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# VITO's Remote Sensing Image Treatment Centre

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# VITO themes



Energy



Materials



Chemistry



Health



Land use

**Electricity storage**  
**Smart energy city and district planning**  
**Thermal energy systems**

# VITO themes



Energy



Materials



Chemistry



Health



Land use

**Surface treatment with plasma technology**  
**Shaping of ceramic and metallic products**  
**Closing material cycles**



# VITO themes



Energy



Materials



Chemistry



Health



Land use

**Value from water**  
**Membranes and Electrodes**  
**Separation processes**

# VITO themes



Energy



Materials



Chemistry



Health



Land use

**Monitoring of human exposure**  
**Sensor networks**  
**Biomarker discovery**

# VITO themes



Energy



Materials



Chemistry



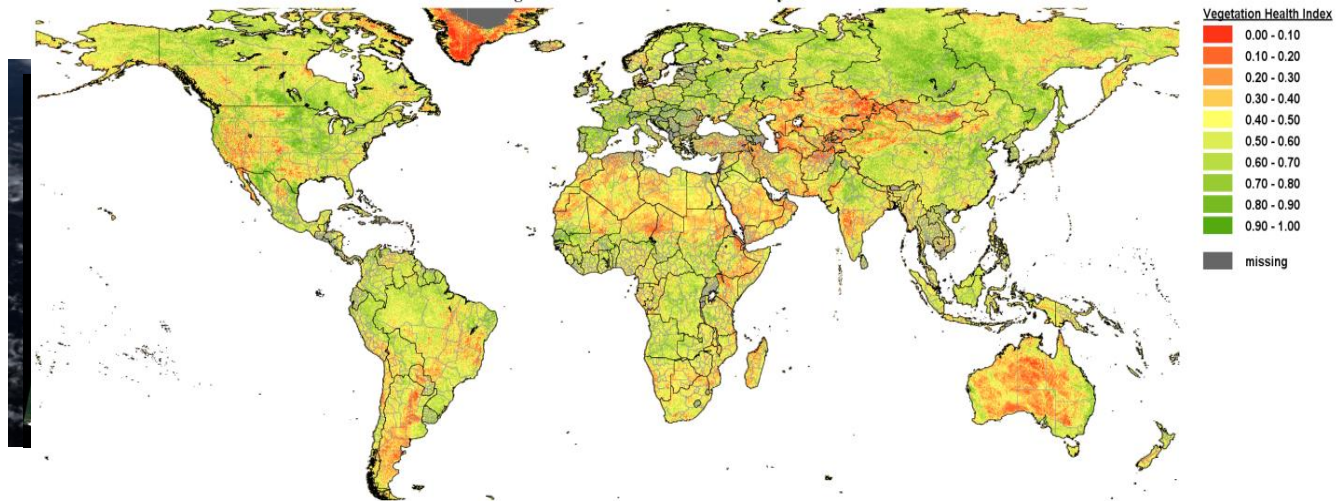
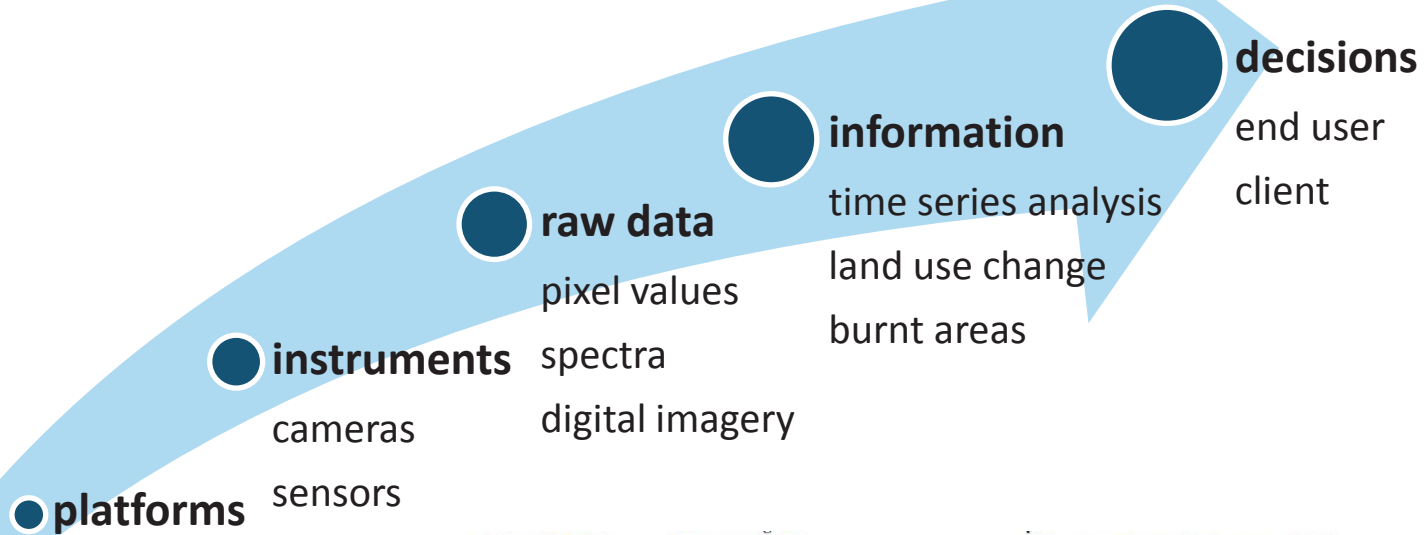
Health



