

WESTPEAK RESEARCH ASSOCIATION

Boingo Wireless, Inc. (NASDAQ: WIFI)

Telecommunication - Wireless

Boingo – Five Bars Out of Five

January 22, 2020

Boingo Wireless, Inc. (“Boingo” or “the Company”) provides mobile internet and cellular connectivity for wireless devices by constructing WiFi and cellular networks at large venues such as airports, stadiums, military bases, and multifamily units, and monetizing those networks through various products and services.

Thesis

Through the Company’s recent restructuring, management has aligned Boingo for long term growth by focusing corporate attention on its DAS, carrier offload, and military/multifamily segments, which face strong industry tailwinds. Despite strong competition, Boingo has retained an RFP win rate of 42% and leads in indoor cellular networks, military WiFi connectivity, and its recent acquisition of Elauwit Networks opens the door for large multifamily contracts in the near future.

Drivers

Strong industry tailwinds are being driven by the increasing demand for bandwidth as consumers and businesses shift towards more data intensive activities such as video streaming, continuous connectivity, and IoT communications. To meet this demand, operators are building denser networks, offloading traffic from the licensed to the unlicensed spectrum, and rolling out 5G capable networks. Boingo’s position as an industry leader in indoor connectivity will allow it to capitalize on these macro trends and drive long-term shareholder value.

Valuation

Based on our analysis, we have identified a target share price of \$18.64, which represents an 47.5% upside. We arrived at this valuation using a 50% DCF perpetuity growth weighting, 45% EV/EBITDA implied price weighting, and 5% DCF exit multiple weighting. We believe that Boingo is currently undervalued and thus initiate a **buy** rating on Boingo Wireless, Inc.

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Equity Research US

Price Target	US\$ 18.64
Rating	Buy
Share Price (Jan. 22 Close)	US\$ 12.64
Total Return	47.5%

Key Statistics

52 Week H/L	\$26.07/\$8.86
Market Capitalization	\$453M
Average Daily Trading Volume	30M
Net Debt	\$101.5M
Enterprise Value	\$564.1M
Net Debt/EBITDA	1.27x
Diluted Shares Outstanding	44.1M
Free Float	97.4%
Dividend Yield	N/A

WestPeak’s Forecast

	<u>2019E</u>	<u>2020E</u>	<u>2021E</u>
Revenue	\$269M	\$309M	\$400M
EBITDA	\$76M	\$100M	\$120M
Net Income	-\$10M	\$5.7M	\$9.4M
EPS	-\$0.26	\$0.09	\$0.18
P/E	NA	108.8x	57.5x
EV/EBITDA	12.3x	6.2x	5.3x

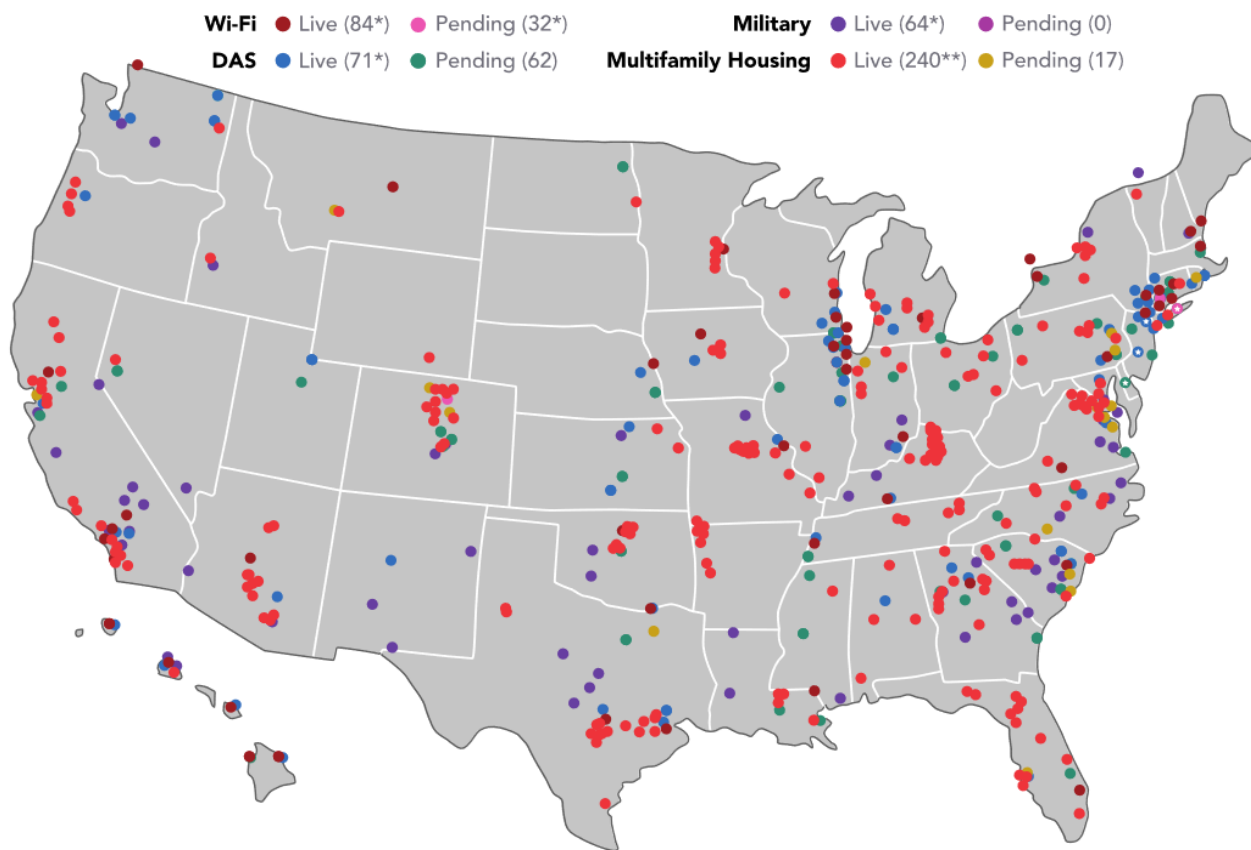
1-Year Price Performance



Business Overview/Fundamentals

Company Overview

Boingo's business model aims to acquire long-term wireless rights at large venues and monetize them through various services and product aimed towards consumers, property owners, and telecommunication providers. The Company derives 90% of its top line from three revenue sources; Distributed Antenna Systems (DAS), Military/Multifamily connectivity, and Wholesale WiFi. Boingo can be found at over one million hotspots across the world and the Company provides connectivity services to 600 airports (including half of the US' 40 busiest airports), 71 large venues, 64 military bases, and 240 properties across the country. For ten years in a row, it has won the Global Traveler Award for Best WiFi Service. The figure below gives a visual representation of where Boingo's US services are located.

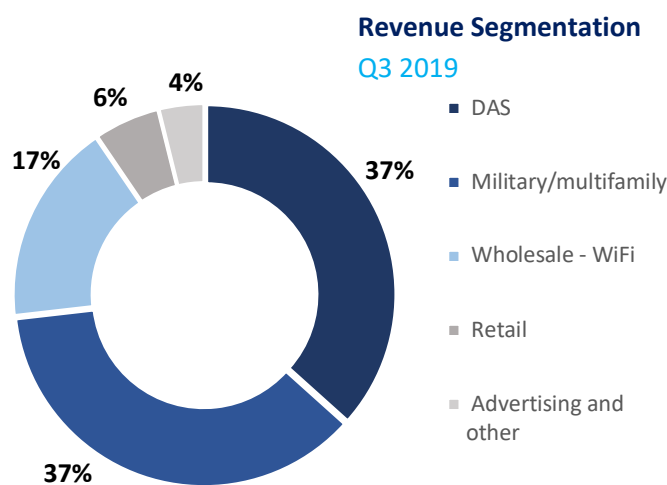
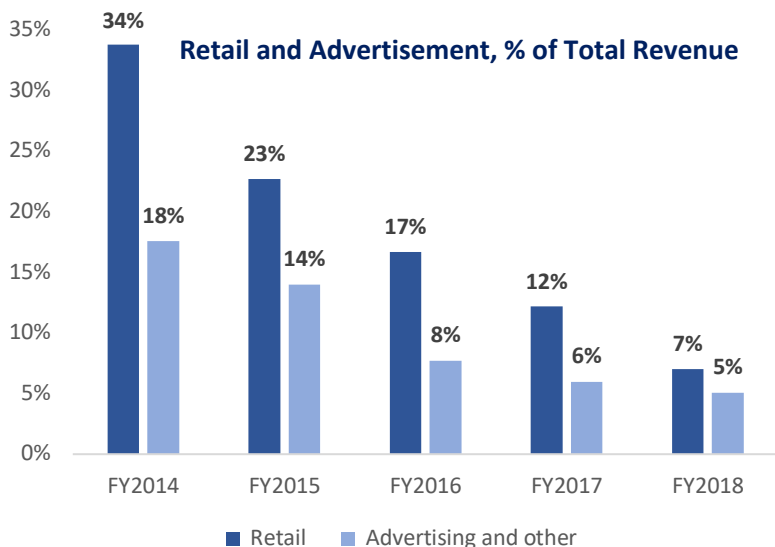


Source: [Investor Presentation](#)

The company's multifamily segment began in August 2018 with the acquisition of Elauwit Networks, a high-speed Wi-Fi provider to the student and multifamily housing market. Given Boingo's excellence in indoor connectivity, the multifamily market represents a strong growth driver for Boingo, with high-speed and reliable internet and cellular connectivity a key value-add for property owners and a growing requirement for prospective and current tenants.

