MANAGEMENT'S DISCUSSION AND ANALYSIS

For the three- and twelve-month periods

ended October 31, 2021 and 2020

GENERAL

The following Management Discussion and Analysis of financial condition and results of operations ("MD&A") of NuRAN Wireless Inc. ("we", "us", "our", the "Company" or "NuRAN") for the year ended October 31, 2021 has been prepared by management and should be read in conjunction with the condensed interim consolidated financial statements for the year ended October 31, 2021 and 2020 and the related notes thereto. The Company's consolidated financial statements are prepared in accordance with International Financial Reporting Standards ("IFRS"). References to notes are with reference to the consolidated financial statements. Unless otherwise noted, all currency amounts are in Canadian dollars. These documents, as well as additional information on the Company, are filed electronically through the System for Electronic Document Analysis and Retrieval (SEDAR) and are available online at www.sedar.com.

Unless otherwise stated, this MD&A is prepared as of December 31, 2021.

DISCLAIMER FOR FOWARD LOOKING STATEMENTS

This MD&A contains forward-looking statements. Often, but not always, forward-looking statements can be identified by the use of words such as "plans", "expects" or "does not expect", "is expected", "estimates", "intends", "anticipates" or "does not anticipate", or "believes", or variations of such words and phrases or state that certain actions, events or results "may", "could", "would", "might" or "will" be taken, occur or be achieved. Forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of the Issuer (as defined herein) or NuRAN (as defined herein) to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. Examples of such statements include: expectations regarding NuRAN's ability to raise capital, the intention to expand the business and operations of NuRAN and use of working capital and proceeds of capital raises. Actual results and developments are likely to differ, and may differ materially, from those expressed or implied by the forward-looking statements contained in this MD&A. Such forward-looking statements are subject to a number of risks as outlined below under "Risks and Uncertainties" and include risks such as the uncertainties regarding the impact of the COVID-19 outbreak, and measures to prevent its spread, risks relating to NuRAN's business and the economy generally; NuRAN's ability to refinance its long term debt that is currently in default; NuRAN's ability to adequately restructure its operations with respect to its new model of NaaS service contracts; the capacity of the Company to deliver in a technical capacity and to import inventory to Africa at a reasonable cost; NuRAN's ability to obtain project financing for the proposed site build out under its NaaS agreements with Orange and other telecommunication providers, the loss of one or more significant suppliers or a reduction in significant volume from such suppliers; NuRAN's ability to meet or exceed customers' demand and expectations; significant current competition and the introduction of new competitors or other disruptive entrants in the Company's industry; NuRAN's ability to retain key employees and protect its intellectual property; compliance with local laws and regulations and ability to obtain all required permits for our operations, access to the credit and capital markets, changes in applicable telecommunications laws or regulations or changes in license and regulatory fees, downturns in customers' business cycles; and insurance prices and insurance coverage availability, the Company's ability to effectively maintain or update information and technology systems; our ability to implement and maintain measures to protect against cyberattacks and comply with applicable privacy and data security requirements; the Company's ability to successfully implement its business strategies or realize expected cost savings and revenue enhancements; business development activities, including acquisitions and integration of acquired businesses; the Company's expansion into markets outside of Canada and the operational, competitive and regulatory risks facing the Company's non-Canadian based operations. These forward-looking statements should not be relied upon as representing NuRAN's views as of any date subsequent to the date of this MD&A.

Although NuRAN has attempted to identify important factors that could cause actual actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward looking statements. The factors identified above are not intended to represent a complete list of the factors that could affect NuRAN. Such statements made by the Company are based on current expectations, factors and assumptions and reflect our expectations as at October 31st, 2021. Except as required by applicable law, we undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

For a description of material factors that could cause the Company's actual results to differ materially from the forward-looking statements in this MD&A, please see "Risks and Uncertainties" below.

CORPORATE STRUCTURE

NuRAN was incorporated under the *Business Corporations Act* (British Columbia) on September 23rd, 2014. The Company was initially a wholly-owned subsidiary of Bravura Ventures Corp. ("Bravura"). On October 14th, 2014, the Company entered into an arrangement agreement with Bravura and 1014379 B.C. Ltd., pursuant to which the shareholders of Bravura exchanged certain common shares of Bravura for common shares of NuRAN by way of a plan of arrangement (the "Arrangement") and NuRAN became a reporting issuer in the provinces of British Columbia and Alberta.

Following completion of the Arrangement, NuRAN entered into an amalgamation agreement dated March 11, 2015 with Nutaq Innovation Inc. ("Nutaq") and 9215174 Canada Inc. ("Newco"), a wholly owned subsidiary of NuRAN formed for the purpose of the amalgamation, pursuant to which Nutaq amalgamated with Newco and NuRAN acquired all of the issued and outstanding shares of the amalgamated company in consideration of 32,999,994 common shares of NuRAN based on a ratio of 2.749 NuRAN common shares for each share of Nutaq issued and outstanding on the closing date. Nutaq and Newco completed the amalgamation on June 2nd, 2015 and the amalgamated company was named "Nutaq Innovation Inc.". Following the closing of the transaction, NuRAN had 40,471,869 common shares issued and outstanding and former shareholders of Nutaq acquired 81.5% of the issued and outstanding common shares of NuRAN. Following closing of the Amalgamation, Nutaq Innovation Inc. is a wholly owned subsidiary of NuRAN and NuRAN operated the business of Nutaq.

Nutaq was incorporated under the laws of Canada on May 30, 2005 under the name "Lyrtech RD Inc.". Nutaq changed its name to "Nutaq Innovation Inc." on August 31, 2012; its registered and head office is located at 2150 Cyrille-Duquet Street, Suite 100, Quebec, Quebec G1N 2G3. On August 28, 2020 the Board of Directors of Nutaq voted to cease operations and on that date all of its board members, except Mr. Francis Letourneau, resigned their respective positions. On August 31, 2020 Nutaq announced the decision and filed an insolvency proceeding and on September 1, 2020 the Company approved the appointment of Lemieux Nolet as trustee for Nutaq's bankruptcy proceedings. At the same time trading of the Company's stock was halted.

On September 22, 2020, the trustee and Nutaq's first ranking secured creditors reached an agreement pursuant to which all of the assets of Nutaq, including all inventory, equipment and R&D equipment, trademarks, patents, accounts receivables, bank account and SR&ED credits would be sold. On October 27, 2020, the parent company re-acquired these Nutaq Assets for $100,000.

As a result of the insolvency proceedings, the Company eliminated/extinguished the obligation to repay certain creditors and recorded a $1.5 million gain on the extinguishment of liabilities. As well, the Company assumed $4.2 million in obligations of Nutaq. Some of these transactions and the events that have taken place subsequently are explained more fully in the notes to financial statements.