Land use

**Atmospheric modelling at microscale level**  
**Earth observation mission design**  
**Spatial data services**

# VITO Remote Sensing: a total solution provider





# Extract project portfolio

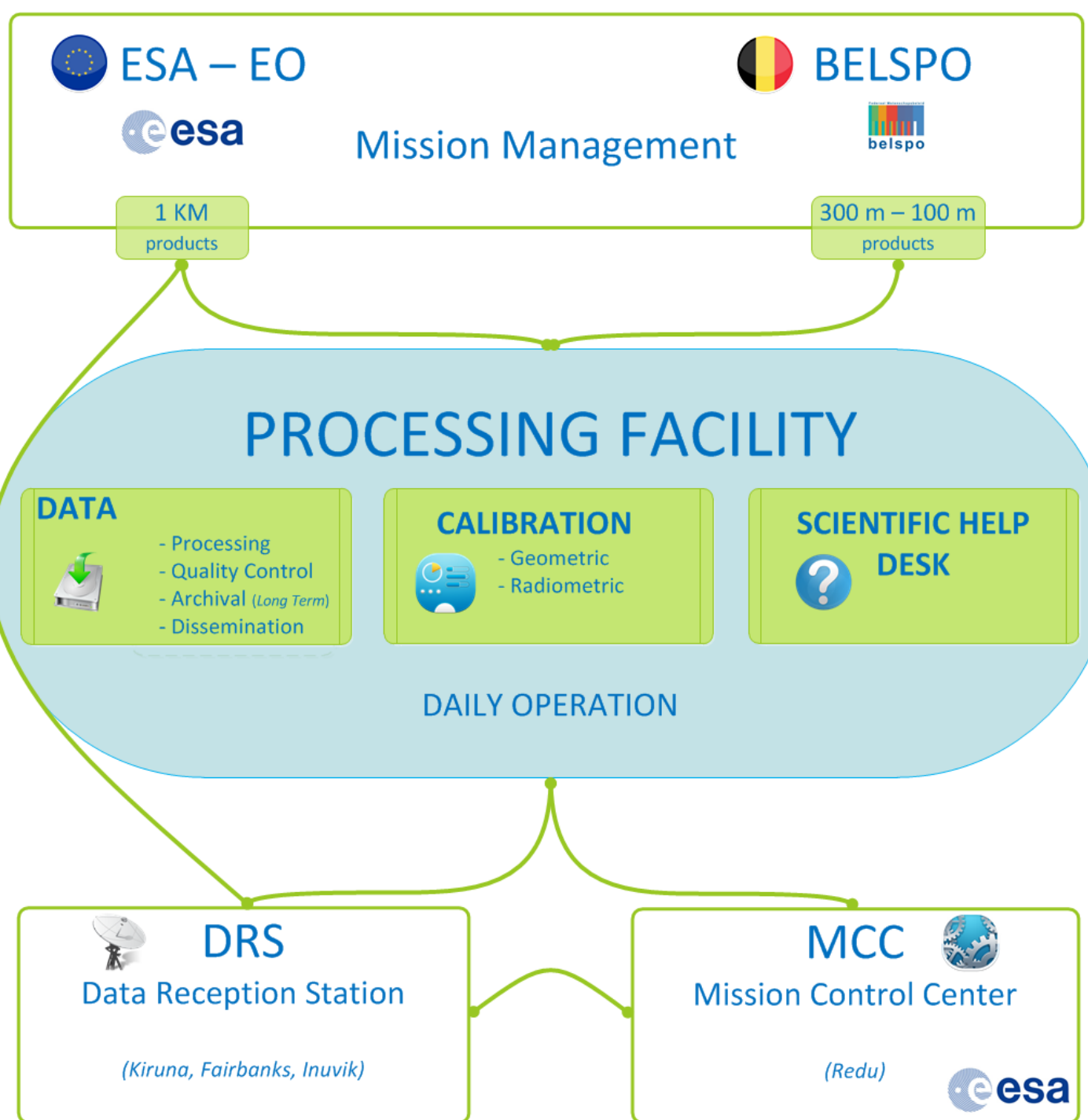
The screenshot displays a GIS application interface with the following components:

- True color**: A label for the top-left aerial photograph.
- Data Layers**: A list of layers on the left, including:
  - Base Layer
  - AGV WMS CIR
  - AGV WMS RGB
  - AGV GRB
  - LIDAR DHMV-I 2000-2004
  - Mobile Mapping MOW 2008 - 2010
  - Agiv-MobileMapping
  - Test Project Geraardsbergen 2012
    - Agiv-LIDAR\_DHMV\_I\_ProefprojectGeraardsbergen\_2012\_RGBMosaics\_tiles
    - Agiv-LIDAR\_DHMV\_I\_ProefprojectGeraardsbergen\_2012\_DSM\_5m\_tiles
    - Agiv-LIDAR\_DHMV\_I\_ProefprojectGeraardsbergen\_2012\_DSM\_1m\_tiles
    - Agiv-LIDAR\_DHMV\_I\_ProefprojectGeraardsbergen\_2012\_DTM\_5m\_tiles
    - Agiv-LIDAR\_DHMV\_I\_ProefprojectGeraardsbergen\_2012\_DTM\_1m\_tiles
    - Agiv-LIDAR\_DHMV\_I\_ProefprojectGeraardsbergen\_2012
  - Test Project Geraardsbergen 2012 Baselayers
    - Agiv-ProefprojectGeraardsbergen\_2012\_RGB
    - Agiv-LIDAR\_DHMV\_I\_ProefprojectGeraardsbergen\_2012\_DSM\_5m
    - Agiv-LIDAR\_DHMV\_I\_ProefprojectGeraardsbergen\_2012\_DSM\_1m
    - Agiv-LIDAR\_DHMV\_I\_ProefprojectGeraardsbergen\_2012\_DTM\_5m
    - Agiv-LIDAR\_DHMV\_I\_ProefprojectGeraardsbergen\_2012\_DTM\_1m
  - Test Project Waterways 2012