Segments

The Company reports operations in 5 segments; DAS, Military/Multifamily, Wholesale WiFi, Retail, and Advertisement. Boingo has identified DAS, Military/Multifamily, and Wholesale WiFi as its three main growth drivers and its retail and advertisement revenue streams as “legacy” that will be “managed to maximize profitability with minimal incremental investment.” We take this to mean that Boingo will focus most of its R&D and business development resources to non-legacy revenue streams. Given that combined Retail and Advertisement revenue has declined significantly over the last five years and do not face industry tailwinds, we agree with management regarding the shift in Boingo’s strategic priorities. We describe Boingo’s segments in more depth below.



Source: Company Filings

Distributed Antenna Systems (DAS)

The distributed antenna system is a scalable solution to provide wireless coverage and meet significant bandwidth demand for high-traffic areas. These include:

- Indoor venues such as: stadiums, hospitals, high-rises, concert halls, shopping malls, metro stations, and hotels
- Outdoor common areas such as: public squares, entertainment districts, and pedestrian-only streets
- Venues that incorporate outdoor and indoor features such as: university campuses and sporting arenas

The global DAS market is projected to reach \$13.74 billion USD by 2023 at a CAGR of 10.9% (Source: [Markets&Markets](#)), being driven by increasing mobile data traffic, the growth in connected devices from Internet of Things (IOT) and machine to machine (M2M) communication, and demand for continuous uninterrupted connectivity and network coverage.

Boingo employs a neutral-host network (NHN) business model for its DAS and small cell business segment. An NHN model is where the provider (Boingo) operates the DAS or small cell service and leases it to carriers (AT&T, Sprint, etc.) in exchange for build-out (non-recurring) and access (recurring) fees. For Boingo, build-out fees represent 2/3rds of a DAS contract and access fees 1/3rd, with management stating that it aims to increase access fee revenue share due to its recurring nature. An NHN model is highly effective as it allows Boingo to provide cellular connectivity to all customers, rather than those on a specific carrier, meaning Boingo DAS is carrier agnostic. Being carrier agnostic means that the Company’s venue partners

do not need to worry about customer connectivity issues and is why NHN models are able to compete against carrier or venue owned networks. Boingo is the leading DAS provider in the US, as seen through its deployed DAS network with 37,200 DAS nodes live, up 36% from Q3 2018, with another 12,100 in backlog.

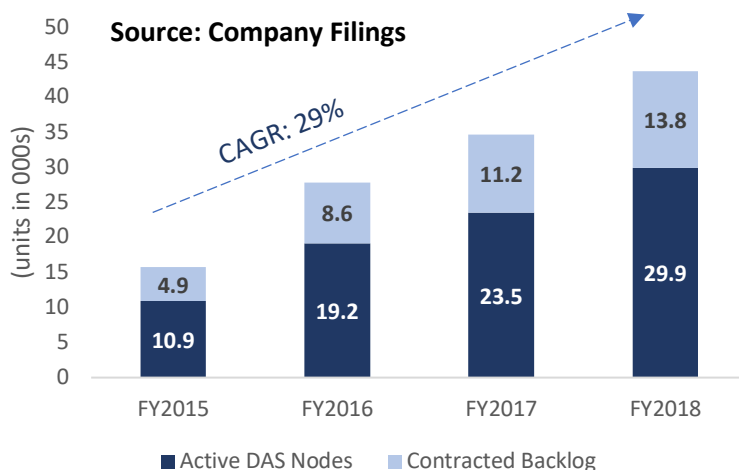
In addition to DAS, Boingo has small cell options for venues where a DAS network is cost prohibitive. Small cells are a flexible and cost-effective solution for small to medium sized locations, such as shared workspaces, office buildings, and other indoor spaces. By offering both DAS and small cell solutions, Boingo will offer prospective venues more flexibility regarding pricing and network coverage, thereby increasing its total addressable market and appeal.

With the roll-out of 5G technologies and the increase in bandwidth demanded by consumers and business, network densification with DAS and small cells are pivotal in supporting increased network capacity, providing consumers with faster speeds with lower latency, and better network throughput. Boingo’s experience, reputation, and ability to act as a full-service connectivity provider will allow it to continue to lead the market in NHN DAS in the coming years.

Military/Multifamily

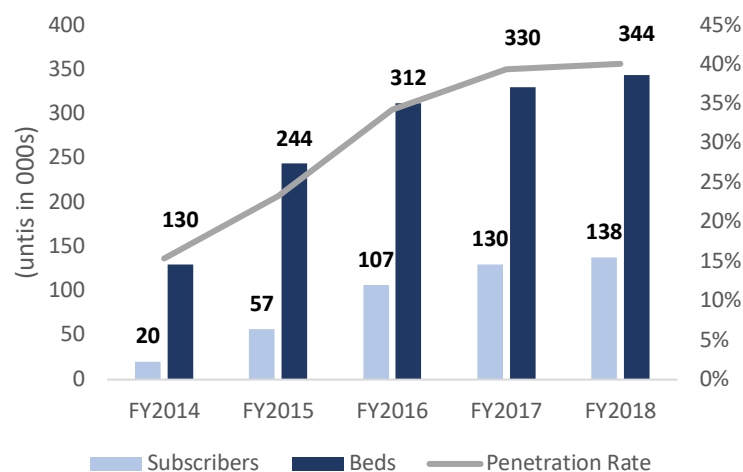
Boingo provides WiFi and TV services for soldiers and staff on military bases in the US and abroad, and its recent acquisition of Elauwit networks represented Boingo’s entry into the multifamily connectivity market. On the military side, Boingo sells WiFi and TV directly to consumers who pay a monthly subscription to access Boingo’s networks. It is the leading provider of WiFi and TV for military bases in the US and serves 64 domestic, 8 Japanese, and 1 Korean base. The Company recently signed a 15-year extension of its existing contract with the Army and Air Force Exchange Service, guaranteeing new network installments through 2038. While the contract is not exclusive, it cements Boingo’s dominance as leading provider of WiFi on military bases for the foreseeable future. Beyond providing WiFi connectivity services, management is exploring additional revenue streams by leveraging its leadership position in military WiFi and expanding carrier offload to military bases, as well as providing additional connectivity services. The US Armed Forces are currently in a sustained recruitment drive, with the goal of expanding the size of the Regular Army above 500,000 by 2028 (not including support personnel) and the Air Force has made it a priority to increase its operational squadrons to 386, up from 312. These recruitment

DAS Nodes YoY Growth



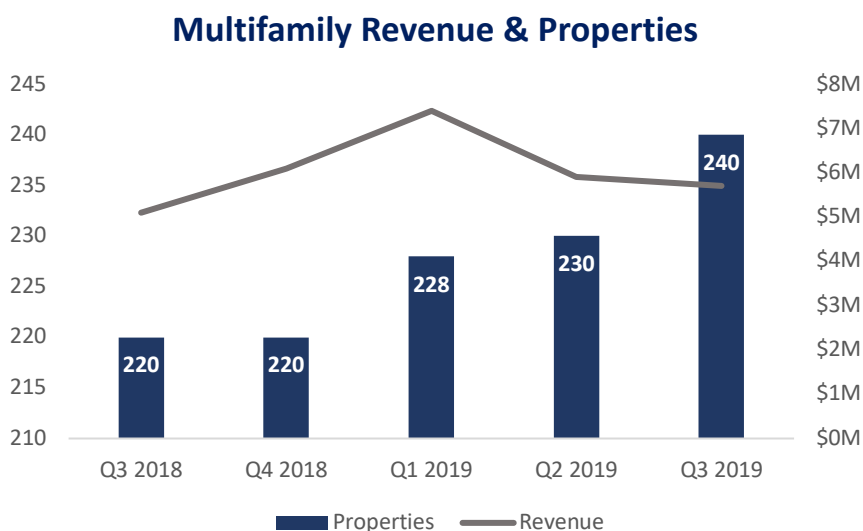
Source: Company Filings & Earnings Transcripts

Military Beds and Subscribers



initiatives will drive Boingo's long-term military revenue, for which Boingo has the capacity to serve given that subscriber penetration is at 40%. The Company is currently in the process of installing its connectivity services at one domestic US base and it is our view that the majority of growth in Military will stem from adding subscribers at locations already served by Boingo rather than adding base coverage.

