

# AIRBUS Freighter Aircraft Project



A Fishing for experience in collaboration with AIRBUS

## Introduction

The **world wide logistic system** is based upon the utilization of **standard ISO 8ft containers**. Today the world wide intermodal transport system is based around the transportation of ISO 8ft containers. This intermodal system includes ship, rail and road transport with little interaction with the air transport logistics system. Currently it is very difficult to **effortlessly transfer containers between aircrafts and standard logistical transportations**. The aim of this project is to solve this ongoing problem.

## Market Analysis

- Transport of high value and perishable goods
  - Advantage of **speed, reliability, accessibility and safety**
  - Pharmaceuticals, electronics, documents
- In today's market
  - Emergency response to natural disasters in providing urgent humanitarian aid
  - **Earthquake in Turkey, Floods in Brazil...**
  - Cargo consists of MRE's, water supply, shelter materials...



## Project Requirements

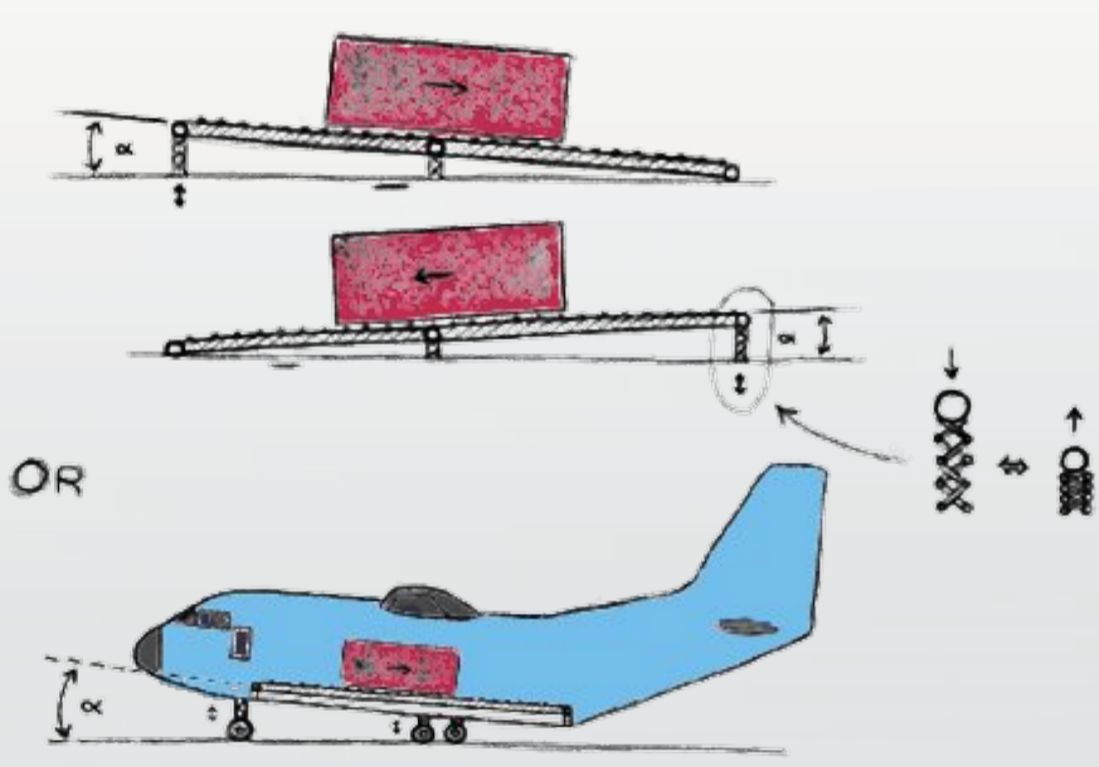
- Design **Freighter of the Future** (10-20 Years from now)
- Be able to carry **4 standard sized ISO container units**
- Efficient in short Distances - around 400 nautical mile
- An innovative futuristic solution

