POWERTEL COMMUNICATIONS (PRIVATE) LIMITED

REQUEST FOR QOUTATION

Tender No:	RFQ/PWT/ST/05/2023
Closing Date:	25 August 2023
Time:	1000hrs

Provision of IP Backhauling Services via Satellite

1. INTRODUCTION

This document is a Request for Quotation (RFQ) for the Provision of IP Backhauling Services via Satellite

- This RFQ was prepared by Powertel and is being offered to suppliers on the clear understanding that its contents are strictly confidential and may not be disclosed to any third party without prior written permission of Powertel.

- There is no intention that the proposed resultant contracts will in any way be limited to any specific supplier of services and the specifications are based on generally achievable performance requirements.

2. INSTRUCTIONS TO TENDERERS

- All quotations must be correctly addressed to the Procurement Manager and deposited in the tender box situated at the reception at number 16 Birmingham Road, Southerton, Harare on or before 1000 hours on the closing date.
- All queries should be made in writing to :-The Procurement Manager, Powertel Communications, P O Box 7600, Harare, 16 Birmingham Road, Southerton, Harare email :procurement@powertel.co.zw
- The lowest evaluated quotation that meets specifications shall be awarded the tender.

Note:

- **Bidders not registered with PRAZ will not be disqualified but will be required to do so before contract signing**

ADMINISTRATIVE REQUIREMENTS

The Administrative Requirements are shown below, Bidders must provide the documents

	Subject	Criteria	Documentation Required
No.	Eligibility		
1.	Legal Status	Vendor must be a legally registered entity and should have the legal capacity to enter into contract	Company Registration Documents 1. Certificate of Incorporation 2. CR14

			3. Company Profile
2.	Bankruptcy	Bidder must not be insolvent, in receivership, bankrupt or being wound up, not have had business activities suspended and not be the subject of legal proceedings for any of these circumstances	1. Declaration by completing and signing the bidders declaration form.
3.	Conflict of Interest	Bidders must not be debarred from participation in public procurement under section 72 (6) of the Act and section 74 (1)(c) (d) (e) of the Regulations or declared ineligible under section 99 of the Act	Bidder must declare non-debarment and non-conflict of interest by completing and signing the bidders declaration form.
4.	PRAZ registration	Bidder must be registered with the Procurement Regulatory Authority of Zimbabwe and should have paid the applicable Supplier registration fees set out in Part III of the fifth schedule of the Regulation	1. Bidder to attach Proof of PRAZ registration, Details for registration and applicable fees are available on www.praz.gov.zw
5.	Eligibility	All bidders from countries eligible to trade with Zimbabwe are eligible to apply	All registered with PRAZ are eligible to participate
6.	Bid Validity	Bids are required to remain valid for 30 days from the closing date of the tender	1. To state bid validity period on the bid submission sheet. The minimum bid validity period required is 30 days.

- ## Introduction

Powertel Communications is seeking services from a satellite provider for IP backhauling via satellite. The purpose of this request for proposal (RFP) is to establish a contract with a service provider who can offer reliable and high-speed satellite backhauling services to support Powertel's operations. The backhauling service will be used to connect LTE sites and FTTx sites in remote areas, as well as serve as a backup in case of main IP link failure.

Powertel has a strategic vision to connect disadvantaged areas, including rural areas, under its rural datafication strategy. This strategy aims to bridge the digital divide and provide essential connectivity to underserved communities. Powertel recognizes the importance of reliable and high-speed connectivity in enabling socioeconomic development and improving the quality of life for individuals in these areas.

To achieve this vision, Powertel is deploying a combination of fiber access and LTE wireless access technologies in these remote areas. However, due to the challenging geographical locations and limited infrastructure availability, backhauling is a critical component of this strategy. Powertel seeks to leverage the global coverage of satellite services to provide seamless connectivity to these remote areas.