On the multifamily side, Boingo offers subscription plans to the property manager in bulk rather than the individual resident. It first entered the multifamily business when it acquired Elauwit Networks on August 1st, 2018, for a total cash consideration of \$28 million. This gave Boingo access to over 220 properties, and the majority of its property portfolio is in student housing. Boingo intends to diversify its property portfolio, with half of new venues signed in 2019 being multifamily properties. According to management, traditional multifamily properties offer better margins compared to student housing units and Boingo can leverage its experience providing WiFi to military barracks to provide high quality services to student and multifamily housing. However, revenue expansion in Multifamily since Elauwit's acquisition has been marginal, despite additional properties being added to Boingo's portfolio. We believe strong growth in Multifamily is predicated on large multifamily connectivity contracts with REITs or large property managers which, given Boingo's strong value proposition and the recency of the acquisition, is a strong possibility. Property managers are grappling with cellular connectivity, with higher frequency spectrum such as 4G and the near-term rollout of 5G having difficulty penetrating buildings. In addition, internet speed and connectivity are closely linked with property values, with prospective buyers or tenants, in certain cities, willing to pay up to 8% more for reliable high-speed internet and cellular connectivity. With both WiFi and indoor cellular networks requiring more access points to facilitate higher frequencies and more bandwidth, Boingo provides REITs and large property managers with an excellent value proposition, to consolidate their indoor WiFi and cellular connectivity management across their owned and managed locations using Boingo as their "one stop shop." Management has stated in recent earnings calls that they are engaging with REITs and we hope to see a framework agreement within the next 1-2 years.

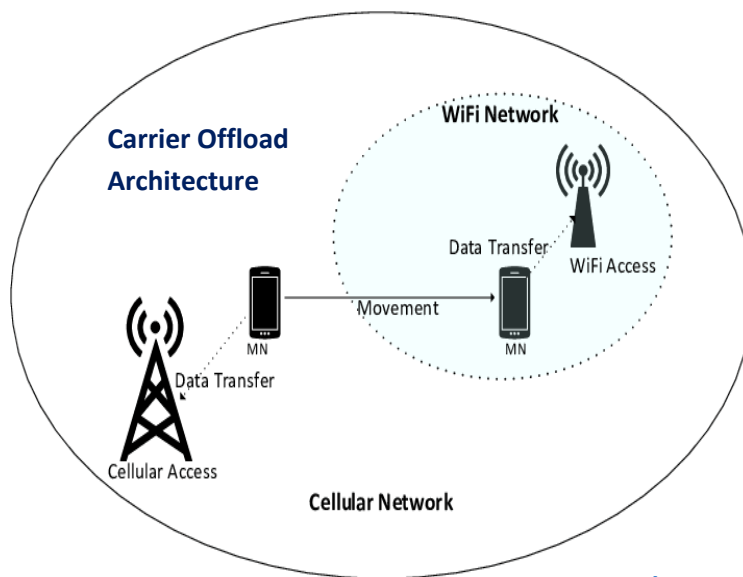


Source: Earnings Transcripts

Wholesale WiFi

Boingo currently has 1.2 million hotspots across 5 continents. It leverages this vast network of hotspots to provide an array of services to telecoms, venues, and financial institutions such as carrier offload, WiFi connectivity services, turn-key solutions, and Boingo as a value-added service for clients. Carrier offload is one of Boingo's three core growth drivers and a market where we expect to see continued growth as the demand for data continues to grow. Carrier offload services allow carriers (AT&T, Sprint, Verizon, etc.) to offload their mobile data traffic from congested licensed cellular networks onto unlicensed WiFi networks operating by third parties, such as Boingo. By 2022, approximately 60% of mobile traffic will

be offloaded from cellular networks onto WiFi. Boingo's global omnipresence and continued investment in hotspots located in highly frequented locations such as airports, hotels, convention centers, and shopping malls will result in more traffic offload onto Boingo's proprietary networks, where the Company charges recurring access fees to alleviate carriers of a major pain point. Similar to its DAS and small cell offerings, Boingo provides WiFi connectivity services to large venues under a service provider arrangement that nets Boingo both build-out and network access fees. In addition to carrier offload, Boingo partners with major telecoms in the Americas, EMEA, and APAC to provide WiFi roaming services. Clients of these telecoms receive access to Boingo's global hotspot network as a value-added service (VAS). Given the prevalence of free WiFi, a significant part of which is managed by carriers, we view WiFi as enabling VAS rather than being one itself. As a result, we believe Boingo's value proposition as a VAS is weakening and is not as attractive a perk as it previously used to be. Boingo also provides a VAS for certain Mastercard cardholders. "Comes with Boingo" provides these cardholders access to Boingo's hotspot network at no charge, with costs passed on Mastercard. We see the same weakening value



Source: [ResearchGate](#)

proposition here as well, with American Express at the end stages of phasing out a similar agreement Boingo, leaving Mastercard as the sole "Comes with Boingo" credit card provider. We are of the opinion that carrier offload will continue to drive Wholesale WiFi revenue in both the short and long term and corporate resources should be focused on carrier acquisition both within and outside the United States. The Company's restructuring placed carrier offload as a core growth driver.

Retail

Retail WiFi comprises 7% of Boingo's top-line, and we forecast this revenue stream to decline. Boingo offers consumers the ability to purchase WiFi connectivity at its hotspots and select partner locations. Boingo offers a monthly subscription plan at \$14.99 and a single use plan for \$7.95 per day or \$4.95 per hour. Free WiFi is the most requested traveller amenity with consumers growing to expect free or complementary WiFi at venues such as airports, malls, and hotels. Retail WiFi is increasingly growing outdated, with venue operators paying providers such as Boingo for Wholesale WiFi and either absorbing the cost or indirectly charging the consumer, such as through higher airport service fees. Management has designated retail as a legacy revenue stream and not a core growth driver of the company. We agree with this view and forecast that retail WiFi will comprise a non-material part of Boingo's revenue by 2022.

UNLIMITED

\$4.98

for your first month
then \$14.99/mo*

- ✓ Unlimited high-speed Wi-Fi access
- ✓ Connect 4 of your devices
- ✓ Cancel anytime
- ✓ 1 million+ hotspots worldwide

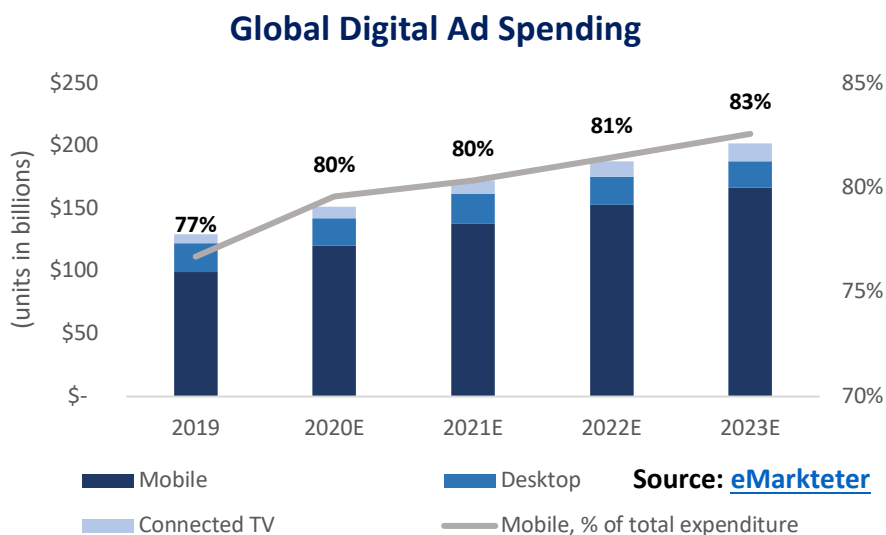
Sign Up Now!

