Business IPTV Service – A New Cloud Business Vertical

P.G. Madhavan
CEO, Zaplah Corporation
www.zaplah.com
pgmad@zaplah.com

Summary: *Digital Signage business of video ad delivery to public display and mobile screens is at a tipping point in 2009 but the current ecosystem is not set up to tip it right! Business model and technology solutions have to be reconfigured into a cloud business vertical –"Business IPTV Service": a business and technology platform that telcos and other cloud service providers own over which multiple ad signage virtual operators function. If ecosystem rebuilding starts now, Business IPTV Service will be a multi-billion dollar business in Greater South East Asia alone by 2015.*

Advertisers are always looking for ways to reach your eyeballs. But simply entering our field of vision is just the first step. The advertisement should engage us, be relevant to our situation and help us make a purchasing decision. Historically, "out of home" advertisements (as opposed to "in home" ads seen on TV, for example) have been the static variety –large billboards along the highway or posters on walls with unchanging content.

With the advent of electronic displays, it has become possible to duplicate the concept of static ads (think of old TV sets used for information display in lobbies) with ease. This has been going on for well over 15 years. This method of conveying information is called "Digital Signage". Companies such as Scala, to mention one among many, have been providing software, media players and related technology necessary for Digital Signage. Ad Signage companies such as Focus Media have been contracting with location owners (such as office tower owners), and using Digital Signage technology, create and display content in elevator lobbies. As the content and business owners, Ad Signage companies have been operational for over ten years; however, as we near the end of this decade, it is not clear if their business is thriving.

As the owner of a Digital Signage technology company, I have had the opportunity to occupy an inside-the-ring "seat" in this industry for the past couple of years. I believe that the ecosystem is broken, the business model is upside-down and the technology needs to be revamped. Allow me to outline why I think this is so and how Digital Signage industry can be reinvigorated...

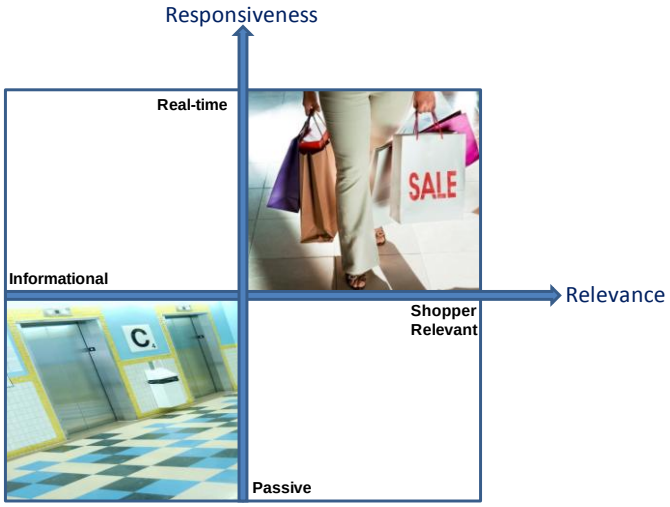
About the Author:

PG is the Founder & CEO of Zaplah Corp. He has over 25 years of experience in wireless, signal processing, software and entrepreneurship. He is a market and systems visionary for wireless video with significant experience in recruiting and managing global teams. His leadership style is characterized by super creativity-tenacity, high energy and gregariousness. His prior engagements include Microsoft, Lucent, Rockwell, University of Michigan, McMaster University and IIT Madras. He has a Ph.D. in Electrical and Computer Engineering. He has over 50 publications and 12 U.S. patents issued. http://pgmadblog.blogspot.com/

What is Digital Signage?

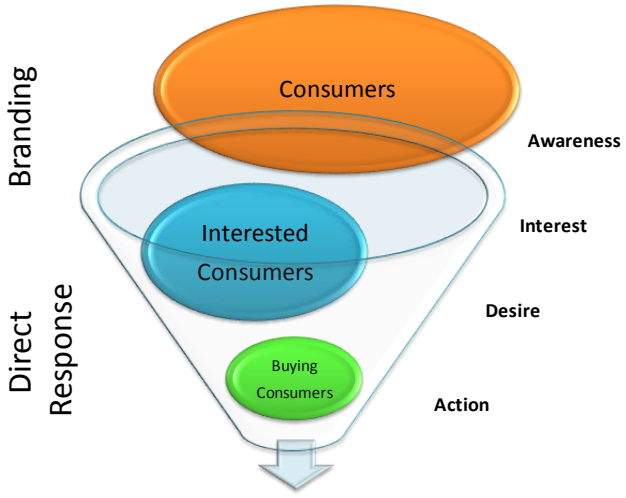
To understand Digital Signage at a deeper level, let us discuss the advertisement side of the story. Lobby displays in office and apartment buildings are already proliferating; they tend to be "passive" ads (as distinguished from "static" ads such as printed posters). There is currently a push into hyper/supermarkets because statistics state that 70% of the shoppers make purchasing decisions while in store. Graphics, animation and video content can increase "Premises-of-Purchase" or PoP purchases by 107%. In turns out that emerging HD video is very effective at grabbing attention. If the display screen is wirelessly linked, there is even better flexibility in targeting store areas as the screen can be relocated at will.

Along the axes of Relevance and Responsiveness, we can locate types of Digital Signage in various quadrants. In the bottom-left corner we have "Passive" ads that are more informational in nature. This is typically the kind of signage you see in an elevator lobby. In terms of Relevance, the ads typically rate low because you are not in a purchasing situation – you are going to work (it may be relevant to you at a later time; a car ad may tempt you go to a showroom over the weekend to check out the new model). The ads are not Responsive to a particular consumer and hence, there are no real-time changes in the ad tailored to that consumer. In fact, their passive nature allows video ad loops to be updated only once every one or two weeks. Consequently, the update methodology is called "man on a motorbike"!



