Online Advertising 2.0
The Opportunity in Non-Premium Display

September 15, 2007

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Please see analyst certification (Reg. AC) and other important disclosures on pages 41-44 of this report.

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On the cover: Covent Garden market, London. Source: Getty Images.

ThinkEquity Partners LLC

Think Media:
Online Advertising 2.0: The Opportunity In Non-Premium Display

Reason for Report:

Industry Update

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THINK SUMMARY:
We expect that the non-premium online display advertising market (sometimes referred to as "remnant," but more accurately described as display advertising purchased without specific guarantees as to placement, in our view) will be the fastest-growing segment of the overall online advertising market over the next five years. New technologies and business models (e.g., behavioral targeting and ad exchanges) are emerging that we believe will rapidly accelerate and transform the market, creating opportunity for some (e.g., large Internet media players intent on entering/consolidating the market) and challenges for others (e.g., undifferentiated ad networks).

Companies Mentioned in this Report		
Symbol	Rating	PT
ARTD	Buy	$3.00
RATE	Buy	$60.00
GOOG	Buy	$700.00
VCLK	Buy	$34.00
YHOO	Acc	$27.00

KEY POINTS:
Non-Premium Online Display Should Outpace Overall Online Ad Market
We expect the non-premium online display advertising market to grow at a 28% CAGR from 2006-2011 to $7.6B from $2.2B in 2006. We expect the online advertising market as a whole to grow at a 19% CAGR over that period to $60.1B in 2011 from $25.3B in 2006.

Ad Exchanges Should Change The Role Of Ad Networks, In Our View
We believe that the ascendance of online advertising exchanges (Right Media and the DoubleClick Advertising Exchange, in particular) should alter the role of ad networks over time, creating opportunity for large Internet media players. Over time, ad networks should become specialized media buyers focused on arbitrage opportunities and add value to raw publisher inventory via proprietary data and technology, in our view. While many have focused on potential ad network gross margin compression due to real-time competition for publisher inventory, we think that differentiated ad networks could actually see operating margins expand, once the burden of publisher development/recruitment/service shifts from ad networks to ad exchanges.

We Expect Google/DoubleClick To Capture Share Of Non-Premium Display Market, And Microsoft, Yahoo! Strategies To Remain Incomplete
We believe that the DoubleClick Advertising Exchange is well-positioned for leadership of the ad exchange market, given DoubleClick's leading primary ad serving footprint, and that Google should capture share of the non-premium display market given its alignment with DoubleClick. In contrast, we think that Yahoo! (aligned with Right Media) and Microsoft (aligned with AdECN and Atlas AdMarket) remain vulnerable/incomplete versus Google/DoubleClick, particularly in terms of publisher footprint.

Expect Major Internet Media Players To Continue Market Consolidation
As scale, technology, advertiser/publisher footprint, and data assets are key competitive differentiators, we expect the big players in the online media/advertising market (Google, Yahoo!, AOL/Advertising.com, and ValueClick) to eventually capture the overwhelming majority of the market. We expect these large players to continue to consolidate the remainder of the market, as several valuable independents remain, including Exponential (parent company of Tribal Fusion), AdBrite, Revenue Science, ContextWeb, Azoogle, Adteractive, and Adify, among others.

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Chapter 1: The Opportunity In Non-Premium Display

We believe that the online display advertising market, especially the non-premium segment, should be one of the fastest-growing areas of the digital advertising market over the next five years, with recent M&A activity (and acquisition premiums) reflecting the magnitude of the opportunity and its strategic significance. This chapter highlights the following drivers in establishing a framework for understanding the online display advertising market and the non-premium opportunity.

Non-Premium Online Ad Market Should Grow Faster Than Overall Market
We expect the non-premium online display advertising market to grow at a 28% CAGR from 2006-2011 to $7.6B from $2.2B in 2006. We expect the online advertising market as a whole to grow at a 19% CAGR over that period to $60.1B in 2011 from $25.3B in 2006. The non-premium display market represents 9% of total online advertising today; we expect that non-premium display advertising will represent 12% of total online ad spending in 2011.

Non-Premium Display Market Has Compelling Fundamentals
The non-premium display market is characterized by superior inventory growth, marketer underallocation, and a severe pricing discount relative to premium display advertising online. While larger Internet sites such as Yahoo! have sought to maximize premium inventory fill and revenue per impression, social networks and other Web 2.0 sites have lagged significantly. We expect that several market catalysts will begin to narrow the monetization and allocation gap between premium and non-premium display advertising over the next five years.

Several Market Accelerators Exist
We believe that there are several catalysts/accelerators for the non-premium online display advertising market, including the focus of large Internet media players as consolidators of the industry, the emergence of ad exchanges, which are replacing legacy yield management approaches, aggregating supply/demand, and driving market efficiencies/transparencies, and the increasing use of behavioral targeting, which allows publishers and marketers to effectively extend their audience reach across the Internet.

Territorialism, Data Compliance, Marketer Prejudice Represent Challenges
While we believe that the non-premium display market should benefit from significant tailwinds, there are potential challenges as well. Publishers may fear channel conflict with premium display ad sales or allowing competitors a window into their operations, and marketers may resist advertising exchanges and behavioral targeting, which should lift non-premium CPM (but have an even greater positive impact on marketer ROI, in our view). Finally, ad networks may be stymied by data compliance issues; consumer-facing brands such as Google, for example, could take an overly-conservative approach to the market opportunity in order to allay consumer privacy fears.

Major Internet Media Players Should Continue Market Consolidation
As scale, technology, advertiser/publisher footprint and data assets are key competitive differentiators, we expect the big players in the online media/advertising market (Google, Yahoo!, AOL/Advertising.com, and ValueClick) to eventually capture the lion's share of the market. We expect that these large players will continue to consolidate the remainder of the market, as several valuable independents remain, including Exponential (parent company of Tribal Fusion), AdBrite, Revenue Science, ContextWeb, Azoogle, Adify, et al.

Principles Of Non-Premium Display Buying Should Gain Value In Premium Display And Online Video/IPTV, Longer-Term
We believe that over time, ad exchanges are likely to become relevant to premium display advertising and online video/IPTV. In our view, the intelligent application of third-party behavioral data at the time an ad impression is served should result in the highest possible yield for publishers. We believe that premium display and online video will continue to be sold primarily on a negotiated basis for the foreseeable future. However, on the margin, we believe that publishers will begin to treat premium inventory as discretionary—if a third party can offer a better cost per mille than the campaigns sold by the internal sales force, the third-party campaign will take precedence. We believe that this subtle change in publisher behavior could begin to open up a substantial opportunity for ad networks in premium display advertising, online video/IPTV, and other IP-addressable media.

1.1   The Online Advertising Market, Today, And Tomorrow

The online advertising market comprises four main categories:

1. **Search & Contextual**
   Paid search revenue represents fees paid by advertisers to Internet search providers to link the advertiser's Internet domain to a specific search term. When a user searches for the keyword (or a related search term), the advertiser's text-based ad is displayed alongside organic search results. If the user clicks on the advertiser's ad, the advertiser is billed a cost-per-click fee. Contextual advertising, while technically part of the non-premium online ad market, is closely related to paid search in terms of sales mechanism, targeting methodology, etc. Contextual advertising includes text-based ads that appear alongside or within the text of a news article, blog entry, or other content based upon the context of the content; again, payment only occurs when a link is clicked.

2. **Premium Display**
   Display advertising revenue represents fees paid by an advertiser for space to display a static or hyperlinked graphical advertisement, such as a banner or logo. We have also included within the display category all rich media advertising, sponsorships, and slotting fees. Rich media advertising includes online ad insertions that integrate streaming video, streaming audio and/or interactive elements, whether served into a Web page or video content stream. Sponsorships are fees paid by advertisers to sponsor targeted Web site or email content, and typically include display and rich media ad insertions. Slotting fees are fees charged to advertisers to secure specific ad placements, category exclusivity, etc.

   The primary distinction between premium and non-premium display advertising is that premium display advertising guarantees advertisers a specific placement and time-frame for their media buy. Premium display advertising essentially represents the online equivalent of the traditional television advertising buy, and is frequently characterized by high-touch, upfront sales efforts, and customized or exclusive advertising opportunities.

3. **Non-Premium Display**
   We categorize non-premium display as all display advertising where the advertiser is not guaranteed a specific time-frame or placement for the media buy. Non-premium ad inventory has also been termed "remnant." While some non-premium inventory is less desirable from an advertiser perspective (e.g., below the fold), the non-premium category includes high-quality inventory from smaller publishers and excess or unexpected inventory from larger publishers as well.   The non-premium market relies on intermediaries that cross advertiser demand for non-premium advertising opportunities with publisher supply of excess or unsold inventory. In this category, we also include non-premium rich media and interstitials and display-based lead generation/referrals.

4. **Other**
   As we define it, this category includes classified advertising, email advertising, and email-based lead generation.

In **Figure 1.1** below, we estimate the breakdown of spending across these categories and estimate the growth of each category through 2011. For 2006, we estimate the size of the worldwide online advertising market at $25.3B. Of that total, we estimate that paid search and contextual advertising accounted for 57% ($14.5B), premium display advertising accounted for 21% ($5.3B), non-premium display accounted for 9% ($2.2B) and other online advertising accounted for 13% ($3.3B).

Figure 1.1. Worldwide Online Advertising Market, 2006-2011E ($U.S. B)

Global Online Advertising Market ($U.S. B)	2006	2007E	2008E	2009E	2010E	2011E	2006 - 2011E CAGR
Search / Contextual	14.5	20.9	27.4	31.2	34.3	37.0	21%
Premium Display (including rich media, sponsorships, slotting fees)	5.2	6.2	7.5	8.5	9.4	10.3	14%
Non-Premium Display (including rich media, display-based lead generation)	**2.2**	**3.1**	**4.1**	**5.2**	**6.4**	**7.6**	**28%**
Other (Classifieds, email, email-based lead generation, etc.)	3.3	3.9	4.3	4.7	5.2	5.5	11%
Total	**25.3**	**34.1**	**43.2**	**49.4**	**54.9**	**60.1**	**19%**

% of Global Online Advertising Market	2006	2007E	2008E	2009E	2010E	2011E	
Search / Contextual	57%	61%	63%	63%	62%	62%	
Premium Display	21%	18%	17%	17%	17%	17%	
Non-Premium Display	**9%**	**9%**	**9%**	**10%**	**11%**	**12%**	
Other (Classifieds, Email, etc.)	13%	11%	10%	10%	9%	9%	
Total	100%	100%	100%	100%	100%	100%	

Y/Y Growth	2006	2007E	2008E	2009E	2010E	2011E	
Search / Contextual	55%	44%	31%	14%	10%	8%	
Premium Display	20%	19%	21%	13%	11%	9%	
Non-Premium Display	**34%**	**42%**	**29%**	**23%**	**21%**	**20%**	
Other (Classifieds, Email, etc.)	24%	15%	12%	10%	9%	7%	
Total	**40%**	**35%**	**27%**	**14%**	**11%**	**9%**	
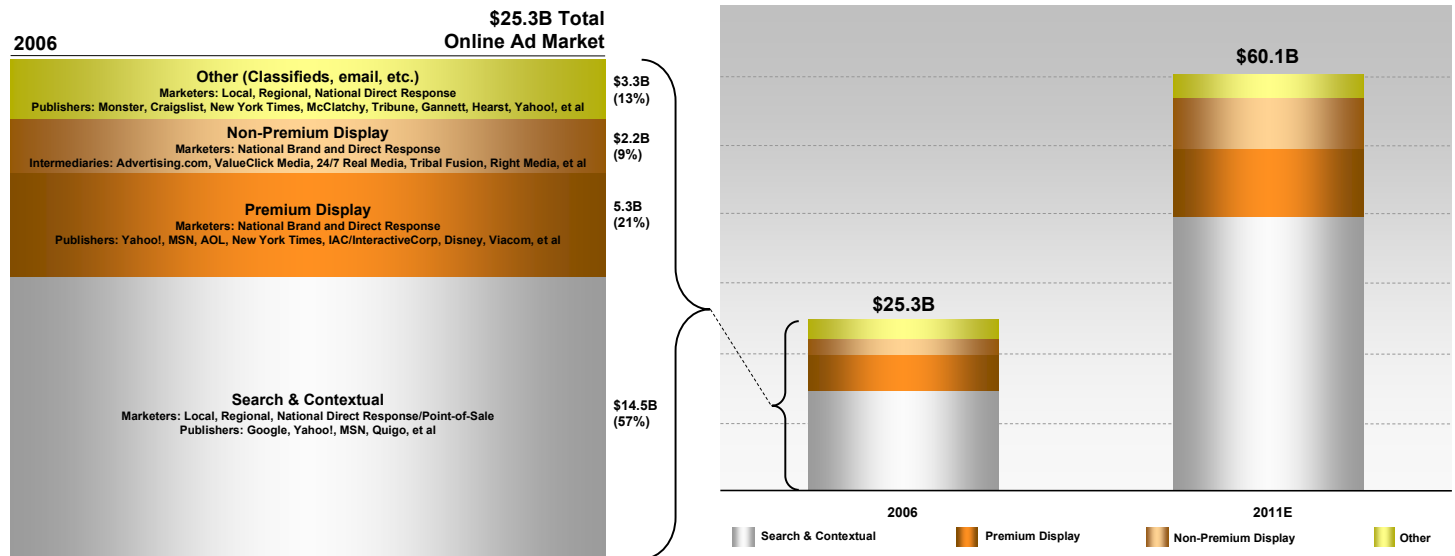
Source: ThinkEquity Partners LLC estimates

We expect that the non-premium display market will be the fastest-growing segment of the overall online advertising market from 2006-2011, growing at a 28% CAGR to $7.6B, which represents 12% of our $60.1B estimate for the total online ad market in 2011.

Figure 1.2 illustrates U.S. share of the online advertising market from 2006-2011E. We expect that the total U.S. online advertising market will grow from $16.9B in 2006 to $35.3B in 2011E, representing a 16% CAGR. We expect that U.S. share of the total online advertising market will decline from 67% in 2006 to 59% in 2011. We expect that non-premium display advertising will also be the fastest-growing segment of the U.S. online advertising market, growing at a 25% CAGR from 2006-2011. We expect that non-premium display advertising share of the total U.S. online ad market will grow from 10% in 2006 to 14% in 2011.

Figure 1.2. U.S. Share Of Online Advertising Market, 2006-2011E ($U.S. B)

U.S. Online Advertising Market ($U.S. B)	2006	2007E	2008E	2009E	2010E	2011E	2006 - 2011E CAGR
Search / Contextual	8.6	11.5	14.8	16.5	18.2	19.3	18%
Premium Display (including rich media, sponsorships, slotting fees)	3.9	4.5	5.3	5.9	6.5	7.0	12%
Non-Premium Display (including rich media, display-based lead generation)	**1.7**	**2.3**	**2.9**	**3.6**	**4.3**	**5.1**	**25%**
Other (Classifieds, email, email-based lead generation, etc.)	2.7	3.0	3.4	3.6	3.8	4.0	8%
Total	**16.9**	**21.3**	**26.3**	**29.6**	**32.9**	**35.3**	**16%**

% of Revenue	2006	2007E	2008E	2009E	2010E	2011E
Search / Contextual	51%	54%	56%	56%	55%	55%
Premium Display	23%	21%	20%	20%	20%	20%
Non-Premium Display	**10%**	**11%**	**11%**	**12%**	**13%**	**14%**
Other (Classifieds, Email, etc.)	16%	14%	13%	12%	12%	11%
Total	**67%**	**63%**	**61%**	**60%**	**60%**	**59%**

Y/Y Growth	2006	2007E	2008E	2009E	2010E	2011E
Search / Contextual	48%	34%	29%	12%	10%	6%
Premium Display	15%	15%	16%	11%	11%	7%
Non-Premium Display	**32%**	**37%**	**28%**	**24%**	**19%**	**18%**
Other (Classifieds, Email, etc.)	17%	13%	11%	7%	6%	4%
Total	**32%**	**26%**	**23%**	**13%**	**11%**	**8%**