*Boingo Wireless is not a home Internet service provider

Source: [Company Website](#)

Advertising

Advertising comprises 5% of Boingo’s top line and is also designed a legacy revenue stream and not a core growth driver. Boingo provides advertisers with the opportunity to sponsor wireless connectivity at Boingo hotspots in exchange for advertisements or promotions on the WiFi landing page. Users are a captive audience and are required to watch or click through the sponsored content prior to accessing the WiFi network. The Company’s advertising solution is also bundled as a separate product that can be integrated into non-Boingo WiFi networks. Boingo recently introduced Destination Targeting, a feature that brands can leverage to reach captive audiences at airports globally through customized campaigns based the user’s flight destination. Using the WiFi landing page as a marketing instrument is a unique way Boingo can capture a portion of the increasing US mobile digital advertisement budget, which is projected to reach \$167 billion by 2023. Compared to Boingo’s retail model, sponsored WiFi networks are tolerated by consumers in exchange for free WiFi connectivity. We see the Company’s advertising stream as an evolution of its retail model and while marginally contributing to Boingo’s top-line, advertising requires minimal investment by Boingo in order to remain profitable.



Corporate Strategy

Boingo’s corporate strategy revolves around 4 interlinked and mutually supporting pillars: expanding its global wireless footprint, exploiting the NHN model to grow its DAS, small cell, and roaming partnerships, partnering with more carriers for carrier offload services, and raising Boingo’s brand awareness. Boingo’s focus on its core revenue segments will allow the Company to retain its leadership position in indoor connectivity services and exploit strong industry tailwinds.

Venue Acquisition

Boingo’s venue acquisition strategy targets large and highly trafficked venues with a high density of wirelessly capable devices such as stadiums, airports, and convention centers where Boingo’s expertise, reputation, and umbrella of connectivity services positions the company to solve the connectivity challenges that large venues experience. By acquiring wireless rights at the venues, Boingo also becomes a more attractive partner to telecom carriers as the Company’s carrier offload locations grow alongside new venue acquisitions. Boingo currently has 71 DAS enabled venues with another 62 under contract. Boingo’s NHN model has been a core part of its venue acquisition strategy, as it boasts substantial benefits such as improved and increased coverage, service, and capacity for the venue, a reduction in capital expenditures for

carriers, and recurring access fees for the host (Boingo). Management believes there is significant room for growth in venue acquisition and estimates that in the US alone there are 20,000 addressable DAS venues remaining, with an additional 400,000 venues for small cell deployments. However, while there may be a significant number of addressable DAS venues, active DAS implementation costs between \$2 and \$5 per square foot, suggesting that DAS venues where implementing DAS makes economic sense is less than total addressable DAS venues. In addition, there is strong RFP competition between Boingo, other NHN providers, carrier provided DAS, and the venues themselves, who may elect to install a proprietary DAS. While competition may be strong, the Company's leadership position as the largest indoor DAS provider in the US and 42% RFP win-rate implies that Boingo is able to differentiate itself from the competition and we remain confident that Boingo will continue to be an industry leader.

Expanding Carrier Offload Relationships

Boingo currently has agreements with two of the four Tier 1 US carriers for carrier offload, Sprint and AT&T. Securing additional carrier contracts both within and outside the United States is an important objective for management that will spur strong growth in Boingo's Wholesale WiFi segment. As American Express is phasing out its "Comes with Boingo" partnership with the Company and the lackluster value proposition of WiFi as a value-added service, carrier offload has become central for sustained Wholesale WiFi revenue generation. Currently, management is focusing on acquiring the two remaining US Tier One carriers as carrier offload partners, however we believe Boingo can leverage its 1.2 million hotspots, located globally, to sign foreign carriers as well.

Restructuring

On December 11, Boingo's Board of Directors approved a restructuring plan that cut 16% of the Company's workforce in order to "drive long term sustainable revenue growth, better align resources, improve operational efficiencies and to increase profitability." The Company designed its Retail and Advertisement revenue streams as "legacy" with management focused on growth in the wholesale WiFi, military/multifamily, and DAS segments of the business. The three non-legacy revenue streams, as defined by management, are those facing significant industry tailwinds with regards to data demand and network densification. While restructurings often signal that a company is in poor financial condition, this is not the case for Boingo, which is generating adequate cash flow. Retail and Advertisement historically used to comprise a far larger share of the Company's top-line when compared to DAS, wholesale WiFi, and military/multifamily. While not explicitly stated, we believe Boingo's layoffs predominately affect employees in legacy segments. This restructuring reallocates Boingo's corporate resources towards more important revenue streams and will allow the Company to be better prepared to engage with the growing needs of carriers, venues, and consumers.

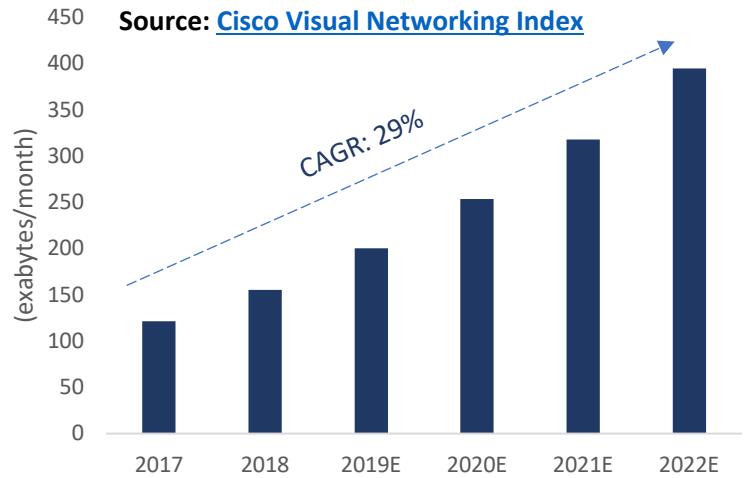
Industry Analysis

Growth in Bandwidth Demand

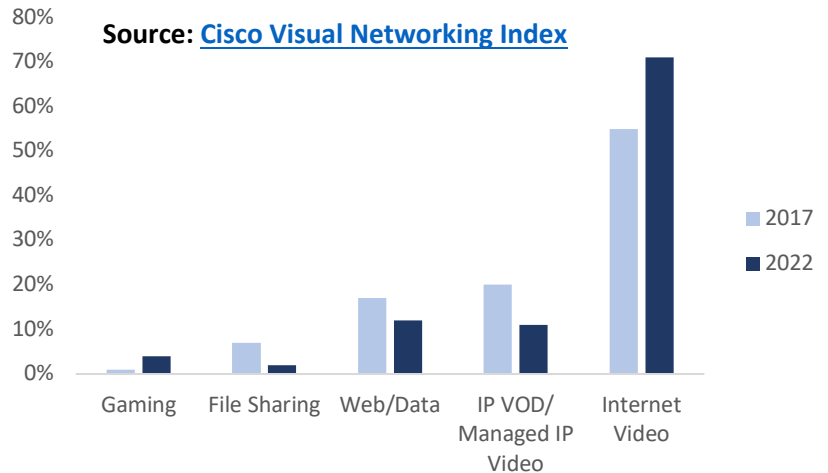
Global internet traffic is projected to grow at a CAGR of 27% and is projected to reach 396 exabytes per month by 2022. This growth is spurred by online video streaming, with video data increasing at a CAGR of 29% until 2021 and will comprise

78% of total mobile data traffic. In addition to online video streaming, new technologies such as virtual reality, augmented reality, and live video will contribute to the robust increase in data traffic for the foreseeable future. As a result, carriers will continue to face considerable strain on their licensed spectrum and unload more data onto WiFi networks, with 63% of mobile data being offloaded to WiFi networks by 2021. The increase in total internet traffic will require substantial network densification efforts in order to provide the capacity and speeds consumers seek. As bandwidth requirements continue to rise exponentially, indoor WiFi and cellular networks will require significantly more internal access points to provide the reliability consumers want. Solutions such as DAS and small cells will continue to become more prevalent as carriers, venues, and commercial real estate managers grapple with the bandwidth challenges presented by an increasingly interconnected world. Internet of Things (IoT) has received widespread adoption as a system that connects people, data, things, and process to the Internet and each other. Machine-to-machine (M2M) connections are growing in importance for complex business functions and operations, with 14.6 billion connections projected by 2022. Smart home applications, connected car, and connected cities will drive the emergence in global M2M and will require 24-hour perpetual connectivity in order to operate properly. The rapid growth in M2M and IoT technologies will stimulate a significant investment by carriers and business, who employ IoT and M2M technologies, in connectivity solutions such as DAS, metro cells, small cells, and WiFi to sustain reliable business operations globally. The growth in mobile data represents a self-fulfilling prophecy where strong demand for more data and faster speeds catalyzes investment by carriers into increasing capacity which then leads to more demand.