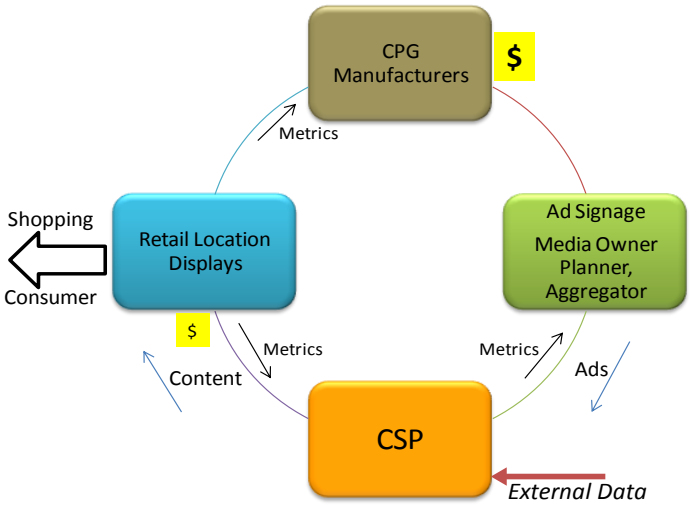
However, if we shift to the top-right section, new types of ads made possible by current technological advancements are emerging. A simple example of this type of technology is the inclusion of a small camera in the display or other consumer identification techniques such as RFID that leads to the offer of an enticing discount to that consumer. Such an ad has high Relevance to the consumer and requires real-time level of Responsiveness.

Within the "purchase funnel", such Digital Signage comes in at the "Desire" and "Action" stages of the purchase process, mainly at the "premises of purchase" or PoP.

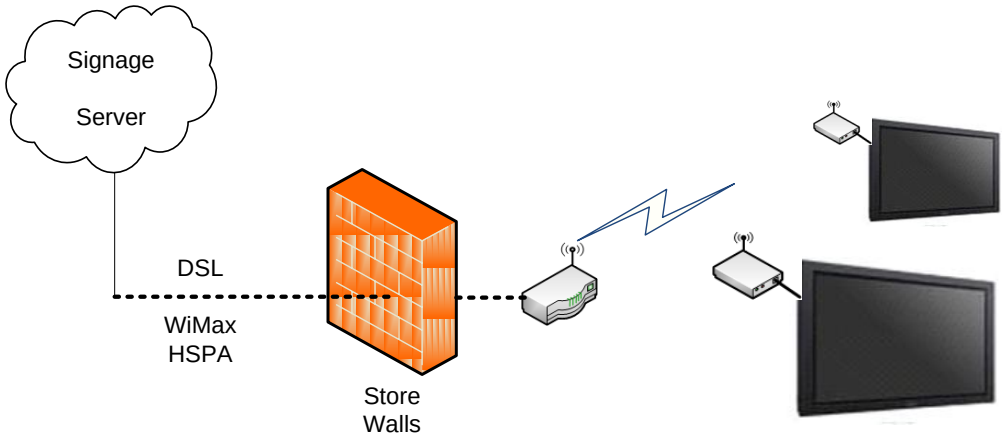


In short, the "Digital Signage" that this whitepaper focuses on is Out-of-home, Direct-response, PoP ads displayed on fixed & mobile screens for brick & mortar shopping paid from "non-search" ad bucket.

Consider the business of signage depicted in the diagram to the right. Consumer Packaged Goods (CPG) manufacturers such as Procter & Gamble inject revenue dollars into the industry. Ad Signage companies own this ecosystem and pull the ads together. They engage a Communications Service Provider (CSP) such as AT&T, to deliver the content to display screens in retail shops and other locations. As this industry matures, there is more and more demand for metrics to show that the shopping consumer is paying attention to these ads. There is also a demand for external events to modify the content displayed - envision Nike ads immediately after the Aussie Open featuring Nadal (having won the event) rather than Federer!



Below is a simplified look at Digital Signage technology; the system shows a server, which holds the ad content, and a store location with display screens and media players connected together



wirelessly. The data from the server reaches the store via broadband communication technology such as DSL (wired), WiMax (new wireless) or HSPA (cellular) and the media player plays the ad video loop on the display.

Digital Signage at a Tipping Point

The Ad Signage business currently has many relatively small stakeholders; there is a profusion of Digital Signage software and media player solutions, numerous Ad Signage companies and countless adjacent industries such as display makers and network infrastructure supplier companies, all trying to get in. This is great news – I see four events that tell me that Digital Signage is at a "tipping point".

The first of the 4 events pointing to a growth spurt is the expansion of broadband (note that this is business broadband and not home broadband connectivity which is still patchy in some parts of the world) which enables networked signage. This means no more "man on a motorbike" - remote access opens the door to a variety of good outcomes.

a) Reduction of truck-rolls to update ads and maintenance
b) Fewer labor management issues
c) Ease of content modification, which leads to…
    - Quick response to price competition
    - Heightened interactivity and immediacy

Here are some examples:
Interactivity: On a bank or retail pharmacy display screen, overlay the queue number ready to be served in addition to the location of the counter where the customer holding the number has to go to be served.
Immediacy: A supermarket store manager is overstocked with Post cereal; he estimates the discount to be offered to move 20 of the boxes by the end of next day; this promotion is displayed on the cereal aisle screen immediately.

The second major event pointing to a growth spurt is the appearance of Cloud Services companies. To improve the performance of global networks, many companies have deployed massive data centers and delivery networks around the globe. Traditional telcos (such as AT&T), content delivery companies (such as Akamai) and companies with huge network infrastructures (such as Amazon) are providing Cloud Services. Let us refer to them collectively as CSPs (Communications/Cloud Service Providers).

In late 2008, AT&T announced their Digital Signage service. For CSPs with considerable global data center & network resources, this will be a powerful way to monetize their assets. Software-as-a-Service (SaaS) is an ideal cloud service delivery model and a good fit for the Ad Signage industry because of its pay-as-you-use model.

