



INVESTEC

Simplifying GDPR compliance and boosting SecuritEase performance with PORTrockIT WAN acceleration for Oracle GoldenGate replication

ABOUT INVESTEC

With over 10,000 employees, Investec Private Banking aims to deliver a shared value proposition to clients in South Africa and around the world. The bank offers specialist banking, wealth, investment and asset management services across all geographies and is achieving its ambitions through continued investment in digital capabilities.

“The implementation of Bridgeworks solutions at Investec provides an almost instantaneous return on investment.”

• Francois Steyl, CTO, StratIT

CHALLENGE

Reduce regulatory risks by ensuring that GDPR-relevant recovery resource planning (RRP) data is always kept in sync between SecuritEase platforms in the UK and South Africa.

SOLUTION

WAN optimisation with PORTrockIT 400 enabled a 3-5x increase in transfer speeds and a 424% increase in total data transferred across the WAN using Oracle GoldenGate.

BENEFITS

- Eliminates regulatory concerns by solving data replication issues.
- Unlocks cost savings by eliminating third-part tools.
- Improves user experience with application acceleration.

BUSINESS CHALLENGE

Based in South Africa, Investec Private Banking's wealth and investment's brokerage business operates in partnership with a major European bank, which means that aspects of its operations are subject to European regulations such as the General Data Protection Regulation (GDPR).

As a result, the bank must comply with data sovereignty requirements which stipulate that the data supporting its SecuritEase settlement and clearing system must reside on servers based within the European Union.

At the same time, the regulations require the bank's systems to be synchronised regularly, so that all business units are always working on current data.

This combination of requirements caused problems for Investec. Users in South Africa needed to be able to access data stored on servers in the UK, but the sheer physical distance between the data centres meant that latency across the wide area network (WAN) averaged around 180ms.

Under these conditions, it took 14 to 15 hours to move a dataset between Oracle databases in the two countries, which caused challenges in keeping Recovery and Resolution Planning (RRP) data synchronised. Recovery point objectives (RPOs) and recovery time objectives (RTOs) were not being met, which in turn meant that the bank risked missing critical business commitments such as its GDPR obligations.

The root cause of the problem was not the Oracle replication itself, but the constraints of the WAN. Adding bandwidth did not help to mitigate latency and packet loss. Furthermore, deploying WAN optimisation tools did not deliver accelerated WAN performance. In fact, less than 20% of the capacity of the WAN links was being utilised during the replication of RRP data.

Mark Backes, Infrastructure Architect and Team Lead at Investec, told Computer Weekly that investing in faster connectivity was not the answer: "No matter how much bandwidth we threw at it, we couldn't resolve the challenges with more speed. TCP application packet acceleration was the limiting factor — there is only so much data that you can push per day, and we just had to find a way to reduce latency."

SOLUTION OBJECTIVES

Investec realised that any solution to its latency conundrum would have to address these key objectives:

- Reduce data replication times and keep databases in sync
- Reduce non-productive transfer windows
- Enable full utilisation of all available WAN bandwidth
- Reduce the impact of latency on application performance and deliver content more quickly to customers and collaborators
- Avoid the need for further investment in bandwidth and network links
- Minimise any changes required to the existing WAN/LAN infrastructure
- Use software appliances instead of installing new physical hardware in data centres

SOLUTION DEPLOYMENT

Investec's IT environment was already using VMware ESXi for virtualisation, which made it quick and simple to install two Bridgeworks PORTrockIT 400 virtual appliances, one in the UK and the other in South Africa.

For each PORTrockIT deployment, the only virtual resources required were four virtual CPUs, 4GB of memory and 1GB of boot storage. The appliance itself is an ESXi OVA file of less than 60MB, which was easily installed and configured by specifying basic network settings.

With the PORTrockIT appliances connected, they automatically initiated an internal learning process to detect the characteristics of the WAN. Once this was complete, Investec began routing the Oracle traffic via PORTrockIT.

The entire PORTrockIT deployment process took less than one hour, and involved almost zero downtime. Testing was a simple process, using standard Oracle production tools such as GoldenGate and Recovery Manager (RMAN).

TECHNICAL RESULTS

Before acceleration

With no acceleration, the total host-to-host traffic transferred between 1st February and 1st April 2018 was 9.3TB.

The average rate of transfer was 3-5MB/s, and all of the databases were out of sync.