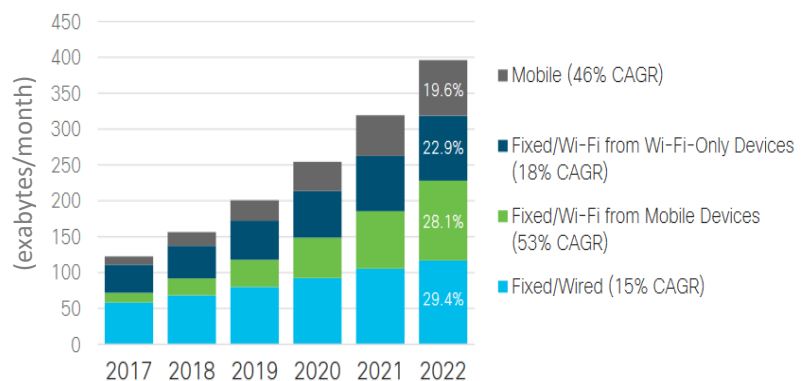
Average Monthly IP Traffic



Global IP Traffic by Application Type



Global IP Traffic by Local Access Technology



Source: [Cisco Visual Networking Index](#)

5G Adoption

5G is the next evolution in global connectivity. With high capacity (1GB/sec download) and latency of under 1 millisecond, the proliferation of 5G in the early 2020s will allow consumers and businesses to access higher speeds and spur global connectivity. By 2022, 422 million cellular devices will be 5G capable, however, 5G networks will only be in highly urbanized areas with significant data demands, as 5G connectivity requires data processing centers that are located within 100km of any 5G bay station. With growing bandwidth requirements and gradual 5G rollout, significant network densification is currently underway. While carriers are leading outdoor network densification, high frequency spectrum, such as 5G, greatly weakens when moving through concrete, metalized glass, and other building material. As a result, indoor densification through DAS and small cell architectures will also be required for high speed mobile and 5G mobile connectivity.

Catalysts

Major Transportation Contracts

In Q4 2018 Boingo was awarded wireless rights for two major transportation projects in New York City by the Metropolitan Transit Authority (MTA), East Side Access and the Atlantic Branch of the Long Island Railroad. East Side Access is one of the country's infrastructure megaprojects that is projected to handle 162,000 customers daily. There are other major infrastructure projects in the United States, such as the Purple Line Extension in Los Angeles, the California High Speed Rail, Dulles Transit Extension, and the East Link extension in metro Seattle, among others. Having secured the wireless rights for two major US transportation infrastructure projects, Boingo has been put on the radar as a prospective provider for other projects and, if successful, will drive long term revenue for its DAS and Wholesale WiFi revenue segments.

Large Multifamily Contracts

Boingo's acquisition of Elauwit Networks in August 2018 was the Company's first step into multifamily connectivity. As of now, they have no major multifamily contracts, with Boingo's property portfolio increasing by 20 properties since Elauwit's acquisition last year. Securing a large multifamily connectivity contract, such as with a REIT, will allow the company to quickly scale its multifamily segment and expand its property portfolio at a significantly higher rate than what it has done historically. We view the multifamily connectivity market as a worthwhile investment for Boingo if the Company can secure a major multifamily contract.

Carrier Offload Agreements

Boingo currently provides two carriers with mobile data offload services. The rapid growth in wireless data usage allows the Company to leverage its global hotspot network when engaging in negotiations with more carriers and telecom providers who are looking to offload wireless data traffic in high density areas and strengthen their networks with minimal capital expenditures. Given that carrier offload fees are recurring, signing additional carriers will provide sustained revenue generation for several years.

Additional Spectrum Auctions

On January 24, 2019 and May 28, 2019, the Federal Communications Commission (FCC) concluded Auction 101 and Auction 102, respectively. The 24 GHz and 28GHz spectrum were opened to carriers for 5G broadband, part of the FCC's 5G FAST Plan. On December 10th, 2019, Auction 103 began and will open the upper 37 GHz, 39 GHz, and 47 GHz bands to carriers. Later in the year, the FCC will auction part of the 3.5 GHz midband spectrum for 5G. Additional spectrum will catalyze 5G rollout and may require additional wireless network deployments which will benefit Boingo's DAS and carrier offload offerings.

Management Team

Michael J. Finley – Chief Executive Officer

Boingo Wireless, Inc is led by Michael (Mike) J. Finley, who became CEO in March 2019, replacing David Hagan who retired after 17 years of service to Boingo. Finley previously sat on Boingo's board since August 2013. Finley continues to serve on Boingo's Board of Directors, is responsible for corporate strategy, and leads Boingo's 5G efforts. Prior to his tenure at Boingo, Finley spent nine years at Qualcomm as president of North America and Australia. Finley brings more than thirty years of senior management experience in executive positions at Sprint, Verizon, Nextel, Airtouch Cellular and Cellular One.

Peter Hovenier – Chief Financial Officer

Peter has been Boingo's CFO since November 2012, prior to which he served as Senior VP Finance and VP Finance and Administration. Peter joined the Company in June 2002. Prior to his employment at Boingo, Peter held several financial management positions at GeoCities, MGM Studios, Wyndham Hotels Corporation, and was VP Finance and Administration for Frontera Corporation. For FY 2018, Peter's total compensation was \$669,244, an 8.2% decrease from FY 2017 (\$729,127). Of his FY 2018 compensation package, \$360,000 was base salary (54% of total compensation) and \$300,994 was non-equity incentive compensation (45% of total compensation).

Derek Peterson, Ph.D. – Chief Technology Officer

Dr. Peterson leads the development and operation of Boingo's technology and systems, such as web applications, client software, networks, authentication, billing, business intelligence, and IT infrastructure. Dr. Peterson holds a Doctor of Computer Science from Colorado Technical University, where he is also an adjunct professor. He is an editor for the International Journal of Strategic Information Technologies and Applications and was named CTO of the Year in 2017 by the Los Angeles Business Journal. For FY 2018, Dr. Peterson's total compensation was \$825,344, a 3.1% decrease from FY 2017 (\$851,749). Of his FY 2018 compensation package, \$317,000 was base salary (38.4% of total compensation), \$305,811 was stock awards (37.1% of total compensation), and \$194,283 was non-equity incentive compensation (23.5% of total compensation).

Shareholder Base, Liquidity, Market Depth

Shareholder Base

Boingo currently has 44.2M shares outstanding and a free float of 42.3M, representing a 96% free float. The Company is primarily held by large institutions, who comprise 97.6% of free float and insiders comprising 2.4% of ownership.

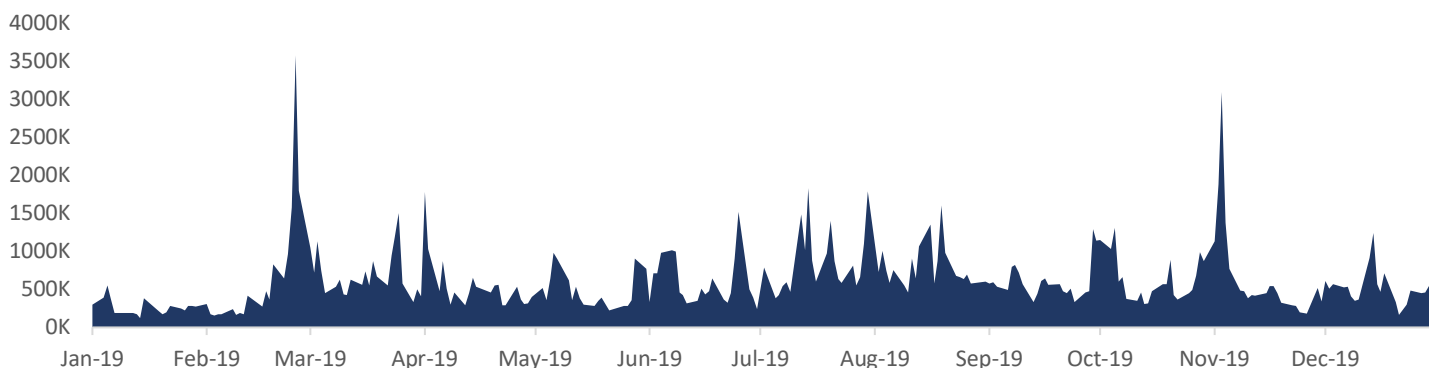
Shareholder	Position	% of Outstanding	Insider (Y/N)	Country
BlackRock Inc	3,984,426	9.02	N	United States
Vanguard Group Inc, The	3,685,244	8.35	N	United States
FMR LLC	3,616,279	8.19	N	United States
SVENSKA HANDELSBANKEN	3,050,000	6.91	N	Norway
Victory Capital Management Inc	2,883,229	6.53	N	United States
Renaissance Technologies LLC	2,548,000	5.77	N	United States
Dimensional Fund Advisors LP	1,913,615	4.33	N	United States
Rice Hall James & Associates LLC	1,678,711	3.80	N	United States
Voya Investment Management LLC	1,202,715	2.72	N	United States
Granite Investment Partners LLC	1,109,947	2.51	N	United States
Top 10 Shareholders	25,672,166	58.13		

Source: Bloomberg

Liquidity

Boingo has an average daily trading volume of 621,711 shares, with significant liquidity spikes usually occurring during earnings season. Given the Company's \$453.1M market capitalization and free float of 42.3M shares, we believe shareholders do not face significant liquidity risk when entering or exiting their positions.

