How NTT's technology helped rhino conservationists

Connected Conservation project supported the protection of endangered species

Riaan Smit
Principal Architect, Dimension Data

IoT isn't just changing the fortunes of car makers and factory owners. It has also saved the lives of endangered animals deep in the South African bush – all part of NTT and Dimension Data's commitment to use technology for good and help achieve the United Nations' Sustainable Development Goals.

Working with our long-time partner Cisco, we used this fast-evolving technology to help combat rhino poaching in the private Sabi Sand Nature Reserve.

In 2017 and 2018, no rhinos were poached at Sabi Sand, and in 2022 alone, **12 poaching incursions were thwarted.**

The goal: track humans, not animals

Sabi Sand is adjacent to the Kruger National Park in South Africa, a country that is home to most of the world's remaining rhinos but also a hotspot for rhino poaching.

Conservationists in the reserve wanted to use technology to protect this endangered species by tracking humans rather than animals – a novel project.

As a tourist destination, Sabi Sand faced the challenge of hundreds of staff members, suppliers, contractors, security personnel and tourists entering and exiting the reserve daily without being monitored. Only basic technology infrastructure and access control, manual security processes and limited communication existed.

The solution: innovative technologies

We designed a proactive, end-to-end solution enabling Sabi Sand to detect people entering the reserve illegally or with malign intent. It was important to give the operations and reaction teams near-real-time awareness of these movements, irrespective of their own location in or outside the protected area.

To achieve this, we took a phased approach to deploying solutions that would enable operational teams to increase their effectiveness and efficiency. These solutions included:

- A secure and digitally enabled operations center with redundant power and all the computing, storage, visualization, networking and communications equipment it needed to function around the clock, 365 days a year
- A solar-powered point-to-point reserve area network to create a self-sustained, high-speed communications backbone for endpoints such as digital radios and various types of cameras
- Point-to-multipoint sectors for blanket coverage across the protected area
- Wi-Fi and local area networks at each gate to digitalize access control and support remote visual monitoring
- Secure connectivity to the outside world to enable remote support of our deployed technology and the exchange of sensitive information
- A low-power wide-area network (LoRaWAN) and integration platform for intrusion detection, the tracking of moving assets, ecological monitoring and water management, among other use cases
- Mobile masts for tactical agility and to increase the area operation for the teams working in the protected area

The results: a 96% reduction in incursions

This innovative application of technologies reduced incursions into the reserve by 96% in the two years after the start of the pilot project in 2016. Before that, the reserve had lost one rhino per week to poaching.

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Expanding the project reach

Having completed the first phase of this project at Sabi Sand, Kenya's Kafue National Park and Northern Rangelands Trust were next on the radar.

In Kenya, our initial implementation focused on upgrading the Lewa Wildlife Conservancy operations center's computing, storage, networking and security infrastructure. We also implemented a self-sustained, high-speed and solar-powered reserve area network to connect locations. This allowed operations teams to enhance the value they got from EarthRanger, the real-time software that helps wildlife conservation workers make more informed, data-based operational decisions.

In 2020, the nonprofit Connected Conservation Foundation (CCF) was launched to make an even bigger impact in the field of biodiversity management. The CCF, which continues operating, has played a central role in expanding the initiative in South Africa, Zambia, Kenya, Indonesia and India.

In the last phase of the project, we introduced additional elements in the Kenyan protected areas and looked at using AI on high-resolution satellite imagery to support their biodiversity management efforts. These elements included:

- Long-range infrared pan-tilt-zoom cameras deployed at water holes, enabling the operations teams to remotely monitor animal health and behavior at any moment, in real time or by replaying recorded footage
- A LoRaWAN network and integration platform similar to what was deployed at Sabi Sand but also used to track animals in support of repopulation efforts

We equipped more than **150 rangers with technology to improve their communications and situational awareness.**

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Making a difference: the broader NTT impact