U.S. Online Advertising Share of Global Market	2006	2007E	2008E	2009E	2010E	2011E
Search / Contextual	59%	55%	54%	53%	53%	52%
Premium Display (including rich media, sponsorships, slotting fees)	76%	73%	70%	69%	69%	68%
Non-Premium Display (including rich media, display-based lead generation)	**76%**	**74%**	**72%**	**70%**	**68%**	**67%**
Other (Classifieds, email, email-based lead generation, etc.)	81%	79%	78%	76%	74%	72%
Total	**67%**	**63%**	**61%**	**60%**	**60%**	**59%**
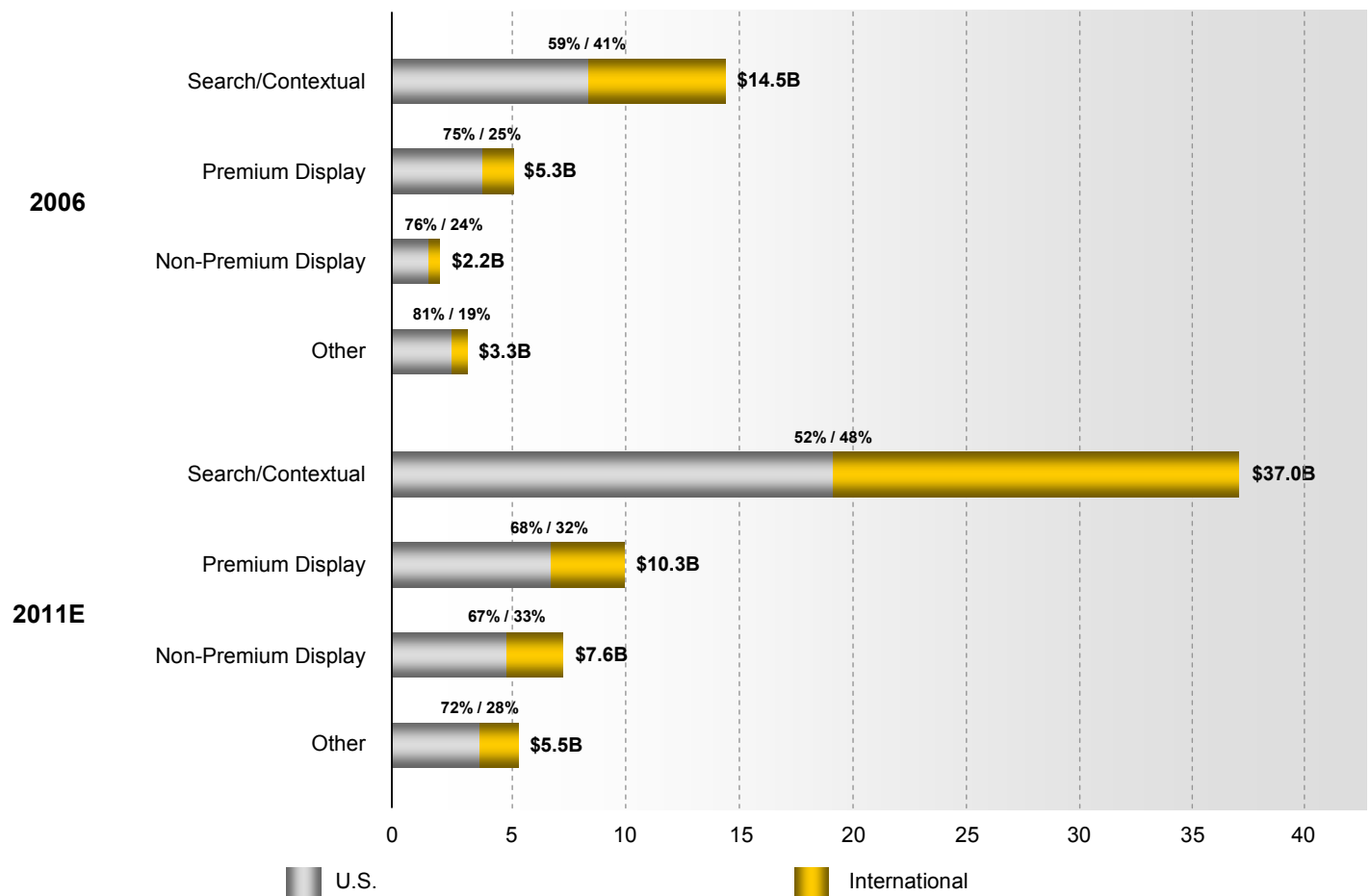
Source: ThinkEquity Partners LLC estimates

1.2 The Display Advertising Landscape: Premium Versus Non-Premium

Display advertising, as we noted above, involves the sale by a publisher to an advertiser of space to display a static or hyperlinked graphical advertisement within a publisher Web page. Each page may contain multiple advertisements, or impressions, potentially from multiple advertisers. As such, the primary drivers of display advertising revenue are revenue per impression, impressions per page view and total page views. Explicitly,

Total revenue = revenue per impression x impressions per page view x page views.

As we will see, the non-premium display advertising market is significantly outgrowing the premium display advertising market in terms of page views, but has lagged significantly in terms of revenue per impression and impressions per page view.

Premium Versus Non-Premium Display Inventory
Premium display inventory is typically sold in much the same manner as television airtime. Advertisers are guaranteed specific placement (content adjacency) and a specific time-frame during which their advertisements will run. Advertisers are made aware of the general usage characteristics for their ad placement (i.e., the expected number of unique users and impressions), and a specific cost-per-thousand impressions (cost per mille, or CPM) is generally at least implicitly guaranteed. If the placement underperforms, a publisher is typically required to make up for the impression shortfall with additional placements (just as television networks provide "make-ups" when television programming garners lower-than-expected ratings). Premium inventory is also typically characterized by high-touch, upfront sales efforts and exclusive opportunities.

Figure 1.3. Premium Versus Non-Premium Inventory Characteristics

	Premium Display Market	Non-Premium Display Market
Inventory Definition	Guaranteed time and placement	All other display impressions
Sales	Internal and site representation firms	Ad networks and ad exchanges
Share of Display Market (2006)	71%	29%
Share of Total Display Impressions (2006)	8%	92%
Average CPM (2006)	~ $18	~ $0.60
Impression CAGR, 2006-2011E	8%	15%
Revenue Per Impression CAGR, 2006-2011E	7%	14%

Source: ThinkEquity Partners LLC estimates

Non-premium represents all other display inventory—space sold to advertisers without a specific guarantee of placement or time-frame. While the terms "non-premium" and "remnant" are often used interchangeably, we believe that the term "remnant" does not fully describe the non-premium market. While some non-premium inventory may be inherently less desirable from a marketer perspective (e.g., below-the-fold placement, inventory adjacent to email, undesirable content adjacency, etc.), the non-premium market also represents some sources of relatively high-quality inventory.

For example, smaller Internet destinations may not possess the requisite scale to support an internal sales organization— this inventory may be sold by a site representation firm (essentially an outsourced sales force) on a premium basis, or it may be monetized via an ad network (and would then be classified as non-premium). Larger Internet properties may also utilize ad networks and site representation firms to monetize excess inventory—if sold by the internal sales force on an upfront basis, some of this inventory would otherwise be considered premium. Publishers may find it difficult or in some cases, impossible, to forecast inventory creation, which is ultimately driven by consumer usage. For example, breaking news or weather may drive traffic unpredictably to sites such as nytimes.com or weather.com. If a publisher experiences

unexpected consumer demand (which creates ad inventory unpredictably), either the inventory must be monetized on the fly or it will go unsold.

Page View Growth: Premium Versus Non-Premium
Premium display inventory is in increasing demand, given the accelerating shift of brand advertising budgets online. While Internet advertising inventory is generally in plentiful and expanding supply, the supply of premium display inventory is generally tight. Indeed, advertising inventory growth is slowing at some of the Web's premier properties, such as Yahoo!, AOL, and MSN. **Figure 1.4** illustrates the slowing page view growth among premier Web destinations.

Figure 1.4. U.S. Page Views And Page View Growth For Major Portals (000s)
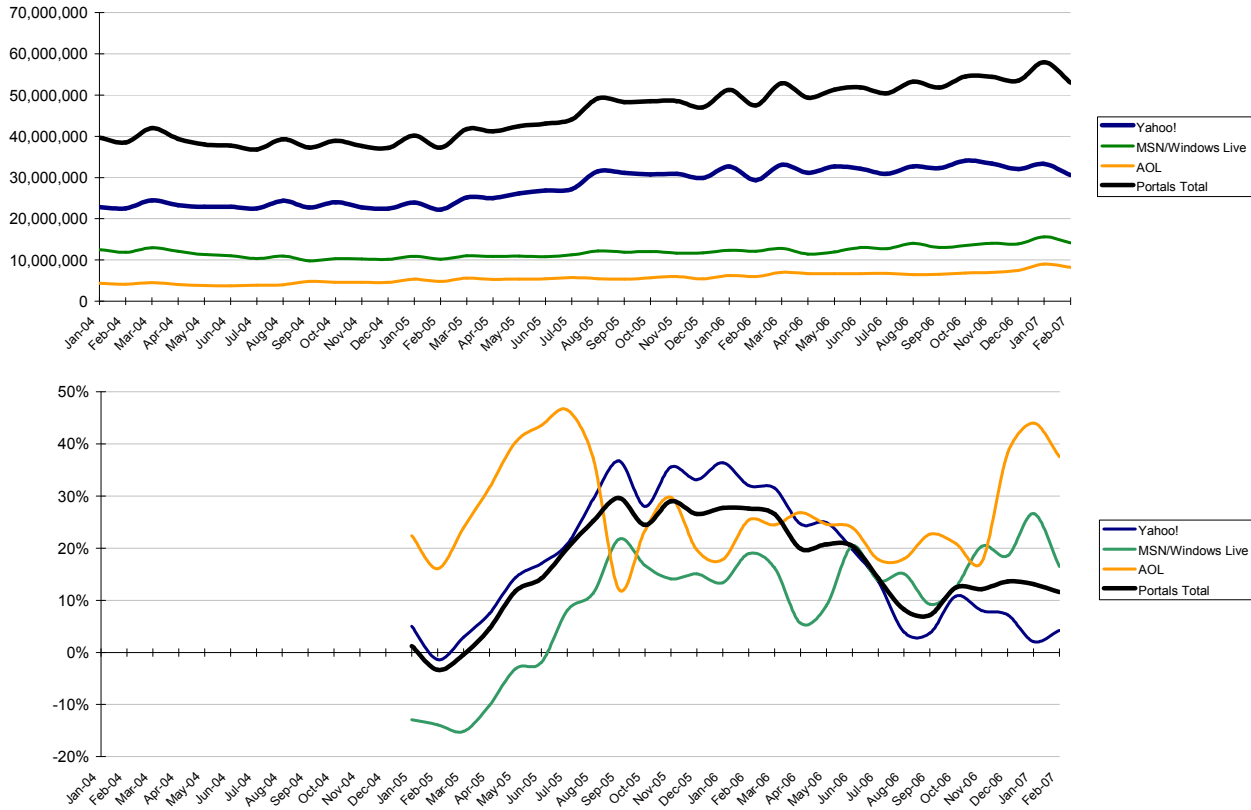
Source: Nielsen//NetRatings and ThinkEquity Partners LLC estimates

With premium display inventory growth slowing among the Web's top destinations, advertisers seeking to shift marketing budgets online are likely to encounter continuing CPM increases for premium advertising opportunities on the Web's largest media destinations. However, while portal buys and premier vertical site buys are becoming more expensive on a CPM basis, new higher-growth inventory sources have rapidly emerged along the "long tail" of Internet content. In our view, the two primary sources of long-tail inventory are: 1) large user-generated content aggregation platforms, including social networks and online video sharing destinations such as MySpace and YouTube, and 2) the large and growing number of user-generated blogs.

By necessity, the fastest growing areas of the Internet (social networking and user-generated video sharing) are primarily opportunities for non-premium online advertising. While MySpace may sell its home page and account log-in page on a guaranteed basis, buying inventory on user pages has generally not been an option for larger marketers due to the fragmentation of the inventory, the potential for placement next to undesirable content, and (prior to Fox Interactive Media's February 2007 acquisition of Strategic Data Corporation) the lack of audience and content segmentation across a vast user-generated content aggregation platform. As such, inventory of this type has been sold primarily on a non-premium basis.
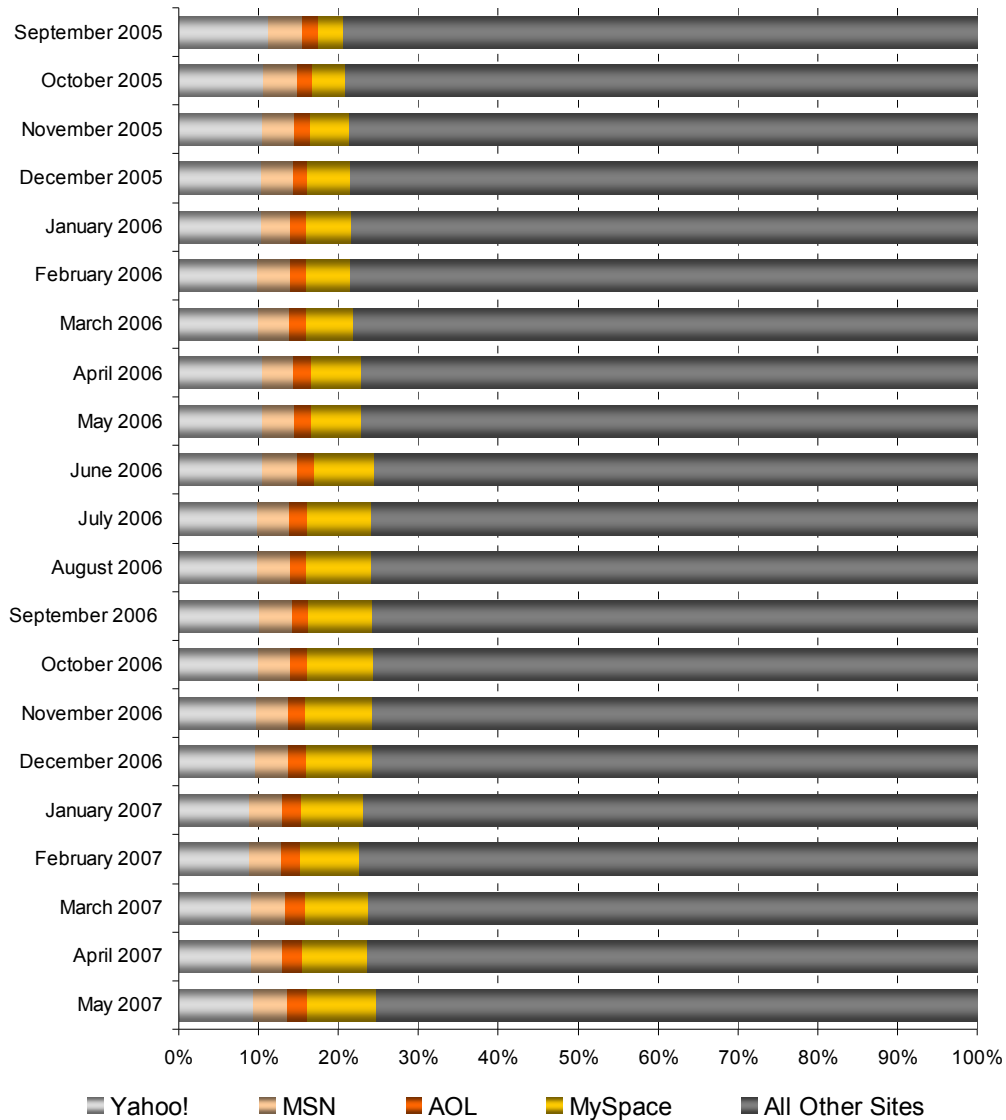
ThinkEquity Partners LLC

Figure 1.5. YouTube And MySpace U.S. Page Views (000s)

Fox Interactive

YouTube

Source: Nielsen//NetRatings and ThinkEquity Partners LLC estimates
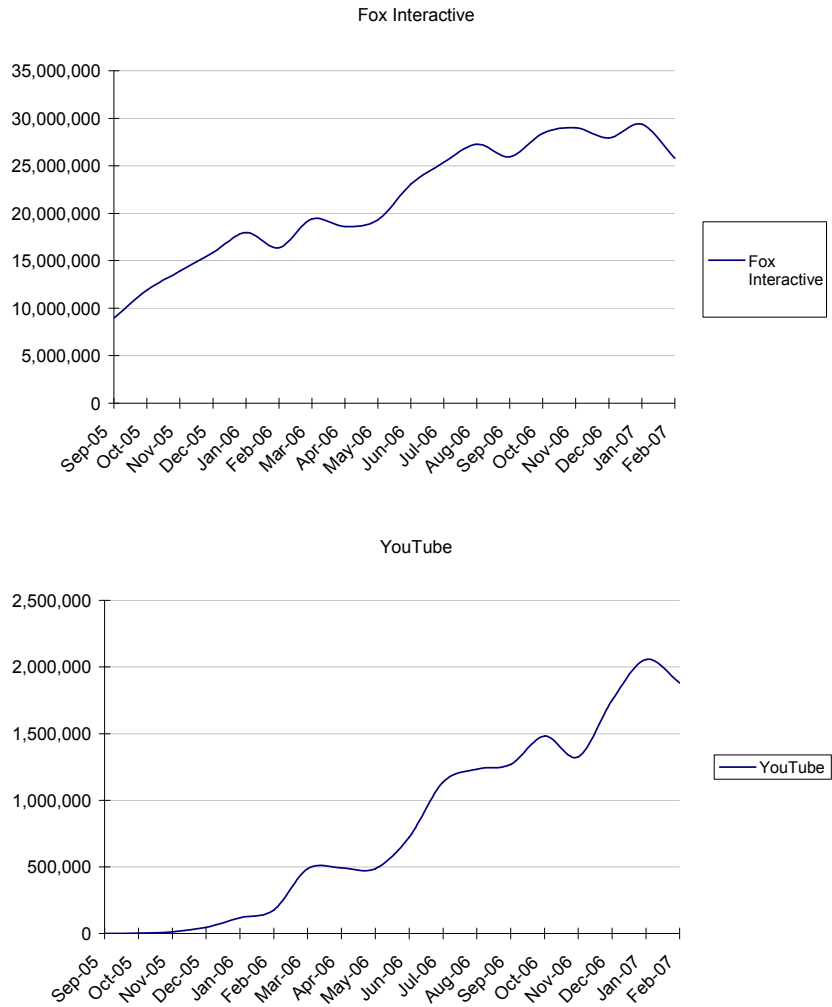
ThinkEquity Partners LLC

