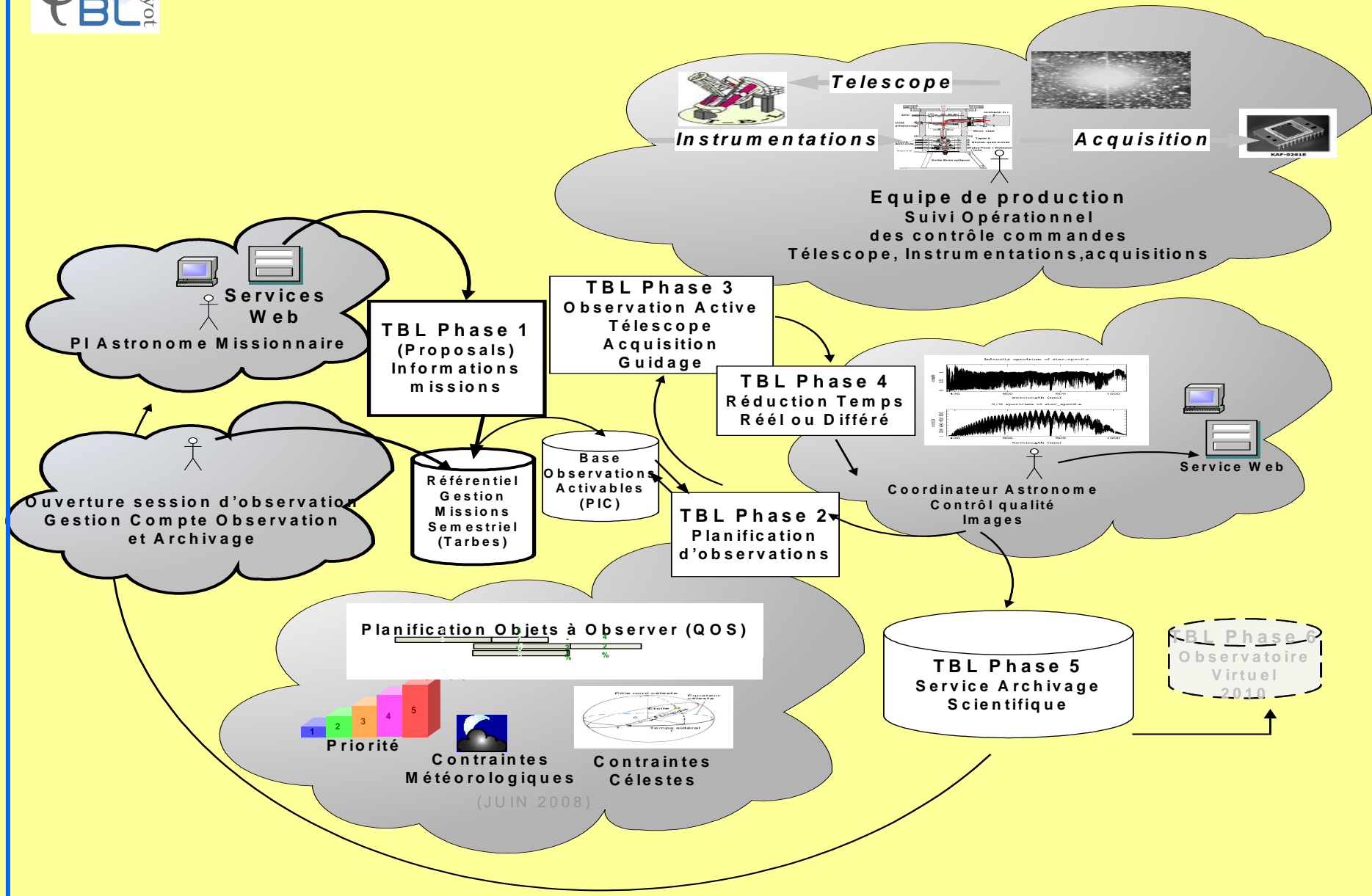


# TCL/TK

## Conduite d'un système de production



# Systeme de Production du Telescope B. Lyot





## *Etat de l'Art : TCL/TK*

- 1. John Ousterhout 1980.**
- 2. Langage robuste, extensible**
- 3. Simple et générique**
- 4. Faciliter d'intégration « Glue Together » les extensions**
- 5. Extension de composants graphiques utilisateurs puissante**
- 6. Pérennité : ActiveState**