The satellite backhauling solution will enable Powertel to extend its network reach to areas that are geographically isolated and lack traditional terrestrial infrastructure. By utilizing satellite services, Powertel aims to overcome the limitations of physical connectivity and provide reliable and high-speed broadband services to the underserved population in rural and remote regions.

In addition to its primary role in connecting LTE and FTTx sites, the satellite backhauling solution will also serve as a backup link for Powertel's main IP connectivity. This redundancy will ensure uninterrupted services even in cases of main link failures, enhancing the overall network reliability and resilience.

Powertel is committed to delivering sustainable and cost-effective solutions to its customers. By partnering with a satellite service provider, Powertel aims to capitalize on the global coverage and technological advancements of satellite communications to offer reliable and high-speed backhauling services to remote areas. The selected service provider should demonstrate expertise in satellite technology, a proven track record in delivering similar services, and a commitment to supporting Powertel's mission of bridging the digital divide.

This RFP invites interested service providers to submit their proposals outlining their technical capabilities, coverage, cost-effectiveness, references, and support services. Powertel is eager to collaborate with a reputable service provider to fulfill its vision of connecting disadvantaged areas and providing reliable connectivity to all, regardless of geographic location.

• Technical Requirements

o Scope of Work

▪ Overview

The scope of work includes the provision of satellite backhauling services that meet Powertel's specific requirements. The selected service provider should offer a comprehensive satellite HUB service, either physical or virtual, to enable Powertel to backhaul its services with the highest quality of service and exceptional user experience. The backhauling solution must deliver excellent performance and reliability, ensuring that Powertel can effectively compete with other providers using different backhaul options.

Technical Architecture

The service provider must possess its own satellite infrastructure and should not rely on third-party services. This requirement ensures greater control, flexibility, and reliability in delivering satellite backhauling services to Powertel. The technical architecture of the solution should adhere to industry best practices and standards, demonstrating the service provider's expertise in satellite communications.

To meet Powertel's connectivity needs, the satellite backhauling solution should provide the following performance parameters:

- Downlink Speed: The solution should offer speeds greater than or equal to 40Mbps for efficient data transfer from the satellite to the Powertel network infrastructure. This high-speed downlink capability is crucial to meet the increasing bandwidth demands of LTE sites, FTTx sites, and other applications in remote areas.
- Uplink Speed: The service provider should ensure uplink speeds of greater than or equal to 6.5Mbps to enable seamless transmission of data from Powertel's network infrastructure to the satellite. This capability is vital for various communication services and applications, such as real-time monitoring, VoIP, and data uploads.
- Latency: Powertel places great emphasis on minimizing latency to deliver optimal user experiences. The satellite backhauling solution must provide latency of less than 575ms to ensure responsive and delay-free connectivity for all applications and services carried over the network.
- Jitter: The service provider should ensure minimal jitter, which refers to the variation in packet delay. Jitter affects the quality of real-time communication applications, such as VoIP and video conferencing. The satellite backhauling solution should guarantee jitter of less than 8ms, enabling seamless transmission of time-sensitive data.

The selected service provider should have a proven track record in delivering satellite backhauling solutions with similar performance metrics and demonstrate a commitment to meeting or exceeding Powertel's expectations.

Solution Requirements

Specification for Satellite HUB Service

The service provider should offer a satellite HUB service that enables Powertel to backhaul its services with quality of service and experience. The HUB service can be physical or virtual, and it should provide the following specifications:

- Reliable and Secure Connectivity:
  - The HUB service should ensure reliable and secure connectivity between Powertel's remote sites and the HUB.
  - It should have robust network infrastructure and protocols to minimize downtime and prevent unauthorized access.
- Dynamic Bandwidth Allocation and Efficient Resource Use:

