

PayPal Services Downgrade with Upgrade

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PayPal – The Online Payment Method of Choice

PayPal provides payment processing services for online merchants, auction sites, and others through PayPal accounts set up by its users. Buyers can put money into their account, which will be held by PayPal. When a buyer purchases an item from a merchant or auction site by using his PayPal account, money is transferred immediately from the buyer's account to the seller's account. Though PayPal also supports credit card payments, the use of PayPal accounts ensures immediate delivery of funds to the merchant. PayPal charges a fee for each transaction, similar to the practices of credit card companies.

PayPal, headquartered in San Jose, California, was acquired by the large auction web site eBay in 2002. Prior to the acquisition, eBay had its own online payment system, eBay Payments. However, PayPal sprinted past eBay's service and by the year 2000 was the payment option of choice for an average of 200,000 auctions per day versus 4,000 auctions per day for eBay Payments. Furthermore, half of the eBay auctions used PayPal. This reality led to the acquisition of PayPal by eBay.

PayPal now processes over \$50 billion USD per year, servicing 200 million accounts. It is used in 190 countries and supports 19 currencies.¹

Though PayPal is not technically regulated as a bank in the U.S., it is governed by many banking regulations. In the European Union, it acts as a bank and is headquartered in Luxembourg.

A cornerstone of eBay's services is its rating system. Buyers and sellers alike are encouraged to enter comments regarding each transaction. The result is buyer and seller ratings calculated by eBay that, along with the comments, are available for all to see. This is valuable information for customers and merchants as they decide whether or not to do business with an otherwise unknown person or business. If a seller's rating falls below a specified threshold, funds may be withheld from that seller until the buyer confirms satisfactory delivery of goods purchased.

PayPal's Upgrade Disaster

Clearly, a great deal of today's ecommerce flows through PayPal. PayPal's services must be extremely reliable as billions of dollars of revenue for millions of small online merchants depend upon it. An extended outage could put many small companies and merchants out of business.

¹ [PayPal](#), Wikipedia.

And that is what happened last month. Critical PayPal services went down – not for hours but for days.

Crisis 1: Orders Not Confirmed

According to news reports,² PayPal installed a major upgrade to its payment system on Thursday, May 15, 2008. Suddenly, many ecommerce customers could not process orders. PayPal accepted orders from buyers with no problem and extracted its fees. Upon completion of each transaction, sellers expected from PayPal an Instant Payment Notification (IPN) message, which would allow them to process the order. Instead, they received an “invalid order” message. Consequently, merchants could not process their orders.

This left a situation in which buyers were told that their order was accepted and that their money was removed from their account. However, they never received the goods they ordered. Not only were merchants denied the revenues upon which they depended, but they also were swamped with negative complaints by buyers, complaints that sank their ratings on eBay and other sites.

PayPal was slow to acknowledge the problem. On Saturday, May 17, two days after the problem first evidenced itself, Osama Bedier, Vice President of Product Development at PayPal, posted an apology on a PayPal blog. He said³ that his “engineering team had been working around the clock to rectify the problem,” and he expected “to have a fix very shortly.”

However, a week and a half later, IPN service was still not restored. Several days after the occurrence of the problem, it was reported that PayPal’s support team was telling merchants that it couldn’t say when the problem would be fixed. Even worse, some PayPal customers were also complaining that they were getting a deluge of order confirmation messages. One customer reported getting over 9,000 confirmations for a single order. This was after a period during which no confirmations were received.

Crisis 2: Shopping Cart Fault

Then on May 25, disaster happened again. The “handling cart” feature in PayPal’s shopping cart stopped working for many merchants. This feature adds custom charges for shipping and handling to orders. Its failure meant that many merchants were losing money on each order for which they used PayPal for settlement.

About all PayPal could offer was the observation that the problem happened when merchants used its Website Payments Standard product and the customers resided in another country.⁴ Again PayPal apologized: “We understand and recognize that for these merchants and their international customers, this is a serious issue. We apologize for the inconvenience that this is causing to their businesses. We are working to correct the problem and expect it will be fixed within the next few days.”

Next few days?

