

**BIRGER.**

**PROPOSAL**

**FOR**

**ACQUISITION OF CLOUD-BASED  
BACKUP AND DISASTER RECOVERY  
SOLUTION**

**FOR TRINITY METALS LTD**

Our Ref: ESS/2025/2305  
Date: 23<sup>rd</sup> May 2025

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# BIRGER.

Date: 23<sup>rd</sup> May 2025

Our ref: ESS/2025/2305

Procurement Department  
Trinity Metals Limited  
Masoro, Rulindo  
P.O Box: 6132 Kigali-Rwanda

Dear Sir/Madam,

**RE: Proposal for the provision of a cloud-based backup and disaster recovery solution**

Following your request for quote, we are pleased to submit our proposal for the provision of a cloud based backup and disaster recovery solution, bearing reference ESS/2025/2305.

We trust our proposal meets your requirements. Should you require any clarification or additional information, please do not hesitate to contact us.

We look forward to a positive response from you.

Yours faithfully,



Name: Parwez Bhugalee  
Title: Executive – Business Development



Name: Derrick Munyaneza  
Title: Technology Sales Officer

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## 1. EXECUTIVE SUMMARY

Following the request for proposal issued by Trinity Metals for the acquisition of cloud based backup and disaster recovery solution. BIRGER. having the high level skills technical and procedural aspects for this type of project shall implement a robust, flexible, scalable, and versatile solution based on Exagrid Disk Backup Solution & Veeam Solution.

This document describes our proposal for Trinity Metals.

## 2. BIRGER. OVERVIEW

BIRGER. Covers 9 territories in the Indian Ocean Islands (IOI) and East Africa. Our 3 core services: Technology – Security – Resiliency leverage on our cumulated know-how and experience gained over the past decades since 1953.

At BIRGER., we deliver optimal Support Services with the collaboration of our local certified employees. We ensure that customers transform the Data at the heart of their business to gain a competitive advantage. We train our People continuously during their career to gain technical, managerial and leadership skills. BIRGER. Respects its promise and shows dedication consistently when delivering its 3 core services in all 9 territories.

Over the years, BIRGER. Has been the catalyst for the introduction of innovative solutions and the dissemination of new technologies for various economic sectors. Leveraging on our experience in technology and security, we offer business continuity services.

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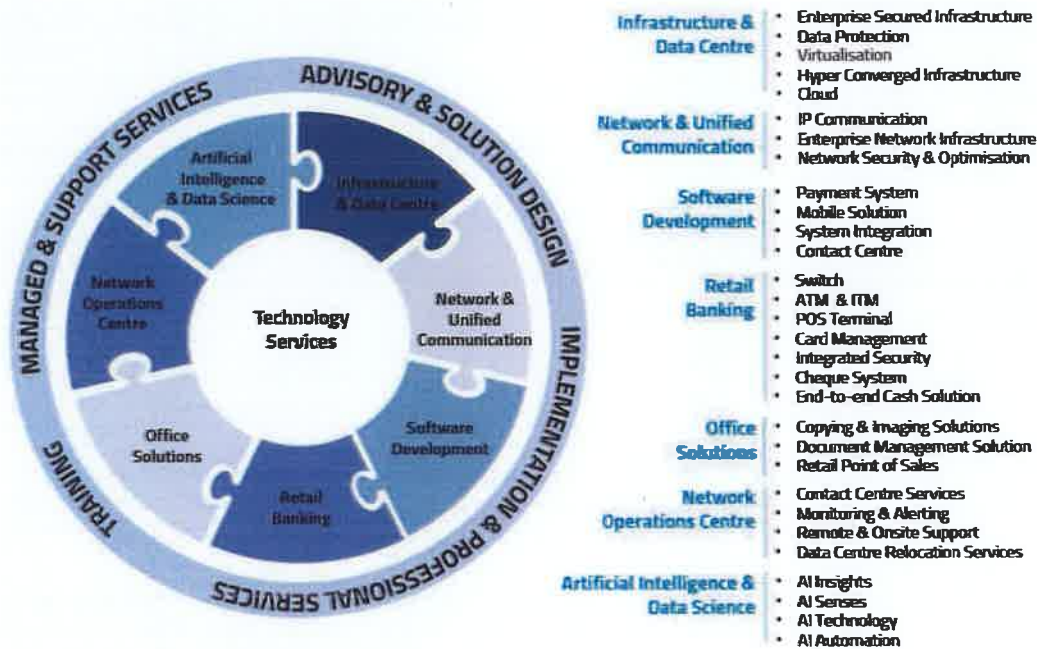
## 3. COMPANY PROFILE

### 3.1. BIRGER. SERVICES

At BIRGER. we have developed a unique end-to-end business model to assist our customers to plan forward, carry out their daily operations, protect their key assets, manage risks and ensure continuity in their activities. Our unique end-to-end business model hinges on Technology, Security and Resiliency.

#### 3.1.1 TECHNOLOGY

BIRGER. has delivered technology services and solutions to the Banking, Insurance, Retail and Telecommunication industries as well as to Governments for decades. We have developed specific expertise in self-service terminals, payment solutions, enterprise systems, network and communications, trusted identities and secured transactions, as depicted below.



#### Infrastructure & Data Centre

Through its three Business Units: Business Systems & Solutions, Enterprise Systems & Solutions and Networks & Unified Communications (NUC), BIRGER. brings operational comfort to organisations via its comprehensive enterprise systems offerings.

We provide High-End Virtualisation for corporate IT infrastructures, High-Availability and Data Replication solutions for Recovery in case of system failure, Smart Data Back-up/Storage Solutions to optimise archiving, tailor-made Software

*Handwritten signatures and initials in blue ink.*

Development, Data integration, Business Intelligence, Data Warehousing, Performance Management Solutions and Infrastructure as a Service (IAAS). Customer service remains BIRGER.'s priority and all requests are centralised to our Network Operations Centre, which allocates these to our teams of certified engineers and technicians located in our 9 regional offices.

## **Networks & Unified Communications**

BIRGER. offers enterprise wide end-to-end telecommunications solutions encompassing Borderless Network, Network Management, Ethernet Access, Voice Recording, Voice Compression and Call Accounting systems.

Our teams of certified network and telecommunications engineers commit to provide the best available network infrastructures in order to maximise organisational security and communication in real time. BIRGER. implements telephony and unified communication systems via IP-based communication infrastructures.

BIRGER. also proposes Data, Voice & Video Network and mobile telephony solutions, thus optimising Call & Support Centre BPO software and systems, as well as Interactive Voice Response and Timed Response Monitoring.

## **Software Development**

We have cumulated experience in various technologies over the past decades specialising in the financial sector and Contact Centre solutions. Our team comprising of dynamic, certified and experienced engineers, business analysts and skilled software developers collaborate to design, develop, implement and maintain tailor-made end-to-end solutions based on specific clients' needs.

Our team is fluent with desktop, mobile and web applications. We have developed solutions for critical environments and assisted Banks with an Omnichannel Cheque Truncation Solution. We have also implemented the Centralised Direct Debit Solution as per the Central Bank of Mauritius requirements for numerous Banks.

BIRGER. has developed Mobile Applications in business sectors like route accounting, CRM, order taking and sales invoicing.

BIRGER. also proposes Restaurant and Retail Solutions, Learning Management Solutions, Leave Management Solutions with integration with payroll system, Barcode & RFID Asset Tracking, Visitor Management Solutions and Event Management Solutions.

## **Retail Banking**

BIRGER. innovated in the retail banking sector by introducing the first standalone ATM in Mauritius in 1987 and in Madagascar in 1998. With the introduction of on-line communication a couple of years later, international payment exchange, including POS and EFT, could be made through Visa/Mastercard network.