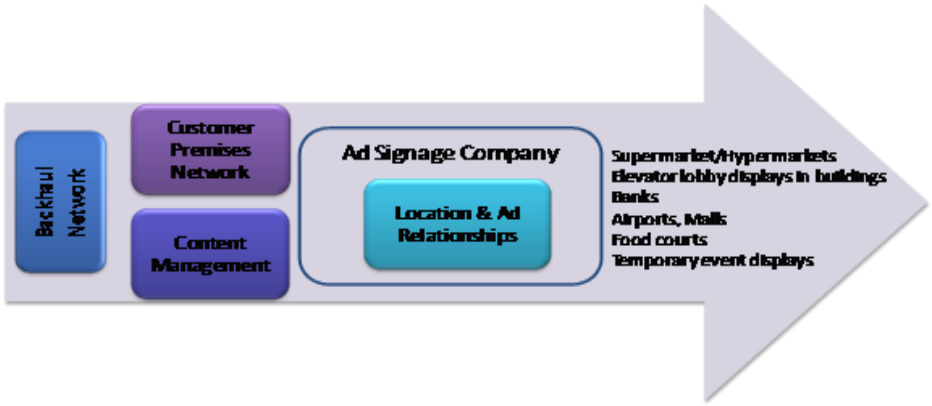
The third event pointing to a growth spurt is the advent of video content. CSPs would not enter Digital Signage unless it consumed a good chunk of cloud resources. In other words, if it is a few kilobytes, it barely makes a ripple in today's networks; however, if megabytes have to be delivered in a timely manner, there is money to be made. Digital Signage with interactivity and immediacy as important consumer engagement features and the use of 1080p HD video ads, will demand special content delivery network (CDN) services.

The forth major event indicating a tipping point is the realization of the value of Premises-of-Purchase (PoP) consumer engagement. Elevator lobbies were a great starting point for the industry, but engaging the consumer and providing relevant information via ads is catching on. Retail chains such as Walmart, Tesco, Carrefour, 7-11, McDonalds and other major chains worldwide are adopting digital signage widely. Not only that, my neighborhood grocery store has unveiled a few digital displays recently. Digital signage is popping up everywhere. And there are new opportunities to use digital signage infrastructure in restaurants & bars, banks, healthcare (home care), public health…. the list is long.

So if the **4 factors of broadband remote access, cloud service companies, video content and PoP consumer engagement indicate a tipping point** in the Digital Signage industry, is the industry ready for it? I am afraid NOT – I believe the business model needs to be redone and new technology platforms are required.

Disruption in the Market

Here is a look at the current (2008/09) Ad Signage ecosystem. Ad Signage companies are the business owners. They orchestrate the ad relationships and contracts with owners of locations where



they hang digital displays. They are small and not very profitable. In fact there are no billion dollar companies. Why? I see three problems:

- **Problem 1:** "Out of home" video media business operates as a "cottage industry". This is the right time to rebuild the ecosystem, consolidate and create more value.
- **Problem 2:** Ad Signage companies are the main players in the value chain and others are "feeders" to it; Ad Signage company lineage is typically advertisement and not service delivery. They do not understand how to deliver service cheaply, provide great user experience and create "stickiness".
- **Problem 3:** Ad Signage companies are trying to "lock up" locations to hang display screens; this will not hold for long in the case of Inside-PoP signage, since retail, banking and other location owners have enterprise relationships with CSPs; as relevant-to-the-consumer signage becomes the more prolific revenue generator, access to shoppers will shift to multiple personal digital devices.

How do you create disruption in this market? Let us use the "jobs to be done" lens and see what is needed.

Jobs to be Done Lens:

- **Passive signage** – make it simpler, more convenient & cheaper
- **Increase ad relevance** -
  - Improve interactivity, immediacy, location-specificity
  - Increase top-line revenue by enhancing relevance
  - Boost the revenue base by expanding to sites where increased relevance is rewarded: banks, hospitals, supermarkets
- **Reduce truck-rolls** and opex by auto-maintenance

To use Clayton Christensen's terminology (The Innovator's Solution: Creating and Sustaining Successful Growth by Clayton M. Christensen and Michael E. Raynor, HBS Press, 2003), there are opportunities for "low-end" disruptions and "new-market" disruptions. An example of **low-end disruption** is to make it super-inexpensive to do elevator lobby Digital Signage (such as no up-front cost for displays and remote access for low opex and maintenance).

New-market disruptions can be created by introducing high-relevance ads into PoPs. Consider the following three sets of examples.

Interactivity:

Simple Scenario: In a bank or a hospital waiting room screen, overlay the queue number ready to be served and the counter that the customer holding the number has to go to be served.

Advanced Scenario: Supermarket knows Joe's buying pattern from his affinity card; when he is in the baby food aisle, the screen shows 30% discount for Similac swaying him from his habitual purchase of Nestle.

Immediacy:

Simple Scenario: A supermarket store manager is overstocked with Post cereal; he estimates the discount to be offered to move 20 of the boxes by the end of next day; this promotion is displayed on the cereal aisle screen immediately.

Advanced Scenario: In an airport departure hall, a screen near the duty-free shops is showing a Nike ad featuring Federer; at 12:30am, Nadal has defeated Federer in the Australian Open tennis final – within a few minutes, the Nike ad features Nadal.

