



Caribbean  
Telecommunications  
Union



Connect People Everywhere

CARIBBEAN TELECOMMUNICATIONS UNION  
30th Anniversary  
29 April - 3 May 2019  
Port of Spain, Trinidad & Tobago

# TODAY'S PRESENTERS



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# BALLOON-POWERED INTERNET



# LOON, AN ALPHABET COMPANY



# CONNECTIVITY

# GREATER COVERAGE

# NAVIGATION





# THE BALLOON





# OUR FLIGHT SYSTEM



# LAUNCHING



# LANDING AND RECOVERY



# Today's configuration

- *Extends and augments coverage of **partners'** terrestrial network(s)*
- *Direct to handset*
- *Works with standard LTE handsets*
- *Transparent to user*
- *40 km radius*
- *>1 Gbps capacity*
- *Uses **partner** SIMs and core network*



# WE SAW STRONG MOMENTUM OVER THE PAST YEAR

“

Loon, however, remains one of the rare Alphabet companies now plotting a clear path toward becoming a viable, self-sustaining venture.

”

**THE VERGE**

“

the next moonshot to make waves

”

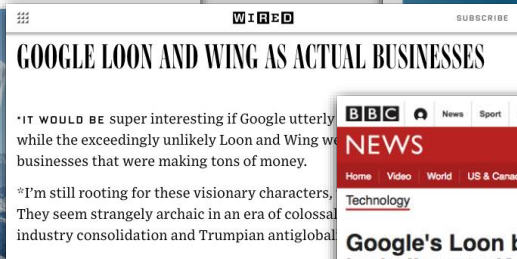
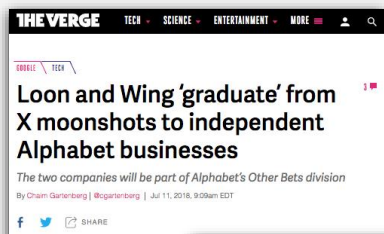
telecoms.com

“

they overcame all the things that make the idea of delivering internet access with high-flying balloons not just crazy, but nearly impossible

”

**WIRED**



# TELKOM KENYA HAS CHOSEN LOON TO PROVIDE LTE COVERAGE ACROSS UN-SERVED AND UNDER-SERVED AREAS IN KENYA



“This partnership demonstrates the **Board’s commitment to guide and oversee the transformation of Telkom into a business with a reputation for innovation**, with respect to its product and service offering. This partnership with Loon is also true testament of our resolve to deploy pioneer technologies due to their potential impact on our customers.”

--Mr. Eddy Njoroge, Board Chair, Telkom Kenya:

“This collaboration represents **another important step towards Telkom’s continued quest to provide high-quality, reliable and affordable data offerings to our customers** and we remain focused to bring innovative solutions to the Kenyan market. Our association with Loon will therefore see us endeavor to **pioneer in the use of high altitude balloons to provide LTE coverage across un-served and under-served areas in Kenya. This will greatly improve our network’s availability to our consumers in areas that were initially challenging to service.**”

--Mr. Mugo Kibati, CEO, Telkom Kenya:

# WE SUCCESSFULLY BROUGHT NETWORK CONNECTION OVER 1000 KM



# CARIBBEAN OPERATIONS

Deploying the Loon Network involves many components from balloon launch and flight to internet backhaul and Partner connectivity. The infrastructure for these pieces is common to each of the services Loon hopes to provide in the region



## Commercial Customers

Loon hopes to provide service to enterprise customers active on multiple Caribbean Islands