1 Year Trading Volume (NASDAQ: WIFI)



Source: Bloomberg

Valuation

Discounted Cash Flow Assumptions

DAS

Q1-Q3 aggregate DAS revenue grew by 8% compared to Q1-Q3 2018, despite record node deployment. As such, we are projecting modest FY 2019 DAS growth, at 8%. Going forward, we believe DAS is a stronger long-term revenue driver, especially as carriers receive access to higher frequency and millimeter wave spectrum that will require the strengthening indoor networks. Boingo's large East Side Access and Long Island Railroad contracts will contribute to higher DAS revenue in 2021 and 2022 as the full East Side Access project is slated for completion in 2022. As such, we are projecting DAS revenue growth to hover between 20% and 30% from 2020 onwards.

Military

We project weaker growth in Boingo's military segment in 2019, at 10.4% compared to FY2018's 20.7%. Given that Boingo already provides broadband at most domestic US bases as well as those in Japan and South Korea, we believe that most growth in Military will come from additional subscriptions at existing bases rather than broadband deployment at new bases. Boingo has signed an additional 15-year extension with the Army and Air Force Exchange service for broadband service and will continue to enjoy dominance in domestic and select foreign US military bases. Revenue growth for Military will continue, just at a slower pace than before. From 2020 to 2024, we project Military growth between 13% and 19%.

Multifamily

Multifamily is Boingo's wildcard. After Elauwit's acquisition, quarterly revenue for Multifamily has hovered between \$5 million and \$6 million, with only Q1 2019 Multifamily revenue above average. This is despite Boingo adding 20 new properties between Q1 and Q3 2019. We see sustained growth in Multifamily contingent on the Company securing a large connectivity contract with property managers and/or expanding its student housing portfolio. We are bullish on Multifamily and see Boingo leveraging its other connectivity services such as DAS and small cells in order to have a strong appeal to property managers. From 2020 to 2024 we forecast Multifamily growth between 24% and 27%

Wholesale WiFi

We forecast that Wholesale WiFi will experience negative growth in FY 2019, down 8.5% from FY 2018. American Express is phasing out its partnership with Boingo through their "Comes with Boingo" value-added service which has adversely affected Wholesale WiFi revenue. We see management pivoting Wholesale WiFi as solely focused on carrier offload services, a decision we agree with given carrier offload's favourable economics. With increasing data consumption driving carriers to offload more data onto unlicensed spectrum such as WiFi, we see Wholesale WiFi as a longer-term growth driver. Contingent that Boingo actively seeks and strikes cellular data offload deals with additional carriers, we see sustained revenue generation, with Wholesale WiFi revenue growing by 20%-30% annually through the early 2020s.

Retail

As a legacy revenue stream operating on an outdated business model, we are projecting a sustained and accelerating decline in Boingo's retail operations. WiFi monetization has evolved beyond consumers paying hourly, daily, or monthly subscriptions, with the freemium WiFi model having attained primacy several years ago. We project that Boingo's retail segment will comprise an immaterial part of the Company's top-line by 2022.

Advertising

Advertising is the second legacy segment that has seen double digit negative growth in the first 3 quarters of 2019, from a lack of advertising deals. However, the company recently launched Destination Targeting, a new advertising tool for brands. Boingo's advertising segment is primarily software based and targets mobile devices and we can see it benefit from the rising digital advertising budget. Overall, we see minimal growth in the segment given that corporate attention is focused elsewhere.

Network Access and Network Operations

Network Access costs have been elevated and marginally increasing since Elauwit's acquisition in Q3 2018. As the acquisition is still relatively new, we project network access fees increasing to 30% of revenue by 2021 before plateauing as the Company improves its Multifamily position and can negotiate lower fees. Management has historically exhibited strong Network Access cost control from FY 2014 to FY 2017, reducing it from 35% of revenue to 24% in three years and we are confident that Boingo will be able to continue to do so, especially given its recent restructuring. Costs associated with Network Operations have remained steady even after the acquisition, between 13% and 15% in the last 7 quarters, and we do not foresee any changes. We are keeping Network Access as 14.5% of revenue going forward.

SG&A and R&D

Historically, SG&A (which includes marketing expenses) as a percent of revenue has remained stable, between 27% and 30%. In 2018, SG&A as a percent of revenue fell to 21% and did not climb back up in subsequent quarters. As a part of restructuring, Boingo laid off 16% of its workforce and projected \$11 million in savings. We thus forecast SG&A falling to 15% of revenue in Q1 2020 before increasing again in 2021 to 17% as the company hires more employees for its core growth segments. R&D as a percent of revenue has remained consistent over the past two years and we project R&D as 8.5% of revenue throughout the forecast period.

CAPEX & EBITDA

Elauwit's acquisition caused a spike in Boingo's capital expenditures between Q3 2018 and Q2 2019, with capex 10% to 15% higher than previous quarters. In Q3 2019, capex returned to levels seen prior to Elauwit's acquisition. However, in the first three quarters of 2019, Boingo experienced 10% swings in capex from quarter-to-quarter. Given this volatility, we are projecting elevated capital expenditures for Q4 2019 and FY 2020 (37% of PP&E) as management focuses on Multifamily, Military, and DAS growth. For FY 2022 and beyond, we believe capex will return to pre Elauwit levels (30% of PP&E) as the Multifamily segment matures.

EBITDA margins have been marginally depressed post acquisition and we forecast FY 2019 margins at 28% before improving in 2020 (to 32.5%) due to savings from the restructuring. We project 30% EBITDA margins from 2021 onwards due to higher operating expenses as described above.

Effective Tax Rate: Boingo's effective tax rate (as a percent of EBT) is not consistent. For FY 2017 and FY 2018 the company recorded negative tax expenses. We forecast a -2% annual tax expense, as a percent of EBT for the Company.

Weighted Average Cost of Capital (WACC): We calculated a WACC of 7.35% for the Company. Using data provided by Bloomberg, a risk-free rate of 1.8%, expected market return of 8.9%, and beta of 1.12 were used to calculate the Cost of Equity, at 9.7%. A Bloomberg provided pre-tax cost of debt of 1.8% and an effective tax rate of 60% were used to calculate the Cost of Debt, at 0.7%. Using the data provided above, we calculate the WACC of Boingo at 7.35%.

Terminal EV/EBITDA Multiple: We used a 2020E EV/EBITDA exit multiple of 9.2x, the industry median. It is above the company's 5.9x 2020E EV/EBITDA which we believe is justified by Boingo's industry leadership and strong growth prospects.

Comparable Company Analysis

The companies chosen for our Comparable Companies Analysis are Boingo's direct and indirect competitors such as telecom operators, tower companies, indoor connectivity companies, and in-flight connectivity companies. Our analysis returned an implied share price of \$21.49 using a projected 2020 EV/EBITDA of 10.3x. Below are the companies used in our analysis

TE Connectivity (NYSE: TEL): TE Connectivity is a Swiss company that provides connectivity and sensor products for the energy, industrial equipment, aerospace & defense, transportation, and communication sectors.

Crown Castle International (NYSE: CCI): Crown Castle is the largest provider of communications infrastructure in the United States. The company owns 40,000+ cell towers and has laid down 70,000 miles of fiber in major US markets.

ATN International (NASDAQ: ATNI): ATN International is a holding company that provides wireless and wireline telecom services in the United States, Bermuda, Guyana, and several Caribbean islands.

CommScope Holdings (NASDAQ: COMM): CommScope is arguably Boingo's closest competitor. The company provides wireless (DAS and small cell, among others), fiber optic, and copper solutions for telecoms and large businesses.