Location-specificity:

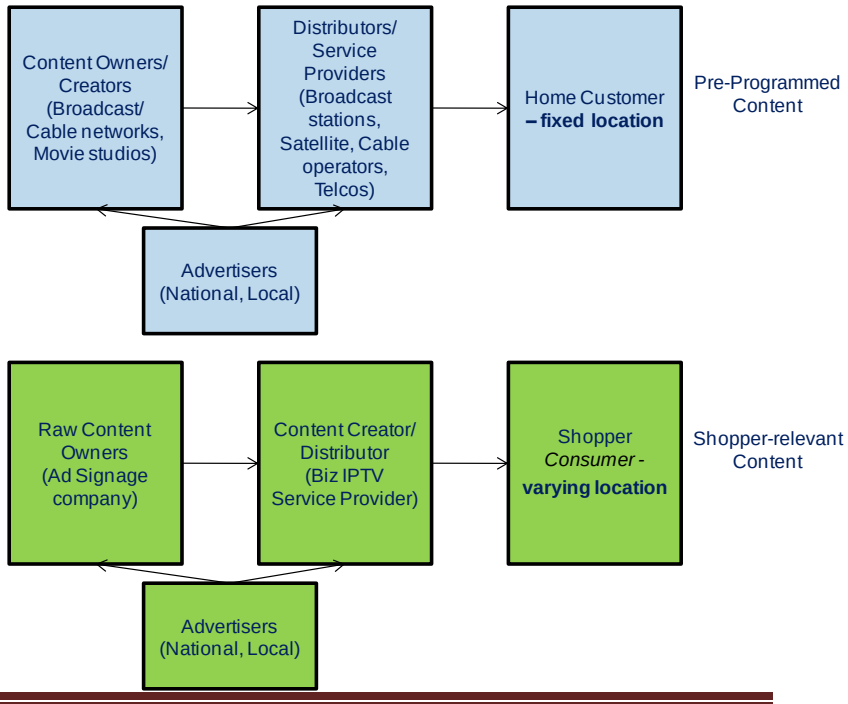
Simple Scenario: A hypermarket screen in the deli section shows deli meat ads and promotions; a screen in the baby supplies aisle shows NOT the deli meat ads but baby product ads and promotions.

Advanced Scenario: An airport arrival signage screen side-bar display section shows your name and Avis rental car parking spot number when you are within 10 feet of the screen.

As is evident from the "Tipping Point" section, we can do interactivity, immediacy and location specificity today and improve it further during an upcoming technology upgrade cycle.

How to Remake the Ecosystem?

One simple way to approach Digital Signage is to compare and contrast it to Home IPTV. The top row shows the business flow. Content is delivered to the living room of the home customer. Advertisers contribute one revenue stream to this ecosystem while the home customer provides another in the form of monthly payments. If we were to re-cast the Digital Signage business along the lines of Home IPTV, it will look something like the bottom row.



Raw ad content comes from Ad Signage companies that the distributor transmits 'as is' or modifies in response to interactivity/immediacy/location-specificity requirements. Some of the high-relevance ads will have to "follow" the consumer to different locations. And, the consumer does not pay into the ecosystem.

We call the lower row **"Business IPTV Service" or BIS.** In other words, we rename Digital Signage as ***Business IPTV Service*** to emphasize the parallels to the home IPTV ecosystem.

Even though there are similarities, there are also differences between BIS and Home IPTV. The following table captures the differences from a consumer requirements perspective.

• Home IPTV	• Business IPTV
1. Pre-programmed content	1. Shopper-relevant content
2. Consumed in the living room	2. Consumed in different shopping locations
3. Consumed on TV screen	3. Consumed on public and personal displays
➔ *Fixed content shipped to a fixed location*	➔ *Variable content tailored to the recipient, responsive to external events, shipped to various types of displays at different locations*

Business IPTV content distribution is more challenging because the content to be delivered may change in real-time when relevance is brought into the picture. In other words, this makes routing of the video content challenging; however, bandwidth challenge is mitigated by the fact that most of the time, video ads are deployed in a "forward-store-play" mode.

Given the IPTV parallels, issues in the ecosystem and tipping point events, I see a great opportunity to remake the ecosystem by **exploiting two unique opportunities …**

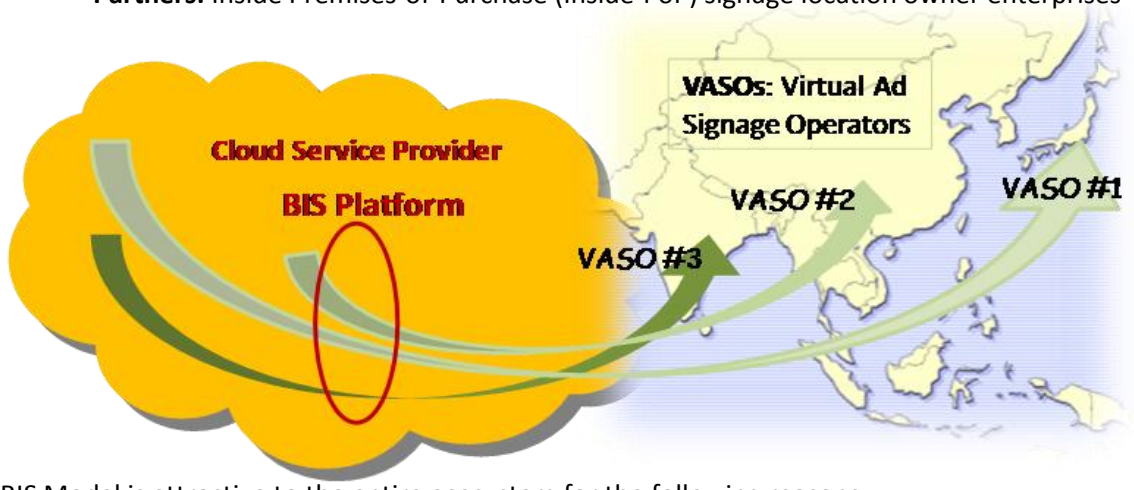
1. **Broken digital signage ecosystem: Consolidation.** Many small operations run by ad business houses – none with critical mass. Remake Digital Signage as BIS business:
    - Cloud Service Provider (CSP) as the central player; CSPs' cloud assets for Digital Signage cloud platform & service
    - Ad Signage companies as "virtual operators" – VASOs (Virtual Ad Signage Operators)
    - Focus on Inside-PoP (Premises-of-Purchase) signage market
    - CSPs concentrate on branding, negotiating with VASOs and leveraging enterprise relationships with location owners
2. **Paradigm shift in IT: Cloud Service "Vertical".** New ways of using in-cloud & on-premises resources; new ways of paying for services as a utility
    - Monetize cloud assets (data centers and networks) globally of Communications/ Cloud Service Providers (CSPs)
    - Video consumes CSP resources faster than any other medium and hence most monetizable; IPTV for home is the highest; next is Digital Signage (video ads on public displays)
    - The 2008/09 economic crisis creates an opportunity for consolidation and rebuilding of the ecosystem – new Business IPTV Service (BIS) business model