    - The HUB service should support dynamic bandwidth allocation, allowing efficient utilization of available resources.
    - It should have mechanisms in place to optimize bandwidth allocation based on real-time traffic demands, ensuring efficient use of resources.
- High Scalability:
    - The HUB service should be highly scalable to accommodate future expansions and increased network demands.
    - It should have the capacity to handle additional sites and traffic without compromising performance or quality.
- Redundancy and Backup Mechanisms:
    - The HUB service should incorporate redundancy and backup mechanisms to ensure uninterrupted service availability.
    - It should have failover systems and backup links to mitigate the impact of any network failures or disruptions.
- Quality of Service (QoS) Features:
    - The HUB service should provide Quality of Service (QoS) features to prioritize certain types of traffic, such as VoLTE.
    - It should support traffic classification, prioritization, and traffic shaping mechanisms to ensure optimal performance for critical services.
- Robust Security Measures:
    - The HUB service should have robust security measures in place to protect against unauthorized access and ensure data confidentiality.
    - It should employ encryption protocols, access controls, and intrusion detection/prevention systems to maintain the integrity and security of the network.

Bidders should provide detailed information on how their satellite HUB service meets these specifications and outline any additional features or capabilities that enhance the quality, reliability, and security of the backhauling service.

Specification for IP Backhauling Speeds

The backhauling solution should provide high-speed connectivity to meet Powertel's requirements for seamless communication and data transfer. The service provider should ensure that the offered speeds meet or exceed the following specifications:

- Downlink Speed: The backhauling solution should offer speeds greater than or equal to 40Mbps for the downlink. This ensures fast and efficient data transmission from the satellite HUB to Powertel's remote sites, enabling high-quality access to internet services, multimedia content, and other bandwidth-intensive applications. The service provider should demonstrate their capability to consistently deliver high-speed downlink connectivity to support the demanding needs of Powertel's operations.
- Uplink Speed: The backhauling solution should provide speeds greater than or equal to 6.5Mbps for the uplink. This allows Powertel's remote sites to transmit data, requests, and other communications to the satellite HUB with sufficient bandwidth for seamless connectivity. The service provider should ensure that the

uplink speeds are reliable and capable of handling the growing volume of data traffic from Powertel's remote sites.

It is crucial that the offered speeds are consistent and reliable, even in remote areas where access to high-speed terrestrial connectivity may be limited. The service provider should demonstrate their ability to deliver consistent and high-performance connectivity to ensure that Powertel's operations in remote areas are not hindered by slow or unreliable backhauling speeds. They should provide information on their network infrastructure, including the capacity and technology they utilize to achieve the specified speeds.

Furthermore, the service provider should outline their strategy for mitigating the impact of adverse weather conditions on the backhauling speeds. As satellite connectivity can be affected by weather factors such as rain fade, the provider should detail their advanced modulation and coding techniques, rain fade compensation measures, and any other relevant technologies they employ to maintain reliable and consistent speeds throughout the contract period.

- Latency and Jitter Requirements

The backhauling solution should offer low latency and jitter to ensure smooth and real-time communication between Powertel's remote sites and the satellite HUB. Latency refers to the time it takes for data to travel from the source to the destination, while jitter refers to the variation in latency. To support Powertel's services effectively, the service provider should meet the following requirements:

- Latency: The backhauling solution should provide latency of less than 575ms. Low latency is essential for real-time applications such as voice and video communications, ensuring minimal delays and smooth interaction. Powertel aims to deliver services like VoLTE (Voice over LTE) to its customers, and therefore, the service provider should demonstrate their ability to maintain low latency levels throughout the network.
- Jitter: The backhauling solution should ensure jitter of less than 8ms. Jitter can adversely affect the quality of real-time applications by introducing irregular delays or disruptions in the transmission. By keeping the jitter within acceptable limits, Powertel can deliver consistent and high-quality services, particularly for applications that require precise timing and synchronization.

The service provider should provide detailed information on their network design, technologies, and optimization techniques to achieve the specified latency and jitter requirements. This may include their network architecture, routing protocols, quality of service (QoS) mechanisms, and any advanced traffic management techniques they utilize to minimize latency and jitter, considering that LTE requires very low latencies of less that 50ms.

