ITEM 6. RESERVED.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

OVERVIEW

Our mission is to provide simple useful services that help people unlock the power of the Internet.

We accomplish our mission by reducing the complexity of our customers' experience as they access the Internet (at home or on the go) and while using Internet services such as domain name registration, email and other Internet related services. During the first quarter of 2022, the Company completed a reorganization of its reporting structure into three operating and reportable segments: Ting, Wavelo and Tucows Domains. Previously, we disclosed the three operating and reportable segments: Fiber Internet Services, Mobile Services and Domain Services. The change to our reportable operating segments was the result of a shift in our business and management structures that was initiated in 2021 and completed during the first quarter of 2022. The operations supporting what was previously known as our Mobile Services segment have become increasingly operationally distinct between our mobile retail services and our platform services. Through the reorganization of our reporting structure, the Mobile Services segment was changed to the Wavelo segment, which no longer includes the 10-year payment stream on transferred legacy subscribers earned as part of the DISH Purchase Agreement as well as the retail sale of mobile phones, retail telephony services and transition services, all of which are no longer reviewed separately by our Group Chief Executive Officer (CEO), who is also our chief operating decision maker for the purposes of making resource allocation decisions. The Wavelo segment includes our platform and professional services offerings, as well as the billing solutions to Internet services providers ("ISPs") (branded as Platypus), that was previously reported under the Ting segment. The Ting segment now only contains the operating results of our retail high speed Internet access operations, excluding the billing solutions moved to the new Wavelo segment. The product offerings included in the Tucows Domains segment remains unchanged. The three segments are differentiated primarily by their services, the markets they serve and the regulatory environments in which they operate

Our management regularly reviews our operating results on a consolidated basis, principally to make decisions about how we utilize our resources and to measure our consolidated operating performance. To assist us in forecasting growth and to help us monitor the effectiveness of our operational strategies, our management regularly reviews revenues, operating results and performance for each of our service offerings in order to gain more depth and understanding of the key business metrics driving our business. Commencing in the first quarter of 2022, our Group CEO, who is also our chief operating decision maker, reviews the operating results of Ting, Wavelo and Tucows Domains as three distinct segments in order to make key operating decisions as well as evaluate segment performance. Accordingly, effective January 1, 2022 we report Ting, Wavelo and Tucows Domains revenue separately. The 10-year payment stream on transferred legacy subscribers as well as retail sale of mobile phones, retail telephony services and transition services will be excluded from segment EBITDA results as they are no longer centrally managed and not monitored by or reported to our CEO by segment.

For the years ended December 31, 2022, 2021 and 2020, we reported revenue of $321 million, $304 million and $311 million, respectively.

On August 8, 2022, the Company entered into the Amended Credit Agreement with its existing syndicate of lenders ("the Lenders"). The Amended Credit Agreement continued to provide the Company with access to an aggregate of $240 million in committed funds ("the Credit Facility"). Under the Amended Credit Agreement, and in connection with the Unit Purchase Agreement the Lenders agreed that Ting Fiber, Inc. (converted to Ting LLC) and its wholly owned subsidiaries shall cease to be Guarantors under the Credit Facility and shall automatically be released from their respective guarantee and security documents, including a release of Lenders' security interests and liens upon the assets of such entities. Additionally, the Amended Credit Agreement extended the maturity of the Credit Facility to June 14, 2024. The Company was subject to the following financial covenants at all times, which are to be calculated on a rolling four quarter basis: (i) maximum Total Funded Debt to Adjusted EBITDA Ratio of 4:00:1:00 until September 29, 2023 and 3.75:1:00 thereafter; and (ii) minimum Interest Coverage Ratio of 3:00:1:00. The financial covenant calculations will exclude the financial results of Ting Fiber Inc. (converted to Ting LLC) and its wholly owned subsidiaries. The Amended Credit Agreement added SOFR Loans as a form of advance available under the Credit Facility to replace LIBOR rate advances, and such SOFR loans may bear interest based on Adjusted Daily Simple SOFR (defined to be the applicable SOFR rate published by the Federal Reserve Bank of New York plus 0.10% per annum subject to a floor of zero) or Adjusted Term SOFR (defined to be the applicable SOFR rate published by CME Group Benchmark Administration Limited plus 0.10% for one-month, 0.15% for three months; and 0.25% for six-months per annum).

On March 14, 2023 the Company entered into an Amendment No.2 (the "Credit Agreement Amendment") to the third Amended and Restated Senior Secured Credit Agreement (the "Amended Credit Agreement") with its existing syndicate of lenders. The Amended Credit Agreement continues to provide the Company with access to an aggregate of $240 million in committed funds, however there is a suspension to the $60 million accordion during the relief period (the "Leverage Step Up Period") which is defined as from Closing (March 14, 2023) to the date that the Company delivers a compliance certificate for the period ending on December 31, 2023 demonstrating compliance with financial covenants. Additionally, the Credit Agreement Amendment has extended the maturity of the Credit Facility to September 30, 2024. As a result of the closing of the Credit Agreement Amendment, the Company is subject to the following financial covenants at all times, with monthly testing during the Leverage Step Up Period and reverting to quarterly tests thereafter: (i) maximum Total Funded Debt to Adjusted EBITDA Ratio of 4.50:1.00 from March 14, 2023 up to and including September 29, 2023; 4.00:1.00 from September 30, 2023 up to and including December 30, 2023; and 3.75:1.00 thereafter; and (ii) minimum Interest Coverage Ratio of 3.00:1.00. On March 14, 2023 the Company made a repayment of $2.8 million on the Credit Facility.

Ting

Ting and its wholly owned subsidiaries, Cedar and Simply Bits includes the provision of high-speed Internet access services to select towns throughout the United States, with further expansion underway to both new and existing markets. Our primary sales channel is through the Ting website. The primary focus of this segment is to provide reliable Gigabit Fiber and Fixed Wireless Internet services to consumer and business customers. Revenues from Ting Internet are all generated in the U.S. and are billed on a monthly basis. Ting Internet services have no fixed contract terms.

As of December 31, 2022, Ting Internet had access to 96,000 owned infrastructure serviceable addresses, 20,000 partner infrastructure serviceable addresses and 35,000 active accounts under its management; compared to having access to 76,000 owned infrastructure serviceable addresses, 15,000 partner infrastructure serviceable addresses and 26,000 active accounts under its management as of December 31, 2021. These figures exclude the increase in serviceable addresses and accounts attributable to the Simply Bits acquisition.

Wavelo

Wavelo includes the provision of full-service platforms and professional services providing a variety of solutions that support CSPs, including subscription and billing management, network orchestration and provisioning, and individual developer tools. Wavelo's focus is to provide accessible telecom software to CSPs globally, minimizing network and technical barriers and improving internet access worldwide. Wavelo's suite of flexible, cloud-based software simplifies the management of mobile and internet network access, enabling CSPs to better utilize their existing infrastructure, focus on customer experience and scale their businesses faster. Wavelo launched as a proven asset for CSPs, with DISH using Wavelo's MONOS software to drive additional value within its Digital Operator Platform since 2021. More recently, Ting Internet has also integrated Wavelo's ISOS and SM software to enable faster subscriber growth and footprint expansion. The Wavelo segment also includes the Platypus brand and platform, our legacy billing solution for ISPs, that was previously reported under the Ting segment. Wavelo revenues from MONOS, ISOS, SM and professional services are all generated in the U.S. and our customer agreements have set contract lengths with the underlying CSP. Similarly, Platypus revenues are largely generated in the U.S., with a small portion earned in Canada and other countries.

Domain Services

Tucows Domains includes wholesale and retail domain name registration services, as well as value added services derived through our OpenSRS, eNom, Ascio, EPAG and Hover brands. We earn revenues primarily from the registration fees charged to resellers in connection with new, renewed and transferred domain name registrations. In addition, we earn revenues from the sale of retail domain name registration and email services to individuals and small businesses. Tucows Domains revenues are attributed to the country in which the contract originates, which is primarily in Canada and the U.S for OpenSRS and eNom brands. Ascio domain services contracts and EPAG agreements primarily originate in Europe.

Our primary distribution channel is a global network of approximately 35,000 resellers that operate in over 150 countries and who typically provide their customers, the end-users of Internet-based services, with solutions for establishing and maintaining an online presence. Our primary focus is serving the needs of this network of resellers by providing the broadest portfolio of gTLD and the country code top-level domain options and related services, a white-label platform that facilitates the provisioning and management of domain names, a powerful Application Program Interface, easy-to-use interfaces, comprehensive management and reporting tools, and proactive and attentive customer service. Our services are integral to the solutions that our resellers deliver to their customers. We provide "second tier" support to our resellers by email, chat and phone in the event resellers experience issues or problems with our services. In addition, our Network Operating Center proactively monitors all services and network infrastructure to address deficiencies before customer services are impacted.

Wholesale, primarily branded as OpenSRS, eNom, EPAG and Ascio, derives revenue from its domain name registration service. Together the OpenSRS, eNom, EPAG and Ascio Domain Services manage 24.4 million domain names under the Tucows, eNom, EPAG and Ascio ICANN registrar accreditations and for other registrars under their own accreditations. Domains under management has decreased by 0.8 million domain names since December 31, 2021. The decrease is driven by lower renewal rates from the normalization of registration growth back to pre-pandemic levels, along with the continued erosion of registrations related to non-core customers from our eNom brand.

Value-Added Services include hosted email which provides email delivery and webmail access to millions of mailboxes, Internet security services, WHOIS privacy, publishing tools and other value-added services. All of these services are made available to end-users through a network of 35,000 web hosts, ISPs, and other resellers around the world. In addition, we also derive revenue by monetizing domain names which are near the end of their lifecycle through expiry auction sale.

Retail, primarily the Hover and eNom portfolio of websites, including eNom, and eNom Central, derive revenues from the sale of domain name registration and email services to individuals and small businesses. Our retail domain services also include our Personal Names Service – based on over 36,000 surname domains – that allows roughly two-thirds of Americans to purchase an email address based on their last name. The retail segment now includes the sale of the rights to its portfolio of surname domains used in connection with our RealNames email service and our Exact Hosting Service, that provides Linux hosting services for individual and small business websites.

KEY BUSINESS METRICS AND NON-GAAP MEASURES

We regularly review a number of business metrics, including the following key metrics and non-GAAP measures, to assist us in evaluating our business, measure the performance of our business model, identify trends impacting our business, determine resource allocations, formulate financial projections and make strategic business decisions. Following the sale of substantially all of the Ting Mobile customers as part of the Purchase Agreement, we have ceased reporting Ting Mobile subscribers and accounts under management. The following tables set forth the key business metrics which we believe are the primary indicators of our performance for the periods presented:

Adjusted EBITDA

Tucows reports all financial information in accordance with United States generally accepted accounting principles ("GAAP"). Along with this information, to assist financial statement users in an assessment of our historical performance, we typically disclose and discuss a non-GAAP financial measure, adjusted EBITDA, on investor conference calls and related events that excludes certain non-cash and other charges as we believe that the non-GAAP information enhances investors' overall understanding of our financial performance. Please see discussion of adjusted EBITDA in the Results of Operations section below.

Ting Internet	**For the year ended December 31,**		
	2022	**2021**	**2020**
		(in '000's)	
Ting Internet accounts under management	35	26	15
Ting Internet owned infrastructure serviceable addresses (1)	96	76	49
Ting Internet partner infrastructure serviceable addresses (1)	20	15	10

(1) Defined as premises to which Ting has the capability to provide a customer connection in a service area.

Tucows Domains	As of December 31,		
	2022	**2021**	**2020**
Total new, renewed and transferred-in domain name registrations provisioned(1)	21,774	22,530	23,032
Domains under management:			
Registered using Registrar Accreditation belonging to the Tucows Group	17,921	18,909	19,685
Registered using Registrar Accreditation belonging to Resellers	6,469	6,254	5,692
Total domain names under management	24,390	25,163	25,377

(1) For a discussion of these period-to-period changes in the domains provisioned and domains under management and how they impacted our financial results see the Net Revenues discussion below.

OPPORTUNITIES, CHALLENGES AND RISKS

Our revenue is primarily realized in U.S. dollars and a major portion of our operating expenses are paid in Canadian dollars. Fluctuations in the exchange rate between the U.S. dollar and the Canadian dollar may have a material effect on our business, financial condition and results from operations. In particular, we may be adversely affected by a significant weakening of the U.S. dollar against the Canadian dollar on a quarterly and an annual basis. Our policy with respect to foreign currency exposure is to manage our financial exposure to certain foreign exchange fluctuations with the objective of neutralizing some or all of the impact of foreign currency exchange movements by entering into foreign exchange forward contracts to mitigate the exchange risk on a portion of our Canadian dollar exposure. We may not always enter into such forward contracts and such contracts may not always be available and economical for us. Additionally, the forward rates established by the contracts may be less advantageous than the market rate upon settlement.

Ting

As an ISP, we have invested and expect to continue to invest in new fiber to the home (“FTTH”) deployments in select markets in the United States. The investments are a reflection of our ongoing efforts to build FTTH network via public-private partnerships in communities we identify as having strong, unmet demand for FTTH services. Given the significant upfront build and operational investments for these FTTH deployments, there is risk that future technological and regulatory changes as well as competitive responses from incumbent local providers, may result in us not fully recovering these investments.

The communications industry continues to compete on the basis of network reach and performance, types of services and devices offered, and price.

Wavelo

Wavelo launched as a proven asset for CSPs, with DISH using Wavelo’s MONOS software to drive additional value within its Digital Operator Platform since 2021. More recently, Ting Internet has also integrated Wavelo’s ISOS software to enable faster subscriber growth and footprint expansion. With our external platform and professional services revenues concentrated to one customer in DISH, we are exposed to significant risk if we are unable to maintain this customer relationship or establish new relationships for any our Platforms in the future. Additionally, our revenues as a platform provider are directly tied to the subscriber volumes of DISH's MVNO or MNO networks, and our profitability is contingent on the ability of DISH to continue to add subscribers, either from organic growth or from migration off legacy systems, onto our platforms.

Domain Services

The increased competition in the market for Internet services in recent years, which we expect will continue to intensify in the short and long term, poses a material risk for us. As new registrars are introduced, existing competitors expand service offerings and competitors offer price discounts to gain market share, we face pricing pressure, which can adversely impact our revenues and profitability. To address these risks, we have focused on leveraging the scalability of our infrastructure and our ability to provide proactive and attentive customer service to aggressively compete to attract new customers and to maintain existing customers.

Substantially all of our Tucows Domains revenue is derived from domain name registrations and related value-added services from wholesale and retail customers using our provisioning and management platforms. The market for wholesale registrar services is both price sensitive and competitive and is evolving with the introduction of new gTLDs, particularly for large volume customers, such as large web hosting companies and owners of large portfolios of domain names. We have a relatively limited ability to increase the pricing of domain name registrations without negatively impacting our ability to maintain or grow our customer base. Growth in our Tucows Domains revenue is dependent upon our ability to continue to attract and retain customers by maintaining consistent domain name registration and value-added service renewal rates and to grow our customer relationships through refining, evolving and improving our provisioning platforms and customer service for both resellers and end-users. In addition, Tucows Domains also generate revenues through the sale of names from our portfolio of domain names and through the OpenSRS, eNom, and Ascio Domain Expiry Stream. The revenue associated with names sales and advertising has recently experienced flat to declining trends due to the uncertainty around the implementation of ICANN’s New gTLD Program, lower traffic and advertising yields in the marketplace, which we expect to continue.