# *Le TCL*



- 1. Langage de script**
- 2. Grammaire et commandes extensibles**
- 3. Gestion automatique de la mémoire, no pointeurs**
- 4. Programmation séquentielle**
- 5. Langage de colle pour faire tenir un ensemble d'applications ensemble**
- 6. Langage discret**

```
Ffafs fdfqdf  
dfasf fsdfqdsqs dsqdsd dqsdd  
qdsdqdq sdqdsqd qdsdq  
  
qdsdqsd qdsdqsd qdsdqsd qdsdq  
Ffafs fdfqdf  
dfasf fsdfqdsqs dsqdsd dqsdd  
  
qdsdqsd sdqdsqd qdsdqsdq sdqdsd qdsdqsdq  
qdsdqsd qdsdqsd qdsdqsd qdsdqsd  
Ffafs fdfqdf  
  
dfasf fsdfqdsqs dsqdsd dqsdd  
qdsdqsd sdqdsqd qdsdqsdq sdqdsd qdsdqsd  
  
qdsdqsd qdsdqsd qdsdqsd qdsdqsd  
f
```

# *Le TK*

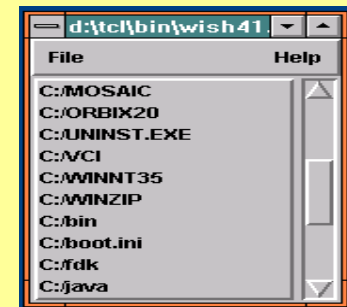
## 1. Tool Kit

## 2. Extension graphique de TCL

- Widgets

## 3. Programmation événementielle

- Event-Driven





# *TCL/TK*

- 1. Open Source**
- 2. Lisibilité (Maintenance, Debug)**
- 3. Grand nombre d'extensions**
- 4. Espace de Nommage**
- 5. Programmation en un minimum de lignes**

# *Multi-Plateforme*

```
wm title . "Vive Tcl/Tk !"  
label .texte -relief groove -  
text "Hello World !" -width  
30  
button .ok -text "OK" -  
command {exit}  
pack .texte .ok -side top
```