DESCRIPTION OF BUSINESS

NuRAN is a leading supplier of mobile and broadband wireless infrastructure solutions. Its innovative radio access network (RAN), core network, and backhaul products dramatically reduce the total cost of ownership, giving mobile network operators (MNOs) the ability to profitably serve remote, low income and low population density locations, an unfeasible proposition with existing systems.

NuRAN's current business focus is to grow the market penetration of its Network as a Service (NaaS) offering, a communications solution whose backbone is its Wireless Infrastructure Systems (WIS).

NuRAN's WIS are mobile wireless infrastructure equipment (e. g. base station radios) that use proprietary breakthrough small cell solutions to offer better coverage, the lowest installed cost, the most efficient power consumption combined with leading technology for satellite bandwidth reduction usage currently available in the global marketplace.

Our design provides two key competitive advantages:

- Low total cost of ownership, a key feature for developing countries and rural/low population density areas, and
- Small footprint, easy to deploy private networks, customizable for large scale deployments such as rural mobile networks and specific markets such as defense, utilities, industrial and machine-to-machine ("M2M").

NuRAN's NaaS model leverages the capabilities of its WIS as well as its extensive expertise in building cost-effective cellular infrastructure. The model provides not only the network equipment, but NuRAN also builds, operates and maintains the cellular sites in a very effective manner. The NaaS model is receiving significant interest from MNO's as a carrier-grade mobile network infrastructure solution that allows them to continue focusing their capital expenditures into developing new technologies, while being able to reach previously uneconomic markets. Another reason for this growing interest in the NaaS is that it allows MNO's to meet the obligations to serve remote communities that are a requirement of their government licenses. The investment in the NaaS model is customer friendly but it also provides NuRAN with long-term recurring revenues resulting in a compelling return over 10 year contract periods or in the future, indefinite contract lengths featuring continued asset ownership by NuRAN.

NuRAN's wireless infrastructure solutions are also capable of supporting mobile payment transactions, a tremendous social and economic benefit for those in the developing world where 95% of all transactions are cash and 60% of adults don't currently have a bank account, as well a significant potential market for MNO's.

By deploying communication infrastructure in uncovered areas, NuRAN also makes a very significant contribution to the socio-economic conditions of the areas it serves and meets a significant number of the seventeen sustainable development goals set by the United Nations. This includes improving the local economies and enabling access to e-learning, e-health and other social services not currently available to the local population.

GENERAL OBJECTIVES

The Company's mission is to enable its clients to profitably connect the 4 Billion people without broadband connectivity and the Next Billion of wireless communications users, those that do not have the benefit of accessing reliable telecommunications and power infrastructure.

The company delivers the world's most affordable, lowest power consumption and easiest to deploy wireless solutions. NuRAN deploys its own breakthrough small cell solution in traditionally underserved and emerging markets, addressing the CapEx and OpEx challenges of operators, allowing Telcos to deploy profitably in the least population dense and most remote areas.

OVERALL PERFORMANCE AND OUTLOOK

Performance

During the year ended October 31, 2021, the Company continued the implementation of its strategy to become the supplier of choice to Mobile Network Operators (MNOs) across the world for remote and rural areas without connectivity.

Management's decision to redirect NuRAN's efforts to the NaaS market was made with the awareness that this would require considerable initial investments in marketing, branding, sales, field tests and to prepare for increased production as well as working capital to fund rollout and installation of networks. These investments were planned to be recovered over the coming years through increased market visibility, higher sales and better gross margins.

In spite of delays incurred throughout the qualification process with MNO's, the contracts executed, those currently being negotiated, and the growing sales pipeline confirms management's expectations.

The Company's ongoing investments in research and development, engineering and manufacturing have been rewarded with the acknowledgment by leading industry organizations and participants that NuRAN's Wireless Infrastructure Solutions are "at the top of its class".

In addition, NuRAN's marketing and branding efforts have significantly increased the market's awareness of its wireless solutions.

The economic disruption caused by the pandemic created additional challenges for NuRAN: obtaining supplies in a timely basis, revamping operational procedures to ensure the safety of our staff and a slower decision making by some of our financing partners and customers. The Company has addressed these challenges and the site development delays are methodically being recovered and we have strengthened our supply chain adding as many African suppliers as possible.

As of date of this filing the Company has 32 sites in Cameroon, 4 in the DRC, now connecting over 160 000 inhabitants, \$3.9MM of equipment (as of October 31st) ready for deployment in those countries and 20 sites under active construction. In addition, our adoption rates and Revenue per User are exceeding our estimates. In summary we believe that we have performed very well in extremely difficult environment and have set NuRAN for a very strong future.

Management has in place the financing for Phase 1 of the Cameroon project, raised $4MM for the DRC project and is in the late negotiation stage of a larger financing with international financial institutions to fund all projects.

Some of the achievements that support the continued growth of the NaaS model include:

- The March 2021 agreement with Orange Cameroon SA to add another 120 sites (Phase 2) to the 10-year NaaS contract previously signed brings the total number of sites being developed in Cameroon to 242. The contract with Orange is being managed through the Company's wholly owned subsidiary, NuRAN Wireless Cameron Ltd whose results are consolidated in Nuran's financial statements.

- Once both phases are fully operational, expected in 2022, the contract with Orange Cameroon is expected to generate revenue of over $7 million annually based on latest business plan estimates, assuming a conservative 24% penetration rate.

- The balance sheet includes $2.4 million of inventory held in Cameroon which represents goods available for deployment as soon as the full bill of material is received. As of today, a portion of this inventory as been used to build additional sites.

- Nuran Wireless Cameroon Ltd. received approval from the Board of Directors of Afriland First Bank in Cameroon for a $2.87M CAD loan to finance the rollout of Phase 1 of our Cameroon development. The loan is for a five (5) year term with an initial six (6) month capital grace period and an annual interest rate of 9%. NuRAN is guaranteeing the loan in the amount of $1.6M CAD by way of a letter of guarantee with the CIBC Bank in Canada. The first draw on this loan is expected to take place by January 2022. Afriland First Bank also operates in many countries being targeted for future NAAS projects such as Ivory Coast, Liberia and South Sudan.

- The Company is also implementing the NaaS contract with Orange DRC SA, to build 2,000 sites throughout the Democratic Republic of the Congo over the next 40 months partially financed by Spacecom's $4M CAD contribution to the $11M CAD private placement announced in July. This contract is being managed through a newly established entity, NuRAN Wireless DRC. The first site went live in November 2021 with others to follow on an ongoing basis with a target of 120 sites live by March 2022. Following an extensive and professionally managed procurement process, a number of key vendor relationships have been established and initial orders are being deployed. Once all sites are fully operational, annual gross revenues are expected to exceed $80 million based on latest business plan estimates assuming a conservative 22% penetration rate. The consolidated results as at October 31, 2021 include $1.6 million of inventory held in Kinshasa which represents goods available for deployment, as soon as the full bill of material is received.