From time-to-time certain of our vendors provide us with market development funds to expand or maintain the market position for their services. Any decision by these vendors to cancel or amend these programs for any reason may result in payments in future periods not being commensurate with what we have achieved during past periods.

Other opportunities, challenges and risks

The Company is entitled to a long-term payment stream that is a function of the margin generated by the transferred Ting Mobile subscribers over the 10-year term of the DISH Purchase Agreement executed in Fiscal 2020. This consideration structure may not prove to be successful or profitable in the long-term to us if the existing subscriber base churns at an above average rate. Additionally, given DISH controls the revenues and costs incurred associated with the acquired subscribers, there could arise a situation where profitability for the subscriber base is diminished either by lower price points or cost inflation. Additionally, as part of the DISH Purchase agreement, the Company retained a small number of customer accounts associated with one MNO agreement that was not reassigned to DISH at time of sale. We continue to be subject to the minimum revenue commitments previously agreed to with this excluded MNO agreement. The Company is able to continue adding customers under the excluded MNO network. However, with no direct ability to change customer pricing and limited ability to renegotiate contract costs or significant terms, the Company may be unable to meet the minimum commitments with this MNO partner and could incur significant and recurring penalties until such a time that the contract is complete. These penalties would negatively impact our operational performance and financial results if enforced by the MNO. As a result of a successful negotiation with the MNO partner in Fiscal 2022, the Company was able to defer the impact of the penalties into Fiscal 2023 and beyond. The Company expects to incur penalties starting in Fiscal 2023 and thereafter until the contract is complete. The expected penalties in Fiscal 2023 are $0.5 million and the penalties could increase until the end of the contract in 2025.

An in-depth assessment of the risk factors impacting our businesses has been discussed at length above in Part I under the caption "Item 1A Risk Factors" in this Annual Report on Form 10-K.

Critical Accounting Estimates

The following is a discussion of our critical accounting estimates. Critical accounting estimates are defined as those that are both important to the portrayal of our financial condition and results of operations and are reflective of significant judgments and uncertainties made by management that may result in materially different results under different assumptions and conditions. “Note 2 – Significant Accounting Policies” of the Notes to the Consolidated Financial Statements for Fiscal 2022 included in Part II, Item 8 of this Annual Report, includes further information on the significant accounting policies and methods used in the preparation of our consolidated financial statements.

The preparation of the consolidated financial statements in accordance with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. Management bases its estimates on historical experience, available market information as applicable, and on various other assumptions that are believed to be reasonable under the circumstances at the time they are made. Under different assumptions or conditions, the actual results will differ, potentially materially, from those previously estimated. Many of the conditions impacting these assumptions and estimates are outside of the Company’s control. Management evaluates its estimates on an on-going basis.

Contracts with multiple performance obligations

Our platform service contract contains multiple performance obligations with DISH. We are required to allocate the transaction price between performance obligations - Platform Services and Professional Services, which impacts the timing of revenue recognition. We determine the stand-alone selling price of Platform Services using the residual method, which requires us to make estimates of future consideration earned during the entire term of the mobile platform service contract as well as the stand-alone selling price of Professional Services. Changes in assumptions could cause an increase or decrease in the amount of revenue that we report in a particular period.

Acquired customer relationships

For acquired customer relationships, the Company estimates the fair value based on the income approach. The income approach is a valuation technique that calculates the fair value of an intangible asset based on the present value of future cash flows expected to be generated over the remaining useful life of the asset. This valuation involves significant subjectivity and estimation uncertainty, including assumptions related to future revenues attributable to acquired customer relationships, attrition rates and discount rates.

Loss contingencies

We are sometimes subject to claims, suits, regulatory and government investigations, and other proceedings involving competition, intellectual property, privacy, tax and related compliance, labor and employment, commercial disputes, and other matters. Certain of these matters include speculative claims for substantial or indeterminate amounts of damages. We record a liability when we believe that it is probable that a loss has been incurred and the amount can be reasonably estimated.

We evaluate, on a regular basis, developments in our legal matters that could affect the amount of liability that has been previously accrued, and the matters and related reasonably possible losses disclosed, and make adjustments and changes to our disclosures as appropriate. Significant judgment is required to determine both the likelihood and the estimated amount of a loss related to such matters. Until the final resolution of such matters, there may be an exposure to loss in excess of the amount recorded, and such amounts could be material.

Impairment of Goodwill and intangibles

We evaluate factors such as macro-economic, industry and market conditions including the capital markets, the competitive environment, in addition to other internal factors including changes to our market capitalization, cash inflows, obligations and access to capital of our segments. We concluded that there were no indications of impairment under the qualitative approach. The analysis was consistent with the approach we utilized in our analysis performed in prior years.

Any changes to our key assumptions about our businesses and our prospects, or changes in market conditions, could cause the fair value of our operating segments to fall below its carrying value, resulting in a potential impairment charge. In addition, changes in our organizational structure or how our management allocates resources and assesses performance, could result in a change in our operating segments, requiring a reallocation and updated impairment analysis of goodwill and indefinite life intangible assets.

Changes in estimates

There were no material changes to our critical accounting estimates during Fiscal 2022.

Revenue Recognition Policy

The Company's revenues are derived from (a) the provisioning of retail fiber Internet services in our Ting segment, (b) the provisioning of CSP focused platform services and professional services in our Wavelo segment; and from (c) domain name registration contracts, other domain related value-added services, domain sale contracts, and other advertising revenue in our Tucows Domains segment. Amounts received in advance of meeting the revenue recognition criteria described below are recorded as deferred revenue. All products are generally sold without the right of return or refund.

Revenue is measured based on consideration specified in a contract with a customer and excludes any sales incentives and amounts collected on behalf of third parties. The Company recognizes revenue when it satisfies a performance obligation by transferring control over a product or service to a customer.

Nature of goods and services

The following is a description of principal activities – separated by reportable segments – from which the Company generates its revenue. For more detailed information about reportable segments. See "Note 20 – Segment Reporting" of the Notes to the Consolidated Financial Statements included in this report for more information.

(a) Ting

Ting and its subsidiaries - Cedar, and Simply Bits includes the provision of high-speed Internet access services to select towns throughout the United States, with further expansion underway to both new and existing markets. Our primary sales channel is through the Ting website. The primary focus of this segment is to provide reliable Gigabit Fiber and Fixed Wireless Internet services to consumer and business customers. Revenues are all generated in the U.S., have no fixed contract terms and are billed on a monthly basis, with unlimited bandwidth based on a fixed price.

The Company's billing cycle for all Ting Internet customers is computed based on the customer's activation date. Since consideration is collected before the service period, revenue is initially deferred and recognized as the Company performs its obligation to provide Internet access within each reporting period. In addition, revenues associated with the sale of Internet hardware to subscribers are recognized when title and risk of loss is transferred to the subscriber and shipment has occurred. Incentive marketing credits given to customers are recorded as a reduction of revenue.

In those cases where payment is not received at the time of sale, as is the case for service requiring installation, then revenue is not recognized until a customer's service is activated. The Company records costs that reflect expected refunds, rebates and credit card charge-backs as a reduction of revenues at the time of the sale based on historical experiences and current expectations.

(b) Wavelo

Platform Services

Tucows' Platform Services include the following full-service platforms from Wavelo, including MONOS, ISOS, SM and our legacy Platypus ISP Billing software. Under each of these platforms there are a variety of solutions that support CSPs, including subscription and billing management, network orchestration and provisioning, and individual developer tools. Wavelo launches as a proven asset for CSPs, with DISH using Wavelo's MONOS software to drive additional value within its Digital Operator Platform since 2021. More recently, Ting has also integrated Wavelo's ISOS and SM software to enable faster subscriber growth and footprint expansion. Wavelo's customers are billed monthly, on a postpaid basis. The monthly fees are variable, based on the volume of their subscribers utilizing the platform during a given month, to which minimums may apply. Customers may also be billed fixed platform fees and granted fixed credits as part of the consideration for long-term contracts. Consideration received is allocated to platform services and bundled professional services and recognized as each service obligation is fulfilled. Any fixed fees for Wavelo are recognized into revenue evenly over the service period, while variable usage fees are recognized each month as they are consumed. Professional services revenue is recognized as the hours of professional services granted to the customer are used or expire. When consideration for these platform services is received before the service is delivered, the revenue is initially deferred and recognized only as the Company performs its obligation to provide services. Likewise, if platform services are delivered before the Company has the unconditional right to invoice the customer, revenue is recognized as a Contract Asset.

Other Professional Services

This revenue stream includes any other professional services earned in connection with the Wavelo business from the provision of standalone technology services development work. These are billed to our customers monthly at set and established rates for services provided in period. The Company recognizes revenue over this revenue stream as the Company satisfies its obligations to provide professional services.

(c) Tucows Domains

Wholesale - Domain Services

Domain registration contracts, which can be purchased for terms of one to ten years, provide our resellers and retail registrant customers with the exclusive right to a personalized internet address from which to build an online presence. The Company enters into domain registration contracts in connection with each new, renewed and transferred-in domain registration. At the inception of the contract, the Company charges and collects the registration fee for the entire registration period. Though fees are collected upfront, revenue from domain registrations are recognized ratably over the registration period as domain registration contracts contain a 'right to access' license of IP, which is a distinct performance obligation measured over time. The registration period begins once the Company has confirmed that the requested domain name has been appropriately recorded in the registry under contractual performance standards.

Historically, our wholesale domain service has constituted the largest portion of our business and encompasses all of our services as an accredited registrar related to the registration, renewal, transfer and management of domain names. In addition, this service fuels other revenue categories as it often is the initial service for which a reseller will engage us, enabling us to follow on with other services and allowing us to add to our portfolio by purchasing names registered through us upon their expiration. Tucows Domains will continue to be the largest portion of our business and will further fuel our ability to sell add-on services.

The Company is an ICANN accredited registrar. Thus, the Company is the primary obligor with our reseller and retail registrant customers and is responsible for the fulfillment of our registrar services to those parties. As a result, the Company reports revenue in the amount of the fees we receive directly from our reseller and retail registrant customers. Our reseller customers maintain the primary obligor relationship with their retail customers, establish pricing and retain credit risk to those customers. Accordingly, the Company does not recognize any revenue related to transactions between our reseller customers and their ultimate retail customers.

Wholesale – Value-Added Services

We derive revenue from domain related value-added services like digital certifications, WHOIS privacy and hosted email and by providing our resellers and retail registrant customers with tools and additional functionality to be used in conjunction with domain registrations. All domain related value-added services are considered distinct performance obligations which transfer the promised service to the customer over the contracted term. Fees charged to customers for domain related value-added services are collected at the inception of the contract, and revenue is recognized on a straight-line basis over the contracted term, consistent with the satisfaction of the performance obligations.

We also derive revenue from other value-added services, which primarily consists of proceeds from the OpenSRS, eNom and Ascio domain expiry streams.

Retail

We derive revenues mainly from Hover and eNom's retail properties through the sale of retail domain name registration and email services to individuals and small businesses. The retail segment now includes the sale of the rights to its portfolio of surname domains used in connection with our RealNames email and Linux hosting services for websites through our Exact Hosting brand.

For information about geographic areas, see "Note 20– Segment Reporting" of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report.

(d) Tucows Corporate - Mobile Services and Eliminations

Although we still provide mobile telephony services to a small subset of customers retained through the Ting Mobile brand as part of the DISH Purchase Agreement executed in Fiscal 2020; this revenue stream no longer represents the Company's strategic focus going forward. Instead we have transitioned towards being a platform provider for CSPs globally via our Wavelo segment. Where these retail mobile services revenues were previously disclosed as part of a Mobile Services segment in the prior year, effective January 1, 2022 we have decided to exclude retail telephony services and transition services revenues from segment EBITDA results as they are no longer centrally managed and not monitored by or reported to our CEO by segment.

Ting Mobile wireless usage contracts grant customers access to standard talk, text and data mobile services. Ting Mobile contracts are billed based on the customer's selected rate plan, which can either be usage based or an unlimited plan. All rate plan options are charged to customers on a postpaid, monthly basis at the end of their billing cycle. All future revenues associated with Retail Mobile Services stream will only be for this subset of customers retained by the Company, as mentioned above. Ting Mobile services are primarily contracted through the Ting website, for one month at a time and contain no commitment to renew the contract following each customer's monthly billing cycle. The Company's billing cycle for all Ting Mobile customers is computed based on the customer's activation date. In order to recognize revenue as the Company satisfies its obligations, we compute the amount of revenues earned but not billed from the end of each billing cycle to the end of each reporting period. In addition, revenues associated with the sale of wireless devices and accessories are recognized when title and risk of loss is transferred to the customer and shipment has occurred. Incentive marketing credits given to customers are recorded as a reduction of revenue.

These Mobile Services revenue streams also includes transitional services provided to DISH. These are billed monthly at set and established rates for services provided in period and include the provision of sales, marketing, customer support, order fulfillment, and data analytics related to the legacy customer base sold to DISH. The Company recognizes revenue as the Company satisfies its obligations to provide transitional services.

As a form of consideration for the sale of the customer relationships, the Company receives a payout on the margin associated with the legacy customer base sold to DISH, over a period of 10 years. This has been classified as Other Income and not considered revenue in the current period.

Valuation of Goodwill, Intangible Assets and Long-Lived Assets

The excess of the purchase price over the fair values of the identifiable assets and liabilities from our acquisitions is recorded as goodwill. At December 31, 2022, we had $130.4 million in goodwill related to our acquisitions and $39.8 million in intangible assets comprised of indefinite life intangibles of $12.3 million and finite life intangible assets of $27.5 million. At December 31, 2021, we had $130.4 million in goodwill related to our acquisitions and $50.4 million in intangible assets comprised of indefinite life intangibles of $12.3 million and finite life intangible assets of $38.1 million. As described above, we report our financial results as three operating segments, Ting, Wavelo and Tucows Domains. The goodwill balance is built up of $107.7 million (83%) related to Tucows Domains and $22.7 million (17%) related to Ting. Of our goodwill balance, $90.3 million is not deductible for tax purposes. Seventy-one percent of intangible assets relate to our Tucows Domains operating segment and 29% of intangible assets relate to our Ting segment.

We account for goodwill and indefinite life intangible assets in accordance with the Financial Accounting Standards Board ("FASB")'s authoritative guidance, which requires that goodwill and indefinite life intangible assets are not amortized, but are subject to an annual impairment test. We complete our impairment test on an annual basis, during the fourth quarter of our fiscal year, or more frequently, if changes in facts and circumstances indicate that impairment indicators are present.

Our indefinite life intangible assets consist of surname domain names and direct navigation domain names. In order to maintain our rights to these domain names, we pay annual renewal fees to the applicable domain name registries. Over the course of time, we sometimes decide not to renew certain under-performing domain names and incur an impairment charge associated with such non-renewal. There was no impairment recorded on indefinite-life intangible assets during 2022, 2021 and 2020.

With regard to long-lived assets comprised of property and equipment and finite life intangible assets, we continually evaluate whether events or circumstances have occurred that indicate the remaining estimated useful lives of our definite-life intangible assets may warrant revision or whether the carrying amount of such assets may not be recoverable and exceed their fair value. We use an estimate of the related undiscounted cash flows over the remaining life of the asset in measuring whether the asset is recoverable. During Fiscal 2022 and 2021 there was no impairment recorded on definite-life intangible assets and property and equipment. In 2020 there was a $1.4 million impairment recorded on definite-life intangible assets associated with the shutdown of the Roam Mobility brands.