BIRGER. is now supplying the latest generation of multi-function Intelligent ATM's with envelope free deposits for cash and cheque functionalities. BIRGER. has a very long partnership since 1953 with NCR for Selfservice, Payment and Retail POS solutions. We work very closely with most of the Regional banks in the Indian Ocean Islands in providing an end-to-end solution including Card Management and Security Solutions.

BIRGER. also proposes complete Cheque Processing Solutions as per the Central Banks requirements and regulation and full EFT solutions.

## **End-to-end Cash Solutions**

BIRGER. offers multi-channel solutions which include fully-fledged ATM systems, end-to-end cheque imaging solutions and branch automation systems. Integrated infrastructure systems span from servers, virtualisation, storage, real time back-up systems to business continuity and disaster recovery solutions. Back-office solutions cover cash management including notes and coin counting machines, sorting and wrapping machines.

BIRGER. also equips banks with the necessary network infrastructures to optimise the operational security of their various payment systems.

BIRGER. provides Customised Card Solutions to the Retail Sector including the design, personalised printing, incorporating various crucial levels of security on standard Plastic Cards, Magnetic Stripe Cards and Smart Chip Cards. BIRGER. offers its solutions in a Centralised or Decentralised mode for On-site Branch Solutions to the Financial and Retail Sectors.

## **Office Solutions**

BIRGER. offers two key office solutions: Multifunctional Copying & Imaging solutions and Document Management Solutions, providing highest quality.

BIRGER. Office Solutions target best-quality office machines and equipment to fit the specific needs of each business. Our scope extends to banks, governments, schools and tertiary institutions and a wide range of professional organisations.

BIRGER. products include All-In-One machines, Duplicators, Photocopiers and Scanners.

Our Office Automation equipment service facilitates daily office transactions via Envelope Printing Machines, Mailing Systems, Folding and Insertion Machines.

## **Network Operations Centre**

Our Network Operations Centre monitors the after-sales service of BIRGER. for all its customers within the Indian Ocean Islands. Our Network Operations Centre responds to our customer calls, allocates incidents to our field engineers, ensures that all incidents are addressed promptly and reports back to our customers. Our qualified and experienced engineers provide 1<sup>st</sup> and 2<sup>nd</sup> Line Hardware Maintenance Services, Software Maintenance, Diagnostics and Problem Resolution Services, and Networks Monitoring. We strive to make our service delivery the reference in our region.

BIRGER. Service & Support Centre provides a 24/7 basis service aligned with its customers' technical requirements. Our specialised workshops comprise of full-fledged teams of experienced, qualified and certified engineers and technicians to provide maintenance and repair services for all our equipment.

BIRGER. proposes Full Service Level Agreement consisting of Maintenance with labour and parts.

## **Artificial Intelligence & Data Science (AI&DS)**

BIRGER. accompanies its clients to understand their needs and propose solutions aligned with their digital transformation journeys. Our AI&DS offerings covers:

**AI Insights:** BIRGER. assists its clients to derive insights from their data by developing algorithms that allow them to create value and to transform their business through Online Analytics, Enterprise Data Analytics and Sentiment Analysis.

**AI Senses:** BIRGER. collects, processes and analyses data to digitalise our physical world through Computer Vision and chatbot development. The outcome of these offerings ensures contactless interactions.

**AI Technology:** BIRGER. is able to advise its clients on the acquisition of the right infrastructure capable of running AI workload to optimise the use of AI applications and software. BIRGER. proposes AI Ready Server and Intelligent Camera.

**AI Automation:** BIRGER. automation solutions allow its clients to save time and effort, ensuring compliance and enhance employees and customer experience. BIRGER. accompanies its clients to undergo digital transformation and provides them with Robotic Process Automation (RPA).

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### 3.1.2 SECURITY

BIRGER. has been designing and deploying security solutions in the Indian Ocean Islands over the past decades in partnership with international security technology providers. Today, BIRGER. has strong internal security capabilities. With the creation of BIRGER.'s Network Operations Centre (NOC) in 2010, we have gained experience in providing 24/7 support to the Indian Ocean Islands.

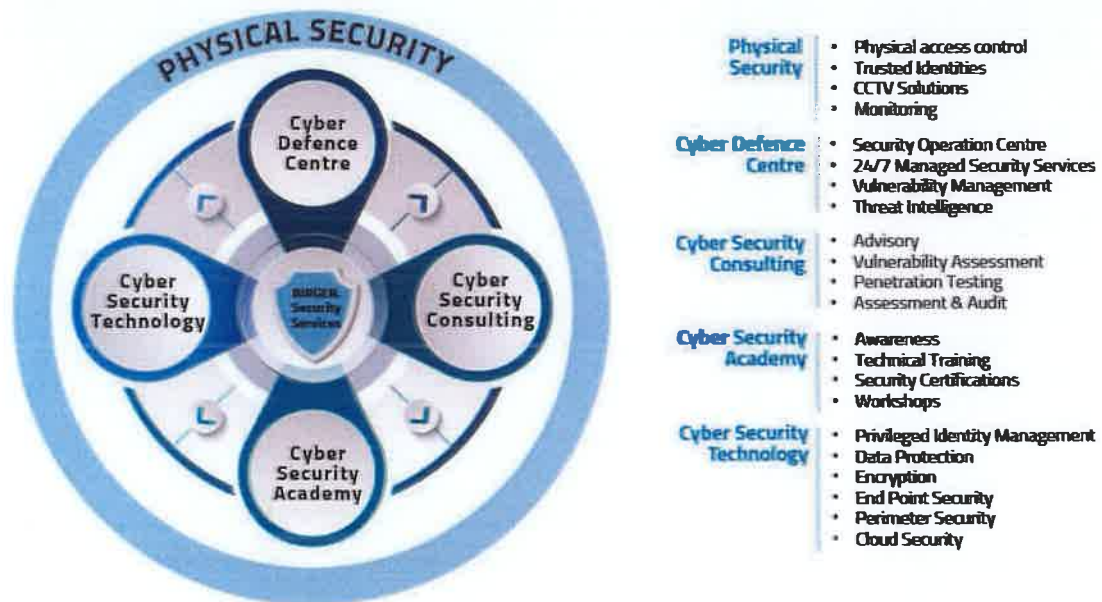
BIRGER.'s investment and focus on Cyber Security since 2015 is a natural evolution bringing together partnerships, competencies and experiences to become a Pan African Cyber Security service provider.

#### Integrated Physical Security

At BIRGER. we have been deploying both physical security and logical security solutions covering premises, IT infrastructures, communication networks and self-service terminal for decades.

#### Cyber Security Services

Coupled with Integrated Physical Security and Resiliency services, BIRGER. offers a comprehensive set of Cyber Security Services and solutions delivered through key partnerships and local presence across the Indian Ocean Islands and East Africa.



