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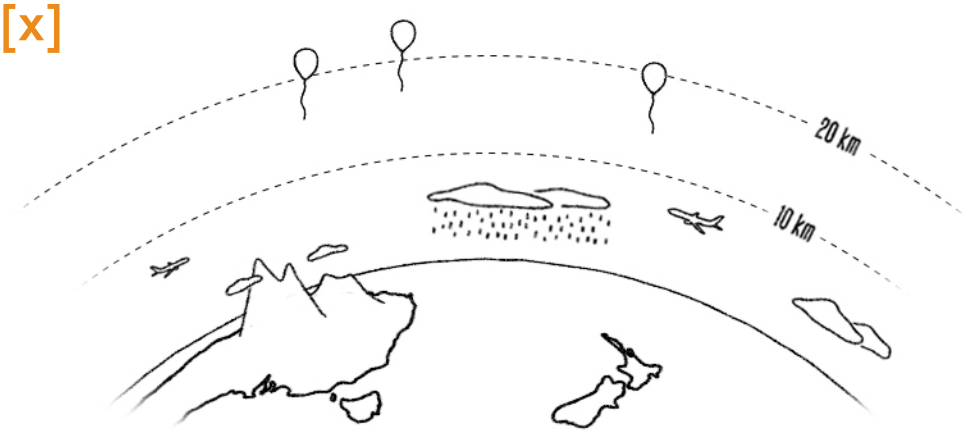


What is Project Loon?

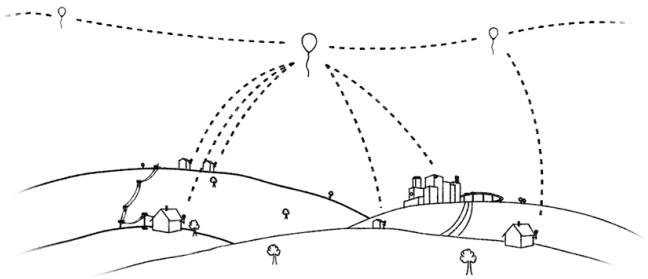
Project Loon is an experimental technology for balloon-powered Internet access. Balloons, carried by the wind at altitudes twice as high as commercial planes, can beam Internet access to the ground at speeds similar to today's 3G networks or faster.

It is very early days, but we think a ring of balloons, flying around the globe on the stratospheric winds, might be a way to provide affordable Internet access to rural, remote, and underserved areas down on earth below, or help after disasters, when existing communication infrastructure is affected.

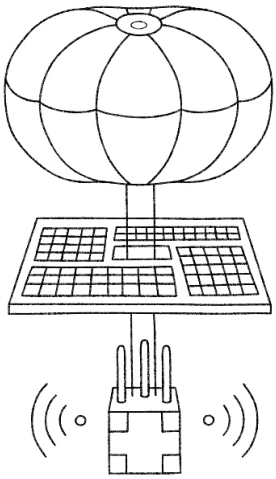
How it works:

Ground stations connect to the local Internet infrastructure and beam signals to the balloons. The balloons are able to then communicate with each other, forming a mesh network in the sky.

Pilot testers connect to the balloon network using a special Internet antenna attached to their house which can send and receive signals from balloons passing overhead.



What it is:



The balloon envelope
Keeps the balloon aloft in the stratosphere

Solar Panels
Provide the power for the systems on the balloon

Electronic equipment
Includes radios, antennas, a flight computer (the brains of the balloon) and an altitude control system (moves the balloon up & down in the stratosphere and helps bring it down safely)

Google[x]

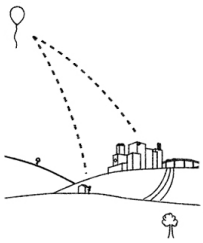
Project Loon is the latest project from Google[x], where we work on radical, sci-fi-sounding technology solutions to solve really big world problems -- such as providing affordable Internet access to the 2 out of 3 people on the planet who currently don't have it. Getting this solved isn't simply a question of time: it requires looking at the problem of access from new angles. We think balloons could be an interesting solution. No one company or technology is going to solve this problem, so we're going to need lots of partners, each of whom knows the situation on the ground in their own country far better than we ever could.

About the New Zealand Pilot

- Our pilot test began this week. We launched a few dozen balloons from the Tekapo area of New Zealand's South Island.
- A group of about 50 pilot testers in Christchurch and parts of Canterbury now have special
- Internet antennas that can connect to the balloon-powered Internet when the balloons are within 20km of their house.
- Entrepreneur Charles Nimmo of Leeston is the first person in the world to connect to balloon-powered Internet
- The launch team coordinates closely with the Civil Aviation Authority whenever there are balloons about to launch or in the air. Once they're in the stratosphere, the balloons will be twice as high as commercial airliners and barely visible to the naked eye.
- The experience of our pilot testers will be used to refine the technology and shape the next phase of Project Loon.

Fun Facts about Ballooning

- Balloons have been used for communications since their invention — as far back as 220 AD Chinese generals used paper lantern balloons for military signaling.
- In 1783, the first balloon pilots were a caged duck, a sheep, and a rooster, who were sent up in the air in a paper and fabric balloon.
- On September 29, 1968, a superpressure balloon launched from Christchurch, NZ as part of the GHOST weather study program set a record by flying for over a year, 441 days, in the stratosphere. A subsequent GHOST balloon set the current duration record that still stands today — 744 days.



Fun Facts about Project Loon

- Project Loon balloons are made of a very thin plastic, about 3 mil thick. We use superpressure envelopes. This means the volume of the balloon remains constant when inflated, like a mylar party balloon. This lets it float much longer than a balloon that stretches as it inflates.
- The balloons are 15m in diameter when fully inflated (the length of a small, light aircraft) but they do not inflate until they've reached float altitude in the stratosphere.
- One of the most important balloon science breakthroughs of the project involves a technique for changing the altitude of the balloon, which allows us to control where it will fly and to adjust its speed.
- The other critical computer science breakthrough we made was around our Mission Control, which makes balloons manageable in groups so they can provide consistent connectivity to a given area.
- We currently use wind data from the National Oceanic and Atmospheric Administration (NOAA) to predict potential flight pathways for our balloons .
- A team of at least six people is required to launch a Loon balloon, including a launch commander and a coordination team at Mission Control.