We performed a qualitative assessment to determine whether there were events or circumstances which would lead to a determination, whether it is more likely than not, that goodwill and indefinite life intangible assets have been impaired. In performing the qualitative testing, we made an evaluation of the impact of various factors to the expected future cash flows attributable to our operating segments and to the assumed discount rate which would be used to present value those cash flows. Consideration was given to factors such as macro-economic, industry and market conditions including the capital markets, the competitive environment, in addition to other internal factors including changes to our market capitalization, cash inflows, obligations and access to capital of our segments. We concluded that there were no indications of impairment under the qualitative approach. The analysis was consistent with the approach we utilized in our analysis performed in prior years.

In connection with business acquisitions that we have completed, we identify and estimate the fair value of net assets acquired, including certain identifiable intangible assets (other than goodwill) and liabilities assumed. The determination of acquisition date fair values requires us to make significant estimates and assumptions regarding projected revenues, costs, earnings before interest, taxes, depreciation and amortization, attrition rates and discount rates. Changes to these assumptions may result in material differences depending on the size of the acquisition completed.

Any changes to our key assumptions about our businesses and our prospects, or changes in market conditions, could cause the fair value of our operating segments to fall below its carrying value, resulting in a potential impairment charge. In addition, changes in our organizational structure or how our management allocates resources and assesses performance, could result in a change in our operating segments, requiring a reallocation and updated impairment analysis of goodwill and indefinite life intangible assets. A goodwill or intangible asset impairment charge could have a material effect on our consolidated financial statements because of the significance of goodwill and intangible assets to our consolidated balance sheet. There was no further impairment of goodwill or intangible assets, both definite and indefinite life, as a result of the annual impairment tests completed during the fourth quarters of 2022, 2021 or 2020.

Accounting for Income Taxes

We operate in various tax jurisdictions, and accordingly, our income is subject to varying rates of tax. Losses incurred in one jurisdiction cannot be used to offset income taxes payable in another jurisdiction. Our ability to use income tax loss carry forwards and future income tax deductions is dependent upon our operations in the tax jurisdictions in which such losses or deductions arise. Significant judgment is required in determining our provision for income taxes and evaluating our uncertain tax positions.

We account for income taxes under the asset and liability method, which recognizes the deferred tax assets or liabilities for the anticipated future tax effects of temporary differences between the financial statement basis and the tax basis of our assets and liabilities. Valuation allowances are established to reduce deferred tax assets when it is more likely than not that the benefit from the deferred tax assets will not be realized. In assessing the need for valuation allowance, historical and future levels of income, expectations and risks associated with estimates of future taxable income and tax planning strategies are considered. As at December 31, 2022, the valuation allowance of $17.6 million was related to foreign tax credits that we are not expected to realize.

We apply a two-step approach to recognizing and measuring uncertain tax positions. The first step is to evaluate the tax position for recognition by determining if on the weight of available evidence, it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit that is more than 50% likely to be realized upon settlement. As at December 31, 2022, we did not recognize any uncertain tax provisions within the provision for income taxes.

See Note 9 to the Consolidated Financial Statements for further information regarding income taxes included in Part II, Item 8 of this Annual Report.

Recently Issued Accounting Standards

See “Note 2 – Significant Accounting Policies” of the Notes to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report for information regarding recently issued accounting standards.

Current COVID-19 response and expected impacts

The global COVID-19 pandemic continued to persist through Fiscal 2022, however the financial and operational impacts from COVID-19 on our business have been limited. Management continues to assess the impact regularly but expects limited financial and operational impact through the upcoming fiscal year, should the COVID-19 pandemic persist. While the spread of COVID-19 may eventually be contained or mitigated, there is no guarantee that a future outbreak will not occur as evidenced by numerous variants of the virus emerging. As a Company, we have transitioned to defining ourselves as a remote-first organization, and continue to enforce a full vaccination policy for any employees working from a Company office, meeting in person with customers or travel by plane or train for business purposes. We have not experienced any productivity issues, material resource constraints nor do we foresee requiring any material expenditures to continue to implement our business continuity plans described above. Likewise, we have not experienced nor do we foresee any future impacts to our liquidity position, credit risk, internal controls or impacts to our accounting policies as a result of the COVID-19 pandemic.

RESULTS OF OPERATIONS FOR THE YEAR ENDED DECEMBER 31, 2022 AS COMPARED TO THE YEAR ENDED DECEMBER 31 2021

NET REVENUES

Ting

Ting and its subsidiaries - Cedar, and Simply Bits includes the provision of high-speed Internet access services to select towns throughout the United States, with further expansion underway to both new and existing markets. Our primary sales channel is through the Ting website. The primary focus of this segment is to provide reliable Gigabit Fiber and Fixed Wireless Internet services to consumer and business customers. Revenues are all generated in the U.S., have no fixed contract terms and are billed on a monthly basis, with unlimited bandwidth based on a fixed price.

The Company's billing cycle for all Ting Internet customers is computed based on the customer's activation date. Since consideration is collected before the service period, revenue is initially deferred and recognized as the Company performs its obligation to provide Internet access within each reporting period. In addition, revenues associated with the sale of Internet hardware to subscribers are recognized when title and risk of loss is transferred to the subscriber and shipment has occurred. Incentive marketing credits given to customers are recorded as a reduction of revenue.

In those cases where payment is not received at the time of sale, as is the case for service requiring installation, then revenue is not recognized until a customer's service is activated. The Company records costs that reflect expected refunds, rebates and credit card charge-backs as a reduction of revenues at the time of the sale based on historical experiences and current expectations.

Wavelo

Platform Services

Tucows' Platform Services include the following full-service platforms from Wavelo, including MONOS, ISOS, SM and our legacy Platypus ISP Billing software. Under each of these platforms there are a variety of solutions that support CSPs, including subscription and billing management, network orchestration and provisioning, and individual developer tools. Wavelo launches as a proven asset for CSPs, with DISH using Wavelo’s MONOS software to drive additional value within its Digital Operator Platform since 2021. More recently, Ting has also integrated Wavelo’s ISOS and SM software to enable faster subscriber growth and footprint expansion. Wavelo's customers are billed monthly, on a postpaid basis. The monthly fees are variable, based on the volume of their subscribers utilizing the platform during a given month, to which minimums may apply. Customers may also be billed fixed platform fees and granted fixed credits as part of the consideration for long-term contracts. Consideration received is allocated to platform services and bundled professional services and recognized as each service obligation is fulfilled. Any fixed fees for Wavelo are recognized into revenue evenly over the service period, while variable usage fees are recognized each month as they are consumed. Professional services revenue is recognized as the hours of professional services granted to the customer are used or expire. When consideration for these platform services is received before the service is delivered, the revenue is initially deferred and recognized only as the Company performs its obligation to provide services. Likewise, if platform services are delivered before the Company has the unconditional right to invoice the customer, revenue is recognized as a Contract Asset.

Other Professional Services

This revenue stream includes any other professional services earned in connection with the Wavelo business from the provision of standalone technology services development work. These are billed to our customers monthly at set and established rates for services provided in period. The Company recognizes revenue over this new revenue stream as the Company satisfies its obligations to provide professional services.

Tucows Domains

Wholesale - Domain Services

Domain registration contracts, which can be purchased for terms of one to ten years, provide our resellers and retail registrant customers with the exclusive right to a personalized internet address from which to build an online presence. The Company enters into domain registration contracts in connection with each new, renewed and transferred-in domain registration. At the inception of the contract, the Company charges and collects the registration fee for the entire registration period. Though fees are collected upfront, revenue from domain registrations are recognized ratably over the registration period as domain registration contracts contain a ‘right to access’ license of IP, which is a distinct performance obligation measured over time. The registration period begins once the Company has confirmed that the requested domain name has been appropriately recorded in the registry under contractual performance standards.

Historically, our wholesale domain service has constituted the largest portion of our business and encompasses all of our services as an accredited registrar related to the registration, renewal, transfer and management of domain names. In addition, this service fuels other revenue categories as it often is the initial service for which a reseller will engage us, enabling us to follow on with other services and allowing us to add to our portfolio by purchasing names registered through us upon their expiration. We expect Domain services will continue to be the largest portion of our business and will continue to enable us to sell add-on services.

The Company is an ICANN accredited registrar. Thus, the Company is the primary obligor with our reseller and retail registrant customers and is responsible for the fulfillment of our registrar services to those parties. As a result, the Company reports revenue in the amount of the fees we receive directly from our reseller and retail registrant customers. Our reseller customers maintain the primary obligor relationship with their retail customers, establish pricing and retain credit risk to those customers. Accordingly, the Company does not recognize any revenue related to transactions between our reseller customers and their ultimate retail customers.

Wholesale – Value-Added Services

We derive revenue from domain related value-added services like digital certifications, WHOIS privacy and hosted email and by providing our resellers and retail registrant customers with tools and additional functionality to be used in conjunction with domain registrations. All domain related value-added services are considered distinct performance obligations which transfer the promised service to the customer over the contracted term. Fees charged to customers for domain related value-added services are collected at the inception of the contract, and revenue is recognized on a straight-line basis over the contracted term, consistent with the satisfaction of the performance obligations.

We also derive revenue from other value-added services, which primarily consists of proceeds from the OpenSRS, eNom and Ascio domain expiry streams.

Retail

We derive revenues mainly from Hover and eNom’s retail properties through the sale of retail domain name registration and email services to individuals and small businesses. The retail segment now includes the sale of the rights to its portfolio of surname domains used in connection with our RealNames email service and Linux hosting services for websites through our Exact Hosting brand.

Tucows Corporate - Mobile Services and Eliminations

Although we still provide mobile telephony services to a small subset of customers retained through the Ting Mobile brand as part of the DISH Purchase Agreement executed in Fiscal 2020; this revenue stream no longer represents the Company's strategic focus going forward. Instead we have transitioned towards being a Wavelo provider for CSPs globally. Where these retail mobile services revenues were previously disclosed as part of a Mobile Services segment in the prior year, effective January 1, 2022 we have decided to exclude retail telephony services and transition services revenues from segment EBITDA results as they are no longer centrally managed and not monitored by or reported to our CEO by segment.

Ting Mobile wireless usage contracts grant customers access to standard talk, text and data mobile services. Ting Mobile contracts are billed based on the customer's selected rate plan, which can either be usage based or an unlimited plan. All rate plan options are charged to customers on a postpaid, monthly basis at the end of their billing cycle. All future revenues associated with Retail Mobile Services stream will only be for this subset of customers retained by the Company, as mentioned above. Ting Mobile services are primarily contracted through the Ting website, for one month at a time and contain no commitment to renew the contract following each customer's monthly billing cycle. The Company's billing cycle for all Ting Mobile customers is computed based on the customer's activation date. In order to recognize revenue as the Company satisfies its obligations, we compute the amount of revenues earned but not billed from the end of each billing cycle to the end of each reporting period. In addition, revenues associated with the sale of wireless devices and accessories are recognized when title and risk of loss is transferred to the customer and shipment has occurred. Incentive marketing credits given to customers are recorded as a reduction of revenue

These Mobile Services revenue streams also includes transitional services provided to DISH. These are billed monthly at set and established rates for services provided in period and include the provision of sales, marketing, customer support, order fulfillment, and data analytics related to the legacy customer base sold to DISH. The Company recognizes revenue as the Company satisfies its obligations to provide transitional services.

As a form of consideration for the sale of the customer relationships, the Company receives a payout on the margin associated with the legacy customer base sold to DISH, over a period of 10 years. This has been classified as Other Income and not considered revenue in the current period.

The following table presents our net revenues, by revenue source:

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31, 2022	2021
Ting:		
Fiber Internet Services	$ 42,425	$ 25,327
Wavelo:		
Platform Services	22,594	13,031
Other professional services	1,750	3,750
Total Wavelo	24,344	16,781
Tucows Domains:		
Wholesale		
Domain Services	187,542	189,091
Value Added Services	20,712	20,942
Total Wholesale	208,254	210,033
Retail	34,904	35,543
Total Tucows Domains	243,158	245,576
Tucows Corporate:		
Mobile Services and eliminations	11,215	16,653
	$ 321,142	$ 304,337
Increase over prior period	$ 16,805	
Increase - percentage	6%	

The following table presents our revenues, by revenue source, as a percentage of total revenues:

	Year ended December 31, 2022	2021
Ting:		
Fiber Internet Services	13%	8%
Wavelo:		
Platform Services	7%	4%
Other Professional Services	1%	1%
Total Wavelo	8%	5%
Tucows Domains:		
Wholesale		
Domain Services	58%	62%
Value Added Services	6%	7%
Total Wholesale	64%	69%
Retail	11%	12%
Total Tucows Domains	75%	81%
Tucows Corporate:		
Mobile services and eliminations	4%	6%
	100%	100%

Total net revenues for Fiscal 2022 increased by $16.8 million, or 6%, to $321.1 million from $304.3 million for the Fiscal 2022. The overall increase in revenue was primarily driven by the $17.1 million increase in revenues attributable to our Ting segment. Ting experienced both growth in customers as we continued to build out our Ting Internet footprint as well as acquisition led revenue growth from our prior year acquisition of Simply Bits. This increase was furthered by Wavelo, contributing an increased $7.6 million to revenues, a result of increased MONOS platform revenues earned from the migration of additional subscribers onto our new platforms. The increases these two segments experienced were partially offset by reduced revenues from Mobile Services and eliminations and Tucows Domains of $5.4 million and $2.4 million, respectively. The decrease in Mobile Services and eliminations was attributable to decreased transitional services revenues, and the decrease from Tucows Domains segment from the continued normalization of domain registration growth and renewal rates from those observed as a result of the COVID-19 pandemic in prior years.

Deferred revenue at December 31, 2022 decreased by $2.7 million to $145.1 million from $147.8 million at December 31, 2021. This decrease was primarily driven by our Domain Services segment, accounting for $3.2 million of the decrease due to recognition of previously deferred billings for registrations and renewals growth experienced in prior years in connection with COVID-19. This decrease was partially offset by an increase in deferred revenues associated with Ting and Wavelo of $0.3 million and $0.2 million, respectively. For Ting, the increase is reflective of the continued growth in customer base and billings for that segment relative to December 31, 2021; and for Wavelo, the increase is reflective of additional other professional services revenues for standalone technology services development work with DISH which have been deferred until such time as that work is complete and we've satisfied our obligations to provide the professional services.

No customer accounted for more than 10% of revenue during Fiscal 2022 or during the year ended December 31, 2021 ("Fiscal 2021"). At both December 31, 2022 and as at December 31, 2021, DISH accounted for 46% of total accounts receivable.

Though a significant portion of the Company’s domain services revenues are prepaid by our customers, where the Company does collect receivables, significant management judgment is required at the time revenue is recorded to assess whether the collection of the resulting receivables is reasonably assured. On an ongoing basis, we assess the ability of our customers to make required payments. Based on this assessment, we expect the carrying amount of our outstanding receivables, net of allowance for doubtful accounts, to be fully collected.

Ting

Ting generated $42.4 million in revenue during Fiscal 2022, which increased by $17.1 million or 68% compared to Fiscal 2021. This growth is driven by continued subscriber growth across the markets we serve, as well as the continued expansion of our Ting Internet footprint to new Ting towns throughout the United States. Included in this $17.1 million increase of revenues is $7.6 million attributed to the prior year acquisition of Simply Bits, which closed in the fourth quarter of Fiscal 2021.