## Design Process

- Split the tasks into backlog packages
- Packages were split into:
  - Technical Research
  - Market Research
  - Concept Design
  - Review
- Last two steps are repeated until result is achieved
- Each review is done with Airbus Engineers

## Main Concept

### Lower Loading System



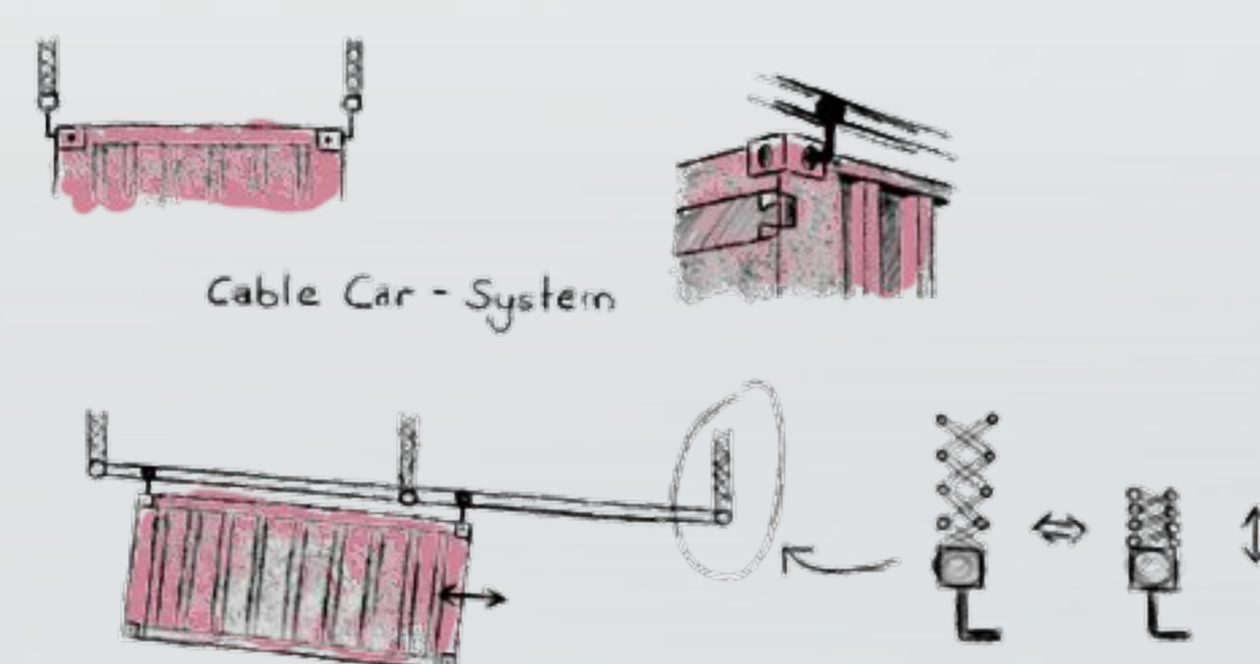
- OPTION 1: HYDRAULIC PISTONS**
- Might result in heavier airplane
  - During flight it can help stabilize the Cargo

- OPTION 2: HEIGHT ADJUSTABLE WHEELS**
- More efficient weight-wise
  - No added functionality of stabilization