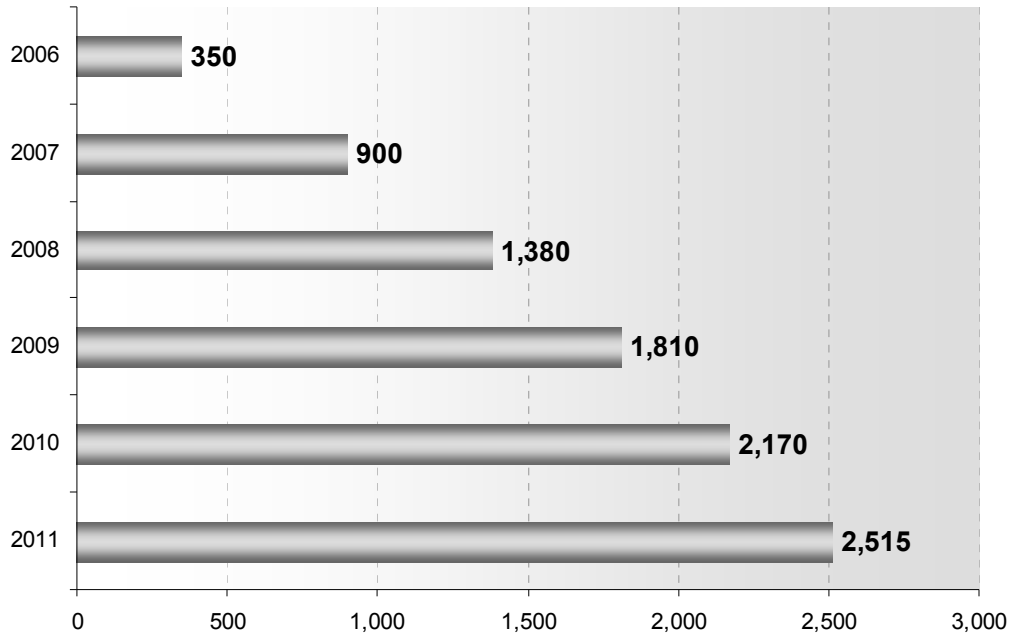**Figure 1.6. Percentage Share Of Total U.S. Page Views**

Source: Nielsen//NetRatings and ThinkEquity Partners LLC estimates

We believe that consumer usage trends will make social network advertising one of the fastest-growing sectors of the overall online advertising market in coming years. eMarketer has estimated that U.S. online social network ad spend will grow from $350M in 2006 to $2.5B in 2011, representing a 48% five-year CAGR.
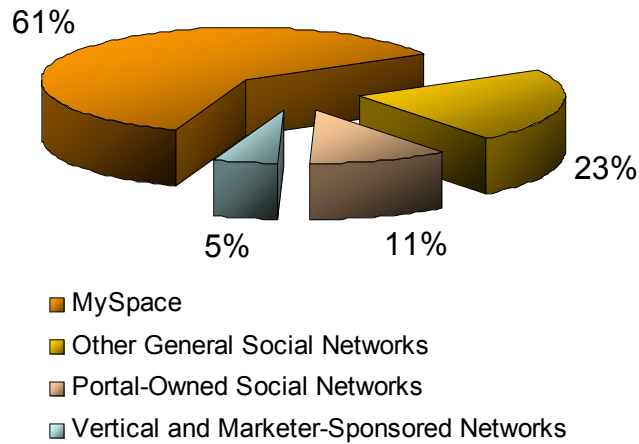
Figure 1.7. U.S. Online Social Network Advertising Spending, 2006-2011 ($U.S. M)

Source: eMarketer

**Figure 1.8. U.S. Online Social Network Ad Spending By Network Type**

- MySpace
- Other General Social Networks
- Portal-Owned Social Networks
- Vertical and Marketer-Sponsored Networks

Source: eMarketer

ThinkEquity Partners LLC

Impressions Per Page View
We believe that the largest sites online have, over the past two years, significantly increased their inventory fill rates, selling more ad impressions per page view over time, and opening a significant gap compared to other Internet sites. **Figure 1.9** below illustrates this trend.

Figure 1.9. U.S. Display Ad Impressions Per Page View
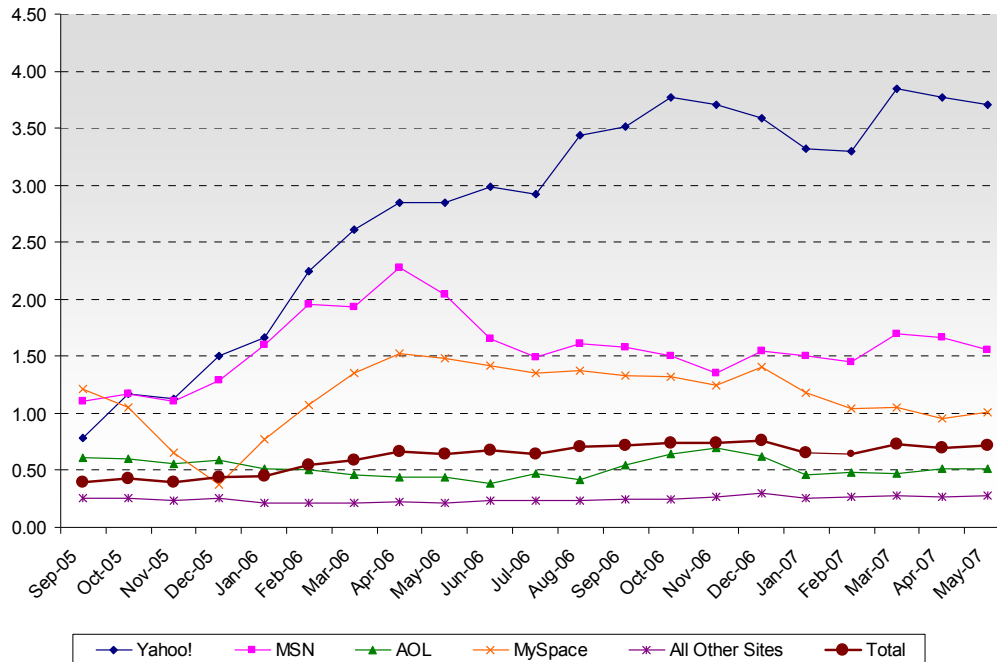
Source: Nielsen//NetRatings and ThinkEquity Partners LLC estimates

While we would not rely on this analysis as an indication of the actual number of impressions sold by Yahoo! per page view, we do believe that the general trend of significantly higher fill rates among the largest Internet sites over time is accurate. Given the apparently substantial increase in inventory fill rates, we believe that Yahoo! and other large sites may have difficulty significantly increasing fill on owned-and-operated sites (and in driving additional revenue upside from increased fill).

As such, we believe that large Internet properties are seeking additional upside on owned-and-operated sites by increasing CPM on non-premium inventory via run-of-site behavioral targeting and, on the margin, through the use of advertising exchanges. Recent M&A activity in the sector suggests that large Internet properties are also seeking the ability to participate in the monetization of third-party sites by building out ad network/ad exchange strategies.

Impression Growth
Given inventory growth trends and the current undersold condition of non-premium online ad inventory relative to premium inventory, we expect that non-premium online ad impressions will significantly outgrow premium impressions through 2011. We estimate that the non-premium online ad market accounted for approximately 92% of total online ad impressions in 2006, and that the non-premium share of total impressions will increase to nearly 95% by 2011. We expect non-premium display impressions to grow at a CAGR of 15% from 2006-2011, while we expect that premium display impressions will grow at an 8% CAGR from 2006-2011.

Figure 1.10. Total Display Ad Impressions, 2006-2011E (B)
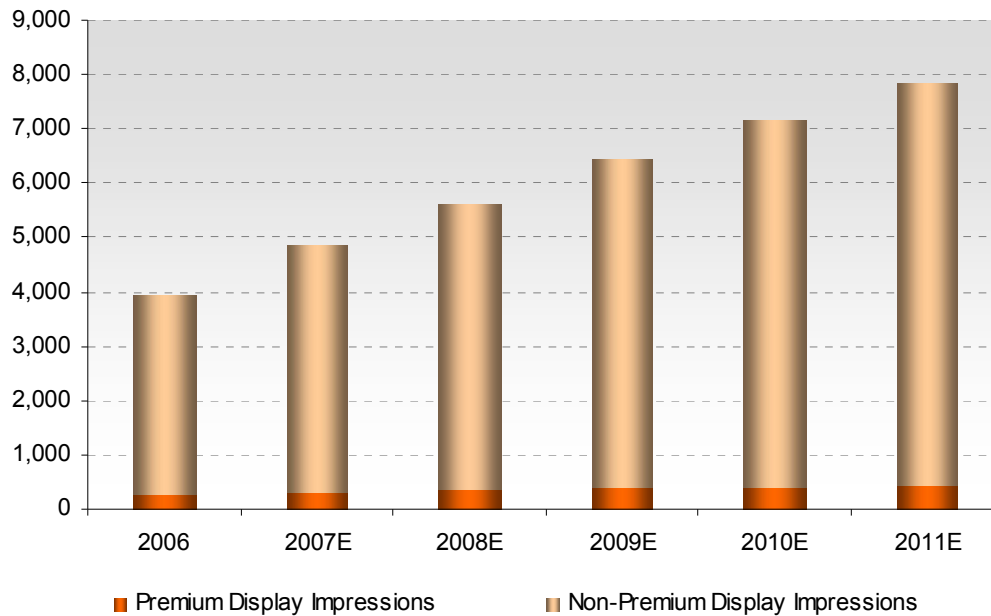
Revenue Per Impression

We expect that revenue per impression for non-premium inventory should also significantly outgrow revenue per impression for premium inventory over the next five years. We believe that there are three primary drivers for the outsized growth in non-premium CPM:

1. **Overflow From Premium Inventory**

   As brand dollars shift online, the largest Internet portals have been the primary beneficiary. This shift of dollars has created premium inventory supply constraints among the portals, forcing other advertising buyers (e.g., direct marketers) to seek alternatives. We expect this trend to continue.

2. **Behavioral Targeting**

   The intelligent use of data should add value in the market, in our view, and increase the average per-impression cost of advertising online. Networks and large publishers will likely pay publishers significantly more for inventory that allows the data owners to extend audience reach.

3. **Advertising Exchanges**

   We believe that the use of real-time auctions for individual ad impressions should leverage competitive demand to produce significant revenue lift for publishers. Moreover, ad exchanges should produce significant efficiencies in the market that enhance the value of non-premium online ad inventory. For example, ad exchange platforms use a common cookie for targeting and unique user tracking. Because only one cookie is used by multiple buyers, marketers can more easily retarget distinct unique users. The use of a common cookie also prevents duplication of unique users, providing marketers greater assurance that frequency caps actually work, and justifying higher per-impression ad spend.

We expect that non-premium CPM will grow at an 11% CAGR from 2006-2011, while premium CPM should grow at a 7% CAGR over the same period.

Sizing The Market

Based on our estimates for premium and non-premium impression and revenue-per-impression growth, we expect that the non-premium display advertising market will grow significantly faster than the premium display market (and search, for

that matter) through 2011. From 2006-2011, we expect the non-premium display ad market to grow at a 28% CAGR to $7.6B. In contrast, we expect the premium display market to grow at a 14% CAGR over the period to $10.3B. In 2006, the non-premium market represented 29% of total display spending; we expect non-premium to represent 43% of total display spending in 2011.

Figure 1.11. Worldwide Display Advertising Market, 2006-2011E

|	2006	2007E	2008E	2009E	2010E	2011E	2006-11 CAGR
Total Display Advertising Market ($U.S. B)	**7.52**	**9.31**	**11.58**	**13.70**	**15.81**	**17.99**	**19%**
Y/Y Growth	*25%*	*24%*	*24%*	*18%*	*15%*	*14%*	
Premium Display	**5.33**	**6.22**	**7.51**	**8.49**	**9.42**	**10.27**	**14%**
Y/Y Growth	*22%*	*17%*	*21%*	*13%*	*11%*	*9%*	
Non-Premium Display	**2.19**	**3.08**	**4.07**	**5.21**	**6.39**	**7.62**	**28%**
Y/Y Growth	*34%*	*41%*	*32%*	*28%*	*23%*	*19%*	
Off-Exchange	2.04	2.63	3.20	3.76	4.13	4.31	16%
Y/Y Growth	*25%*	*29%*	*22%*	*17%*	*10%*	*4%*	
On-Exchange	0.15	0.45	0.87	1.45	2.26	3.31	86%
Y/Y Growth	*NM*	*206%*	*91%*	*67%*	*56%*	*46%*	
	2006	**2007E**	**2008E**	**2009E**	**2010E**	**2011E**	**2006-11 CAGR**
Total Display Impressions (B)	**3,958**	**4,857**	**5,631**	**6,456**	**7,171**	**7,857**	**15%**
Y/Y Growth	*22%*	*23%*	*16%*	*15%*	*11%*	*10%*	
Premium Display Impressions	**296**	**323**	**366**	**389**	**410**	**425**	**8%**
Y/Y Growth	*15%*	*9%*	*13%*	*6%*	*5%*	*4%*	
Non-Premium Display Impressions	**3,662**	**4,534**	**5,264**	**6,067**	**6,761**	**7,432**	**15%**
Y/Y Growth	*23%*	*24%*	*16%*	*15%*	*11%*	*10%*	
Off-Exchange	2,840	3,096	3,250	3,348	3,281	3,117	2%
Y/Y Growth	*-5%*	*9%*	*5%*	*3%*	*-2%*	*-5%*	
On-Exchange	822	1,439	2,014	2,719	3,480	4,315	39%
Y/Y Growth	*NM*	*75%*	*40%*	*35%*	*28%*	*24%*	
	2006	**2007E**	**2008E**	**2009E**	**2010E**	**2011E**	**2006-11 CAGR**
Average Display CPM ($U.S.)	**1.90**	**1.92**	**2.06**	**2.12**	**2.21**	**2.29**	**4%**
Y/Y Growth	*2%*	*1%*	*7%*	*3%*	*4%*	*4%*	
Premium Display CPM	**18**	**19**	**21**	**22**	**23**	**24**	**7%**
Y/Y Growth	*7%*	*7%*	*7%*	*6%*	*6%*	*5%*	
Non-Premium Display CPM	**0.60**	**0.68**	**0.77**	**0.86**	**0.95**	**1.03**	**11%**
Y/Y Growth	*9%*	*13%*	*14%*	*11%*	*10%*	*11%*	
Off-Exchange Average CPM	0.72	0.85	0.99	1.12	1.26	1.38	14%
Y/Y Growth	*31%*	*18%*	*16%*	*14%*	*12%*	*10%*	
On-Exchange Average CPM	0.18	0.32	0.43	0.53	0.65	0.77	34%
Y/Y Growth	*NM*	*75%*	*36%*	*24%*	*22%*	*18%*	

Source: ThinkEquity Partners LLC estimates

1.3   Market Accelerators

Online Advertising Exchanges
We believe that online advertising exchanges represent a new and compelling paradigm for non-premium inventory yield management, offering greater efficiency and simultaneous exposure of publisher inventory to multiple sources of competitive demand. In particular, we believe that the exposure of publisher inventory to demand from large Internet publishers or technologically-sophisticated ad networks with behavioral data and targeting capabilities should result in significant revenue lift. **Figure 1.12** illustrates our view of the expected share shift of non-premium inventory to exchanges over the next five years. We expect that on-exchange monetization of non-premium inventory will account for 43% of the total non-premium market (by revenue) in 2011, compared to 7% in 2006.

Figure 1.12. Percentage Share Of Gross Non-Premium Display Revenue
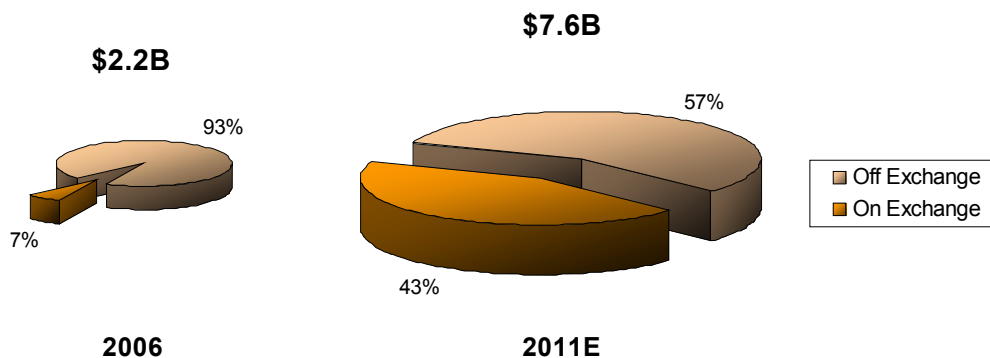
Source: ThinkEquity Partners LLC estimates

Behavioral Targeting
Behavioral targeting describes a set of audience segmentation techniques used by Internet publishers, ad networks, and specialized technology providers to leverage consumer behavioral data to improve the monetization of advertising inventory. For example, an e-Commerce company may employ an ad network to collect data on its customers in order to serve targeted advertisements to those users at a later time, a technique referred to in the industry as retargeting. This is accomplished through the use of a targeting pixel on the marketer's Web site. The network serves the targeting pixel to the end-user's computer and, in the process, drops a cookie into the end-user's browser. Then, if the network later recognizes the same user when serving an ad within its network, it can serve the user an advertisement from the marketer interested in reaching the user.

Retargeting is one of the most basic behavioral techniques available to marketers and networks. Beyond retargeting, innovative ad networks (such as Tacoda, Revenue Science, and Blue Lithium) and Internet publishers are using consumer Web surfing and search data to create detailed behavioral profiles on users, used to influence which ads will be shown to the users.