As of December 31, 2022, Ting Internet had access to 96,000 owned infrastructure serviceable addresses, 20,000 partner infrastructure serviceable addresses and 35,000 active accounts under its management; compared to having access to 76,000 owned infrastructure serviceable addresses, 15,000 partner infrastructure serviceable addresses and 26,000 active accounts under its management as of December 31, 2021. These figures exclude the increase in serviceable addresses and accounts attributable to the Simply Bits acquisition.

Wavelo

Platform Services

Wavelo's Platform services generated $22.6 million in revenue during Fiscal 2022, which increased by $9.6 million or 74% compared to Fiscal 2021. This is driven from increased MONOS platform revenues earned from the migration of additional DISH subscribers, from their Boost Mobile brand onto our new platform. The increased platform fees are partially offset by a reduction of revenues related to the amortization of the related contract asset with DISH. The Company expects the contract asset to continue to amortize against revenue through the remainder of Fiscal 2023 and thereafter as we continue to fulfill the performance obligations of the contract. Our full-service platforms support CSPs with subscription and billing management, network orchestration and provisioning, and individual developer tools. Wavelo launched as a proven asset for CSPs, with DISH using Wavelo's MONOS software to drive additional value within its Digital Operator Platform since 2021. More recently, Ting Internet has also integrated Wavelo's ISOS and SM software to enable faster subscriber growth and footprint expansion. Any intercompany ISOS or SM revenues earned from Ting Internet are eliminated upon consolidation.

Other Professional Services

Wavelo's Other Professional Services for the Fiscal 2022, decreased by $2.0 million compared to Fiscal 2021, to $1.8 million. This decrease is a result of a less professional service engagements for the provision of standalone technology services development work for DISH as they shift focus to migrating subscribers at scale onto our MONOS platform.

Tucows Domains

Wholesale - Domain Services

During Fiscal 2022, Wholesale Tucows Domains revenue decreased by $1.6 million or 1% to $187.5 million. Decreases from Wholesale domain registrations were driven by the continued normalization of domain name registration growth and slowed renewal rates from those observed at the onset of the COVID-19 pandemic, where we experienced domain name registration growth from our large volume resellers across our Tucows Domains brands as more individuals and businesses established an online presence. The majority of the decrease in revenues is from our OpenSRS brand, followed by Ascio, EPAG, and eNom respectively.

Together the OpenSRS, eNom, EPAG and Ascio Domain Services manage 24.4 million domain names under the Tucows, eNom, EPAG and Ascio ICANN registrar accreditations and for other registrars under their own accreditations. Domains under management has decreased by 0.8 million domain names since December 31, 2021. The decrease is driven by lower renewal rates from the normalization of registration growth back to pre-pandemic levels.

Wholesale - Value Added Services

Net revenues from value-added services decreased by $0.2 million to $20.7 million compared to Fiscal 2021. The decrease in value-added service revenue was primarily driven by lower expiry stream proceeds across our Domain Services brands. As a result of the normalization of renewal rates and domains under management discussed above in connection to COVID-19, Fiscal 2022 continued to benefit from a significant volume of expired domain names registered in the past year being available for our expiry streams, which returned favorable proceeds at auction and drove revenue generation for value added services, albeit at a slower rate as the value of domain names sold at auction has declined relative to the prior period.

Retail

Net revenues from retail decreased by $0.6 million to $34.9 million compared to Fiscal 2021. The decrease in revenue was primarily related to a decrease in retail domain name registrations of $1.6 million relative to Fiscal 2021. This decrease was partially offset by an increase in Portfolio sales of $0.7 million and Exact Hosting revenues of $0.3 million.

Tucows Corporate - Mobile Services and Eliminations

Net revenues from Mobile Services and eliminations for the Fiscal 2022, decreased by $5.5 million compared to Fiscal 2021, to $11.2 million. This decrease was driven by decreased transitional services revenues from DISH of $5.1 million, notably from a decreased level of customer support and marketing services provided to DISH in connection with the legacy Ting Mobile customer base. This decrease was partially offset by an increase in revenues of $0.4 million associated with the mobile telephony services and device revenues from the small group of customers retained by the Company as part of the DISH Purchase Agreement. Revenues increased as a result of the organic subscriber growth we experienced through Fiscal 2022. Additionally, corporate eliminations increased by $0.7 million as a result of the revenues associated with ISOS platform billing between Wavelo and Ting, which began in Fiscal 2022.

COST OF REVENUES

Ting

Cost of revenues primarily includes the costs for provisioning high speed Internet access for Ting and its subsidiaries - Cedar, and Simply Bits, which is comprised of network access fees paid to third-parties to use their network, leased circuit costs to directly support enterprise customers, the personnel and related expenses (net of capitalization) related to the physical planning, design, construction and build out of the physical Fiber network and as well as personnel and related expenses (net of capitalization) related to the installation, repair, maintenance and overall field service delivery of the Fiber business. Hardware costs include the cost of equipment sold to end customers, including routers, ONTs, and IPTV products, and any inventory adjustments on this inventory. Other costs include field vehicle expenses, small sundry equipment and supplies consumed in building the Fiber network.

Wavelo

Platform Services

Cost of revenues to provide the new MONOS, ISOS and SM platforms, as well as our legacy Platypus ISP Billing software services including network access, provisioning and billing services for CSPs. This includes the amortization of any capitalized contract fulfillment costs over the period consistent with the pattern of transferring network access, provisioning and billing services to which the cost relates. Additionally, this includes any fees paid to third-party service providers primarily for printing services in connection with the Platypus ISP Billing software.

Other Professional Services

Cost of revenues to provide standalone technology services development work to our CSP customers to help support their businesses. This includes any personnel and contractor fees for any client service resources retained by the Company. Only a subset of the Company's employee base provides professional services to our customers. This cost reflects that group of resources.

Tucows Domains

Wholesale - Domain Services

Cost of revenues for domain registrations represents the amortization of registry and accreditation fees on a basis consistent with the recognition of revenues from our customers, namely ratably over the term of provision of the service. Registry fees, the primary component of cost of revenues, are paid in full when the domain is registered, and are initially recorded as prepaid domain registry fees. This accounting treatment reasonably approximates a recognition pattern that corresponds with the provision of the services during the period. Market development funds that do not represent a payment for distinct goods or services provided by the Company, and thus do not meet the criteria for revenue recognition under Accounting Standard Update ("ASU") 2014-09, are reflected as cost of goods sold and are recognized as earned.

Wholesale - Value-Added Services

Costs of revenues for value-added services include licensing and royalty costs related to the provisioning of certain components of related to hosted email and fees paid to third-party hosting services. Fees payable for trust certificates are amortized on a basis consistent with the provision of service, generally one year, while email hosting fees and monthly printing fees are included in cost of revenues in the month they are incurred.

Retail

Costs of revenues for our provision and management of Internet services through our retail sites, Hover.com and the eNom branded sites, include the amortization of registry fees on a basis consistent with the recognition of revenues from our customers, namely ratably over the term of provision of the service. Registry fees, the primary component of cost of revenues, are paid in full when the domain is registered, and are recorded as prepaid domain registry fees and are expensed ratably over the renewal term. Costs of revenues for our surname portfolio represent the amortization of registry fees for domains added to our portfolio over the renewal period, which is generally one year, the value attributed under intangible assets to any domain name sold and any impairment charges that may arise from our assessment of our domain name intangible assets.

Tucows Corporate - Mobile Services and Eliminations

Cost of revenues for Retail Mobile Services includes the costs of provisioning mobile services, which is primarily our customers' voice, messaging, data usage provided by our MNO partner, and the costs of providing mobile phone hardware, which is the cost of mobile phone devices and SIM cards sold to our customers, order fulfillment related expenses, and inventory write-downs. Included in the costs of provisioning mobile services is any penalties associated with the minimum commitments with our MNO partner.

These Mobile Services costs also include the personnel and related costs of transitional services provided to DISH. These are billed monthly at set and established rates for services provided in period and include the provision of sales, marketing, customer support, order fulfillment, and data analytics related to the legacy customer base sold to DISH. The Company recognizes costs as the Company satisfies its obligations to provide professional services.

Network expenses

Network expenses include personnel and related expenses related to the core technologies, site reliability engineering and network operations, IT infrastructure and supply chain teams that support our various business segments. It also includes network depreciation and amortization, communication and productivity tool costs, and equipment maintenance costs. Communication and productivity tool costs includes collaboration, customer support, bandwidth, co-location and provisioning costs we incur to support the supply of all our services.

The following table presents our cost of revenues, by revenue source:

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31, 2022	2021
Ting:		
Fiber Internet Services	$ 17,004	$ 12,035
Wavelo:		
Platform Services	1,294	504
Other Professional Services	1,632	804
Total Wavelo	2,926	1,308
Tucows Domains:		
Wholesale		
Domain Services	147,894	147,213
Value Added Services	2,514	2,544
Total Wholesale	150,408	149,757
Retail	16,482	17,731
Total Tucows Domains	166,890	167,488
Tucows Corporate:		
Mobile services and eliminations	9,448	12,208
Network Expenses:		
Network, other costs	17,433	14,769
Network, depreciation and amortization costs	29,101	18,035
Network, impairment	92	201
	46,626	33,005
	$ 242,894	$ 226,044
Increase over prior period	$ 16,850	
Increase - percentage	7%	

The following table presents our cost of revenues, as a percentage of total cost of revenues for the periods presented:

	Year ended December 31, 2022	Year ended December 31, 2021
Ting:		
Fiber Internet Services	7%	5%
Wavelo:		
Platform Services	1%	-
Other Professional Services	1%	1%
Total Wavelo	2%	1%
Tucows Domains:		
Wholesale		
Domain Services	60%	65%
Value Added Services	1%	1%
Total Wholesale	61%	66%
Retail	7%	8%
Total Tucows Domains	68%	74%
Tucows Corporate:		
Mobile services and eliminations	4%	5%
Network Expenses:		
Network, other costs	7%	7%
Network, depreciation and amortization costs	12%	8%
Network, impairment	-	-
	19%	15%
	100%	100%

Total cost of revenues for Fiscal 2022 increased by $16.9 million to $242.9 million, from $226 million in Fiscal 2021. The increase was driven by a $13.6 million increase in Network Expenses. The increase from Network Expenses is a result of the expansion of the Company's network infrastructure associated with the continuing expansion of the Ting Internet network footprint, the ramp up of Wavelo's MONOS, ISOS and SM platforms, as well as increased communication and productivity tool costs across our operating segments. Another contributing factor was an increases from Ting and Wavelo of $5 million and $1.6 million respectively. As discussed above in the Net Revenues section, Ting has continued to add both serviceable addresses and active subscriptions relative to Fiscal 2021. Additionally, Wavelo's increased cost of revenues have been a driven by the completion of select standalone technology services development work with DISH in the current period. These increases were partially offset by a decrease of $0.6 million from Tucows Domains and a $2.7 million decrease related to Mobile Services and eliminations. The decrease in costs for Tucows Domains is aligned with the reduced net revenues discussed above in the Net Revenues section and the reduction in domains under management in the current period. The decrease related to Mobile Services and eliminations is also driven by decreased transitional services costs from the provision of less transitional services to DISH in the current period.

Deferred costs of fulfillment as of December 31, 2022 decreased by $2.0 million, or 2%, to $110.7 million from $112.7 million at December 31, 2021. This decrease was primarily driven by Wavelo, accounting for a $1.6 million decrease in the current period related to the completion of Other Professional Services discussed above for standalone technology services development work with DISH. As these professional services were completed in the current period, the deferred costs to fulfill those services were amortized into cost of revenues. This decrease was furthered by Tucows Domains which saw a decrease of $0.5 million, aligned with the movement in deferred revenues discussed above. Relative to COVID-19 pandemic levels, Fiscal 2022 was characterized by slowing growth in additions and renewals to domains under management, which has appropriately translated to less deferred costs of fulfillment for our Domain Services segment. Additionally, our Ting segment contributed to partially offset this overall decrease with an increase in deferred costs of fulfillment of less than $0.1 million relative to the past year.

Ting

In Fiscal 2022, costs related to provisioning high speed Internet access for Ting and its subsidiaries - Cedar, and Simply Bits increased $5.0 million, or 42%, to $17.0 million as compared to $12.0 million during Fiscal 2021. The increase in costs were primarily driven by increased direct costs, bandwidth and colocation costs related to the continued expansion of the Ting Fiber network. Included in this $5.0 million increase, $1.9 million related to the prior year acquisition of Simply Bits.

Wavelo

Platform Services

Cost of revenues from Wavelo Platform Services for Fiscal 2022 increased by $0.8 million to $1.3 million, when compared to Fiscal 2021. Cost incurred are driven by the amortization of previously capitalized costs incurred to fulfill the DISH Master Services Agreement ("MSA") over the term of the agreement. The continued incurrence of additional costs to fulfill the contract in Fiscal 2022 have resulted in increased amortization in the current period relative to the fixed term of the agreement.

Other Professional Services

Cost of revenues from Other Professional Services for Fiscal 2022 by $0.8 million to $1.6 million, when compared to Fiscal 2021. Costs incurred represent the personnel and related expenses of employees and contractors providing professional services to DISH. The increase in Other Professional Services costs relative to the prior period was a result of the completion of select standalone technology services development work for DISH in the current period, with limited comparable costs in the prior period.

Domain Services

Wholesale - Domain Services

Costs for wholesale domain services for Fiscal 2022 increased by $0.7 million to $147.9 million, when compared to Fiscal 2021. The increase to cost of revenues is driven by the prior period including volume rebates earned from registries for the high volume of domain name registrations through the COVID-19 pandemic as well as the Euro devaluation to the U.S. dollar, which made cost of revenues more expensive for our European brands Ascio and EPAG.

Wholesale - Value Added Services

Costs for wholesale value-added services for Fiscal 2022 remained flat at $2.5 million, when compared to Fiscal 2021.

Retail

Costs for retail for Fiscal 2022 decreased by $1.2 million, to $16.5 million, when compared to Fiscal 2021. The was driven by the declining volume of retail domain name registrations across our retail brands.

Tucows Corporate - Mobile Services and Eliminations

Cost of revenues from Mobile Services and eliminations for Fiscal 2022 decreased by $2.8 million when compared to Fiscal 2021 The decrease is consistent with the above discussion around net revenues, this was driven by decreased transitional services costs of $4.4 million, notably from a decreased level of customer support and marketing services provided to DISH in connection with the legacy Ting Mobile customer base. This decrease was partially offset by an increase in cost of revenues of $1.6 million associated with the mobile telephony services and device costs associated with the small group of customers retained by the Company as part of the DISH Purchase Agreement. Cost of revenues increase as a result of the organic growth of the customer base we experienced through Fiscal 2022. Cost of revenues are outpacing revenue growth due to the unlimited usage rate plans introduced in late Fiscal 2020 by DISH that were expanded and offered to the small group of customers retained by the Company.

Network Expenses

Network costs for Fiscal 2022 increased by $13.6 million to $46.6 million when compared to Fiscal 2021. The comparative increase was driven by increased depreciation of $10 million from the Company's increased network associated with the continuing expansion of the Ting Internet footprint and the depreciation of Wavelo's new platforms. This increase from depreciation was followed by increased network costs of $2.7 million from increased personnel and contracted service costs on Ting and Wavelo segments, as well as an increase in amortization of intangible assets of $0.9 million driven by the prior period acquisition of Simply Bits.

