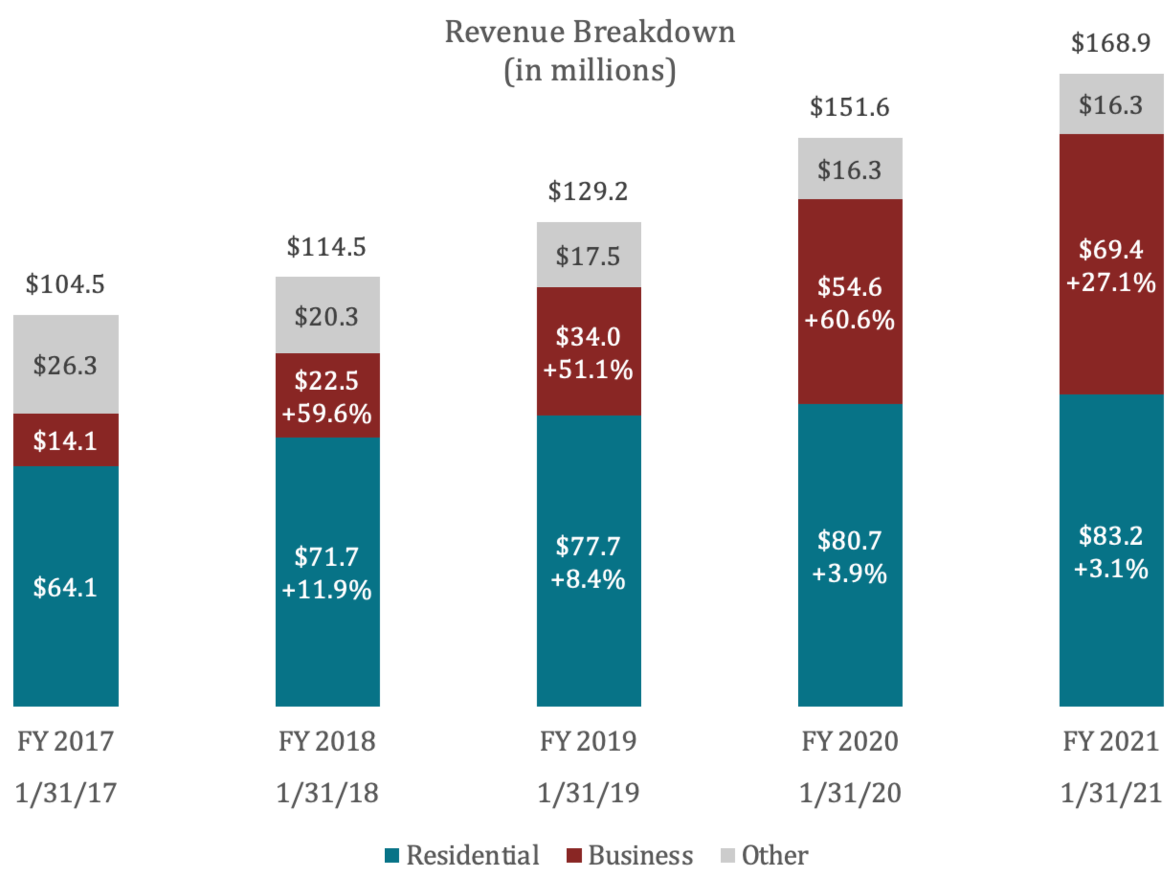
Note: All research and detailed explanations are compiled in the Appendix.

Opportunity Overview

Ooma is a cloud communications provider undergoing multiple positive transitions with strong prospects not yet reflected in historical financials, which has resulted in a mispricing providing 47-83% upside based on a reasonable valuation of their existing business lines. They categorize their consumer and business revenue streams as Ooma Residential and Ooma Business, respectively. Ooma Residential sells cloud-based home phone and smart security services, which has grown at a 6.7% CAGR over the past 4 years. Ooma Business has grown at a 49% CAGR over the past 4 years selling UCaaS solutions and will surpass Ooma Residential to exceed 50% of total revenue in CY 2022. High cash flow margins for Ooma Residential have been obscured by large investments into Ooma Business, and aggregate financials don't reflect the higher growth rate of Ooma Business. Ooma currently trades at 2.5x EV/TTM ARR with 73% ARR gross margins. Furthermore, Ooma is launching a new product in 2022 into a rapidly growing market with limited competent competitors, and there are multiple reasons to believe revenues from this new product line could quickly surpass existing ARR and increase upside to 195%. As new initiatives significantly accelerate revenue growth in CY 2022, strong improvements in aggregate financial metrics should attract greater attention to the underlying story and catalyze a full valuation.



Source: Compiled by author from Ooma's public filings

Business and Market Overview

Ooma Residential

Ooma Residential's exposure to the declining home phone market would deter most investors, but the segment will continue to generate large amounts of reliable cash flow that can be reinvested into the fast-growing Business segment. The overall market has declined at a slow and steady rate of 3-8% per annum, spurring competitors to withdraw investments. Meanwhile, Ooma continues to offer the highest quality home phone services at the lowest prices, establishing itself as the clear leader positioned to increase market share with little investment from its current 2% penetration. With the lowest cost structure in the industry, Ooma Residential earns 70% gross margins while undercutting competitors by up to 75%.

Management has devoted most of the company's engineering and marketing resources to Ooma Business since 2019, but Residential revenues have continued to grow, likely due to cross-selling of smart security services. Ooma doesn't market their smart security services to new customers, but cross-selling the service to existing home phone users requires very little spend and makes the customer stickier. Ooma Residential's performance has defied industry declines for many years, and management has found a new, capital efficient way to continue this trajectory: T-Mobile will begin offering Ooma Telo to their home internet customers in 2022. T-Mobile's home internet pilot ended 2020 with 100K users and their extended 5G network covers 308M Americans[1]. Even a small take rate on T-Mobile's new customer additions could be a significant source of growth for Ooma Residential.

Ooma Business

There are two key segments of interest within Ooma Business: UCaaS and managed infrastructure. Within the UCaaS segment, Ooma has substantial room to grow into a sizeable business with a strategy differentiated from emerging market leaders RingCentral, Zoom, and Microsoft Teams. The overall UCaaS market is substantial and largely unpenetrated: the potential global market exceeds ~$100B, the potential North America opportunity is ~$39B, and the SMB market in the U.S. alone could be worth ~$4B[2]. UCaaS has only penetrated 10-15% of the legacy base of on-premise PBX, which means there's an 8-10 year runway for 25% annual growth before reaching 90% penetration. There are multiple indications that Ooma Business will successfully ride this growth tailwind:

1. Ooma Office is considered one of the best phone systems for SMBs. Investor presentations and management commentary from RingCentral, 8x8, and Vonage indicate they are focusing on moving upmarket, leaving Ooma well positioned to capture the sizeable SMB market with less than 3% of the potential market in the U.S. so far. Enterprise customers are many times more valuable than SMBs, but Ooma's unit economics[3] show SMB customers can be very profitable even at 30% annual churn.
2. Ooma Enterprise avoids competing with larger UCaaS players head on by focusing on companies that want custom UCaaS capabilities that aren't available out-of-the-box.