Focus Of Market Leaders
As illustrated by recent M&A activity (and acquisition premiums) in the sector, large Internet publishers and other parties are highly interested in gaining access to non-premium display inventory. We believe that this level of interest is partly derived from the relatively tight market for premium display inventory. Simply put, large publishers have already done a relatively good job of exploiting the monetization potential of premium owned-and-operated inventory. In contrast, the non-premium market remains a largely untapped opportunity.

Movement Of Brand Advertising Dollars Online
As brand advertisers shift marketing spend away from legacy marketing channels and toward the Internet, their online marketing efforts have primarily centered on premium inventory on the largest Internet portals and vertically-oriented sites. This shift of dollars has created supply constraints among the portals, and forced performance-based marketers to seek alternatives. As supply constraints continue, we believe that brand marketers will increasingly seek exposure to the non-premium online advertising market as well.

Non-Premium Inventory Being Created At A Faster Rate
While the largest Internet sites have generally kept pace with the Internet as a whole in terms of page view growth, Web 2.0 properties such as MySpace and YouTube have significantly outpaced the broader Internet in terms of page view growth.

Largest Internet Properties Maximizing Fill Rate
Over the past two years, we believe that the largest sellers of premium online display advertising (Yahoo!, in particular) have dramatically increased their ratio of advertising impressions per page view, relative to the Internet as a whole. In our view, the largest Internet media properties have less remaining room for upside from improving the inventory fill rate on owned-and-operated sites.

Pricing Disparity Between Premium And Non-Premium Too Wide
While the premium display offerings of the Internet's largest media properties remain compelling alternatives to legacy marketing channels on a cost-per-mille basis, we believe that the pricing disparity between premium and non-premium online display advertising is considerably wider than the efficacy differential. In other words, we estimate that the average cost per mille of premium online ad inventory is now approximately 30 times greater than the average cost per mille of non-premium online ad inventory; however, we do not believe that premium inventory is 30 times more effective than non-premium inventory in producing desired marketer outcomes. We believe that the pricing gap will narrow, and, specifically, that non-premium cost per mille will move toward premium pricing, while premium pricing should continue to grow moderately. We expect that behavioral targeting and advertising exchanges will represent the two primary drivers of cost per mille increases for non-premium inventory.

1.4   Competitive Landscape

Following recent M&A activity in the sector, we believe there are five key players positioned for leadership in the non-premium online ad market: Google, Yahoo!, Microsoft, ValueClick, and AOL. We believe that these five players are well-positioned to participate in the growing opportunity in non-premium online advertising inventory and will consolidate the remainder of the market.

In our view, there are four key criteria for market leadership:

1. **Data**
    We believe that behavioral data is a key differentiator in the non-premium online ad market, as behavioral data should play an increasing role in adding value to raw publisher inventory. In assessing the data advantage of market participants, we believe that it is important to assess the quality and variety of the owned data assets, as well as the organization's ability and/or willingness to leverage the owned data assets. Additionally, we believe that market participants with data from owned-and-operated Internet properties will have a slight advantage versus ad networks without owned-and-operated Internet properties. Owners of popular Internet sites have the opportunity to capture user data free of charge on their own sites; in contrast, ad networks have to buy media and serve ads in order to acquire incremental data.

2. **Targeting And Optimization Technology**
    In addition to data assets, successful ad networks will require intelligent targeting and optimization technologies to determine the meaning/value of data and translate data assets into results for marketers. While Advertising.com is widely perceived to have the most advanced targeting and optimization technology among current market leaders, we believe that this competitive advantage may not be sustainable over the long term, due to the rapid pace of ad serving/targeting technology consolidation.

3. **Advertiser Footprint**
    As underscored by the recent reorganization of Yahoo!'s advertising sales force, the sale of performance advertising and non-premium inventory represents a unique skill and relationship set. Each key market player, in our view, possesses strengths and weaknesses with respect to its advertiser footprint. Additionally, we believe that ad networks and the large publishers entering the ad network market may increasingly become competitive with media agencies; agency buying decisions may be influenced by fear and confusion.

4. **Publisher Footprint**
    Ultimately, ad networks and exchanges must serve publishers in order to access key sources of inventory. While the number of publishers ultimately served by a network or exchange is an important indicator of the scale of publisher relationships, networks/exchanges with direct publisher relationships (e.g., ad servers or front-of-chain networks whose ad tags appear in publisher source code) appear best-positioned to control publisher inventory and disintermediate other networks and exchanges.

Below, in **Figure 1.13**, we use these four criteria to review the capabilities and positioning of Google, Yahoo!, Microsoft, ValueClick, and AOL. We score each company on each of these criteria on a 1-5 scale.

Figure 1.13. Capabilities of Key Players

	Data Ownership	Ability/Willingness to Leverage Data	Overall Data Score		Targeting & Optimization Technology		Scale/Quality of Display Advertiser/Agency Relationships		Scale/Quality of Publisher Relationships or Yield Management Technology		Total
Google	**5** Search data and cookies for vast majority of total Internet audience	**3** As a consumer-facing company, has been reluctant to allow third-party cookies, or use behavioral targeting techniques. Despite superior privacy policies and management sensitivity, faces a major perception problem.	**3**	+	**3** Beyond search/contextual (where capabilities are top-notch), targeting capabilities are largely untested/unknown. Could easily build/acquire behavioral algorithms/models.	+	**3** Strong relationships and opportunity with direct response and POS advertisers, as well as the long tail of SMEs. Relationships with brand marketers/agencies more tenuous. Relationships with agencies potentially adversarial. Lack of third-party ad serving integration has significantly hampered growth of display ad network.	+	**3** Widely adopted by long tail publishers, and by larger publishers as a zero-default solution. Limited success in moving up the value/daisy chain.	=	**12**
DoubleClick	**1** DoubleClick touches a very large amount of data related to display advertising, but has limited use of data and no direct ownership.	**1** Limited by data ownership, segregation and compliance issues.	**1**	+	**3** Solid, but not cutting edge, targeting and optimization capabilities. However, Falk eSolutions (acquired in 2006) has well-regarded capabilities.	+	**4** Strong relationships with agencies and large marketers.	+	**5** Leading publisher ad serving technology, strong relationships with large publishers. Should lend significant competitive advantage with respect to publisher recruitment onto advertising exchange.	=	**13**
Google + DoubleClick	**5**	**1**	**3**	+	**3**	+	**4**	+	**5**	=	**15**
Yahoo	**5** Search data for significant portion of US Internet audience, and a leading cache of behavioral data.	**4** Willing to leverage behavioral and search data on behalf of advertisers. Faces same risks as other consumer-facing brands. Does not face same perception problem as Google, despite more liberal usage of consumer data.	**4**	+	**3** Ad serving technology is poorly regarded within the industry. Addition of BlueLithium should significantly enhance behavioral targeting capabilities. Co-founder of Revenue Science serves as Chief Data Officer.	+	**5** Strong relationships with agencies, brand advertisers and direct response/POS advertisers.	+	**2** Yahoo! Publisher Network is significantly smaller than AdSense. However, relationships with eBay, Comcast and newspaper consortium are key differentiators. Addition of BlueLithium should provide a significant catalyst.	=	**14**
Right Media	**1** Little direct data ownership, beyond ads served by Remix, Right Media's wholly-owned ad network which operates on the exchange.	**1** Limited by data ownership, segregation and compliance issues.	**1**	+	**2** Strong ad serving technology and optimization capability. Behavioral targeting capability largely untested/unknown. MediaGuard vulnerabilties represent a significant challenge.	+	**1** Third-party ad networks buy vast majority of exchange inventory.	+	**2** Small number of relationships with large publishers provides a large portion of total inventory on exchange. Remaining exchange inventory driven to platform by lower-tier ad networks. Risk of disintermediation by DoubleClick or large ad networks at the front of the daisy chain, as well as publisher concentration risk. MediaGuard security vulnerabilities could further stress publisher relationships.	=	**6**
Yahoo! + Right Media	**5**	**4**	**4**	+	**3**	+	**5**	+	**2**	=	**14**

Source: Nielsen//NetRatings and ThinkEquity Partners LLC estimates

Figure 1.13. Capabilities of Key Players (Continued)

Company								
Microsoft/MSN	4	4	3 +	2 +	5 +	1 =	11
	Solid behavioral data assets from portal, which, however, reaches a smaller unique audience than Yahoo! or large ad networks. Smaller search footprint than Google or Yahoo!.	Appears willing to leverage behavioral and search data on behalf of advertisers. Faces same risks as other consumer-facing brands. Does not face same perception problem as Google, despite more liberal usage of consumer data.		Relies on DoubleClick for ad serving on O&O properties. Behavioral targeting capabilities largely unknown/untested.	Strong relationships with agencies, brand advertisers and direct response/POS advertisers.	Limited third-party monetization footprint. Relationship with Facebook could be starting point for build-out of ad network.	
aQuantive	2	4	2 +	4 +	4 +	2 =	12
	drivePM maintains behavioral and targeting data, but is a relatively small ad network. Data from Atlas customers is off limits. Data from agency clients is segregated.	Limited by data ownership, segregation and compliance issues.		Best-of-breed third-party (i.e., agency-facing) ad serving technology. Behavioral targeting and optimization capabilities of drivePM are respected within the industry.	Strong relationships with some agencies, some brand marketers and direct response advertisers.	Like Advertising.com, drivePM's publisher relationships based on volume buying. Accipiter is well-regarded, but very small. Atlas AdMarket could become an important player in the primary ad exchange market with Microsoft's backing.	
Microsoft/MSN + aQuantive	4	3	3 +	4 +	5 +	2 =	**14**
ValueClick	3	5	3 +	3 +	4 +	3 =	**13**
	Good breadth of user data due to large unique user reach, but lower impression volume than Advertising.com or portals means that ValueClick collects a smaller amount of data per unique user. As a network, ValueClick can only capture user data when serving ads into network publisher inventory, putting ValueClick at a cost disadvantage versus portals with data assets from O&O sites.	Usage of data limited only by FTC and industry best-practices. Not a consumer-facing brand, so faces limited publicity/perception risk. Some data related to behavioral retargeting may be segregated.		Third-party ad serving technology is not highly regarded. Industry view of optimization capabilities generally positive. Behavioral targeting capabilities largely limited to retargeting.	Strong relationships with direct response advertisers and some agencies.	Few primary ad serving relationships, but VCLK is a well-regarded monetization partner for many Internet publishers. Smaller publishers may rely on VCLK as a primary monetization mechanism and, in many cases, use VCLK's default management tools to manage multiple ad network relationships. Could build an ad exchange (or join AdECN) to handle third-party defaults, potentially disintermediating Right Media Exchange.	
AOL / Ad.com	4	4	3 +	5 +	4 +	2 =	**14**
	With leading reach of Advertising.com, combined company has impressive breadth of user data. However, depth of data is less impressive due to smaller search data set and lower number of impressions per unique user.	Willing to leverage behavioral and search data on behalf of advertisers. Faces same risks as other consumer-facing brands. Does not face same perception problem as Google, despite more liberal usage of consumer data.		Ad network optimization and targeting technology is generally perceived to be best-of-breed. AOL relies on DoubleClick for ad serving on O&O properties. Recent purchases (ADTECH AG and TACODA) should result in further improvement.	Solid relationships with brand marketers and direct response/POS marketers. AOL offerings generally viewed as less competitive than those of other portals.	Advertising.com's relationship with publishers is generally not as monetization partner, but as high-volume buyer. Not well positioned to create a competitive ad exchange for third-party defaults.	

Source: Nielsen//NetRatings and ThinkEquity Partners LLC estimates

Based on this review, we believe that the five key market players are fairly evenly matched at present, but that each has unique strengths and weaknesses.

Google
We believe that Google, via its acquisition of DoubleClick, is now very well-positioned to operate in the non-premium/third-party publisher monetization market. We expect that the DoubleClick Advertising Exchange will serve as a key source of non-premium third-party inventory for Google, that Google will now allow third-party ad serving into its display network (previously, the lack of third party ad-serving was a key marketer objection to Google's efforts in the display market), and that Google is well-positioned with agencies and marketers. In our view, the greatest risk for Google is public perception of its data advantages versus peers. We believe that Google's perception problem could lead to a very conservative approach to the usage of consumer behavioral data, which could ultimately limit Google's opportunity in the ad network market.

Yahoo!
We believe that Yahoo! has many of the pieces necessary for a successful ad network strategy: massive amounts of consumer data derived from both search and browsing, strong advertiser relationships, and a growing publisher footprint (including eBay, the newspaper consortium, Comcast, and Right Media's direct relationships with MySpace, Viacom, and others). However, we believe that Right Media, despite an innovative strategy and first-mover advantage, is likely to be disintermediated in many cases by Google/DoubleClick. As we noted earlier, direct publisher relationships (i.e., ad tags within the source code) are a key differentiator. Given that the majority of inventory that makes its way to the Right Media Exchange is derived from on-exchange networks, if these networks are disintermediated, Right Media will be too. Recent news of significant security vulnerabilities in MediaGuard (the technology which Right Media uses to scrub advertiser creative for spyware and malware) could stress current publisher relationships and retard further publisher adoption. Yahoo!'s recent acquisition of BlueLithium should improve the company's behavioral targeting capabilities and publisher footprint; however, we would not be surprised if Yahoo! remains acquisitive.

Microsoft
We believe that Microsoft has solid assets following the acquisitions of aQuantive and AdECN, and that Microsoft plans to leverage these assets to participate in the non-premium opportunity. However, Microsoft's publisher footprint is particularly weak relative to peers, and we believe that Microsoft may remain acquisitive in order add to its small publisher network.

ValueClick Media
As the largest revenue-share ad network (and the second largest network overall behind Advertising.com), ValueClick is well-positioned in terms of advertiser and publisher footprint, in our view. We believe that the revenue-share network model is highly compatible with exchange-based buying and that ValueClick would succeed as a buyer on emerging advertising exchanges. We believe that ValueClick could also have an interesting opportunity to build its own exchange (or join AdECN), in order to participate in economics associated with its defaults (and potentially disintermediate Right Media in the process). As a network without significant O&O properties (beyond MeziMedia and PriceRunner), however, ValueClick is at a slight disadvantage to Google, Yahoo!, Microsoft, and AOL in terms of data, in our view. This disadvantage is partly obviated by the fact that ValueClick is not a consumer-facing brand; as such, its use of data assets should only be limited by government regulation and industry best-practices.

AOL/Advertising.com
We believe that AOL is very well-positioned at present, given its leadership in the ad network space, and recent acquisition of TACODA, a leader in behavioral targeting. However, we believe that Advertising.com's relationships with publishers are premised upon volume buying, and that Advertising.com's market leadership (and margins) could be threatened by ad exchange adoption.
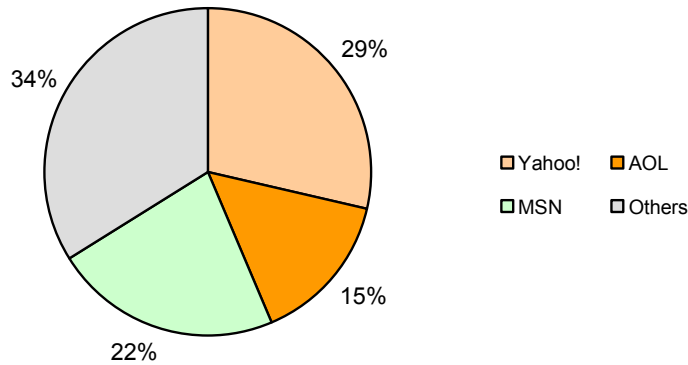
ThinkEquity Partners LLC

1.5   Share Of Key Markets

Figure 1.14. Estimated Share Of Key Markets

Total Search & Contextual Revenue (2007E): $20.9B

- 2%
- 2%
- 20%
- 76%

☐ Google   ☐ Yahoo!

☐ MSN   ☐ Others
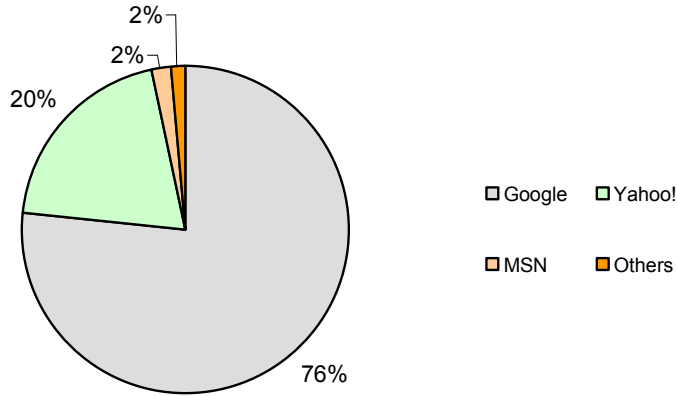
Total Premium Display Revenue (2007E): $6.2B

- 29%
- 34%
- 22%
- 15%

☐ Yahoo!   ☐ AOL

☐ MSN   ☐ Others

Total Non-Premium Display Revenue (2007E): $3.1B

- 18%
- 45%
- 15%
- 3%
- 2%
- 17%

☐ Advertising.com

☐ ValueClick Media

☐ 24/7 Real Media

☐ DRIVE / MediaBrokers

☐ On-Exchange Networks

☐ Other Off-Exchange Networks
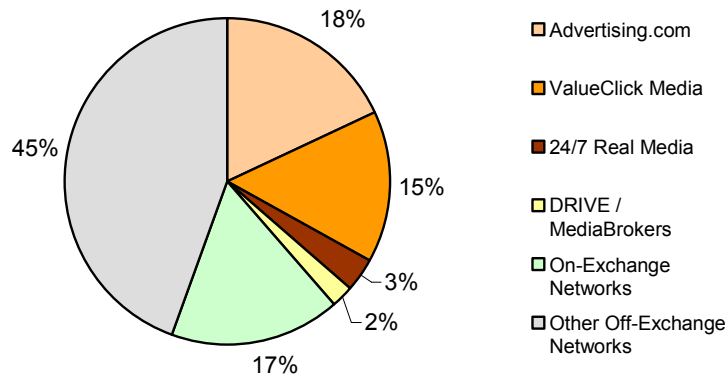
Source: Company reports and ThinkEquity Partners LLC estimates

1.6. M&A Environment

We believe that recent M&A activity in the digital marketing services arena has primarily focused on the opportunity in non-premium display, particularly the acquisitions of DoubleClick by Google, aQuantive and AdECN by Microsoft, 24/7 Real Media by WPP, Right Media and BlueLithium by Yahoo!, and TACODA by AOL. We believe that the impressive premiums paid for ad serving platforms (where per-impression economics had been in secular decline until 2006) were justified by the option value of these platforms. Owning the publisher desktop/dashboard arguably provides the acquirer with the ability to disrupt traditional yield management approaches and access new sources of inventory. It also provides the opportunity to cross-sell search and display more effectively, and subtly influence marketer demand in general, in our view. **Figure 1.15** reviews recent digital marketing M&A comparables (excluding the acquisitions of AdECN, TACODA, and BlueLithium, for which verified financial details are not available).