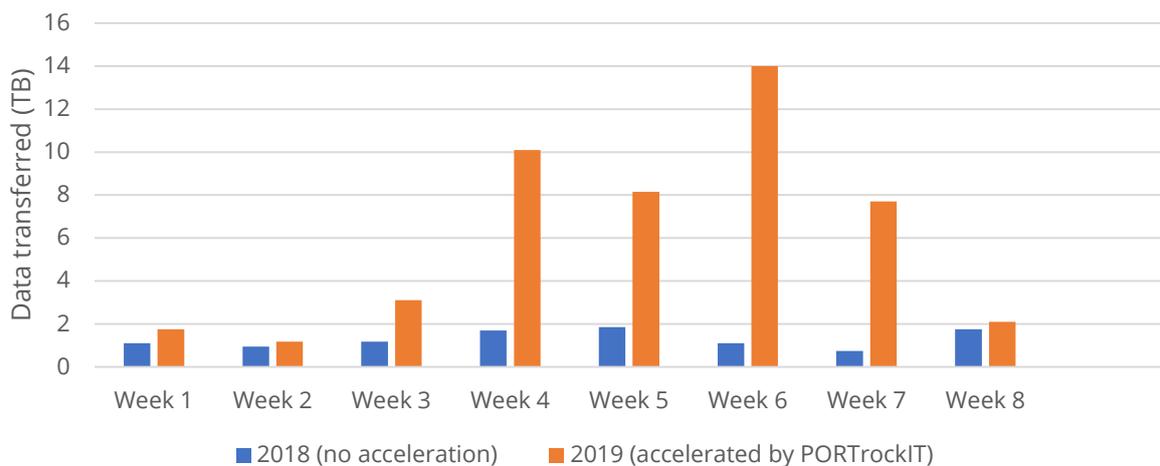
After acceleration

With the PORTrockIT virtual appliances added to the network, Investec was able to transfer a total of 55TB between 1st February and 1st April 2019.

This amounted to a 424% increase in total traffic compared to the same period of the previous year, with an average rate of transfer 11-15MB/s.

With WAN data acceleration in place, the Oracle databases are now continuously in sync — relieving a constant source of concern for the business.

Week-by-week comparison of WAN data transfer volumes, February 1st to April 1st, 2018 vs 2019



BUSINESS BENEFITS

Investec expects any new IT installation to deliver rapid return on investment, so the minimal investment required to adopt the Bridgeworks solution was seen as a major advantage.

The bank expects the Bridgeworks solution to save money because it can now fully utilise its existing WAN bandwidth to synchronise RRP data between its enterprise Oracle databases. This will resolve the bank's regulatory dilemma without requiring significant investment in additional bandwidth.

While the original scope of the PORTrockIT implementation focused on the technical aspects of resolving RRP data replication issues, the business soon recognised the value of the solution to support other use cases too.

For example, members of the wealth team approached the central IT team to help improve the user experience of an application hosted in the UK. Round-trip response times for this application were over 800ms, which made it almost impossible to use.

By routing the application's data transfers through PORTrockIT, Investec was able to bring

the round-trip times down to 320-350ms. This has meant that application response times for users accessing applications hosted in different hemispheres have been vastly improved.

In a broader sense, PORTrockIT also frees the bank to make smarter decisions on the hosting of its digital capabilities. Latency is no longer the main constraint that dictates where a service should be hosted, which is a game-changer for Investec. For example, with the new WAN data acceleration in place, the bank is now planning to implement AWS and Microsoft Azure cloud services.

In an interview with Computer Weekly, Investec's Mark Backes summarised the key benefits: "GDPR requirements have been met; the databases are now in sync. We are using native tools in SQL and Oracle, and no third-party products, so costs have fallen. The other thing is that we are now able to have proper, decent performance for trading."

Meanwhile, the bank commends Bridgeworks for its dedication and professionalism throughout the project and says that it will recommend its solutions to peers and colleagues.

PARTNER VIEW

During the project, Investec worked with two local South African IT partners: value-added distributor StratIT and IT solutions provider DataCentrix.

Francois Steyl, CTO at StratIT, comments: "Bridgeworks is unique in what it does, and addresses the latency, packet loss and ingress and egress rates which are the culprit for poor throughput rates across the WAN. The ease of deployment of the virtual appliance and the adjustment of routing rules makes Bridgeworks the clear solution to accelerate data across a customer's WAN. The implementation of Bridgeworks solutions at Investec has realised a 424% increase in total traffic sent across the WAN, which provides an almost instantaneous ROI."

Venesia Oxford, Senior Account Manager at Datacentrix, adds: "Through the utilisation of the Bridgeworks technology, Investec can finally utilise more of their actual bandwidth investment. The improved application response times mean quicker turnaround times, enabling faster decision-making which impacts customer satisfaction and internal business collaborations.

"The Bridgeworks technology is one of the data management principles available to customers from the all-encompassing data management portfolio offered from Datacentrix."

CONCLUSION

By mitigating latency and packet loss, Investec was able to synchronise RRP data between its databases and improve application response times, despite its servers being thousands of miles apart.

ABOUT BRIDGWORKS

Bridgeworks' expertise in high-performance data solutions stretches back over 35 years. Today, its industry-defining data acceleration technology is redefining the use of wide area networks, enabling organisations to reach transfer speeds up to 200 times faster, regardless of whether they are transferring large volumes, encrypted or media files. Using automated AI technology, Bridgeworks dramatically alleviates the effects of latency and packet loss, enabling data to get to where it needs to be faster — and maximising business performance with dramatic return on investment.