

Why Direct Operator Billing is the future

In India, Indonesia, China and much of South America, sales of smartphones are thriving. Yet only around 2% of the population in these smartphone growth markets have credit cards. It is estimated that customers in India and China alone will buy more than 500m smartphones in 2014, half of the total that will be sold across 47 key countries, according to the analyst firm Mediacellular.

It is clear, then, that a reliance on credit card payment will make it very difficult for stores and merchants to successfully monetize their mobile content. Most consumers won't have a simple way to pay.

So what can be done? Registering credit card or bank details with a store or payment provider, such as Google Checkout or PayPal streamlines this somewhat. Repeat purchases are made easier, but at the expense of the first purchase. Before a consumer makes that first purchase, they must register and provide details of a payment card or bank account, after which the customer logs in with their new username and password to make the payment.

There are already more than 1.5 billion smartphones in the world, and more importantly, the International Telecommunication Union (ITU) recently reported that the number of mobile phone accounts would exceed the number of people on the planet during 2014, with 7.3 billion mobile accounts compared to a global population of 7 billion people.

Billing reach
Bango - 1.2bn
iTunes - 0.8bn
PayPal - 0.15bn

That number represents 7.3 billion commercial relationships between a Mobile Network Operator and a paying consumer, or 7.3 billion opportunities for a consumer to click and buy. Here at Bango, our range of operator relationships already reach over

1 billion mobile subscribers, giving them the ability to pay with just one click.

Importantly, these consumers never need to register or enter any details, be that card numbers or expiry dates, to pay. All the commercial information needed to collect a payment is already known and securely stored by their Mobile Network Operator. The only thing required is to identify and authenticate

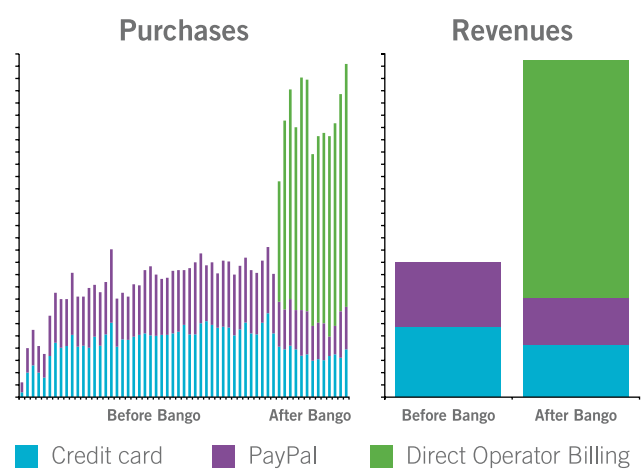
the consumer against the correct mobile account to charge. Once this has been achieved, payments can be processed with a fast, direct call to the payment server. This is what we call a "massively smooth" payment experience.

Massively smooth payments are already showing significant uplift in sales. A major app store in Europe, a region with traditionally high credit card use, recently revealed a 3x sales uplift immediately after turning on Bango Direct Operator Billing. Even higher uplifts, in excess of 100x, are often seen in markets with low card penetration and high smartphone uptake.

Bango works with operators around the world to automatically authenticate consumers for mobile Direct Operator Billing. In most cases this is achieved instantaneously using Bango technology, both with mobile devices connected over an operator network and from Wi-Fi only devices, such as tablets, desktops and smart TVs.

With Bango Direct Operator Billing, over 1 billion consumers can pay with just one-click - no cards, no fiddly numbers to enter, and no registration. This is a reach that credit cards or digital wallets could never hope to match.

This is why we confidently state that Direct Operator Billing is the future.



Daily payments for an app store in Europe - before and after adding Bango Direct Operator Billing.

Partner with Bango

The Bango Payment Platform delivers the full potential of Direct Operator Billing. A one-time integration between you and the Bango Platform enables hundreds of millions of payments from Google Play, Amazon, BlackBerry World, Windows Phone Store, Firefox Marketplace and other merchants to be captured. With over 120 direct billing integrations live around the world, Bango is proven to deliver the highest revenues from digital content, across the world's largest app stores and brands.

Integrating multiple operators into Bango instantly provides unified APIs and a payment standard for merchants. This payment standard is already available on over 120 operators worldwide. Bango combines the benefits of a unified API with the performance and customer knowledge that comes from distributed local systems.