[1] T-Mobile FY 2021 Q3 Results
[2] See Appendix – Business and Market Overview – Ooma Business - UCaaS
[3] See Appendix – Unit Economics

Ooma Enterprise has already landed one of the largest potential customers in the world (25,000 seats with potential to expand to 50,000[4]).

3. Ooma Business' organic revenue growth rate exceeds most other public competitors (8x8, Vonage, Crexendo, Sangoma). Ooma Residential's low-cost structure is also reflected in Ooma Business, with Business achieving higher gross margins (75%) than 8x8 (67%) at 1/7th the scale.
4. Ooma designs the user experience end-to-end from on-premise devices to the cloud while most UCaaS providers don't do any hardware. This has uniquely enabled Ooma to bundle their UCaaS offering with Ooma Connect, a proprietary wireless internet offering specifically designed to ensure call quality that can provide backup or primary internet over LTE. This makes Ooma particularly suitable for companies with multiple distributed locations or poor internet connections.

Within Ooma's managed infrastructure offerings, Ooma's recent announcement of Ooma Airdial presents the possibility of a major opportunity unlock, much as the pivot from home phones into business VoIP transformed the company in 2013. First announced on November 1st, 2021, Airdial is a POTS (Plain Old Telephone Service) replacement solution targeting the ~9.5M remaining business POTS lines[5]. Many critical systems that aren't typically front of mind like security alarms, fire alarms, emergency phones, CO_2 sensors, gas station pumps, building access systems, and more have remained connected to POTS lines due to a myriad of reasons: lack of awareness, poor translation of non-voice signals over digital lines, lack of internet access, and regulatory requirements for life-safety systems. POTS replacement solutions like Airdial can properly meet regulatory requirements, translate analog signals, and maintain wireless connectivity even during internet failure with backup power. Practically all remaining POTS lines will be replaced over the next several years as service is discontinued or prices keep rising. The remaining opportunity is worth ~$4.5B annually, and most existing competitors are relatively small managed service providers that resell hardware from DataRemote, Epik, or Cradlepoint. Ooma would likely be the only competitor that runs their own communications network and has a proprietary hardware solution.

Ooma plans to start selling Airdial in early CY 2022, and the revenue from Airdial could scale very quickly. MarketSpark, a competitor that focuses purely on POTS replacements, seems to have reached ~$130M in ARR as a startup in just 4 years[6]. Since Ooma is entering the market with existing channel relationships, brand recognition, and a proprietary solution, Airdial could scale faster than what MarketSpark has demonstrated. Ooma also specializes in maximizing ease of hardware deployment, which may be a key advantage in speed to market as many legacy devices tend to be entangled in complicated systems. Within a month after announcing Airdial, management has indicated overwhelming customer interest. While Ooma intended to sell Airdial through channel partners, larger sized businesses have been talking with Ooma directly about the solution and may open the door to winning them as UCaaS customers as well.

Napco Security Technologies provides precedent for how quickly the market can appreciate Airdial if Ooma shows strong traction. Napco is a security products manufacturer

[4] FY 2022 Q1 earnings call (5/26/21)
[5] See Appendix – Business and Market Overview – Ooma Business – POTS Replacement
[6] See Appendix – Business and Market Overview – Ooma Business – POTS Replacement

that began earning recurring revenues through a solution specific to converting 3G and POTS alarm systems to cellular communications. At an $823M market cap, Napco trades at an EV/TTM Sales of 6.4x. Considering the growth and gross margin profiles of their hardware and recurring service revenues, most of the 'elevated' sales multiple is likely attributable to their recurring service revenue, which is only 30% of total revenue so far[7].

Valuation

Ooma Residential likely has 36% net profit margins with minimal capital expenditures, and it would be worth 2.6x TTM ARR if it shrinks at 6% into perpetuity[8]. However, there are three compelling reasons why Ooma Residential is probably worth more:

1. Residential includes Ooma's own smart security portfolio, which is not a secularly challenged market. Even as users declined 2.8% since CY 2019, subscription and service revenue increased 5.9%. There must be some degree of upsell/cross-sales still ongoing within Ooma Residential's existing customer base, either to security services or premium phone services. Upsells/cross-sales have very low CACs, which means Residential revenue can grow without allocating S&M away from Business.
2. T-Mobile selling Ooma Telo is an entirely new path to market, and if the offer gains traction, Ooma will be gaining incremental revenue without additional marketing. The customers Ooma gains through this partnership could then be cross-sold smart security.
3. There's still ~26M remaining residential POTS lines that are likely a combination of landline phones and security systems, and these will face the same pressures to be replaced as business POTS lines. Ooma offers the best landline phone replacement and could capture a significant portion of displaced customers that want to maintain a home phone. Airdial doesn't target residential security systems, but I wouldn't be surprised if Ooma comes out with a version that does.

The upside case is that these various initiatives can sustain flat revenue, in which case the business deserve a 4.5x multiple on TTM ARR. At 2.6x-4.5x TTM ARR, Residential is worth $224M-$392M.

I'm projecting Ooma Business' revenue to grow at a 20% CAGR for the next 8 years and reach 21% net profit margins (80% GM, 25.5% S&M, 15% R&D, 13% G&A, 21% tax) at maturity with a 2% perpetual growth rate[9]. Discounting terminal value and operating losses in the interim back to today, Ooma Business is worth $422M. This comes out to 5.2x TTM ARR, which is well in line with the most relevant publicly traded pure-play comps after they fell >50% in 2021.

	EV	TTM ARR Growth	ARR Gross Margin	EV/TTM ARR	EV/TTM ARR GP
RingCentral	$21.5B	35.6%	78.1%	15.7	20.1
8x8	$2.7B	18.1%	66.8%	4.9	7.4
Ooma Business, Est.	$422M	22.4%	75.0%	5.2	6.9

Source: Compiled by author from public filings

[7] See Appendix – Business and Market Overview – Ooma Business – POTS Replacement
[8] See Appendix – Valuation – Ooma Residential
[9] See Appendix – Valuation – Ooma Business

My Airdial bull case is 5% capture of the $4.5B market opportunity for $225M ARR in 5 years. Airdial should have rock bottom churn because its primary use cases are critical systems in larger enterprises that nobody wants to mess up and are very expensive to overhaul. However, Airdial revenue will likely stagnate or start declining after all POTS lines have been replaced. At 43.5% net profit margins (80% GM, 15% R&D, 10% G&A), -5% terminal growth, and no interim cash flows, Airdial would currently be worth $512M.

