Connecting healthcare data

SystemOne connects remote clinics and digitises the flow of healthcare data, with Vodafone IoT.

The future is exciting.

Ready?

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SystemOne relies on Vodafone IoT to manage the flow of vital healthcare data in developing countries

Healthcare in the developing world is not only a diagnosis and treatment issue, but also a supply chain problem. How do healthcare providers get the right testing equipment, medicines and expertise to the right place, at the right time? And how does the diagnostic data get where it needs to go? The SystemOne solution connects remote clinics to central labs and the entire supply chain, and digitises the flow of healthcare data. To work, it needs a reliable, manageable connectivity platform.

The challenge

Building a healthcare eco-system from scratch

"This is a challenging, complicated environment in which to build a health eco-system. If you were in the US, the challenge would be in integrating your systems. Here, we have nothing to integrate with. The challenge is finding a reliable network."

Aaron Oppenheimer doesn't wish to overplay the difficulties of knitting together healthcare provision in parts of rural Africa. But he won't pretend it is straightforward. Resources are scarce, distances can be huge, and standardisation of products and process is almost non-existent.

"In data management terms, there's not a lot to work with," he says.

Healthcare data sharing in the developing world

Oppenheimer is Vice President of Product Design at SystemOne. His company provides solutions to connect labs, clinics, funding agencies, health ministries and non-governmental organisations (NGOs) throughout Africa and Asia. Today, SystemOne operates in 40 countries and more than 1,500 locations.

"We see ourselves as creating a central nervous system for healthcare in the developing world," he says. "We provide the means to move meaningful information across the healthcare eco-system."

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> **Aaron Oppenheimer**
> **Vice President of Product Design**
> **SystemOne**

Better connections, Oppenheimer states, save lives. For instance, SystemOne solutions allow diagnostic data to be shared more quickly with frontline doctors, meaning patients are quicker to receive the right medication. "But it's more than simply communicating a positive/negative test result," he continues. "The healthcare supply chain is a huge issue in the developing world. We need to plug this data into funders, suppliers, and government agencies."

To work effectively, SystemOne needs an effective means of sending data from often remote locations. It needs certainty on cost, and simplicity in the way it manages this connectivity. "We used to have to knit together dozens of mobile phone contracts," says Oppenheimer. "Can you imagine how difficult that was to manage?"

The solution

Granular control, reliable service

The Vodafone service sees SystemOne diagnostic devices connected via a MachineLink 3G+ router and a Vodafone Global SIM, allowing devices to connect to the Vodafone Managed IoT Connectivity Platform wherever the devices are located. The Vodafone Platform allows SystemOne to manage all connections from a single platform, establishes a single contract with price transparency, and ensures robust connectivity.

"We need a reliable network," says Oppenheimer, "and that's the value Vodafone brings."

The Vodafone Managed IoT Connectivity Platform also brings control. SystemOne can manage the type of data that is sent between devices, and the size, on a SIM-by-SIM basis.

"It means we use no more data than we have to, which is crucial if we are to control costs," explains Oppenheimer. "We can lock devices to certain types of data. In the past we had instances where devices were being reconfigured, and people were watching YouTube videos using data. We can now prevent this from happening."

Connectivity and control make a huge difference to healthcare outcomes. For instance, in Malawi SystemOne connects devices that test for HIV.

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Chris Macek, Founder & CEO, SystemOne

Now, test results can be sent to clinicians automatically and patients are notified when the results are ready to review. The previous process took two months and involved hand-written notes and motorcycle couriers. Switching to the Vodafone Managed IoT Connectivity Platform sees the test/diagnosis/treatment cycle drop to just three days, even in the most remote parts of the country. It means that patients can receive treatment sooner and the potential for disease to spread is also reduced.

"It affects the whole supply chain," says Oppenheimer. "We can alert funders that testing is taking place, or suppliers that medication is running low, or research agencies that a disease is spreading. The Vodafone service allows us to send the right data to the right people at the right time."

The future

Clarity around data management

Oppenheimer says expansion for SystemOne can never be standardised, and that local challenges remain, but the Vodafone service provides clarity around connectivity and data management:

"Every location has its own infrastructure issues, and there is a lack of standardisation across healthcare in the developing world.

"What we have with Vodafone is consistency through a global relationship. Vodafone sees the difference we can make to global healthcare, and understands it can help in challenging conditions."

SystemOne expects to launch in two further countries before summer 2018. Oppenheimer says its focus will continue to be the developing world, but acknowledges its innovation could be applied in developed countries.

"When you address healthcare in the US, you join a system that has evolved over time. Here, in parts of the developing world you start with a blank slate. By thinking differently, we come to solutions that could apply elsewhere."

Chris Macek, Founder and CEO of SystemOne, says many healthcare issues are global, not just restricted to developing nations: "SystemOne's goal has always been to ensure that data moves faster than the diseases that impact the developing world. With Vodafone's IoT technology and hardware, we can provide medical facilities with consistently reliable accessibility, ensuring clinicians can collect the data they need to make decisions that help save lives."

The bottom line

- Delivers critical diagnostic data for TB, HIV, Ebola, and other diseases
- Monitors and responds to disease outbreaks through real-time alerts from medical diagnostic devices
- With the service provided by Vodafone IoT, SystemOne can manage fleets of devices, allowing in-country administrators to understand warranties, laboratory conditions, and more
- Helps medical device makers 'turn the lights on' to their fleets of devices, understanding functionality, usage, performance, consumption, and more

About SystemOne

- Founded in Massachusetts in 2012, SystemOne focuses on producing solutions for disease surveillance and response
- Manages national-scale roll-outs of connectivity for medical diagnostic devices
- Now in 40 countries and >1,500 locations
- www.systemone.id

vodafone.com/business/IoT