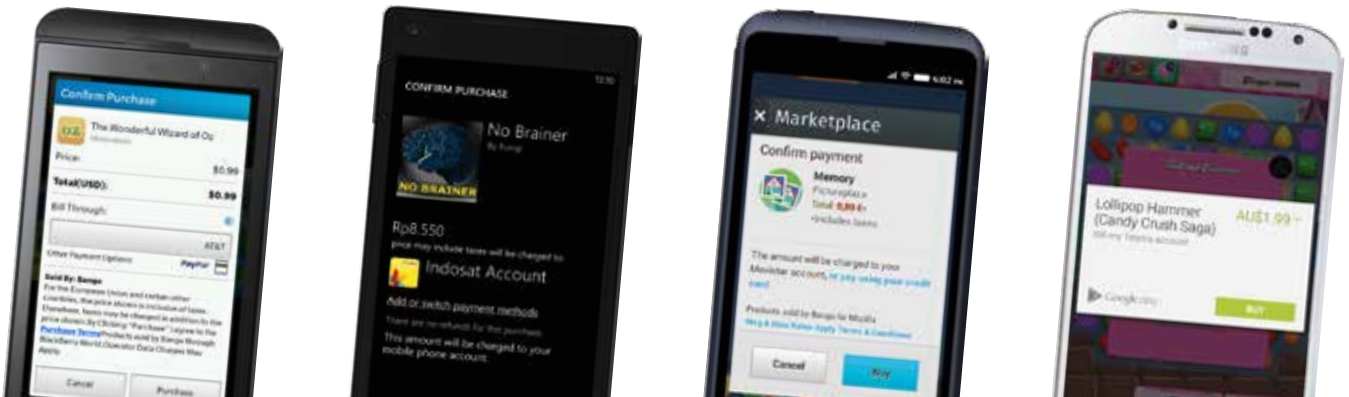
Unique Bango technology authenticates more users for one-click

operator payment than anyone else, even users not connected over their operator networks. This vital advantage ensures that operator revenues can be grown while they continue to offload mobile data to Wi-Fi networks.

Why plug into Bango?

- One-time, direct integration with the world's leading app stores
- The fastest way to reliably monetize app stores
- Life time support from the most experienced Direct Operator Billing team in the business
- One-click Direct Operator Billing enabled on Wi-Fi connections
- Valuable purchasing insights with Bango Dashboard

By partnering with Bango you will quickly, securely and at low cost, generate revenue from the world's largest content stores.



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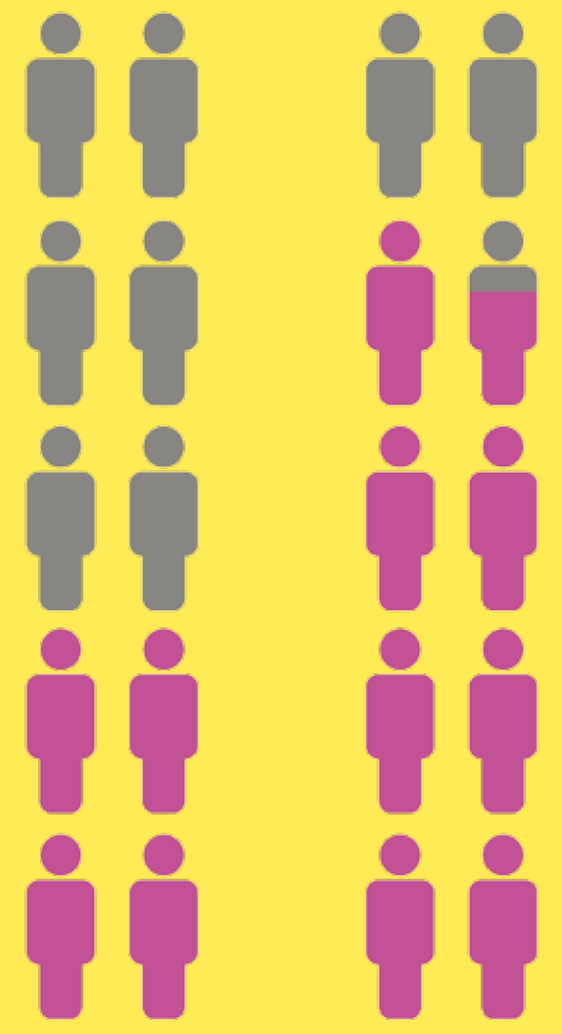
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40% 77%



Other operator billing solutions Operator billing with **bangor**

Bango technology increases Direct Operator Billing conversion rates

Time is money... lost

It should be a matter of a few weeks, but...