Additionally, the service provider should outline their strategies for mitigating potential latency and jitter issues arising from satellite connectivity. This may involve measures such as traffic prioritization, traffic engineering, and network optimization to minimize latency and ensure smooth data transmission.

Meeting these latency and jitter requirements is crucial for Powertel's operations, particularly in supporting services like VoLTE and delivering a high-quality user experience to its customers. The service provider should provide evidence of their successful implementation of similar backhauling solutions, demonstrating their expertise in delivering low-latency and low-jitter connectivity.

Furthermore, the service provider should offer performance guarantees related to latency and jitter, ensuring that the specified requirements are consistently met throughout the contract period. Any monitoring and reporting mechanisms for latency and jitter should be clearly outlined, including regular performance assessments and timely resolution of any deviations from the defined thresholds.

- Quality of Service and Advantages of HUB Service

The satellite HUB service should offer quality of service features that allow Powertel to prioritize and manage different types of traffic effectively. The service provider should explain the advantages of their HUB service in IP backhauling, such as:

- Improved network performance and reliability
- Efficient bandwidth management
- Traffic prioritization for critical services
- Enhanced user experience
- Simplified network management and troubleshooting

- Coverage and References

The service provider should clearly state the coverage they have in Zimbabwe to ensure Powertel's remote sites are within the coverage area. Additionally, the provider should provide references where they have successfully offered similar satellite backhauling services to other mobile operators worldwide. Please provide information on the coverage area and demonstrate your experience in providing reliable backhauling services to mobile operators.

- Cost-Effective Deployment

The service provider should propose a cost-effective way of deploying the satellite backhauling solution. This may include shared bandwidth among multiple remote stations, efficient resource utilization, and dynamic bandwidth allocation. The solution should ensure optimal use of resources while meeting Powertel's requirements.

- Dynamic Bandwidth Allocation and Efficient Resource Use

The backhauling solution should support dynamic bandwidth allocation, allowing Powertel to allocate resources based on traffic demands. It should efficiently utilize available bandwidth to avoid congestion and ensure optimal performance. The service provider should describe their approach to dynamic bandwidth allocation and resource optimization.

Prioritization of Traffic

The solution should have a mechanism for prioritizing certain types of traffic, such as VoLTE. Powertel requires the ability to prioritize critical services over non-critical traffic to ensure an excellent user experience. The service provider should outline their approach to traffic prioritization and quality of service management.

LTE-Specific Requirements

The backhauling solution must be fully compatible with LTE networks to support Powertel's LTE deployments in remote areas. The service provider should demonstrate their expertise in LTE backhauling and provide detailed information on how their solution meets the following requirements:

- Compatibility: The service provider should specify the compatibility of their backhauling solution with LTE technologies, including LTE-Advanced and LTE-Advanced Pro. The solution should seamlessly integrate with Powertel's LTE infrastructure, ensuring efficient and reliable transmission of data between the LTE base stations and the core network.
- Bandwidth and Capacity: The backhauling solution should provide sufficient bandwidth and capacity to accommodate the high data throughput demands of LTE networks. It should support the required data rates for LTE services, including high-speed internet access, video streaming, and other data-intensive applications. The service provider should outline their capacity planning strategies and demonstrate their ability to handle the expected traffic volume effectively.
- Quality of Service (QoS): The backhauling solution should offer robust QoS mechanisms to prioritize different types of LTE traffic, such as VoLTE, video calls, and real-time multimedia services. The service provider should describe their QoS policies, including traffic classification, prioritization, and enforcement mechanisms, to ensure that Powertel can deliver a consistent and reliable user experience for various LTE applications.
- Low Latency: The backhauling solution should provide low latency connectivity for LTE services. Low-latency communication is essential for real-time applications like voice and video calls, online gaming, and IoT applications. The service provider should detail their latency optimization techniques, including network design, routing protocols, and any advanced traffic management mechanisms they employ to minimize latency in the backhauling infrastructure.
- Network Synchronization: LTE networks require precise synchronization to ensure efficient operation and maintain the quality of services. The service provider should explain their synchronization solution, including timing distribution and synchronization methods, to ensure accurate synchronization between Powertel's LTE base stations and the core network.
- Scalability: The backhauling solution should be highly scalable to accommodate future expansions and increasing traffic demands. Powertel's LTE network may experience growth over time, and the service provider should demonstrate their ability to scale the backhauling infrastructure seamlessly without compromising performance or service quality.

