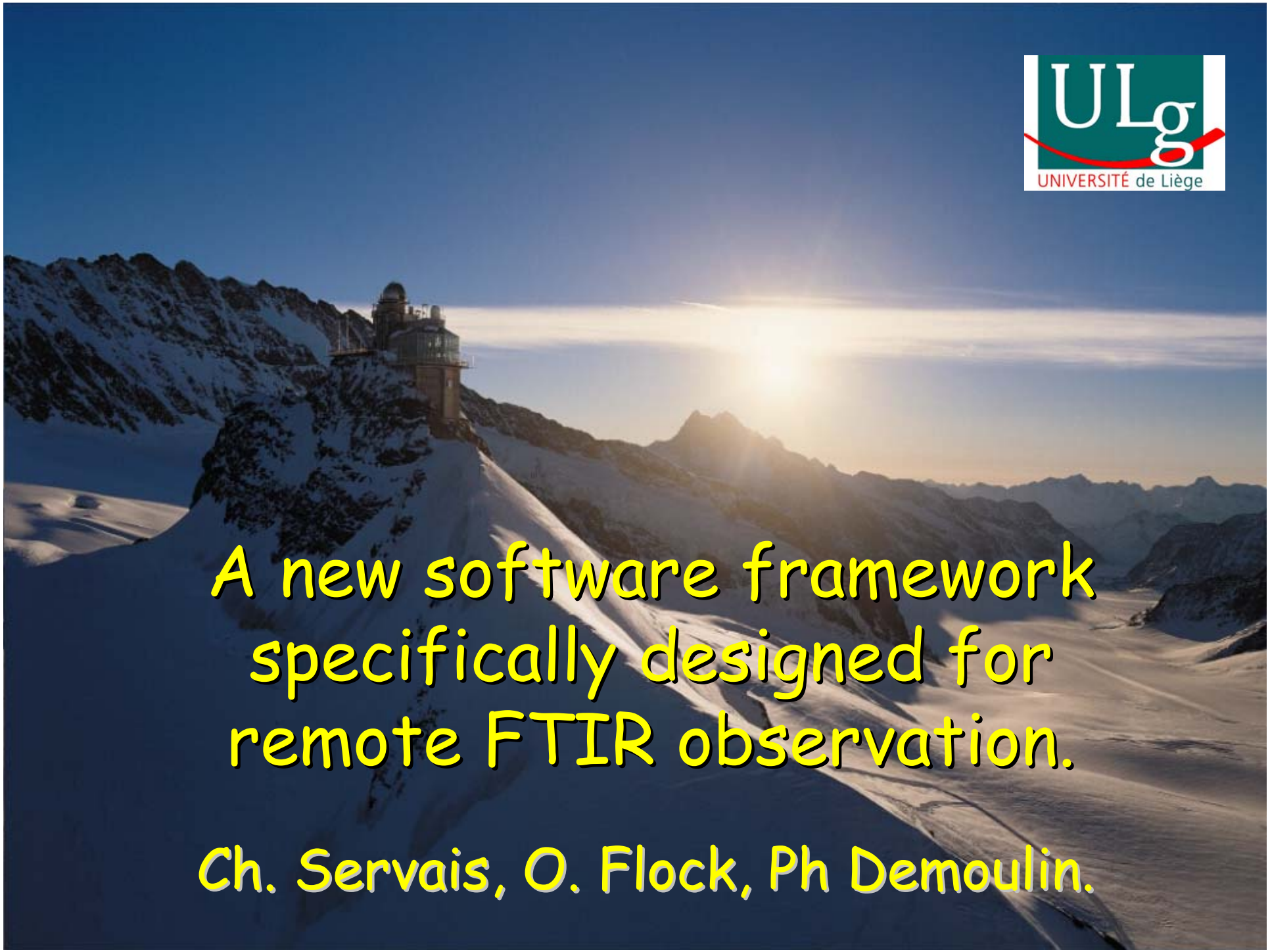


A new software framework specifically designed for remote FTIR observation.

Ch. Servais, O. Flock, Ph Demoulin.

