Beware of BOB!

White paper

bango®

Contents

Bogus

bo•gus [**boh-***guh* s]

adjective

Not genuine; counterfeit; spurious; sham.

adverb

Bogus Operator Billing.

A dubious mobile payment approach which uses inferior methods, hidden behind the reassuring language of Direct Operator Billing

Executive summary

Bango's belief is that mobile payment is much more than a commodity service. We believe passionately in widening access to mobile commerce, and in creating frictionless payment experiences that maximize mobile payments and ensure the health of the entire mobile ecosystem.

Direct Operator Billing[1] (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. This is what Google, Amazon, Facebook, Microsoft and others demand of Bango. This is genuine Direct Operator Billing. But… not everyone shares our clear vision. All mobile payment providers are not the same.

Let us introduce you to BOB…

Many of today's mobile payment providers have chased quantity at the expense of quality. They boast hundreds of "Direct Operator Billing connections", but in reality are dependent on an inferior approach. This approach is often 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 (PSMS) messages. BOB's so-called "direct" billing is often a proxy through additional third parties, unknown to the merchant, to achieve high aggregate coverage. PSMS is a slow, out-dated technology which is all but banned in the USA. 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.

This Bango white paper explains why large content providers and app stores should harness genuine DOB to unlock the wave of digital commerce that's been stimulated by the app store economy. It details inherent weaknesses in PSMS as a billing mechanism and shines a light on opaque practices from some providers in the mobile payment space.

Finally, Bango proposes *Five Key Questions* which network operators and digital merchants must ask of prospective billing partners, to ensure they don't fall victim to Bogus Operator Billing.

[1] Sometimes also known as Direct Carrier Billing: DCB

BOB says…

I'll help you buy that app.

All you need to do is pay by getting a text message

sent to you that you have to reply to from a funny number

with a special code that might not work or will turn up late

leaving you confused in a fix and ultimately very irritated…

The choice

Operator billing systems currently collect payments worth over a trillion dollars ($1,000 billion) per year for voice, text and data services globally.

Every mobile subscriber has a billing agreement in place with the operator; either through a contract (post-pay) or by top-up (pre-pay). This provides an efficient and attractive payment channel for billing additional, third party products and services.

To tap in to this payment collection capability for third party content and services, two approaches are available:

1. Premium SMS (PSMS)

SMS is an indirect method of payment. It doesn't make a charging request directly to the end user's account, instead it charges the consumer a fee to send, or receive, a text message which is more than the standard SMS rate. For example this may be $3.00, £1.50 or €2.00. Because these messages cost a premium fee, they are typically designated a special number shortcode (which is usually 4-8 digits in length). A share of this fee is then paid to the third party providing the content or service. This approach is relatively simple to implement, and leverages the existing systems that already process the fees paid to send messages to or from other operators or countries.

PSMS has five main weaknesses which are explained in more detail later in this white paper:

1. Paying too much

2. Paying too little or nothing at all

3. The price point strait-jacket

4. Incorrect (or illegal) taxes

5. Mobile cramming

2. Direct Operator Billing (DOB)

Direct Operator Billing directly charges the consumer's post-pay mobile phone bill or deducts funds from their pre-pay account. It uses programmatic interfaces directly into the mobile network operator's (MNOs) billing platform, which requires additional security, management, reporting and third party settlement. These capabilities have been developed by many MNOs and additionally supplied by specialist billing platform providers. These DOB systems were initially used for the MNO's own content services (portals) but were made available to third party payment platforms, notably Bango, from as early as 2001.

How did we get here?

Premium SMS became popular in the 2000's, mainly because it was extremely simple to deploy using offline media. For example: 'text FROG to 88888 to get the crazy frog ringtone for £1.50' or 'text your birth date to 45676 and we will text you a daily horoscope for only 50cents – T&C apply, reply stop to stop'.

User identity/authentication was automatically included in the user interface (SMS), and therefore less complex. Many companies built substantial businesses by combining the ease of payment and use of PSMS with online marketing. Methods included incentivizing users to take on PSMS 'content-club' subscriptions, pay by message interactive chat/erotic services, TV voting and lowest unique bid sales.

weighs the high costs and unreliability of the services. This is particularly true for products and services where margins are relatively high, and can therefore tolerate the built-in costs of PSMS as a billing method, and the failure levels typically generated. It is a comparatively brittle technique for billing, often tied to a limited number of fixed price points, corresponding to pre-set PSMS billing tariffs.