Business IPTV Service (BIS) business model

What does the Business IPTV (BIS) business model look like?

BIS Product & Service offered by a Cloud Service Provider (CSP):

- **Products:** Digital Signage SaaS platform & service – "BIS Platform"
- **Markets:** SE Asia, Japan, China & India markets; then US and EU
- **Customers:** Virtual Ad Signage Operators (VASOs) – ad buyers & aggregators
- **Partners:** Inside Premises-of-Purchase (Inside-PoP) signage location owner enterprises



The BIS Model is attractive to the entire ecosystem for the following reasons:

- CSPs will embrace Business IPTV Service – additional opportunity to monetize their considerable cloud assets; AT&T's entry has validated this model.
- CSPs' ability to offer subsidized and rental price model for Customer Premises Equipment (CPE) will open the flood gates for widespread PoP installations; current high cost of CPE is a major blocker. In an adjacent business of cellphones, CSPs routinely subsidize handsets for a multiyear service contract.
- Ad signage companies will find the "virtual operator" model attractive, as owning and managing CPE is a very costly and complex non-core activity for them
- PoP location owners already have relationships with CSPs that provide backhaul and other enterprise connectivity services for them; BIS becomes just another service in the suite of services CIO's buy.

The question of markets and market size (revenue opportunities) are critically important. My choice of Greater South East Asia (which includes India, China and Japan) is prompted by evidence of the ready acceptance of digital signage in these markets and the potential for growth in Retail and Infrastructure, much of them from a low base, providing the opportunity to get in on the ground floor.

Of course, Business IPTV Service (BIS) is extensible to a suite of video cloud service "verticals" by adding the following sectors to Digital Signage:

1. Healthcare (hospital data interchange & home care of elderly)
2. Security (surveillance of homes & offices)
3. Screen-casting (corporate communication & education)

Revenue Opportunity & Growth

Typical locations for high-relevance BIS:

- Hypermarkets and Supermarkets
- Shopping Centers
- Airports
- Banks
- Food Service & Drinking Places
- Hospitals
- Hotels
- *Elevators, Office building lobbies, Apartment building lobbies*
- *Buses, Bus stations; Trains, Train stations*

The locations on the left are premises of purchase (PoPs) whereas purchase based on ads that the consumer sees on the display is not the primary business mechanism at the locations on the right.

Getting reliable market data especially after 2008 have been challenging. Market projections out to 2015 are nearly worthless. However, some estimates are necessary if we are to assess the revenue opportunity of BIS business.

The following is a reliable estimate for the number of hypermarkets and supermarkets obtained from Euromonitor in March 2009. Items of note are the numbers for China and the low base for retail growth in India.

Number of Outlets	**India**	**China**	**USA**	**UK**	**France**	**TOTAL**
Hypermarkets in 2008	266	2,138	3,617	902	1,524	8,447
Supermarkets in 2008	6,800	81,574	23,252	4,013	6,114	121,753

Screen TAM in 2008	**India**	**China**	**USA**	**UK**	**France**	**TOTAL**
Hypermarkets	2,660	21,380	36,170	9,020	15,240	84,470
Supermarkets	13,600	163,148	46,504	8,026	12,228	243,506
Total Display Screens possible	16,260	184,528	82,674	17,046	27,468	327,976

- 10 screens per hypermarket
- 2 screens per supermarket

In trying to estimate market size, assume that there are 10 screens per hypermarket and 2 screens per supermarket. Consequently, the *possible* number of screens, Screen TAM, in 2008 in the various major markets pooled together, will be 327,976. Note that in 2008, these many screens do not exist in stores; this number is the potential number if Digital Signage had fully penetrated the market.

To come up with an overall estimate of possible number of screens in *all* PoP locations, I have had to rely on USA numbers for 2008. For all the non-italicised high-relevance BIS locations in the list at the start of this section, opportunities are estimated in the table below. The methodology I have adopted to estimate the number of screens is called “Fermi experiment method”; you can read more about it in my

blog at: http://pgmadblog.blogspot.com/. For example, there are 20,000 airports in the US. Clearly, all of them are not great candidates for hundreds of BIS screens. In fact only 40 of them are of Class B

	USA Only in 2008:							
		*Statistics		Guesses	#Screens			
PoP	Hypermarkets	3,600			10	36,000		
	Supermarkets	23,000			2	46,000		
	Shopping Centers	90,000	Big	10,000	100	1,000,000		
			Med	30,000	20	600,000		
			Small	50,000	10	500,000		
	Airports	20,000	Class B	40	100	4,000		
			Local	19,960	10	199,600		
	Banks	83,000	full-service		5	415,000		
		14,000	credit unions		2	28,000		
							2,828,600	Screens
Other	Food Service & Drinking Places	430,000	Full	200,000	3	600,000		
			Limited	230,000	1	230,000		
	Hospitals	5,000			20	100,000		
	Hotels	50,000			5	250,000		
							4,008,600	Total Screens
		* - Plunkett Research						

(major airport such as LAX) where there are lots of shops, and hence lots of associated BIS screens. I therefore categorized airports into Class B and Local and put most of them in the Local category. In a Local airport, I assume an average of 10 screens. Based on such partitioning of the problem, I arrive at 203,600 screens for all airports combined.