SALES AND MARKETING

Sales and marketing expenses consist primarily of personnel costs. These costs include commissions and related expenses of our sales, product management, public relations, call center, support and marketing personnel. Other sales and marketing expenses include customer acquisition costs, advertising and other promotional costs.

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2022	2021
Sales and marketing	$ 53,937	$ 39,471
Increase over prior period	$ 14,466	
Increase - percentage	37%	
Percentage of net revenues	17%	13%

Sales and marketing expenses for Fiscal 2022 increased by $14.5 million, or 37%, to $53.9 million when compared to Fiscal 2021. The increase in costs relate primarily to the investment in hiring additional personnel for Ting sales, product, marketing, customer support and success teams to drive growth in Ting markets. The current period also includes the teams acquired as part of the Simply Bits acquisition, and to a lesser extent a small ramp of hiring Wavelo sales and marketing teams. Outside of additional hiring, personnel costs were impacted by wage inflation across our three segments, with issued increases in excess of 5% to align with economic conditions and market rates. In addition to personnel related costs, both marketing related costs and facility costs increased to drive subscription growth given the increase in serviceable addresses available to Ting and to support our growing workforce in select Ting towns across the United States.

Excluding movements in exchange rates, we expect sales and marketing expenses for Fiscal 2023 to increase in absolute dollars, as we adjust our marketing programs and sales and customer support personnel costs to facilitate the continued expansion of Ting and ramp-up of Wavelo's go-to-market efforts.

TECHNICAL OPERATIONS AND DEVELOPMENT

Technical operations and development expenses consist primarily of personnel costs and related expenses required to support the development of new or enhanced service offerings and the maintenance and upgrading of existing infrastructure. This includes expenses incurred in the research, design and development of technology that we use to register domain names, network access services, email, retail, domain portfolio and other Internet services, as well as to distribute our digital content services. All technical operations and development costs are expensed as incurred.

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2022	2021
Technical operations and development	$ 14,187	$ 14,310
Decrease over prior period	$ (123)	
Decrease - percentage	(1)%	
Percentage of net revenues	4%	5%

Technical operations and development expenses for Fiscal 2022 decreased by $0.1 million, or 1%, to $14.2 million. The decrease in costs relates primarily to an increased level of capitalization of labor primarily in support of Wavelo's new platform builds for MONOS and ISOS, and to a lesser extend in support of Ting's network design and build. Gross personnel costs grew as a result of increased hiring of both employees and external contractors to provide development resources to assist our internal engineering teams with development aspects of the MONOS and ISOS platform. Additionally, personnel costs were impacted by wage inflation across our three segments, with issued increases in excess of 5% to align with economic conditions and market rates. Outside of personnel and external contractor costs, the Company also experienced increases in bandwidth costs in the current period, driven by the acquisition of Uniregistry assets in the fourth quarter of Fiscal 2021.

Excluding movements in exchange rates, we expect technical operations and development expenses for Fiscal 2023, in absolute dollars, to increase when compared to Fiscal 2022 to support the ongoing growth in our operations.

GENERAL AND ADMINISTRATIVE

General and administrative expenses consist primarily of compensation and related costs for managerial and administrative personnel, fees for professional services, public listing expenses, rent, foreign exchange and other general corporate expenses.

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2022	2021
General and administrative	$ 30,845	$ 22,370
Increase over prior period	$ 8,475	
Increase - percentage	38%	
Percentage of net revenues	10%	7%

General and administrative expenses for Fiscal 2022 increased by $8.5 million, or 38%, to $30.8 million as compared to Fiscal 2021. The increase was primarily driven by an increase in personnel costs driven by the growth of teams acquired as part of the Simply Bits acquisition and continued investment in hiring for administrative teams to better support our segments as part of our new corporate reorganization. Outside of additional hiring, personnel costs were impacted by wage inflation across our three segments, with issued increases in excess of 5% to align with economic conditions and market rates. Another driver of the increase was higher stock-based compensation expenses in order to attract, retain and scale core administrative teams to meet projected Company growth. Smaller contributors to the increase include other miscellaneous expenses such as business and property taxes, credit card fees and facility costs driven by Ting and the continuing expansion of the Ting Internet footprint.

Excluding movements in exchange rates, we expect general and administrative expenses for Fiscal 2023, in absolute dollars, to increase when compared to Fiscal 2022 largely to support the growth of our business.

DEPRECIATION OF PROPERTY AND EQUIPMENT

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2022	2021
Depreciation of property and equipment	$ 598	$ 534
Increase over prior period	$ 64	
Increase - percentage	12%	
Percentage of net revenues	0%	0%

Depreciation costs for Fiscal 2022 increased by less than $0.1 million to $0.6 million as compared to Fiscal 2021. The slight increase was due to the depreciation of additions to property and equipment, in particular computer hardware purchased in support of our expanding workforce.

LOSS (GAIN) ON DISPOSAL OF PROPERTY AND EQUIPMENT

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2022	2021
Loss on disposition of property and equipment	$ 461	$ 234
Increase over prior period	$ 227	
Increase - percentage	97	
Percentage of net revenues	0%	0%

Loss on disposal of property and equipment increased by $0.2 million to $0.5 million as compared to Fiscal 2021. The increase was a result of Fiscal 2022 including a disposal of minor internal use software related to Tucows Domains for which the Company no longer expects to realize the initial use and intended benefit that it initially did when those development costs were initially capitalized.

AMORTIZATION OF INTANGIBLE ASSETS

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2022	2021
Amortization of intangible assets	$ 9,882	$ 9,424
Increase over prior period	$ 458	
Increase - percentage	5%	
Percentage of net revenues	3%	3%

Amortization of intangible assets increased by $0.5 million, to $9.9 million as compared to Fiscal 2021. This increase in amortization was a result of the acquisition of Uniregistry assets in the fourth quarter of Fiscal 2021.

Network rights, brand and customer relationships acquired in connection with the following acquisitions are amortized on a straight-line basis over a range of two to seven years: eNom in January 2017, Ascio in March of 2019, Cedar in January 2020 and Simply Bits in November 2021.

LOSS (GAIN) ON CURRENCY FORWARD CONTRACTS

Although our functional currency is the U.S. dollar, a major portion of our fixed expenses are incurred in Canadian dollars. Our goal with regard to foreign currency exposure is, to the extent possible, to achieve operational cost certainty, manage financial exposure to certain foreign exchange fluctuations and to neutralize some of the impact of foreign currency exchange movements. Accordingly, we enter into foreign exchange contracts to mitigate the exchange rate risk on portions of our Canadian dollar exposure.

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31, 2022	2021
Loss (gain) on currency forward contracts	$ -	$ (277)
Increase over prior period	$ 277	
Increase - percentage	100%	
Percentage of net revenues	-%	0%

The Company recorded a net loss of nil in the change in fair value of outstanding contracts as well as realized on mature contracts during Fiscal 2022, compared to a net gain of $0.3 million during Fiscal 2021. This is driven by the Company having no unhedged contracts.

At December 31, 2022, our balance sheet reflects a derivative instrument asset of $1.9 million and a liability of $0.4 million as a result of our existing foreign exchange contracts. Until their respective maturity dates, these contracts will fluctuate in value in line with movements in the Canadian dollar relative to the U.S. dollar.

OTHER INCOME (EXPENSES)

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31, 2022	2021
Other income (expense), net	$ 3,874	$ 15,043
Increase over prior period	$ (11,169)	
Increase - percentage	(74)%	
Percentage of net revenues	1%	5%

Other income decreased by $11.2 million when compared to Fiscal 2021. This was partially due to higher interest incurred of $9.9 million on our Amended Credit Agreement as well as interest on redeemable preferred shares. In addition to higher interest expense, the Company experienced a $1.5 million decrease in the income earned on sale of transferred assets to DISH in the current period. As described above, the Company receives a payout on the margin associated with the legacy customer base sold to DISH over the 10-year term of the agreement, as form of consideration for the sale of the legacy customer relationships. The Company expects the gain on the sale of the Ting Customer Assets to continue to decrease over the term of the payout as legacy customers naturally churn away from Ting Mobile. These decreases were partially offset by a small increase from other interest and sundry income of $0.2 million.

INCOME TAXES

The following table presents our provision for income taxes for the periods presented:

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31, 2022	2021
Provision for income taxes	$ (217)	$ 3,906
Decrease in provision over prior period	$ (4,123)	
Decrease - percentage	(106)%	
Effective tax rate	1%	54%

Income taxes decreased by $4.1 million and the effective tax rate decreased from 54% to 1% when compared to the year ended December 31, 2021. The decrease in effective tax rate is primarily due to the change in net income before tax for the year, and it is partially offset by an increase in valuation allowance on foreign tax credits as a result of a change in the geographical mix of income and reduced excess tax benefits related to stock-based compensation.

Our effective tax rates for the year ended December 31, 2022 differs from the U.S. federal statutory rate primarily due to changes in valuation allowance on foreign tax credits, state tax expense and the impact of foreign earnings.

A reconciliation of the federal statutory income tax rate to our effective tax rate is set forth in "Note 9 – Income Taxes" of the Notes to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report.

ADJUSTED EBITDA

We believe that the provision of this supplemental non-GAAP measure allows investors to evaluate the operational and financial performance of our core business using similar evaluation measures to those used by management. We use adjusted EBITDA to measure our performance and prepare our budgets. Since adjusted EBITDA is a non-GAAP financial performance measure, our calculation of adjusted EBITDA may not be comparable to other similarly titled measures of other companies; and should not be considered in isolation, as a substitute for, or superior to measures of financial performance prepared in accordance with GAAP. Because adjusted EBITDA is calculated before recurring cash charges, including interest expense and taxes, and is not adjusted for capital expenditures or other recurring cash requirements of the business, it should not be considered as a liquidity measure. See the Consolidated Statements of Cash Flows included in the attached financial statements. Non-GAAP financial measures do not reflect a comprehensive system of accounting and may differ from non-GAAP financial measures with the same or similar captions that are used by other companies and/or analysts and may differ from period to period. We endeavor to compensate for these limitations by providing the relevant disclosure of the items excluded in the calculation of adjusted EBITDA to net income based on GAAP, which should be considered when evaluating the Company's results. Tucows strongly encourages investors to review its financial information in its entirety and not to rely on a single financial measure.

Our adjusted EBITDA definition excludes depreciation, amortization of intangible assets, income tax provisions, interest expense (net), accretion of contingent consideration, stock-based compensation, asset impairment, gains and losses from unrealized foreign currency transactions and costs that are one-time in nature and not indicative of on-going performance (profitability), including acquisition and transition costs. Gains and losses from unrealized foreign currency transactions removes the unrealized effect of the change in the mark-to-market values on outstanding foreign currency contracts not designated in accounting hedges, as well as the unrealized effect from the translation of monetary accounts denominated in non-U.S. dollars to U.S. dollars.

The following table reconciles net income to adjusted EBITDA:

Reconciliation of Income before Provision for Income Taxes to Adjusted EBITDA (In Thousands of US Dollars)	**Twelve months ended December 31, 2022**	**2021**	**2020**
Net Income for the period	$ (27,571)	$ 3,364	$ 5,775
Less:			
Provision for income taxes	(217)	3,906	4,985
Depreciation of property and equipment	28,187	17,986	12,632
Impairment and loss on disposition of property and equipment	553	435	1,621
Amortization of intangible assets	11,394	10,007	11,420
Impairment of definite life intangible assets	-	-	1,431
Write-down on disposal of Ting Mobile customer assets	-	-	3,513
Interest expense, net	14,456	4,617	3,611
Accretion of contingent liability	248	383	344
Stock-based compensation	7,599	4,592	3,718
Unrealized loss (gain) on change in fair value of foreign currency forward contracts	-	606	(500)
Unrealized loss (gain) on foreign exchange revaluation of foreign denominated monetary assets and liabilities	281	219	461
Acquisition and other costs[1]	2,660	2,706	1,962
Adjusted EBITDA	$ 37,590	$ 48,821	$ 50,973

[1] Acquisition and other costs represents transaction-related expenses, transitional expenses, such as redundant post-acquisition expenses, primarily related to our acquisition of Cedar in January 2020 and Simply Bits in November 2021 and the disposition of certain Ting Mobile assets in August 2020. Expenses include severance or transitional costs associated with department, operational or overall company restructuring efforts, including geographic alignments.

Adjusted EBITDA for the year ended December 31, 2022 decreased by $11.2 million, or 23% to $37.6 million when compared to the year ended December 31, 2021. The decrease in adjusted EBITDA from period-to-period was primarily driven by decreased contribution from Wavelo due to significant investments into building out both our teams and platforms in support of future growth; as well as current period charges for amortization the contract asset related to the DISH agreement. This decrease was furthered by reduced contribution by both Ting and Tucows Domains. Ting, from the investment in the ramp of expenditures related to the Fiber Internet network build and expansion plan; and Tucows Domains from the continued normalization of domain registrations and slowed renewal rates relative to patterns experienced over the last fiscal years from the COVID-19 pandemic as well as domains under management. When comparing Adjusted EBITDA in Fiscal 2021 to Fiscal 2020, the decrease in contribution was similarly driven by the increased investment in Ting due to the ramp of expenditures related to the Fiber Internet network build and expansion plan. That decrease was partially offset by increased contribution from Wavelo, the income earned on sale of transferred assets to DISH , as well as from Tucows Domains strong performance during the COVID-19 pandemic.

OTHER COMPREHENSIVE INCOME (LOSS)

To mitigate the impact of the change in fair value of our foreign exchange contracts on our financial results, in October 2012 we begun applying hedge accounting for the majority of the contracts we need to meet our Canadian dollar requirements on a prospective basis. The impact of the fair value adjustment on outstanding hedged contracts for Fiscal 2022 was a net loss in other comprehensive income of $0.4 million compared to a net loss of $2.0 million for Fiscal 2021.

The following table presents other comprehensive income for the periods presented:

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2022	2021
Other comprehensive income (loss)	$ 441	$ (1,993)
Increase over prior period	$ 2,434	
Increase - percentage	(122)%	
Percentage of net revenues	0%	(1)%

The impact of the fair value adjustments on outstanding hedged contracts during Fiscal 2022 was a gain in OCI before reclassifications of $0.4 million as compared to a gain of $0.6 million during Fiscal 2021.

The net amount reclassified to earnings during Fiscal 2022 was a gain of less than $0.1 million compared to a loss of $2.6 million during Fiscal 2021.

RESULTS OF OPERATIONS FOR THE YEAR ENDED DECEMBER 31, 2021 AS COMPARED TO THE YEAR ENDED DECEMBER 31, 2020

The Company has initially applied ASU No. 2016-02, Leases (Topic 842) on January 1, 2019, which was adopted using the modified retrospective basis. Accordingly, comparative figures have not been restated.