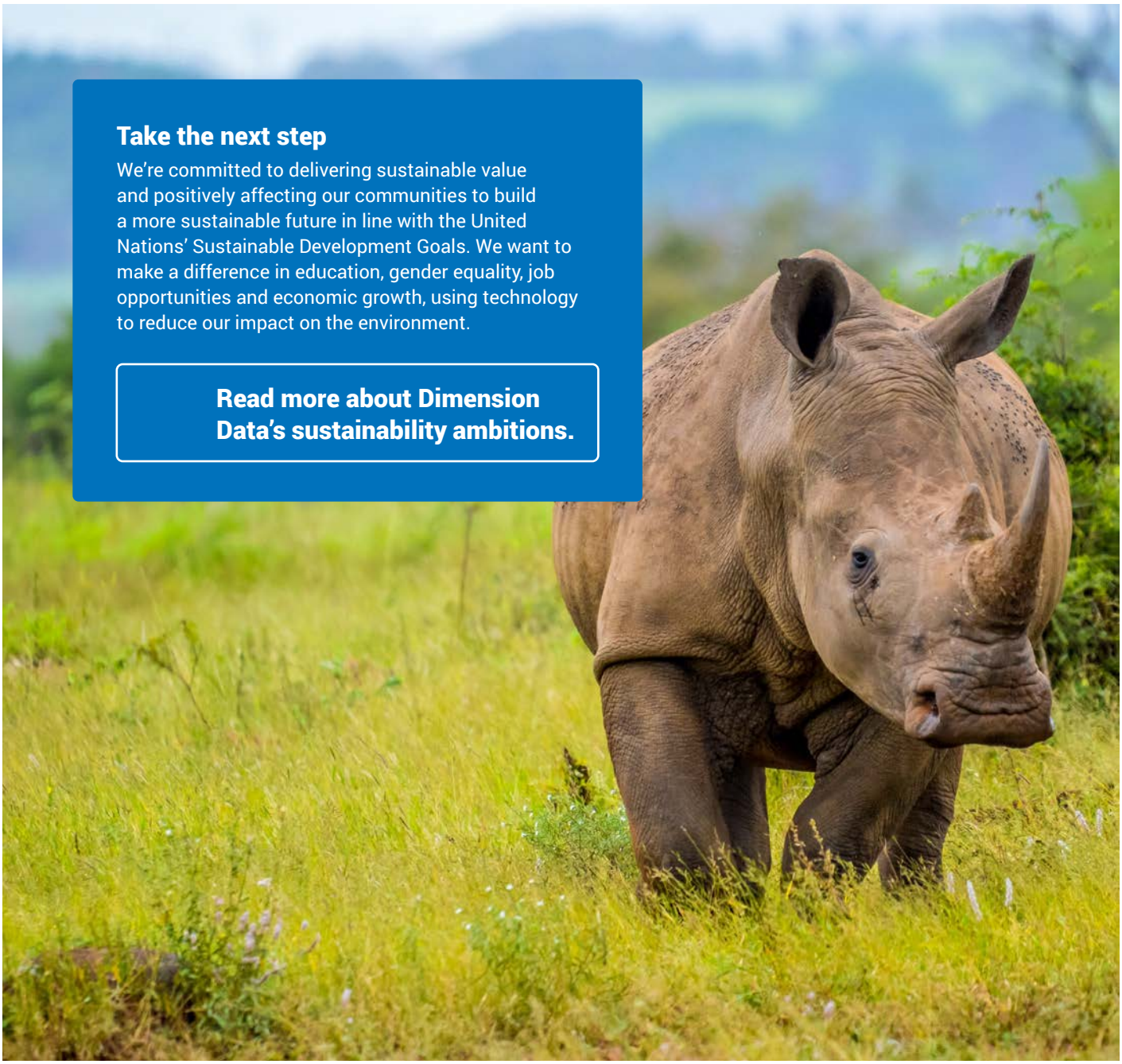
Through our involvement in this program, we have:

- Helped to make 5,000,000 hectares under conservation safe for animals to roam
- Assisted in the protection of more than 30 threatened species, including black rhino, African elephants, pangolins, lions, wild dogs, cheetahs and giraffe
- Equipped more than 150 rangers with technology to improve their communications and situational awareness
- Enabled specialists and researchers from across the world to participate in repopulation and other biodiversity projects remotely and in real time
- Contributed to the global understanding of use cases for using AI on high-resolution satellite imagery

This program is a great example of passionate individuals coming together and contributing knowledge, equipment and access to resources by using their social and business networks to implement technology for good that directly affects sustainability.

It has been an absolute privilege to have the opportunity to use my abilities to be part of the sustainability solution rather than the problem.

Our vision is to keep supporting conservation efforts globally through continued innovation with our technology and conservation partners.



Take the next step

We're committed to delivering sustainable value and positively affecting our communities to build a more sustainable future in line with the United Nations' Sustainable Development Goals. We want to make a difference in education, gender equality, job opportunities and economic growth, using technology to reduce our impact on the environment.

Read more about Dimension Data's sustainability ambitions.

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