> **BOB says…**
>
> *"High failure rates? Who cares! Just inflate your margin to compensate!"*

November 2013 saw a major blow dealt to PSMS. The US network operators AT&T, Sprint and T-Mobile entered into an agreement with 45 states to stop billing customers for Premium SMS messages that they send and receive. Verizon

|			
User clicks to pay on bill	**User enters mobile number**	**Payment provider texts code**	**User verifies identity**

However increasing problems with scams, user refunds, lack of clarity and other factors caused MNOs around the world to tighten up on the use of SMS messaging, introducing 'double opt ins', automatic refunds for customer disputes, mandatory notification for subscription renewals and severe penalties for high refund rates.

> **BOB says…**
>
> *"Trust me! I know a man, who knows a man, who can give you "Direct" Operator Billing."*
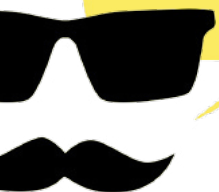
Premium SMS remains widely available, despite its reputation and weaknesses. The ease of rapidly collecting large volumes of small payments in many countries still out-

Wireless, while not part of the settlement, has said that it too will discontinue the practice. The move was forced by the persistent problem of "cramming": unauthorized billing for third-party services forced onto customers' bills.

Today a handful of global PSMS providers continue to exist, particularly for billing charges authorized from a PC or other premium messaging services, but the industry mood is that PSMS technology is a technology moving towards its sell by date.

Unfortunately this period of transition between PSMS and superior DOB has created an opaque environment, where some unscrupulous mobile payment providers speak the language of DOB, while actually deploying PSMS: This is what Bango terms Bogus Operator Billing.

What's so Bogus about BOB?

BOB doesn't know the meaning of the word "direct"…

Some unscrupulous payment providers refer to placing charges "directly" onto the consumer's mobile bill, while neglecting to make clear that this is achieved using PSMS. Such a claim is using the language of DOB, without using the methodology of DOB: connecting through a reliable direct billing API.

Beyond this dubious practice, PSMS has a variety of inherent weaknesses which should be detailed and understood.

With DOB, a direct interface with the billing system is used, and a yes/no typically takes around one second.

BOB says…

"What's a little waiting between friends!?"

If a product or service is to be delivered after payment has been attempted, then a rapid decision is needed about whether the payment worked prior to delivery. This is where BOB struggles…

PSMS relies on SMS delivery reports. But text messages are often delayed. Even where the user is known to be 'online' and has sufficient funds, responses can take minutes or hours.

So how long should you wait for confirmation? After waiting, and not getting a delivery report, the only rational choice is to decline the sale. Otherwise many users will get the content and ultimately not be billed.

Worse, a significant number of users will be told that they have not paid but in fact they WILL be charged and a delivery report sent after the 'waiting window'.

Some content providers take the view that if a consumer finds they have been billed, after being told they cannot have the content, they can just call up and get it – put it down to a 'glitch' – or perhaps the consumer will not call, in which case the content provider gets paid with no content costs. Classic BOB thinking, and a fast track to consumer dissatisfaction.