NET REVENUES

The following table presents our net revenues, by revenue source:

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	2020
Ting		
Fiber Internet Services	$ 25,327	$ 17,151
Wavelo		
Platform Services	13,031	1,839
Other Professional Services	3,750	-
Total Wavelo	16,781	1,839
Tucows Domains:		
Wholesale		
Domain Services	189,091	186,893
Value Added Services	20,942	18,526
Total Wholesale	210,033	205,419
Retail	35,543	36,835
Total Tucows Domains	245,576	242,254
Tucows Corporate:		
Mobile services and eliminations	16,653	49,958
	$ 304,337	$ 311,202
(Decrease) increase over prior period	$ (6,865)	
(Decrease) increase - percentage	(2%)	

The following table presents our revenues, by revenue source, as a percentage of total revenues:

	Year ended December 31, 2021	2020
Ting:		
Fiber Internet Services	8%	6%
Wavelo:		
Platform Services	4%	1%
Other Professional Services	1%	-
Total Wavelo	5%	1%
Tucows Domains:		
Wholesale		
Domain Services	62%	59%
Value Added Services	7%	6%
Total Wholesale	69%	65%
Retail	12%	12%
Total Tucows Domains	81%	77%
Tucows Corporate:		
Mobile services and eliminations	6%	16%
	100%	100%

Total net revenues for Fiscal 2021 decreased by $6.9 million, or 2%, to $304.3 million from $311.2 million for Fiscal 2020. The overall decrease in revenue was primarily driven by the $33.3 million reduction of revenues attributable to Mobile Services and eliminations. This decrease in Mobile Services revenues was directly related to the DISH Purchase Agreement as well as the shutdown of Roam Mobility brands in the past year. As part of the DISH Purchase Agreement, as a form of consideration for the sale of the customer relationships, the Company receives a payout on the margin associated with the legacy customer base sold to DISH over the 10-year term of the agreement. This has been classified as Other Income and not considered revenue in the current period. This decrease was partially offset by increases from each of Wavelo, Ting, and Tucows Domains segments. Wavelo saw a $14.9 million increase as a result of the new Platform Services revenue stream and other professional services revenues created out of the DISH MSA in the past year. Fiscal 2021 had a full year of platform revenues, whereas Fiscal 2020 was a stub period due to timing of the MSA. Ting saw a $8.2 million increase related to Ting segment revenues, a result of both growth in customers as we continue to build out our Ting Internet footprint as well as acquisition led revenue growth from our fourth quarter Fiscal 2021 acquisition of Simply Bits. Additionally, smaller increases from Domain Services of $3.3 million, driven by outsized proceeds from our domain expiry revenue streams relative to Fiscal 2020.

Deferred revenue at December 31, 2021 decreased to $147.8 million from $152.2 million at December 31, 2020. This decrease was primarily driven by our Tucows Domains segment, accounting for $3.5 million of the decrease due to recognition of previously deferred billings for registrations and renewals growth experienced in Fiscal 2020 in connection with COVID-19. This decrease is followed by a decrease related to Wavelo, accounting for $2.1 million of the decrease due to the recognition of previously deferred bundled and other professional services revenues. These professional services revenues were recognized as the Company performed its obligation to provide these services to DISH. These decreases were partially offset by an increase in deferred revenue associated with Ting, and its subsidiaries of $1.1 million, which is reflective of the continued growth in customer base and billings for that segment relative to December 31, 2020 and inclusion of deferred revenues associated with the fourth quarter of Fiscal 2021 acquisition of Simply Bits.

No customer accounted for more than 10% of revenue during Fiscal 2021 or during Fiscal 2020. As of December 31, 2021 DISH accounted for 46% of total accounts receivable and as at December 31, 2020, DISH accounted for 59% of total accounts receivable.

Though a significant portion of the Company’s domain services revenues are prepaid by our customers, where the Company does collect receivables, significant management judgment is required at the time revenue is recorded to assess whether the collection of the resulting receivables is reasonably assured. On an ongoing basis, we assess the ability of our customers to make required payments. Based on this assessment, we expect the carrying amount of our outstanding receivables, net of allowance for doubtful accounts, to be fully collected.

Ting

Ting, and its subsidiaries generated $25.3 million in revenue during Fiscal 2021, up $8.2 million or 48% compared to Fiscal 2020. This growth is driven by continued subscriber growth across the markets we serve, as well as the continued expansion of our Ting Internet footprint to new Ting towns throughout the United States. Of this $8.2 million increase, $1.3 million related to our fourth quarter of Fiscal 2021 acquisition of Simply Bits.

As of December 31, 2021, Ting Internet had access to 76,000 owned infrastructure serviceable addresses, 15,000 partner infrastructure serviceable addresses and 26,000 active accounts under its management; compared to having 49,000 owned infrastructure serviceable addresses, 10,000 partner infrastructure serviceable addresses and 15,000 active accounts under its management as of December 31, 2020. These figures exclude the increase in serviceable addresses and accounts attributable to the Simply Bits acquisition.

Wavelo

Platform Services

Wavelo's Platform services generated $13 million in revenue during Fiscal 2021, which increased by $11.2 million or 609% compared to Fiscal 2020. This is driven from increased MONOS platform revenues fees earned from DISH for a full year relative to the stub period of Fiscal 2020. Our full-service platforms support CSPs with subscription and billing management, network orchestration and provisioning, and individual developer tools.

Other Professional Services

Wavelo's Other Professional Services generated $3.8 million in revenue during Fiscal 2021, up from nil in Fiscal 2020. This increase is a result of significant professional service engagements for the provision of standalone technology services development work for DISH Fiscal 2021, whereas Fiscal 2020 was absent of such development work.

Tucows Domains

Wholesale - Domain Services

During Fiscal 2021, Wholesale Domain Services revenue increased by $2.2 million or 1% to $189.1 million. The increase in revenue compared to Fiscal 2020 was primarily driven by the recognition of previously deferred billings from the past year, as discussed above in the change in deferred revenue. As more businesses established an online presence during the onset of the COVID-19 pandemic in Fiscal 2020 we experienced domain name registration growth from our large volume resellers across our Domain Services brands. Fiscal 2021 was then characterized by a normalization of this COVID-19 registration growth back to levels experienced pre-pandemic as well as some erosion in renewal rates in the last half of the year. The increase in revenues from deferred revenue discussed above is offset by a small decrease in billings of $0.3 million, largely driven by our eNom brand which has seen continued decline in registrations by non-core customers relative to Fiscal 2020.

Together the OpenSRS, eNom, EPAG and Ascio Domain Services manage 25.2 million domain names under the Tucows, eNom, EPAG and Ascio ICANN registrar accreditations and for other registrars under their own accreditations. Domains under management has decreased by 0.2 million domain names since December 31, 2020. The decrease is driven by lower renewal rates from the normalization of registration growth back to pre-pandemic levels, along with the continued erosion of registrations related to non-core customers from our eNom brand.

Wholesale - Value Added Services

Net revenues from value-added services increased by $2.4 million to $20.9 million compared to Fiscal 2020. The increase in value-added service revenue over Fiscal 2020 was primarily driven by an increase in expiry stream proceeds across our Domain Services brands. As a result of the normalization of renewal rates and domains under management discussed above in connection to COVID-19, Fiscal 2021 benefited from a significant volume of expired domain names registered in the past year being available for our expiry streams, which returned favorable proceeds at auction and drove our revenue growth for value added services.

Retail

Net revenues from retail decreased by $1.3 million to $35.5 million compared to Fiscal 2020. The decrease in revenue was primarily related to domain portfolio sales, which decreased by $0.9 million as a result of the Company disposing of its entire domain portfolio, excluding surname domains used in the RealNames email service during the fourth quarter of Fiscal 2020. This decrease was compounded by a $0.5 million decrease in retail domain name registrations from the erosion of retail customers away from our eNom Central brand. These decreases were partially offset by an increase in Exact Hosting revenues of $0.1 million.

Tucows Corporate - Mobile Services and Eliminations

Net revenues from Mobile Services and eliminations for the Fiscal 2021, as compared to Fiscal 2020, decreased by $33.3 million or 67% to $16.7 million. This decrease is driven by a decline in Mobile Services revenues of $37.1 million directly related to the DISH Purchase Agreement in late Fiscal 2020 as well as the shutdown of Roam Mobility brands in the past year. As part of the DISH Purchase Agreement, as a form of consideration for the sale of the customer relationships, the Company receives a payout on the margin associated with the legacy customer base sold to DISH over the 10-year term of the agreement. This has been classified as Other Income and not considered revenue in the current period. This decrease is offset by increased transitional services revenues from DISH of $3.8 million from the inclusion of a full year of revenues compared to a stub period of services provided in Fiscal 2020.

COST OF REVENUES

The following table presents our cost of revenues, by revenue source:

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31, 2021	2020
Ting:		
Fiber Internet Services	$ 12,035	$ 6,855
Wavelo:		
Platform Services	504	183
Other Professional Services	804	-
Total Wavelo	1,308	183
Tucows Domains		
Wholesale		
Domain Services	147,213	146,788
Value Added Services	2,544	3,016
Total Wholesale	149,757	149,804
Retail	17,731	17,647
Total Tucows Domains	167,488	167,451
Tucows Corporate:		
Mobile services and eliminations	12,208	25,912
Network Expenses:		
Network, other costs	14,769	10,194
Network, depreciation and amortization costs	18,035	13,484
Network, impairment	201	1,638
	33,005	25,316
	$ 226,044	$ 225,717
Increase over prior period	$ 327	
Increase - percentage	0%	

The following table presents our cost of revenues, as a percentage of total cost of revenues for the periods presented:

	Year ended December 31,	
	2021	2020
Ting:		
Fiber Internet Services	5%	3%
Wavelo:		
Platform Services	-	-
Other Professional Services	1%	-
Total Wavelo	1%	-
Tucows Domains:		
Wholesale		
Domain Services	65%	65%
Value Added Services	1%	1%
Total Wholesale	66%	66%
Retail	8%	8%
Total Tucows Domains	74%	74%
Tucows Corporate:		
Mobile services and eliminations	5%	11%
Network Expenses:		
Network, other costs	7%	5%
Network, depreciation and amortization costs	8%	6%
Network, impairment	-	1%
	15%	12%
	100%	100%

Total cost of revenues for Fiscal 2021 increased by $0.3 million to $226.0 million, from $225.7 million in Fiscal 2020. The increase was driven by a $7.7 million increase in Network Expenses. The increase from Network Expenses is a result of the expansion of the Company's increased network infrastructure associated with the continuing expansion of the Ting Internet network footprint, the ramp up of Wavelo's platforms, as well as increased communication and productivity tool costs across our operating segments. Another contributing factor was an increase from Ting and Wavelo of $5.2 million and $1.1 million, respectively. As discussed above in the Net Revenues section, Ting has continued to add both serviceable addresses and active subscriptions relative to Fiscal 2020. Additionally, Wavelo's increased cost of revenues have been a driven by the completion of select standalone technology services development work with DISH in the current period. These increases were partially offset by a decrease of $13.7 million from Mobile Services and eliminations. The decrease related to Mobile Services and eliminations is consistent with the discussion above in Net Revenues, and directly related to the DISH Purchase Agreement as well as the shutdown of Roam Mobility brands in Fiscal 2020. The cost of revenues from Mobile Services in Fiscal 2021 only reflect the small subset of customers retained as part of the DISH Purchase Agreement, whereas Fiscal 2020 included the majority of the year at the full legacy subscriber base.

Deferred costs of fulfillment as of December 31, 2021 increased by $1.6 million, or 1.5%, to $112.7 million from $111.1 million at December 31, 2020. This increase was primarily driven by Wavelo, accounting for a $3.4 million increase in the current period related to the continued deferral of ongoing Other Professional Services work with DISH. This increase was partially offset by a decrease from Tucows Domains of $1.8 million, aligned with the movement in deferred revenues discussed above.

Ting

In Fiscal 2021, costs related to provisioning high speed Internet access for Ting and its subsidiaries - Cedar, and Simply Bits increased $5.2 million, or 76%, to $12.0 million as compared to $6.9 million during Fiscal 2020. The increase in costs were primarily driven by increased direct costs and, bandwidth and colocation costs related to the continued expansion of the Ting Fiber network. Although directionally aligned with the experienced growth in revenue over the same period, the outpaced increase in cost of revenues for Ting is a result of the necessary upfront investment and expenditure needed to build out the network in advance of anticipated revenue growth in any particular location. Of this $5.2 million increase, $0.3 million related to our fourth quarter of Fiscal 2021 acquisition of Simply Bits.

Wavelo

Platform Services

Cost of revenues from Wavelo Platform Services for Fiscal 2021 increased by $0.3 million to $0.5 million, when compared to Fiscal 2020. Cost incurred are driven by the amortization of previously capitalized costs incurred to fulfill the DISH MSA over the term of the agreement. The ramp up of additional costs to fulfill the contract in Fiscal 2021 at the start of the agreement have resulted in increased amortization Fiscal 2021.

Other Professional Services

Cost of revenues from Other Professional Services for Fiscal 2021 increased by $0.8 million, when compared to Fiscal 2020. Costs incurred represent the personnel and related expenses of employees and contractors providing professional services to DISH. The increase in Other Professional Services costs relative to the prior period was a result of the completion of select standalone technology services development work for DISH in the current period, with limited comparable costs in the prior period.

Tucows Domains

Wholesale - Domain Services

Costs for wholesale domain services for Fiscal 2021 increased by $0.4 million to $147.2 million, when compared to Fiscal 2020. The increase is consistent with the above discussion around net revenues, where registration costs were recognized in Fiscal 2021 from previously deferred billed costs incurred from experienced domain name registration growth and domains under management in connection with the COVID-19 pandemic. The overall increase was also impacted by decreases in current year billed costs from our eNom brand, which has seen a decline in registrations and domains under management in the current year, beyond the impacts of normalization from COVID-19 impacts.

Wholesale - Value Added Services

Costs for wholesale value-added services for Fiscal 2021 decreased by $0.5 million to $2.5 million, when compared to Fiscal 2020. The decrease in cost of revenue is primarily related to decreases in Digital Certificates and other value added service costs compared to Fiscal 2020.

Retail

Costs for retail for Fiscal 2021 increased by less than $0.1 million, to $17.7 million, when compared to Fiscal 2020. The was driven by increased costs related to Exact Hosting and was partially offset by declining volume of retail domain name registrations related to the eNom retail brands.

Tucows Corporate - Mobile Services and Eliminations

Cost of revenues related to Mobile Services and eliminations for Fiscal 2021, as compared to Fiscal 2020, decreased by $13.7 million or 53% to $12.2 million. This is driven by decreased Mobile Services costs of $16.9 million, of which $16.1 million relates to Ting Mobile and $0.8 million relates to Roam Mobility. The decrease related to Mobile Services and eliminations is consistent with the discussion above in Net Revenues, and directly related to the DISH Purchase Agreement as well as the shutdown of Roam Mobility brands in Fiscal 2020. The cost of revenues from Mobile Services in Fiscal 2021 only reflect the small subset of customers retained as part of the DISH Purchase Agreement, whereas Fiscal 2020 included the majority of the year at the full legacy subscriber base. This decrease is partially offset by an increase of $3.2 million related to costs associated with Other Professional Services provided to DISH, from the inclusion of a full year of cost compared to a stub period of services provided in Fiscal 2020.

Network Expenses

Network costs for Fiscal 2021 increased by $7.7 million to $33.0 million when compared to Fiscal 2020. The comparative increase was primarily driven by both increased network costs and depreciation as a result of the expansion of the Company's increased network infrastructure associated with the continuing expansion of the Ting Fiber footprint. These increases were partially offset by a decrease in impairment of property, plant and equipment, due to Fiscal 2020 including a $1.6 million impairment charge for Ting TV, a product formerly under development for Ting Internet. Additionally, Fiscal 2021 benefited from a decrease in amortization charges from the full amortization of the Ascio Technology intangible asset acquired in 2019.

SALES AND MARKETING

Sales and marketing expenses consist primarily of personnel costs. These costs include commissions and related expenses of our sales, product management, public relations, call center, support and marketing personnel. Other sales and marketing expenses include customer acquisition costs, advertising and other promotional costs.