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## Cyber Defence Center

BIRGER.'s Cyber Defence Centre (CDC) offers various services aimed at detecting, preventing and responding to cyber security attacks and incidents, such as:

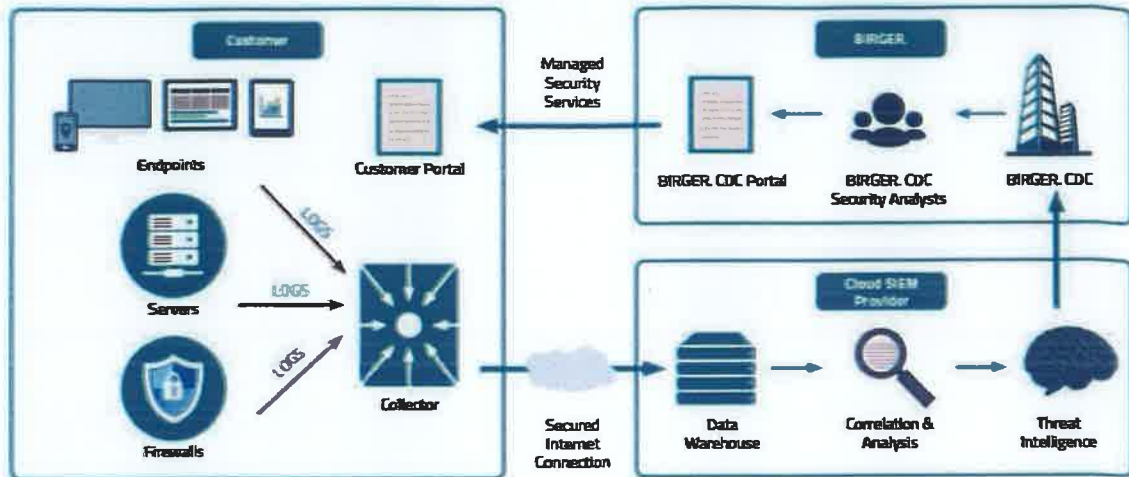
- Vulnerability Assessments to get an overview of a company's security posture;
- Penetration Testing exercises to get a more in-depth security view of a company's key assets;
- Incident Response to help our customers to understand and recover from attacks;
- Security Operation Centre (SOC) and Managed Security Services (MSS) provide visibility as well as an incident response framework against cyber threats.

BIRGER. has a Cyber Defence Centre (CDC) dedicated to the African region as part of its strategy to offer a complete set of services including proximity services and just-in-time support. Our CDC started operation in 2016 and is powered by advanced SOC and MSS Technologies, which leverages on Global Intelligence Network.

A team of certified security engineers are dedicated to our SOC, supported by international security experts to ensure world class security services. We also provide MSS solutions from other vendors such as IBM, Symantec and CISCO.

The main advantages of BIRGER.'s MSS offering are:

- Improved visibility into emerging threats
- Industry leader technology
- Cost savings
- Access to security experts
- 24x7 surveillance
- Facilities and redundancy
- Faster response to and resolution of security incidents
- Security awareness
- Objective security analysis
- Compliance and reporting



## Cyber Security Consulting

BIRGER. has been continuously investing in its people to ensure they are trained and certified to recognised industry standards as well as attracting talents who are subject matter experts.

This provides BIRGER. with a strong team of security professionals able to deliver cyber security consultancy and better advise companies on their cyber security risks posture on a wide range of areas following proven methodologies.

With real world and years of experience, BIRGER. can help reviewing companies' security infrastructure through Architecture review and Security audit exercises.

## Cyber Security Academy

With the opening of BIRGER.'s Cyber Defence Centre, a training facility was equipped and BIRGER.'s Cyber Security Academy (CSA) aims to provide industry leading training courses and awareness campaigns by our qualified cyber security staff and key partners with leading, regional and international education organisations.

BIRGER.'s CSA focuses on research and knowledge sharing activities around cyber security to grow its internal Cyber Security Intelligence as well as contributing to the wider regional cyber security community.

## Cyber Security Technologies

Through all our Business Units, we can leverage our development upon system and network experience and offer various security technology solutions that are best adapted to our customer' needs.

BIRGER. has extensive experience in deploying network security solutions such as firewall and web filtering appliances through key partnerships.

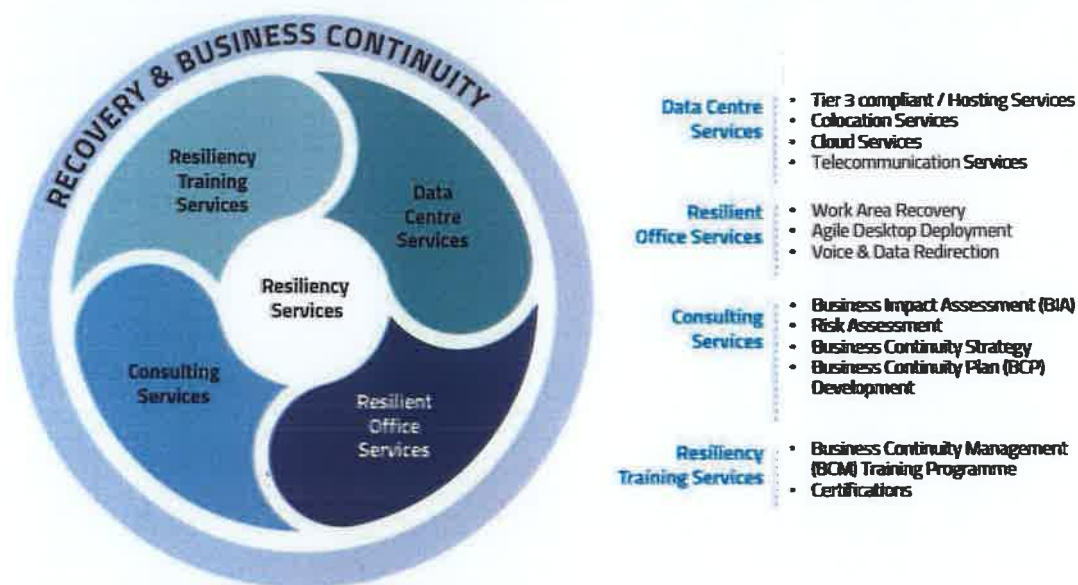
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For many years, BIRGER. has been implementing comprehensive enterprise and infrastructure security technologies related to email security, data and disk encryption, data leakage prevention and endpoint security solutions with advanced anti-virus and persistent threat protection technologies. Combining our technology expertise with cybersecurity, allows us to monitor and protect customer's sensitive data and other digital assets at rest or in motion.

### 3.1.3 RESILIENCY

Since 2008, we provide a complete Business Continuity Management and Resiliency Services, unique in Mauritius. We have pioneered business continuity activities in Mauritius by providing consultancy and training to raise the awareness of our customers to the need of having business continuity plans. We assist our customers to resume their activities timely in case of disruptive events.



BIRGER. provides end-to-end Business Continuity Management (BCM) solutions in compliance with internationally recognised standards, which are designed to enhance business resiliency in an age of escalating disruptive events.

### Why Business Continuity Management?

Businesses, government institutions as well as non-governmental organisations operate in a volatile and uncertain environment, which means that they must be able to manage their risks. This process entails understanding the business impact of these risks and ensuring that reasonable steps are taken to recover from disruptive events. Business continuity planning and regular business continuity testing ensure organisations are more resilient to face unforeseen events.

### Resiliency Services

BIRGER. offers a comprehensive range of business continuity solutions such as Data Centres with Work Area Recovery Facilities, Advisory Services ranging from Business Impact Analysis to Crisis Management Planning and Business Continuity Management Training.

## **Advisory Services**

In an era of fast and perpetual evolution, developing an extensive business continuity strategy and enhancing overall resiliency are essential for the sustainability of an organisation. Our flexible methodology covers both strategic and operational elements of BCM and offers specialised consulting on Enterprise Risk Management.