- Security: The backhauling solution should incorporate robust security measures to protect against unauthorized access, data breaches, and network vulnerabilities. The service provider should outline their security protocols, encryption mechanisms, and any other security features implemented in the backhauling infrastructure to ensure the confidentiality, integrity, and availability of Powertel's LTE traffic.

The service provider should provide comprehensive documentation and technical specifications that demonstrate their experience in delivering LTE backhauling solutions. This should include references to previous deployments with other mobile operators, highlighting their successful implementation of LTE backhauling in diverse environments.

FTTx-Specific Requirements

The backhauling solution should be capable of supporting FTTx (Fiber to the x) networks, allowing Powertel to efficiently backhaul traffic from FTTx sites in remote areas. The service provider should demonstrate their expertise in FTTx backhauling and provide detailed information on how their solution meets the following requirements:

- Compatibility: The service provider should specify the compatibility of their backhauling solution with FTTx technologies, including Fiber to the Home (FTTH), Fiber to the Building (FTTB), and Fiber to the Curb (FTTC). The solution should seamlessly integrate with Powertel's FTTx infrastructure, ensuring efficient and reliable transmission of data between the FTTx sites and the core network.
- Bandwidth and Capacity: The backhauling solution should provide sufficient bandwidth and capacity to accommodate the high data throughput demands of FTTx networks. It should support the required data rates for FTTx services, including high-speed internet access, IPTV, video streaming, and other bandwidth-intensive applications. The service provider should outline their capacity planning strategies and demonstrate their ability to handle the expected traffic volume effectively.
- Service Aggregation: The backhauling solution should support efficient aggregation of FTTx traffic from multiple sites to optimize network utilization and reduce operational costs. The service provider should describe their service aggregation mechanisms, such as VLAN tagging, Q-in-Q encapsulation, or other relevant techniques, to efficiently consolidate traffic from different FTTx sites onto the backhauling network.
- Quality of Service (QoS): The backhauling solution should offer robust QoS mechanisms to prioritize different types of FTTx traffic, ensuring consistent service quality and customer satisfaction. The service provider should describe their QoS policies, including traffic classification, prioritization, and enforcement mechanisms, to ensure that Powertel can deliver a reliable and differentiated user experience for various FTTx applications.
- Low Latency: The backhauling solution should provide low latency connectivity for FTTx services. Low-latency communication is crucial for real-time applications like video conferencing, online gaming, and cloud-based services. The service provider should detail their latency optimization techniques, including network design,

routing protocols, and any advanced traffic management mechanisms they employ to minimize latency in the backhauling infrastructure.

- Network Resilience: The backhauling solution should incorporate network resilience features to ensure uninterrupted service availability for FTTx sites, even in the event of network failures or outages. The service provider should outline their redundancy mechanisms, failover strategies, and disaster recovery plans to minimize downtime and provide seamless connectivity for Powertel's FTTx network.
- Security: The backhauling solution should incorporate robust security measures to protect against unauthorized access, data breaches, and network vulnerabilities. The service provider should outline their security protocols, encryption mechanisms, and any other security features implemented in the backhauling infrastructure to ensure the confidentiality, integrity, and availability of Powertel's FTTx traffic.