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	**2020**
Sales and marketing	$ 39,471	$ 34,274
Increase over prior period	$ 5,197	
Increase - percentage	15%	
Percentage of net revenues	13%	11%

Sales and marketing expenses for Fiscal 2021 increased by $5.2 million, or 15%, to $39.5 million when compared to Fiscal 2020. The increase in costs relate primarily to increased salaries and benefits driven by an expanding workforce and wage inflation focused on our Ting teams, as well as increased marketing related costs to drive active subscription growth given the increase in serviceable addresses available to our Ting segment. In addition to this, we also experienced an increase in costs related to stock-based compensation expenses in an effort to attract and retain labor and an increase in facility costs increased directly related to the expansion of our Ting Fiber internet footprint and workforce in select Ting towns across the United States.

TECHNICAL OPERATIONS AND DEVELOPMENT

Technical operations and development expenses consist primarily of personnel costs and related expenses required to support the development of new or enhanced service offerings and the maintenance and upgrading of existing infrastructure. This includes expenses incurred in the research, design and development of technology that we use to register domain names, network access services, email, retail, domain portfolio and other Internet services, as well as to distribute our digital content services. All technical operations and development costs are expensed as incurred.

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	**2020**
Technical operations and development	$ 14,310	$ 12,427
Increase over prior period	$ 1,883	
Increase - percentage	15%	
Percentage of net revenues	5%	4%

Technical operations and development expenses for Fiscal 2021 increased by $1.9 million, or 15%, to $14.3 million. The increase in costs relates primarily to increased spending on external contractors to provide development resources to assist our internal shared services and engineering teams with development aspects of Wavelo's platforms. In addition to increased spending on external contractors, a slight increase in salaries and benefits driven by an expanding workforce and wage inflation focused on our shared services and engineering teams contributed to the overall increase in costs for the period along with stock-based compensation expenses to attract and retain labor.

GENERAL AND ADMINISTRATIVE

General and administrative expenses consist primarily of compensation and related costs for managerial and administrative personnel, fees for professional services, public listing expenses, rent, foreign exchange and other general corporate expenses.

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	**2020**
General and administrative	$ 22,370	$ 20,268
Increase over prior period	$ 2,102	
Increase - percentage	10%	
Percentage of net revenues	7%	7%

General and administrative expenses for Fiscal 2021 increased by $2.1 million, or 10%, to $22.4 million as compared to Fiscal 2020. The increase was primarily driven increases in personnel and related expenses as well as stock-based compensation expenses in order to attract, retain and scale core administrative teams including Human Resources and Finance to meet projected Company growth. Additionally, we experienced an increase in professional accounting and legal fees associated with our growing Ting segment. These increases were partially offset by reduced Mobile Services credit card fees as a result of the DISH Purchase Agreement that closed in the past year, as well as a decrease in facility related costs and foreign exchange expenses.

DEPRECIATION OF PROPERTY AND EQUIPMENT

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	**2020**
Depreciation of property and equipment	$ 534	$ 488
Increase over prior period	$ 46	
Increase - percentage	9%	
Percentage of net revenues	0%	0%

Depreciation costs for Fiscal 2021 remained relatively flat at $0.5 million as compared to Fiscal 2020. The slight increase was due to the depreciation of additions to property and equipment, in particular computer hardware purchased in support of our expanding workforce.

LOSS (GAIN) ON DISPOSAL OF PROPERTY AND EQUIPMENT

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	**2020**
Loss on disposition of property and equipment	$ 234	$ (17)
Increase over prior period	$ 251	
Increase - percentage	(1,476)%	
Percentage of net revenues	0%	(0)%

Loss on disposal of property and equipment increased by $0.2 million to $0.2 million as compared to Fiscal 2020. The increase was a result of Fiscal 2021 including a disposal of minor internal use software for which the Company no longer expects to realize the initial use and intended benefit that it initially did when those development costs were initially capitalized.

AMORTIZATION OF INTANGIBLE ASSETS

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	2020
Amortization of intangible assets	$ 9,424	$ 10,080
Decrease over prior period	$ (656)	
Decrease - percentage	(7)%	
Percentage of net revenues	3%	3%

Amortization of intangible assets decreased $0.7 million for Fiscal 2021, to $9.4 million. The decrease is primarily driven by the write-off of Mobile Services related intangible assets in connection with the both the sale of the Ting Mobile customer base and the shutdown of Roam Mobility brands in Fiscal 2020.

Network rights, brand and customer relationships acquired in connection with the following acquisitions are amortized on a straight-line basis over a range of two to seven years: eNom in January 2017, Ascio in March of 2019, Cedar in January 2020 and Simply Bits in November 2021.

IMPAIRMENT OF DEFINITE LIFE INTANGIBLE ASSETS

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	2020
Impairment of indefinite life intangible assets	$ -	$ 1,431
Decrease over prior period	$ (1,431)	
Decrease - percentage	(100)%	
Percentage of net revenues	-%	0%

Impairment of definite life intangible assets for Fiscal 2021 was nil compared to $1.4 million in Fiscal 2020. The decrease is driven by the write-off of Roam Mobility brands customer relationships that were written off in Fiscal 2020 when the Company decided to shut down the related businesses as a result of lack of demand for SIM-enabled roaming services due to the COVID-19 pandemic.

LOSS (GAIN) ON CURRENCY FORWARD CONTRACTS

Although our functional currency is the U.S. dollar, a major portion of our fixed expenses are incurred in Canadian dollars. Our goal with regard to foreign currency exposure is, to the extent possible, to achieve operational cost certainty, manage financial exposure to certain foreign exchange fluctuations and to neutralize some of the impact of foreign currency exchange movements. Accordingly, we enter into foreign exchange contracts to mitigate the exchange rate risk on portions of our Canadian dollar exposure.

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	2020
Loss (gain) on currency forward contracts	$ (277)	$ (383)
Increase over prior period	$ 106	
Increase - percentage	28%	
Percentage of net revenues	0%	0%

We have entered into certain forward exchange contracts that do not comply with the requirements of hedge accounting to meet a portion of our future Canadian dollar requirements through December 2021. During Fiscal 2021, the Company recorded a net gain of $0.3 million on the change in fair value of outstanding contract as well as realized matured contracts. In Fiscal 2020 the Company recorded a net gain of $0.4 million in the change in fair value of outstanding contract as well as realized matured contracts.

At December 31, 2021, our balance sheet reflects a derivative instrument asset of $0.6 million and a derivative instrument liability of $0.1 million as a result of our existing foreign exchange contracts. Until their respective maturity dates, these contracts will fluctuate in value in line with movements in the Canadian dollar relative to the U.S. dollar.

OTHER INCOME AND (EXPENSES)

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	2020
Other income (expense), net	$ 15,043	$ 3,843
Increase over prior period	$ 11,200	
Increase - percentage	291%	
Percentage of net revenues	5%	1%

Other income increased by $11.2 million when compared to Fiscal 2020. This was driven by a $12.4 million increase due to the income earned on sale of transferred assets to DISH to DISH. As described above, the Company receives a payout on the margin associated with the legacy customer base sold to DISH over the 10-year term of the agreement, as form of consideration for the sale of the legacy customer relationships. Comparatively, the gain in Fiscal 2020 represented the net effect of proceeds earned from DISH in regards to the legacy customer base of $11.1 million offset by the write off of certain Mobile intangible and contract assets totaling $3.5 million. This overall increase in other income was partially offset by higher interest expense from higher variable interest rates incurred on our Amended 2019 Credit Facility. Other expense consists primarily of the interest we incur in connection with our Amended 2019 Credit Facility. The interest incurred primarily relates to our loan balances obtained to fund the acquisition of eNom, Ascio, Cedar and Simply Bits and funding for expenditures associated with the Company's Fiber to the Home build program.

INCOME TAXES

The following table presents our provision for income taxes for the periods presented:

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	2020
Provision for income taxes	$ 3,906	$ 4,985
Decrease in provision over prior period	$ (1,079)	
Decrease - percentage	(22)%	
Effective tax rate	54%	46%

Income taxes decreased by $1.1 million and the effective tax rate increased from 46% to 54% when compared to Fiscal 2020. The increase in effective tax rate is primarily due to changes in blended tax rates and is partially offset by an increase in stock option benefit deduction. Our Fiscal 2021 income tax expense includes a tax recovery of $1.6 million related to the adoption of ASU 2016-09, which requires all excess tax benefits and tax deficiencies related to employee share-based payments to be recognized through income tax expense on a prospective basis. The Fiscal 2021 tax recovery related to excess tax benefits related to employee share-based compensation was $0.4 million.

In Fiscal 2021, the Company did not utilize the bonus depreciation with respect to its continued investment in the Ting business. Despite this, due to the reduction in tax rate to 21%, it is unlikely we will ultimately be able to fully claim the Fiscal 2021 foreign taxes paid in future years as a foreign tax credit. As such, we have taken a valuation allowance on foreign tax credits not utilized for 2021 income tax purposes, the net negative effect of which is a $2.3 million addition to income tax expense, as compared to $2.9 million additional tax expense in Fiscal 2020.

A reconciliation of the federal statutory income tax rate to our effective tax rate is set forth in "Note 9 – Income Taxes" of the Notes to the Consolidated Financial Statements included in Part II, Item 8 of this Annual Report.

OTHER COMPREHENSIVE INCOME (LOSS)

To mitigate the impact of the change in fair value of our foreign exchange contracts on our financial results, in October 2012 we begun applying hedge accounting for the majority of the contracts we need to meet our Canadian dollar requirements on a prospective basis. The impact of the fair value adjustment on outstanding hedged contracts for Fiscal 2021 was a net loss in other comprehensive income of $2.0 million compared to a net gain of $1.9 million for Fiscal 2020.

The following table presents other comprehensive income for the periods presented:

(Dollar amounts in thousands of U.S. dollars)	Year ended December 31,	
	2021	2020
Other comprehensive income (loss)	$ (1,993)	$ 1,863
Decrease over prior period	$ (3,856)	
Decrease - percentage	(207)%	
Percentage of net revenues	1%	1%

The impact of the fair value adjustments on outstanding hedged contracts during 2021 was a gain in OCI of $0.6 million as compared to a gain of $1.7 million during 2020.

The net amount reclassified to earnings during 2022 was a loss of $2.6 million compared to a gain of $0.2 million during 2021.

LIQUIDITY AND CAPITAL RESOURCES

As of December 31, 2022, our cash and cash equivalents balance increased $14.4 million when compared to December 31, 2021. Our principal uses of cash were $137.5 million for the continued investment in property, equipment and intangible assets driven by the Ting Internet expansion, $3.1 million for contingency consideration related to the acquisition of Cedar and Simply Bits, $1.0 million related to deferred preferred share financing costs for Ting, and $0.7 million related to the payment of loan payable costs. These uses of cash were partially offset by $87.5 million proceeds from redeemable preferred shares, $48.3 million proceeds received from the drawdown of the Amended Credit Agreement, $19.9 million from cash provided from operating activities, and $1.1 million from proceeds received on the exercise of stock options.

Amended 2019 Credit Facility

On June 14, 2019, the Company and its wholly-owned subsidiaries, Tucows.com Co., Ting Fiber, Inc., Ting Inc., Tucows (Delaware) Inc. and Tucows (Emerald), LLC entered into an Amended and Restated Senior Secured Credit Agreement (the "Amended 2019 Credit Facility") with Royal Bank ("RBC"), as administrative agent, and lenders party thereto (collectively with RBC) under which the Company had access to an aggregate of up to $240 million in funds, which consisted of $180 million guaranteed credit facility and a $60 million accordion facility. The Amended 2019 Credit Facility replaced a secured Credit Agreement dated January 20, 2017 with Bank of Montreal, RBC and Bank of Nova Scotia.

The obligations of the Company under the Amended 2019 Credit Agreement are secured by a first priority lien on substantially all of the personal property and assets of the Company and has a four-year term, maturing on June 13, 2024.

Second Amended 2019 Credit Facility

On October 26, 2021, the Company entered into a Second Amended and Restated Senior Secured Credit Agreement (the "Second Amended 2019 Credit Agreement") with the Lenders and Toronto-Dominion Bank (collectively the "New Lenders") to, among other things, increase the existing revolving credit facility from $180 million to $240 million. The Second Amended 2019 Credit Agreement provided the Company with access to an aggregate of $240 million in committed funds. Under the Second Amended 2019 Credit Agreement, the Company agreed to comply with the following financial covenants at all times, which were to be calculated on a rolling four quarter basis: (i) maximum Total Funded Debt to Adjusted EBITDA Ratio of 4.50:1.00 until March 31, 2023 and 4.00:1.00 thereafter; and (ii) minimum Interest Coverage Ratio of 3.00:1.00. The Second Amended 2019 Credit Agreement also provided for two additional interest rate tiers if the Company exceeded a 3.50x Total Funded Debt to Adjusted EBITDA Ratio.

Third Amended and Restated Senior Secured Credit Agreement

On August 8, 2022, the Company entered into the Third Amended and Restated Senior Secured Credit Agreement (the "Amended Credit Agreement") with the Lenders. The Amended Credit Agreement continues to provide the Company with access to the Second Amended 2019 Credit Agreement. Under the Amended Credit Agreement, and in connection with the Unit Purchase Agreement the Lenders agreed that Ting Fiber, Inc. (converted to Ting LLC) and its wholly owned subsidiaries ceased to be Guarantors under the Credit Facility and were released from their respective guarantee and security documents, including a release of the Lenders' security interests and liens upon the assets of such entities. Additionally, the Amended Credit Agreement extended the maturity of the Credit Facility to June 14, 2024. The Company is subject to the following financial covenants at all times, which are to be calculated on a rolling four quarter basis: (i) maximum Total Funded Debt to Adjusted EBITDA Ratio of 4.00:1.00 until September 29, 2023 and 3.75:1.00 thereafter; and (ii) minimum Interest Coverage Ratio of 3.00:1.00. The financial covenant calculations will exclude the financial results of Ting Fiber Inc. (converted to Ting LLC) and its wholly owned subsidiaries. The Amended Credit Agreement added SOFR loans as a form of advance available under the Credit Facility to replace LIBOR rate advances, and such SOFR loans may bear interest based on Adjusted Daily Simple SOFR (defined to be the applicable SOFR rate published by the Federal Reserve Bank of New York plus 0.10% per annum subject to a floor of zero) or Adjusted Term SOFR (defined to be the applicable SOFR rate published by CME Group Benchmark Administration Limited plus 0.10% for one-month, 0.15% for three-months, and 0.25% for six-months per annum).

On March 14, 2023, the Company entered into an Amending Agreement No.2 to the Third Amended and Restated Senior Secured Credit Agreement (the "Credit Agreement Amendment"). The Amended Credit Agreement continues to provide the Company with access to an aggregate of $240 million in committed funds, however there is a suspension to the $60 million accordion during the Leverage Step Up Period (the "Leverage Step Up Period"). Additionally, the Credit Agreement Amendment has extended the maturity of the Credit Facility to September 30, 2024. As a result of the execution of the Credit Agreement Amendment, the Company is subject to the following financial covenants at all times, with monthly testing during the Leverage Step Up Period and reverting to quarterly tests thereafter: (i) maximum Total Funded Debt to Adjusted EBITDA Ratio of 4.50:1.00 from March 14, 2023 up to and including September 29, 2023; 4.00:1.00 from September 30, 2023 up to and including December 30, 2023; and 3.75:1.00 thereafter; and (ii) minimum Interest Coverage Ratio of 3.00:1.00. On March 14, 2023 the Company made a repayment of $2.8 million on the Credit Facility.