- On December 16, 2021 the Company announced the signing of an agreement for a minimum of 250 sites with MTN Group Limited (JSE:MTN) for the deployment of rural sites under the NaaS model in the Republic of South Sudan ("South Sudan"). The 10-year agreement is estimated to represent approximately CAD $1,800 of revenue per site and per month or CAD $57 Million in revenues over the course of the contract. The contract includes the potential for more sites to be added and the ability to leverage terrestrial backhaul networks to deliver inexpensive data capacity that is intended to drive higher ARPU and revenues. The parties intend to install a minimum of 250 rural networking sites in South Sudan within the next 24 months. An initial 50 sites will be launched from existing tower infrastructure owned by MTN and allowing for an accelerated project launch. NuRAN will partner with Tandem Solution LTD ("Tandem"), a local partner and already familiar to MTN. Tandem is fully licensed for infrastructure work in the country.

- The signing of the above-mentioned contracts and proposed financing agreements confirms the quality of the Company's products and NuRAN continues to engage with African MNO's to identify future opportunities and grow its qualified pipeline. MOUs were announced with two additional entities: Telinno-Consulting in Mali and Sierra Tel in Sierra Leone. All agreements are being progressed in a managed way to optimise resource utilisation across the Company.

- The Company has been short-listed for the final round of requests for proposal (RFPs) for Orange SA in four different countries in sub-Saharan Africa. The Company was also short-listed by MTN for development of thousands of sites in a number of Middle East and African countries.

- The Company continues the execution of a $4.75 million contract with Intelsat for delivery and installation of NuRAN's Wireless Infrastructure Solutions to expand and enhance mobile connectivity services to the Marshall Islands. The work started in 2020 and, in spite of the pandemic delays, to date approximately 47% of the contracted services has been delivered with further site deployment underway as at today's date. The final phase of the program will be delivered in 2022.

- NuRAN completed the site build of its project in Ghana for Vodafone financed through a GSMA Connected Society Innovation Grant for rural connectivity. The Company is now managing daily operations, monitoring and maintenance of seven sites in Ghana with 3G capability added in 4 sites. Over the next 12 months, the GSMA and NuRAN will report on the outcome of their performance on the project with initial indications that site penetration of almost 50% has been recorded. The project is also intended to expand the GSMA network and relationship with Vodafone.

- NuRAN is adding to its pipeline of NaaS business opportunities and has targeted MTN, Vodafone, Airtel and many other MNOs for multi-country opportunities. The company now has over 15,000 sites in its forecast at different stages in the sales process.

- The Company has now begun business development activities in Latin America.

- The United States Patent Office granted the Company with a patent related to 5G Massive MIMO;

- NuRAN announced the marketing launch of its new LiteRAN xG product in June 2021. The product will provide 2G, 3G and 4G services fulfilling MNO requirements to have a flexible and scalable solution for rural generation expansion. The first products will be installed in the Marshall Islands in the second quarter of 2022.

- NuRAN intends to perform 3G and/or 4G pilots in Cameroon and DRC in 2022.

In addition, the Company continued to take steps to improve its balance sheet in order to position itself for rapid expansion of the NaaS offering:

- On July 12, 2021 the Company completed a non-brokered private placement of common shares and warrants for gross proceeds of $11,065,433. In connection with the Offering the Company issued 4,617,930 units (each comprised of one Common Share and one Warrant) for gross proceeds of $7,065,433 and received a lead order to subscribe for 2,614,379 Common Shares and 182,000 Warrants for gross proceeds of approximately $4,000,000 from Space-Communication Ltd., an international satellite communication provider. Following closing of the Offering, Spacecom held a 9.3% equity stake in the Company on an undiluted basis. The investment includes an agreement for Spacecom to become the exclusive satellite capacity provider for existing and future NaaS projects in Africa. In addition, the Spacecom proceeds will be directed to the rollout in DRC, assuring a strong beginning to the rollout. Other important terms include the right for Spacecom to participate in investment in other African subsidiaries and to match any other financing offers. Spacecom's financial strength and commitment to the future business, as well as the proceeds of the placement, including warrants, gives the Company a much-needed financial injection and strength to accelerate its growth ambitions.

- As at October 31, 2021 all secured debt holders have converted their debt into equity,

- The proposal to unwind the bankruptcy filing of Nutaq has received preliminary acceptance by creditors with conclusion expected in early 2022. This will enable NuRAN to utilize tax losses that could be as high as $26 million.

The above progress and achievements reinforce management's belief in the success of the Company's strategic shift and that NuRAN is positioned to become the market leader in this very important and growing space which should generate strong returns to its shareholders.

Outlook

NuRAN's wireless infrastructure solutions have long been deployed by MNOs as an integral part of their network operations and now under the NaaS model in extending rural coverage. NuRAN solutions are being either tested or operated by MNOs in more than 20 countries across South East Asia, Africa, South America and Latin America. NuRAN has also established alliances with other key industry participants such as tower and power companies to further increase its market reach. The successful qualification by MNOs and partnerships with key industry players puts NuRAN in a position to generate significant business in both the short and long term in management's view.

NuRAN previously announced that development is underway on LiteRAN xG, a mobile wireless infrastructure solution that will provide operators with 2G, 3G, & 4G capability from a single piece of equipment allowing them to run multiple technologies simultaneously and evolve their services over time. Deployment will proceed with Intelsat and the GSMA program in Ghana. The addition of LiteRAN xG to the portfolio significantly widens the Company's addressable market.

The market adoption of NuRAN's NaaS offering is gaining traction, as demonstrated by the latest signing of a 250 site contract with MTN following two MNO contacts totaling 2,242 sites with Orange SA and interest expressed by other MNOs in informal discussions and signed MOUs. MNO's recognize the quality of NuRAN's carrier-grade mobile network infrastructure solutions, its extensive expertise in the installation and management of cost-effective cellular networks as well as the economic benefits of being able to reach a large base of customers not reachable to date that NuRAN's systems provide.

The following discussion of the Company's financial performance is based on the condensed interim consolidated financial statements for the 12 month period ended October 31, 2021 and fiscal year 2020.

Factors Concerning the Company's Financial Performance and Results of Operations

To evaluate the results of the strategic shift, management closely monitors four key measures of the Company's performance: Revenue, Gross Profit Margins (GPM), Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) and Net Income.

Revenue growth measures the success of the NaaS solution combined with our marketing and sales efforts. This is dependent on the Company's ability to enter into contracts, build NaaS infrastructure, penetrate new markets and gain new customers for existing and new products and services. The investments in marketing and sales and the new products launched since 2016 have increased our sales pipeline, started to generate sales with first sites live and should produce increasing revenues as rural subscribers in previously covered and uncovered areas take advantage of more choice, availability and variety of mobile services to improve their economic position. The takeup of NaaS solutions and the resultant recurring revenue stream brought on by each live site will generate transformative growth in revenue for the Company.