- PanoView BVK - version 0.9.0**: Three windows showing panoramic views:
- Top center: A street view of a building complex with a URL: [https://remotesensing.agiv.be/data/MM\\_WegenVL\\_1/2/Geraardsbergen/11736000/11736064\\_330\\_4800\\_2400\\_0.jpg](https://remotesensing.agiv.be/data/MM_WegenVL_1/2/Geraardsbergen/11736000/11736064_330_4800_2400_0.jpg)
- Bottom left: A 3D perspective view of a residential area with a URL: [https://remotesensing.agiv.be/data/LIDAR\\_DHMV\\_2\\_ProefProjectGB2012/20120430\\_ES\\_VS\\_004/Tiles/20120430\\_ES\\_VS\\_004\\_116000\\_162500.laz](https://remotesensing.agiv.be/data/LIDAR_DHMV_2_ProefProjectGB2012/20120430_ES_VS_004/Tiles/20120430_ES_VS_004_116000_162500.laz)
- Bottom right: Another 3D perspective view of a residential area with a URL: [https://remotesensing.agiv.be/data/LIDAR\\_DHMV\\_2\\_ProefProjectGB2012/20120430\\_ES\\_VS\\_004/Tiles/20120430\\_ES\\_VS\\_004\\_113500\\_162500.laz](https://remotesensing.agiv.be/data/LIDAR_DHMV_2_ProefProjectGB2012/20120430_ES_VS_004/Tiles/20120430_ES_VS_004_113500_162500.laz)
- Map Overview**: A map in the top right showing a grid of colored rectangles (red, yellow, green) over a geographical area, with labels for locations like Parike, Deftinge, Nedertboelare, Onkerzele, Geertruid, and Akrenbos.
- Thumbnail Strip**: A horizontal strip of small images at the bottom left, including a true-color aerial view, a false-color aerial view, and a false-color map.