Overall, close to 3 Million PoP screens are *possible* in USA in 2008. Another 1 Million screens are possible in high-relevance BIS locations in restaurants, hospitals, etc. Due to the fact that Digital Signage is still in its infancy and that the current business model is broken, actual penetration is a fraction of the possible 4 Million screens.

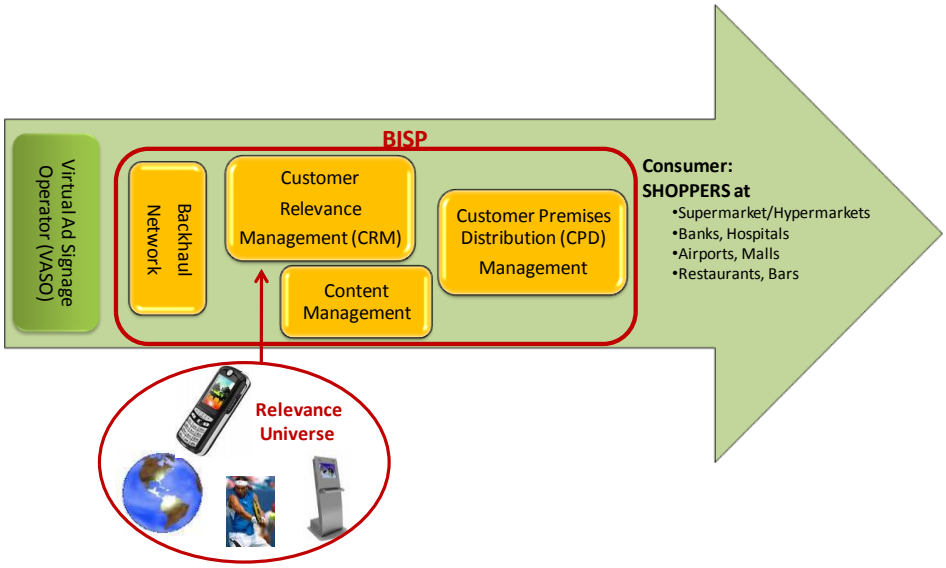
The consensus top-line revenue per screen that my own personal investigation has revealed is US$400 per month. This revenue flows from advertisers to VASOs. One can expect VASOs to share 25% of this amount with CSPs who supply the service and software, but up to 50% if all related customer premises hardware (such as display, network, electronics, etc.) are also supplied by the CSP. So the Total Accessible Revenue (TAR) picture looks as follows:

Monthly Revenue	For 4 Million Screens	Annual Overall TAR	CSP TAR (25% - 50%)
$400	$1.6 Billion	$19.2 Billion	$4.8 Billion - $9.6 Billion
$200	*$800 Million*	*$9.6 Billion*	*$2.4 Billion - $4.8 Billion*

VASOs who are Ad Signage companies in the old business model will keep a major share of the Annual Overall Revenue. Besides, as mentioned earlier, they will find the “virtual operator” model attractive as owning and managing CPE is a costly and complex non-core activity for them. The table also shows that the revenue opportunity for CSPs lies anywhere from $2.4 Billion to $9.6 Billion per year based on a range of monthly revenue and revenue share percentage assumptions. That is a significant business opportunity that will attract CSPs to cloud service vertical and cause BIS business to take off!

Business IPTV Service Details

Here is a summary of BIS: CSPs are the central players; Ad Signage companies are "virtual operators" or VASOs; the focus is on Inside-PoP signage market; BIS Platform (BISP) serves multiple VASOs. CSPs leverage their enterprise relationships with Retail chains and provide backhaul connectivity



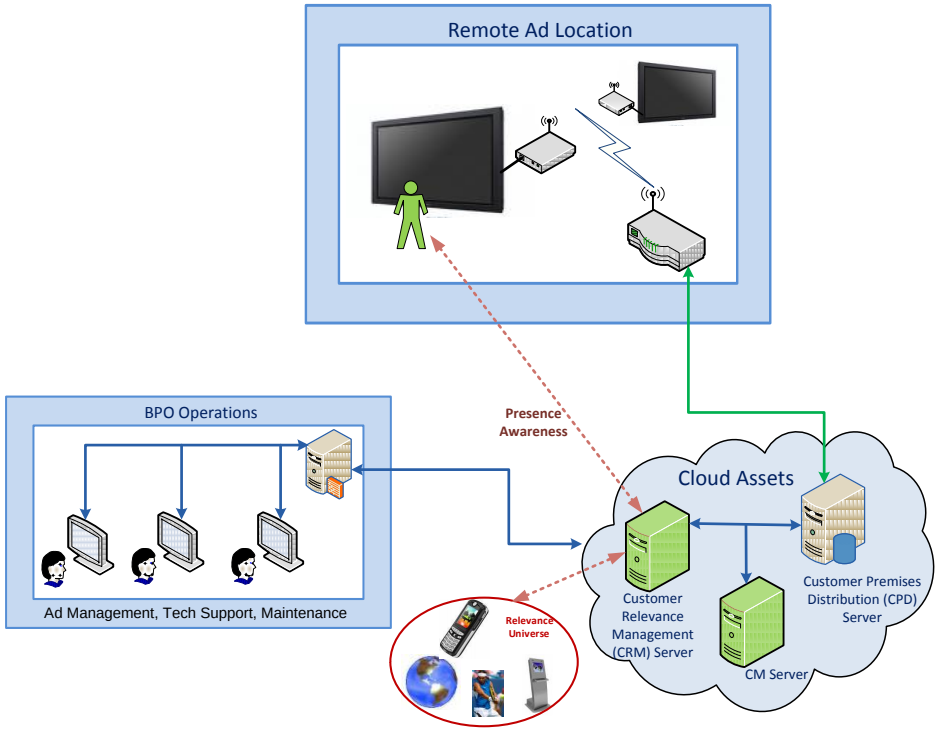
and Customer Premises Equipment (CPE). There is no CPE up-front cost; CPE is wirelessly connected in order to reduce installation costs and inconvenience. BIS Platform at a high-level has to provide Content Management and Customer Relevance Management (CRM) functionality. CRM here means implementation of interactivity, immediacy and location-specificity via interfaces to cellphones, external events and so on.