### Upper Loading System

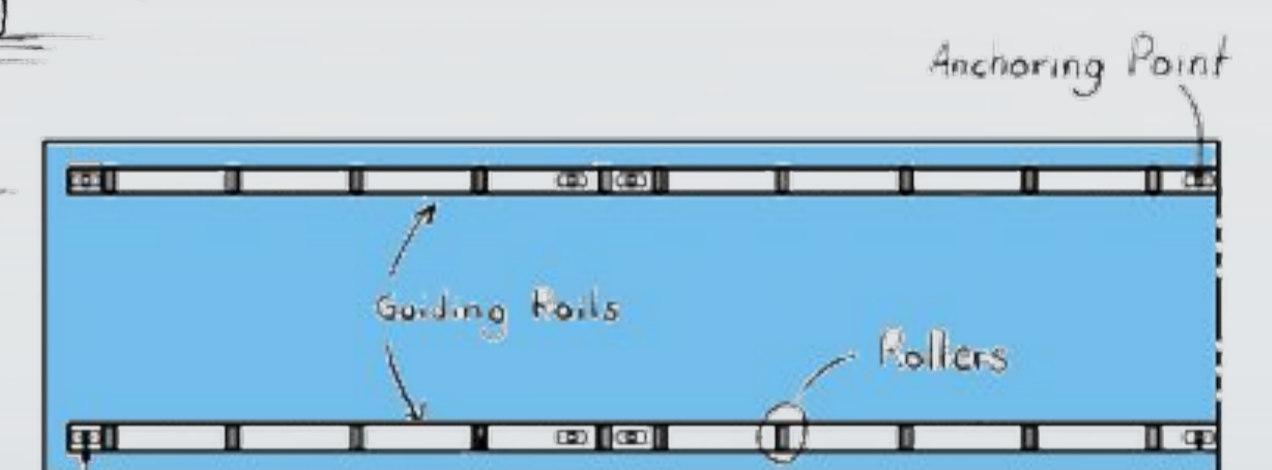
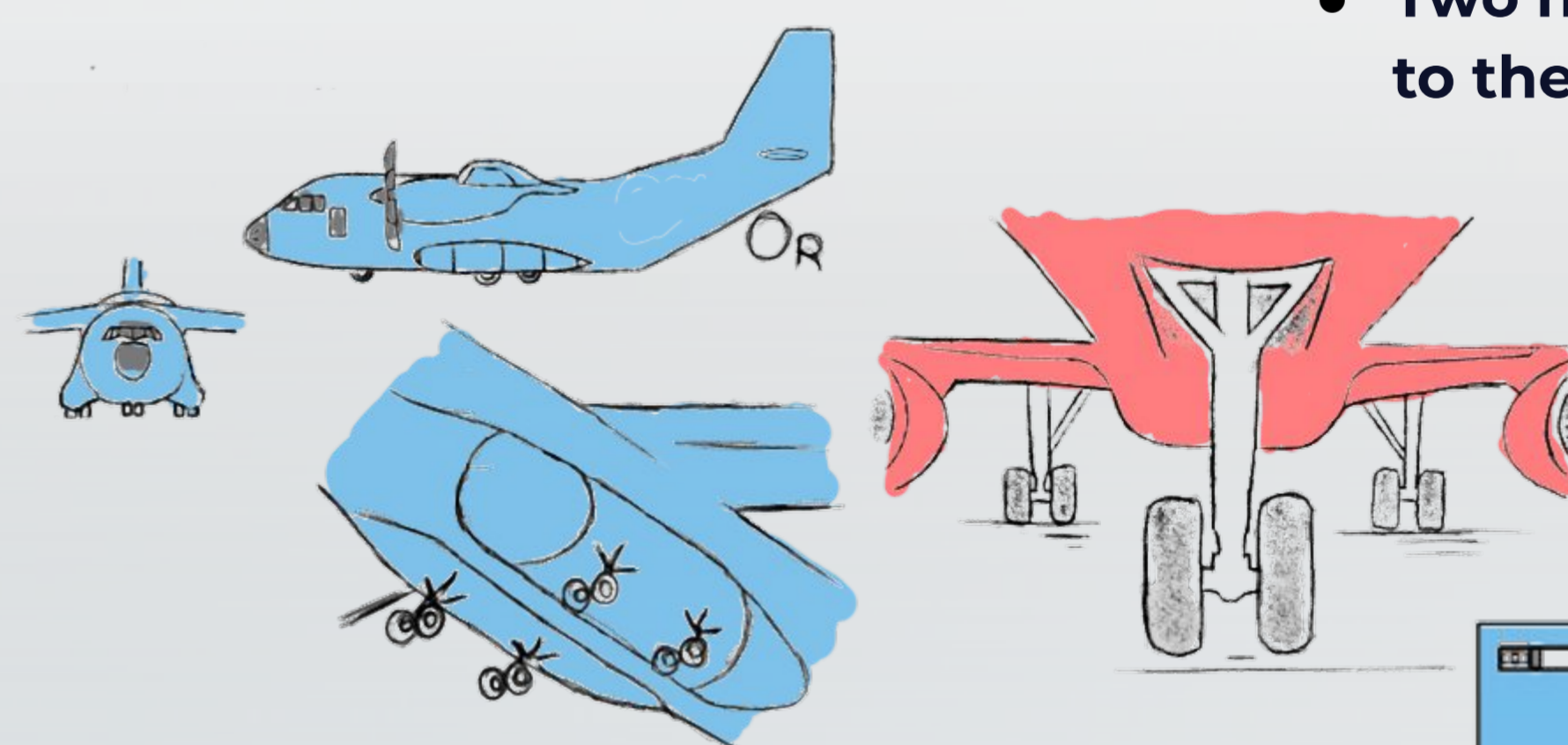
- Cable-Car System at the top for stabilization and holding the cargo in place
- Loading assistance with integrated damping system