GPM measures how efficiently and effectively NuRAN delivers its systems and services to its clients, both in terms of production of its product line, and increasingly, delivery of the NaaS solution in rural areas.

EBITDA measures the entire operations by including selling and administrative costs. It should increase as sales grow.

Management believes that net income is a measure of how efficiently and effectively the business is running, however recognises that, given the stage of NaaS rollout and implementation, it is likely to be loss-making for some time. To achieve an acceptable net income, the company needs to significantly increase its revenues, while maintaining or slightly increasing its selling and general administration costs and efficiently utilising the capital assets that it deploys, including the NaaS model.

SELECTED ANNUAL FINANCIAL INFORMATION

The following is selected financial data derived from the condensed interim consolidated financial statements of the Company as at October 31, 2021 and October 31, 2020 and for the periods then ended:

	Year ended October 31st, 2021	Year ended October 31st, 2020	Year ended October 31st, 2019
Total revenues	$ 1,407,320	$ 3,930,078	$ 2,122,167
Total loss	$ (12,816,083)	$ (1,894,253)	$ (3,548,993)
Net loss per share – basic	$ (0.63)	$ (0.27)	$ (0.57)
Net loss per share – diluted	$ (0.63)	$ (0.27)	$ (0.57)

	Year ended October 31st, 2021	Year ended October 31st, 2020	Year ended October 31st, 2019
Total assets	$ 17,607,971	$ 7,939,930	$ 8,828,268
Total non-current financial liabilities	$ 1,842,284	$ 2,233,722	$ 632,911

RESULTS OF OPERATIONS

Revenue

The $2,522,758 decrease in revenue for the year ended October 31, 2021 compared to the year ended October 31, 2020 ($1,807,911 increase for the year ended October 31, 2020 compared to the year ended October 31, 2019) results from the continuing shift in focus to the NaaS model which deploying equipment in subsidiaries to provide NaaS services with ongoing recurring rather than up-front revenues.

Gross Profit

Gross profit for the year ended October 31, 2021 decreased by $773,412 compared to year ended October 31, 2020 (increased by $353,312 for the year ended October 31, 2020 compared to the year ended October 31, 2019).

Gross margin for the year ended October 31, 2021, decreased to 22% from 28% for the year ended October 31, 2020 (decreased to 28% for the year ended October 31, 2020 from 34% for the year ended October 31, 2019). The decrease in gross profit reflects the fixed nature of production and operating costs for delivery of the Company's products and NaaS solution.

Expenses

During the year ended October 31, 2021 total expenses increased by $8,889.521 from the year ended October 31 2020 (for the year ended October 31, 2020 total expenses decreased by $739,164 from the year ended October 31, 2019). A significant portion of this expense was accounted for by a $5,749,974 non-cash charge for share-based compensation for the Company's senior executives. Selling expenses increased marginally over the prior year as the Company focused its efforts on expanding the reach of its NaaS offering across Africa and other markets. R&D expenses net of tax credits fell during the year as a result of the reduced headcount and cost containment measures including more reliance on third party contractors. Administrative expenses excluding share-based compensation increased for the period mainly as a result of professional and other fees associated with the private placement, additional expenses incurred in establishing African operations including procurement activities and costs to support the Company's on-going financing initiatives.

Net Loss Before Other Elements and Income Taxes

As a result of all the factors mentioned above the Net Loss Before Other Elements and Income Taxes for the year ended October 31, 2021 increased to $12,122,085 from the year ended October 31, 2020 loss of $2,459,152 (for the year ended October 31, 2020, total Net Loss Before Other Elements and Income Taxes decreased to $2,429,152 from the year ended October 31, 2019 loss of $3,551,628).

Other Elements and Income Taxes

Other Elements and Income Taxes for the year ended October 31, 2021 generated a net loss of $693,997 compared with a net gain of $564,899 in the year ended October 31, 2020 (a net gain of $564,899 for year ended October 31, 2020 compared to a net gain of $2,635 for the year ended October 31, 2019). This loss related to charges for the debt settlement in shares as well as a loss on disposal of assets.

Net Loss and Total Comprehensive Income

As a result of all the factors mentioned above the Net Loss and Total Comprehensive Income for the year ended October 31, 2021 increased to $12,816,083 from the year ended October 31, 2020 loss of $1,894,253 (for the year ended October 31, 2020 decreased to $1,894,253 from the year ended October 31, 2019 loss of $3,548,993).

Financial Highlights of the year ended October 31st, 2021

For the year ended October 31, 2021, the Company's financial performance was the following as compared to the year ended October 31, 2020:

- Revenue of $1,407,320 compared to $3,930,078 for the year ended October 31, 2020;
- Gross margin of 22% compared to 28% for the year ended October 31, 2020;
- Gross Profit of $308,884 compared to a Gross Profit of $1,082,297 for the year ended October 31, 2020;
- Net Loss Before Other Elements and Income Taxes of $12,122,085 compared to $2,459,152 during the year ended October 31, 2020;
- Net Loss of $12,816,083 compared to a Net Loss of $1,894,253 for the year ended October 31, 2020.

Expenses

Below is a discussion of the expenses for the year ended October 31, 2021

	2021	2020	% change from 2020
Selling expenses	939,472	869,894	+8%
Administrative expenses	5,113,658	1,301,134	+293.02%
Employee share-based compensation	5,749,974	-	+100%
Financial expenses	386,536	458,545	-15.70%
Research and development costs, (net of 92,415 in 2020) in tax credits	241,330	911,876	-73.53%
	12,430,970	3,541,449	251.01%

Selling expenses

Selling expenses consist of salaries to sales and marketing staff, commissions on sales, travel expenses, trade shows and presentations. The increase is a result of increased headcount including regional sales reps focused on MNO clients as well as increased advertising and promotions activity aimed at increasing the recognition of the company brand and positioning.

Administrative expenses

Administrative expenses consist of remuneration, legal fees, audit and accounting fees, insurance, rent, consulting fees and general office expenses. The increase in administrative expenses is due mainly to costs associated with the private placement, the build up of operations in Africa and financing initiatives aimed at funding the build out and local operation in Africa. Employee share-based compensation is also added as a new line item relating to the CEO and CFO's performance-based compensation.

Financial expenses

Financial expenses consist of loan interest and gain/loss on the exchange rate. The decrease in financial expenses for the year ended October31, 2021 compared to the year ended October 31, 2020 is a result of exchange rate gains and the reduced debt load including the eventual conversion of all long term debt to equity.

Research and development

Research and development costs for the year ended October 31, 2021 have decreased from the year ended October 31, 2020 as the Company focused it’s R&D efforts including the use of external contractors.