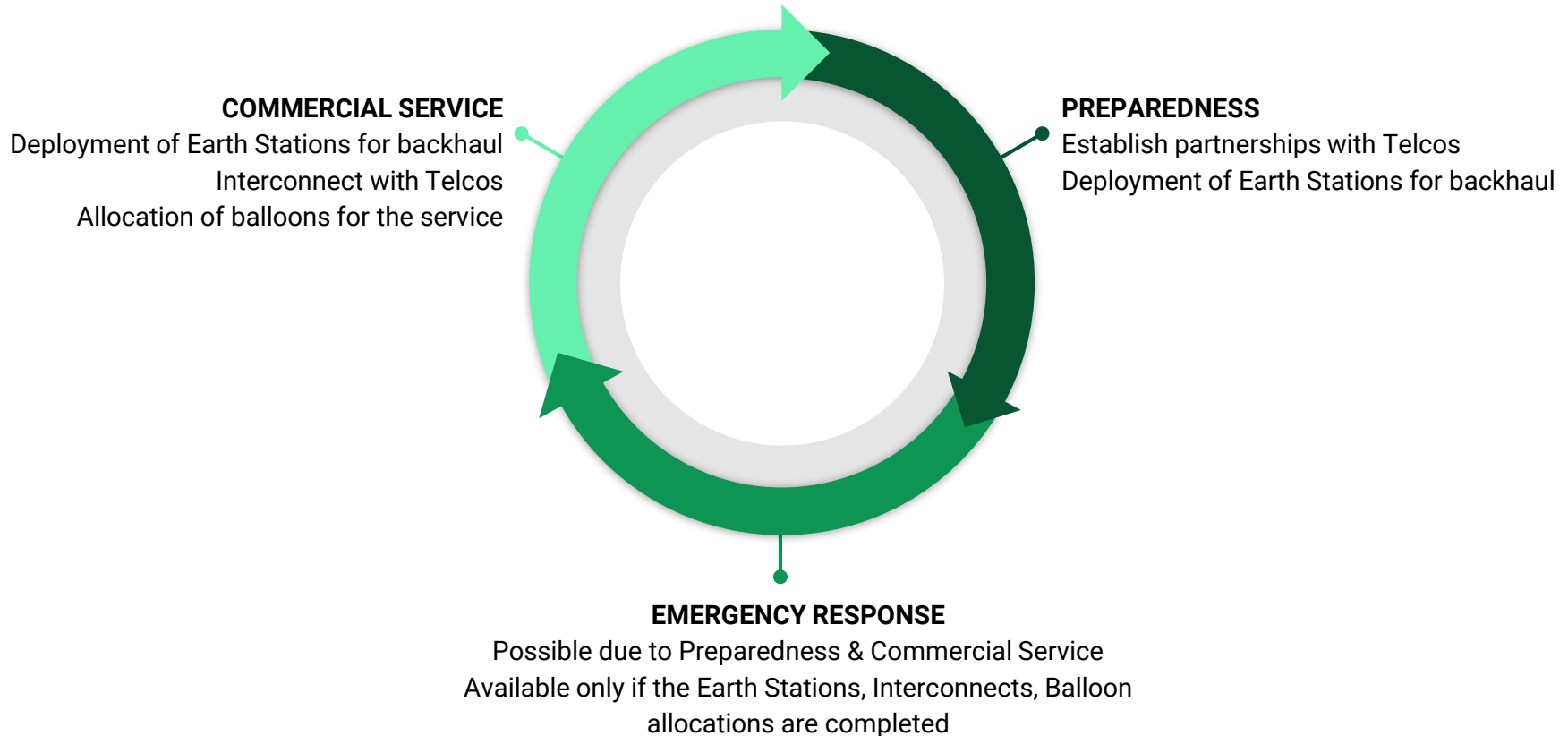
## Preparedness

To enable Loon to provide service in emergency situations, the same systems need to be deployed as with commercial customers

## Emergency Response

The Caribbean region is prone to hurricanes every year. Setting up the commercial and preparedness services will allow Loon to respond to emergencies in the area

# The Caribbean's Virtuous Cycle







Natural Disasters can cause massive damage to telecommunications infrastructure.

Recovery takes weeks while users need immediate service.



# Rapid Availability During Terrestrial Outages

## Weather Resilient

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Balloons flying above weather at 20km.  
Ground equipment can be stored, moved, mounted.

## Power Resilient

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Each balloon is solar powered (not reliant on power grid).

## Rapid deployment

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Balloons launched from Puerto Rico and Winnemucca, Nevada and delivered to serviced regions.  
No local staff involved for activation or deployment.  
No shipment of equipment.  
No logistics.