# *Programmation TCL/TK*

## **1. TCL**

- **Tout est** *< Chaine de Caractères >*

*Structure de Données -> Liste de STRINGS only !*

## **2. TK**

- **Concepts concurrentiels**

*Events-Driven*

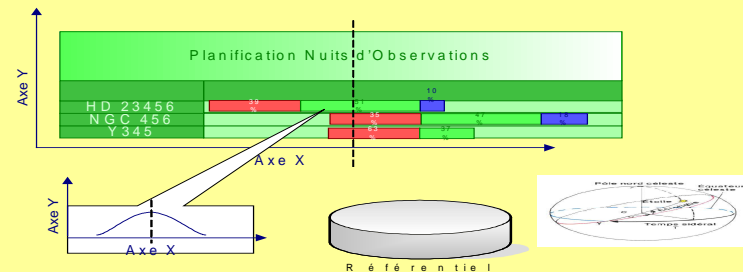
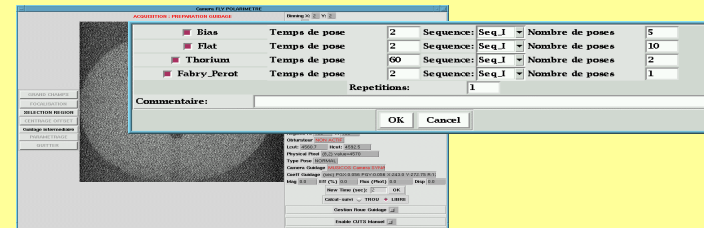
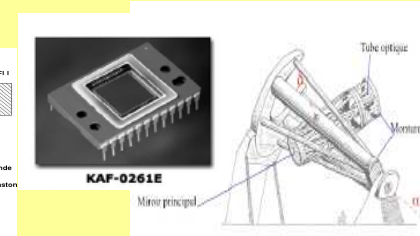
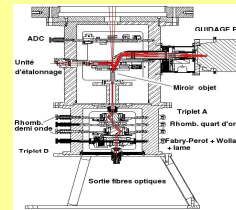
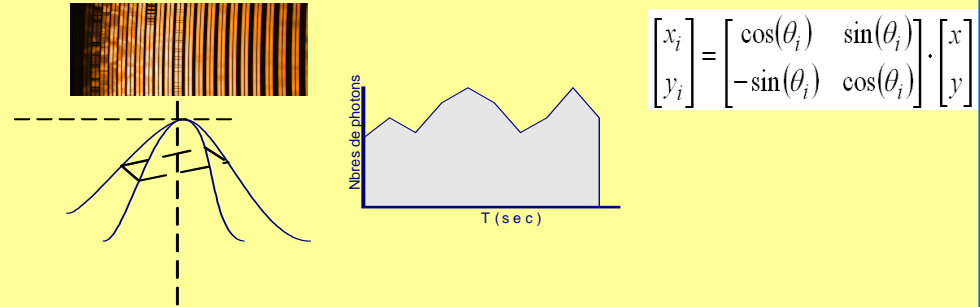
- **Widgets**

*Graphic User Interface*



# Conception et développement des contrôles-commandes Instrumentations

- Agents de traitements  
Transformation ou calculs sur les flux de données.
- Agents réactifs  
Evènements processus contrôl-commande.
- Agents graphiques  
Evènements humain
- Agents cognitifs/raisonnements  
Inférence sur une base de connaissance (Planification Nuits d'observation).



## Programmation Event-Driven

Execute TCL SCRIPT

### TAKE EVENT FROM QUEUE

Callback Tcl\_DoWhenIdle (after idle)

Tcl\_CreateTimerHandler (after N)

Tcl\_CreateChannelHandler (file event)