You have agreed terms to launch Direct Operator Billing for the app store. The roll out plan is scheduled, and resources are allocated. But then, like a Do-It-Yourself home improvement project, the work turns out to be harder than expected and much more complicated than the instructions indicated. There are always some things that don't work as you thought, and everything takes longer than planned for.

The additional work will delay other projects, for sure. But most important of all is the long-term impact on your business of delaying the launch of Direct Operator Billing in app stores.

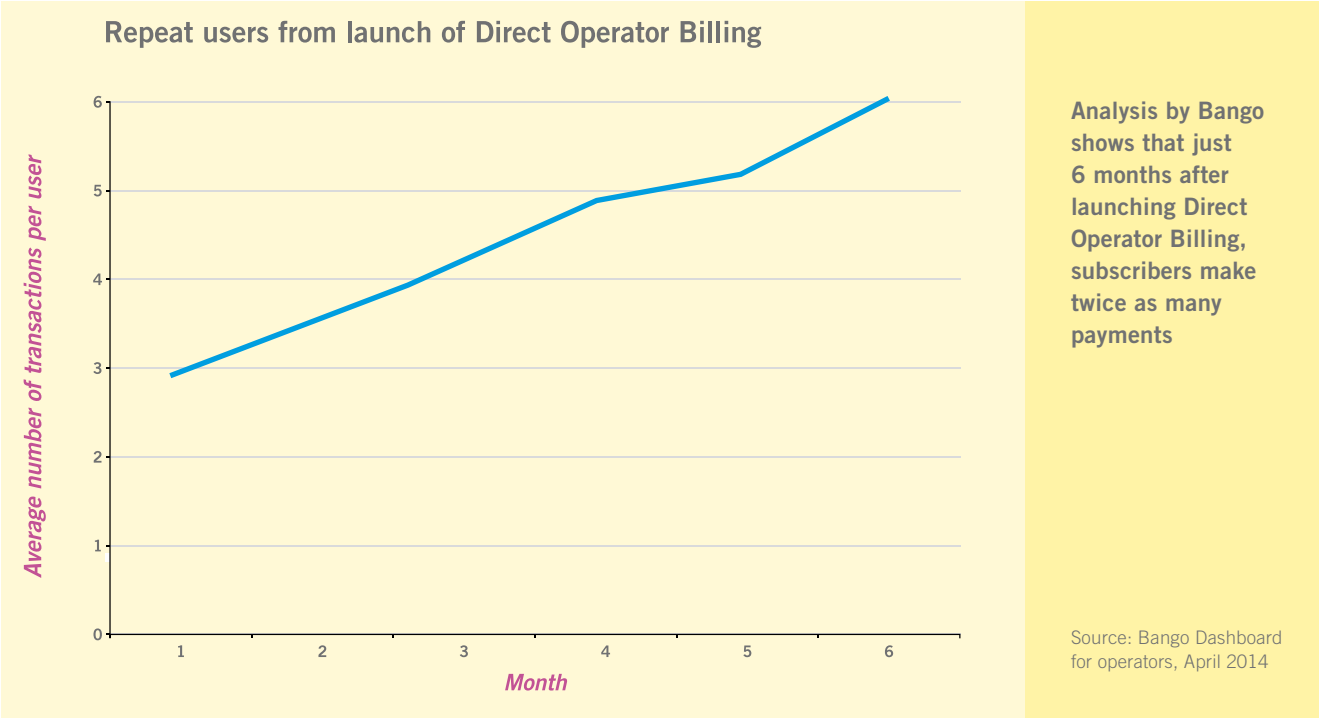
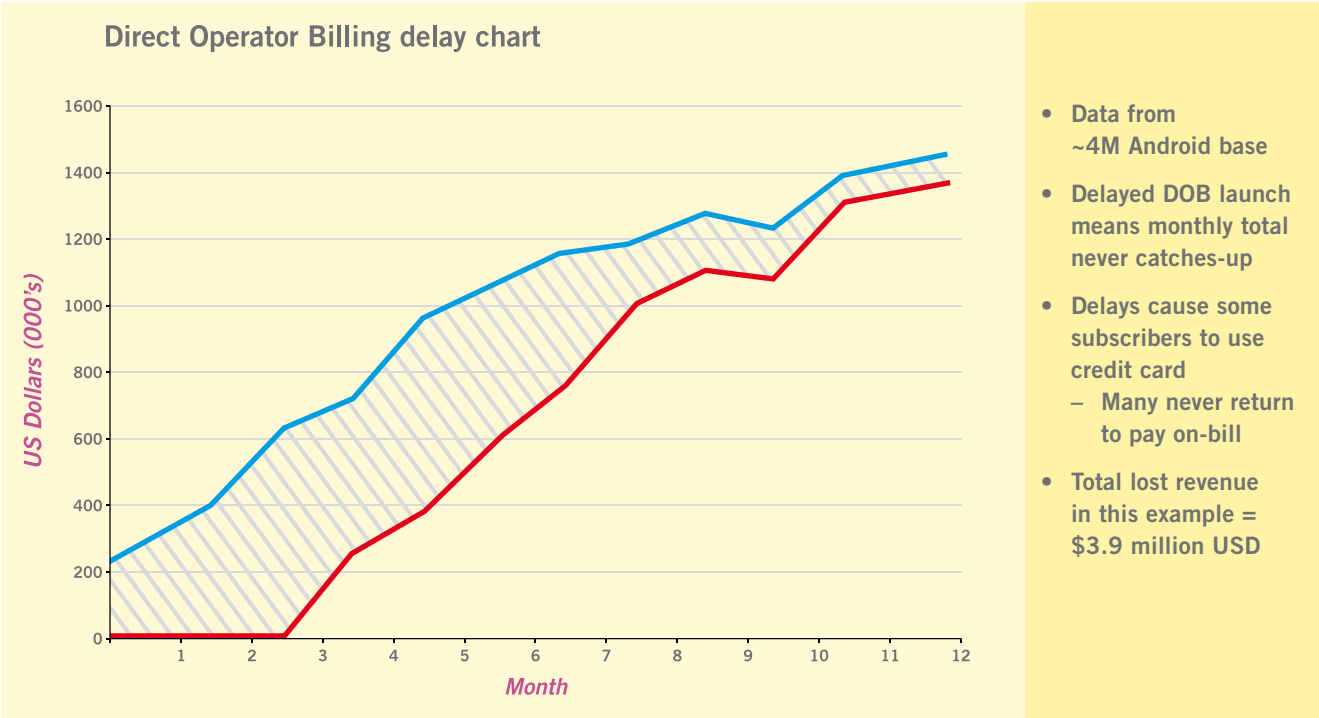
It is obvious that every week it takes to finally get billing launched is another lost revenue week. And with app stores generating hundreds of thousands of dollars in sales each week, that can become a costly delay in a very short period of time. What's a month delay worth? Potentially a million dollars or more.