## Standard Devices

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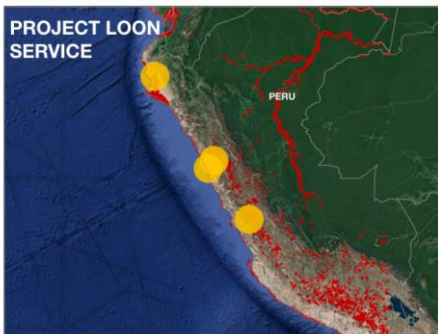


System created to support standard LTE handsets.  
Since no terminals need to be distributed, end users can quickly, and transparently, connect

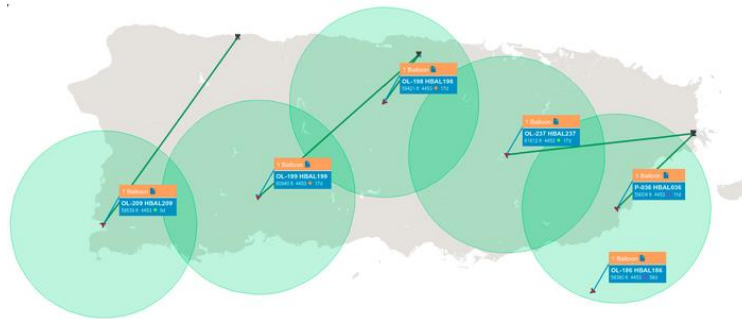
# Emergency Deployments: A History of Helping

With minimal advance preparation, Loon can provide supplemental network coverage after a natural disaster. Each balloon covers over 5,000km<sup>2</sup>, from islands to mountains, and can connect thousands of users direct to 4G smartphone.

*Telefonica*



100,000+ LOON USERS IN PERU



200,000+ LOON USERS IN PUERTO RICO

*Confidential*

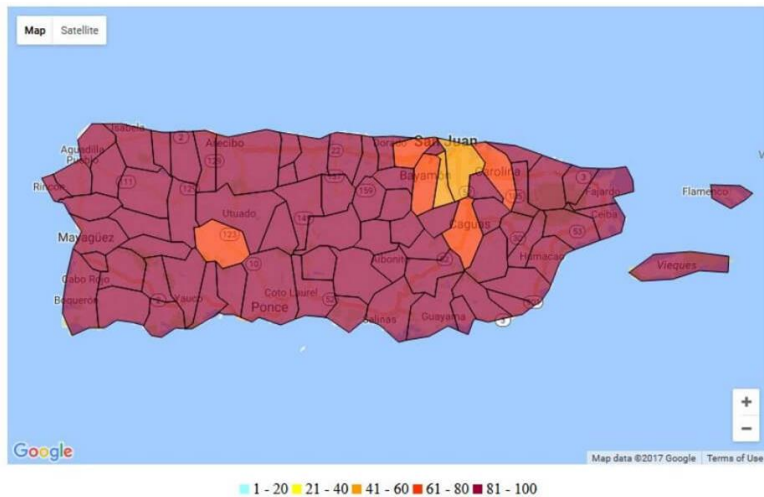


A satellite map showing the Pacific Ocean on the left and the western coast of North America on the right. The ocean is dark blue with visible bathymetric features like the Mid-Pacific Ridge. The land is green with yellow outlines of country borders. A semi-transparent grey box is in the bottom left.