Principal Goals

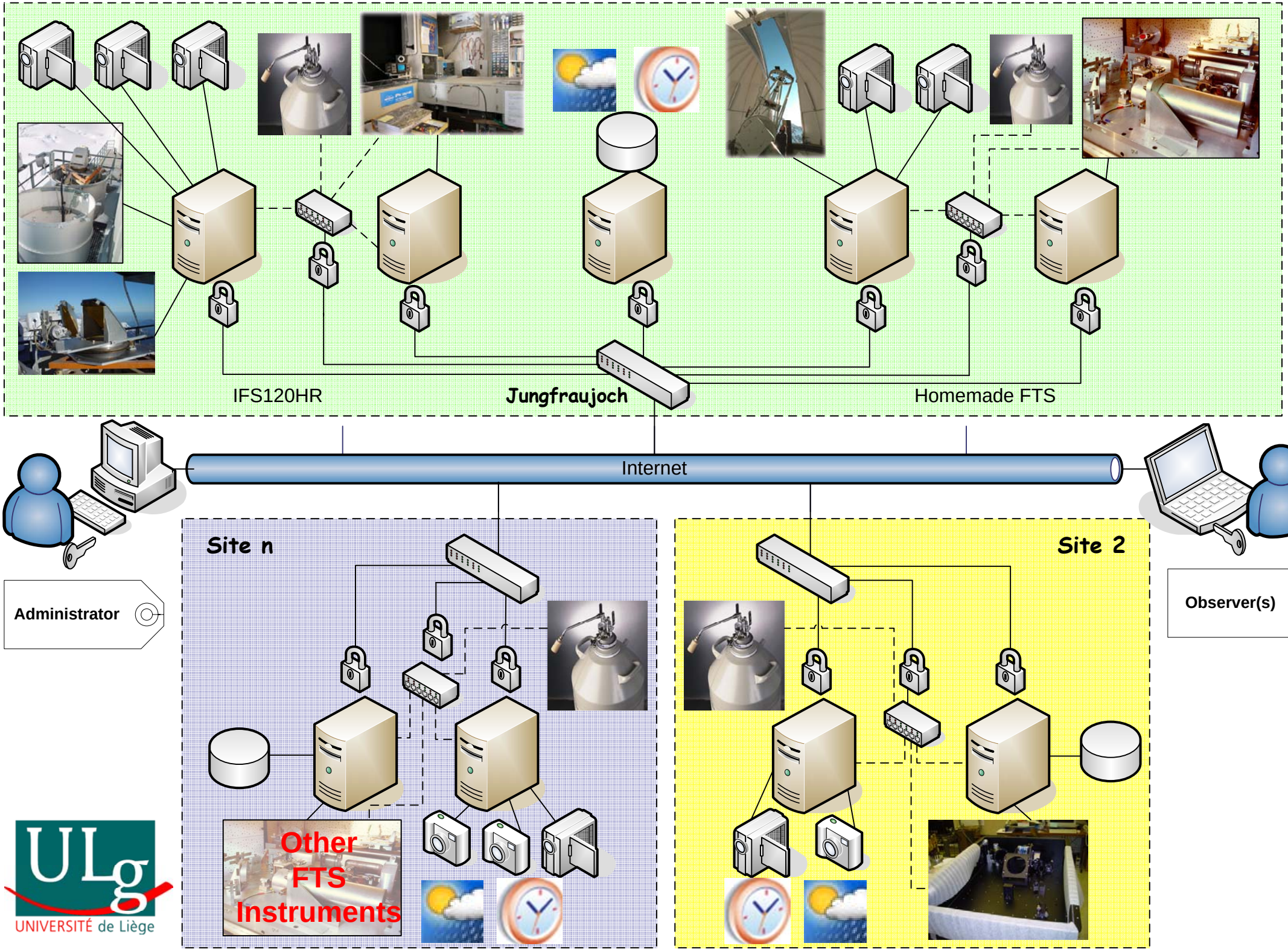
- Provide remote control (local or distant) of experimental data acquisition;
- Control multiple instruments with a single observer;
- Control multiple sites with a single observer;
- Must be optimized for FTIR or other acquisition work requiring close supervision.