Figure 1.15. Recent Digital Marketing M&A Comparables

Target	Acquirer	Transaction Date	FY07E EV/Sales	FY07E EV/EBITDA	FY08E EV/Sales	FY08E EV/EBITDA
aQuantive	Microsoft	5/18/2007	9x	37x	8x	29x
24/7 Real Media	WPP Group	5/17/2007	4x	22x	3x	17x
Right Media	Yahoo!	4/30/2007	12x	NM	NA	NA
Jumpstart Automotive Media	Lagardere	4/19/2007	6x	NM	NA	NA
DoubleClick	Google	4/13/2007	10x	35x	NA	NA
Digitas	Publicis	12/20/2006	3x	16x	2x	13x
Accipiter	aQuantive	12/11/2006	4x	NM	NA	NA
Mean			**7x**	**28x**	**4x**	**20x**
Median			**6x**	**28x**	**3x**	**17x**

Source: Company reports and ThinkEquity Partners LLC estimates

As noted in section 1.4, recent acquisition activity in the sector has significantly improved the capabilities of Google, Yahoo!, and Microsoft/MSN with respect to the opportunity in non-premium display. However, given the number of attractive independent targets remaining in the market, we believe that large Internet media and traditional media players may remain in an acquisitive mode. In **Figure 1.16**, we review the remaining potential areas of need of Google, Yahoo!, Microsoft, ValueClick, and AOL/Advertising.com, as well as potential acquisition targets that could fill these needs.

Figure 1.16. Estimated Remaining Areas Of Need And Potential M&A Targets For Market Leaders

	Area of need	Priority	Potential Solution	Potential M&A Targets
Google	Behavioral targeting capabilties largely unknown/untested	Low-Medium	Build/buy behavioral technology/network	Revenue Science Tribal Fusion
	Spidering has limits with respect to dynamic content pages	Low-Medium	Build/buy real-time contextual targeting technology/network	ContextWeb Turn
Yahoo!	Grow/defend publisher footprint	High	Acquire head-of-chain ad network, ad server, or front-line ad exchange	ValueClick Tribal Fusion OpenAds ContextWeb AdBrite
	Improve sales channel to direct response advertisers	Medium-High	Buy ad network with strong sales channel to direct response advertisers	ValueClick
Microsoft	Grow publisher footprint	High	Acquire head-of-chain ad network, ad server, or front-line ad exchange	ValueClick Tribal Fusion OpenAds ContextWeb AdBrite
	Improve sales channel to direct response advertisers	Medium-High	Buy ad network with strong sales channel to direct response advertisers	ValueClick
ValueClick Media	Capture value of ad call defaults; improve lead generation margins	Low	Acquire ad exchange or lower-tier ad network	AdBrite CPX Interactive
	Grow/defend publisher footprint	Low-Medium	Acquire head-of-chain ad network, ad server, or front-line ad exchange	ValueClick Tribal Fusion OpenAds ContextWeb AdBrite
	Improve Targeting Technology	Medium-High	Acquire behavioral/contextual targeting technology or network	Revenue Science Tribal Fusion ContextWeb Turn
	Acquire O&O properties to grow data assets	Medium-High	Acquire additional comparison shopping assets, e-commerce assets, search engine, or toolbar provider	Nextag InfoSpace Zango
AOL / Advertising.com	Defend publisher footprint	High	Acquire head-of-chain ad network, ad server, or front-line ad exchange	ValueClick Tribal Fusion OpenAds ContextWeb AdBrite

Source: ThinkEquity Partners LLC

Chapter 2: Networks And Exchanges

Advertising networks serve as crucial intermediaries in the online advertising market, aggregating unsold and undersold publisher ad inventory, and matching that inventory against marketer demand for efficient, targeted audience reach across the Internet. While ad networks have created value for both publishers and marketers, we believe that there are inefficiencies in the ad network market, related primarily to traditional yield management approaches (i.e., the manner in which publishers interact with multiple ad networks in order to drive maximum revenue on available inventory). Online advertising exchanges have emerged in response to these inefficiencies, offering publishers a new (and improved, in our view) paradigm for non-premium inventory yield management. We believe that online advertising exchanges will create opportunity for the largest Internet media players to participate in the non-premium display market and will have a substantial impact on the business models (but not necessarily the economic prospects) of existing ad networks.

Ad Networks Have Created Significant Value For Advertisers And Publishers
In our view, ad networks have created value in the marketplace in four primary ways: 1) ad networks create scale advertising opportunities for marketers (and, in the process, provide smaller publishers with access to advertisers that demand broad reach), 2) ad networks provide a cost-effective broad-reach alternative to the portals and other large Internet media sites, 3) ad networks have created order in the marketplace for non-premium ad inventory by categorizing and segmenting inventory and audiences, and 4) some ad networks minimize risk for advertisers and/or publishers through pricing guarantees.

Ad Exchanges Represent A Response To Market Inefficiencies
While we believe that ad networks create significant value, we also believe that the ad network market is encumbered by inefficiencies, related primarily to the inventory yield management approaches that structure interaction between publishers and multiple ad network monetization partners. Traditional yield management approaches, particularly ad network daisy chains (and refinements thereof, such as network weighting and publisher-side frequency caps) hinder competition for publisher inventory, reinforcing the competitive status quo and stifling innovation in the process. We believe that ad exchanges have emerged as a response to market inefficiencies, and that ad exchanges promise to replace the daisy chain as the leading paradigm for non-premium inventory yield management over the next three to five years.

New Yield Management Approaches Should Change The Game
We believe that this shift will fundamentally alter the role of ad networks in the marketplace, creating opportunity for large Internet media players and potentially marginalizing some legacy ad networks. Over time, ad networks should become specialized media agencies focused on arbitrage opportunities and adding value to publisher inventory via proprietary data and technology. And, perhaps counter-intuitively, we believe that the emergence of real-time competition for publisher inventory could actually expand operating margins for some ad networks, once the burden of publisher development/recruitment/service shifts from ad networks to ad exchanges.

In our view, following recent acquisition activity, large Internet media players are well-positioned to take leadership roles in the marketplace. However, we continue to believe that there will be a significant opportunity for leading independent networks and auction-based marketplaces, such as ValueClick Media, Tribal Fusion, AdBrite, and ContextWeb, among others.

2.1   Defining Terms: Ad Networks And Ad Servers

Ad Networks: Aggregating Supply And Demand
At the most basic level, an ad network represents a collection of advertiser and publisher relationships, combined with an ad serving technology; ad networks create value by aggregating publisher inventory, segmenting the inventory and/or audience, selling inventory/audience segments to marketers, and matching advertiser campaigns (demand) against publisher inventory (supply). Given that networks serve both advertisers and publishers, they must satisfy two sets of competing goals: to maximize advertiser return-on-investment (ROI) while also maximizing publisher inventory yield.

Generally, networks share revenue with publishers, meaning that networks have obvious incentive to maximize publisher yield. However, the competitive nature of the ad network marketplace means that networks must also work hard to satisfy marketer ROI goals, which may be either explicit or implicit. For instance, a marketer may pay a stated cost per action (CPA), where an action may represent a click, customer acquisition, or the generation of a qualified lead. Or, if a marketer pays for advertising inventory on a cost per mille (CPM), i.e., cost per thousand impressions, basis, the network will often be held accountable to a CPA performance target.

Smaller Internet destinations that do not possess the requisite scale to support an internal advertising sales force typically rely upon either site representation firms or online advertising networks to monetize their content and audiences. Larger Internet properties with their own dedicated salesforces may also rely on site representation firms and advertising networks to monetize non-premium inventory that is not monetized by the direct sales channel. Some inventory may be inherently less desirable (what is typically termed "remnant") from an advertiser perspective. Additionally, publishers may find it difficult, or in some cases, impossible, to forecast inventory creation, which is ultimately driven by consumer usage. For example, breaking news or weather may drive traffic unpredictably to sites such as weather.com or nytimes.com. If a publisher experiences unexpected consumer demand (which creates ad inventory unpredictably), either the inventory must be monetized on the fly or it will go unsold.

Publisher Ad Servers: The Publisher Operating System
Most Internet publishers do not possess the technology infrastructure necessary to manage, serve and track the advertiser campaigns run on their sites; publishers typically outsource these functions to providers of ad-serving technology. DoubleClick's DART for Publishers is the leading solution in the market, followed by 24/7 Real Media's Open AdStream. Other noteworthy solution providers include aQuantive's Accipiter, ADTECH AG (recently acquired by AOL), Zedo, and OpenAds (an open-source ad serving solution). These solutions typically offer publishers a variety of capabilities beyond commodity display ad serving:

- Customized reporting – allows publishers to quantify results for advertisers.

- Inventory forecasting – allows publishers to more accurately predict inventory availability.

- Yield management and rate card creation – assists publishers in optimizing inventory yield via rational pricing and inventory creation strategies.

- Targeting – criteria may include daypart, geographical, frequency capping, audience segmentation, and/or behavioral targeting based on owned-and-operated and/or third-party data.

- Default management – allows publishers to optimize yield from non-premium inventory via the management of multiple ad network relationships.

Smaller publishers that do not use an ad-serving technology may manage multiple ad network relationships through the use of a default management tool provided by a network partner, or by manually hard-coding so-called "default tags" into the source code of their pages. It is worth noting that smaller publishers who occasionally sell their own premium ad inventory may employ ad-serving technology provided free of charge by an ad network partner as a value-added service (often in exchange for preferential placement in the ad network daisy chain).

2.2   Ad Network Ecology

Ad networks are frequently classified according to several key points of differentiation, including the nature of the economic relationships between the network and its advertisers and publishers, the type of inventory represented, the type of advertising served into the inventory, the targeting technology/techniques used by the network, etc. **Figure 2.1** presents a basic introduction to the ad network ecology.

It is worth noting that many networks straddle multiple categories. For example, aQuantive's DrivePM has become known as a performance-based network offering advertisers CPA pricing. However, DrivePM also sells inventory on a CPM basis via its "Selector" program. As such, we have listed it as an example of both a CPA and a CPM network.

There is a further distinction between ad networks and ad brokers. Ad brokers have traditionally been defined as ad networks which do not have their own ad-serving technology. With the increased use of licensed ad-serving technology and the emergence of advertising exchanges, however, the distinction between networks and brokers has become less meaningful, in our view.

Figure 2.1. Ad Network Ecology

Point of Differentiation	Category	Definition	Examples
Economic relationship with publishers	Revenue Share	Network shares revenue with publishers; inventory fill may not be guaranteed. Revenue share arrangement is often disclosed and fixed by network. Network converts CPA pricing (to advertisers) to an effective CPM (eCPM) paid to publishers.	Tribal Fusion, 24/7 Real Media, Casale Media, ValueClick Media, Burst Media
	Pre-Buy or Dynamic	Network buys inventory from publishers on a go-forward basis, guaranteeing inventory fill at a negotiated rate regardless of monetization potential. Network may resell inventory to advertisers on either a CPA or CPM basis.	Advertising.com, DrivePM
Economic relationship with advertisers	CPA (Cost Per Action)	Advertisers pay network only when a desired result (e.g., click-through, customer acquisition, generation of a qualified lead) is obtained.	Advertising.com, DrivePM, ValueClick Media
	CPM (Cost Per Thousand Impressions)	Advertisers pay network whenever an ad is served on its behalf. However, advertiser may also hold network accountable to a CPA target.	Tribal Fusion, 24/7 Real Media, ValueClick Media, Advertising.com, DrivePM
Inventory Type	Premium / Site-representation	Premium networks or site representation firms work essentially as an outsourced sales force for smaller publishers, selling premium or non-preemptable advertising opportunities, sometimes on an exclusive basis.	Gorilla Nation, Specific Media, Tribal Fusion, 24/7 Real Media
	Non-premium	Network is used by publishers as a default monetization mechanism for unsold and undersold ad inventory.	Casale Media, ValueClick Media, Advertising.com, DrivePM, Burst Media, 24/7 Real Media
Ad Type	Text	Text-based links served either in traditional ad units or within text.	Google AdSense, Yahoo! Publisher Network, AdBrite, Quigo, Kontera
	Display	Graphical advertising served in traditional ad units.	Advertising.com, ValueClick Media, Tribal Fusion
	Video	Rich media ads served within traditional ad units or served before, after or within a video stream.	ValueClick Media, BrightRoll, Advertising.com, Google, VideoEgg
Targeting	Contextual	Advertiser campaigns are placed into discrete content channels, comprised of publisher sites or pages with relevant content.	Tribal Fusion, 24/7 Real Media, ValueClick, Burst Media, Google AdSense
	Behavioral	Advertiser campaigns are shown to distinct users who fit desired behavioral/demographic profiles. Also, networks may assist advertisers in retargeting users who have previously visited the advertiser's site. Both techniques rely on the use of end-user cookie data.	TACODA, Revenue Science, Advertising.com, DrivePM, ValueClick
	Frequency	Advertisers may specify the frequency with which a campaign is displayed to a single user in order to maximize impact or campaign reach. Relies on the use of end-user cookie data.	Various
	Other	Networks may also have the ability to target ad campaigns by geography (using IP data), day-part, operating system, browser, etc.	Various
Inventory Fill	Revenue Share	Publishers may not be guaranteed inventory fill.	Casale, Burst, ValueClick, 24/7 Real Media, Tribal Fusion
	Pre-Buy or Dynamic	Upfront negotiation for inventory fill and CPM.	Advertising.com, DrivePM
	100% Fill / No-Non-Paying-Defaults	Revenue share networks who have traditionally focused on the "long-tail" of publisher inventory and guarantee 100% inventory fill, typically at very low eCPM.	Google AdSense, CPX Interactive

Source: Company documents and ThinkEquity Partners LLC

Ad Network Value Creation

In our view, networks create value in four important ways:

1. Ad networks create scale/aggregation opportunities for marketers; in the process, they also provide smaller publishers with access to advertiser demand for broad reach.

2. Ad networks provide marketers with a cost-effective broad-reach alternative to the portals and other large Internet media sites.

3. Ad networks create order in the marketplace for ad inventory by categorizing and segmenting inventory (typically into content-focused or demographic channels) and audiences (into behavioral and demographic segments).

4. Performance-based networks minimize risk for advertisers by explicitly or implicitly guaranteeing desired results and ROI through the use of CPA pricing or CPM pricing with CPA targets.

Scale

By aggregating publisher inventory, networks provide publishers with access to advertiser demand. Large advertisers are typically interested in efficiently achieving broad reach for their advertising campaigns. Without networks, advertisers would be unable to efficiently advertise on smaller publisher sites, and publishers would not have access to that advertiser demand.

Scale also represents an important competitive differentiator for ad networks. Adequate scale results in greater liquidity, increased publisher inventory fill rates, and prices that more closely reflect the fair value of publisher inventory.

Inventory Categorization/Segmentation

In addition to offering "Run of Network" buys, in which advertisers purchase inventory indiscriminately from across network sites, many ad networks group sites by category. Typically, these categorization schemes focus on specific content verticals or key demographic groups. Categorization allows networks to charge advertisers higher CPM in exchange for incremental transparency and has been a significant factor in the increasing appeal of ad networks to brand marketers.

Tracking/Targeting Unique Users

Networks track the activity of end-users (i.e., consumers) across their networks through the use of third-party cookies, monitoring interaction with campaigns (e.g., click-throughs, conversions) and which advertisements the consumer has previously been exposed to within the network. This tracking of unique users via cookie data allows networks to fulfill advertiser campaign goals with respect to reach, frequency, and targeting criteria. For example, in order to maximize the reach of an online advertising campaign and minimize wasted impressions, an advertiser may specify a "frequency cap" limiting the number of times that any one consumer will be exposed to a campaign.

While tracking uniques is a valuable technique for networks, challenges include cookie deletion by end-users and duplication of unique users across multiple networks. In attempting to maximize reach, an advertiser may use more than one advertising network in combination with premium site buys, in each case imposing a frequency cap. However, there will likely be duplication of unique users across multiple networks, reducing the effectiveness of the frequency cap. The use of third-party ad serving (e.g., DoubleClick's DART for Advertisers or aQuantive's Atlas) by agencies or advertisers can de-duplicate unique users via the use of a DART or Atlas cookie; third-party cookies can also be used to accurately track conversions across multiple ad networks, preventing multiple networks from claiming credit for a single customer acquisition. A minor disadvantage of third-party ad serving is latency; Google's display advertising network has rejected third-party ad serving due in part to concerns over user experience (as well as user privacy).