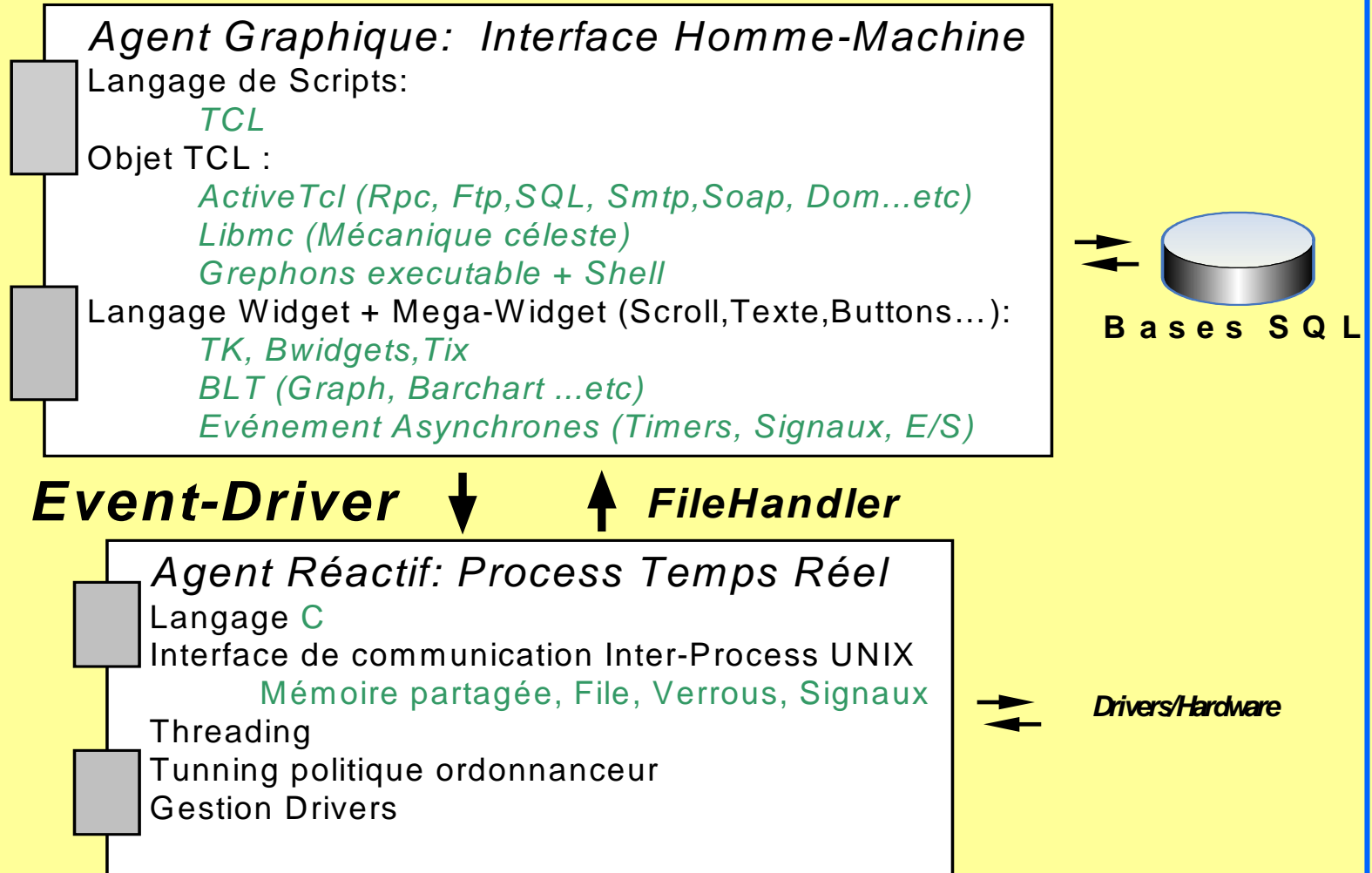
Tk\_CreateEventHandler | (bind, -command ..etc)

Other callbacks (Tk\_CreateGenericHandler,  
Tk\_CreateErrorHandler, Tcl\_EventuallyFree, etc.)