Ooma has $31M in cash, no debt, and 23.8M shares outstanding. Ooma Residential and Ooma Business without Airdial is worth $28.4-$35.3 per share, or 47%-83% upside from $19.3 as of January 7th. With the Airdial bull case, the company is worth $49.9-$56.9 per share, or 159%-195% upside. To top it off, I haven't accounted for Ooma's tax advantages from operating at breakeven in aggregate and have ignored Ooma's off-balance sheet NOL carryforwards of $193.5M and research tax credits of $16.7M.

Investment Thesis

1. A valuation of Ooma based on just the core UCaaS, home phone, and smart security businesses indicates 47%-84% upside and makes a compelling investment case by itself. The incremental upside from Airdial success also seems to be ignored by the market and would increase upside to 195%.
2. Downside is well protected through a discounted price in a business that has high margin, recurring revenues. Furthermore, the CEO owns 5.6% of the company and has shown he will only pursue economically profitable growth[10].

Potential Sources of Current Mispricing

1. Small market cap of $453M.
2. Many investors are likely allergic at first sight to a secularly challenged market. There also aren't many historical examples of what happens when a capital light business with high margin recurring revenues has low penetration in a declining industry with the best product at the lowest prices.
3. Ooma screens as unprofitable with low (11%) revenue growth, which reduces the likelihood of discovery by large camps of investors that focus on high cash flows or high growth. Additionally, Ooma doesn't disaggregate financials to value the underlying businesses separately, and Vonage has only recently revealed Vonage Consumer's massive margins[11]. Vonage's market cap is 12x Ooma's, and even investors who track Vonage closely may not be aware of Ooma.

Catalysts for Value Realization

1. As Ooma's revenue mix continues shifting towards the faster-growing Business segment, the aggregate revenue growth rate will increase, attracting new attention.
2. The T-Mobile partnership for Ooma Residential and the launch of Ooma Airdial will further accelerate baseline revenue growth in CY 2022.

[10] See Appendix - Management

[11] Vonage Consumer's margins are used to estimate Residential's margins. See Appendix – Valuation – Ooma Residential

Risks

1. 24% growth in Ooma Business in recent quarters is still a significant deceleration from 40% organic growth in CY 2019. Ooma Business may not be able to achieve 20% growth for the next 8 years if the overall rate of growth for the UCaaS market also decelerates. However, Ooma Business' expansion into managed infrastructure may help mitigate a UCaaS growth slowdown.
2. RingCentral, Zoom, and Microsoft are pulling ahead as leaders in UCaaS by market share. However, Ooma can grow significantly without confronting these players directly by focusing on SMBs and enterprise customers requiring high levels of customization.
3. Fully developed UCaaS offerings all largely have the same functionality, creating concerns about pricing pressure. However, the biggest players have limited price compression by adding additional features at the same price point. Phone systems also tend to be sticky for enterprises.

APPENDIX

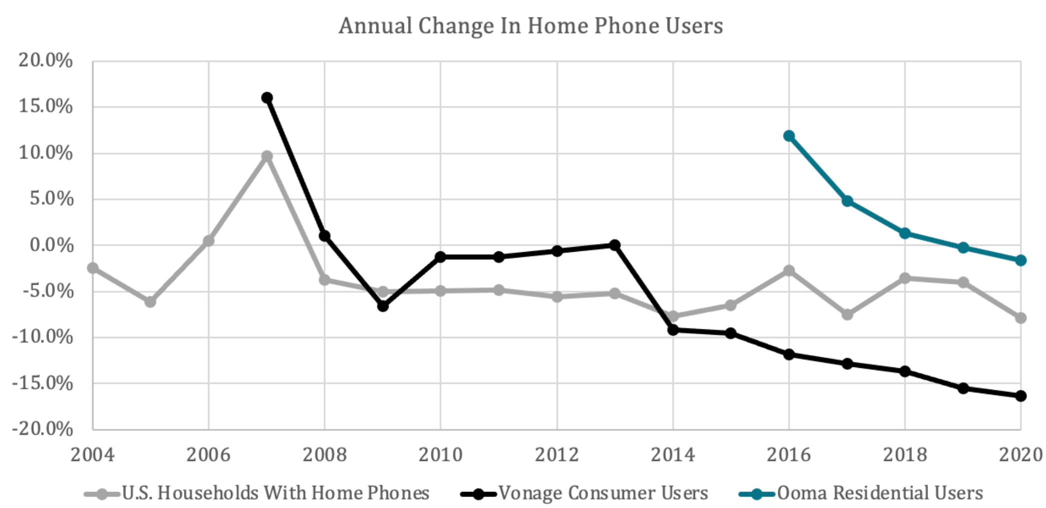
Business and Market Overview

Ooma Residential

Home Phone Services

VoIP (Voice over Internet Protocol) home phone services were Ooma's first product, with their flagship product, Ooma Telo, released in CY 2009. Utilizing existing internet connections instead of individual landlines enables VoIP services to be significantly cheaper than landline services, but VoIP has historically suffered from poor voice quality due to issues in voice data compression and lost data packets. Ooma solved this problem by designing their own router, Ooma Telo, with extra processing power capable of prioritizing voice data, monitoring data quality, and sending redundant data when it detects delayed or lost data packets all while consuming the same bandwidth as competitors with inferior technology. Additionally, Ooma's platform automatically evaluates the optimal call termination provider for cost and call quality on a call-by-call basis, further lowering Ooma's cost to provide VoIP services.

By the time Ooma launched their flagship product, the home phone market had peaked and begun shrinking due to mobile phone adoption. Ooma offered the lowest prices in the industry and continued to invest in improving the efficiency of their call network and voice quality as competitors transitioned to managing home phone revenue streams for cash, leaving Ooma with the best product and the lowest churn in the industry at 6% annually[12]. Ooma Residential expanded from $24.1M in annual subscription revenue in CY 2012 to $83.2M in CY 2020 while the number of home phone lines declined at a -5.6% CAGR over the past decade. Vonage, formerly the dominant name in residential VoIP services, went public in 2006 and revenues started shrinking in CY 2009. Vonage's gross user churn was historically near 30% but has stabilized near 20% over the past few years even with price increases.