The long term impact of a delayed launch produces an unrecoverable loss to Direct Operator Billing.

With other payment options available in app stores, an increasing number of customers will eventually register an alternative payment method in their account to make the purchase they've been waiting for. Once a user has selected and defaulted to an alternative payment method, the vast majority will stick with this method and never switch to Direct Operator Billing when it finally becomes available. A lost customer means lost revenue for ever.

How do you define a "delayed" launch? It is anything taking longer than could be achieved by a better method. It is obvious that the more experienced the integration team, the quicker it is to enable Direct Operator Billing. And the more certain that the integration will succeed first time.

Bango has accumulated market-leading expertise specifically integrating Direct Operator Billing for app stores. Our technologies and tools have already done the hard work, so speed is high and any risks have been dealt with. It takes many individual merchant connections to match a single app store integration, so it is simply not worth risking delays for your app store billing projects. If you are connecting to the best app stores, be sure to use the best integration technologies and teams. Speak to Bango today.



The fall of Premium SMS paves the way for Direct Operator Billing dominance

Written by Jordan McKee, Yankee Group

Recent moves by the top U.S. mobile operators to end premium SMS support have sent shockwaves across the mobile payments landscape. We see this serving as a much-needed paradigm shift that will further position Direct Operator Billing as the de facto standard moving forward.