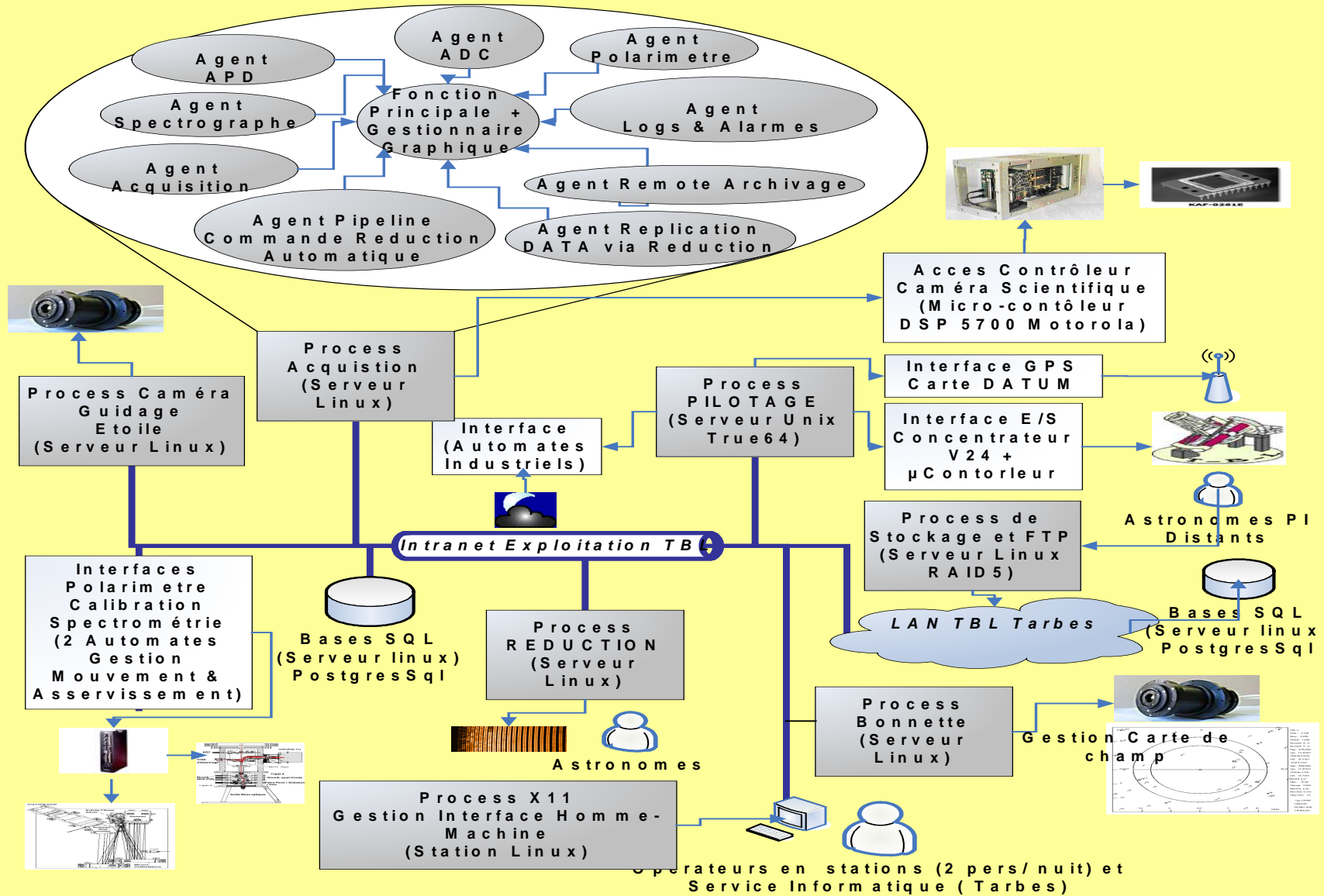
Execute script

Lookup  
corresponding  
script

# Event-Driven: Synchronisation

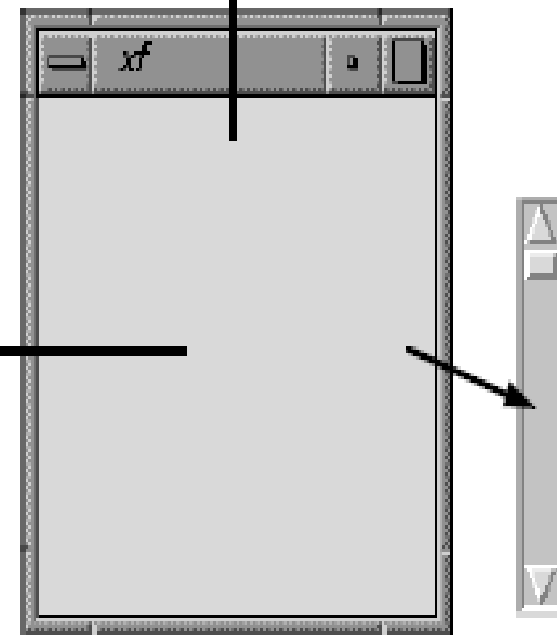
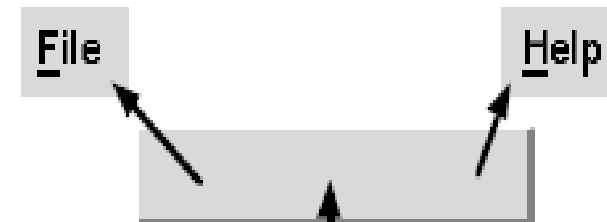
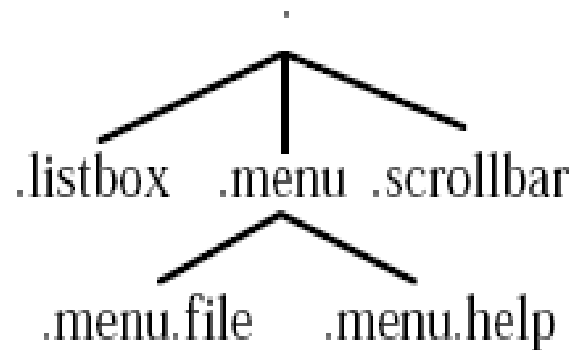