# PROBA-V

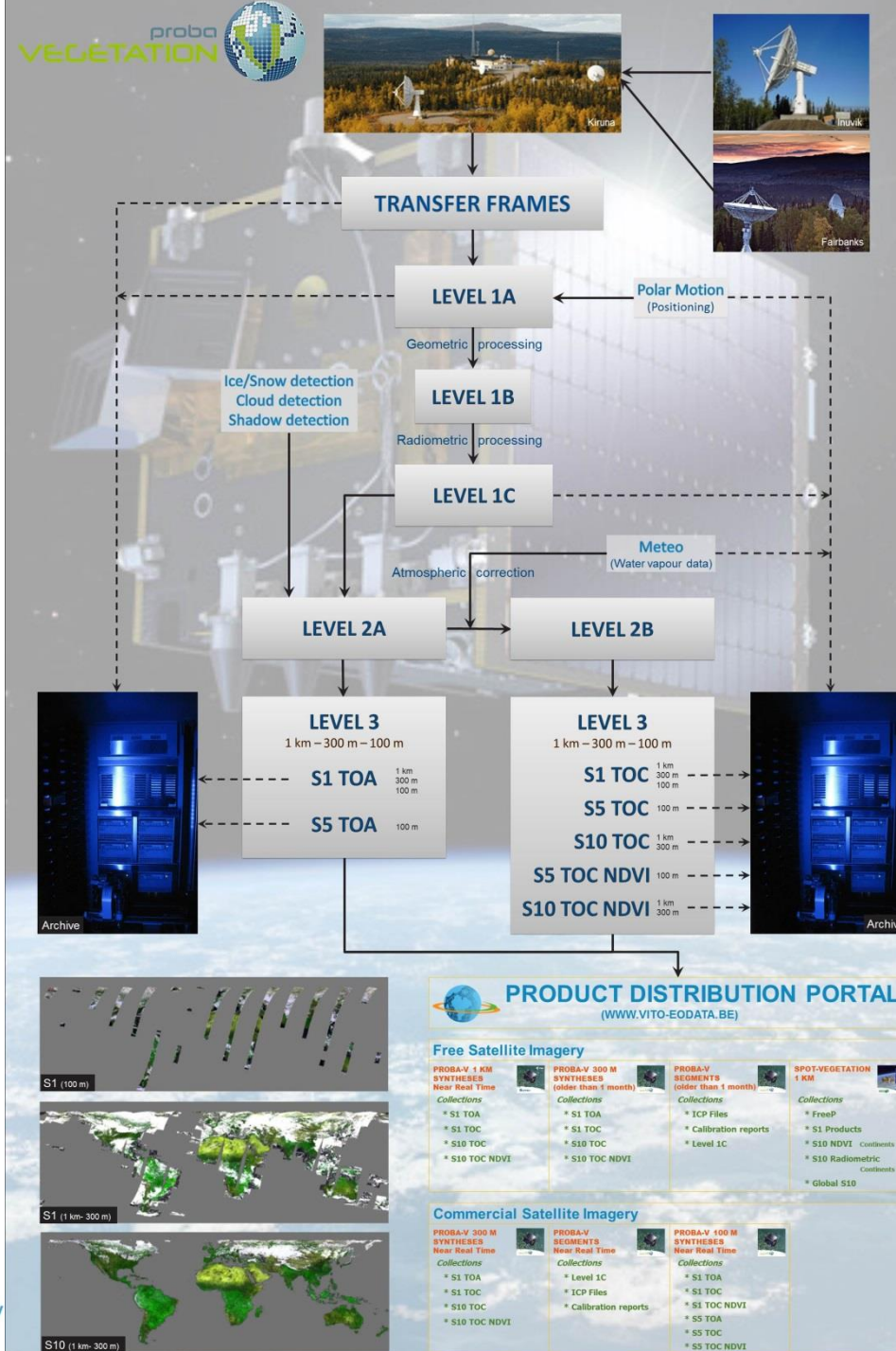
» Mission  
overview  
User Segment





# PROBA-V

## » Processing chain















# Web catalogue

## PROBA-V 1 KM SYNTHESES NEAR REAL-TIME



### Collections

- S1 TOA - 1 km   
- S1 TOC - 1 km   
- S10 TOC - 1 km   
- S10 TOC NDVI - 1 km   

## PROBA-V SEGMENTS















### Collections

- Level 1C   