BIRGER. provides a range of fully managed business resiliency services:

- Risk – Ensuring customers understand the risks (and opportunities) they face
- Resiliency – Strengthening an organisation's ability to withstand and adapt when faced with disruptive events
- Recovery – Helping customers recover from disruptive incidents

## **Data Centre Services**

BIRGER. provides IT services and solutions that will help organisations mitigate and recover from IT and other disruptive events without, the capital expenditure and management skills required to set up their own IT disaster recovery facilities. We use new technologies such as Cloud Computing as well as abundant, affordable bandwidth to craft tailored solutions to reduce risks, build resiliency and ensure a quick recovery from any disruptive event. All our solutions are carefully developed to ensure that they support the overall Business Continuity Management Plan.

## **Resilient Office Services**

Alternative work areas for staff, IT disaster recovery sites and associated investments both in time and money, not to mention loss of focus on one's core business, are among the highest fixed overheads for any business. BIRGER. has more than a decade of experience in providing robust infrastructure and network on which clients can rely when disaster strikes.

Our Resilient Office services cover three main areas:

- Work Area Recovery – Alternative Office and Call Centre space when customer's offices cannot be accessed
- Managed Office Spaces – Primary Office Space tailored to customers' requirements and offered as a service
- Colocation – Fully managed space in our Data Centres for customers, IT equipment either for disaster recovery or production

## **Training Academy**

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BIRGER. provides standardised and customisable training as well as awareness solutions in Business Continuity Management. All our trainings are approved by Mauritian authorities by MQA and HRDC. We also offer the following Business Continuity Certification courses:

- BCI Good Practice Guideline 2018
- ISO 22301 Lead Implementer
- ISO 22301 Lead Auditor
- ISO 22301 Foundation
- Complete Continuity® Practitioner Programme
- Continuity® Practitioner Foundation Programme

## **Our Recovery Centre**

To make sure that we provide valued Business Continuity & Resiliency services to our customers, our Recovery Centre is located within our Technology Operation Centre, at Phoenix.

Our Recovery Centre boasts the following features among others:

- Strategically located in the centre of the island, easily accessible in 30 minutes from any part of the island
- Excellent location along the M1 motorway, next to the Valentina-Bagatelle link flyover
- Easily accessible to public transport, including buses
- Secure environment with 24-hour security
- 2,400 m<sup>2</sup> of Recovery Centre floor space with potential to expand
- Two controlled entrance gates provide access to parking for more than 50 vehicles
- Modern and upmarket features including a cafeteria, shower and dormitory facilities
- Fully equipped amphitheatre with 80 seats capacity, which can accommodate business events and trainings
- Improved and modern Data Centre, with redundant power supply as well as gas fire suppression systems
- Resilient power and water supply systems with diesel generators and water storage tanks on site for portable water in office areas to cater for utility service failures
- The building is energy efficient, making use of intelligent lighting and maximum natural light

## **Why BIRGER. Resiliency Services?**

- Peace of mind
- End-to-end Business Continuity Management Integrator
- Experience
- Technology Agnostic and Vendor Independent
- Flexible, Scalable, Proven Solutions

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### 3.1.4 BIRGER.'S DIFFERENTIATING FACTORS

#### A One-Stop Technology Solutions Provider

BIRGER. is organised into 3 Core Services and 10 Business Units. Our experienced, qualified and certified professionals strive to meet customer specific needs as per their increasing technological requirements, in order to address today's global challenges.

BIRGER. is a service provider of Multiple Technology Solutions for both public and private organisations to operate with total flexibility and security. Green, Responsible, Excellence, Adaptable, Trusted-integrity are our main values towards our employees, customers, partners and community.

#### Footprint

BIRGER. has expanded its operations from Mauritius to the Indian Ocean Islands and Eastern Africa.

We operate hubs to cover specific geographical areas. This operating model enables us to provide timely on-site local support and services to our customers from our local offices.

BIRGER. offers all its services and solutions through its offices in 9 countries: Comoros Islands, Kenya, Madagascar, Mauritius, Rodrigues, Rwanda, Seychelles, Tanzania and Uganda.

**BIRGER.**  
Mauritius & Rodrigues

**BIRGER.**  
Comoros

**BIRGER.**  
Kenya

**BIRGER.**  
Madagascar

**BIRGER.**  
Rwanda

**BIRGER.**  
Seychelles

**BIRGER.**  
Tanzania

**BIRGER.**  
Uganda



- 📍 BIRGER.'s local offices: 9
- BIRGER.'s Pan African experience: 14

#### Our Expertise

BIRGER.'s proven experience in industry specific fields of activity and technological competence ensures that we meet our customers' expectations promptly in a professional manner. BIRGER. applies proven methodologies and best practices in its service and solution delivery model.

By choosing BIRGER., customers rely on our teams of specialised resources and complete range of ICT and Technology-Driven Solutions and Services to address their specific challenges and needs. BIRGER. acts as a One-Stop Shop for state-of-the-art ICT Solutions, aligned with industry standards.

BIRGER.'s professional deliveries rely on latest proven technologies ensuring Holistic Secured Systems to be deployed through our Quick Response Time and Personalised Client Management Services.

BIRGER.'s priority is to ensure that our solutions are secured and aligned with customers' expectations. This contributes to the peace of mind of all stakeholders.

## **Training**

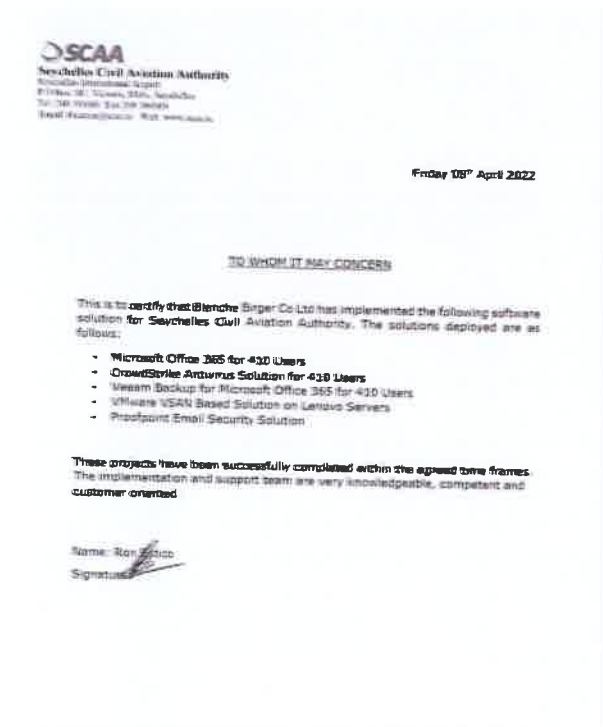
We recognise that our future success hinges on local competent professionals. Hence, we collaborate with local universities from Mauritius, Madagascar and Rwanda by endorsing practicum projects as well as by offering internships to both under and post graduate students.

BIRGER. invests continuously in training to keep its teams of Engineers and Technicians up to date with ever-changing technologies. Overseas training is a permanent must for our experts, who regularly attend international seminars and workshops.

## **Professional Services and Support**

BIRGER.'s experienced, qualified and certified Resources assist our customers on a 24h/7 basis with After-Sales Services, IT Support, Remote Monitoring and Remote Support. Our skilled Engineers provide the Design, Installation and Implementation of Solutions. BIRGER. offers Full Service Level Maintenance with labour and parts.

## 3.2. PREVIOUS WORK EXPERIENCE AND TESTIMONIALS



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Wednesday, 13<sup>th</sup> October 2012

**TO WHOM IT MAY CONCERN**

This is to certify that Blanche Birger Co Ltd has supplied & supported the following hardware/software and implemented Enterprise Level Solutions for SUPER U Republic. The solutions deployed are as follows:

- Western Backup & Replication Solutions
- DELL EMC Unity 480 XT Storage
- Data Guard Backup Solution of DELL EMC Servers
- DELL EMC 6750 Servers
- DELL EMC Switches
- VMware Solutions
- Microsoft Office 365 for 250 Users
- Citrix/Oracle Enterprise Solution

These projects have been successfully completed within the agreed time frames. The implementation and support team are very knowledgeable, competent and customer oriented.