Let us look at the BIS model in greater detail. CSPs exploit their cloud assets and provide the BIS Platform as a SaaS – all together, we can call it a "PaaS" or Platform as a service. Here is a BIS Platform (BISP) picture.

BISP utilizes ALL access channels to the consumer's "eye balls" including unicasting and multicasting on TV screens, and interactivity via cell phone and kiosk, to provide business information relevant to the shopper consumer. BISP uses a technology platform that brings together Customer Relevance Management (CRM), Content Management (CM) and Customer Premises Distribution (CPD) management to deliver the right content to the right coordinates at the right time.

Summarizing the BISP business functions:

- BISP "creates" content with different levels of tailoring:
  - For individual shopper based location, relevance, preference
  - For small groups based on group features (superman video for kids)
  - Informational (new model Cadillac)
- BISP allows "relevance universe" to modify content:
  - Global and local events, interactivity, shopper location
- BISP distributes it:
  - Anywhere in the world at the right display-time coordinates
  - In real-time or with decreasing responsiveness down to passive ads
- BISP utilizes multiple paths to the 'eye balls":
  - Personal device, display screen, interactivity kiosk
- BISP provides information to paying customers:
  - Advertisers, shop owners, product manufacturers so that they can "close the loop" and influence content provided to the shopper consumer



From a design perspective, BISP takes raw inputs from the Relevance Universe and Ad Content Provider over the Backhaul and provides the following functions:

1. CRM and CM create ad content responsive to the shopper consumer.
2. CPD (Customer Premises Distribution) composes the frame and assures that the video is made available at the right "coordinates" by managing low-level connectivity at the customer premises; some elements are real-time and/or fast-time.
3. CPD design has to be such that CAPEX and OPEX at the business premises are at a bare minimum.

BISP provides various billing structures to the various payers:

1. Interactivity (high rate)
2. Time of day (high rate in a supermarket between 5 and 8pm)

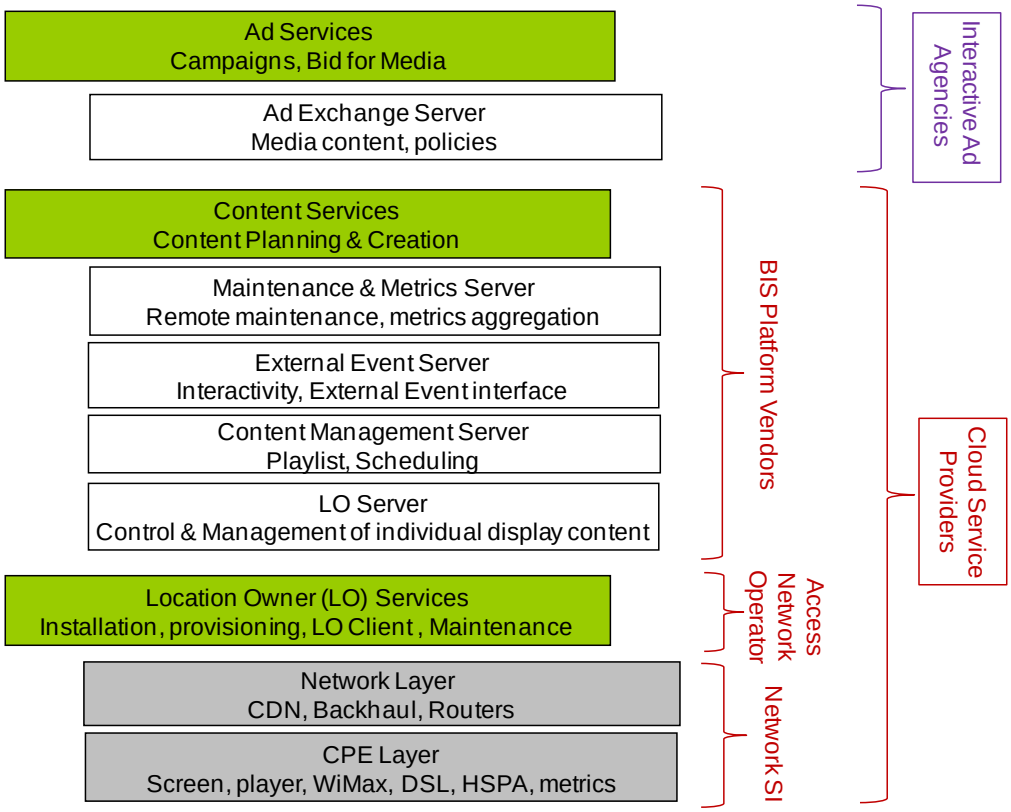
3. Ad tailoring based on external "neutral" events (Nadal wins Aussie Open)
4. Ability for advertisers to bid for ad timing and location slots (auction pricing)

A BPO platform is seen as an integral part of BISP, with the following functionality:

1. Ad provisioning based on inputs received from advertisers; right ads at the right display-time coordinates
2. Technical support function automation using special protocols within CPE so that truck-rolls can be minimized
3. Remote maintenance and audit

Business IPTV Service Ecosystem Partnerships

There are 3 major services to be delivered: **(1) Ad services, (2) Content services and (3) Location Owner services**. CSPs will own the content and LO services delivered by themselves or via partners and



other intermediaries. CSP brings multiple VASOs on to the cloud service to provide typical Interactive Ad Agency services, most importantly ad revenue into the BIS ecosystem. Today, all the component systems exist to varying degrees of sophistication. What are required in the 2009/10 timeframe are further maturation of BIS platforms, aggregation and ownership of the content and LO services by CSPs and easy use of ad exchanges for buying display ads (by transferring tools from search-ad exchanges).