Behavioral Targeting

Behavioral targeting represents a rapidly emerging set of targeting technologies and techniques that allow marketers to reach consumers who have previously displayed behaviors online that indicate that the consumer is in the market for a given product or service, or that the consumer conforms to a desired behavioral/demographic profile. These behaviors might be gleaned from the use of first- and third-party cookies, adware, and/or toolbars. For example, visiting a site such as Bankrate.com might indicate that the consumer is in the market for financial products/services. Or, a larger set of observed online behaviors might indicate that a consumer is a "Gadget Geek" or "Style Maven" (two behavioral audience segments on offer from behavioral advertising network TACODA).

Performance-Based Advertising
Performance-based advertising networks such as ValueClick Media, Advertising.com, and aQuantive's drivePM create value by providing advertisers with either explicit or implicit performance guarantees. Advertising.com and drivePM may sell advertising on a CPA basis, but guarantee payment to publishers on a CPM basis. In other words, these networks take risk on publisher inventory.

The Importance Of Cookie Data

A cookie is a file created by an Internet site to store information on an end-user's computer, such as relevant preferences or login information. For example, cookies allow users to seamlessly enter a previously-opened session on an email site such Yahoo! Mail or Gmail without having to re-enter login information. Once a cookie is saved on an end-user's computer, the cookie may only be read by the party that created and dropped the cookie. Data may be stored either on the client side or the server side.

Cookies come in several flavors, if you will. *Persistent cookies* are files that remain on an end-user's computer even after the user quits the browser. In contrast, a *temporary cookie* is a file that is stored only for the duration of the current browsing session, and deleted from the end user's computer when the browser application is quit.

There is a further distinction between first-party cookies and third-party cookies. First-party cookies originate from or are dropped by the site being visited (e.g., a cookie served by Yahoo! when the user visits Yahoo.com). First-party cookies are used to store login information, site preferences, etc., and also allow sites to execute against advertiser-specified frequency caps or targeting criteria. A third-party cookie originates from or is dropped by an Internet site other than the one being viewed/visited. These cookies are commonly dropped by ad networks when:

- an ad is served on a network site,
- a behavioral targeting pixel is served on a marketer site, or
- a network has contracted with a publisher to collect behavioral data on site users.

Pricing: eCPM Is The Lingua Franca Of Online Advertising

Effective cost per mille (eCPM) is a measurement of the revenue generated for a publisher per thousand ad impressions served. In the context of a network/publisher relationship, eCPM represents revenue per thousand impressions less the network's commission. eCPM effectively equates varying pricing metrics—e.g., CPM, CPA, cost per click (CPC), cost per lead (CPL)—into one common metric.

Some ad networks have attempted to use revenue share as a selling point in recruiting publishers. However, it is important to note that eCPM is the most accurate measure of a network's performance on behalf of a publisher. As we describe below, eCPM is the primary factor influencing publishers' management of multiple ad network relationships.

ThinkEquity Partners LLC

2.4   Network And Publisher Interaction

Pre-buy or dynamic advertising networks arrange to purchase publisher inventory on a go-forward basis. Site representation firms also sell premium inventory on a go-forward basis, acting essentially as an outsourced sales force.

With the exception of these arrangements, publishers and networks interact in real time. When an end-user visits a Web page, ad inventory is made available (assuming that the page includes an ad spot). If the spot cannot be filled with advertising sold by the site's internal sales force or by a pre-buy network or site-representation firm, the publisher submits an ad call to an ad network.

The ad network responds to the ad call either by serving an ad or defaulting. The ad network's decision regarding whether to serve an ad might be influenced by several factors, e.g., whether or not the network has cookie data for the user to whom the ad will be served, the network's assessment of whether or not the user/site meets campaign targeting/optimization criteria, the network's assessment of the likelihood of a desired action (given the site, user, and other factors), or whether there are campaigns that meet the publisher's minimum CPM requirement, for example.

Default Management
As we have noted above, a revenue-share ad network does not generally guarantee inventory fill, and will not serve an ad if it cannot meet advertiser requirements (in terms of targeting/frequency or ROI) or publisher requirements (in terms of minimum CPM). Because revenue-share networks may default instead of serving an ad, a publisher may have to rely upon multiple ad network relationships in order to fill a large percentage of its non-premium inventory. Publishers manage multiple network relationships via a network daisy chain. **Figure 2.2** illustrates a potential example of a network daisy chain.

Figure 2.2. Ad Network Daisy Chain
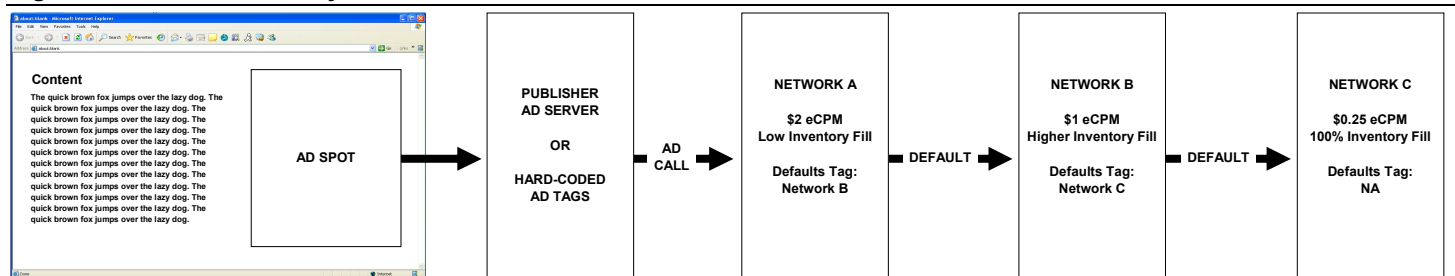
Source: ThinkEquity Partners LLC

Essentially, the daisy chain is a queue of ad networks, where one network defaults to the next. The publisher provides "default tags" to each network that instruct the network on how it is to handle defaults (i.e., unfulfilled ad calls). An unfulfilled ad call may be handed off to another network down the chain or may be passed back to the publisher (where it is typically filled by a house ad). In practice, the length of a network daisy chain is limited by latency—multiple ad call hand-offs before an ad is served result in delays in page loading and negatively impact the end-user experience.

The Daisy Chain
Different ad networks generally offer publishers a trade-off between higher a eCPM and a higher fill rate. Networks that sell inventory primarily on a CPM basis in many cases offer the most attractive eCPM, but with a lower fill rate. The highest non-premium CPM are typically associated with campaigns with specific reach or targeting criteria—e.g., a brand marketer may want to broadly reach every unique user on a network (and impose strict frequency caps so as to ensure that reach is achieved as efficiently as possible) or only users that meet specific geographic or behavioral/demographic targeting criteria. As marketer criteria become more specific, fewer impressions of the campaign will be available for delivery into publisher inventory. Still, given the typically significant gap between the highest network CPM (typically $4-5 per thousand) and the lower CPM for so-called run-of-network campaigns ($1-2 or less), publishers will generally attempt to maximize their exposure to the highest-paying networks with the highest-paying campaigns. However, if the inventory cannot be filled by such a network, publishers use default tags in order to pursue alternative inventory monetization.

Publishers may manage their ad network daisy chain(s) using a publisher ad-serving technology, a default management tool offered by an ad network partner, or manually by hard-coding ad tags into the source code of their pages.

The process of ordering networks within a daisy chain is one of trial-and-error. A publisher will typically examine the eCPM delivered by its ad network partners in the past in order to inform its ordering of networks within the daisy chain. So, if Network A has previously delivered eCPM of $2 on the publisher's non-premium inventory, while Network B has previously delivered eCPM of $3 on similar inventory, Network B will be placed higher in the network daisy chain.

The Drawbacks Of Daisy Chain Default Management
There are several potential problems with daisy chain default management:

1. **Latency.** The use of multiple third-party defaults can result in multiple ad call hand-offs before an ad is finally served. This may negatively impact page loading times and the end-user experience. Sites committed to user experience, such as Yahoo!, have avoided the use of third-party defaults in the past.

2. **Dropped Hand-Offs.** Ad call hand-offs between networks may not be handled perfectly. For example, in **Figure 2.2** above, if the publisher makes one million ad calls to Network A (the first network in the daisy chain), and Network A fills 500,000 ad calls and defaults on the rest, we would expect Network B (the second network in the daisy chain) to receive 500,000 ad calls. However, the second network may, in reality, only receive 450,000. Dropped ad call hand-offs between ad networks result in unmonetized inventory.

3. **Inefficiency.** In **Figure 2.2** above, Network A has in the past offered the publisher $2 eCPM for its non-premium inventory. While this eCPM is higher than the eCPM of $1 offered by Network B, Network B may be able to offer higher CPM on individual impressions than Network A. Because Network B is not allowed access to inventory unless Network A defaults, the publisher does not receive the highest possible amount for each ad impression.

4. **Perpetuates Competitive Status Quo.** The use of ad network daisy chains perpetuates the competitive status quo among ad networks. In **Figure 2.2** above, Network A will receive the first look at the publisher's inventory because it has paid the publisher the highest eCPM in the past. Receiving the first look at the publisher's inventory represents a significant competitive advantage. Because of this competitive advantage, Network A will likely be able to continue to offer the publisher higher eCPM than competitors (in this example, Network B and Network C), thus maintaining its premier position in the daisy chain, thus maintaining its competitive advantage, and so on.

2.5   Ad Exchanges: A New Yield Management Paradigm

In our view, ad networks present a compelling value proposition for both marketers and publishers. However, it is also clear that the ad network marketplace currently suffers from significant inefficiencies:

- Daisy chain default management may prevent publishers from obtaining the highest possible yield on each individual ad call.

- Daisy chain default management perpetuates the competitive status quo—the market leaders today possess outsized competitive advantages due to their typical positioning at the head of the chain (or, in the case of pre-buy networks, in front of the chain).

- Barriers to market success by innovative de novo players—while there are many small ad networks, it is relatively difficult for new, innovative ad networks to gain scale given the current organization of the marketplace. Scale begets further scale.

- Legacy network optimization/targeting strategies are in some cases antiquated or labor-intensive. More efficient methods may be developed, but may have difficulty achieving scale, a crucial advertiser prerogative.

- Advertisers/publishers may desire increased transparency (although publishers that sell premium inventory through an internal sales force or site representation firm may prefer that advertisers lack transparency in order to avoid sales channel conflict).

- Sub-scale ad networks and ad brokers may trade among themselves in order to fill liquidity gaps. As each intermediary takes a commission, an outsized disconnect may emerge between what an advertiser pays for an ad spot and what a publisher receives.

- The leading ad networks have struggled to monetize undifferentiated social networking inventory (e.g., MySpace user profiles), which represents one of the fastest-growing sources of ad inventory online. 100%-fill networks have lacked ample scale/liquidity to serve as a go-to monetization mechanism for large social networking publishers.

- Use of discrete cookies by multiple ad networks can result in duplication of unique users, impairing the effectiveness of frequency capping and making it more difficult for marketers to obtain reach and targeting goals efficiently.

Online advertising exchanges and auction-based online ad networks have emerged as a response to some or all of these inefficiencies. Ad exchanges and auction-based networks both operate real-time auctions for ad inventory. These models potentially offer a variety of benefits, including increased competition for publisher inventory and improved advertiser transparency and ROI.

Defining Terms: Ad Exchanges Versus Auction-Based Marketplaces
In our view, the primary difference between online ad exchanges (e.g., Right Media, AdECN, and DoubleClick Advertising Exchange) and auction-based ad marketplaces (e.g., ContextWeb ADSDAQ, AdBrite, Turn, Google AdSense, and Yahoo! Publisher Network) is their approach to demand aggregation. Marketplaces aggregate advertiser demand on their own; exchanges aggregate demand from other ad networks (as well as individual advertisers in some models). In the process of doing so, ad exchanges influence the interactions between networks, publishers and advertisers. In particular, we believe that ad exchanges will likely replace daisy chain default management as the standard mechanism for yield management of non-premium online ad inventory. As such, we believe that advertising exchanges are likely to have broader implications on the ad network marketplace than auction-based networks. While new and innovative ad marketplaces are an emerging source of competition to established networks such as ValueClick Media and Advertising.com, and could eventually become ad exchanges by inviting in competitive ad network demand, we believe that ad exchanges are poised to fundamentally alter the dynamics of the non-premium inventory market.

The Role Of Ad Exchanges
Thus far in the evolution of exchange models, we believe that exchanges (Right Media, in particular) have created value in the marketplace in two primary ways:

1. Exchange models have increased the efficiency of sub-scale advertising networks whose operations were previously limited by liquidity constraints and related inefficiencies derived from trading campaigns/inventory among themselves.

2. Exchange models have offered large publishers such as Yahoo! and MySpace the opportunity to clear vast amounts of unmonetized and undermonetized ad inventory.

However, over the longer term, we believe that ad exchanges show promise in significantly altering the status quo for yield management of non-premium online ad inventory. Publishers currently rely upon ad network daisy chains in order to manage multiple ad network relationships. This linear queue of networks results in multiple inefficiencies.

Ad exchanges replace this linear queue of prioritized demand with an auction in which advertising inventory is exposed to multiple sources of competitive demand simultaneously.

Right Media and the announced DoubleClick Advertising Exchange employ what we think of as a primary exchange platform. While still accounting for a relatively small portion of the entire non-premium online ad market (in dollar terms), Right Media has validated the role of ad exchanges, in our view. However, we believe that DoubleClick's large publisher footprint represents a major asset in terms of publisher recruitment and adoption that should pose a significant challenge to Right Media's leadership.

AdECN, recently acquired by Microsoft, represents the second significant exchange model in the market, what we would term a secondary exchange platform, given its role in providing a secondary market for ad inventory. While we believe that AdECN has achieved limited traction thus far (compared to the primary exchange models), we believe that both the primary and secondary exchange models offer distinct advantages for constituents.

Primary Exchanges: Right Media And DoubleClick
Our description of primary exchange models relates primarily to Right Media's Publisher Media Exchange. Although details of the DoubleClick Advertising Exchange are not yet widely known, we believe that DoubleClick's exchange will hew closely to the Right Media Publisher Media Exchange model.

In the primary exchange model, a default yield management technology serves as an adjunct to traditional ad-serving technology. Each non-premium ad spot is auctioned off individually, and the highest bid wins. Publishers use the exchange's yield management technology to expose inventory to simultaneous, competitive demand from existing off-exchange ad network partners, and networks/advertisers that sit on the exchange. For off-exchange sources of demand (i.e., existing relationships with off-exchange network partners), historical eCPM delivered by the network partner serves as a proxy for a real-time bid. Bids from the broader pool of networks and advertisers that sit directly on the exchange are made in real time. Once bids have been made, the exchange determines the winning bid, serves the ad, drops a cookie, and collects its commission.

Publishers may access exchange-based sources of demand selectively—publishers can choose the monetization partners (networks and advertisers) with which they will work, and exclude others. Publishers may also expose their inventory "blindly" (i.e., anonymously) or with limited transparency to broader demand from exchange-based sources in order to avoid sales channel conflict. However, we believe that limiting transparency to broader sources of demand defeats the aim of creating a level-playing field for publisher inventory. Limiting transparency creates a significant information asymmetry between off-exchange and on-exchange sources of demand. If off-exchange monetization partners maintain information advantages versus their on-exchange peers, we believe that off-exchange partners will likely be able to consistently deliver eCPM that is higher than competing real-time bids from on-exchange sources of demand, effectively maintaining the status quo.

However, we believe that exposing inventory to broader demand from exchange-based sources with full transparency could result in significant sales channel conflict over time. Publishers must prevent existing or potential premium inventory buyers from buying non-premium inventory on the exchange. In order to do so, publishers must establish well-defined

business rules with on-exchange monetization partners. For example, a publisher might specify that an on-exchange partner network cannot run campaigns in the publisher's non-premium inventory on behalf of any advertiser who is also a buyer of the publisher's premium inventory. Additionally, we believe that advertisers may eventually come to use open exchanges as a tool for inventory price discovery. Fully transparent sales of non-premium inventory that is fungible with inventory sold as premium could result in deterioration of publishers' negotiating position with premium inventory buyers. We illustrate the primary exchange model in **Figure 2.3**.