- ICP files   
- Calibration reports   

## PROBA-V 300 M SYNTHESES (OLDER THAN 1 MONTH)



### Collections

- S1 TOA - 300 m   
- S1 TOC - 300 m   
- S10 TOC - 300 m   
- S10 TOC NDVI - 300 m   

## PROBA-V 100 M SYNTHESES (OLDER THAN 1 MONTH)



### Collections

- S1 TOA 100 m   
- S1 TOC 100 m   

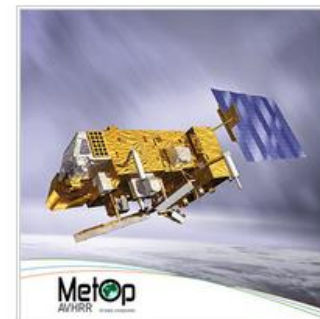
## SPOT-VEGETATION



### Collections

- FreeP (level2)   
- S1 products   

## METOP-AVHRR S10 SYNTHESES

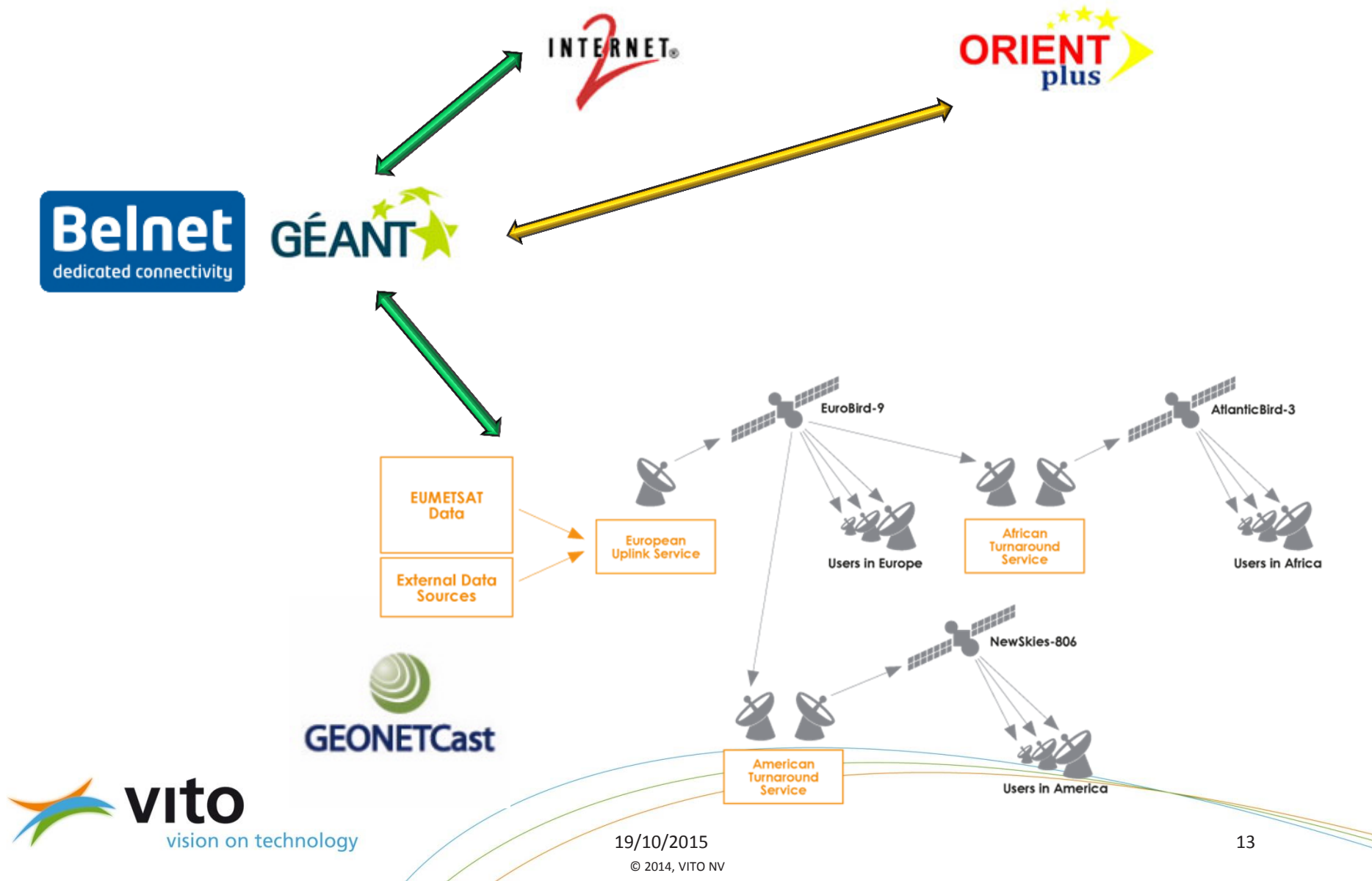


### Collections

- ENDVI10 products   



# Data distribution



# Processing-On-Demand

» Data amount since 1998 ↗↗ : ~1.7PB



→ Algo development



→ cluster processing



# How we started in the late '90...



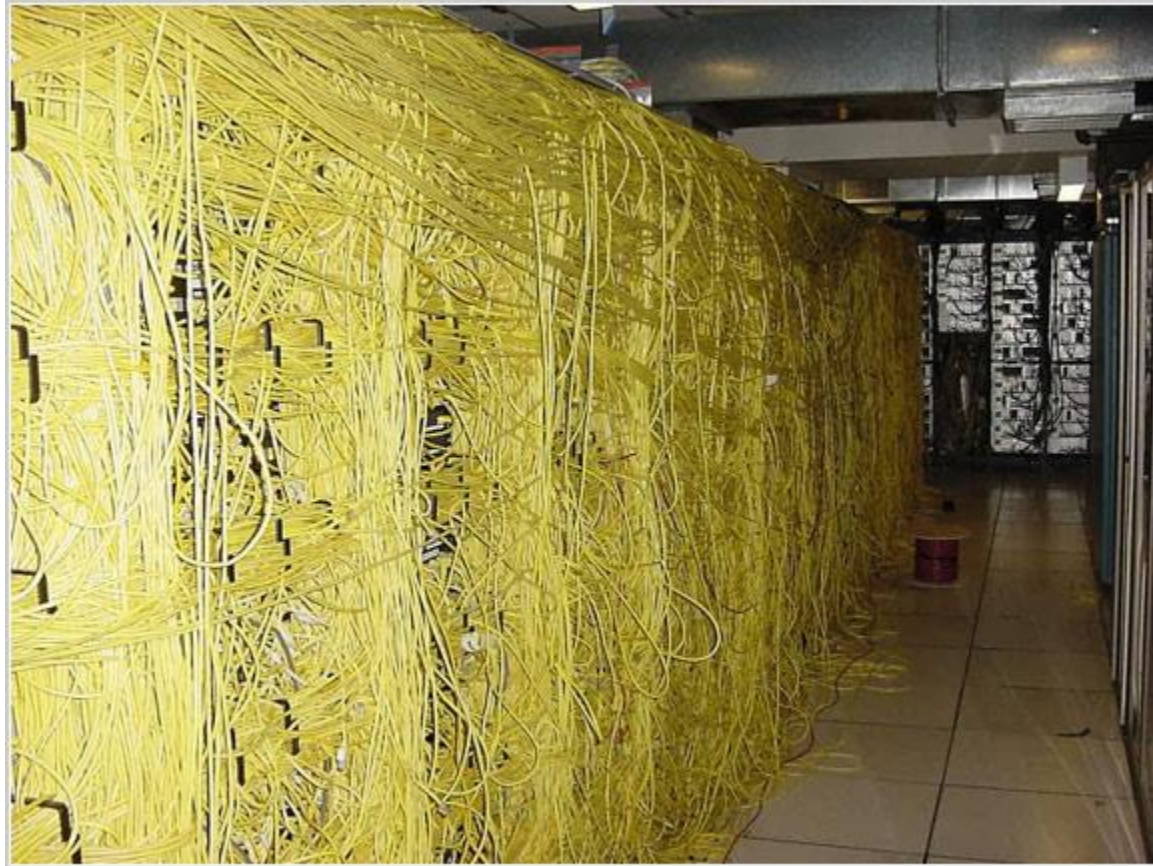