Future of BIS

The BIS revenue opportunities that I had discussed earlier are super-attractive. For the reasons mentioned in the table below, I am bullish about the prospects of remaking Business IPTV ecosystem so that it will thrive.

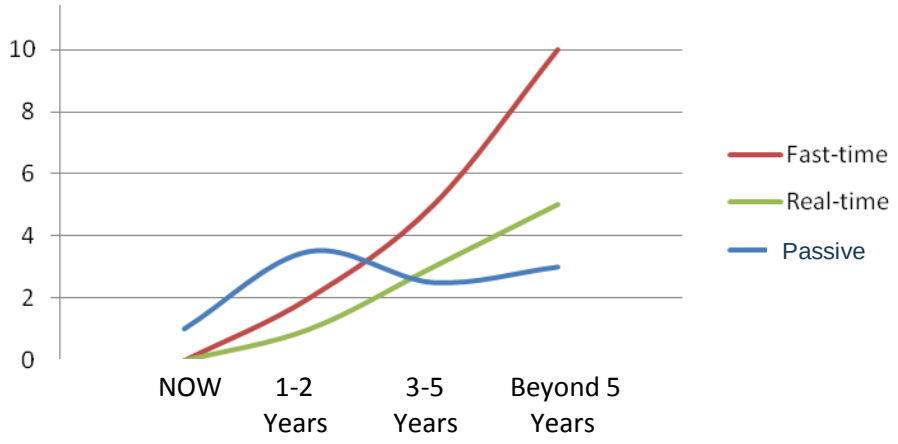
Current Blockers	BIS Business Model Response	Effect
1. CPE	Subsidy/rent model; WiMax	Unblock Location Owners
2. Ad community apathy	Web-based ad exchange self-service platforms for ad purchase/auction	Unblock Advertisers
3. Ecosystem fragmentation	Cloud service offering by CSPs	Clear value chain with dominant leaders

We are still too close to the discontinuity created by the Great Recession of 2008 to make any reasonable market projections, so let me take a different approach to predicting the future of BIS. First, let us look at the resource demands that BIS will put on the networks. Then, if the ad spending holds up, we can get a good sense of the market size and revenue opportunity in the 2015.

Let us first understand the nature of ads and the basic technologies required to deliver them. Based on how different ad types work, their delivery puts different demands on the cloud assets. On a nominal scale on the y-axis, I show my demand predictions over the next 5 years. Currently, the vast

Signage Ad Type	Display Location	Nature of Ads	Network Transport
Passive	Elevator lobby	Informational	Forward & store; looping display
Fast-time	PoP (Premises-of-Purchase)	Responsive to external events	Frequent forward & store; immediate display
Real-time	PoP	Responsive to customer identity	Real-time streaming

majority of BIS service is of the elevator-lobby variety- passive ads which can be updated once a week. As relevance-based ads grow in premises-of-purchase, there will clearly be need for more fast-time ads. I see this category growing the fastest. In digital signage, I see real-time ads that usually imply



interactivity as very valuable but a niche activity in the next few years. So overall, the chart shows that the cloud asset consumption will grow and go up dramatically (10 times) over the next five years. Of course, the cost of storage, computing and network bandwidth will fall but what this analysis shows is the potential for increase of VASO ad revenue since*advertisement* activity is proportional to cloud asset utilization. With ad prices steady or going up, this portends huge growth in revenue opportunities in the next five years.

In 2008, worldwide online advertising spending was approximately $54 Billion (worldwide total for all ads - $654 Billion). From my personal experience in the Greater SE Asia market in the past few years, and based on the fact that China and India are about the only large economies that will post over 5% GDP growth in this and next (and perhaps the one after) year, I see BIS as a fast growing (from a small base), well-accepted (already in 2009) business in Greater SE Asia.

Due to the growth predicted for organized Retail and Infrastructure sectors in Greater SE Asia, it is safe to say that the potential number of screens for all PoPs in 2015 for Greater SE Asia will be at least as large as the potential number in 2008 for the US. Assuming that only 30% of the potential number of screens materializes, we are still looking at a Business IPTV Service industry in Greater SE Asia that grosses $3 to $6 Billion in annual revenue by 2015!

Call to Action

To exploit this multi-Billion dollar business opportunity, I believe certain things need to happen in 2009.

- A rapid realignment of the ecosystem and creation of Business IPTV Service:
  - Communication/Cloud Service Providers must adopt the Business IPTV Service Product (additional opportunities to monetize their considerable cloud assets).
  - CSPs must promote a subsidized and rental price model for Customer Premises Equipment (CPE) to open the flood gates for widespread premises-of-purchase installations.
  - Ad signage companies must embrace the “virtual operator” model (attractive since owning and managing CPE is a very costly and complex non-core activity for them).

- Facilitation of rapid BIS business development :
  - Technology consulting and vendor entities develop BIS Platforms to utilize in-cloud and on-premises resources effectively
  - Use wireless for last-meter and last-mile connectivity to simplify installation and reconfiguration
  - Develop BPO platforms to support BIS Platform operation

Acknowledgements

I have benefited from discussions with many business colleagues and technology experts. However, I would like to single out Neil van Wouw, CEO of Vanten KK, Tokyo, for many insightful discussions. Vanten products go a long way in realizing my vision of Business IPTV Service.