Figure 2.3. Primary Online Ad Exchange Model
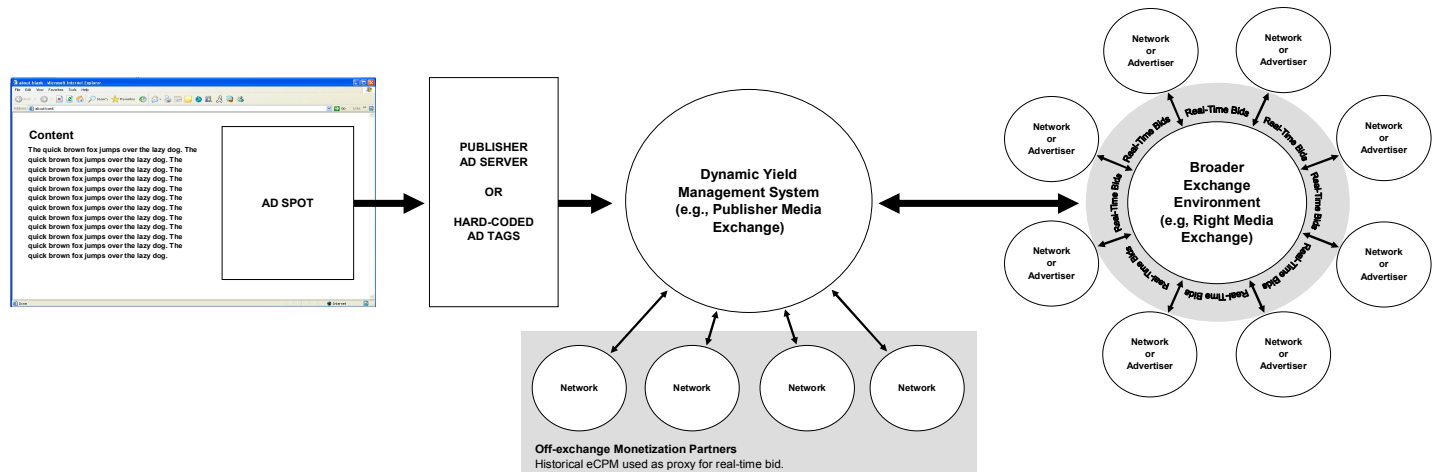
Source: ThinkEquity Partners LLC

We have referred to this model as "primary" because it essentially represents a primary market for ad inventory in which ad inventory is auctioned at the point of creation.

Benefits Of The Primary Exchange Model
We believe that the primary ad exchange model possesses multiple, distinct advantages versus the status quo:

- Publishers are paid the highest price available for each individual ad impression.

- The exchange model eliminates the issues of latency and dropped ad call hand-offs associated with daisy chain default management.

- The burden of publisher recruitment, development, and service shifts from ad networks to the exchange.

- Innovative solution providers can more easily achieve scale. Barriers to market success and entry are effectively reduced.

- Use of a single third-party cookie (served by the exchange but used by multiple exchange participants in order to execute frequency caps and targeting) allows marketers to achieve broad reach and targeting objectives more efficiently.

Potential Challenges
Along with the straightforward advantages versus traditional non-premium yield management approaches, the primary ad exchange model carries potential drawbacks as well, in our view:

- Increased transparency for advertisers may result in channel conflict with premium inventory sales.

- Widespread adoption of the primary ad exchange model is likely to be disruptive to the status quo of the ad network marketplace. Some incumbents will adapt successfully to the new model, others will not. Market confusion and fear may deter or retard adoption.

- In current incarnations, the exchange receives a percentage commission on the media buy, creating conflicts of interest between the exchange and inventory buyers. Ownership of exchanges by large media or marketing services companies may deter or retard adoption.

Chapter 3: Index Of Key Players

24/7 Real Media
Site Representation Firm/Ad Network/Ad Serving Technology Provider
Founded in 1995 and acquired by WPP Group earlier this year, 24/7 Real Media is the second largest provider of publisher-side ad serving technology (behind DoubleClick), a leading site representation firm/ad network, and a large search engine marketing agency. 24/7 Real Media's network, which includes nearly 1,000 publishers, reached 92M unique users in June 2007, per comScore's AdFocus rankings.

AdBrite
Auction-based Ad Marketplace
Founded in 2002 as a flat-price, untargeted text-ad marketplace, AdBrite has leveraged its substantial long-tail publisher footprint to build a rapidly growing auction-based ad marketplace, encompassing text-based, display, interstitial and rich media advertising across more than 19,000 publisher sites. While we currently classify AdBrite as an auction-based advertising marketplace, we believe that AdBrite could move toward an exchange model by inviting other networks to access publisher inventory. AdBrite reached 72M U.S. unique users in June 2007, per comScore's AdFocus rankings. Based in San Francisco, California, AdBrite has received venture funding from Sequoia Capital.

AdECN
Ad Exchange
Acquired by Microsoft in July 2007, AdECN is an advertising exchange, in which ad networks and other parties that both buy and sell online advertising place individual ad impressions up for bid on a centralized auction platform. Auctions are conducted in real time (within 12 milliseconds), and networks may choose auction rules to maximize publisher revenue or network revenue. We believe that AdECN offers networks a solution to the problem of liquidity constraints, without threatening ad network economics or network-publisher relationships.

In order to build their businesses, we believe that Right Media and the DoubleClick Advertising Exchange must compete against ad networks for direct access to publisher inventory. While we believe that AdECN has achieved more limited traction and market impact than Right Media to date, we believe that AdECN presents a compelling alternative to primary/publisher-centric ad exchanges, and could prove attractive to the largest ad networks as a way of capturing economic value from their ad-call defaults and defending their publisher footprints from incursion by Right Media and the DoubleClick Advertising Exchange. We have referred to AdECN as a secondary ad exchange platform (as opposed to the primary, publisher-centric model of Right Media and the DoubleClick Advertising Exchange) because it serves as a secondary market for ad calls and a conduit for market liquidity; additionally, advertisers/publishers may only access the exchange via a member network. As such, AdECN avoids competing directly with its own network constituency, and could help eliminate inefficiencies in the non-premium display marketplace without fundamentally altering the publisher-facing role of ad networks.

We believe that AdECN could present a significant competitive threat to Right Media if the exchange succeeds in partnering with a first-tier, head-of-chain advertising network. We believe that if AdECN were to partner with ValueClick, Advertising.com, or another leading ad network, AdECN would effectively cut off a major source of ad inventory that would eventually reach the Right Media Exchange via defaults from first-tier ad networks to lower-tier ad networks.

Adify
White-Label Network Technology Provider
Founded in 2005, Adify is neither an ad network nor an ad exchange. Instead, it is a white-label technology provider that specializes in providing an end-to-end solution for both Internet publishers and entrepreneurs to create their own vertical advertising networks. Partners include the Washington Post Company, Time Warner, NBC Universal, MediaNews Group, and Comcast Corporation. Adify allows large Internet publishers to offer marketers broader reach within specialized content verticals, and improves publisher sales force productivity by adding a complementary non-premium product that does not pose the risk of channel conflict. Adify is based in San Bruno, California, and has received venture funding from Venrock Associates, U.S. Venture Partners, GE Media, NBC Universal, and Time Warner Investments.

Advertising.com
Ad Network/Lead Generator/Ad Serving Technology Provider
Founded in 1998 and acquired by AOL in 2004 for $497M, Advertising.com is the world's largest ad network, as measured by unique audience reach, total impressions served, and revenue. In 2006, the network served 512B impressions (resulting in a self-reported 789M clicks and 45M conversions) and had revenue of approximately $450M. In June 2007, Advertising.com reached 158M U.S. unique users, representing 88% of the total U.S. Internet audience, per comScore. While Advertising.com has traditionally been considered primarily a dynamic or pre-buy ad network (meaning that it buys large quantities of publisher inventory forward at a deep discount, then reselling the inventory to marketers on a value-added basis) revenue share options are now also available. The network has well-respected capabilities in terms of targeting, campaign optimization, and performance. With the recent acquisition of ADTECH AG, Advertising.com is now also a small participant in the publisher-side ad serving market.

aQuantive
Interactive Agency/Ad Serving Technology Provider/Ad Network
DRIVEpm is aQuantive's performance-based pre-buy ad network that, like Advertising.com, buys non-premium inventory forward (primarily from top-quality publishers) and then resells the inventory to advertisers on a value-added basis. DRIVE offers advertisers two advertising programs: Selector, a brand-focused, behavioral targeting ad network priced on a CPM basis, and Performance, for which advertisers pay on a CPA basis for desired consumer actions. DRIVE has grown rapidly, due in part to efficiencies gained from a high degree of interoperability with aQuantive's Atlas third-party ad serving platform. DRIVE reached 96M U.S. unique users in June 2007, according to comScore's AdFocus rankings.

BlueLithium
Ad Network/Lead Generator
Founded in 2004 and recently acquired by Yahoo! for $300M, BlueLithium is a behavioral ad network that works primarily with large marketers (more than 500 of the Fortune 1,000) and publishers (approximately 1,000 in total, including more than 70 of the comScore 100 and most of the comScore 250). BlueLithium has grown rapidly to become one of the largest ad networks online in terms of audience reach—in June 2007, the network reached 119M U.S. unique users. BlueLithium offers marketers its AdPath Behavioral Targeting program, combined with other targeting criteria, including contextual, demographic geographic, daypart, etc. BlueLithium also operates an affiliate marketing network and lead generation business. BlueLithium's venture investors included WaldenVC and 3i Group plc.

Burst Media
Ad Network/Ad Serving Technology Provider
Founded in 1996 and now publicly traded on the AIM, Burst offers channel and run-of-site buys through Burst's network of more than 4,200 publishers segmented into over 400 content sub-channels, as well as Burst Direct, a performance-focused subset of the network. The company also sells its AdConductor ad management platform to publishers and other site reps/ad networks, including Winstar Interactive and TACODA. Burst reached 74M U.S. unique users in June 2007, per comScore's AdFocus rankings.

Casale Media
Ad Network
Headquartered in Toronto, Casale Media is a performance-oriented revenue share ad network that reaches more than 120M U.S. unique users per month, and over 170M uniques worldwide, serving more than 30B impressions per month. The network includes more than 7,000 publishers, with which Casale shares an industry-leading 70% of gross revenue. At the core of the Casale network is OPTIMAX, Casale's ad serving platform, which is distinguished by its real-time optimization capability.

Connexus
Ad Network/Lead Generator
Connexus, formerly known as VendareNetBlue, includes a display ad network, affiliate marketing network, and a collection of consumer-facing owner-and-operated sites. The Traffic Marketplace display ad network reaches more than 100M U.S. unique users per month and delivers more than 30B impressions. Traffic Marketplace is also a member of the Right Media Exchange.

ContextWeb
Auction-based Ad Marketplace
Founded in 2000 as a provider of contextual technology, ContextWeb became a player in online media in 2005 and has since become a leading auction-based advertising marketplace. At the core of ContextWeb's marketplace is real-time, page-level contextual targeting technology. ContextWeb's ADSDAQ marketplace receives ad calls from publishers, reads the adjacent page content in real-time, and classifies the page as one of 344 contextual tradable units (CTUs). Advertisers specify a bid price that they are willing to pay for these CTUs. ContextWeb fills the publisher ad call with the best-performing campaign that pays a bid price equal to or greater than the publisher's ask. If the ad call cannot be filled at the publisher's ask price, the ad call is defaulted to an existing monetization mechanism, such as an ad network or ad exchange. As both the platform provider and market maker, ContextWeb captures the bid-ask spread.

ContextWeb's real-time, page-level contextual targeting offers a number of advantages versus existing approaches to contextual categorization, including spidering (which may offer little insight into dynamically-generated content or URLs) and site-level categorization (since not all pages within vertically-oriented sites offer relevant content adjacency). ContextWeb also allows advertisers to find "non-endemic reach," i.e., relevant content adjacency within general interest sites. The ADSDAQ marketplace also allows publishers to enjoy incremental revenue lift without risk, because ad calls are defaulted whenever the publisher's ask price cannot be met.

ContextWeb reached 65.2M U.S. unique users in June 2007, per comScore. The company has reported that it served more than 3.6B impressions in June. The ADSDAQ platform currently includes more than 1,000 publishers and more than 350 high-quality advertisers.

CPX Interactive
Ad Network
Founded in 1999 as BUDS Media, CPX Interactive is a large online ad network specializing in 100% inventory fill, meaning that CPX does not fill inventory with non-paying defaults, or default inventory to other ad networks. Serving historically as an ad broker (i.e., a syndicator of campaigns from other ad networks and lead generation firms), CPX has since leveraged Right Media's ad serving technology to become a full-service ad network. CPX has found a place in the market as an end-of-chain monetization engine for publisher inventory, a liquidity provider for emerging advertising exchange platforms (particularly Right Media), and a provider of traffic to other ad networks and lead generators.

DoubleClick
Ad Serving Technology Provider/Ad Exchange
Founded in 1996 and acquired by Google earlier this year (subject to regulatory approval), DoubleClick is the leading provider of publisher-side ad serving technology, and we believe it is on par with aQuantive's Atlas in the third-party ad serving market. DoubleClick serves both publishers and advertisers through its DART suite of ad management and ad serving solutions. For advertisers, DoubleClick offers DART for Advertisers (DFA), a Web-based ad management and ad serving solution that assists marketers and agencies in planning, serving, and tracking online advertising campaigns. DART for Publishers (DFP) is a publisher-side ad serving technology that helps publishers traffic and serve advertising, and also manage inventory yield/pricing. In April, DoubleClick announced the DoubleClick Advertising Exchange, which is expected to launch in 3Q07.

Gorilla Nation
Site Representation Firm/Ad Network
Founded in 2001, Gorilla Nation considers itself the world's largest online ad sales representation firm. It exclusively represents 500 online publishers, and sells inventory primarily to Fortune 500 marketers. As a site representation firm, first and foremost, Gorilla Nation participates in the premium display market when it sells site-specific buys to marketers; it also operates as an ad network, offering marketers channel and run-of-network advertising opportunities. Based in Los Angeles, Gorilla Nation reached 62M unique users in June 2007, per comScore's AdFocus rankings. The company is reportedly expecting to generate $50M in revenue in FY07, and recently garnered a $50M+ growth investment from Great Hill Partners.

Revenue Science
Ad Network/Behavioral Technology Provider
Founded in 2000, Revenue Science is a behavioral targeting technology provider and ad network. Revenue Science's technology allows publishers to create and sell on-site behavioral targeting programs (which enhance the value of

undifferentiated inventory), monetize data assets, or provide inventory into Revenue Science's Targeting Marketplace. Revenue Science is also a member of the Right Media Exchange. The company's venture backers include Mayfield, Mohr, Davidow Ventures, Integral Capital Partners, and Meritech Capital Partners.

Right Media
Ad Serving Technology Provider/Ad Exchange
Founded in 2005 and acquired by Yahoo! in 2007, Right Media created the world's first online ad exchange, leveraging inventory from Right Media's own publisher representation footprint to attract competing ad networks to the exchange platform. At its core, Right Media is an ad serving/yield management technology that allows exchange constituents to link to each other in order to buy/sell ad impressions. Right Media offers its white-label Publisher Media Exchange to large publishers; clients include Fox Interactive Media, Tribune Interactive and Viacom. Right Media also offers exchange technology to networks (Network Media Exchange) and advertisers (Advertiser Media Exchange), as well as to smaller publishers via Right Media's Direct Media Exchange (previously known as RMX Direct). At the time of Yahoo!'s acquisition of Right Media, FY07 revenue was estimated at $70M, with the company expected to achieve EBITDA breakeven. Recently, Right Media has reported that it has served up to 150B impressions per month; in aggregate, Right Media's publisher/network/advertiser ecosystem represents the largest existing pool of non-premium display supply/demand.

Specific Media
Site Representation Firm/Ad Network/Lead Generator

Specific Media operates both an ad network/site representation firm comprising more than 450 top-tier publishers, and a performance network (lead generation and affiliate marketing) that includes thousands of affiliates, as well as Specific Media's O&O lead generation portals. Within the ad network, Specific Media possesses demographic, behavioral, and contextual targeting capability. The company claims that its demographic targeting capabilities, based on demographic prediction technology, offer marketers significantly greater accuracy in reaching desired demographics at scale versus competing ad networks. Founded in 1999, the company is headquartered in Irvine, California. In June 2007, Specific Media reached 119 unique users in the US, per comScore.

TACODA
Ad Network/Behavioral Technology Provider
Founded in 2001 by Real Media veteran Dave Morgan and acquired in July 2007 by AOL for $275M, TACODA is the world's largest behavioral targeting ad network. The company boasts a large database of audience behaviors culled from data monetization partnerships with leading publishers (data reach across more than 150M unique users in the US), combined with network distribution across more than 4,500 Web sites.

Tribal Fusion
Site Representation Firm/Ad Network/Ad Serving Technology Provider
Tribal Fusion considers itself the leading site representation firm online, serving 20B monthly ad impressions to over 160M global unique users monthly. Tribal Fusion works primarily with top-tier publishers and marketers, and typically stands at the top of the ad network market in terms of eCPM delivered to publishers (despite a 45%/55% network/publisher revenue share split), although inventory fill rates are commensurately lower than networks that deliver lower eCPM. Part of Tribal Fusion's value proposition for advertisers is that its content channels deliver aggregated audience reach on par with or exceeding the largest vertical sites in each category.

Founded in 2001 by Dilip DaSilva, a veteran of Flycast Communicatios and Engage Media, the company is part of Exponential, a digital marketing holding company consisting of Tribal Fusion, CPA network FullTango, lead generator Lead Genuity, and in-text ad network Echo Topic. Exponential has also recently introduced a free ad serving product, Expo9, which is integrated with Exponential's ad network properties. Expo9 has reportedly been beta-tested with more than 100 publishers over the last several months and also serves as the core ad serving technology for Tribal Fusion.

ValueClick
Ad Network/Lead Generator/Ad Serving Technology Provider
Founded in 1998, ValueClick is a diversified interactive marketing services company, with business lines that include an online display ad network (ValueClick Media/Fastclick), lead generation network (WebClients), affiliate marketing network (Commission Junction), comparison shopping sites (Shopping.net/MeziMedia), and ad serving technology (Mediaplex). In June 2007, ValueClick's display ad network reached 132M unique U.S. users, per comScore.