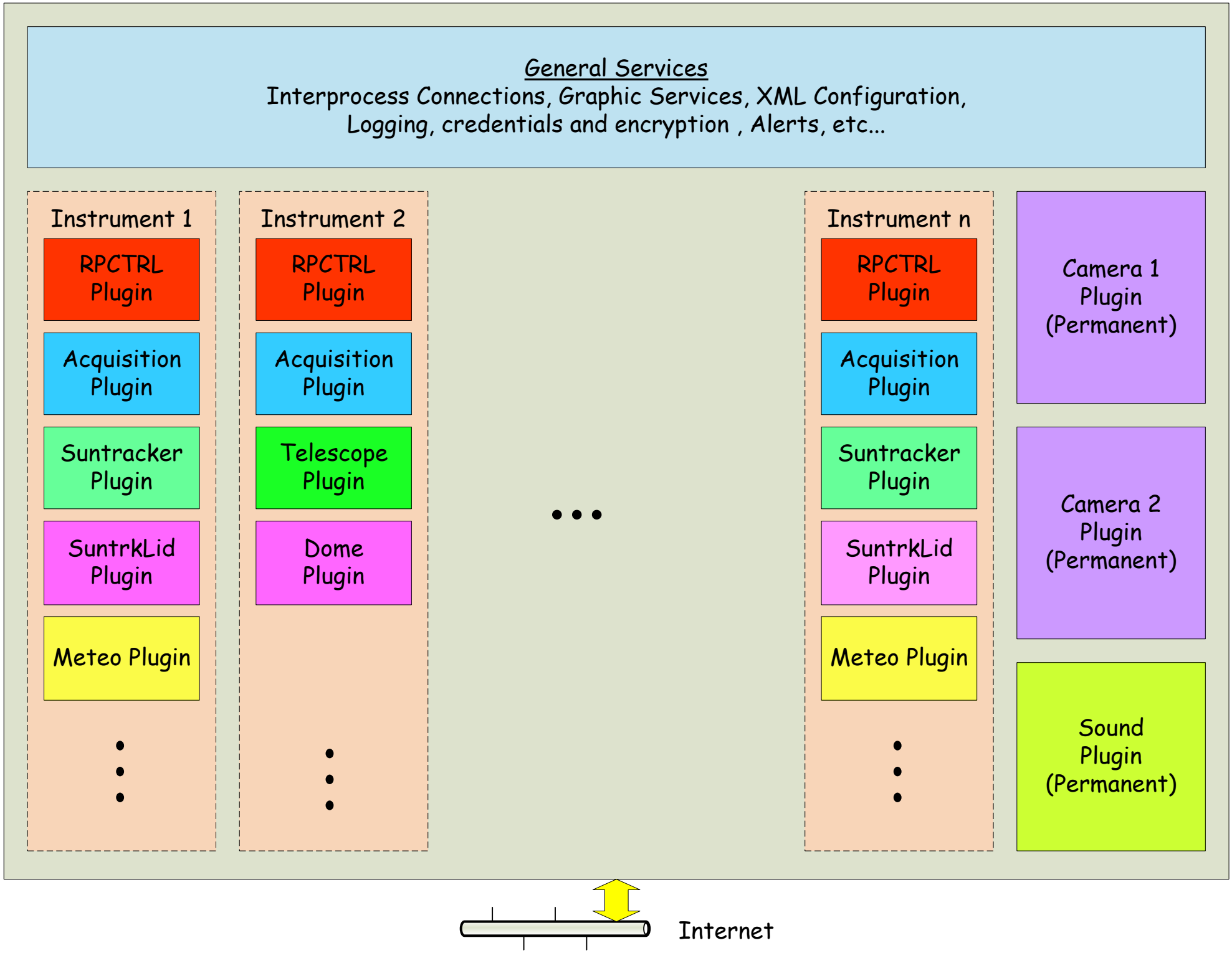
Wishlist (1)