Source: Compiled by author with data from the CDC, US Census Bureau, and public filings from Vonage and Ooma

Even with widespread mobile adoption in the US, the rate of shrinkage in the market has consistently ranged between 3-8% annually. Home phone service remains a cheap and

[12] In the FY 2017 Q3 earnings call, management indicated overall churn is 6%-7% annually, with Telo churn a little lower and SMB churn a little higher. 6% churn seems likely for Ooma Residential.

reliable way for families to ensure kids at home can contact parents or call 911 in emergency situations without giving them their own phones. At ~800K Residential users, Ooma has <2% penetration of the estimated ~47M[13] remaining home phones and is on track to surpass Vonage's consumer user base in CY 2022. Ooma Residential's ARPU of $9 per month offers significant cost savings compared to Vonage's Consumer ARPU of $27.8 or AT&T's home phone lines starting at $37 per month. However, incumbent telecom and cable providers often offer home phone service for very low prices or for free when bundled with internet service. Ooma still seems to offer value to consumers who want better quality service at very low prices, evidenced by their continued historical growth against powerful competitors. Furthermore, the T-Mobile partnership enables Ooma to become part of the very same bundle strategy that owns most of the market.

Management rightfully runs Ooma Residential as a source of cash to invest in Ooma Business. S&M allocation started to favor Ooma Business in CY 2016 as it achieved a faster payback than Ooma Residential, and by the end of CY 2019, management announced nearly all resources will go towards Ooma Business over Ooma Residential[14].

Smart Security

The extra processing power in Ooma's routers provided the networking infrastructure necessary to expand into additional services, such as enabling the Internet of Things. Ooma launched home security systems in 2017 and currently offers a range of motion sensors, an alarm siren, a water sensor, and a keypad that use Ooma Telo as a base station. Incremental margins for an Ooma Telo customer that also subscribes to Ooma's smart security service are very high because the service runs off the same platform, and the cost to cross-sell security services is practically nothing[15]. By the time the smart security offerings were fully developed, management decided to commit most of their engineering and marketing resources to Ooma Business. Ooma Smart Security is now primarily a way to increase Residential user ARPU and make them stickier with minimal reinvestment.

Ooma Business

Unified Communications as a Service (UCaaS)

The market for UCaaS is massive and we are still in the early innings of the transition from on-premise PBX systems to cloud-based solutions. Legacy on-premise PBX providers (Avaya, Cisco, Mitel, etc) in aggregate have about 400M seats globally[16] and with UCaaS pricing of $25/user/month, the eventual market size should exceed $100B when fully penetrated. North America has ~130M seats, equivalent to a potential market size of $39B. RingCentral and Zoom seem to be leaders in market share at ~4M[17] and ~2M[18] seats, respectively. Microsoft is also a significant leader in UCaaS seats through Teams but they

[13] Measured as the CDC's annual estimate of the percent of households with a home phone multiplied by the US Census Bureau's annual estimate of the number of households in the US.
[14] FY 2017 Q2 (8/30/16) and FY 2020 Q3 (11/21/19) earnings call
[15] Ooma's presentation at Credit Suisse's 21st Annual Communications Conference (6/4/2019)
[16] Mizuho equity research report, 9/27/21, Addressing the Bearish Narrative: Why RingCentral Shares Offer a Promising Risk-Reward
[17] $1.55B ARR from RingCentral Office in FY 2021 Q3, assuming $30 monthly ARPU
[18] Zoom blog, September 2021

haven't specified phone system sales. Teams benefits from a 250M install base[19], but their phone system has limited features and Microsoft allows users to integrate external cloud phone systems with Teams. While Zoom Phone and Microsoft Teams quickly gained market share during the pandemic, they're likely moving closer towards industry-wide growth rates with Zoom's revenue growth decelerating to 35% in the latest quarter.

The U.S. Census Bureau records ~6M SMBs with fewer than 20 employees that have an average of 4.5 employees. If 50% of these employees need a phone line[20], the SMB market in the US alone is potentially worth $4B. Additionally, Ribbon Research estimates that 76% of businesses with less than 100 employees have yet to invest in cloud-based communication solutions. While there is a long tail of smaller UCaaS providers, many seem to resell a white-labeled solution, which will limit their margin and ability to adapt to customer needs or control quality of service.

Ooma entered the SMB phone system market in CY 2013 with the introduction of Ooma Office, a VoIP business phone system with an extensive array of additional features beyond those available for on-premise PBX, such as a mobile app, virtual receptionists, virtual fax, messaging, and more. On-premise PBX solutions are expensive and require experienced IT personnel for installation and management. In comparison, Ooma Office offers significant savings and is particularly well suited for small businesses with a plug-and-play design that doesn't need an IT professional or new wiring infrastructure. Ooma Office quickly grew a large customer base of businesses with 2-3 employees through a high-quality offering at prices previously unavailable to small businesses and has been chosen as the #1 business VoIP service by PCMag readers for 8 years in a row. The following summarizes the results of the annual survey sent to PCMag email subscribers:

Voice Over IP Services 2021

Bold indicates Business Choice Winner

	Overall Satisfaction †	Installation/ Setup	Cost/ Value	Reliability	Ease of use	Tech Support	Call Quality	System Management	Likelihood to Recommend	Net Promoter Score
Ooma	9.0	9.2	9.3	9.1	9.3	8.9	9.1	9.1	9.1	75
RingCentral	8.7	8.8	8.6	8.9	8.7	8.4	8.9	8.8	8.6	58
RCN	8.3	8.3	8.1	8.8	8.6	8.2	8.4	8.5	8.0	34
Microsoft	8.1	8.5	7.9	8.8	8.5	8.2	8.5		8.1	30
Google Voice	8.0	8.5	9.0	8.4	8.4	6.2	8.2	7.8	8.2	30
Spectrum	7.9	8.6	7.5	8.6	8.8	7.7	8.6		7.6	15
Cisco	7.7	7.8	7.3	8.4	8.2	7.7	8.6		7.5	14
Avaya	7.5	8.1	7.5	7.9	7.9	7.7	8.3		7.2	-3
Vonage	7.4	8.1	6.8	8	8.3	7.3	8.2	7.8	7.4	19
Verizon	7.4	7.3	6.5	7.4	7.7	7.2	7.7	7.4	6.6	-19
Mitel	7.3	6.7	6.9	7.4	7.3	6	7.9		6.4	-25
Comcast	7.2	7.6	6.3	7.5	7.7	6.4	8.1	7.1	6.4	-13
Skype	7	8.4	7.7	7.3	8.1	6.7	7.4		6.9	-5
AT&T	6.7	7.3	6.5	7.6	7.6	6.9	7.7	7.5	6.7	-16
AVERAGE	*7.7*	*8.1*	*7.6*	*8.2*	*8.2*	*7.4*	*8.3*	*8.0*	*7.5*	*14*