# and evolved...





**but didn't want to reach...**

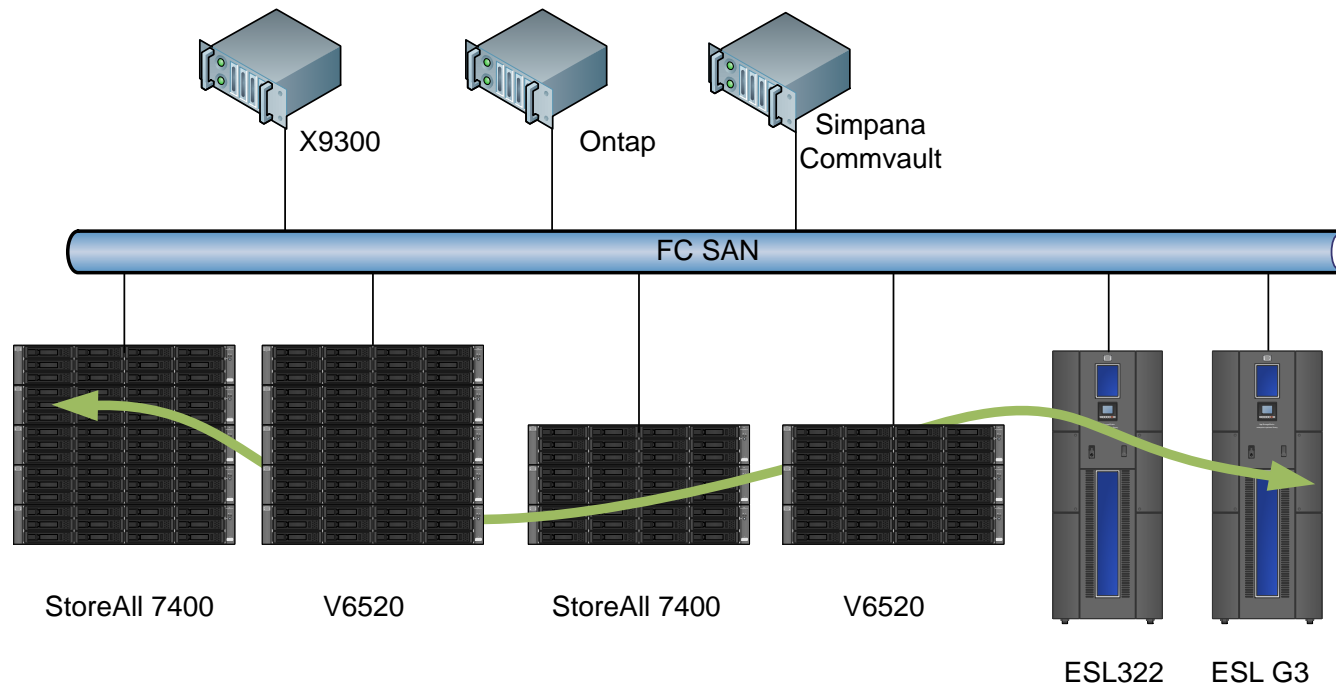


# ... till where we are now



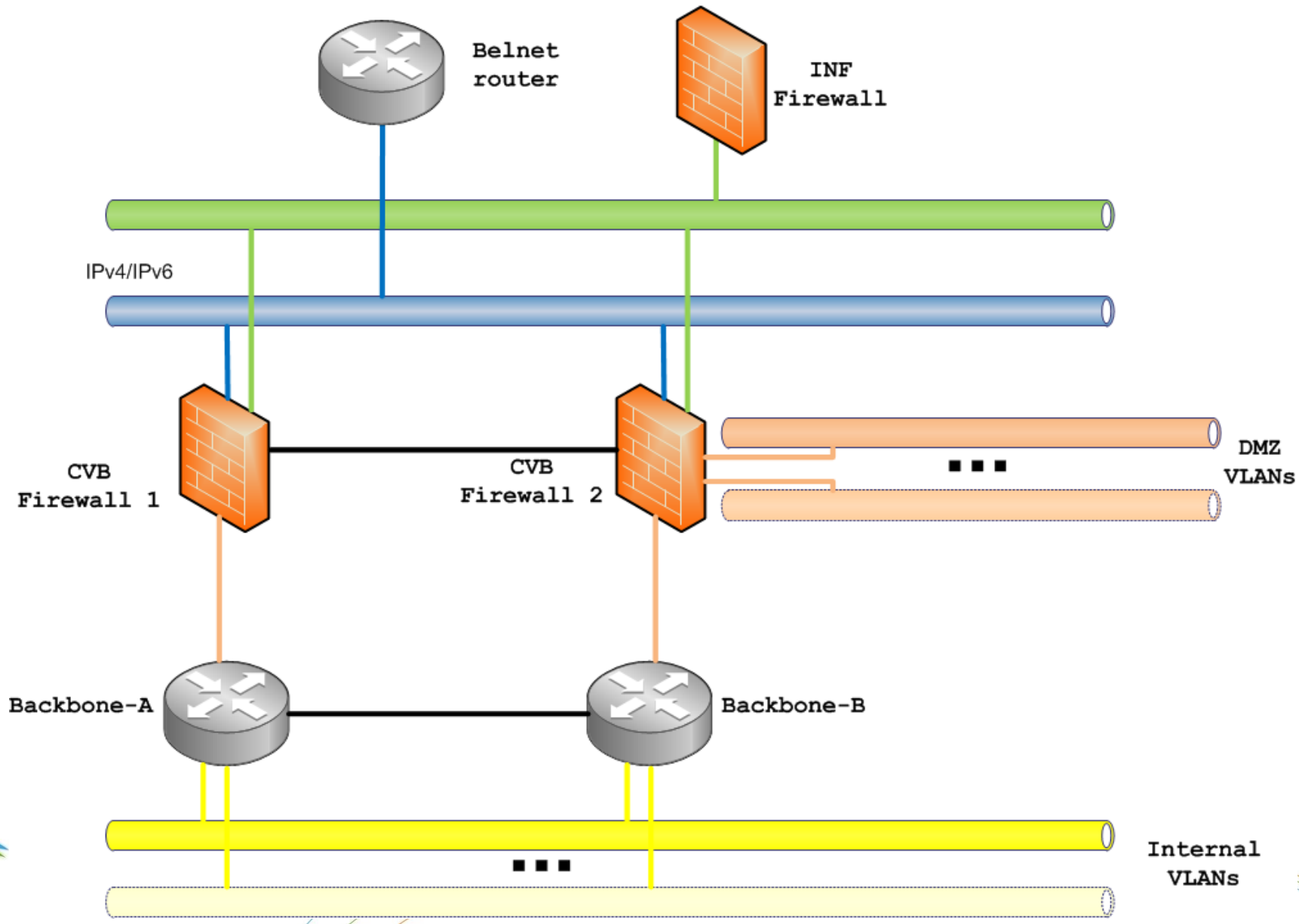
# Hardware

~500 physical servers  
Scale-out NAS





# Network





# Archive & backup



LTO-5

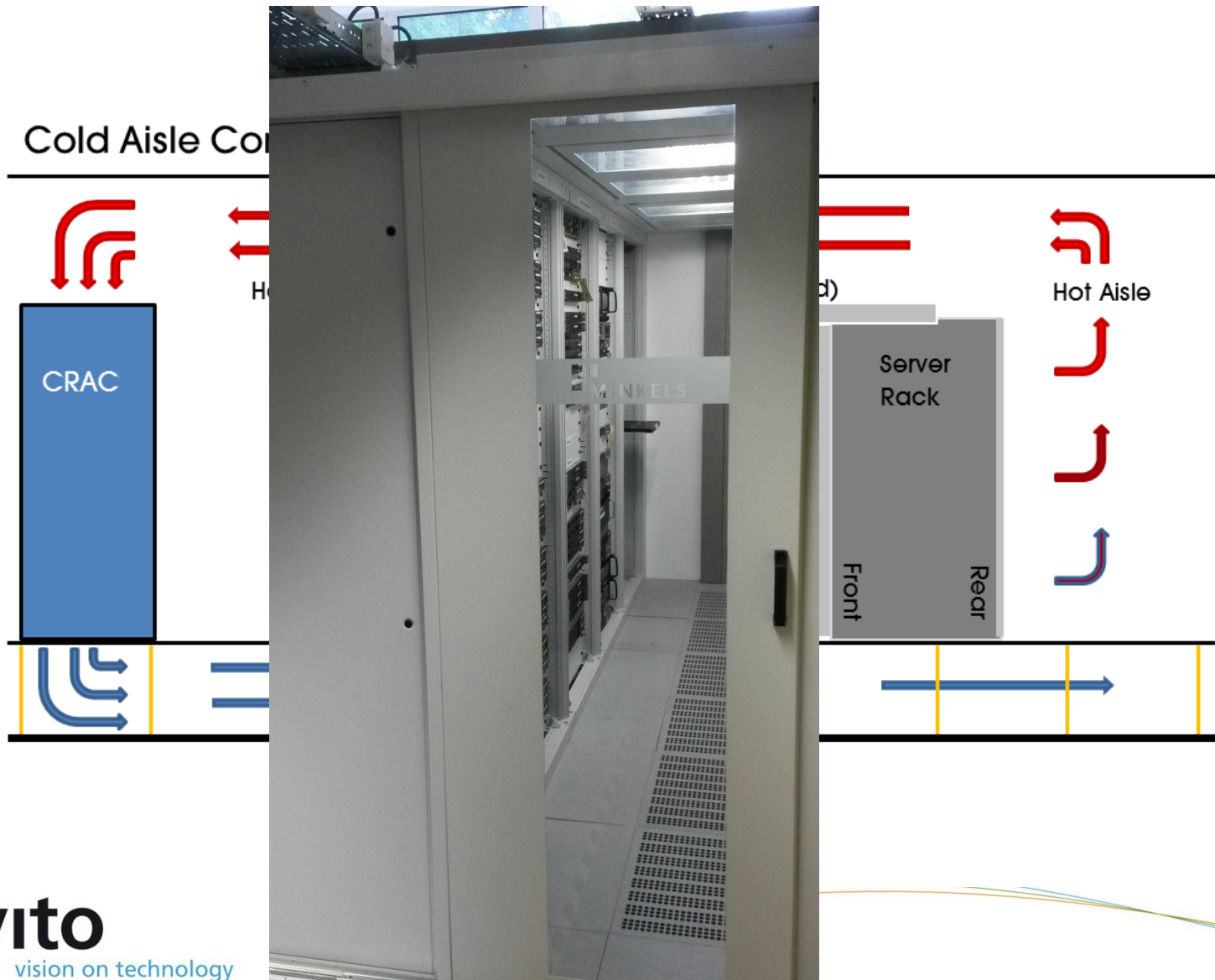
LTO-6