As of December 31, 2022, the Company held contracts in the amount of $49.7 million with BMO to trade U.S. dollars in exchange for Canadian dollars under an uncommitted treasury risk management facility which assists the Company with hedging Canadian dollar exposures. Please see the discussion in the Material Cash Requirements section below.

Cash Flow from Operating Activities

Year ended December 31, 2022

Net cash inflows from operating activities were $19.9 million, a decrease of 33% when compared to the prior year. Net income, after adjusting for non-cash charges, during Fiscal 2022 was $14.8 million, a decrease of 53% when compared to the prior year. Net income included non-cash charges and recoveries of $42.4 million such as depreciation, amortization, stock-based compensation, loss (gain) on change in fair value of currency forward contracts, net right of use operating asset or liability, accretion of contingent consideration, amortization of debt discount and issuance costs, impairment of property and equipment, loss on disposal of domain names, net amortization of contract costs, excess tax benefits on stock-based compensation, accretion of redeemable preferred shares, and deferred income taxes (recovery). In addition, change in our working capital contributed net cash of $5.0 million. Utilized cash of $18.5 million from the changes in the contract asset from DISH, inventory, accounts receivable, deferred revenue, customer deposits and accreditation fees payable were offset by positive contributions of $23.5 million from movements in accrued liabilities, accounts payable, prepaid expenses and deposits, income taxes recoverable, and deferred costs of fulfillment.

Year ended December 31, 2021

Net cash inflows from operating activities were $29.6 million, a decrease of 18% when compared to the prior year. Net income, after adjusting for non-cash charges, during Fiscal 2021 was $31.6 million, a decrease of 12% when compared to the prior year. Net income included non-cash charges and recoveries of $28.3 million such as depreciation, amortization, impairment of indefinite life intangible asset, loss on write-off of property and equipment, write-down on disposal of Ting Mobile customer assets and contract costs, excess tax benefits on stock-based compensation, stock-based compensation, the provision for unrealized losses on currency forward contracts and a recovery for deferred tax. This generation of cash from net income was reduced by a working capital change of $2.0 million. We generated $11.1 million from movements in accounts receivable, accounts payable, accrued liabilities, and customer deposits. These positive contributions were offset by cash use of $13.1 million from deferred revenue, prepaid expenses and deposits, deferred costs of fulfillment, income taxes recoverable, contract asset, inventory, and accreditation fees payable.

Year ended December 31, 2020

Net cash inflows from operating activities were $36.1 million, a decrease of 11% when compared to the prior year. Net income, after adjusting for non-cash charges, during Fiscal 2020 was $36.0 million, a decrease of 6% when compared to the prior year. Net income included non-cash charges and recoveries of $30.2 million such as depreciation, amortization, impairment of indefinite life intangible asset, loss on write-off of property and equipment, write-down on disposal of Ting Mobile customer assets and contract costs, excess tax benefits on stock-based compensation, stock-based compensation, the provision for unrealized losses on currency forward contracts and a recovery for deferred tax. This generation of cash from net income was further increased by a working capital change of $0.1 million. We generated $6.7 million from movements in inventory, income taxes recoverable, accrued liabilities, customer deposits and deferred revenue. These positive contributions were offset by cash use of $6.6 million to invest in accounts receivable, prepaid expenses and deposits, deferred costs of fulfillment, accounts payable, and accreditation fees.

Cash Flow from Financing Activities

Year ended December 31, 2022

Net cash inflows from financing activities during Fiscal 2022 totaled $132.0 million as compared to cash inflows of $73.1 million during Fiscal 2021. Total cash inflows were driven by $87.5 million of proceeds from redeemable preferred shares issued to Generate, $48.3 million of proceeds received from drawdown of the Amended Credit Facility, as well as $1.1 million from proceeds received on the exercise of stock options. These cash inflows were partially offset by $3.1 million for contingency consideration related to the acquisition of Cedar and Simply Bits, $1.0 million related to deferred preferred share financing costs for Ting, and $0.7 million related to the payment of loan payable costs.

Year ended December 31, 2021

Net cash inflows from financing activities during Fiscal 2021 totaled $73.1 million as compared to cash inflows of $5.1 million during Fiscal 2020. Net cash inflows of $69 million resulting from draws on the Second Amended 2019 Credit Facility and $4.8 million from proceeds received on the exercise of stock options. These cash inflows were partially offset by $0.4 million outflow from the net impact of exercise of stock options and $0.3 million of loan costs.

Year ended December 31, 2020

Net cash inflows from financing activities during Fiscal 2020 totaled $5.1 million as compared to cash inflows of $43.5 million during Fiscal 2019. Net cash inflows of $8.0 million resulting from draws on the Second Amended 2019 Credit Facility and $1.0 million from proceeds received on the exercise of stock options. These cash inflows were partially offset by $3.3 million outflow for stock repurchases, $0.6 million outflow from the net impact of exercise of stock options and $0.1 million of loan costs.

Cash Flow from Investing Activities

Year ended December 31, 2022

Investing activities during the Fiscal 2022 used net cash of $137.5 million as compared to using $102.0 million during Fiscal 2021. Cash outflows of $136.7 million related to the investment in property, equipment and intangible assets, primarily to support the continued expansion of our Ting Internet Fiber network footprints in California, Colorado, Idaho, North Carolina, and Virginia as we seek to extend both our current network and expand to new markets. We expect our capital expenditures to continue to increase during Fiscal 2023. In addition to investment in property, equipment and intangible assets, the current period used $0.8 million for the acquisition of other intangible assets.

Year ended December 31, 2021

Investing activities during the Fiscal 2021 used net cash of $102.0 million as compared to using $53.3 million during Fiscal 2020. Cash outflows of $73.9 million related to the investment in property, equipment and intangible assets, primarily to support the continued expansion of our fiber footprint. The Company continues to invest in our existing Ting Towns of Centennial, Colorado, Charlottesville, Virginia, Fuquay-Varina, North Carolina, Wake Forest, North Carolina, Holly Springs, North Carolina, Sandpoint, Idaho, Rolesville, North Carolina and Culver City, California as we seek to extend both our current network and expand to new markets. We expect our capital expenditures on building and expanding our fiber network to continue to increase during Fiscal 2022. In addition to investment in property, equipment and intangible assets, the current period used $24 million in connection with the acquisition of Simply Bits, used $2.5 million in connection with the acquisition of Uniregistry and used $2.0 million for an investment in an unrelated entity. These cash outflows were partially offset by $0.5 million from proceeds on disposal of property and equipment.

Year ended December 31, 2020

Investing activities during the Fiscal 2020 used net cash of $53.3 million as compared to using $76.1 million during Fiscal 2019. Cash outflows of $44.5 million related to the investment in property, equipment and intangible assets, primarily to support the continued expansion of our fiber footprint. In addition, the Company used $8.8 million in connection with the acquisition of Cedar. The Company continues to invest in our existing Ting Towns of Centennial, Colorado, Charlottesville, Virginia, Fuquay-Varina, North Carolina, Wake Forest, North Carolina, Holly Springs, North Carolina, and Sandpoint, Idaho as well ramping construction in Roaring Fork, Colorado, Rolesville, North Carolina, and Culver City, California, as we seek to extend both our current network and expand to new towns. We expect our capital expenditures on building and expanding our fiber network to continue to increase significantly during Fiscal 2021.

We may need additional funds or seek other financing arrangements to facilitate more rapid expansion, develop new or enhance existing products or services, respond to competitive pressures or acquire or invest in complementary businesses, technologies, services or products. We may also evaluate potential acquisitions of other businesses, products and technologies. We currently have no commitments or agreements regarding the acquisition of other businesses. If additional financing is required, we may need additional equity or debt financing and any additional financing may be dilutive to existing investors. We may not be able to raise funds on acceptable terms, or at all.

Off Balance Sheet Arrangements

We did not have any off-balance sheet arrangements as of December 31, 2022.

Material Cash Requirements

As of December 31, 2022, we had cash and cash equivalents of $23.5 million of which $18.0 million belongs to Ting and $5.5 million belongs to Excluding-Ting.

Ting

Prior to the Company entering into the Unit Purchase Agreement, the LLC Agreement and the Amended Credit Agreement on August 8, 2022, Ting's operating losses, acquisitions and capital investments were funded by the operating cash flows from Excluding-Ting and the Second Amended 2019 Credit Agreement. Since August 8, 2022, Ting's operating losses and investments in the Ting Internet footprint have been soley funded by the Unit Purchase Agreement. The Unit Purchase Agreement will provide Ting with total capital commitments of $200 million in the form of Series A Preferred Units. As of December 31, 2022, the balance owing on the Unit Purchase Agreement was $91.4 million, with remaining capital commitments of $112.5 million. See Note 13. Redeemable preferred shares to the Consolidated Financial Statements for information regarding the terms of the Unit Purchase Agreement. As a result of the Amended Credit Agreement, Ting, LLC and its wholly owned subsidiaries were released from the Second Amended 2019 Credit Agreement, and Ting no longer has access to additional funding from the Amended Credit Agreement. As a result of certain restrictions placed on Ting in the LLC Agreement, we do not expect that Ting will be able to access funding from Excluding-Ting during the next 12 months.

In the next 12 months, Ting has capital purchase commitments of $35.1 million, lease commitments of $4.3 million and other operating expense commitments of $1.3 million. Ting has no debt repayment or interest commitments due in the next 12 months. We believe that Ting's current cash and cash equivalents as well as the remaining capital commitments from the Unit Purchase Agreement will be sufficient to fund Ting's commitments over the next 12 months.

Total Ting network capital expenditures for Fiscal 2023 are expected to be approximately $120 million. Other than the $35.1 million purchase obligations, the Company's remaining planned capital expenditures are discretionary in nature. In order to fund the discretionary portion of capital expenditures, the Company is seeking additional alternative sources of debt and equity financing.

In the long-term, Ting intends to continue the rapid expansion of its Internet footprint through construction activities, joint ventures and acquisitions. Future expansion of the Ting Internet footprint will continue to require further debt and equity financing. Our future expansion of the Ting Internet footprint and access to additional financing will depend on a range of factors, including economic, competitive and business factors as well as changes in government monetary or fiscal policy. Redemptions under the Unit Purchase Agreement are expected to be funded by growth in future cash flows, equity financing as well as alternative debt financing.

Excluding-Ting

Excluding-Ting's acquisitions and capital investments have been funded by the Company's operating income and the Company's existing Amended Credit Agreement. As of December 31, 2022, the Company’s Amended Credit Facility had an outstanding balance of $239.7 million. There are no scheduled principal repayments within 12 months. As of December 31, 2022, the Company has entered into floating-to-fixed interest rate swap instruments with a notional value of $70 million. Future interest payments associated with the Amended Credit Agreement are estimated to total $20.5 million, with $11.7 million payable within 12 months using current interest rates, net of our interest rate swaps, assuming no repayments. See Note 8 to the Consolidated Financial Statements for information regarding the terms of the Amended Credit Agreement.

In the next 12 months, Excluding-Ting has lease commitments of $0.9 million and other operating expense commitments of $12.6 million. Excluding-Ting has no capital expenditure commitments. We believe that Excluding-Ting's current cash and cash equivalents as well as operating cash flow will be sufficient to fund Excluding-Ting's commitments over the next 12 months. For Fiscal 2023, the Company plans to fund Excluding-Ting's cash requirements solely through operating income, while making discretionary loan repayments to create greater operating flexibility and access to additional financing.

In the long-term, Excluding-Ting may seek additional financing to accelerate the growth of our Wavelo business, repurchase shares or future acquisitions. The Company's credit facility expires on September 30, 2024 and the Company will be required to refinance the Amended Credit Agreement once it becomes due.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We develop products in Canada and sell these services in North America and Europe. Our sales are primarily made in U.S. dollars, while a major portion of expenses are incurred in Canadian dollars. Our financial results could be affected by factors such as changes in foreign currency exchange rates or weak economic conditions in foreign markets. Our interest income is sensitive to changes in the general level of Canadian and U.S. interest rates, particularly since the majority of our investments are in short-term instruments. Based on the nature of our short-term investments, we have concluded that there is no material interest rate risk exposure as of December 31, 2022. We are also subject to market risk exposure related to changes in interest rates under our Third Amended 2019 Credit Facility. We do not expect that any changes in interest rates will be material; however, fluctuations in interest rates are beyond our control. We will continue to monitor and assess the risks associated with interest expense exposure and may take additional actions in the future to mitigate these risks.

Although our functional currency is the U.S. dollar, a substantial portion of our fixed expenses are incurred in Canadian dollars. Our policy with respect to foreign currency exposure is to manage financial exposure to certain foreign exchange fluctuations with the objective of neutralizing some of the impact of foreign currency exchange movements. Exchange rates are, however, subject to significant and rapid fluctuations, and therefore we cannot predict the prospective impact of exchange rate fluctuations on our business, results of operations and financial condition. Accordingly, we have entered into foreign exchange forward contracts to mitigate the exchange rate risk on portions of our Canadian dollar exposure.

As of December 31, 2022, we had the following outstanding foreign exchange forward contracts to trade U.S. dollars in exchange for Canada dollars:

Maturity date (Dollar amounts in thousands of U.S. dollars)	Notional amount of U.S. dollars	Weighted average exchange rate of U.S. dollars	Fair value
January - March 2023	15,132	1.3283	(270)
April - June 2023	13,074	1.3385	(119)
July - September 2023	11,332	1.3633	113
October - December 2023	10,150	1.3744	192
	$ 49,688	1.3484	$ (84)

As of December 31, 2022, the Company had $49.7 million of outstanding foreign exchange forward contracts which will convert to CDN $67.0 million. Of these contracts, $49.7 million met the requirements for hedge accounting.

As of December 31, 2021, the Company had $25.2 million of outstanding foreign exchange forward contracts which will convert to CDN $32.0 million. Of these contracts, $25.2 million met the requirements for hedge accounting.

We have performed a sensitivity analysis model for foreign exchange exposure over the year ended December 31, 2022. The analysis used a modeling technique that compares the U.S. dollar equivalent of all expenses incurred in Canadian dollars, at the actual exchange rate, to a hypothetical 10% adverse movement in the foreign currency exchange rates against the U.S. dollar, with all other variables held constant. Foreign currency exchange rates used were based on the market rates in effect during the year ended December 31, 2022. The sensitivity analysis indicated that a hypothetical 10% adverse movement in foreign currency exchange rates would result in a decrease in pre-tax net income for the year ended December 31, 2022 of approximately $5.9 million. There can be no assurances that the above projected exchange rate decrease will materialize. Fluctuations of exchange rates are beyond our control. We will continue to monitor and assess the risk associated with these exposures and may take additional actions in the future to hedge or mitigate these risks.

Credit Risk

Financial instruments that potentially subject us to concentrations of credit risk consist principally of cash equivalents, marketable securities, foreign exchange contracts and accounts receivable. Our cash, cash equivalents and short-term investments are in high-quality securities placed with major banks and financial institutions whom we have evaluated as highly creditworthy, and commercial paper. Similarly, we enter into our foreign exchange contracts with major banks and financial institutions. With respect to accounts receivable, we perform ongoing evaluations of our customers, generally granting uncollateralized credit terms to our customers, and maintaining an allowance for doubtful accounts based on historical experience and our expectation of future losses.

Interest rate risk

Our exposure to interest rate fluctuations relate primarily to our Amended Credit Agreement.