Loon passed 600 GB of data,  
200K users



# Connectivity: Post-Hurricane



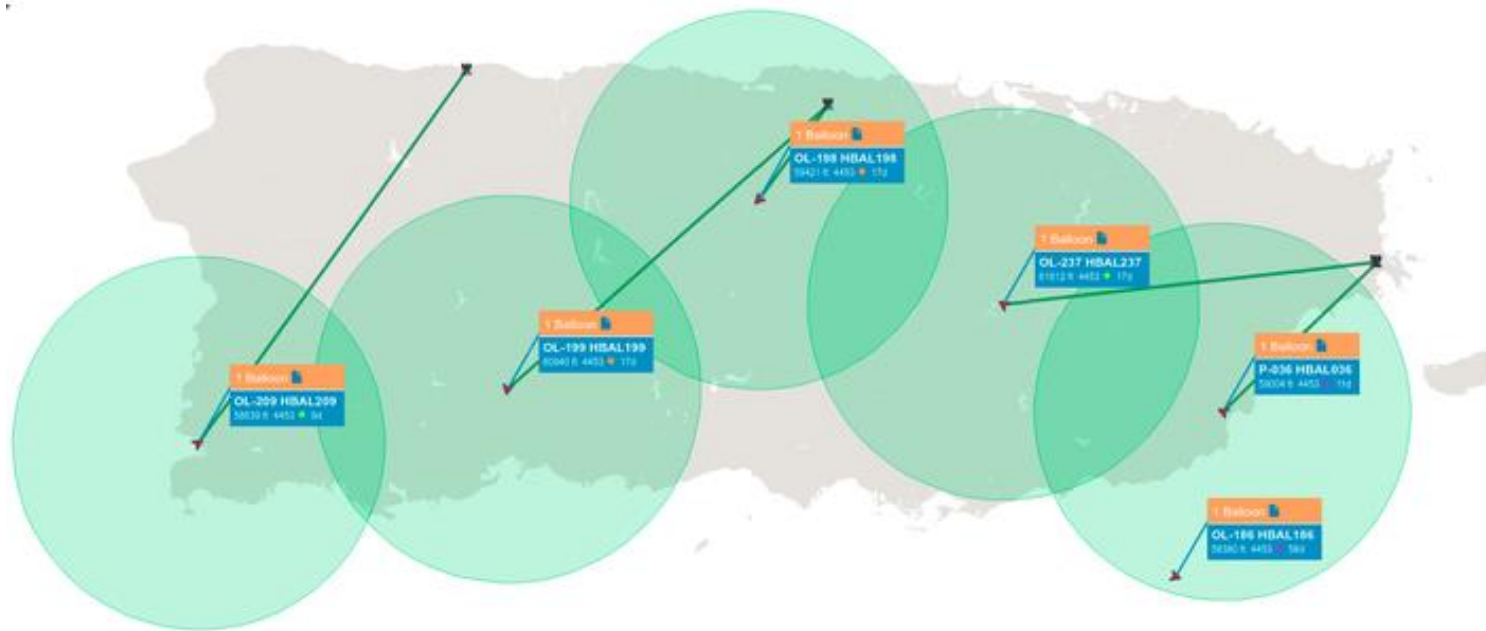
*Red = connectivity knocked out  
as of Friday October 6*

*\*FCC, Hurricane Maria Communications Status Report, % cell sites down by county*



*Humacao, Puerto Rico*

# Expedient, Broad Coverage

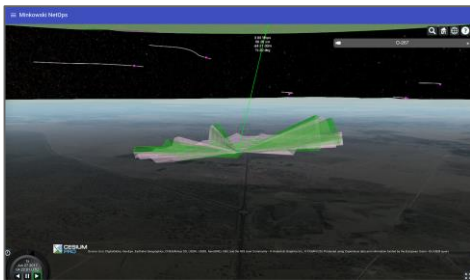


## 250,000+ LOON USERS IN PUERTO RICO

# Time to Prepare Instead of React

## “Cloud”

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Network Interoperability,  
Architecture, & Routing

## Ground

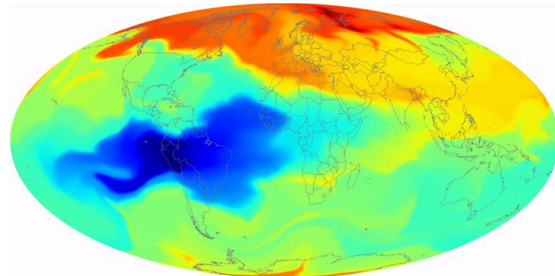
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Spectrum &  
Ground Infrastructure

## Sky

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Fleet Planning  
& Testing



# SUSTAINABLE DEVELOPMENT GOALS



TO RECONNECT AS MANY PEOPLE AS POSSIBLE, AS QUICKLY AS WE CAN







THANK YOU