Name: Ashwin Chitambar

Signature:



## BANK ONE

30<sup>th</sup> September 2021

**TO WHOM IT MAY CONCERN**

This is to certify that Blanche Birger Co Ltd has supplied, installed, configured and supported BankOne numerous projects implementation during the past 12 years. The solutions deployed are as follows:

- IBM Power Server Series (Power 780, Power 822 and Power 922)
- Cisco Servers UCS C220 and UCS I460
- DELL EMC Recoverpoint Appliance
- IBM Tape Library such as TS3100, TS3200 and TS4300
- Veritas Netbackup Software
- Veritas InfoScale Software
- Veritas Backup & Replication Software
- EMC VNX S200 and VNX5400
- EMC Connectx SAN Switches
- IBM Websphere Software
- DELL EMC R740, R760XD2, R450, R750 Servers
- DELL EMC Unity 380XT
- Redhat Linux Enterprise OS
- Trend Micro Solution (Smart Protection Complete, Deep Discovery Email Inspector, Deep Discovery Analyzer)
- Vormetric Encryption
- VMware vSphere Enterprise Plus
- VMware vCenter Standard
- EnterpriseDB-Postgres Database
- Microsoft Hyper-V deployment and associated components

These projects have been successfully completed within the agreed time frames. Their team are very knowledgeable, competent and customer oriented. We highly recommend Blanche Birger Co Ltd as a supplier and systems integrator.

Sincerely,

Praveen Rao Appadoo  
Assistant Manager - Information Technology

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08P September 2023


**TO WHOM IT MAY CONCERN**

This is to certify that Blanche Birger Co Ltd has supplied, installed, configured and supported Air Mauritius Ltd numerous projects during the past years. The solutions deployed are as follows:

- IBM Tape Library TSM300
- Veeam Backup & Replication Software
- DELL EMC PowerStore 2200T
- DELL EMC R750 Servers
- DELL EMC Comedrix SAN Switches
- VMware vSphere Enterprise Plus
- VMware vCenter Standard

These projects have been successfully completed within the agreed time frames. Blanche Birger's team is very knowledgeable, competent and customer oriented. We highly recommend Blanche Birger Co Ltd as a supplier and systems integrator.

Sincerely,

  
Jennifer Chan Lam (Mrs.)  
Manager Integration Systems  
Air Mauritius Ltd.

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# VEEAM



Veeam is proud to award the title of  
**Veeam Certified Engineer 2020 (VMCE 2020)** to

**SHAVEEN PURMESSUR**

in recognition of successful completion  
of the **VMCE certification**



Construction 00161 2021-07-31

William H. Langert, Chief Executive Officer and Chairman of the Board

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3	MCS Mutual Aid Association	Kaushik Rambhojun	Supply Installation and Configuration of Data Domain DD3300 & Netbackup Software	MUR 2,200,000	Aug-22	August 2022 + ongoing Maintenance
4	National Computer Board	Varun Beezadhur	Supply, Installation and Configuration of DELLEMC Backup Server and ME5 Storage as backup repository.  Supply Installation & Configuration of Veeam Backup Software	MUR 6,800,000	Mar-22	March 2022 + Ongoing Maintenance
5	Seychelles Civil Aviation Authority	Andy Hoareau	Supply, Installation of Veeam backup Solution with backup repository DELLEMC R740XD2 Server	MUR 3,000,000	Jan 2022 and Ongoing Maintenance	Jan 2022 + Ongoing Maintenance
6	Super U	Ashwin Chuttur	Supply, Installation of Veeam Solution with backup repository DELLEMC R740XD2 Server	MUR 1,200,000	Jul-21	August 2021 + ongoing Maintenance
7	Bankone Ltd	Praveen Appadoo	Supply, Installation of Netbackup Software with backup repository IBM Tape Library TS4300	MUR 4,000,000	Oct-20	October 2020 + ongoing Maintenance
8	Bankone Ltd	Praveen Appadoo	Supply, Installation of Veeam Solution with backup repository DELLEMC R740XD2 Server	MUR 3,200,000	Oct-20	October 2020 + ongoing Maintenance
9	RT Knits	Christine WAN	Supply, Installation of Veeam Solution with backup repository DELLEMC R740XD2 Server	MUR 1,600,000	Aug-20	Aug 2020 + ongoing Maintenance
10	Winners	Antish Ramchurn	Supply, Installation of Veeam backup Solution with backup repository DELLEMC R740XD2 Server	MUR 900,000	Aug-20	August 2020 + Ongoing Maintenance

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11	First Capital Bank	David Pascal	Supply, Installation of Networker backup Solution with backup repository DELLEMC Data Domain DD6800	MUR 11,000,000	Jan-20	May 2020 + Ongoing Maintenance
12	Mauritius Telecom	Ashwin Mathoora	Supply, Installation of Veeam backup Solution with backup repository DELLEMC R740XD2 Server	MUR 1,400,000	Nov-19	November 2019 + Ongoing Maintenance
13	ATOL	Yogeeraj Degumbur	Supply, Installation of CommVault backup Solution with backup repository DELLEMC Unity 380XT	MUR 1,800,000	Oct-19	Oct 2019 + Ongoing Maintenance
14	Mauritius Union Group	Rishi Sewnundun	Supply, Installation of Netbackup Solution with backup repository DELLEMC Data Domain 6300	MUR 2,700,000	Dec-18	Dec 2018 + Ongoing Maintenance
15	Mauritius Commercial Bank - Mauritius	Jailand Myandee	Installation of Netbackup Solution with on DELL R740XD2, disk as temporary repository	MUR 5,000,000	Feb-18	March 2018 + Ongoing Maintenance
16	MCS Mutual Aid Association	Kaushik Rambhojun	Supply Installation and Configuration of Data Domain DD2200 & Netbackup Software	MUR 2,100,000	Oct-17	August 2022 + ongoing Maintenance
17	Mauritius Ports Authority	Ravishankar Wootum	Supply, Installation of Netbackup Solution with backup repository IBM Tape Library	MUR 750,000	Nov-16	December 2016 + Ongoing Maintenance
18	ICPS	Jangi Devendra Kumar	Supply, Installation of Netbackup Solution with backup repository IBM Tape Library	MUR 1,000,000	Sept-12	Sept 2012 + Ongoing Maintenance
19	Innodis	Hansley Chadee	Supply, Installation of Netbackup Solution with backup repository IBM Tape Library	MUR 550,000	Jun-10	01/07/2010 + Ongoing Maintenance

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## 4. TECHNICAL SOLUTION

### 4.1. EXAGRID TIERED BACKUP SOLUTION

ExaGrid's Tiered Backup Storage solution works with your current backup application to improve backup performance, restore performance, provide a fixed-length backup window as data grows, protect data against security attacks so that data is ready for restore after an event and also lower the cost of backup storage up front and on time.

The ExaGrid system is the only backup storage appliance with data deduplication that provides a best-of-breed solution with these essential capabilities:

- Zone-level deduplication with similarity detection changes for each version instead of full copies. This reduces the amount of disk space needed by a range of 10:1 to 50:1 or more;
- Quick installation with turnkey plug-and-play backup appliances, with no change to your existing backup application or backup processes;
- Shortest backup window with an integrated landing zone and adaptive data deduplication;
- Fastest restore and tape copy, and "Instant Recovery" of VMs in minutes by storing a full recent backup copy in complete undeduplicated form;
- No backup window expansion by scaling with full servers in a single scale-out system;
- No costly forklift upgrades as data grows due to scale-out architecture; and Fast disaster recovery via WAN-efficient replication and rapid restore.
- Comprehensive security with unique non-network-facing tier (**tiered air gap**), delayed deletes and immutable data objects to ensure that data is ready to recover after a security attack, such as ransomware.