While December's announcement by AT&T, Sprint and T-Mobile alters Direct Operator Billing forever, it by no means mandates its obsolescence. Consumer ARPU for U.S. operators has declined over 38 percent since 2007, meaning opportunities to generate revenue will not be ignored. It's unrealistic to expect operators to simply walk away from the 35 million U.S. consumers that made a purchase via premium SMS in the last month. Operators will continue to explore avenues to boost ARPU by leveraging their inherent capabilities (authentication, trusted billing relationship, etc.) to play a valued role in the mobile commerce value chain.

This is evident around the world today, with large operators including U.S. Cellular, Telefonica and Telenor making considerable investments in Direct Operator Billing solutions as a core component of their overall strategy.

Instead, the decision underscores premium SMS' deep-rooted issues while pointing to an enhanced vision and a more tactful mobile commerce approach for U.S. operators. Yankee Group anticipates Direct Operator Billing will emerge as the superior solution, as it has in other markets with regulated premium SMS - namely Germany and Indonesia. Direct Operator Billing is well positioned to fill the void, given its ability to provide the following for consumers, digital merchants, app store owners and operators:



- **Heightened customer experience.** Direct Operator Billing adds considerable value to the overall purchase process by eliminating friction and streamlining the checkout to a single click. Its seamless nature results in ease of use and satisfaction for the end-user. For operators and app store owners, this translates to increased conversions, and inevitably, top-line growth. Bango, for instance, reports its partners enjoy an impressive average conversion rate of 77 percent with its Bango Payment Platform.
- **Enhanced quality.** By leveraging APIs to integrate directly into an operator's billing platform, Direct Operator Billing offers superior security, management and reporting capabilities versus premium SMS. Large app stores across the globe continue to invest in Direct Operator Billing, underscoring both the robustness and benefits of the solution. Giants including Google, Facebook, BlackBerry, Microsoft and Mozilla have bet heavily on Direct Operator Billing in recent months, further positioning it as a natural choice for app store monetization. Yankee Group finds 1

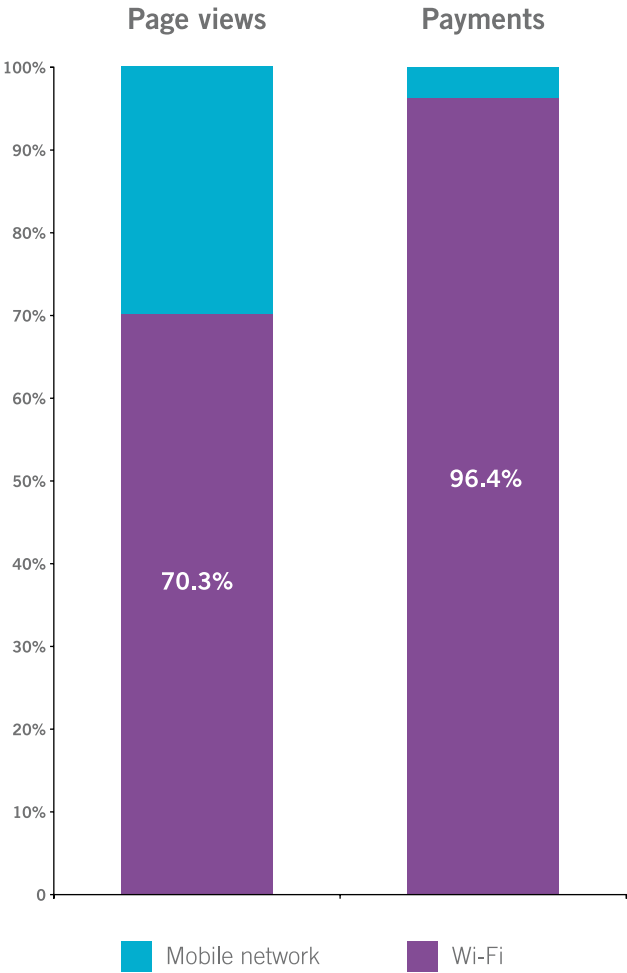
in 5 U.S. consumers with non-iOS devices are using Direct Operator Billing to pay for apps, compared to just 5 percent using premium SMS.