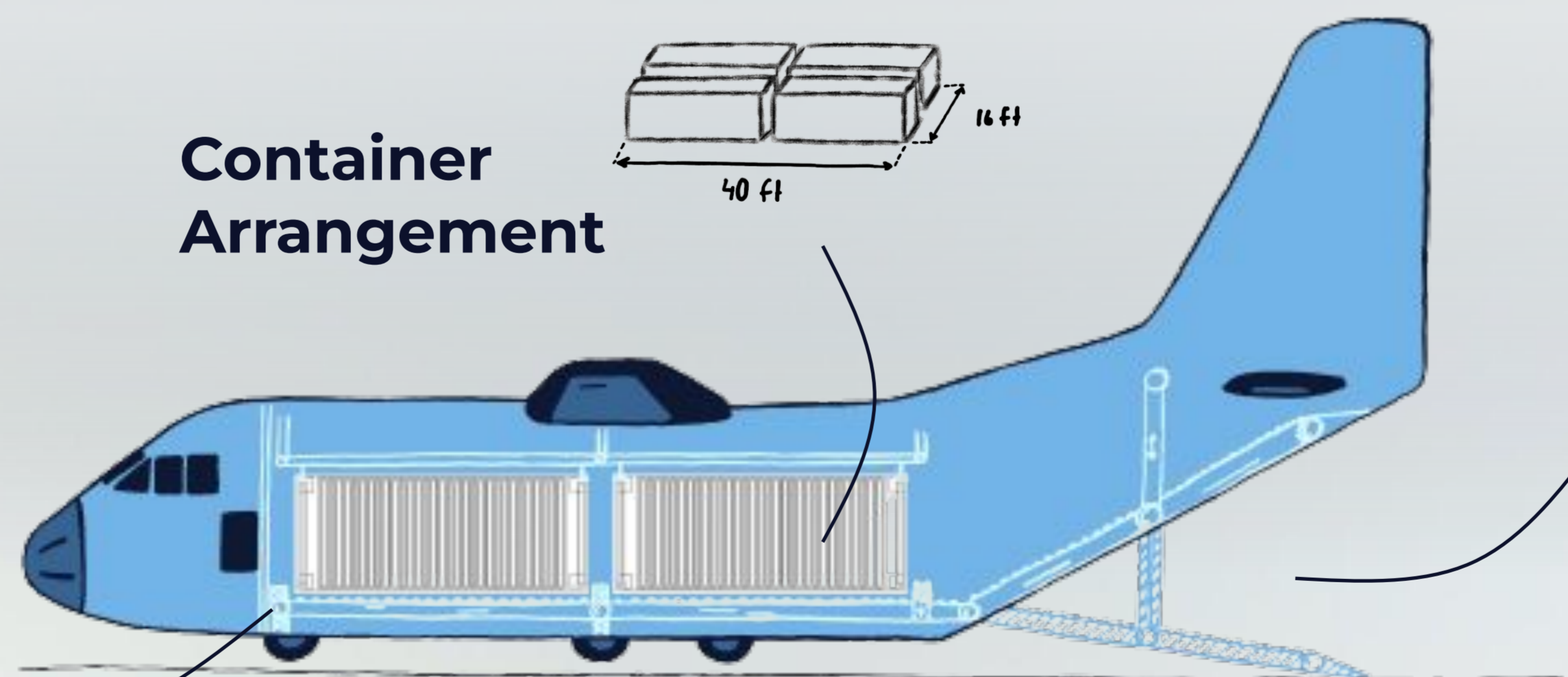
### Exterior Wheels

- OPTION 1: PISTON LOADING SYSTEM**
- Low wheels for easy loading

- OPTION 2: WHEEL-ADJUST LOADING SYSTEM**
- Adjustable height of the front wheel
  - Two non-adjustable wheels attached to the wings