PSMS problem 1: Paying too much

With all payment models, when offering an app download or other service, the consumer is billed first. The biller then confirms the payment was successfully collected before the content can be downloaded.
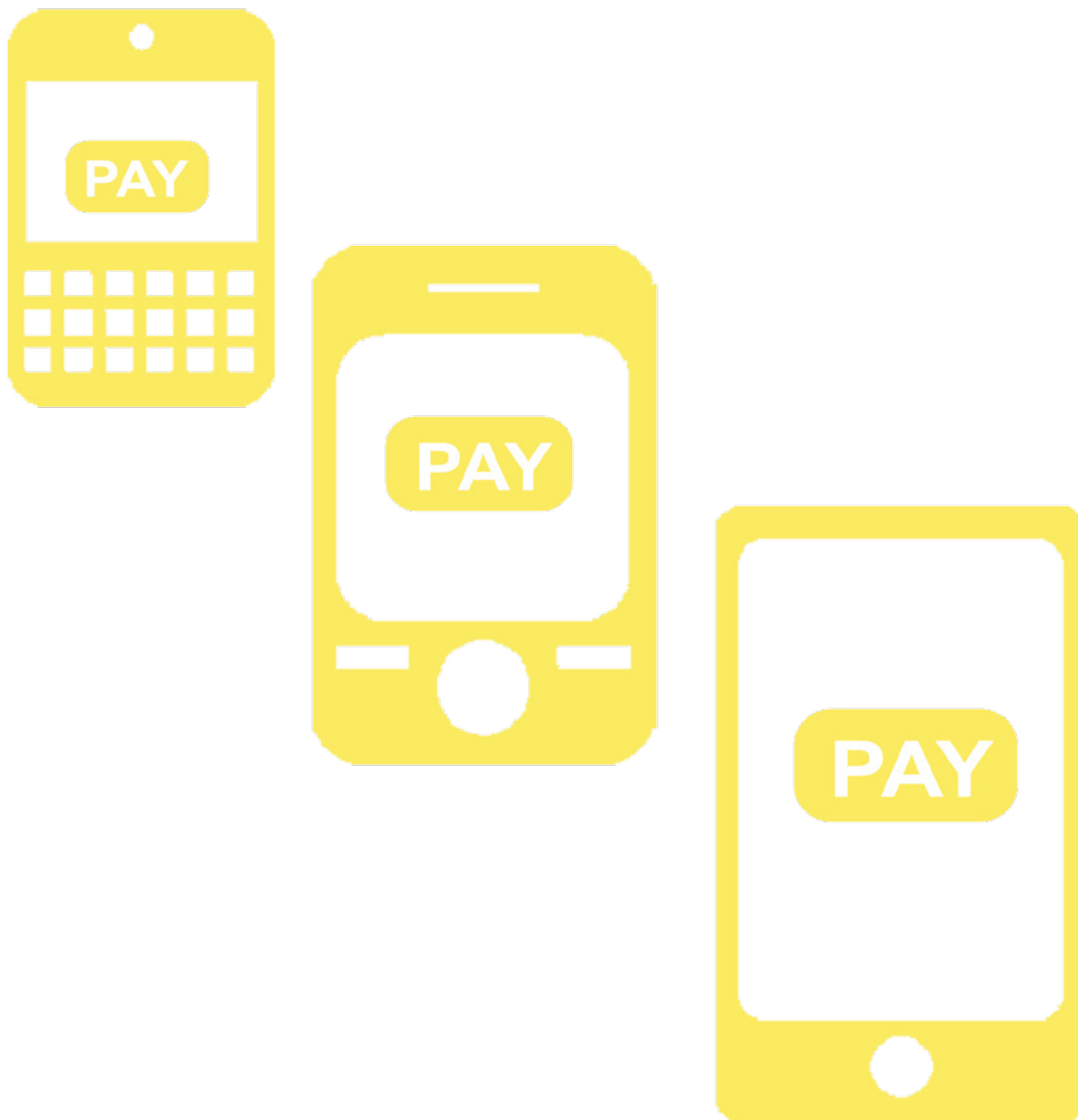
PSMS problem 2:
Paying too little or nothing at all

It should be so easy. A premium text message sent from a specified shortcode to a consumer makes the consumer liable for the relevant payment. The MNO takes their share and remits the balance. But in practice, it often goes wrong. Here's why:

Settlement time

The link between a third party MNO billing system and the definitive operator billing system may not be real-time, meaning that an 'OK' delivery report might be sent even though the consumer does not have funds. The settlement reports or messages delivered later may show that the user did not in fact pay – the delivery report is more of a 'probable payment'. A typical BOB fudge.

False OK

Bango is aware of SMS aggregation systems that generate spurious SMS delivery reports, which turn out not to reflect the billing and settlement processes later.

MNO price point error

Operator billing system processes have been known to assign the wrong price to a shortcode – frequently the set-up of billing codes is a manual process within the MNO team. If an error is made, and the consumer is undercharged, the MNO won't make up the short fall. If they are overcharged due to the error, reconciliation is time consuming, and the content provider will have inadvertently breached charging regulations.

PSMS problem 3:
## The price point strait-jacket

Most PSMS systems assign a specific price point to a shortcode.

For app stores or services with a wide range of price points, and especially prices such as $0.99, £0.97, €0.49 etc. or prices dynamically determined by exchange rate computations, a very wide range of shortcodes are required.