- **Increased standardization.** Although less than a quarter of U.S. consumers have made a mobile commerce transaction, this figure is poised for a rapid increase as clarity comes to the market. Consistency will be a core driver of adoption, with collaboration being the primary avenue to get there. Having acted in unison against premium SMS, U.S. operators will likely further their cooperation by working toward a set of cross-industry standards for mobile commerce. As demonstrated by Payforit in the U.K., operators have an unmatched opportunity to ease consumer apprehension toward mobile transactions by providing a secure and standardized payment experience.

The upshot: The end of U.S. operator support for premium SMS will finally separate the Direct Operator Billing wheat from the chaff. The bar is now raised, and traditional aggregators that center their business models on premium SMS will be forced to reconsider their relevance in the value chain. Forward-thinking vendors that have made investments in Direct Operator Billing early on, however, will be handsomely rewarded. Yankee Group expects the fall of premium SMS to further position Direct Operator Billing as the dominant solution, resulting in a number of benefits for stakeholders across the mobile commerce ecosystem.

Source: Yankee Group, Licensed Custom Research, 'The Fall of Premium SMS Paves the Way for Direct Operator Billing Dominance'. Feb 14 ©1997-2014. Yankee Group. All rights reserved.

Payment on Wi-Fi



It is universally accepted that operators would love to get bandwidth hungry smartphone users off their networks and on to Wi-Fi. The emergence of Femtocells and the frequent bundling of Wi-Fi subscriptions with consumer plans both underline the point. Consumers need little encouragement to move to make the shift, preferring the lightning speed and unlimited data on Wi-Fi networks.

This is a statistic that Bango follows closely. The diagram (left) refers to one week of Bango’s mobile traffic across the majority of our partners.

The overall sample size is in the tens of millions, and these users were using apps, visiting mobile news sites, buying games content and a huge variety of other activities on their phones and tablets.

The key observation here is that more than half of us – 70.3% – are connected to Wi-Fi when we browse the mobile web on our smartphones, and more than three quarters of us – 96.4% – are connected to Wi-Fi when we make a payment and download content on our smartphones.

This isn’t necessarily good news for operators. While this offloading to Wi-Fi will bring significant cost savings, it makes it difficult for the operator to identify their users, and therefore it risks depriving operators of one of their ace cards in the app store economy: the ability to authenticate users for Direct Operator Billing.

What does this look like in the real world? 96% of customers don’t actually get Direct Operator Billing. Instead they get a compromised payment experience in which they are asked to enter their mobile phone number and send text messages, with numbers to remember and type in.

This is where Bango comes in. Bango’s unique ID technology and platform approach allows us to automatically authenticate users for one-click payment, even on Wi-Fi.

Bango uses its massive reach across the mobile web to build an ever-widening pool of billable identities. Already we have in excess of one billion IDs and we’re aiming for everyone: Our mission is to develop billing grade identities for the world’s mobile users. Customers who plug into Bango include Google Play, Amazon, Windows Phone Store, BlackBerry World and others. As more app stores and merchants connect, we expand our already massive reach and all of our clients benefit from our ability to offer one-click payment.

The value of Direct Operator Billing is less about the ability to place a charge on a phone bill, and more in the ability to authenticate users for one-click payment. This is one of Bango’s key differentiators in the Direct Operator Billing marketplace and is why so many of the world’s largest operators choose to connect to Bango.

New office in Brazil reflects LatAm focus



Bango has established a local company in Brazil, as part of continued investment across Latin America. The move ensures Bango is well placed to serve this massive smartphone growth market.

2013 saw Bango launch mobile payment in Mexico, Venezuela, Colombia and Chile. Bango enjoys a close partnership with Mozilla, who’s OS and Firefox Marketplace app store has been launched widely across the region. Bango works in close partnership with mobile operators, ensuring optimized technical integrations and commercial relationships.

Brazil is one of a number of emerging smartphone markets with a more complex tax landscape for “foreign” payment providers. Many providers either slash pay out rates effectively by passing taxes through to merchants, or pyramid through local aggregators providing a BOB-like payment experience.

Bango’s local presence will optimize settlement and commercial terms for our partners.

Beware of BOB!

All mobile payment providers are not the same. Don’t fall victim.