SUMMARY OF QUARTERLY RESULTS

Three Months Ended	Net Revenues ($)	Net Gain (Loss) ($)	Basic and Diluted Loss Per Share ($)
31-Oct-21	519,061	(5,018,582)	(0.24)
31-Jul-21	7,363	(5,316,766)	(0.23)
31-Apr-21	410,488	(1,116,545)	(0.06)
31-Jan-21	470,407	(1,364,190)	(0.09)
31-Oct-20	132,797	(540,193)	(0.08)
31-Jul-20	319,228	(71,545)	(0.00)
30-Apr-20	1,432,841	(1,089,155)	(0.01)
31-Jan-20	2,045,212	(193,361)	(0.00)
31-Oct-19	(188,308)	(808,080)	(0.00)

FORTH QUARTER

During the three months ended October 31, 2021, the Company earned revenues of $519,061 compared to $132,797 during the three months ended October 31, 2020, an increase of $771.900.

For the three months ended October 31, 2021, the Company incurred a gross profit of $186,378 compared to gross loss of $99,270 for the same period of 2020.

The net loss for the quarter was $5,018,582 compared to a net loss of $540,193 for the same quarter in 2020.

LIQUIDITY AND CAPITAL RESOURCES

The Company’s cash increased to $3,185,469 as at October 31, 2021, from $64,254 as at October 31, 2020. Current assets increased to $11,052,943 as at October 31, 2021, from $2,180,068 as at October 31, 2020.

The cash position has increased significantly as at October 31, 2021 compared to October 31, 2020 due to the proceeds of the private placement. Note that advances were received, prior to closing, against the private placement to fund increased operating expenses which accounts for the difference between the total placement proceeds and the cash balance at the end of the period.

Future Financing

Management closely monitors the Company's current cash position and the short-term and long-term cash requirements and recognizes the need for improved cash flow and liquidity for future operations and growth. The Company will look for additional financing for costs related to operations and its growth strategy (including the purchase of new equipment, continuous development of next generation wireless solutions such as the multi-Standard 2G, 3G, 4G platform, as well as the deployment of mobile infrastructure under the NaaS model).

Although the Company's cash position at the end of October 31, 2021 was significantly positive, current inflows are not sufficient to cover its selling, administrative and R&D costs and finance the capital investment necessary to implement it NaaS contracts. The Company will continue to depend on its ability to convert its sales opportunities into purchase orders (for example the recently signed agreements with Orange SA for Cameroon and DRC and with MTN for South Sudan), raise debt to finance NaaS projects and future equity issuances or other means to finance its operations, including the completed private placement.

The ability of the Company to continue operating will therefore be dependent upon obtaining additional financing as required. The timing and ability to do so will depend on the liquidity of the financial markets as well as the acceptance of investors to small cap companies, in addition to the results of the Company's operations. Although management believes that the company will be able to raise the necessary financing, and that its financial position has improved, there can be no guarantee that these efforts will be successful.

OFF-BALANCE SHEET ARRANGEMENTS

The Company has not entered into any off-balance sheet arrangements.

TRANSACTIONS WITH RELATED PARTIES

The Company's related parties include key management personnel.

The Company's key management consists of the directors and executives.

Unless otherwise stated, none of the transactions incorporated special terms and conditions and no guarantees were given or received.

Other related party transactions

During the period, the Company entered into the following transactions with related parties:

	2021 (12 months)	2020 (12 months)
	$	$
Shareholders		
Interest expenses	-	58,336

PROPOSED TRANSACTIONS

As at the date of this MD&A there are no proposed transactions.

COMMITMENTS

The Company leases office space with a minimum rental payment of $15,566 per month for a 60 month term.

ASSESSMENT OF COVID-19 IMPACT ON BUSINESS

In March 2020 the World Health Organization declared COVID-19 a global pandemic. To this date, the contagious disease outbreak has spread to every part of the world, has forced the authorities of virtually every country to impose severe containment measure effectively creating a widespread shutdown, and adversely affected the global economy.

On April 7, 2020, NuRAN announced that, as a provider of telecommunications infrastructure, the Company operates commercial activities considered essential to the population and the economy, and therefore has been able to maintain most of its operations throughout the period. In order to protect its employees from the risk of being exposed to the virus and to slow its propagation, following the guidelines of public health, all except a few employees have been working from home since March 16, 2020 and will continue to do so for as long as social distancing measures imposed by the government remain in place. During this time, the Company continues to support the operation of mobile operators and to develop its set of infrastructure solutions. Since a large portion of the development is based on software, no major disruption has occurred. NuRAN has experienced supply chain challenges due to exceptional merchandise import and export measures taken by governments in reaction to the pandemic. Those measures have since been lifted or relaxed, allowing the Company to resume business which had been temporarily hindered. This situation has affected the delivery of certain milestones associated to the Marshall Islands contract, which created execution delays of approximately three months. The global situation may cause other disruptions which could affect the Company's ability to deliver its backlog. NuRAN has taken measures to mitigate the risk of such occurrences and minimize the impacts. The Company also announced that some of its plans to connect its mobile infrastructure solutions to the core network of African mobile operators had incurred delays due to COVID-19. Of the two projects impacted, one has resumed at the beginning of June, while the other is yet to resume.

In March 2020, the government of Canada has announced an emergency wage subsidy as a relief measure to all Canadian companies being affected by the pandemic. The program provides a subsidy of 75% of employee wages for up to 24 weeks, retroactive from March 15, 2020, to August 29, 2020.

While it is impossible at this stage to accurately predict the impact that COVID-19 may have on NuRAN's business in the future, based on its own assessment and its customer's assessments, none of the expected business and plans are currently foreseen to be adversely affected.

The pandemic and its consequential shutdown have highlighted the importance of connectivity throughout society, but especially for the underserved. The increased awareness may play favorably for the Company given it may stimulate connectivity projects, through government actions as an example.

ACCOUNTING ESTIMATES AND JUDGEMENTS

The preparation of the Company's consolidated financial statements requires management to make judgements and estimates that affect the reported amounts of assets and liabilities at the date of the consolidated financial statements and reported amounts of expenses during the reporting period. Actual outcomes could differ from these judgments and estimates. The consolidated financial statements include judgments and estimates which, by their nature, are uncertain. The impacts of such judgments and estimates are pervasive throughout the consolidated financial statements and may require accounting adjustments based on future occurrences. Revisions to accounting estimates are recognized in the period in which the estimate is revised and also in future periods when the revision affects both current and future periods.

Significant assumptions about the future and other sources of judgments and estimates that management has made at the end of the reporting period, that could result in a material adjustment to the carrying amounts of assets and liabilities, in the event that actual results differ from assumptions made, relate to, but are not limited to, the following:

Allowance for Bad Debts

The Company establishes an appropriate provision for uncollectible or doubtful accounts. Estimates of recoverable amounts are based on management's best estimate of a customer's ability to settle its obligations, and actual amounts received may be affected by various factors, including industry conditions and changes in individual customer financial conditions. To the extent that actual losses on uncollectible accounts differ from those estimated in the Company's provision, both accounts receivable and net earnings will be affected.