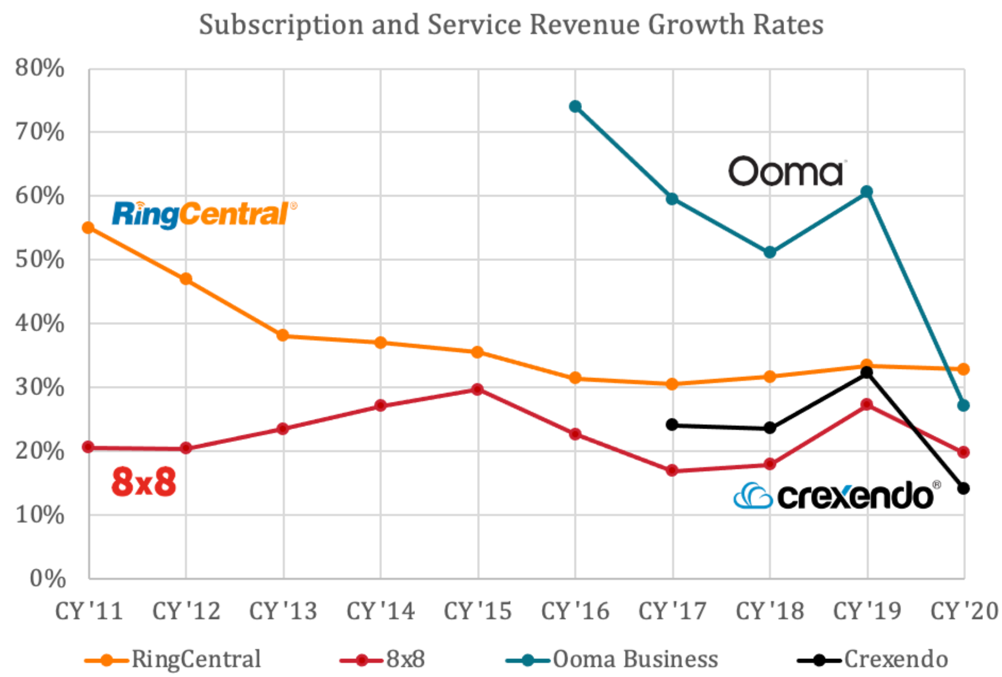
Source: https://www.pcmag.com/news/business-choice-2021-voice-over-ip-voip-systems

[19] FY 2021 Q4 earnings call

[20] US + Canada labor force is ~180M, 130M PBX seats in North America means ~72% of employees get a phone line. SMBs probably give phone lines to a smaller % of employees than enterprises.

Ooma largely completed development of the core feature set for Ooma Office in CY 2019 and has since shifted resources to developing additional tiers of service to address larger businesses with greater capacity and more advanced features, as well as a call center solution. While the original Ooma Office may be better classified as cloud PBX, the addition of videoconferencing and a desktop app positions Ooma Office Pro and Ooma Enterprise as a full UCaaS offering.

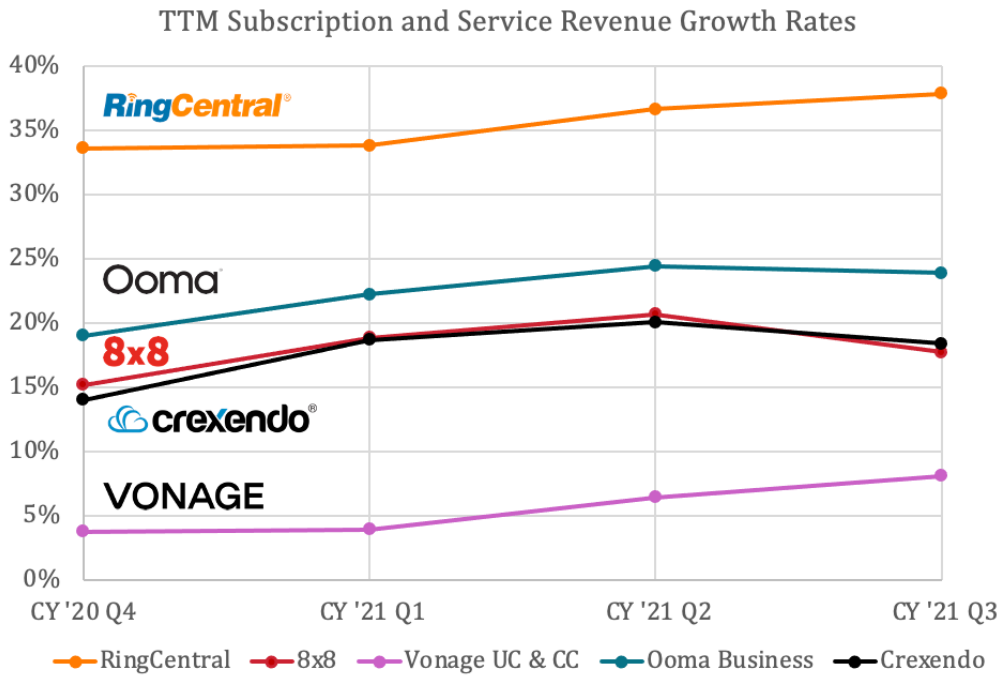
Ooma's enterprise offering is built off an API-design that blends the typical out-of-the-box UCaaS usability with the customizability of CPaaS (Contact Platform as a Service). CPaaS is best suited for enterprises that have their own developers to put together a communications platform using the building blocks from a CPaaS provider. Ooma targets enterprises and resellers that want the benefits of CPaaS (typically more custom analytics and integrations) but don't have their own developers.



Source: Compiled by author from public filings

Note:

1. Zoom's revenue grew 149%, 118%, 88%, and 326% for 2017-2020. Zoom phone was launched in 2019.
2. Vonage UCaaS isn't included here due to inconsistent reporting. UCaaS had 17% growth in 2017, 2018 wasn't disclosed, 30% growth in 2018 including a contact center acquisition and 8% organically, and then UCaaS and CCaaS grew 4% in 2020. Vonage entered CPaaS with their Nexmo acquisition in 2016, which has been the primary driver of Vonage's overall growth since then.
3. Sangoma is also publicly traded on the TSX, but they have a much greater focus on inorganic growth than other UCaaS players and a sizeable portion of their total revenue is from on-premise PBX sales.