Shenandoah Telecommunications (NASDAQ: SHEN): Shenandoah Telecommunications provides wireless, cable, and wireline telecommunication services under the Sprint name in areas of Virginia, Pennsylvania, West Virginia, Maryland, North Carolina, and Kentucky.

Gogo Inc. (NASDAQ: GOGO): Gogo provides in-flight internet connectivity. They partner with airlines across the world to provide internet access on their routes.

Sprint Corporation (NYSE: S): Sprint is one of four Tier One carriers in the United States that provides wireless and wireline connectivity across the United States through various products and services. It is current in the process of merging with T-Mobile

Verizon Communications Inc. (NYSE: VZ): Verizon is one of Four Tier One carriers in the United States and provides wireline, wireless, and media services across the United States

GTT Communications Inc. (NYSE: GTT): GTT Communications is a global telecom and ISP company that global connectivity and network solutions to large enterprises and carriers.

T-Mobile US Inc. (NASDAQ: TMUS): T-Mobile is a Tier One carrier that provides wireless services to 79.7 million customers across the United States. It is current in the process of merging with Sprint.

Recommendation

Buy

Based on our analysis, we believe Boingo is undervalued by the market. Management has proved adaptable to changing consumer, venue, and carrier demands and has refocused from 5 revenue segments to 3 core growth drivers. Despite significant competition, the Company has retained its industry leading position as the largest DAS provider in the United States and is investing in the next generation of wireless technologies, which will allow the company to capitalize on strong industry tailwinds. With a large DAS pipeline fuelled by major contracts, expanding military subscriber base, more spectrum availability, and the potential for large multifamily contracts, we recommend a **Buy** on Boingo Wireless, Inc. Our implied share price weighting are as follows:

- A 50% weighting on the Perpetuity Growth DCF method, which projects a \$15.04 share price
- A 45% weighting on the 2020 EV/EBITDA Implied Price method, which projects a \$21.49 share price
- A 5% weighting on the Exit Multiple Method, which projects a \$29.06 share price and thus differs significantly from other valuation methods which we believe justifies the lower weighting.

Using the above weighting, we arrive at a target share price of \$18.64, representing an 47.5 % upside from Boingo's January 22nd closing price of \$12.64

Risks

Client Concentration

The four Tier One carriers in the United States each comprise a significant part of Boingo's top line. Combined, the four carriers represented 44% of Boingo's total revenue in FY 2017. The four carriers are both the Company's partners and competitors and the loss of one or more of these carriers will significantly depress the top-line and adversely impact corporate earnings.

Highly Competitive Environment

Boingo's DAS services are concentrated in the United States, where there is a limited amount of available venues where DAS implementation makes economic sense. Boingo is competing for wireless rights with other NHN providers, carrier

provided DAS, and venue provided DAS. Some of Boingo's competitors are significantly larger, command stronger brand recognition, and possess more resources at their disposal. If the Company is unable to secure additional DAS contracts or is forced to reduce rates to better compete, it will cause a materially adverse impact on DAS revenue growth.

Cellular Data Affordability

A significant portion of Boingo's revenue stems from WiFi connectivity services. If costs per gigabyte fall and speeds increase, consumers may find technologies such as 4G/LTE, 5G, LTE-U, and Super-WiFi more attractive than traditional WiFi and may lower Boingo's Retail, Advertising, and Wholesale WiFi segments. However, if WiFi does indeed fall out of favour with consumers, we believe the impact will be offset by its use as a carrier offload medium.

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Appendix 1: Summary Page

(Figures in mm USD)	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024
Income Statement											
Revenue	119.3	139.6	159.3	204.4	250.8	268.7	308.6	400.4	481.2	583.7	707.1
EBITDA	13.1	20.2	26.6	51.9	79.6	75.7	100.2	120.1	144.4	175.1	212.1
Net Income	(18.8)	(22.2)	(27.0)	(18.8)	0.3	(8.2)	5.6	9.3	23.0	48.3	79.8
Earnings Per Share	\$ (0.55)	\$ (0.60)	\$ (0.72)	\$ (0.49)	\$ (0.03)	\$ (0.22)	\$ 0.09	\$ 0.18	\$ 0.49	\$ 1.06	\$ 1.77
Cash Flow Statement											
Capital Expenditures	(70.9)	(103.1)	(107.3)	(73.3)	(108.7)	(134.9)	(146.6)	(150.7)	(142.1)	(149.2)	(156.6)
Acquisitions	0.1	-	0.1	1.2	24.6	-	-	-	-	-	-
Divestitures	-	-	-	-	-	-	-	-	-	-	-
Balance Sheet											
Current Assets	42.3	62.1	67.8	59.2	200.0	142.1	154.2	170.8	231.4	128.1	259.7
Non-Current Assets	176.3	278.9	313.2	325.1	402.9	474.6	529.9	573.0	596.6	621.5	647.6
Assets	218.6	341.0	381.0	384.3	602.9	616.7	684.1	743.7	828.0	749.6	907.3
Current Liabilities	56.8	93.9	99.2	122.3	171.2	167.6	220.6	261.4	312.4	377.0	454.9
Non-Current Liabilities	34.4	135.0	183.2	162.9	301.6	356.0	364.8	374.4	384.6	193.3	193.3
Liabilities	91.2	229.0	282.4	285.3	472.8	523.6	585.4	635.7	697.0	570.3	648.2
Shareholders' Equity	126.4	111.3	97.8	97.8	127.9	91.9	97.5	106.8	129.8	178.1	257.9
Cash	8.8	14.7	19.5	26.7	149.4	40.4	38.7	40.1	81.7	(45.6)	56.9
Debt	15.9	10.7	5.4	-	158.5	167.1	191.3	191.3	191.3	-	-
Net Debt	7.0	(4.1)	(14.0)	(26.7)	9.1	126.7	152.6	151.2	109.7	45.6	(56.9)
Minority Interests	1.0	0.8	0.7	1.2	2.2	1.2	1.2	1.2	1.2	1.2	1.2
Debt/EBITDA	0.5 x	n/a	n/a	n/a	0.1 x	1.7 x	1.5 x	1.3 x	0.8 x	0.3 x	n/a
Operating Metrics											
Return on Equity (ROE)	-14.7%	-19.8%	-27.4%	-19.0%	0.2%	-8.8%	5.7%	8.6%	17.6%	26.9%	30.8%
Return on Assets (ROA)	-8.6%	-6.5%	-7.1%	-4.9%	0.0%	-1.3%	0.8%	1.2%	2.8%	6.4%	8.8%
Return on Invested Capital (ROIC)	-15.5%	-19.4%	-28.4%	-26.0%	0.2%	-3.8%	2.4%	3.7%	9.6%	21.5%	39.4%
Valuation Metrics											
Stock Price (High)	\$ 8.14	\$ 10.42	\$ 12.75	\$ 25.27	\$ 34.90	\$ 26.05	\$ 10.26	\$ 10.26	\$ 10.26	\$ 10.26	\$ 10.26
Stock Price (Low)	\$ 5.06	\$ 5.89	\$ 5.52	\$ 10.91	\$ 18.81	\$ 10.26	\$ 10.26	\$ 10.26	\$ 10.26	\$ 10.26	\$ 10.26
Stock Price (Average)	\$ 6.60	\$ 8.16	\$ 9.14	\$ 18.09	\$ 26.86	\$ 18.16	\$ 10.26	\$ 10.26	\$ 10.26	\$ 10.26	\$ 10.26
Diluted Shares Outstanding (Average)	35.8	36.8	38.0	39.8	42.1	44.0	44.1	44.1	44.1	44.1	44.1
Market Capitalization (Average)	236.0	300.5	347.4	720.4	1,129.7	799.6	452.8	452.8	452.8	452.8	452.8
Enterprise Value (Average)	244.1	297.2	334.0	694.9	1,141.0	927.6	606.7	605.3	563.7	499.7	397.2
P/E	n/a	n/a	n/a	n/a	n/a	n/a	110.3 x	58.2 x	21.0 x	9.7 x	5.8 x
EV/EBITDA	18.6 x	14.7 x	12.6 x	13.4 x	14.3 x	12.3 x	6.1 x	5.0 x	3.9 x	2.9 x	1.9 x
FCF Yield to Market Capitalization	-24.4%	-4.9%	-1.5%	1.5%	-2.0%	-4.7%	-2.8%	-2.8%	4.1%	8.0%	12.2%
FCF Yield to Enterprise Value	-23.6%	-4.9%	-1.5%	1.6%	-2.0%	-4.1%	-2.1%	-2.1%	3.3%	7.2%	14.0%
Free Cash Flow											
EBIT	(18.0)	(21.6)	(26.1)	(20.7)	(3.0)	(0.5)	8.9	12.5	26.0	50.8	81.6
Tax Expense	(0.7)	(0.5)	(0.4)	2.1	5.2	0.3	(5.3)	(7.5)	(15.6)	(30.5)	(49.0)
D&A	31.2	41.9	52.7	72.6	82.5	76.2	91.3	107.6	118.4	124.3	130.5
Capital Expenditures	(70.9)	(103.1)	(107.3)	(73.3)	(108.7)	(134.9)	(146.6)	(150.7)	(142.1)	(149.2)	(156.6)
Changes in NWC	0.8	68.7	76.1	30.3	1.0	21.0	39.1	25.6	32.0	40.6	48.9
Unlevered Free Cash Flow	(57.7)	(14.6)	(5.1)	10.9	(23.0)	(37.9)	(12.6)	(12.5)	18.7	36.0	55.4