The service provider should provide comprehensive documentation and technical specifications that demonstrate their experience in delivering FTTx backhauling solutions.

o Technical Support

The service provider should offer comprehensive technical support to assist Powertel in the deployment, maintenance, and troubleshooting of the satellite backhauling solution. The support should be available 24/7 and include proactive monitoring, issue resolution, and regular performance evaluations.

o Maintenance Requirements

▪ Repair Method and Maintenance Requirements

The service provider should define the repair method and maintenance requirements for the satellite backhauling solution. This should include details on response times, equipment replacement, and procedures for addressing hardware or software failures.

▪ Equipment Spares

The service provider should ensure the availability of equipment spares to minimize downtime in case of hardware failures. They should specify the types of spares provided, the required inventory levels, and the turnaround time for replacing faulty equipment.

▪ Software Licenses

The service provider should clarify any software licenses required for the satellite backhauling solution. The licensing terms, costs, and renewal process, if applicable, should be clearly stated.

- ## Bill of Quantities

Draw down as and when required by Powertel Communications

	Item as specified	Measure	Quantity
1	LTE Backhauling equipment	Set	100 *(as and when required)*
2	FTTx Backhauling equipment	Set	100 *(as and when required)*
3	Mobile Equipment for backup of critical Links.	Set	2 *(as and when Required)*
4	Virtual Hub or Physical HUB	each	1 *(Scalable as and when required)*
5	Pre-Implementation Training (Technical)	Each	5
6	FAT	Each	3
8	High-end Laptops (Core i9, 1TB SSD, 64GB RAM)	Each	2
9			

- ## Evaluation Criteria

Bidder should complete the following table to indicate whether each requirement is compliant or non-compliant. Failure to complete the table or to comply with any of the specified requirements may result in disqualification.

Requirement	**Detailed Minimum Specifications**	**Compliant / Not compliant**
The service provider can off the Scope of work	Refer to Section 2.1 of Technical Requirements	
The backhauling solution provides speeds ≥ 40Mbps (downlink) and ≥ 6.5Mbps (uplink).	Refer to Section 2.2.2 of Solution Requirements	
The backhauling solution ensures latency < 575ms.	Refer to Section 2.2.3 of Solution Requirements	
The backhauling solution guarantees jitter < 8ms.	Refer to Section 2.2.3 of Solution Requirements	
The backhauling solution supports LTE networks.	Refer to Section 2.2.9 of Solution Requirements	
The backhauling solution supports FTTx networks.	Refer to Section 2.2.10 of Solution Requirements	
The backhauling solution offers a satellite HUB service (physical or virtual).	Refer to Section 2.2.1 of Solution Requirements	
The backhauling solution provides reliable and secure connectivity between remote sites and the HUB.	Refer to Section 2.2.4 of Solution Requirements	

The backhauling solution supports dynamic bandwidth allocation and efficient resource use.	Refer to Section 2.2.7 of Solution Requirements	
The backhauling solution has high scalability for future expansions.	Refer to Section 2.2.1 and 2.2.9 of Solution Requirements	
The backhauling solution includes redundancy and backup mechanisms.	Refer to Section 2.2.1 of Solution Requirements	
The backhauling solution offers Quality of Service (QoS) features for traffic prioritization, including VoLTE.	Refer to Section 2.2.4 of Solution Requirements	
The backhauling solution implements robust security measures.	Refer to Section 2.2.1 and 2.2.9 and 2.2.10 of Solution Requirements	
The service provider offers comprehensive technical support	Refer to Section 2.3 of Solution Requirements	
The repair method and maintenance requirements are clearly defined	Refer to Section 2.4.1 of Maintenance Requirements	
Equipment Spares requirements clearly specified	Refer to Section 2.4.2 of Maintenance Requirements	
All Software Licenses clarified	Refer to Section 2.4.3 of Maintenance Requirements	
Bidder has own satellite infrastructure	The bidder should not be a 3rd party provide but a direct satellite provider with own infrastructure.	