Source: Compiled by author from public filings

Note:

1. Zoom's revenue growth rates over the past 4 quarters were 369%, 191%, 54%, and 35%, chronologically.

Managed Infrastructure

Understanding that many of their SMB customers have slow, unreliable, or expensive internet, Ooma launched Ooma Connect in 2020 to provide fixed wireless internet to replace or backup DSL, satellite, and cable connectivity. Ooma Connect is effectively an enterprise grade hot spot device through which Ooma provides an LTE connection over T-Mobile's network. Ooma currently has hundreds of customer accounts using this solution, with over half selecting the higher tier offerings to support primary internet use[21]. Ooma Connect makes Ooma's cloud PBX offering more competitive against legacy telecom and cable providers that bundle together white-label voice and internet service. It also differentiates Ooma against most UCaaS providers that don't have the hardware expertise necessary to expand into managed infrastructure.

The release of Ooma Connect was a natural extension of technology Ooma developed for 4G home phone service, and while management hasn't discussed this yet, Ooma Connect also opens the door to offering internet security to businesses. Ooma tried this for residential customers in CY 2017 through a partnership with Zscaler, but the effort was not pushed hard by management. The capabilities they could offer then was limited because Ooma Telo used a 100 megabit router, but Ooma Connect uses a gigabit router.

Ooma also launched Ooma Wi-Fi in CY 2020, an enterprise-grade Wi-Fi as a service solution for small businesses, but they rely on hardware from Extreme Networks. This

[21] FY 2021 Q1 earnings call (5/26/20)

segment doesn't seem to be marketed heavily and is probably used to increase ARPU and strengthen relationships with existing customers.

Plain Old Telephone Service (POTS) Replacement

POTS refers to the original copper lines that were historically the backbone of telephony infrastructure, but the technology is decades old, and the infrastructure is degrading and expensive to maintain. Telecom providers were previously required by the FCC to continue offering POTS lines within price caps despite rising costs due to their critical place in communications infrastructure. In August 2019, the FCC finally allowed carriers to abandon POTS lines to enable the full transition to the next era of digital communications and mandated all customers to transition to an alternative service by August 2, 2022. Some carriers have started discontinuing POTS services in certain areas and raising prices for the lines that remain. Most businesses have already transitioned to digital lines for voice communications, but there are still over 35 million POTS lines in service, of which ~27% are business lines[22]. At $40/line/month, the remaining business POTS lines represent a $4.5B market opportunity. Professionals in this industry believe there are too many customers using POTS to transition off by August 2022 and expect the FCC deadline will have to be extended, but with costs rising up to 150% and service availability dropping, almost all POTS lines will likely have to transition to a replacement over the next several years regardless of arbitrary deadlines.

This market is completely incremental to the UCaaS market and is not targeted by most UCaaS competitors. AT&T seems to be the only major carrier that is providing a replacement solution that launched in CY 2021 (in partnership with RingCentral) and even they resell DataRemote hardware. There will likely be very few new entrants that develop their own solution due to the numerous regulatory complexities of handling emergency systems.

MarketSpark was founded in CY 2017 and resells DataRemote and Cradlepoint. They claim to have replaced 218K POTS lines at $40-$55/line/month for 161 enterprise customers[23]. MarketSpark received an investment from IDT in CY 2021 as part of a $7M Series B venture fundraising round, which lends credence to this claim. MarketSpark averages to 1,300 POTS line replacements per enterprise customer, and Ooma's recent channel partner incentives also indicate that the average deal size for POTS replacements could be much larger than UCaaS.

[22] Broad Sky LTE POTS Replacement webinar: https://www.youtube.com/watch?v=RYtiXy3cpOs&t=350s
The FCC's data on the number of POTS lines was last updated in June 2019, and there were 41M POTS lines then.
[23] https://marketspark.com/enterprise/

Considering the size and speed at which this market will be captured, revenues from Ooma Airdial may exceed Ooma's entire current recurring revenue base of $167M within the next 5 years. Ooma Airdial also synergizes with Ooma Office - larger sized business have been talking with Ooma directly about the solution and may open the door to also winning them as UCaaS customers.

The only public company with major exposure to this opportunity I've found so far is Napco Security Technologies. Airdial has greater flexibility than Napco's solution (called Starlink), and the market seems to be very bullish in what Napco's solution is worth. I've summarized the growth and margin profiles of their product and service revenues below:

Napco Security	FY '18	FY '19	FY '20	FY '21	TTM
Revenue Growth					
Equipment	0.4%	7.2%	-9.6%	3.6%	17.7%
Service	51.2%	45.2%	38.0%	41.0%	42.0%
Gross Margin					
Equipment	36.1%	35.4%	30.9%	26.4%	24.9%
Service	76.8%	78.2%	82.0%	85.6%	86.1%
% of Total Revenue					
Equipment	86.9%	83.1%	76.3%	70.3%	69.8%
Service	13.1%	16.9%	23.7%	29.7%	30.2%

Source: Compiled by author from Napco's public filings

Management

Ooma's CEO, Eric Stang, first joined the company in January 2009 and is responsible for nearly all of what the company is today. Under his leadership, the company released its first flagship product, transitioned to focus on subscription revenues instead of making money on hardware, survived multiple rounds of VC funding and successfully went public, entered multiple new markets, and grew subscription revenues from practically nothing to $167M. Stang's accomplishments at Ooma speak for themselves, but he also has an unusually strong background for a microcap CEO. After completing undergrad at Stanford and earning an MBA at Harvard, Stang began his career at McKinsey before assuming leadership positions at multiple companies that were ultimately acquired. Stang owns 5.6% of the Ooma worth about 10x his total annual compensation, but I don't believe he is motivated by monetary reasons. While he isn't the original founder, Stang has shown incredible dedication to the company and Ooma will likely be his legacy.

Management has also shown they won't pursue growth if they don't believe it will be profitable. Ooma divested Business Promoter (a previously acquired business that sold sales leads to Office users) in CY 2017 due to significant volatility in the business despite small revenue contribution. Ooma also shut down their security camera offering in CY 2019 after acquiring a camera startup in CY 2017, concluding that market conditions had deteriorated. Amazon had purchased Ring, and Ooma didn't believe the necessary investments to build scale and finish the product would be worth it.

