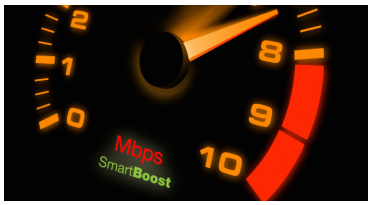
A Zeugma Systems Business Case

SmartBoost Driven Bandwidth Selection

SmartBoost is a Zeugma Smart Series application able to run on the Open Application Sandbox (OAS) supported by the Zeugma Service Node's (ZSN's) integral and scalable compute grid. SmartBoost can run alone or in conjunction with other Smart Series applications such as SmartVideo, SmartMeter, and SmartMonitor. The purpose of SmartBoost is to facilitate subscriber self-selection of bandwidth-oriented services. This paper outlines a pro forma business case for SmartBoost that yields revenue and profit increases sufficient to pay for capital spending

SmartBoost Overview

SmartBoost gives broadband service providers (BSPs) a mechanism to enable subscriber self-selection of bandwidth-oriented services. The BSP has complete flexibility in defining and pricing those services and can craft as many individual services as desired. While the most likely service BSPs will offer is a temporary increase in downstream bandwidth (i.e., a "boost"), there are a myriad of other services that are similar in nature but may be packaged differently in order to increase take rates.



SmartBoost is one of many Zeugma Smart Series applications than run within the Open Application Sandbox (OAS) on the Zeugma Service Node's (ZSN) integral and scalable compute grid. SmartBoost can run in conjunction with other Smart Series applications such as SmartVideo and SmartMeter to construct compelling service combinations for subscribers.

Subscriber self selection of BSP services can be accomplished in a number of ways:

- ***Standard web browser.*** Subscribers can use any PC or Mac-based web browser to select service alternatives that are presented as part of the BSP's service portal.

- ***Television and remote control.*** Zeugma has integrated SmartBoost functionality into set top boxes such as the Roku digital video player. This allows subscribers to modify their bandwidth requirements in real time using the remote control.

- ***SmartPhone.*** Zeugma has developed a SmartBoost app for Apple's App Store, allowing subscribers to modify bandwidth using iPhones or iPod Touches when connected to their in-home Wi-Fi network.

A key aspect of SmartBoost is to simplify and expedite subscriber self-selection of bandwidth oriented services. By delivering the capability to a multiplicity of consumer devices—PCs, televisions, iPhones, web-enabled smart phones—SmartBoost makes it easy for subscriber to interact with the network in

real time. And by implementing subscriber requests directly, SmartBoost reduces cost for BSPs by eliminating the need for complex, multi-box signaling mechanisms.

Service Descriptions

The pro forma business case presented below employs Zeugma's Microsoft Excel ROI Calculator. This tool is available to enter different assumptions than those presented herein. In this business case we assume 36,000 applicable broadband subscribers, i.e. subscribers with sufficient local loop capacity to deliver the bandwidth increments described below. Smart Boost works over any type of access technology (DSL, FTTP, HFC) but BSPs will typically require at least 3-5 Mbps of DSL capacity in order to provide SmartBoost services.

	SmartVideo		SmartBoost			SmartMeter
Service	BVC w/bundled STB	BVC only	BW Boost	Telecommuter	Wknds & Evenings	Exceed Cap
Take-rate	23%	5%	8%	3%	6%	1%
Enable service	☐	☐	☑	☑	☑	☑
Flat Monthly Fee	$10.95	$5.95				
Cost per MB/hour Average monthly MB hours			$0.60 5			
Cost per 5MB/business day Average weekly business days				$7.00 2		
Cost per MB Average MBs					$1.00 5	
Cost per GB/month Average GB overage						$1.00 5
Number of Subs	-	-	2,880	1,080	2,160	360
Monthly Revenue	**$0.00**	**$0.00**	**$8,640.00**	**$15,120.00**	**$10,800.00**	**$1,800.00**

Total Subs (may overlap)	6,480
Total Monthly Revenue	$36,360.00

In this pro forma business case, the BSP offers three services that employ SmartBoost:

Basic Bandwidth Boost. Subscribers may, at any time and using any of the devices described above, instruct the network to allocate additional downstream bandwidth. The BSP charges $0.60 for each additional megabit per second of bandwidth for each additional hour. For this service we assume that 8 percent of applicable broadband subscribers purchase incremental bandwidth and the average subscriber purchases 5 "megabit-hours" (1 megabit for 1 hour) per month. This yields incremental monthly revenue of $8,640.