### Container Arrangement

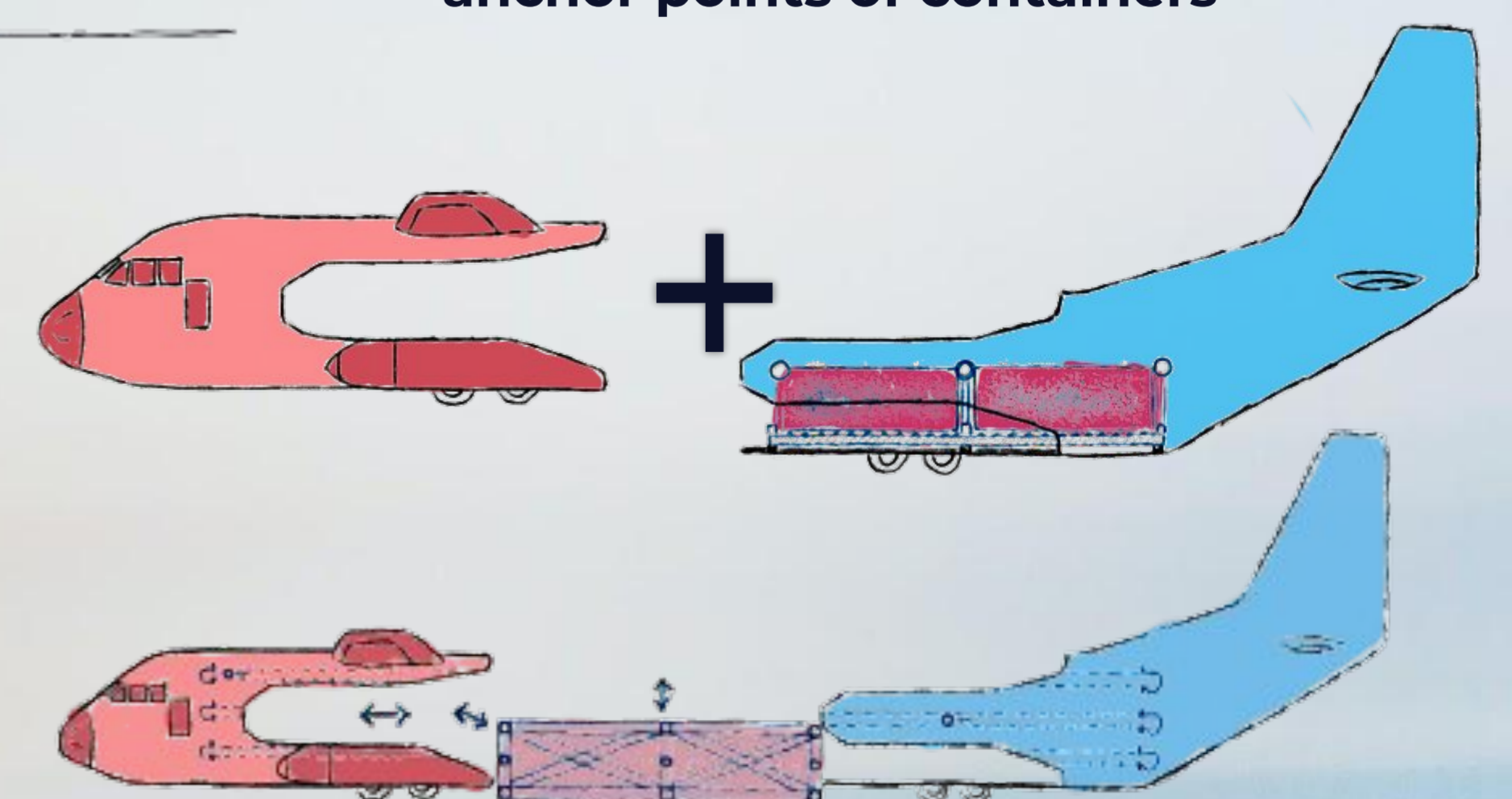
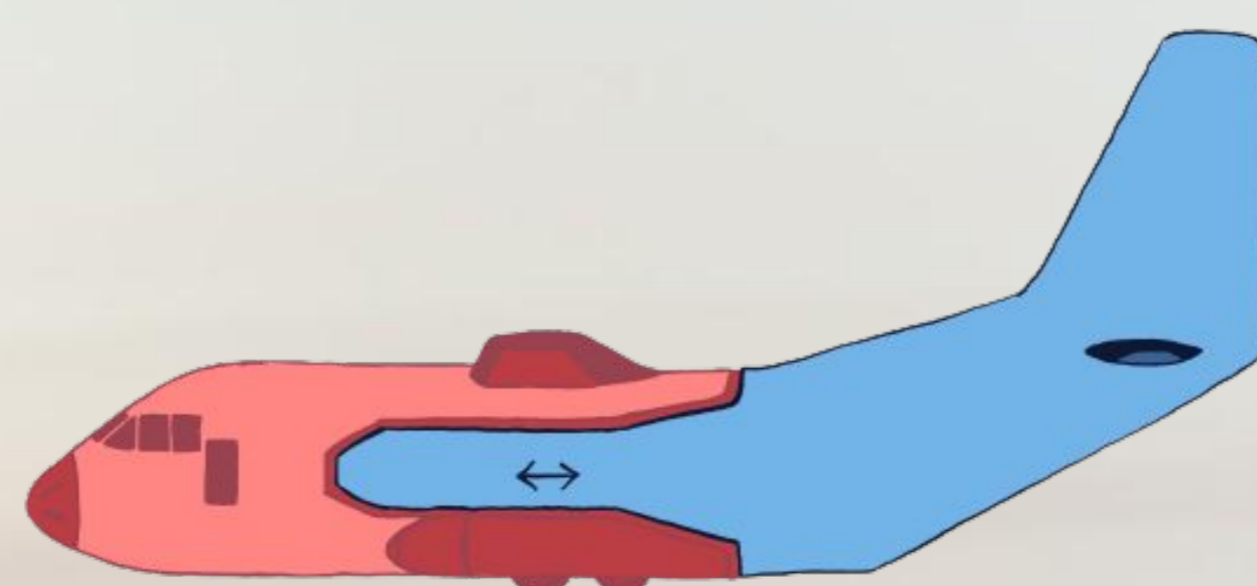


### Loading Process

- Load the TEU one by one through the tail of plane
- Rollers would move the containers to the proper position
- Once the TEU are in position the anchoring points would latch onto the anchor points of containers

## Experimental concept

- Still same CLS system and Fuselage
- Make the Cargo part, and Pilot part modular
- Purpose
  - Faster loading and unloading
  - Easier maintenance
  - More Flexible



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