Management of these shortcodes is complex and expensive. Most operators limit the number of shortcodes allowed by each customer, or charge per shortcode. Higher price points are usually available through DOB compared to PSMS, which is limited to a messaging based tariff.

In addition, currency conversion can often impact on price, resulting in a list price that doesn't match a supported local price. For example $1.99 in US Dollars could convert to an awkward £1.63 in British Pounds. This is easily managed with DOB, but problematic for PSMS.

App stores require a wide-range of price points
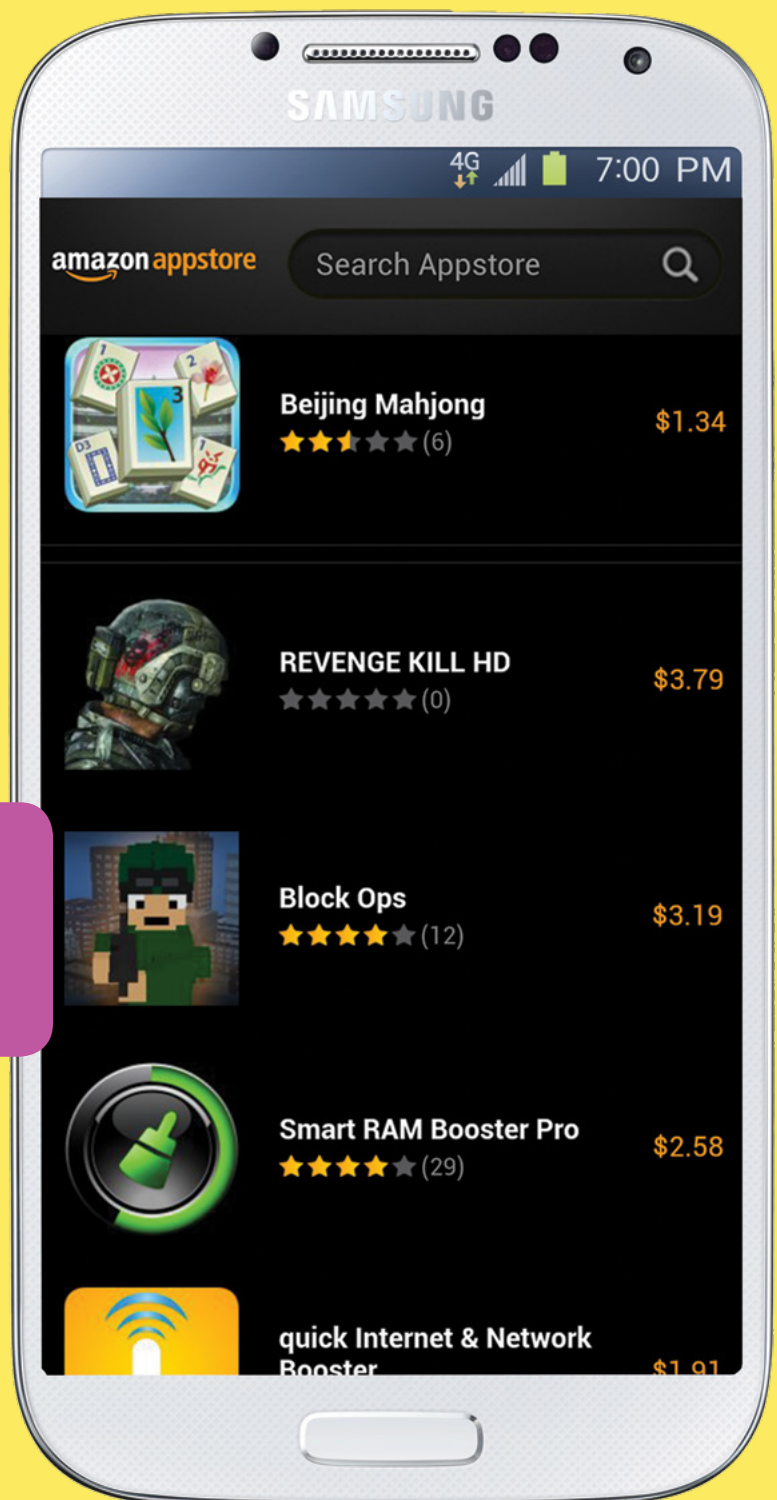
PSMS problem 4:
Incorrect or illegal taxes