In addition, ExaGrid's scale-out architecture adds compute with capacity, providing a scalable compute system that allows ExaGrid to perform many other unique functions tightly integrated to backup applications such as Veritas NetBackup, Commvault, IBM Spectrum Protect (TSM), Oracle RMAN, SQL Dumps, Veeam, and about 20 others that are listed on the ExaGrid website. Examples include:

- Oracle RMAN Channels that allows for fast backup performance, performance load balancing, and failover to active appliances should any appliance fail.
- Veeam synthetic fulls that are six times faster than any other approach. ExaGrid has integrated the Veeam Data Mover into its appliances for Veeam-to-Veeam protocol communication. Since ExaGrid has Veeam backups in an unduplicated form plus compute nodes along with the Veeam Data Mover, ExaGrid is able to reassemble fulls on its appliances without traversing the network.

#### 4.2. HOW CURRENT (EXAMPLE: DATADOMAIN, NETBACKUP ETC) TARGET SIDE APPLIANCES WITH DEDUPLICATION FUNCTIONS

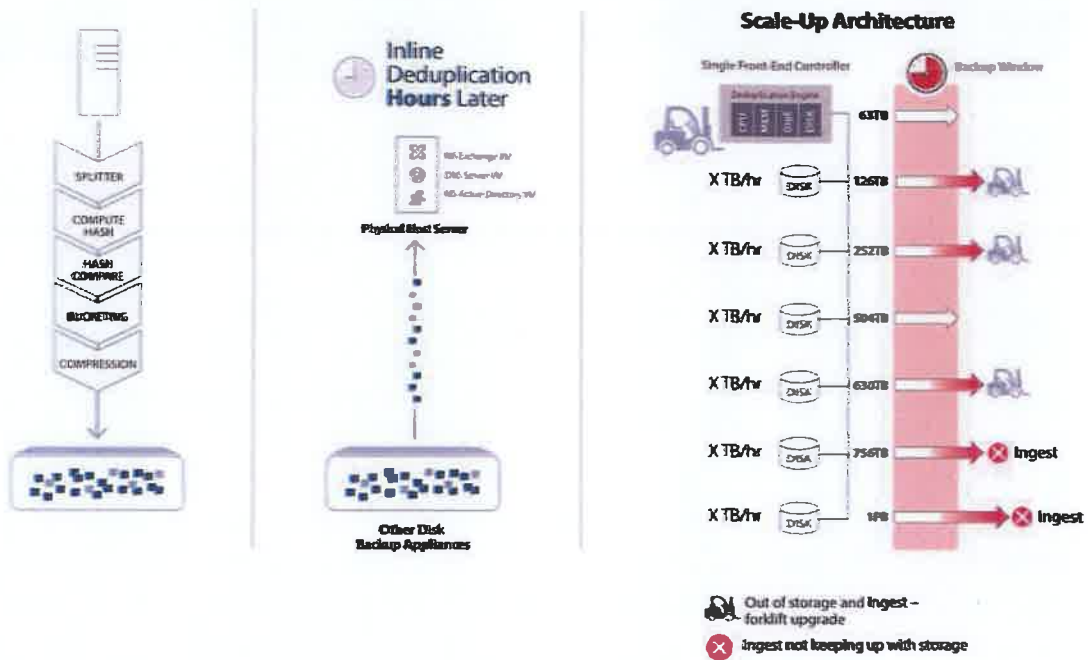
First-generation inline deduplication appliances add data deduplication in a scale-up (front-end controller) with disk shelves storage array. They perform the deduplication inline, during the backup window, on the way to the disk storage. They do save storage and WAN bandwidth through data deduplication, but they impede backups and restores as follows:

- Data deduplication is extremely compute intensive. Performing deduplication between the backup application and the storage target is slow as can be seen by the reported ingest rates of inline scale-up appliances. The largest and fastest system on the market can only achieve an ingest rate of 94TB/hr. for a 1.5PB full backup. **As a result, they add flash storage** to their controllers and require software to be loaded on backup application media servers and database servers in order to acquire more compute, and even then the ingest rate only rises to 94TB/hr., which cannot complete a 1PB full backup in the allotted backup window time.
- Since the data is deduplicated inline, all the data on disk is in a deduplicated form storing only unique data blocks. Each time data is requested for a restore, an offsite tape copy, or VM boot, the data has to be put back together, or "rehydrated." It is not uncommon for a VM boot, as an example, to take one to two hours. This is two hours of lost production time for users.
- The inline, scale-up approaches have a single front-end controller, with fixed processor, memory, and disk storage. As the data grows, the amount of data to be deduplicated also grows and requires more resources to keep the backup window fixed in length. Since these approaches have a fixed resource front-end controller that is required to deduplicate an ever-increasing amount of data, the backup window continuously grows in length until it is encroaching on end-user production hours. The result is that IT staff have to stop the backups, resulting in incomplete backups and, therefore, restores cannot occur. The only fix is to buy a larger front-end controller with more compute,

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memory, and networking (called a "forklift upgrade"), and start the cycle over again. This is both disruptive and expensive.



The backup applications perform deduplication inline during the backup window on the way to the disk storage and use very simple, non-aggressive deduplication, resulting in the following challenges:

- The cost in disk and WAN bandwidth is 3 to 4 times greater than dedicated deduplication appliances since they are performing deduplication on clients or media servers that have other tasks to perform and therefore compute has to be shared. Since there is not enough compute to share, they need to use much larger deduplication blocks sizes and turn off any techniques that help to find more identical block matches. This approach lowers the compute requirement but also greatly lowers the deduplication ratio.
- Data deduplication is extremely compute intensive. Performing deduplication between the backup application and the storage is slow, and when performed in a backup software media server that performs other tasks in parallel is much slower than a dedicated appliance. Turning on deduplication in the backup software is the slowest approach and results in the longest backup window.
- Since the data is deduplicated inline, all data on disk is in deduplicated form, storing only unique data blocks. Each time data is requested for a restore, an offsite tape copy, or VM boot, the data has to be rehydrated. It is not uncommon for restores, offsite tape copies, and VM boots to

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take much longer than a traditional dedicated inline appliance since the rehydration is competing for compute resources in the media server.

- Data deduplication in the backup software is sharing processor and memory with other tasks that the client or media server is performing. Also, as data grows, no new processing or bandwidth resources are added, just disk capacity. As data grows, the amount of data to be deduplicated also grows, and more resources are required to keep the backup window fixed in length; however, since this approach has fixed resources, the result is a backup window that continuously grows in length with no easy way to bring it back to its original length.
- Since backup software data deduplication is performed within each product, they can only deduplicate their own data. If an environment has multiple backup applications, such as Veeam for virtualized servers, a traditional backup application for physical servers, and a database dump such as SQL or Oracle RMAN, then deduplication in the backup application does not work across the environment. If there are multiple backup applications in an environment, only a dedicated target-side deduplication appliance can deduplicate data from a variety of backup applications.

### 4.3. HOW EXAGRID TIERED BACKUP STORAGE FUNCTIONS

Simply adding data deduplication to a backup software application or a scale-up storage array slows down backups and restores, and forces continued forklift upgrades. It was for those reasons that ExaGrid took a different approach to data deduplication, thereby harnessing the benefits of reduced disk storage and WAN bandwidth (as well as associated costs), while also solving the three unavoidable compute problems inherent to the deduplication of data.