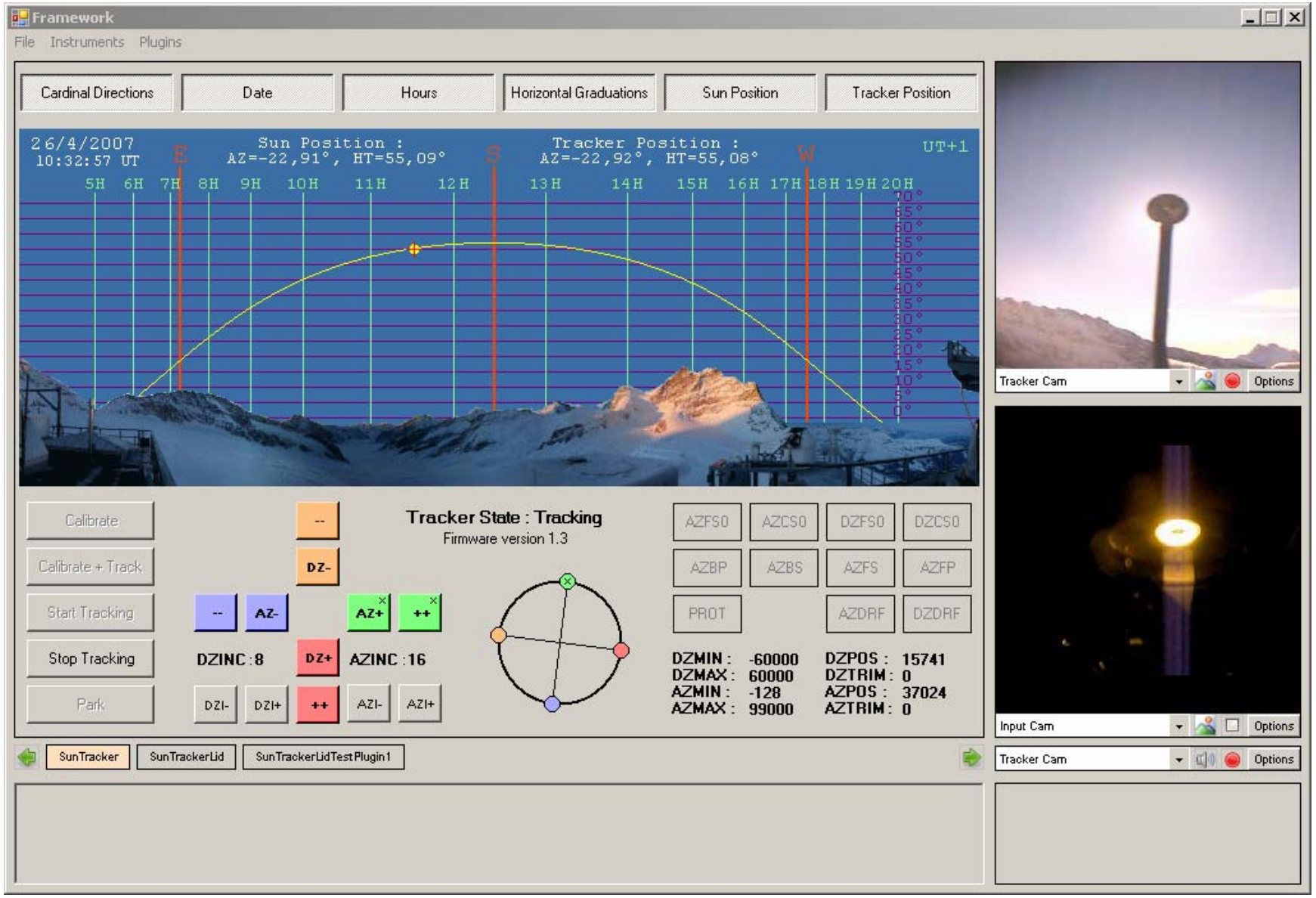
- Client-Server open architecture. Must accept new functionalities as plugins.
- Work on very low to high bandwidth internet connections.
- Use limited number of ports to ease administration.
- Accept unlimited number of simultaneous clients with different privileges.
- Administrators must be able to help remotely observers.
- Use XML configuration files, no tricky "regedits".
- Strong protection against attacks. Hardware must be safe.
- Must control an arbitrary number of cameras : rotation, remotely adjustable exposure and orientation, wide range of compressions & frame rates, quick capture of images and movies to keep track of events.
- Optional timestamp can be included in video streams.
- Two cameras must remain visible at all times.
- Provide audio monitoring including capture to help debugging.