Functional Currency

In deciding the functional currency of the parent and its subsidiary, company management considered the currency that mainly influences sales and the cost of providing goods and services in each jurisdiction in which the Company operates. The Company also considered secondary indicators including the currency in which funds from financing activities are denominated, the currency in which funds are retained and whether the activities of the subsidiaries are carried out as an extension of the Company or if they are carried out with a degree of autonomy.

Provisions for Inventory

Management makes estimates of the future customer demand for the Company's products when establishing appropriate provisions for inventory. In making these estimates, management considers product life of inventory and the profitability of recent sales of inventory. In many cases, product sold by the Company turns over quickly and inventory on-hand values are lower, thus reducing the risk of material misstatement. Management ensures that systems are in place to highlight and properly value inventory that may be approaching "best before" dates. To the extent that actual losses on inventory differ from those estimated, both inventory and net earnings will be affected.

CRITICAL ACCOUNTING POLICIES

Financial Instruments

The Company classifies its financial assets as fair value through profit or loss (“FVTPL”). The classification depends on the purpose for which the financial assets were acquired. Management determines the classification of financial assets at recognition.

Fair value through profit or loss

Financial assets and liabilities are classified as FVTPL when the financial asset or liability is held-for-trading or it is designated as FVTPL. A financial asset is classified as FVTPL when it has been acquired principally for the purpose of selling in the near future; it is a part of an identified portfolio of financial instruments that the Company manages and has an actual pattern of short-term profit-taking or if it is a derivative that is not designated and effective as a hedging instrument. Upon initial recognition, attributable transaction costs are recognized in profit or loss when incurred. Financial instruments at FVTPL are measured at fair value, and changes therein are recognized in profit or loss. Cash is included in this category of financial assets.

Fair value hierarchy

Fair value measurements of financial instruments are required to be classified using a fair value hierarchy that reflects the significance of inputs used in making the measurements. The levels of the fair value hierarchy are defined as follows:

Level 1 - Quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2 - Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.

Level 3 - Inputs for assets or liabilities that are not based on observable market data.

SHARE CAPITAL

Issued

The company has 31,720,357 common shares issued and outstanding as of December 28, 2021. There are no securities of any other class issued and outstanding.

Share Purchase Options

The Company has 1,975,000 stock options as at December 28, 2021. See Summary below.

The following is a summary of stock options outstanding and exercisable as at December 28, 2021.

	Options outstanding		Options exercisable	
Exercise price	Number	Weighted average contractual life (years)	Number	Weighted average contractual life (years)
$1.50	20,000	1.98	20,000	1.98
$1.60	365,000	2.87	200,000	2.87
$1.67	100,000	4.83	100,000	4.83
$1.70	250,000	4.81	62,500	4.81
$2.35	1,225,000	4.00	1,087,500	4.26
$2.50	14,000	0..36	14,000	0.36
$7.50	1,000	0.29	1,000	0.29
	1,975,000		1,485,000	

Warrants

The Company has 9,906,304 warrants outstanding as at December 28, 2021. See Summary below.

The following is a summary of warrants outstanding, as at December 28, 2021.

	Warrants outstanding		Warrants exercisable	
Exercise price	Number	Weighted average contractual life (years)	Number	Weighted average contractual life (years)
$0.00	2,000,000	2.25		
$0.00	1,600,000	2.68		
$0.50	900,000	0.46	900,000	0.46
$1.25	168,400	1.16	168,400	1.16
$1.53	28,550	1.57	28,550	1.57
$1.75	339,889	0.64	339,889	0.64
$2.40	4,869,465	1.57	4,869,465	1.57
	9,906,304		6,306,304	

CONVERTIBLE DEBENTURE

As of October 31, 2021, all secured convertible debenture was converted in share capital.

As at November 16, 2020, a Company's debt holder has agreed to convert $100,000 of debt into a secured convertible debenture (the "Debenture") of the Company. The principal amount of the Debenture is $115,000 (the "Purchase Price"), representing the original $100,000 of debt (the "Debt"), inclusive of an original issue discount equal to 15% of the Purchase Price. The Debt is currently in default, and the issuance of the Debenture will result in an extension of the maturity of the Debt until May 31, 2021. The Debenture was to bear interest at a rate of 10% per annum. However, it was converted into common shares of the Company at a conversion price o

As at November 20, 2020, a Company's debt holder has agreed to convert an additional $250,000 of debt into a secured convertible debenture of the Company. The principal amount of the Debenture is $287,500 for the original $250,000 of debt (representing an original issue discount equal to 15% of the purchase price). The Debenture bears interest at a rate of 10% per annum. The Debenture was to bear interest at a rate of 10% per annum.

As at November 30, 2020, a Company's debt holder has agreed to convert an additional $300,000 of debt into a secured convertible debenture of the Company. The principal amount of the Debenture is $352,900 for the original $300,000 of debt (representing an original issue discount equal to 15% of the purchase price). The Debenture was to bear interest at a rate of 10% per annum.

As at December 29, 2020, a Company's debt holder has agreed to convert an additional $200,000 of debt into a secured convertible debenture of the Company. The principal amount of the Debenture is $235,294 representing an original issue discount equal to 15% of the purchase price of the original $200,000 owed to the debt holder. The convertible debenture bears interest at a rate of 10% per annum.

As at January 12, 2021, all of the holders of the 12% senior secured convertible debentures of the Company issued on February 23, 2017 have executed the Forbearance Agreement dated as of November 30, 2020 to forbear from enforcing their rights under the security agreements relating to the Debentures until December 31, 2021Following the execution of the Forbearance Agreement by all Secured Creditors on January 12, 2021, effective as of such date the Debentures have been amended as follows:

(i) The maturity date of the Debentures is amended to December 31, 2021;

(ii) Subject to compliance with applicable securities laws, all accrued but unpaid interest and penalties on the Debentures in common shares of the Company up to and as at January 12, 2021 will be settled at a deemed price per common share equal to $0.28 (being last closing market price of the common shares on the CSE), discounted by the maximum discount permitted by Section 2.1 of Policy 6 of the CSE. As at January 12, 2021, the total amount of interest and penalties owed under the Debentures totaled approximately $875,000;

(iii) Interest on the Debentures following January 12, 2021 will be payable on June 30, 2021 and December 31, 2021, payable at the option of the Company in cash or common shares, at a deemed price per common share equal to the volume weighted average trading price of the common shares on the CSE for the 10 day period prior to the interest payment date; and

(iv) In the event that the Company elects to pay accrued interest in common shares, the effective interest rate is increased to 15% (from 12%).