Selling digital content using PSMS has the benefit of fitting inside the MNO's normal operating umbrella. However, taxation can get rather complicated, very quickly – stretching BOB way beyond his limits…

Wrong tax rate charged

The user or sales tax assessed on a 'telephone message' may be different to the tax assessed on the content or service being delivered. A good example of this is the case of a donation to a charity, which is normally outside the scope of VAT but where the MNO charges VAT on text messages. The content provider may work out applicable taxes based on its tax nexus, only to find that the operator automatically adds tax on a particular PSMS billing route. DOB services are designed to handle tax more flexibly.

Illegal tax rate charged

Some services in the US are federally determined to be exempt from state taxes. For example certain internet services, digital content or apps. If one of these services is paid for using PSMS, and the messaging portion of the user phone bill is liable to a state tax, an offence is committed.

Taxes must be included in the price at which a product is offered for sale in most markets. In Europe, VAT forms part of the advertised price point, so a product offered for €1.99 will include an element of VAT in that amount, which must be paid to a recognized national taxation authority. The tax nexus can be selected by the seller, which is normally the party retailing the product.

So it's possible for a higher rate of tax to be paid than is necessary, if a high taxation nexus is used. Some app stores have overcharged customers in tax inclusive markets, by applying tax on top of the advertised cost of the product. This is also illegal, because the customer can only be charged the amount shown.

Finally, PSMS settlement operates as a telephony service, which means operators are required to account for sales taxes. It is therefore unsuitable for major distribution channels that wish to manage their own tax settlement processes.

BEWARE OF BOB!

BOB says…

"Taxes make my brain hurt. Can we talk about something else?"

PSMS problem 5:
Mobile cramming

Perhaps the biggest single weakness of PSMS billing for digital content has been its use in mobile cramming. That is, putting unauthorized charges on to a users' mobile bill.

In the last few years, PSMS billing has become synonymous with malware operations that trick people into downloading apps or subscribing to services that send out PSMS messages without the user's knowledge. BOB has a bad name…

In late 2013 the problem saw increased exposure when the US operators AT&T, Sprint and T-Mobile announced that they would terminate all billing for Premium SMS, except for charitable and political giving. The operators were reacting to huge negative sentiments from their subscribers, pressure from the FTC and the Attorneys General from 45 US states.

Attorney General for Vermont, William Sorrell has led the campaign, and recently stated that he hoped other operators would soon follow this lead. It's clear that PSMS is now a fatally tarnished technology, and with operators joining forces to close it down in specific regions, the direction of travel is clear. BOB's days are numbered.

BOB says…

"Mobile cramming? Never!

The world's biggest operators, 45 American states and a decade of consumer complaints must all be wrong…"
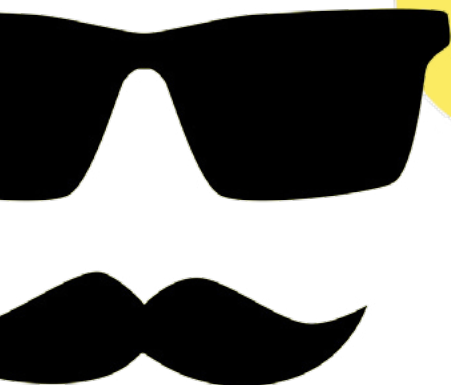
Genuine Direct Operator Billing

Don't let BOB make a mess of your mobile revenues! Only genuine DOB solutions support the following features:

Feature	Benefit
An API-based interface between the payment provider and operator platform	• Fast payment request response times • Delivers the best customer payment experience • Crucial for acceptable in-app billing experience
Direct server-to-server connection to each operator	• Minimizes latency, points of failure, problem resolution processes, etc. • Ensures the best possible customer experience
Comprehensive error messaging	• Provides guidance to customer if a payment cannot be processed. E.g. top up your pre-paid account, speak to operator care, try again or failover to an alternative payment method
2-phase billing option	• Mirrors credit card processing by allowing funds to be confirmed and reserved before payment is processed • This optimizes the payment experience and speeds up confirmation to deliver a superior customer experience
Comprehensive set of additional web services	• API calls to check customer status, identify red-lined accounts, retrieve price point availability and verify age if required • This reduces payment error rates to customers
Direct commercial contract between payment provider and each operator	• Delivers robust SLAs, fast financial settlement with minimal settlement risk • Gives a high quality developer experience

BOB says…

"Trust me!