# Diagramme structurel (Phase3 Observation)

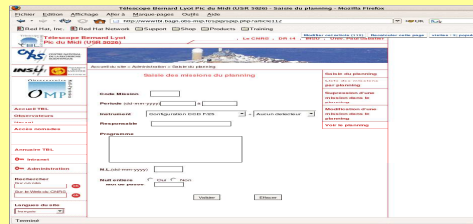


# Widgets: Graphical User Interface

## La hiérarchie de widgets

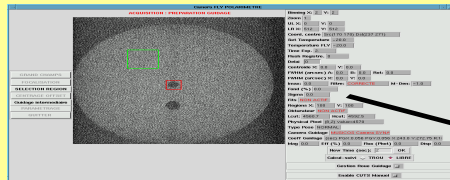
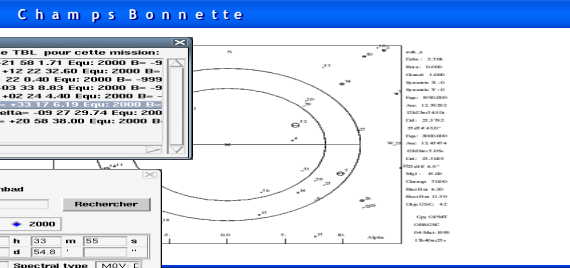
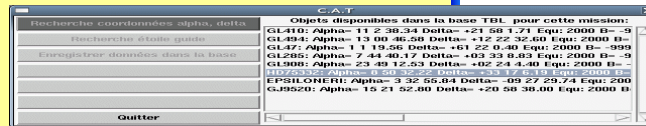


# Outils graphiques TK liés à l'exploitation



Web-Service

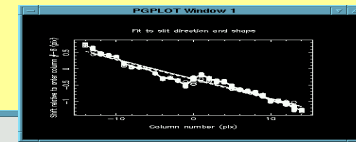
G S C - T B L



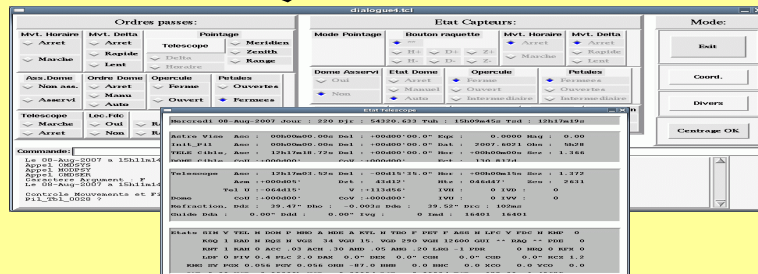
GUIDAGE

Consignations LOGS  
 Observations - Résultats  
 Scheduling Nuits

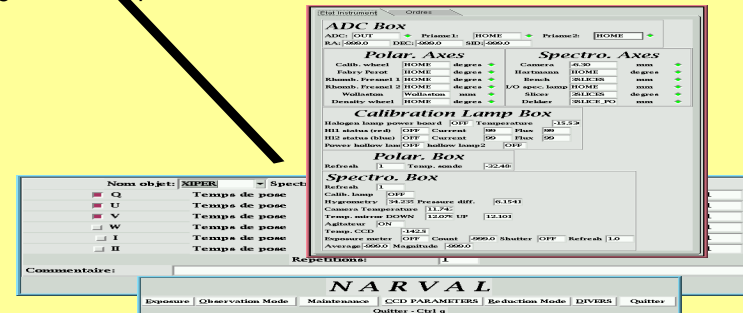
Bases SQL PostgreSQL



REDUCTION



PILOTAGE



ACQUISITION