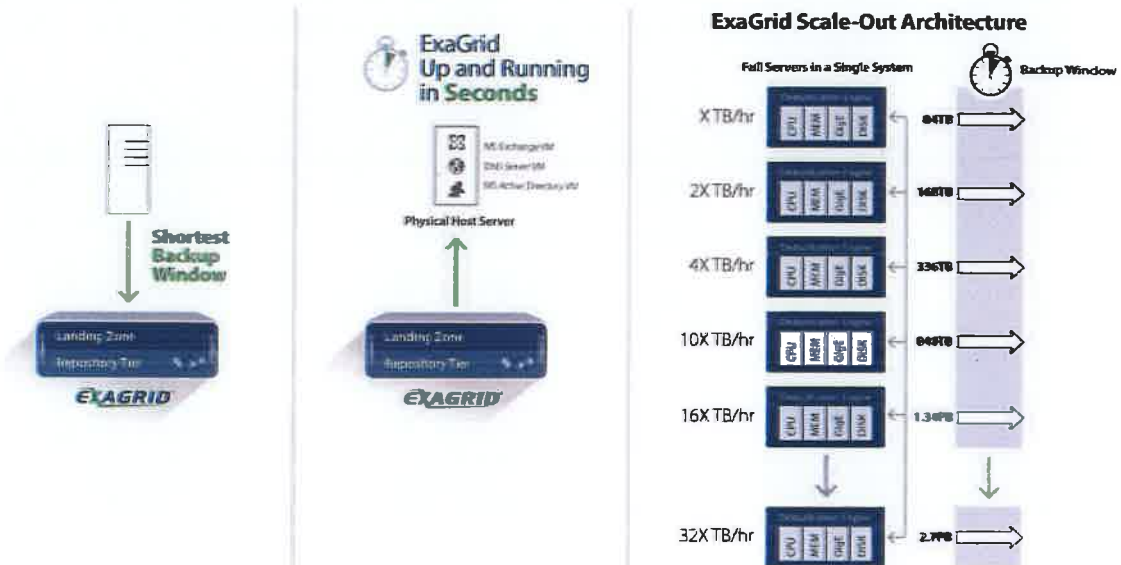
ExaGrid uses "zone-level" data deduplication similarity detection comparisons within. This approach matches the highest deduplication ratios in the industry and can achieve deduplication ratios of anywhere from 10:1 to 50:1. ExaGrid transfers the least amount of data possible over the WAN to the disaster recovery site. This unique deduplication approach allows a scale-out storage architecture to be deployed (full appliances in a scale-out system) that adds compute with capacity. As data grows, the appropriate amount of processor, memory, and network resources are added along with storage capacity to ensure the fastest backups, restores, offsite tape copies, and VM boots as well as a backup window that does not grow as data continues to grow.

With ExaGrid, undeduplicated backups are sent to a disk-cache Landing Zone (avoiding the resource penalty of inline deduplication. ExaGrid's ingest rate is 488TB/hr. for a 2.7PB full backup, which is three times faster than other solutions, resulting in the shortest backup window. As the data commits to the disk-cache Landing Zone, ExaGrid begins deduplication and offsite replication in parallel with incoming backups. The deduplication and replication occur in the ExaGrid appliances but only after the backups are committed to disk, ensuring fast backups

as well as a strong offsite recovery point (RPO). This approach is known as "adaptive deduplication."

Since 95% of restores, 98% of VM boots, and 100% of offsite tape copies are performed from the most recent backup, ExaGrid maintains the most recent backup in the disk-cache Landing Zone in native, undeduplicated form so that these requests can be quickly completed without the need for time-consuming data rehydration. All other history/versions are stored in a deduplicated repository behind the Landing Zone. This provides the best of both worlds – the fastest restores, offsite tape copies, and VM boots as well as low cost deduplicated storage. VM boots can be completed from an ExaGrid in single-digit minutes compared to other approaches that can take hours or even a full day.

Because ExaGrid adds full appliances (processor, memory, networking, and storage) as data grows, the resources grow with the data growth, resulting in a fixed-length backup window. If the backup window is six hours at 40TB, it is also six hours at 200TB, 400TB, 700TB, 1PB, etc. ExaGrid has a range of various-sized appliance models that can be mixed and matched in a single scale-out system, allowing organizations to buy what they need as they need it without having to undergo forklift upgrades. In addition, appliances of any age can be combined, eliminating product obsolescence.



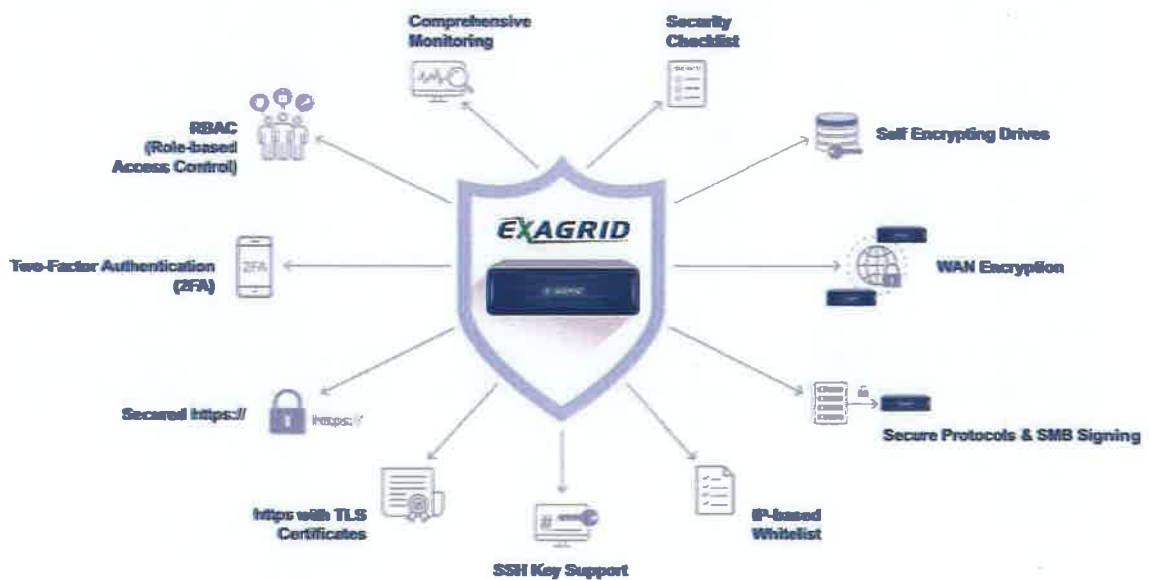
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## 4.4. TIERED BACKUP STORAGE WITH THE MOST COMPREHENSIVE APPROACH TO SECURITY

ExaGrid has a non-network-facing Repository Tier that is not visible or accessible to threat actors/hackers. If delete commands are issued to the Landing Zone, the data in the repository is not deleted for a delayed period called delayed deletes.