Appendix 2: Discounted Cash Flow Analysis

(Figures in mm USD)	FY2014	FY2015	FY2016	FY2017	FY2018	Q1-2019	Q2-2019	Q3-2019	Q4-2019	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024
WACC Calculations															
Cost of Equity															
Risk-free rate	1.8%														
Expected market return	8.9%														
Market Risk Premium	7.1%														
Beta	1.12														
Cost of Equity	9.7%														
Cost of Debt															
Pre-tax cost of debt	1.8%														
Effective tax rate	60.0%														
Cost of Debt	0.7%														
WACC															
Market value of equity	452.5														
Market value of debt	160.6														
Total Capitalization	613.0														
Cost of equity	9.7%														
Cost of debt	0.7%														
WACC	7.35%														
Free Cash Flow															
EBIT	(18.0)	(21.6)	(26.1)	(20.7)	(3.0)	(3.4)	1.8	1.8	(0.8)	(0.5)	8.9	12.5	26.0	50.8	81.6
Less: Tax expense	(0.7)	(0.5)	(0.4)	2.1	5.2	(0.2)	0.1	(0.1)	0.5	0.3	(5.3)	(7.5)	(15.6)	(30.5)	(49.0)
Add: Depreciation and amortization	31.2	41.9	52.7	72.6	82.5	20.1	18.0	18.0	20.1	76.2	91.3	107.6	118.4	124.3	130.5
Less: Capital expenditures	(70.9)	(103.1)	(107.3)	(73.3)	(108.7)	(32.4)	(41.5)	(27.6)	(33.5)	(134.9)	(146.6)	(150.7)	(142.1)	(149.2)	(156.6)
Less: Change in net working capital	0.8	68.7	76.1	30.3	1.0	3.9	(13.8)	26.3	4.6	21.0	39.1	25.6	32.0	40.6	48.9
Unlevered Free Cash Flow	(57.7)	(14.6)	(5.1)	10.9	(23.0)	(11.9)	(35.4)	18.4	(9.1)	(37.9)	(12.6)	(12.5)	18.7	36.0	55.4
Discount factor						-	-	-	0.25	0.25	1.25	2.25	3.25	4.25	5.25
Present Value of Unlevered Free Cash Flow						-	-	-	(9.0)	(9.0)	(11.6)	(10.6)	14.9	26.6	38.2

Perpetuity Growth Method	
Perpetuity Growth Rate	2.0%
PV sum of unlevered FCF	48.4
Terminal value	726.6
Enterprise Value	775.0
Add: Cash	50.2
Less: Debt	160.6
Less: Other EV adjustments	1.2
Equity Value	663.4
Shares outstanding	44.1
Implied Share Price	\$ 15.04

Exit Multiple Method	
Terminal EV/EBITDA Multiple	9.2 x
PV sum of unlevered FCF	48.4
Terminal value	1,344.8
Enterprise Value	1,393.2
Add: Cash	50.2
Less: Debt	160.6
Less: Other EV adjustments	1.2
Equity Value	1,281.6
Shares outstanding	44.1
Implied Share Price	\$ 29.06

Current Price	\$ 10.26
Implied Price	\$ 15.04
Total Return	46.6%

Current Price	\$ 10.26
Implied Price	\$ 29.06
Total Return	183.2%

	Perpetuity Growth Rate	WACC					Terminal EV/EBITDA Multiple	WACC				
		8.35%	7.85%	7.35%	6.85%	6.35%		8.35%	7.85%	7.35%	6.85%	6.35%
	1.00%	\$ 9.93	\$ 11.10	\$ 12.45	\$ 14.05	\$ 15.95	7.1 x	\$ 20.92	\$ 21.50	\$ 22.10	\$ 22.72	\$ 23.36
	1.50%	\$ 10.76	\$ 12.09	\$ 13.64	\$ 15.49	\$ 17.73	8.1 x	\$ 24.08	\$ 24.74	\$ 25.42	\$ 26.12	\$ 26.84
	2.00%	\$ 11.73	\$ 13.25	\$ 15.05	\$ 17.24	\$ 19.93	9.1 x	\$ 27.23	\$ 27.97	\$ 28.73	\$ 29.52	\$ 30.32
	2.50%	\$ 12.86	\$ 14.62	\$ 16.75	\$ 19.38	\$ 22.70	10.1 x	\$ 30.39	\$ 31.21	\$ 32.05	\$ 32.91	\$ 33.80
	3.00%	\$ 14.20	\$ 16.28	\$ 18.84	\$ 22.08	\$ 26.29	11.1 x	\$ 33.55	\$ 34.44	\$ 35.36	\$ 36.31	\$ 37.29

Appendix 3: Company Comparable Analysis

(Figures in mm USD)

Company	Ticker	Equity Value	Enterprise Value	EV/EBITDA Multiple			P/E Multiple				
				2018A EV/EBITDA	2019E EV/EBITDA	2020E EV/EBITDA	2018A P/E	2019E P/E	2020E P/E		
TE Connectivity Ltd.	NYSE: TEL	32,235.1	35,273.1	11.8 x	13.2 x	12.4 x	13.1 x	17.6 x	20.4 x		
Crown Castle Internati	NYSE: CCI	59,548.3	84,642.3	28.6 x	24.8 x	23.6 x	106.3 x	70.9 x	58.9 x		
ATN International	NASDAQ: ATNI	897.3	1,016.8	6.9 x	9.3 x	8.4 x	45.2 x	(801.1 x)	160.2 x		
CommScope Holding	NASDAQ: COMM	2,633.9	13,388.9	16.6 x	10.4 x	9.2 x	(4.8 x)	(5.6 x)	(39.9 x)		
Shenandoah Telecom	NASDAQ: SHEN	2,045.6	3080.383	11.8 x	11.8 x	11.0 x	43.9 x	35.5 x	28.4 x		
Gogo Inc.	NASDAQ: GOGO	485.4	1,472.0	13.8 x	11.3 x	10.7 x	(3.0 x)	(2.7 x)	(4.8 x)		
Sprint Corporation	NYSE: S	21,227.6	61,822.6	5.5 x	6.3 x	5.6 x	2.9 x	(10.8 x)	(51.8 x)		
Verizon Communicatio	NYSE: VZ	250,056.0	379,199.0	9.6 x	7.9 x	7.7 x	16.1 x	13.1 x	12.2 x		
GTT Communications	NYSE: GTT	591.1	4,093.6	16.3 x	9.3 x	9.2 x	(2.2 x)	(6.1 x)	(43.7 x)		
T-Mobile US, Inc.	NASDAQ: TMUS	67,437.3	108,741.3	9.2 x	8.2 x	7.9 x	23.3 x	19.4 x	15.9 x		
Boingo Wireless, Inc	NASDAQ: WIFI	452.5	564.1	7.1 x	7.5 x	5.6 x	(353.8 x)	(46.7 x)	110.3 x		
Median					9.9 x	9.2 x		5.2 x	14.1 x		
Mean					11.3 x	10.6 x		(67.0 x)	15.6 x		
High					24.8 x	23.6 x		70.9 x	160.2 x		
Low					6.3 x	5.6 x		(801.1 x)	(51.8 x)		
				EV/EBITDA Implied Price			P/E Implied Price				
Median				\$	14.45	\$	18.46	-\$	1.14	\$	1.31
Mean				\$	16.81	\$	21.49	\$	14.72	\$	1.45
High				\$	40.07	\$	51.13	-\$	15.57	\$	14.91
Low				\$	8.31	\$	10.14	\$	176.02	-\$	4.82