Finally, on May 27, eBay posted a blog notice that said “The fix for these issues has been identified. We’re now in the process of scheduling these fixes to be rolled out to the live site.” It took more than a day following this announcement to get IPN and handling cart services properly restored.

² [PayPal meltdown wreaks havoc on some ecommerce websites](#), The Register, May 17, 2008.

³ [Stuff for merchants](#), www.thepaypalblog.com.

⁴ [Paypal glitch hits merchants with 12-day headache](#), Channel Register; May 27, 2008.

What Went Wrong?

According to published reports, the problem was caused when PayPal's administrators updated the Instant Payment Notification system on May 15. Sadly they did not have a rollback plan in place. If the update did not go well (which it certainly did not), there was no recourse but to continue on in the midst of the newly-introduced problems.

The technical support teams had to move to the development system and work "around the clock" to find the problems and then migrate the fixes (another upgrade!) to the production system. This process took two weeks, during which many online merchants suffered significant revenue loss. There is no report of how many of these merchants were forced out of business by this fiasco.

Undoubtedly, this also cost PayPal significant amounts as it paid merchants under its Service Level Agreements in place. Also, the costs to PayPal's image is immeasurable.

In the Face of Adversity

This entire set of problems could not have occurred at a worse time for PayPal's owner, eBay. eBay is under tremendous criticism for a new policy that it is trying to enforce, first in the U.K. and in Australia as well as for new U.S. merchants. They are attempting to require that all eBay merchants use PayPal for customer payment.⁵ They are banning other transaction methods for "safety" reasons. The only other option allowed merchants is for the buyer to pay when the product is picked up in person. eBay claims that too many disputes happen when other payment methods are used, and that this policy will create an improved customer experience with respect to order settlement. Others claim that this is an anticompetitive move on the part of eBay.

This battle created one amusing incident. During the review of eBay's new requirement by the Australian Competition and Consumer Commission (ACCC), the ACCC published comments from hundreds of affected merchants, buyers, and banks. One was a detailed 38-page brief from an anonymous party that seemed to have intimate knowledge of PayPal's system. However, an enterprising Australian geek simply took the PDF and looked at its metadata. Lo and behold, the brief had been submitted by none other than Google.⁶ Google has its own competing payment service, Google Checkout, in the U.S. and the U.K.

Lessons Learned

There are two primary lessons to be learned from this experience. They deal with communications and upgrades.

Customer Communications

The first lesson is that in the event of a disaster such as this, communication with the company's customers is of paramount importance. PayPal was slow to even acknowledge that there was a problem. When they did, they did so via an occasional posting to the many blogs that were attracting hundreds or thousands of angry postings from affected customers. It appears that PayPal did not have a mechanism in place to keep customers up-to-date on the situation. The fact that this problem lasted not for hours but for weeks made this an intolerable situation, especially for the many small businesses that felt they might not survive.

⁵ [Ebay forces Aussies to use PayPal](#), The Register; 4/10/08.

⁶ [Metadata ruins Google's anonymous eBay Australia protest](#), The Register; 5/30/08.

We have seen this problem in many of our Never Again stories. Blackberry (RIM)⁷, Hostway⁸, and Salesforce⁹ were heavily criticized for poor customer communication during their major outages.

On the other hand, Rackspace¹⁰ and The Planet, during its recent outage due to an explosion,¹¹ received kudos and a great deal of support from their customer bases because of their excellent communication with their customers.

Upgrades

Always, always have a rollback plan when an upgrade is being performed. No matter how well an upgrade is tested, it can still go bad when put into production. If you have no way to roll back to a good version of your application, you may suffer the pain of Blackberry,⁷ Skype,¹² and PayPal.

⁷ [BlackBerry Gets Juiced](#), *Availability Digest*, May 2007,

⁸ [Hostway's Web Hosting Service Down for Days](#), *Availability Digest*, September 2007.

⁹ [On-Demand Software Utility Hits Availability Bump](#), *Availability Digest*, October 2007.

¹⁰ [Rackspace – Another Hosting Service Bites the Dust](#), *Availability Digest*; December 2007.

¹¹ [The Planet's H1 Datacenter suffers fire and explosion](#), The Tech Herald; June 2, 2008.

¹² [So You Think Your System is Reliable](#), *Availability Digest*, January 2008.