This ensures that IT staff have the time to discover the attack and freeze the ExaGrid repository to be able to recover at any time. **The combination of ExaGrid's non-network-facing tier (tiered air gap), delayed deletes, and immutable data objects is the best solution on the market to ensure recoverability from a security or Ransomware attack.**



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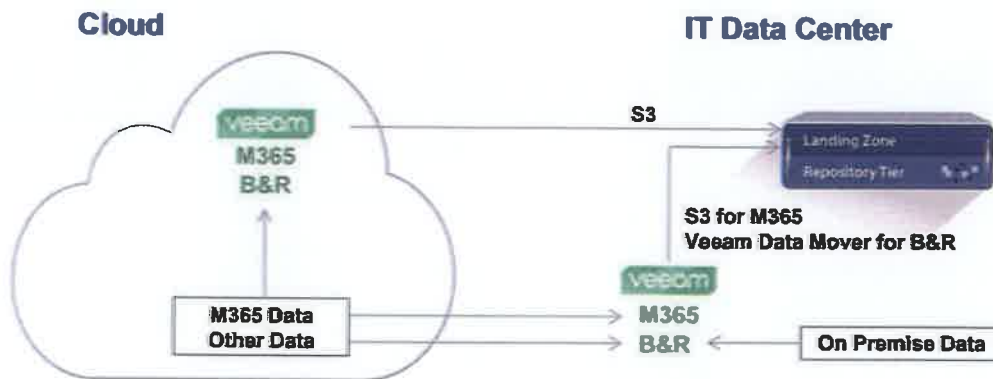
## 4.5. SUPPORT OF S3 OBJECT STORAGE WITH OBJECT LOCKING AND VEEAM BACKUP FOR M365

ExaGrid supports Veeam writing to ExaGrid Tiered Backup Storage as an object store target using the S3 protocol, as well as supporting Veeam Backup for Microsoft 365 directly to ExaGrid. ExaGrid locks the data for the time period provided by Veeam:

- S3 Locks data in the Landing Zone
- S3 Locks data in the Repository Tier
- ExaGrid RTL - Retention Time-Lock
  - Double locks the repository
- ExaGrid supports the S3 API
- ExaGrid supports the Veeam S3 Extension (SOSAPI) when used with Veeam Backup and Replication

Chose the best combination of:

- S3
- Veeam Data Mover.



## 4.6. PRICE GUARANTEE AND INVESTMENT PROTECTION PROGRAM

ExaGrid offers the only comprehensive price guarantee and investment protection program, which includes:

- The future price for each appliance will be the same as the price originally paid. The duration of price protection is five years, allowing customers to plan for future purchases. Most vendors sell at a low price to win the business and raise prices on subsequent purchases. ExaGrid is the only vendor that provides a written guarantee that the price paid up front will stay fixed for five years.
- Maintenance and support costs will not increase more than 3% per year. Since support involves live level 2 tech support staff, support costs do go up over

time. However, ExaGrid shields customers from fluctuations by capping the increases at 3% per year. This allows customers to plan for future support costs.

- ExaGrid includes all of the following in its yearly maintenance and support; there are no hidden or future costs.
  - No charge phone and WebEx remote installation support
  - 5 x 8 phone and email support
  - Point releases and full version releases
  - Replacement of all failed hardware components
  - Health reporting by ExaGrid support staff – 95% of ExaGrid customers take advantage of health reporting
  - For those customers for whom 5 x 8 phone support is insufficient, ExaGrid has programs that provide:
    - 7 x 24 support
    - Next day onsite failed hardware replacement
    - Same day onsite failed hardware replacement
- ExaGrid eliminates hidden costs by including all necessary functionality, such as offsite replication for disaster recovery.
- ExaGrid's offsite appliances do not require an ExaGrid Landing Zone, so appliances of half the onsite capacity can be used for offsite disaster recovery, further reducing costs. All other solutions are symmetrical, requiring a system of the same size and cost both onsite and offsite.
- ExaGrid supports all of its appliance models, even if the company no longer markets particular models. This continued support, as well as the ability for older and newer model appliances to operate in the same scale-out system, eliminates product obsolescence and allows organizations to maximize their capital equipment investment.
- With ExaGrid, the scale-out system can grow with data growth, eliminating over-buying up front or – even worse – under-buying up front and being left with an undersized system down the road. With ExaGrid, full appliances are added into a scale-out system as data volumes increase.
- As data grows, ExaGrid eliminates expensive front-end controller forklift upgrades by simply adding appliances to the scale-out system that combine processor, memory, network ports, and capacity in each appliance. The inline scale-up solutions run out of processor, memory, and network port resources as capacity is added, forcing expensive and disruptive buys of increasingly larger front-end controllers. ExaGrid eliminates these future tolls.

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## 4.7. PROPOSED SOLUTION DETAILS

### 1. Cloud Backup & Disaster Recovery Solution

- Veeam Backup Software & Azure Blob & Compute VM

### 2. Storage Infrastructure

- Exagrid Backup Appliance EX54 with 5 years warranty

### 3. Backup & Recovery Software

- Veeam Backup Software

## 5. EXAGRID CLOUD TIER SOLUTION

The ExaGrid Cloud Tier allows customers to replicate deduplicated backup data from a physical onsite ExaGrid appliance to the cloud tier in Amazon Web Services (AWS) or Microsoft Azure for an offsite disaster recovery (DR) copy.

The ExaGrid Cloud Tier is a software version (VM) of ExaGrid that runs in AWS or Azure. The physical onsite ExaGrid appliances replicate to the cloud tier running in AWS or Azure. The cloud tier writes the deduplicated data to cloud storage. Since the data replicated is only deduplicated data, the amount of cloud storage required is less than would be the case when storing nondeduplicated data, and the average deduplication ratio is 20:1. Deduplication ratios can range from 10:1 to as much as 50:1 and vary based upon the type of data being backed up and replicated, e.g., unstructured files, databases, rich media, etc.

The ExaGrid Cloud Tier looks and acts exactly like a second-site ExaGrid appliance. Data is deduplicated in the onsite ExaGrid appliance and replicated to the cloud tier as if it was a physical offsite system. All features apply such as encryption in transit from the primary site to the cloud tier in AWS or Azure, bandwidth throttle between the primary site ExaGrid appliance and the cloud tier in AWS, replication reporting, DR testing, and all other features found in a physical second-site ExaGrid DR appliance.

The entire data set can be replicated to AWS or Azure, or a customer can decide to replicate only

specific shares. The options are:

- Replicate all shares to AWS or Azure
- Replicate some shares to AWS or Azure
- Replicate some shares to AWS or Azure and the remaining shares to a second-site physical ExaGrid appliance

## 6. IMPLEMENTATION PLAN

Phase	Key Activities	Timeline	Progress
Phase 1	Planning & Requirements	Jan – Feb 2025	Completed
Phase 2	Vendor Selection & Procurement	Mar – May 2025	In Progress
Phase 3	System Design & Setup	June 2025	TBD
Phase 4	Implementation & Testing	June 2025-July 2025	TBD
Phase 5	User Training & Optimization	July 2025	TBD
Phase 6	Full Deployment & Monitoring	July 2025	TBD

The detailed project plan will be shared upon award of project.

## 7. PRICE SCHEDULE

Schedule of Rates and Prices	Tenderer's Offered Solution (Tenderer's to complete)	Once Off Costs		Monthly Costs	
		Description	RWF Value	Description	RWF Value
1	Cloud Backup & Disaster Recovery Solution				
	Azure VM, BLOB, DR Failover		-		881,295.00
2	Storage Infrastructure (On-Premises & Cloud)				
	Exagrid Backup Appliance with 5 years warranty		119,427,653.00		-
3	Backup & Recovery Software				
	Veeam Backup & Replication for 10 VM's				189,156.00
4	Contractor's Professional Indemnity Insurance				
<b>Total Price ( RWF) - exclude VAT and all other charges</b>			119,427,653.00		1,070,451.00
<b>Withholding tax (10%)</b>			11,942,765.30		107,045.10
<b>VAT (18%)</b>			21,496,977.54		192681.18
<b>TOTAL Price</b>			152,867,395.84		1,370,177.28

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