As at March 23, 2021, debt holders of the Company agreed to convert an additional $1,000,000 of debt into a secured convertible debenture of the Company. The principal amount of the Debenture is $1,000,000 and was converted into common shares of the Company at a conversion price of $1.

During the year ended October 31, 2021, the debenture holders requested the conversion of debentures totalling a par value of $4,825,695 in common shares of the Company.

RISKS AND UNCERTAINTIES

Additional Financing Requirements and Access to Capital

NuRAN's ability to realize its assets and discharge its liabilities depends on the continued financial support of its shareholders, the growth and profitability of the future sales of its products and services and from obtaining additional financing.

Sales Risks

NuRAN’s sales efforts target large corporations that require sophisticated data capture and production execution systems to collect and analyze data relating to various operational activities. NuRAN spends significant time and resources educating prospective customers about the features and benefits of its solutions. NuRAN’s sales cycle usually ranges from 3 to 18 months and sales delays could cause its operating results to vary. NuRAN balances this risk by continuously assessing the condition of its sales pipeline and making the appropriate adjustments as far in advance as possible. NuRAN’s strategy also includes a comprehensive program to build and improve relationships with long-standing customers to better understand needs and proactively manage incoming business levels effectively.

Foreign Exchange Risk

NuRAN’s sales are mainly outside Canada and are generally conducted in currencies other than the Canadian dollar, while a majority of our product research and development expenses, integration services, customer support costs and administrative expenses are in Canadian dollars. Fluctuations in the value of foreign currencies relative to the Canadian dollar can negatively, or positively, impact NuRAN’s financial results. The company monitors this risk and will enter/consider entering into forward/ derivatives contracts to minimize the exposure.

Outsourcing Risk

NuRAN outsources the manufacture of its products to third parties. If they do not properly manufacture the products or cannot meet the needs in a timely manner, NuRAN may be unable to fulfill its product delivery obligations and its costs may increase, and its revenue and margins could be negatively impacted. The Company’s reliance on third-party manufacturers subjects it to a number of risks, including the absence of guaranteed manufacturing capacity and the inability to control the amount of time and resources devoted to the manufacture of products. To mitigate this dependency, the Company has relationships with two separate manufacturing service providers and maintain contact with additional alternative suppliers in case the primary manufacturing sources should be disrupted.

Competition

NuRAN must contend with strong international competition. Therefore, there are no guarantees that NuRAN can maintain its competitive position. However, its unique mix of products combined with NaaS service delivery, and skilled human resources give it a competitive edge in several markets.

Availability and Cost of Qualified Professionals

The high-technology industry’s strong growth as well as the Company’s move into the NaaS model increased the demand for qualified staff. So far, NuRAN has successfully met its needs for personnel. NuRAN benefits from its location in Quebec City, which gives it access to a large pool of engineering resources but has also pursued hiring internationally. Aware that the satisfaction of its customers is directly tied to the quality of its employees, NuRAN continues to take measures to attract and retain well-qualified professionals from a global talent pool.

Ability to Develop and Expand Mix of Products and Services to Keep Pace with Demand and Technological Trends

NuRAN uses several means to remain on the cutting edge and to meet its customers' changing needs—steady investments in product development and improvements, business alliances with major industry suppliers and partners, ongoing training of its personnel and occasional business acquisitions that provide it with specific know-how.

Protection of Intellectual Property

To protect its intellectual property, NuRAN relies on a series of patent and trademark laws, provisions respecting trade secrets, confidentiality protection measures, and various contracts. Regardless of all the efforts made to retain and protect its exclusive rights, third parties could attempt to copy aspects of its products or obtain information regarded as exclusive without authorization. There can be no assurance that the measures taken by NuRAN to protect its exclusive rights will be sufficient.

Dependence on Customers

NuRAN is currently dependent on a limited number of customers for the sale of its products and services. If one or several of these customers should cease doing business with NuRAN for any reason or should reduce or defer their current or planned product purchases, NuRAN's operating results and financial position could be adversely affected.

International Operations Risk

Our international operations are subject to various economic, political and other uncertainties that could adversely affect our business. Since 2014, approximately 40% of our sales were derived from sales outside the United States, and economic conditions in the countries and regions in which we operate significantly affect our profitability and growth prospects. The following risks, associated with doing business internationally, could adversely affect our business, financial condition and results of operations:

- regional or country specific economic downturns;
- the capacity of the Company to deliver in a technical capacity and to import inventory to Africa at a reasonable cost;
- fluctuations in currency exchange rates between the Canadian dollar and the US dollar;
- complications in complying with a variety of foreign laws and regulations, including with respect to environmental matters, which may adversely affect our operations and ability to compete effectively in certain jurisdictions or regions;
- international political and trade issues and tensions;

- unexpected changes in regulatory requirements, up to and including the risk of nationalization or expropriation by foreign governments;
- higher tax rates and potentially adverse tax consequences including restrictions on repatriating earnings, adverse tax withholding requirements and double taxation;
- greater difficulties protecting our intellectual property;
- increased risk of litigation and other disputes with customers;
- fluctuations in our operating performance based on our geographic mix of sales;
- longer payment cycles and difficulty in collecting accounts receivable;
- costs and difficulties in integrating, staffing and managing international operations, especially in rapidly growing economies;
- transportation delays and interruptions;
- natural disasters and the greater difficulty in recovering from them in some of the foreign countries in which we operate;
- uncertainties arising from local business practices and cultural considerations;
- customs matter and changes in trade policy, tariff regulations or other trade restrictions; and
- national and international conflicts, including terrorist acts.

The percentage of our sales occurring outside of North America will increase over time largely due to increased activity in Africa (including the NaaS contracts in DRC and Cameroon), Central and South America and other emerging markets. The foregoing risks may be particularly acute in emerging markets, where our operations are subject to greater uncertainty due to increased volatility associated with the developing nature of the economic, legal and governmental systems of these countries. If we are unable to successfully manage the risks associated with expanding our global business or to adequately manage operational fluctuations, it could adversely affect our business, financial condition or results of operations.

Gross Margin May Not Be Sustainable

Our level of product gross margins may be adversely affected by numerous factors, including:

- Changes in customer, geographic, or product mix, including mix of configurations within each product group;
- Introduction of new products, including products with price-performance advantages;
- Our ability to reduce production costs;
- Entry into new markets or growth in lower margin markets, including markets with different pricing and cost structures, through acquisitions or internal development;
- Increases in material, labor or other manufacturing-related costs, which could be significant especially during periods of supply constraints;
- Excess inventory and inventory holding charges;
- Obsolescence charges;
- Changes in shipment volume;
- The timing of revenue recognition and revenue deferrals;
- Increased cost, loss of cost savings or dilution of savings due to changes in component pricing or charges incurred due to inventory holding periods if parts ordering does not correctly anticipate product demand or if the financial health of either contract manufacturers or suppliers deteriorates;
- Lower than expected benefits from value engineering;
- Increased price competition, including competitors from Asia, especially from China;
- Changes in distribution channels;
- Increased warranty costs;
- How well we execute on our strategy and operating plans implementing our new NaaS model.

