Making the case for data-driven transport

By Jaap Scholten, Head of Group Hybrid ICT Strategy at Datacentrix

While the local transportation sector has been hit by major challenges over the past few years – the skyrocketing cost of fuel, fuel shortages and targeted criminal activity to name a few – there are signs of green shoots for the industry for 2023.

In his State of the Nation address (SONA) in February this year, President Cyril Ramaphosa mentioned the local transport and logistics sector several times, with reference to reducing red tape, lessening the impact of the energy crisis, and building investment in a more efficient transport and road infrastructure system.

Technology too will play a critical role in futureproofing transportation beyond 2023 in Africa, with a data-driven approach helping to contribute to development within the sector. Artificial intelligence (AI) in combination with the Internet of Things (IoT), for example, can help improve efficiencies such as route, capacity and load planning, performance optimisation and demand prediction, as well as fleet management, maintenance and monitoring.

However, there are three technology pillars that must be considered for this to become a reality, namely data hosting, data transportation, and data security.

Data hosting

There's no question that data needs to be hosted in the right place, but this in itself can become a complex process.

To use a transportation-related analogy: fossil fuel cars require a lot of maintenance requirements, from spark plugs to gearboxes, oil changes and timing belts, brake pads and filters. However, electric cars do not require the same level of upkeep, as even the brake pads are hardly used due to regenerative braking, and software updates are received via the Internet.

> One could say that hybrid cars seem to be the worst choice possible – all the maintenance of a fossil fuel car, plus only a small amount of the electric benefit. Yet, hybrid cars are an essential stepping stone to get to pure electrical vehicles, for reasons such as erratic electricity supplies on the one hand, and continuously improving battery technologies on the other.

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When it comes to technology, hybrid ICT – or a combination of cloud and on-premises technology – provides the same stepping stone needed to get to a pure-cloud world (which, realistically, is still many years away).

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Hybrid ICT offers the benefits of affordable mass storage, through hyperscaler clouds such as Amazon Web Services or Microsoft Azure, as well as a place for huge amounts of unstructured data – so-called data lakes – to be analysed using Machine Learning (ML) tools to find patterns or trends in your data.

Data transport: networking

Networks always seem to have simple beginnings, yet they generally become more complex than originally envisioned. Initially, networking was all about computer data, but rapidly expanded to voice and video, and now incorporates IoT devices as well. Each of these network services ultimately need to execute one goal: moving data between humans. There are numerous steps in between, from databases and web servers, to financial systems, operational systems, and of course cloud services.

An important note is that a network, in whichever form it is used, becomes the measure of one's data experience. A cloud experience is only as good as its network connection to that cloud, and users' experience is only as good as their Wi-Fi, 5G, or LTE signal to which they are connected.

Pervasive security

Gone are the days of a central firewall at the head office, or employing a network security specialist, who holds the keys to the front door. Data has moved out of the head-office and physical warehouse premises, to the far corners of people's homes, their notebooks and USB drives, to the cloud, and to wherever else users may be.

Data is on the move, and there is no stopping it. At the same time, many people want access to data, be it IoT data or financial data, and therefore no strategy is complete without addressing data security.

Security now lives on the network, as well as in the cloud. It has evolved to identity management, where all correctly identified users are granted access, based on their security profile and privileges.

The term used currently is SASE (Secure Access Service Edge), which means a network service indirectly reaches as far as people's homes, on the road or overseas in hotel rooms. This is the new virtual edge of the network, and the only way that it can be secured, is by giving users access by means of their identity. Practically, this means that network access to services are based on Zero Trust – no access unless the users can correctly identify themselves, irrespective of the hardware they use or the location they find themselves at.

Making the case for hybrid ICT

By accessing and understanding data in real-time, the transportation sector will be able to improve user experience, increase revenue, decrease costs, and drive efficiencies. This is why a hybrid ICT approach, one that begins with a data-first strategy while providing an 'as a service' experience, is so vital.

The right hybrid ICT partner will be able to assist with a data-centric strategy that includes the fundamental pillars of the ideal data hosting environment, reliable data transport and connectivity, and far-reaching data security.

For more information on Datacentrix's Hybrid ICT approach, please visit www.datacentrix.co.za/hybridit.html