Direct Operator Billing (DOB) is the state of the art, allowing smartphone users to charge the cost of a digital purchase to their phone bill, in one-click. It’s achieved through a direct integration into the billing systems of the world’s operators. It’s what our clients, Google, Amazon, Facebook and others, demand of Bango.

But Bango has noticed a dubious practice within the industry. Many of today’s mobile payment providers boast hundreds of what they call “direct billing connections,” but in reality they are dependent on an inferior approach. This approach is usually not the high performance charge-to-bill payment that it appears to be, and frequently it is not even direct. It is not what it claims to be. It is, to coin a phrase, “Bogus Operator Billing.” We call it BOB for short.

BOB allows users to put a charge on their phone bill, but only through fiddly and error-prone Premium SMS messages. Furthermore, BOB’s so-called “direct” billing is often just a proxy through additional third parties, to boost the numbers. BOB brings with him increased settlement risk throughout this indirect chain, a degraded user experience and, ultimately, lost sales.

Caveat emptor, let the buyer beware.

Late 2013 saw U.S. network operators AT&T, Sprint and T-Mobile enter into an agreement with 45 states to stop billing customers for Premium SMS messages that they send and receive. The move was forced by the problem of

“cramming”: unauthorized billing for third-party services forced onto customers’ bills. Today a handful of global Premium SMS providers continue to exist, but the industry mood is that Premium SMS technology is a technology moving toward its sell-by date.

Unfortunately this period of transition between Premium SMS and superior DOB has created an opaque environment, where BOB has thrived. Some unscrupulous mobile payment providers speak the language of DOB, while actually deploying Premium SMS.

So what’s so bogus about Premium SMS?

Delayed delivery reports, “false OKs”, MNO pricing errors, the straitjacket of fixed price points, incorrect and illegal tax treatment... The list of Premium SMS weaknesses goes on. Mobile cramming is merely the final nail in the coffin.

So why is Premium SMS hanging on, obscured behind opaque language on mobile payment provider websites? The answer lies in a numbers game. DOB is more reliable and offers a superior user experience, but it’s a complex integration challenge. It demands commercial agreements between app stores, operators and the payment provider. Rather than work to put these building blocks in place, unscrupulous mobile payment providers want to get some service, any service, in place so that they can claim huge coverage numbers. Gaps are filled in



with Premium SMS - Bogus Operator Billing - at the expense of reliability.

There’s a legitimate debate to be had over when it’s best to deploy an inferior technology over no technology at all. BOB ducks the discussion and hides the reality.

BOB remains at large in the Direct Operator Billing space. A “Direct Operator Billing” connection may just be Premium SMS, exposing users to an inferior user experience and increased settlement risk. Bango’s advice? Find a partner who has invested in a market-proven DOB platform, and beware of BOB.

Bango Dashboard in action: What affects your subscribers' spending?

Being able to understand customer payments in detail is vital to maximizing sales conversion and customer satisfaction. Direct Operator Billing success is dependent on a wide range of related factors, for example, a sudden drop in user spend may be related to changes in the user's payment experience, new applications going live in an app store or network and system issues. Without the right tools these sorts of issues can go undetected for months and result in significant loss of revenue, not to mention unhappy customers unable to pay.

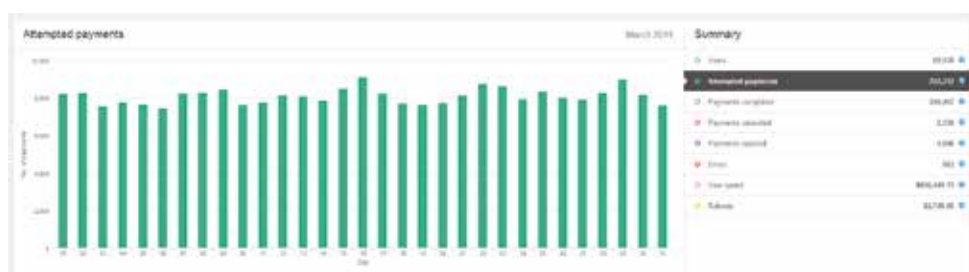
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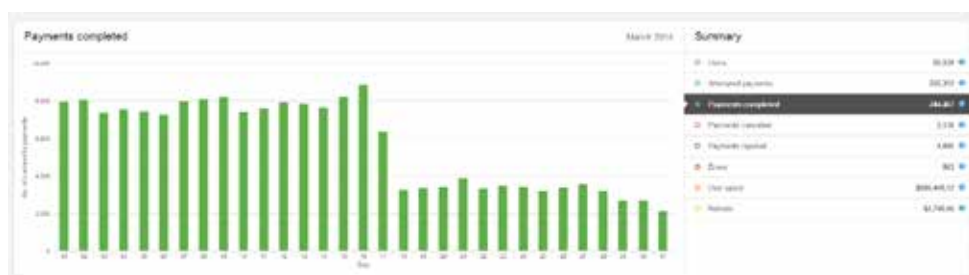
For example, image 1 taken from Bango Dashboard shows a healthy user spend over a month, with the highest user spend coming from in app purchases for Clash of Clans and Candy Crush Saga.