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Figure 3.1. comScore U.S. AdFocus Rankings, June 2007

Rank	Property	Unique Visitors (000)	Reach (%)
	Total Internet Users	*178,839*	*100*
1	Advertising.com**	157,639	88
2	ValueClick**	132,404	74
3	Yahoo!	131,559	74
4	Tribal Fusion**	125,358	70
5	Casale Media Network**	120,527	67
6	Blue Lithium**	119,439	67
7	Specific Media**	118,640	66
8	Google	116,632	65
9	AOL Media Network	114,043	64
10	Connexus - Traffic Marketplace**	110,635	62
11	MSN Windows Live	103,300	58
12	DRIVEpm**	95,719	54
13	Yahoo.com home page	93,755	52
14	24/7 Real Media**	91,556	51
15	AOL	91,432	51
16	Tremor Media	85,358	48
17	PrecisionClick**	79,629	45
18	Adconion Media Group**	79,474	44
19	CPX Interactive**	77,247	43
20	Centro	74,599	42
21	Burst Media**	73,686	41
22	eBay.Com	72,368	40
23	AdBrite**	71,923	40
24	MySpace	70,478	39
25	ContextWeb**	65,150	36
26	Vibrant Media**	65,018	36
27	AdDynamix.com**	63,825	36
28	Gorilla Nation Media	62,299	35
29	Interclick**	53,796	30
30	MSN.COM home page	53,232	30
31	Undertone Networks**	52,783	30
32	Ask Network	52,600	29
33	EBAY.COM home page	45,306	25
34	Business.com Network	43,611	24
35	YouTube	42,986	24
36	About.com	36,815	21
37	Weather.com	29,580	17
38	Facebook.com	27,965	16
39	Real Cities Network	27,302	15
40	Nick Kids & Family	25,237	14
41	Disney Online	23,443	13
42	CareerBuilder Network	22,767	13
43	CNN	22,375	13
44	Photobucket.com	22,371	13
45	IMDB.COM	21,862	12
46	Superpages.com Network	21,426	12
47	Lycos Network	20,479	11
48	Expedia.com*	19,360	11
49	Yellowpages.com Network	19,340	11
50	ARTISTdirect Network	19,157	11

Source: comScore, 2007

Notes:

1. Reach denotes the percentage of the total Internet population that viewed a particular entity at least once in June.

*2. * means the entity has assigned some portion of traffic to other syndicated entities.*

*3. ** denotes an advertising network.*

Companies Under Coverage Mentioned In This Report

All prices as of September 14, 2007

Ticker	Name	Rating	Price Target	Closing Price	Exchange
GOOG	Google	Buy	$700	$528.75	NASDAQ
YHOO	Yahoo!	Accumulate	$27	$24.73	NASDAQ
VCLK	ValueClick	Buy	$34	$19.98	NASDAQ
RATE	Bankrate	Buy	$60	$41.95	NASDAQ
ARTD	ARTISTdirect	Buy	$3	$2.24	NASDAQ

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Important Research Disclosures

Analyst Certification

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The analyst(s) responsible for preparing this report has/have received compensation based on various factors, including the firm's total revenues, a portion of which is generated by investment banking activities.

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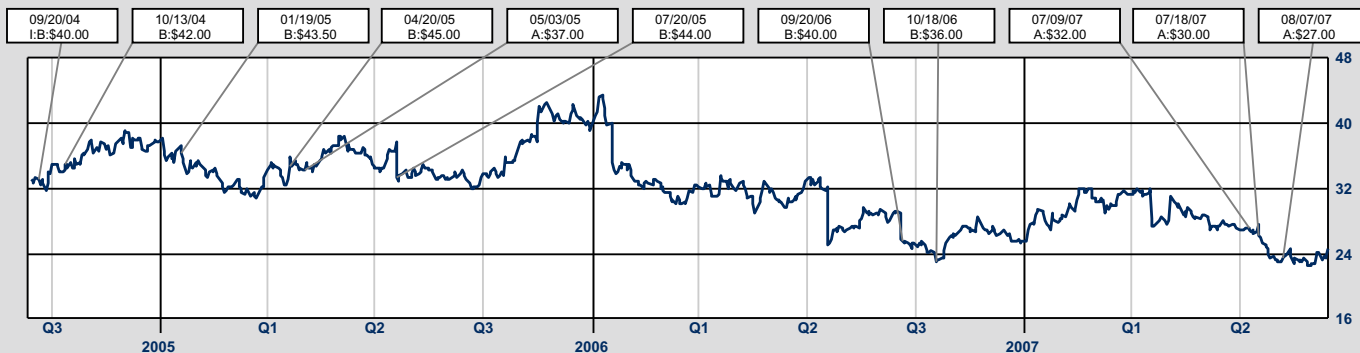ThinkEquity Partners LLC makes a market in Bankrate, Inc. securities; and/or associated persons may sell to or buy from customers on a principal basis.
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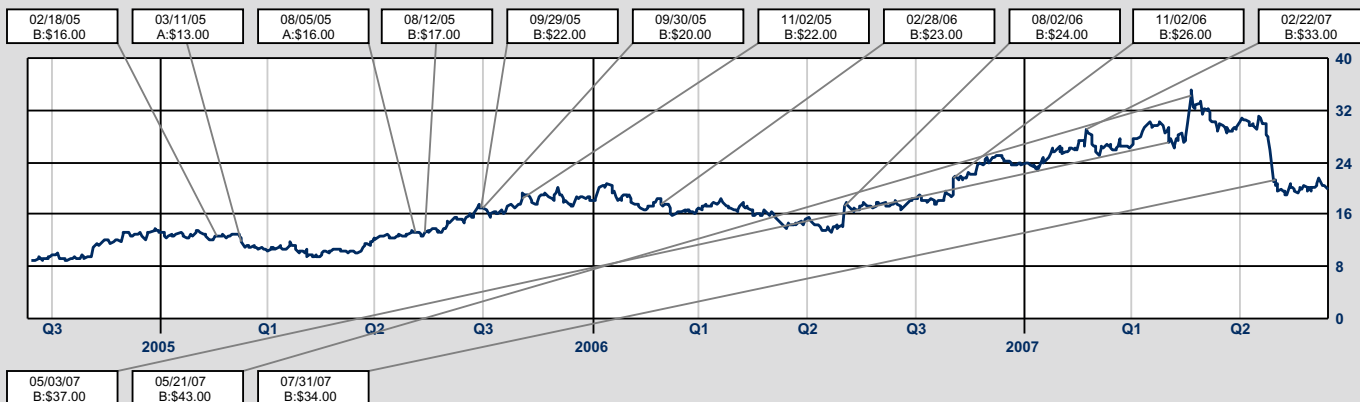
**Rating and Price Target History for: Google, Inc. (GOOG) as of 09-14-2007**

| 09/30/04 A:$145.00 | 10/22/04 B:$200.00 | 02/02/05 B:$290.00 | 04/22/05 B:$330.00 | 07/22/05 B:$350.00 | 10/21/05 B:$420.00 | 01/09/06 B:$550.00 | 10/20/06 B:$580.00 | 02/01/07 B:$600.00 | 04/20/07 B:$620.00 | 07/09/07 B:$700.00 |

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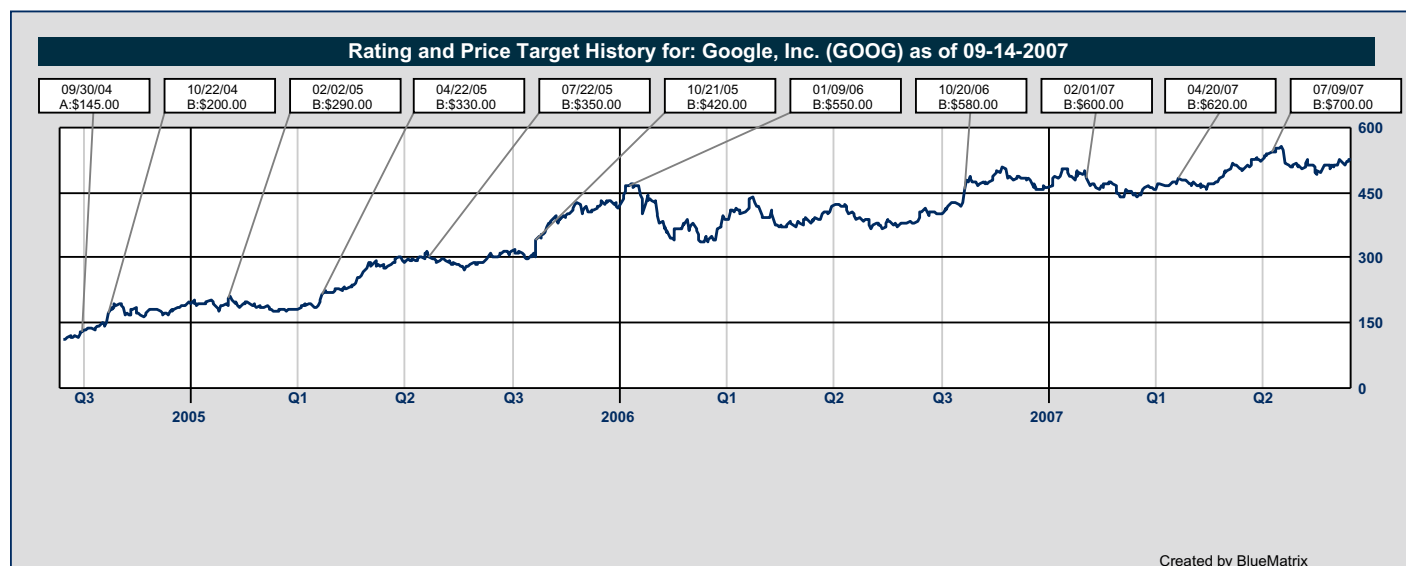
Rating and Price Target History for: Yahoo! (YHOO) as of 09-14-2007

| 09/20/04 I:B:$40.00 | 10/13/04 B:$42.00 | 01/19/05 B:$43.50 | 04/20/05 B:$45.00 | 05/03/05 A:$37.00 | 07/20/05 B:$44.00 | 09/20/06 B:$40.00 | 10/18/06 B:$36.00 | 07/09/07 A:$32.00 | 07/18/07 A:$30.00 | 08/07/07 A:$27.00 |

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Rating and Price Target History for: ValueClick, Inc. (VCLK) as of 09-14-2007

| 02/18/05 B:$16.00 | 03/11/05 A:$13.00 | 08/05/05 A:$16.00 | 08/12/05 B:$17.00 | 09/29/05 B:$22.00 | 09/30/05 B:$20.00 | 11/02/05 B:$22.00 | 02/28/06 B:$23.00 | 08/02/06 B:$24.00 | 11/02/06 B:$26.00 | 02/22/07 B:$33.00 |

| 05/03/07 B:$37.00 | 05/21/07 B:$43.00 | 07/31/07 B:$34.00 |

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Rating and Price Target History for: ARTISTdirect, Inc. (ARTD) as of 08-31-2007

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Rating and Price Target History for: Bankrate, Inc. (RATE) as of 09-14-2007

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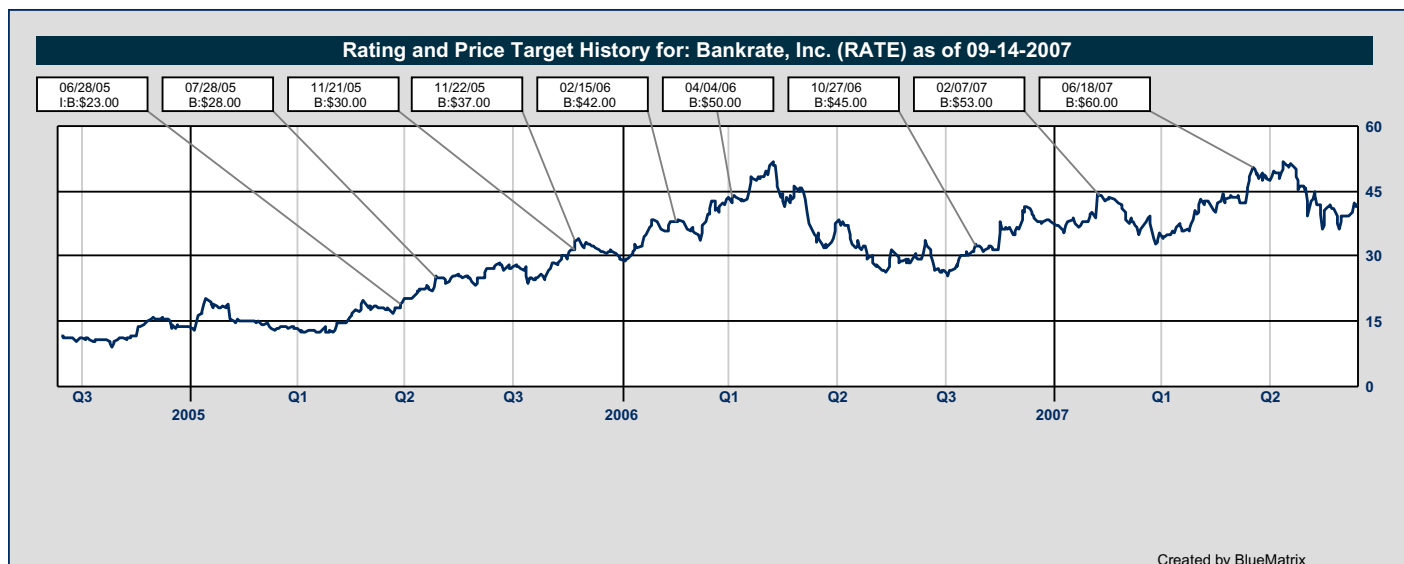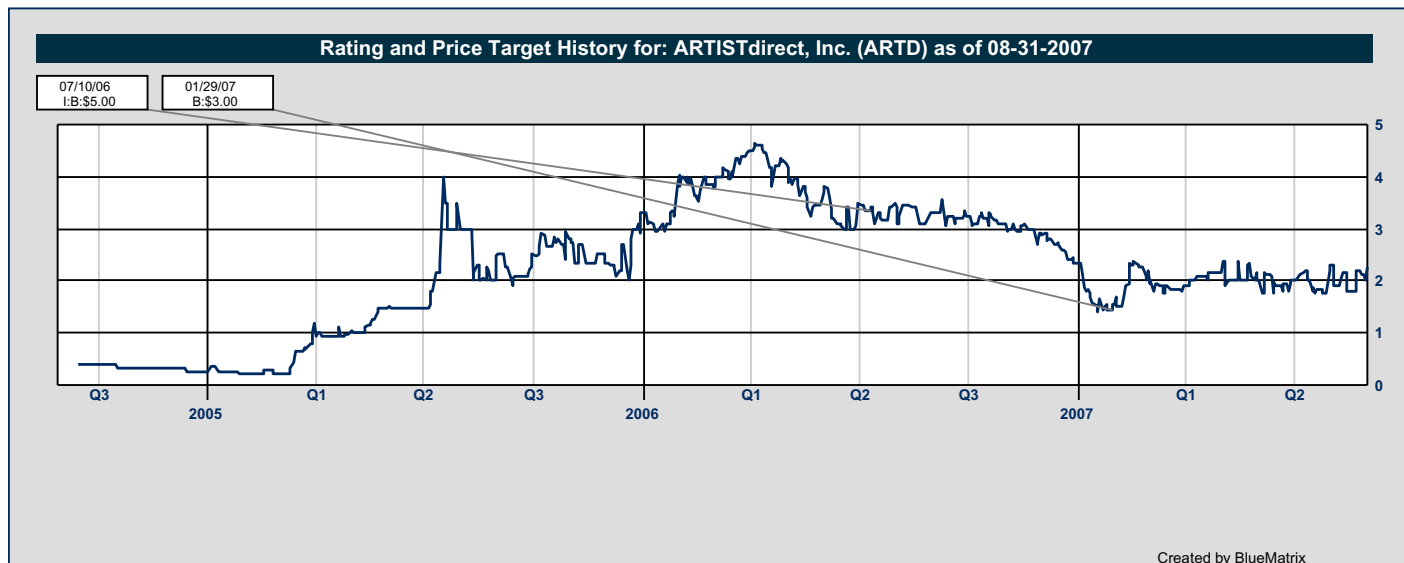
Rating definitions

The ThinkEquity Partners rating system is based on a stock's expected total return over a 12-month investment horizon. Ratings on coverage are defined as follows:

Buy: Appreciation potential of 20% or more over the next 12 months. Analyst has a high level of conviction that the company's business fundamentals are intact and that the company will meet or exceed earnings projections. Valuation is considered reasonable considering the company's potential.

Accumulate: Appreciation potential greater than 0% and less than 20% over the next 12 months. Typically good companies, with fundamentals and earnings visibility intact, but current valuation limits upside potential.

Source of Funds: Stock is expected to decline as much as 20% over the next 12 months, due to a single or combination of factors including excessive valuation, negative sector sentiment, and/ or reduced earnings expectations.

Sell: Stock expected to decline 20% or more over the next 12 months. Company fundamentals are deteriorating, leading to material downward revisions in earnings projections and valuation.

<table>
<tr><td colspan="5" align="center">**Distribution of Ratings, Firmwide**</td></tr>
<tr><td colspan="5" align="center">**ThinkEquity Partners**</td></tr>
<tr><td></td><td></td><td></td><td colspan="2">**IB Serv./Past 12 Mos.**</td></tr>
<tr><td>**Rating**</td><td>**Count**</td><td>**Percent**</td><td>**Count**</td><td>**Percent**</td></tr>
<tr><td>**BUY [B]**</td><td>143</td><td>56.97</td><td>30</td><td>20.98</td></tr>
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<tr><td>**SELL [S/SoF]**</td><td>25</td><td>9.96</td><td>0</td><td>0.00</td></tr>
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