Unit Economics

Unit Economics	Residential	SMB Worst	SMB Best	Enterprise Worst	Enterprise Best
Monthly ARPU	9.0	22.4	22.4	28.0	50.0
Gross Margins	70.0%	75.0%	75.0%	75.0%	75.0%
Annual Gross Profit	75.6	201.6	201.6	252.0	450.0
Discount Rate	8.0%	8.0%	8.0%	8.0%	8.0%
Annual Gross Churn	6.0%	30.0%	15.0%	10.0%	5.0%
LTV per User	540.0	530.5	876.5	1,400.0	3,461.5
Channel SPIFF MRR Multiple	N/A	4.0	2.0	9.0	3.0
Channel Commission Payout	N/A	89.6	44.8	252.0	150.0
Channel Residuals (% of Rev)	N/A	5.0%	5.0%	5.0%	5.0%
PV of Residuals	N/A	35.4	58.4	93.3	230.8
Avg. Hardware Subsidy per User	N/A	57.5	57.5	57.5	57.5
Payback Period (Years)	2.0	0.8	0.5	1.3	0.5
CAC	151.2	182.5	160.7	402.8	438.3
LTV/CAC	3.6	2.9	5.5	3.5	7.9

Source: Compiled by author from public filings, management commentary, and channel partner material

Monthly ARPU

Monthly residential ARPU is calculated as Residential subscription and service revenue in the latest quarter, divided by the average number of Residential users over the past two quarters, then divided by 3.

Ooma Office is $20/user/month, Ooma Office Pro is $25/user/month, and 48% of new office users adopt the pro tier, as of CY 2021 Q3. Ooma Enterprise is $27/user/month and Ooma Enterprise Call Center is $50/user/month.

Gross Margins

Residential and Business customers are run off the same core platform, which means that as the overall business scales, gross margins improve for both. Overall subscription and service gross margins were 65% in CY 2015 when Business was 13% of subscription and service revenue. Given improvements to scale since then with subscription and service gross margin now at 73% as of CY ’21 Q3, 70% gross margins for Residential and 75%+ for Business seems reasonable. Ooma’s goal is to move subscription gross margin to 75%-80% in the long term, so gross margins on incremental users must be very high.

Annual Gross Churn

Ooma discloses annual net dollar subscription retention, which has ranged between 95%-102% historically. Using Ooma’s disclosures on quarterly user counts and AERR (annualized exit recurring revenue), I’ve worked backwards from their net dollar retention to find that their gross annual total user churn is now around 10% annually, in line with management's more recent commentary. Assuming 6% annual churn for residential users would imply Business users have a gross annual user churn of 20-30% and annual net dollar churn of ~15%. Considering their SMB exposure[24] and existing statistics on new business mortality rates, this isn't too surprising. Ooma's CACs for SMBs are low enough that acquiring customers with 30% churn is still economically justified. Additionally, Ooma's overall SMB churn is likely improving – Ooma Office Pro is stickier than Ooma Office because increased value to the user improves the customer relationship, and larger businesses tend to adopt Pro due to the 20-user limit on Ooma Office. Pro is only 19% of all existing Office users, so as their existing user base moves to resemble the current mix of 48% Pro in new sales, overall churn should improve. Enterprise churn is likely very low due to higher degrees of integration, implementation costs, and lower customer mortality rates. RingCentral last disclosed in their FY 2018 investor day that their overall gross dollar churn for their Office product was 10% annually, with mid-market/enterprise under 5%, at which point SMBs were 37% of Office ARR.

Channel Partner Incentives

40% of sales to business users come through value-added resellers and channel partners, and Ooma aims to reach 50% over time. Channel partner incentives can be found through master agents like SelecTel and Technology Source, or by signing up to be a partner. Management has indicated they see similar economics between direct and channel sales, so channel partner incentives are very useful for putting numbers on Ooma Business' CACs. When a sale to an end customer occurs, Ooma pays the channel partner a SPIFF, aka a lump payment, that is calculated as a multiple on the Monthly Recurring Revenue (MRR) Ooma gets from the end customer, and that MRR multiple usually increases with greater seats and longer contracts. Ooma will also make residual payments to the channel partner that are typically 5% of revenue for as long as the customer stays with Ooma, up to 10 years.

Hardware Subsidies

Management has previously indicated Residential hardware is sold at little to no gross margin, while Business hardware is sold at a loss. Since Residential users have slightly declined over the past two years and hardware is likely sold when a user is acquired, most of Ooma's product revenue is likely from new business customers. I've very roughly approximated the average loss on product sales to SMB/Enterprise customers by dividing quarterly product revenue by new user additions (churn + growth) and multiplying the result by -50% gross margins.

Payback Period

Residential CAC is calculated from an estimated gross margin adjusted payback period, while Business payback periods are calculated from estimated CACs. Ooma used to target <18 month payback periods on Ooma Telo but began seeing deterioration in CY 2016 as home phones lost consumer mindshare amid industry-wide declines in home phone advertising. Management has said growing Residential would still be economically justified,

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[24] Ooma Business segment has 300K users, of which roughly 80% still comes from business with less than 10 users. The distribution of customer sizes last updated on the FY 2021 Q2 earnings call (8/25/20).

just not optimal, so Residential payback periods probably aren't much longer than 2 years. Management has indicated they target 18-24 month payback periods on Office customers in CY 2017, which is much longer than the 6-16 month payback periods I reach based on channel partner incentives. The two primary factors likely causing the discrepancy here are that unit economics have probably improved since CY 2017 when the product was less developed, and there are additional S&M costs outside of the cost to acquire an incremental customer, like regional channel heads, account managers, marketing professionals, etc. My estimate for TTM Business S&M expenses (see the Valuation section) would suggest Ooma Business is currently seeing a ~23 month payback period (at 15% revenue churn and 22% growth), more in line with management's previous commentary. Aggregate payback periods should trend towards the payback periods for incremental customers as Ooma continues to gain scale on their operations and their sales channels mature.

LTV/CAC

Ooma's aggregate economics are slightly worse than the unit economics to semi-fixed salary costs that support overall S&M operations. However, the unit economics of incremental customers justify plowing every available gross profit dollar back into S&M for attractive returns on capital and to improve scale. Management has indicated they will do so for as long as payback periods remain favorable.

Valuation

Ooma Residential

Vonage started breaking out operating margins for Vonage Consumer in February 2021, which has a comparable user base to Ooma Residential. While Vonage Consumer ARPU is 216% higher than Ooma Residential ARPU, the two businesses have similar gross margins at a similar number of users, which suggests Ooma is far more efficient in managing COGS than Vonage. Ooma's superior cost efficiency likely extends beyond their COGS as well. A better developed product will require less administrative oversight to deal with customer issues. Additionally, because Ooma Business was built organically off Ooma Residential's platform, one team can manage the R&D for both while Vonage entered the UCaaS market through acquisitions, which means they had to maintain multiple different tech stacks. I'd expect Ooma to have lower absolute operating costs but lower % margins due to drastically lower ARPU.