However, looking at the number of “attempted payments” in March (image 2) compared with the number of “payments completed” (image 3), you can immediately see an issue with sales completion starting some time on March 17th. Lastly, the “payments rejected” (image 4) shows a sudden increase in the number of payments being declined.

2



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Further investigation revealed that the payments were being rejected because a number of customers were reaching the monthly spend limit set by their operator (image 5). This affected the most regular customers and the biggest spenders, therefore recording a significant drop in user spend at the end of the month.

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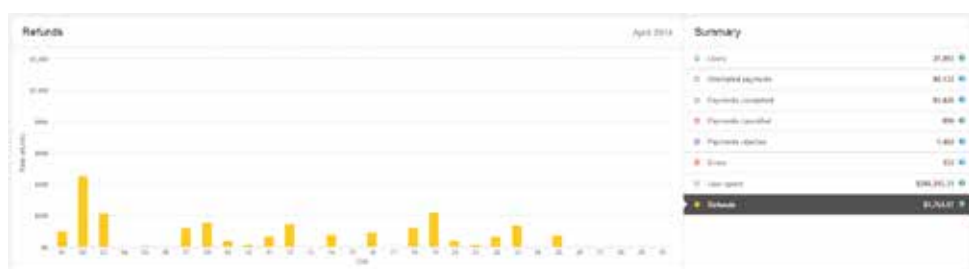


5

Billing Transaction Status		Select dimension...			
Billing Transaction Status	Events	Sessions	Distinct events	Unique users	Events per session
ok	244,467	244,467	1	54,266	3.21
spend limit	2,981	2,981	1	2,462	5.87
insufficient credit	1,131	1,131	1	2,193	2.41
banned	979	979	1	3,477	8.11
declined	933	933	1	5,148	1.87

The fear of significantly increased customer care and refund levels traditionally prevented the operator from simply increasing their monthly spend limits to avoid this monthly decline. However, with Bango Dashboard the impact of configuration changes, such as monthly spend limits, can be seen immediately, in real-time.

6



Bango Dashboard delivers simple, clear payment information across all your integrated stores and merchants, making it easy to see the real value and return on investment. Bango makes it quick and easy to understand customers and dramatically increase sales success, customer satisfaction and engagement.

Beware of BOB! Mobile payments in disguise

Not all mobile payment providers are the same. Don't fall victim.

In this white paper Bango shines a light on Bogus Operator Billing. The dubious mobile payment approach that lurks behind the reassuring language of some “Direct” Operator Billing.

Here's what you'll learn from this white paper:

- What's Bogus about BOB
- Key features and benefits of genuine mobile payment methods
- How to avoid falling victim to BOB
- Key questions to ask payment providers

Bango has developed five key questions which go straight to the heart of the matter.

These questions should be used by operators and digital merchants alike in order to interrogate mobile payment providers, and to understand the technology and techniques behind the headline claims.



Download your free copy from bango.com/whitepaper

About Bango

In the era of mobile technology, collecting payments has emerged as a central and complex challenge. Bango powers payment and analytics on the mobile web, providing users with a massively smooth payment experience.

Bango's pervasive presence across the web creates a platform effect for partners, identifying hundreds of millions of users and maximizing the number of one-click payments. Global leaders plugging into Bango include Amazon, BlackBerry World, Facebook, Firefox Marketplace, Google Play, Windows Phone Store and major mobile brands.

Contact us

To discuss how you can boost your revenues from major app stores, brands and channels by integrating with the Bango Payment Platform contact:

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