artist-friendly workflows in 3ds Max software
- **Geneious**—the Biomatters bioinformatics software platform from which users can search, organize, and analyze genomic and protein information
- **LuxRender**—a rendering engine that simulates the flow of light according to

physical equations to produce realistic images of photographic quality

- **Yafaray**—an open-source ray-tracing engine used by 3-D artists and architects who need a renderer that can turn their art into stunning lifelike images

GreenButton is not stopping at six applications. It plans to embed the solution in more applications, reaching into other industries that need on-demand supercomputer power, such as financial services. As demonstrated by its initial successes, GreenButton can embed its solution in both open source and Windows-based applications by taking advantage of the Windows Azure platform, which supports multiple development languages and uses standards-based communication protocols.

“The opportunities to put high-power computing in the hands of users are limitless,” says Vivian Morresey, Chief Marketing Officer at GreenButton. “Users still want to work with the applications that they know and love, whether they are open source or Windows-based, and they are not ready to give up their desktop computers. At the same time, users need access to the computing power that the cloud and Windows Azure offer—this is what GreenButton gives them.”

To further serve customer needs, GreenButton is implementing a pricing strategy for its solution called Job Prediction. With Job Prediction, customers can submit rendering jobs to be processed on Windows Azure through GreenButton and receive pricing options for the job based on how quickly the job will be processed. For instance, if Hand Turkey Studios submits an animation rendering job using GreenButton, Job Prediction will analyze the job and return three tiered pricing options for the job, which are based

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on the processing time. For instance, faster processing times will yield a higher price point. The animation studio can then choose the price that best fits its production budget, or the processing time that best meets its scheduling needs.

Benefits

The GreenButton plug-in for the Windows Azure platform found immediate success and the company doubled its revenue in 18 months—and won the Microsoft ISV Partner of the Year Award for the Windows Azure platform in 2011. With GreenButton on their desktops, customers such as Hand Turkey Studios have the option to use the on-demand scalability and processing power of Windows Azure on a pay-as-you-go basis, giving them the ability to cost-effectively render high-quality 3-D images and animations in a matter of hours instead of days, and days instead of months. At the same time, smaller companies can compete with larger companies, without the need to invest in costly server infrastructure.

Unlocks Revenue Opportunities with Unique Business Model

GreenButton developed a unique business model for its burst-to-the-cloud rendering solution that opens new revenue streams for the company. “We are not developing individual applications, but instead are taking the power and scalability of the Windows Azure platform and distributing it to millions and millions of end users through strategic partnerships with independent software vendors,” explains Morressey. “We have doubled our revenue in the past 18 months with the Windows Azure platform, and we expect that revenue to continue to grow as we enable GreenButton in more applications.”

Houston echoes the sentiment about the company’s growth potential, and attributes part of its success to the Windows Azure

platform. “We have identified a list of more than 1,000 applications across 100 million potential users of GreenButton who could immediately recognize the scalability and cost-saving benefits,” says Houston. “At the same time, we recognize that it can be a huge leap of faith for companies to take their solutions to the cloud, and we absolutely must have a global, stable player in the cloud market that is behind our solution. With Windows Azure and Microsoft data centers, we have that—and it’s critical to our ongoing success.”

Helps Customers Reduce Costs with Right-Size, On-Demand Infrastructure

Hand Turkey Studios and other customers that use GreenButton with Windows Azure can cost-effectively render high-quality images and animations. Customers do not have to build costly data centers for their intermittent rendering requirements, nor do they have to worry about managing and maintaining server infrastructure if they rent server space. “With GreenButton and Windows Azure, I don’t have to worry about hardware and software issues with server infrastructure,” says van Gumster. “It saves me considerable time and money.”

In addition, Hand Turkey Studios has a right-size infrastructure available on a pay-as-you-go basis when the company needs it. “I can quickly scale up computing resources for larger jobs when I need them, and I don’t have a server farm that sits unused when I’m not rendering a job. I use it when I need it, and don’t have to pay for it when I’m not using it,” says van Gumster.

Gives Smaller Businesses the Computing Power to Compete

By using GreenButton for the Windows Azure platform, companies like Hand Turkey Studios can take advantage of near limitless processing power and on-demand scalability to reduce the amount of time

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that it takes to process compute-heavy tasks. For instance, with one animation job that the small studio was working on, Hand Turkey Studios needed to render approximately 720 minutes of footage, or more than 1,250,000 still images—a job that would require more than 100 days of rendering time on a single computer. “We do not work in an industry where we can take almost four months to render an animation for a project,” says van Gumster. “By using GreenButton with the Windows Azure platform, we processed batches of 10,000 images at a time, which took only three hours to complete. In all, it took less than five days to render the 1,250,000 images, instead of four months.”

With the pay-as-you-go computing power and scalability that the Windows Azure platform delivers, Hand Turkey Studios can process jobs as quickly as larger studios can, and still stay on time and on budget with its projects. “By using GreenButton and Windows Azure, we can compete with companies multiple times our size and still produce high-quality work,” says van Gumster. “There is a saying: I can make it really great, I can make it really fast, and I can make it really cheap—pick two. Realistically, customers demand all three. And with GreenButton and Windows Azure, I can do all three.”

Windows Azure Platform

The Windows Azure platform provides developers the functionality to build applications that span from consumer to enterprise scenarios. The key components of the Windows Azure platform are:

- **Windows Azure.** Windows Azure is the development, service hosting, and service management environment for the Windows Azure platform. It provides developers with on-demand compute, storage, bandwidth, content delivery, middleware, and marketplace capabilities to build, host, and scale web applications through Microsoft data centers.
- **Microsoft SQL Azure.** Microsoft SQL Azure is a self-managed, multitenant relational cloud database service built on Microsoft SQL Server technologies. It provides built-in high availability, fault tolerance, and scale-out database capabilities, as well as cloud-based data synchronization and reporting, to build custom enterprise and web applications and extend the reach of data assets.

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