Wishlist (2)

- Client must work on a moderate class laptop with WinXP (may be ported to Linux later).
- Client must accept 1024x768 pixels screens and still leave room for the taskbar.
- Provide communication channels between plugins.
- Servers must be very stable.
- Installation of client application must be easy.
- Keep track of all important events in the servers Windows event log.
- Display events with timestamp in a dialog area always visible on the client application.
- Fast action icons to respond to events requiring prompt action.
- More…


IFS120HR
Jungfraujoch
Homemade FTS
Internet
Site n
Site 2
Other FTS Instruments
Administrator
Observer(s)
ULg
UNIVERSITÉ de Liège


General Services
Interprocess Connections, Graphic Services, XML Configuration,
Logging, credentials and encryption , Alerts, etc...
Instrument 1
RPCTRL Plugin
Acquisition Plugin
Suntracker Plugin
SuntrkLid Plugin
Meteo Plugin
Instrument 2
RPCTRL Plugin
Acquisition Plugin
Telescope Plugin
Dome Plugin
Instrument n
RPCTRL Plugin
Acquisition Plugin
Suntracker Plugin
SuntrkLid Plugin
Meteo Plugin
Camera 1 Plugin (Permanent)
Camera 2 Plugin (Permanent)
Sound Plugin (Permanent)
Internet


Framework
File Instruments Plugins
Cardinal Directions
Date
Hours
Horizontal Graduations
Sun Position
Tracker Position
26/4/2007
10:32:57 UT
Sun Position :
AZ=-22,91°, HT=55,09°
Tracker Position :
AZ=-22,92°, HT=55,08°
UT+1
E
S
W
5H 6H 7H 8H 9H 10H 11H 12H 13H 14H 15H 16H 17H 18H 19H 20H
Tracker Cam
Options
Input Cam
Options
Tracker Cam
Options
Calibrate
Calibrate + Track
Start Tracking
Stop Tracking
Park
--
DZ-
--
AZ-
AZ+
++
DZINC : 8
DZ+
AZINC : 16
DZI-
DZI+
++
AZI-
AZI+
Tracker State : Tracking
Firmware version 1.3
AZFS0
AZCS0
DZFS0
DZCS0
AZBP
AZBS
AZFS
AZFP
PROT
AZDRF
DZDRF
DZMIN : -60000
DZMAX : 60000
AZMIN : -128
AZMAX : 99000
DZPOS : 15741
DZTRIM : 0
AZPOS : 37024
AZTRIM : 0
SunTracker
SunTrackerLid
SunTrackerLidTestPlugin1

Framework
File Plugins
Cardinal Directions
Date
Hours
Horizontal Graduations
Sun Position
Tracker Position
28/3/2007
07:34:45 UT
Sun Position :
AZ=-68,93°, HT=22,55°
UT+1
6H 7H 8H 9H 10H 11H 12H 13H 14H 15H 16H 17H 18H 19H
70° 65° 60° 55° 50° 45° 40° 35° 30° 25° 20° 15° 10° 5° 0°
Cam #0
Options
Cam #2
Options
Calibrate
Calibrate + Track
Start Tracking
Stop Tracking
Park
--
DZ-
--
AZ-
AZ+
++
DZINC :1
DZ+
AZINC :1
DZI-
DZI+
++
AZI-
AZI+
Tracker State : Tracking
Firmware version 1.3
AZFS0
AZCS0
DZFS0
DZCS0
AZBP
AZBS
AZFS
AZFP
PROT
AZDRF
DZDRF
DZMIN : -180000
DZMAX : 180000
AZMIN : -128
AZMAX : 99000
DZPOS : 10455
DZTRIM : 136
AZPOS : 23266
AZTRIM : 48
SunTracker
SunTrackerLid
28/03/2007 6:15 - SunTrackerLid - Internal unprotection has been requested, system in manual mode.

Movie

Conclusions

- This framework should greatly ease remote control of multiple FTIR instruments;
- A single observer may simultaneously control multiple instruments located at different sites;
- It is secure;
- It is designed for difficult observation sites;
- It is applicable to future instruments and accepts a heterogeneous instrument farm;
- New plugins and services are in development to control new functionalities.