Me and my army of unnamed payment intermediaries want to be your trusted operator billing partner…"

Staying BOB free:
Five key questions

BOB has no place in mobile payments today. An industry where the customer benchmarks are Apple and Amazon should have bid farewell to BOB a long time ago. But as this paper reveals, BOB comes in many disguises…

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.

The questions are:

Q1. Does the payment provider have a direct integration with each operator?

BOB says: "Of course I have direct operator billing. After all, the charge ends up directly on the customer's bill, right?"

What BOB fails to mention is that it isn't him who puts the charge "directly" on the customer's bill. It's one of an army of unnamed intermediaries, so that BOB is really only the second level, and sometimes the third level in the scheme. BOB adds complexity, points of failure and risk. The payment provider should be directly contracted with each operator. Third parties in the settlement sequence add delay, uncertainty and lost money.

BOB loves small print and hopes that you don't…

Q2. Does the payment provider contract with each operator partner?

BOB isn't bothered about direct contracts – they're complex, time-consuming and have to be carefully managed. BOB's approach means that he has no direct recourse to the operator, so cannot manage the partnership. He relies on intermediaries for SLA, reporting, settlement, compliance and other key factors in an important financial relationship.

Your business operates on an order-to-cash basis. That means if you accept payment for an order and deliver the product to the customer's device, you expect to get paid in full. Direct Operator Billing meets this requirement for your business. BOB can't guarantee this because he doesn't have the paperwork to manage the relationship. Not that he will have mentioned this "minor point" during his sales pitch…

Q3. Can the payment provider independently verify consumer identities?

BOB has a very weak grasp of user identity. An operator can only identify consumers who are using their smartphone directly on the operator network, but Bango's own analysis shows that up to 96% of payments are made on Wi-Fi. Any successful payment platform must be able to independently verify consumer identities both on the operator network and on Wi-Fi. Identification leads to authentication and payment success. Inferior user identity will result in an inferior customer experience and lost sales.

Q4. Is there a robust operator billing platform, with real-time monitoring and Service Level Agreements?

A payments partner should operate real-time monitoring of the availability of both their own platform and the mobile operator's platform. Response times, which tend to be variable and unpredictable with PSMS billing, are key to billing performance, and a 24/7 Operations Center should be a mandatory requirement.

BOB lives by hope, rather than expectation. Hopefully everything will be ok, and if it's not, well hopefully it will all get sorted out. By someone. At some time. BOB's indirect approach to life as a payments provider means that he's probably relying on someone else to figure out what's going wrong, and relying on someone else to figure out how to fix it. Eventually.

Q5. Is the operator paying the money straight to the payment provider?

If not, who handles the money first? Find out what kind of company (or companies) this is, what their costs are and how much delay this intermediary will impose on speed of settlement. Can the intermediary provide a letter of credit to insure your funds will be paid in full, with no fines or other deductions? This is Direct Operator Billing, so ask *direct* questions.

Ask the provider to tell you exactly what taxes will be deducted. We always say to our operator partners, "What happens, exactly, when the customer buys a product priced at one dollar (or local currency equivalent)?". We know what taxes the end user is charged, what is deducted by the operator, and if your funds are subject to any other internet, communications or withholding taxes. BOB is generally a bit vague on taxes, often because he doesn't really know what has been deducted and by whom.

BOB's last words

Because he's a dying breed, let's give the last thought to BOB:

Things in BOB's world aren't necessarily what they seem to be. You wouldn't buy a used car from BOB. His "showroom condition" car hides the scratches and bumps. It starts first time. Sometimes.

BOB remains at large in the operator billing space. A "Direct Operator Billing" connection may just be PSMS, and may not even be direct. For a business that doesn't mind an inferior user experience, dropped charges, uncollectible funds or the risks from multiple intermediaries, BOB might just work. For everyone else, only approved DOB meets the requirements.

Find a partner who has invested in a market-proven DOB platform, and Beware of BOB!

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 including CNN, Cartoon Network and EA Mobile.

For further information about the Bango Payments Platform visit: http://bango.com