RAPIDLY CREATING AND CONFIGURING **INSTANT NETWORKS** FOR HUMANITARIAN AID, WITH **NetOS Rapide**™

NetOS Rapide™ is used to rapidly configure and control a series of networks within a newly established refugee camp following an international crisis. NetOS Rapide™ provides:

- **Rapid, Simple Configuration and Control** – The aid agency is quickly able to set up and configure its networks within hours of arrival using non-technical staff. The networks provide international communications, local push-to-talk radio and internet access.

- **Pre-configured Network Profiles** – Standard user profiles can be created, defined and stored for repeated usage, allowing pre-planning an reducing time on-site.

- **Automation** – The network is managed and controlled automatically to provide the best tailored service to each designated user group without interference. If external connectivity is lost or degraded the highest priority services can be maintained.

Scenario

Wars and natural disasters displace large numbers of people. Emergency reception centres, field hospitals and refugee camps all require connectivity for their operational systems, logistics, security and for the general public who may not be able to use their phones on standard cellular networks.

The volunteers, aid agencies and charities that support these displaced people require reliable fixed and wireless connectivity in place as soon as possible to enable them to operate efficiently.

Many displaced people have mobile phones, but may not be able to connect to the cellular networks for various reasons. However, a managed WiFi service can allow them to call and message separated family members and helps reunite them quickly. Providing communications is vital to reduce suffering.

NetOS Rapide™ allows the aid agencies in charge to create high reliability, prioritised network slices for operational communications and logistics management that support the core relief effort.

Separate communications networks can be created for staff working around the camp to use push-to-talk (PTT) and WiFi connected devices that will still work locally if backhaul connectivity is lost. This network can be used to liaise with local police, military and private security contractors within the area.

Network capacity can be provided for general usage for the public to communicate and share information. NetOS Rapide™ allows this slice to be de-prioritised in an emergency so that operational systems and agency communications are not overwhelmed.

Refugee Camp example

Following escalating violence and "ethnic" cleansing, 200,000 people flee their country to seek refuge in a neighbouring country, creating a humanitarian disaster that quickly overwhelms the resources and capabilities of the host nation. Aid agencies and charities send advance parties to provide immediate assistance, and more importantly to set up organised refugee camps and aid distribution points.

The advance party will initially use satellite communications, but set up temporary fixed and wireless networks for the operations and security, and in preparation for the people displaced by the conflict.

Although the networks are rapidly deployed, the sad reality is that they will be needed for the duration of the life of the camp, which is likely to be months or even years.

NetOS Rapide™ supports the fast deployment of temporary networks, but also provides a simple system to configure, control and maintain the networks for months or even years.

The advance teams can deploy to site and set up their key operational and logistical systems within hours of arrival on site, and easily extend the networks as more resources, infrastructure and components arrive.

With NetOS Rapide™ network profiles are pre-configured and stored which means that three key network slices – Operations, Logistics & Security and General Usage, are available out-of-the-box. Additional slices can be added and implemented as needed.

NetOS Rapide™ allows automatic management and control of the network to optimise performance, and in particular to respond to the intermittent nature of their external connectivity (backhaul). NetOS® protects the highest priority traffic from being overwhelmed by the highest volume traffic.

DESIGNATED USERS (NETWORK SLICES)	PERFORMANCE CRITERIA
Operations	Highest priority – Critical voice and data communications for operational systems. International connectivity. Used to coordinate the aid effort.
Logistics & Security	High priority – Local voice and data communications in the local area. Logistics tracking, personnel communication, security and liaison with other 3rd parties.
General Usage	This slice provides best-effort external connectivity to allow VoWiFi and MMS calls, Social Media and Internet access. The high volume and nature of traffic (e.g. multiple voice and MMS calls) means it has the potential to interfere with the other users if not segregated and de-prioritised by NetOS Rapide™.

What is NetOS Rapide™?

NetOS Rapide™ is an advanced software-defined network controller (SDN-C) with a suite of tools optimised to support the deployment of temporary or "pop-up" networks.

NetOS Rapide-In-A-Box is a fully configured hardware and software solution for temporary networks. In addition to Zeetta Networks' market-leading software, NetOS®, the solution includes hardware such as WiFi Access Points and LTE small cells.

The hardware form factor can be varied according to the environment or customer preferences. NetOS Rapide™ is vendor agnostic and easily manages "mixed" vendor environments.

Network Slicing

NetOS Rapide™ enables Network Slicing, the dynamic reallocation of network resources for the creation of virtual sub-networks each with its own sets of rules, parameters and quality-of-service (QoS) definitions. The sub-networks are known as network slices, and each slice is a separate logical entity that runs over a common set of physical multi-technology networks.

Network Splicing®

NetOS Rapide™ also enables Network Splicing®, which is the ability to create a seamless logical connectivity network between different networks, network technologies and vendors. Network Splicing® is the (virtual) combination of different physical connectivity networks to create a service centric composite.

Summary
Software Defined Networking (SDN) used for Humanitarian Aid

NetOS Rapide™ provides rapid, simple configuration and control of the multiple Fixed (LAN) and Wireless (WiFi, Bluetooth, LTE and 5G) networks as a composite "spliced" network. This can then be sliced to meet the needs of the key designated user groups.

For aid agencies this means that within hours of the arrival of advance parties they can have a secure, partitioned and protected network for operational staff, logistics and security and an open, free network for displaced people to use. NetOS Rapide™ supports rapid deployment of temporary networks but also the scalability and flexibility to manage expansion of the communication networks and maintain them for months or even years on site or remotely.