Changes in service gross margin may result from various factors such as changes in the mix between technical support services and advanced services, as well as the timing of technical support service contract initiations and renewals and the addition of personnel and other resources to support higher levels of service business in future periods.

Competition Risks

The markets in which we compete are characterized by rapid change, converging technologies, and a migration to networking and communications solutions that offer relative advantages. These market factors represent a competitive threat to us. We compete with numerous vendors in each product category. The overall number of our competitors providing niche product solutions may increase. Also, the identity and composition of competitors may change as we increase our activity in newer product categories such as data center and collaboration and in our priorities. As we continue to expand globally, we may see new competition in different geographic regions. In particular, we have experienced price-focused competition from competitors in Africa and the U.S., and we anticipate this will continue.

Some of our competitors compete across many of our product lines, while others are primarily focused in a specific product area. Barriers to entry are relatively low, and new ventures to create products that do or could compete with our products are regularly formed. In addition, some of our competitors may have greater resources, including technical and engineering resources, than we do. As we expand into new markets, we will face competition not only from our existing competitors but also from other competitors, including existing companies with strong technological, marketing, and sales positions in those markets. Companies with whom we have strategic alliances in some areas may be competitors in other areas, and in our view this trend may increase. Companies that are strategic alliance partners in some areas of our business may acquire or form alliances with our competitors, thereby reducing their business with us.

The principal competitive factors in the markets in which we presently compete and may compete in the future include:

- The ability to provide a broad range of networking and communications products and services;
- Product performance;
- The ability to introduce new products, including products with price-performance advantages;
- The ability to reduce production costs;
- The ability to provide value-added features such as security, reliability, and investment protection;
- Conformance to standards;
- Market presence;
- The ability to obtain financing on reasonable terms;
- Disruptive technology shifts and new business models.

We also face competition from customers to which we license or supply technology and suppliers from which we transfer technology. The inherent nature of networking requires interoperability. As such, we must cooperate and at the same time compete with many companies. Any inability to effectively manage these complicated relationships with customers, suppliers, and strategic alliance partners could have a material adverse effect on our business, operating results, and financial condition and accordingly affect our chances of success. the loss of one or more significant suppliers or a reduction in significant volume from such suppliers

Intellectual Property Risks

We generally rely on patents, copyrights, trademarks, and trade secret laws to establish and maintain proprietary rights in our technology and products. Although we have been issued patents, there can be no assurance that any of these patents or other proprietary rights will not be challenged, invalidated, or circumvented or that our rights will, in fact, provide competitive advantages to us. Furthermore, many key aspects of networking technology are governed by industrywide standards, which are usable by all market entrants. In addition, there can be no assurance that patents will be issued from pending applications or that claims allowed on any patents will be sufficiently broad to protect our technology. In addition, the laws of some foreign countries may not protect our proprietary rights to the same extent as do the laws of the United States. The outcome of any actions taken in these foreign countries may be different than if such actions were determined under the laws of the United States. Although we are not dependent on any individual patents or group of patents for particular segments of the business for which we compete, if we are unable to protect our proprietary rights to the totality of the features (including aspects of products protected other than by patent rights) in a market, we may find ourselves at a competitive disadvantage to others who need not incur the substantial expense, time, and effort required to create innovative products that have enabled us to be successful.
Third parties, including customers, have in the past and may in the future assert claims or initiate litigation related to exclusive patent, copyright, trademark, and other intellectual property rights to technologies and related standards that are relevant to us. These assertions have increased over time as a result of our growth and the general increase in the pace of patent claims assertions, particularly in the United States. Because of the existence of a large number of patents in the networking field, the secrecy of some pending patents, and the rapid rate of issuance of new patents, it is not economically practical or even possible to determine in advance whether a product or any of its components infringes or will infringe on the patent rights of others. The asserted claims and/or initiated litigation can include claims against us or our manufacturers, suppliers, or customers, alleging infringement of their proprietary rights with respect to our existing or future products or components of those products. Regardless of the merit of these claims, they can be time-consuming, result in costly litigation and diversion of technical and management personnel, or require us to develop a non-infringing technology or enter into license agreements. Where claims are made by customers, resistance even to unmeritorious claims could damage customer relationships. There can be no assurance that licenses will be available on acceptable terms and conditions, if at all, or that our indemnification by our suppliers will be adequate to cover our costs if a claim were brought directly against us or our customers. Furthermore, because of the potential for high court awards that are not necessarily predictable, it is not unusual to find even arguably unmeritorious claims settled for significant amounts. If any infringement or other intellectual property claim made against us by any third party is successful, if we are required to indemnify a customer with respect to a claim against the customer, or if we fail to develop non-infringing technology or license the proprietary rights on commercially reasonable terms and conditions, our business, operating results, and financial condition could be materially and adversely affected. Our exposure to risks associated with the use of intellectual property may be increased as a result of acquisitions, as we have a lower level of visibility into the development process with respect to such technology or the care taken to safeguard against infringement risks. Further, in the past, third parties have made infringement and similar claims after we have acquired technology that had not been asserted prior to our acquisition.

Many of our products are designed to include software or other intellectual property licensed from third parties. It may be necessary in the future to seek or renew licenses relating to various aspects of these products. There can be no assurance that the necessary licenses would be available on acceptable terms, if at all. The inability to obtain certain licenses or other rights or to obtain such licenses or rights on favorable terms, or the need to engage in litigation regarding these matters, could have a material adverse effect on our business, operating results, and financial condition. Moreover, the inclusion in our products of software or other intellectual property licensed from third parties on a nonexclusive basis could limit our ability to protect our proprietary rights in our products.

Risks arising from the COVID-19 pandemic

The recent outbreak of COVID-19, which has been declared by the World Health Organization to be a pandemic, has spread across the globe and is impacting worldwide economic activity. A pandemic, including COVID-19, or other public health epidemic poses the risk that we or our employees, vendors, suppliers and other partners may be prevented from conducting normal business activities at full capacity for an indefinite period of time, including due to spread of disease among our employees, vendors, suppliers and other partners, or due to shutdowns that may be or have been requested or mandated by governmental authorities. The COVID-19 pandemic and mitigation measures are currently having and may continue to have an adverse impact on global economic conditions, which has had and may have an adverse effect on our business and financial condition, including on our ability to obtain financing on terms acceptable to us, if at all. The extent to which the COVID-19 pandemic continues to impact our results will depend on future developments that are highly uncertain and cannot be redicted at this time, including new information that may emerge concerning the severity of the virus and the actions to contain its impact.