2 locations on-line

1 location off-line



# Energy efficiency

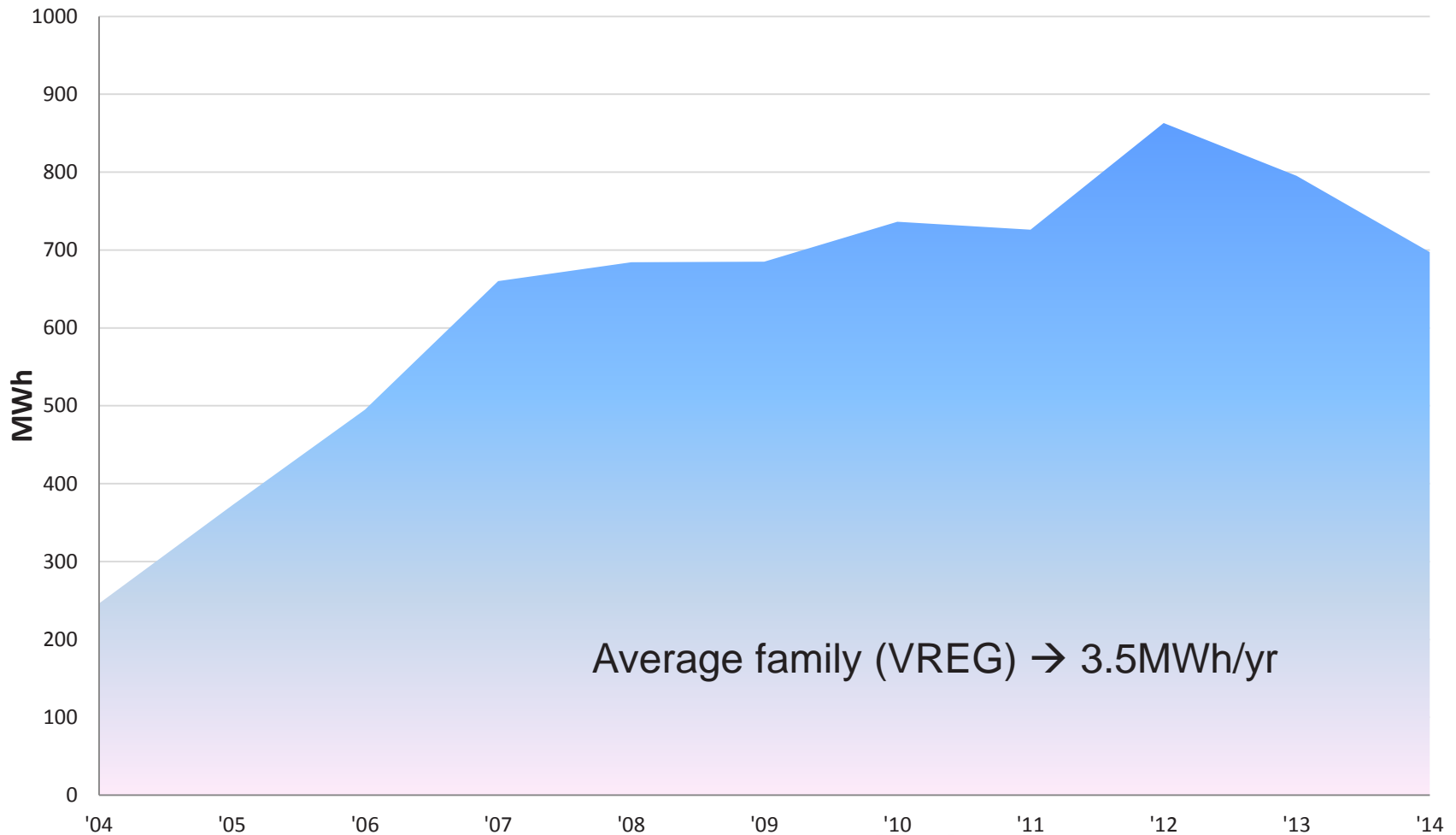


# Energy efficiency





# Electrical consumption

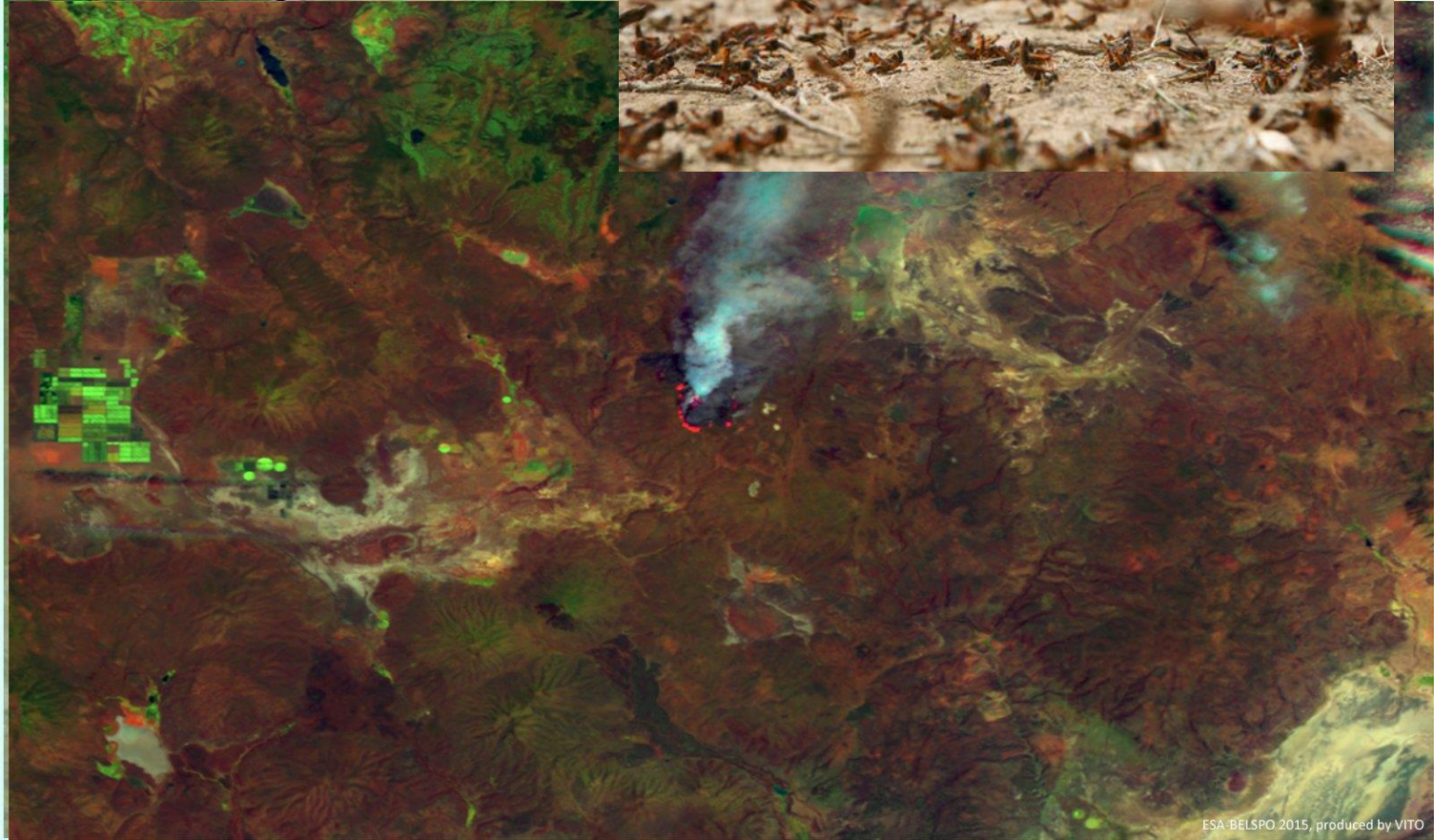




# Some images why we do all this...



Burnt areas  
California, USA





# Some images why we do all this...

**Aral Lake shrinking: 1998 – 2014 (monthly images)**