Telecommuter Boost. Subscribers that work at home for a portion of their work week may order bandwidth (either scheduled or on-demand) increases for days in which they are working at home. The BSP charges $7.00 per day for an incremental 5 megabits of bandwidth between the hours of 8:00 AM

and 5:00PM. For this service we assume 3 percent of applicable broadband subscribers purchase the telecommuter boost package and that the average subscriber purchases 2 days worth of bandwidth. This yields incremental monthly revenue of $15,120.

Weekends & Evening Boosts. Subscribers may purchase a custom package that provides incremental bandwidth during weekends and evenings. The BSP charges $1.00 for each additional megabit per second of bandwidth during weekend and evening periods. For this service we assume 6 percent of applicable broadband subscribers purchase the weekend and evening boost package and that the average subscriber purchases 5 megabits worth of bandwidth. This yields incremental monthly revenue of $10,800.

SmartMeter Cap. The BSP separately imposes a monthly usage cap and charges $1 per gigabyte for usage above the cap. We assume that 1 percent of applicable broadband subscribers exceed the cap each month and that the average overage is 5 gigabytes. This yields incremental monthly revenue of $1,800.

Financial Analysis

Total incremental revenue resulting from SmartBoost services is $34,560, with an additional $1,800 resulting from SmartMeter. Capital equipment required to deliver this capability to 36,000 broadband subscribers is $416,216. Subtracting estimated operating expenses (10 percent) and maintenance

Inputs		
Total Subscribers	70,000	*Total Broadband subscribers*
Addressable Broadband Subscribers	36,000	*Subscribers able to receive bosst services*
Cost of Capital	5%	*Cost of money for NPV calculation*
OPEX Percentage	10%	*Percent of revenue allocated to operating expenses*
Netflix Affiliate Percentage	75%	*Percent of SmartVideo subs qualifying for Netflix affiliate payment*
Netflix Affilate Payment	$9.00	*Per-subscriber payment from Netflix*
BVC Percent Needing DVP	100%	*Percent of BVC subscribers requiring Roku digital video players*
Annual Subscriber Increase	2%	*Estimate of annual new service revenue increase due to increased take-rate*
Capital Costs		
Zeugma Equipment	416,216	
Roku Digital Video Players	0	
Other Capital Costs	0	
Less: Affiliate Payments	0	
	416,216	
Incremental Monthly Revenue	36,360	
Monthly Opex	3,636	
ZSN Maintenance	3,468	
Other Expenses	0	
Incremental Monthly Profit	29,256	
Undiscounted Payback Period (months)	14.23	
Three Year NPV	$588,284	*Total discounted cash flow over 36 months*

expenses (10 percent) yields incremental monthly operating profit of $29,256. This results in an undiscounted payback period of 14.23 months and a net present value of the three-year profit stream of $588,284.

Other Benefits / Conclusions

BSPs can benefit in other ways that are not quantified within this pro forma business case. The most obvious benefit is motivating subscribers to move to higher bandwidth tiers. As subscribers become accustomed to the speed associated with higher bandwidth tiers they are more likely to move up. In fact, it is not unlikely that revenue associated with SmartBoost services declines after an initial period of increases but is replaced by an even higher level of more consistent revenue associated with higher bandwidth tiers.

Other benefits include potentially reduced customer churn and expanded broadband market share. BSPs can also manage available bandwidth much more precisely than current technologies allow, improving bandwidth efficiency and better targeting bandwidth capacity increases.

In summary SmartBoost yields revenue and profitability resulting from increased granularity in bandwidth-oriented services and dramatically simplified subscriber activation of these services. Other Smart Series applications, namely SmartVideo, can be added in order to further improve the financial characteristics.

The Zeugma Service Node (ZSN) is deployed by broadband service providers to accelerate their ability to prototype and deliver new services and network behaviors. The ZSN is able to identify, monitor, manage, and customize individual session flows on a per-subscriber, per-service basis. Also able to perform subscriber management and broadband aggregation functions, the carrier-grade ZSN is available in 14-slot and 6-slot options. The ZSN combines a linearly scable compute grid delivering up to 520,000 DMIPS of processing capacity with up to 720 Gbps of traffic throughput. This compute power is used to support diverse application service logic and is managed by the ZSN in a protected execution environment within the Zeugma Open Application Sandbox (OAS).

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