

PayPal Fault Takes Merchants Offline

September 2009

Shopping with PayPal

PayPal is the world's largest online payment service. By including a small PayPal HTML snippet into his web site, a merchant can effortlessly accept customer payments using a variety of credit cards such as Visa, MasterCard, American Express, Discover and others.

Of ever increasing popularity is the PayPal account. A customer can deposit funds into his own PayPal account and use these to make online purchases. Whether a purchase is made with a credit card or with a PayPal account, a merchant receives instant payment via a deposit into his own bank account or into his PayPal account.

With PayPal's Website Payments Standard product, a merchant can easily and seamlessly add a shopping cart to his web site. Upgrading to Website Payments Pro, the merchant can become his own payment gateway to the credit card issuers. PayPal services thousands of small merchants and 75 of the top 500 online retailers such as Wal-Mart. 205 of the top 500 online merchants accept PayPal for payments.

With PayPal, e-commerce is made easy.

PayPal was founded eleven years ago and was acquired by EBay, the online auction firm in 2002. EBay, facing increasing competition from Amazon.com and coping with weakening business in its auctions and retail stores, is relying in part on PayPal to drive future growth.

PayPal and its sister payment service, Bill Me Later (acquired by EBay in 2008), account for a third of EBay's revenue and a sixth of its profits. With over 75 million users, these companies currently handle over \$16 billion in online commerce per quarter. During normal periods, almost \$8 million dollars per hour in online transactions are handled.

The PayPal Outage

Clearly, the availability of PayPal services is of utmost importance to its merchant customers. If a merchant depends upon PayPal for all of its payment services – credit cards and PayPal accounts – a PayPal outage can bring that merchant to his knees. A large number of customers who were denied payment privileges may well go elsewhere, and a merchant could lose significant revenue during an outage.

PayPal will not take responsibility for such losses. Its terms of service agreement states that PayPal isn't liable for "lost profits or any special, incidental or consequential damages arising out

of or in connection with our Web site, our service, or this agreement (however arising, including negligence).”

To meet its obligations, PayPal has had excellent availability over most of its existence. A major exception occurred in 2004 when a botched software upgrade took down some merchants for five days. But since then, PayPal has had near continuous availability.

That is, until Monday, August 3, 2009. At 1:30 PM Eastern Time, an “internal network hardware issue” crashed the entire PayPal network. No merchant anywhere in the world could conclude a transaction over PayPal. Customers trying to place online orders were shown a message saying that their orders could not be processed at this time.

PayPal customer service representatives quickly notified the major online merchants of the problem, and its technical staff scurried to correct the problem. After an hour, some services were restored, but scattered problems appeared for the next four hours. Full service was finally restored at 6:30 PM.

The scope of this problem was greater than any that PayPal had encountered before. There is no estimate of the amount of business lost by PayPal’s merchant customers during this outage, but at \$8 million an hour, it is likely to be significant. Even worse, many of the affected online stores were small merchants who essentially had to close shop for five hours.

PayPal Isn’t Alone

PayPal is not the only payment service to impose suffering on online merchants. Authorize.net is a similar company that offers credit-card payment services. With 262,000 customers, it handles almost \$28 billion per quarter in payments reflecting over a half-billion transactions.

At about 2 AM on Friday, July 3, 2009, just a month before PayPal went down, a fire in a garage-level electrical vault in the Seattle building housing Authorize.net’s data center took down power to multiple data centers resident in the building, including that of Authorize.net. Unfortunately, the fire also disabled its backup data center (was it in the same building?).

Authorize.net was down for hours, leaving thousands of merchants with no way to accept customer payments. Power was restored at about 2 PM, and Authorize.net was able to restore service to its U.S. merchant customers. Global processing was restored sometime later.

It was estimated that this outage cost merchants millions of dollars in lost revenue.

Lessons Learned

The lesson to be learned from these outages is not a provider lesson; it is a user lesson. Databases are not the only things that need to be backed up. Critical services also need to be backed up.

Those merchants that relied solely on a single payment provider felt the pain. While PayPal or Authorize.net were down, their stores were idle. Those that had a contingency plan in place hardly noticed the impact on their operations.

One retailer, Sports Giant, uses Yahoo to host its web site. When PayPal shut down, Sports Giant simply accepted customer credit card requests blindly. It notified Yahoo to pass all customer payment information to the customer service department of Sports Giant. There, the payment information was held until PayPal services were restored, at which time the payment information was submitted to PayPal. Sport Giant’s exposure? An occasional invalid credit card payment.

FansEdge, number 217 in the top 500 online retailer list, took contingency planning one step further. It developed systems that accept orders when payment processing fails and that then resubmit the payment information when payment processing returns.

Another technique would be to not put all ones eggs in one basket. For instance, PayPal Pro can be used to establish a merchant account so that the merchant can deal directly with the credit card payers. PayPal can be used for payments via PayPal accounts. However, payments using other credit cards go directly to the credit card issuer for authorization. Should PayPal go down, at least the other credit cards are still active.

Contingency planning such as this should be applied to every critical service that cannot be lost for hours. Even if the contingency plan is manual backup with manual re-entry of transactions, the plan should be well-documented, tested and rehearsed so that operations will continue unaffected in the event of a service outage.