(TTM in thousands)	Ooma	Vonage	
Subscription Revenue	85,400	300,995	From Filings
YoY Growth	*3.3%*	*-13.0%*	Inputs
Product Revenue	N/A	258	Calculations
Subs. Gross Profit	59,780	223,408	
Subs. Gross Margin	70%	74%	
Product Gross Profit	N/A	(1,683)	
Product Gross Margin	N/A	-652%	
S&M	7,686	14,177	
% of Revenue	*9.0%*	*4.7%*	
R&D	4,270	5,149	
% of Revenue	*5.0%*	*1.7%*	
G&A	8,540	11,225	
% of Revenue	*10.0%*	*3.7%*	
Operating Income	39,284	191,174	
% of Revenue	*46.0%*	*63.5%*	
Tax Expense	17,934		
% of Revenue	*21.0%*		
After Tax Cash Flow	*31,034*		
% of Revenue	*36.3%*		

Ooma Residential	Harvest	Bull
Discount Rate	8.0%	8.0%
Terminal Growth Rate	-6.0%	0.0%
Cash Flow Multiple	7.1	12.5
Implied ARR Multiple	2.6	4.5
EV of Ooma Residential	$221.7M	$387.9M

Vonage Consumer records D&A of 0.4% of revenue in their COGS. Ooma's aggregate financials records D&A at 1.8% of subscription revenue and CapEx at 2% - since Ooma is also investing in growth for Ooma Business, the D&A included in GAAP margins should be sufficient to approximate capital needs for maintaining Residential revenue and the business is capital light regardless.

Ooma Residential's user base has been declining around 1.5% annually for the past two years. Assuming 6% annual gross user churn and a 2x payback period, Ooma would need to spend 9% of ARR on S&M to achieve this. Treating Ooma Residential cash flows as a perpetuity declining at 6% per annum sufficiently truncates the time horizon – the resulting 7.1x multiple on cash flow would be equivalent to only discounting 11 years of constant cash flow. To be clear, I've assumed S&M spend that would support 1.5% annual user declines but projected 6% annual revenue shrinkage because replacing churn may not be sustainable into perpetuity.

There're many ways Residential could beat these expectations (for example, growing for 5 more years before starting to decline), but I think the simplest way to put a reasonable number on the upside is to value Residential as a constant perpetuity. If the home phone industry were to keep declining at the same rate while Ooma spent enough on S&M to maintain a constant number of users, Ooma would end up with 16% market share in 40 years, and the discounted value of 40 years of constant cash flow is equivalent to 95% of a constant perpetuity. 16% market share seems plausible with Ooma's positioning (particularly with the T-Mobile partnership), but it's hard to imagine whether home phones will still exist in 40 years. More realistically, Ooma Residential revenues will probably shift towards smart security over time, extending the segment's longevity. The combination of continued growth in home phone users for the next couple years, cross-selling smart security to keep those users, and replacing churn for quite a few more years before starting a decline (if any) should be enough to match the valuation of a constant perpetuity.

Ooma Business

I've estimated Ooma Business' expenses by subtracting my estimates of Residential's expenses from aggregate financials. The numbers don't line up perfectly because I use subscription and service revenue numbers provided in investor presentations which exclude Talkatone revenue (a calling app run by Ooma that generates a couple million in revenue), while subscription and service revenue in SEC filings includes Talkatone revenue. I'm also accounting for gross loss on product revenue as a S&M expense.

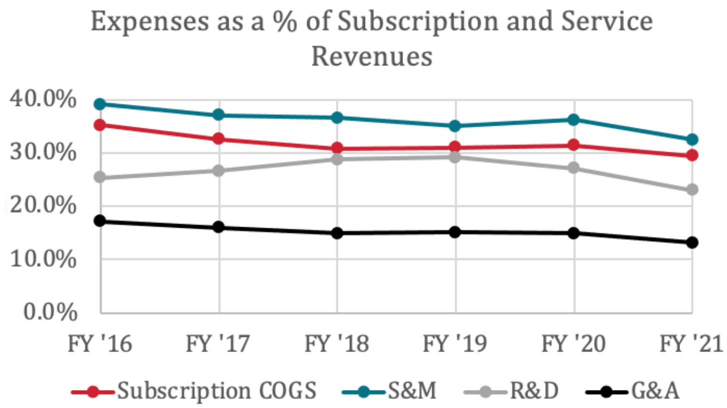
(in thousands, except ARPU)	Aggregate TTM	Residential Est.	Business Est.	Year 9	CAGR
Subscription and Service Revenue	166,700	85,400	81,300	356,567	
YoY Growth		3.3%	22.4%	2.0%	17.9%
Subs. Gross Profit	121,691	59,780	60,975	285,253	
Subs. Gross Margin	73.0%	70.0%	75.0%	80.0%	
S&M + Product Gross Loss	64,424	7,686	56,738	90,924	
% of Sub. Revenue	38.6%	9.0%	69.8%	25.5%	5.4%
R&D	37,418	4,270	33,148	53,485	
% of Sub. Revenue	22.4%	5.0%	40.8%	15.0%	5.5%
G&A	23,054	8,540	14,514	46,354	
% of Sub. Revenue	13.8%	10.0%	17.9%	13.0%	13.8%
Operating Income	(2,362)	39,284	(43,425)	94,490	
% of Sub. Revenue	-1.4%	46.0%	-53.4%	26.5%	
Tax Expense				19,843	
% of EBIT				21.0%	
After Tax Cash Flow				74,647	
% of Sub. Revenue				20.9%	

Ooma Business Enterprise Value	
Discount Rate	8%
Growth Rate	2%
Cash Flow Multiple	16.7
TV of Ooma Business, Y9	$1,244M
Discounted TV	$622M
PV of Operating Losses	$200M
EV of Ooma Business	$422M
Implied TTM ARR Multiple	5.2

Key Assumptions:

1. I'm projecting Business revenue to grow at a 20% CAGR for the next 8 years, primarily from UCaaS adoption with support from Ooma Connect and Ooma Wi-Fi cross-sales. $356M ARR in year 9 would be 9% of the U.S. SMB market. This should also be sufficient scale for Business gross margins to reach 80%+. There might be additional growth beyond year 8 through Ooma's longer-term strategy to provide a complete managed infrastructure solution for SMBs, but I'll assume the business converts to maintenance from year 9.

2. The aggregate business has already started showing leverage on R&D and G&A, and I expect those expenses to grow at a moderate pace. Steady state capital expenditures are probably similar to D&A at 2% of ARR, so net income should approximate cash flow.



Source: Compiled by author from Ooma's public filings

3. I'm expecting churn improves to ~15% as higher tier offerings and larger customers become a greater portion of the installed base. At an 18-month payback period, Ooma Business would need to spend 25.5% of revenue on S&M to replace 15% annual churn and sustain 2% growth into perpetuity.
4. Operating losses in the interim depend most heavily on how quickly S&M efficiency scales. A $200M haircut to terminal value is enough to cover most scenarios.