Vision and Architecture
Our goal is to enable customers to specify arbitrary virtual topology graphs and get them implemented in a turn-key manner. To this end we devised an architecture [1] based on a hierarchy of roles modelling economic players likely to be involved in the process on various levels:

**SP**
Service provider: Specifies the requirements of a service it provides.

**VNO**
Virtual Network Operator: Refines the SP’s specification into a topology graph.

**VNP**
Virtual Network Provider: Splits the VNO’s topology into partial graphs and allocates them to one or more PIPs.

**PIP**
Physical Infrastructure Provider: Implements VNP’s partial graphs on its infrastructure.

CloudNet Embedding
We envision a 2 stage embedding process [2] for CloudNets:
- First, the new CloudNet is mapped using a fast heuristic.
- In the second stage allocations for long-lived and large CloudNets are optimized using a mixed integer program.

Migration: with the Sun or Moon?
Our architecture allows us to migrate latency-critical services closer to the users (move with demand /"with the sun") [3]. Non-critical CloudNets can be migrated to locations where resources are abundant and energy is cheap (move against demand /"with the moon").

Collaborating and Contributing
Prototype Source
Our prototype’s source code (so far the PIP and VNP roles are implemented) is available from our prototype page:

https://projects.net.t-labs.tu-berlin.de/projects/cloudnets-framework

If you are interested in participating or collaborating please contact us!

Google Summer of Code
We are participating in Google’s Summer of Code programme as a Mentor organization. Please approach us if you would like to take on one of the projects from our ideas page or have a proposal of your own!

References: