SOXS operations and scheduler

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Overview

- The operation concept for SOXS
- The SOXS Marshall
- Scheduler and P2 API
- Comments

SOXS Operations

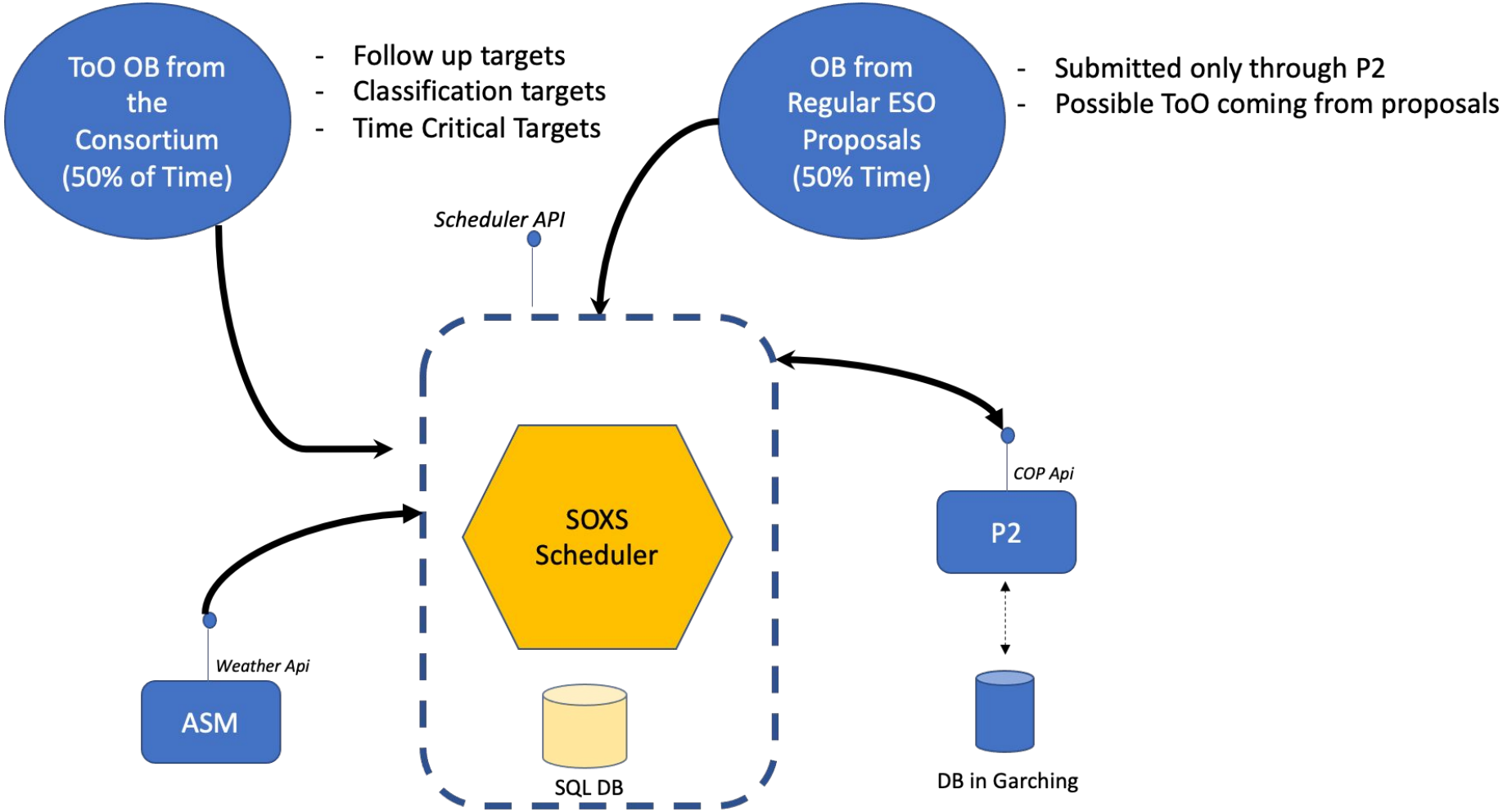
- We will have an operator (not an astronomer) on the mountain available on call.

- We will operate the SOXS@NTT for both the Consortia targets (ToO, Follow Ups, Fast Response Targets) and regular ESO proposals (+ESO ToOs)

- At LaSilla we will have the P2 system for OB submissions and vOT only interface (coupled with BOB).

Requirements

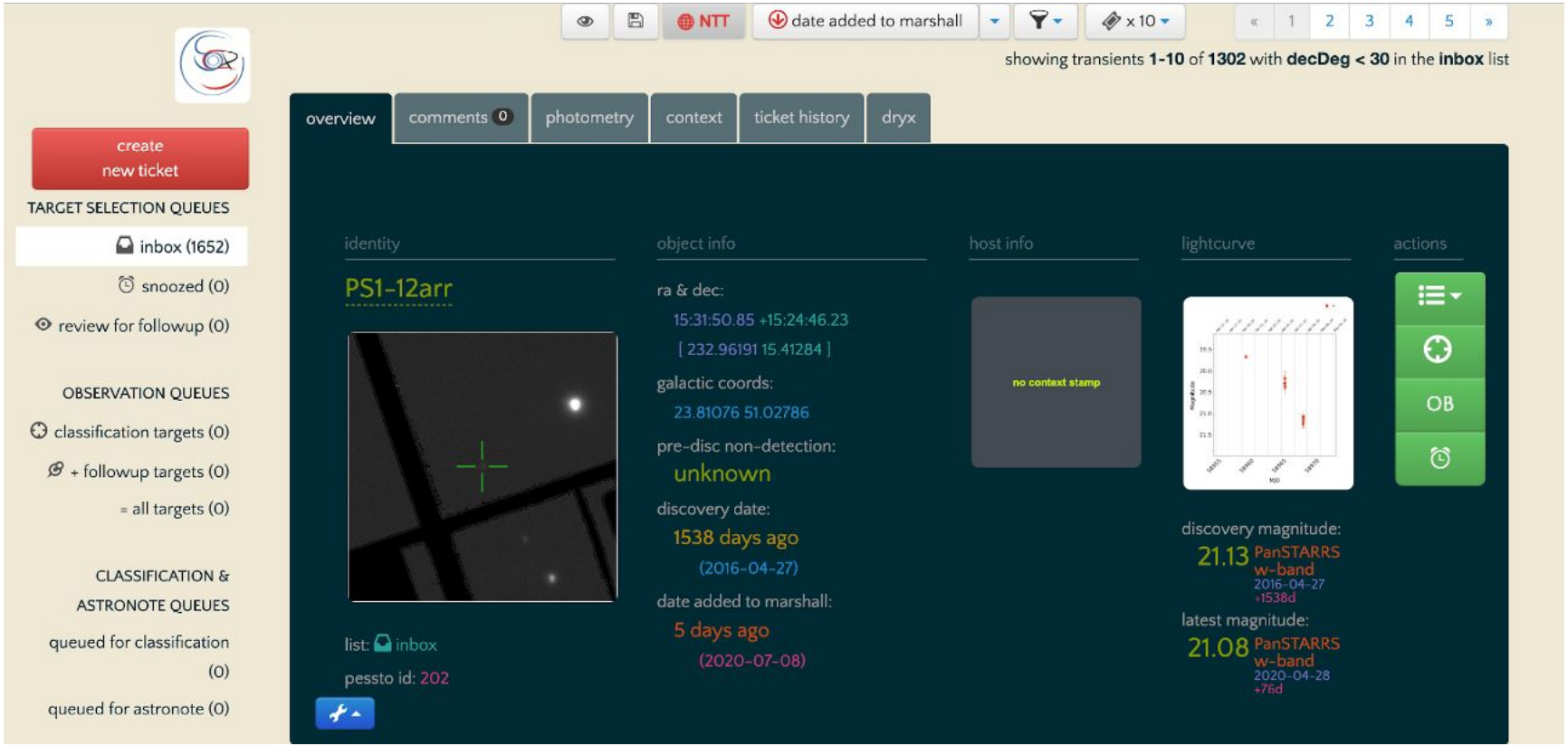
- Propose a schedule for each night for 5 years that combines:
  - 50% of the time for Consortia targets splitted between ToO, follow up , ecc.
  - 50% of regular (+ToO) ESO Obs (submitted only through ESO P2 web interface)
  - The schedule will be discussed during a daily 15-mins call
- Provide a rapid method for a backup schedule **with no (or little)** operator actions.
- Be fully compliant with the p2 API and provide the right arrangment of the time between consortia and ESO.
- Web based (for schedule check and definition of possible time constrains) with high availability.


ToO OB from the Consortium (50% of Time)
- Follow up targets
- Classification targets
- Time Critical Targets
OB from Regular ESO Proposals (50% Time)
- Submitted only through P2
- Possible ToO coming from proposals
Scheduler API
SOXS Scheduler
SQL DB
COP Api
P2
DB in Garching
Weather Api
ASM

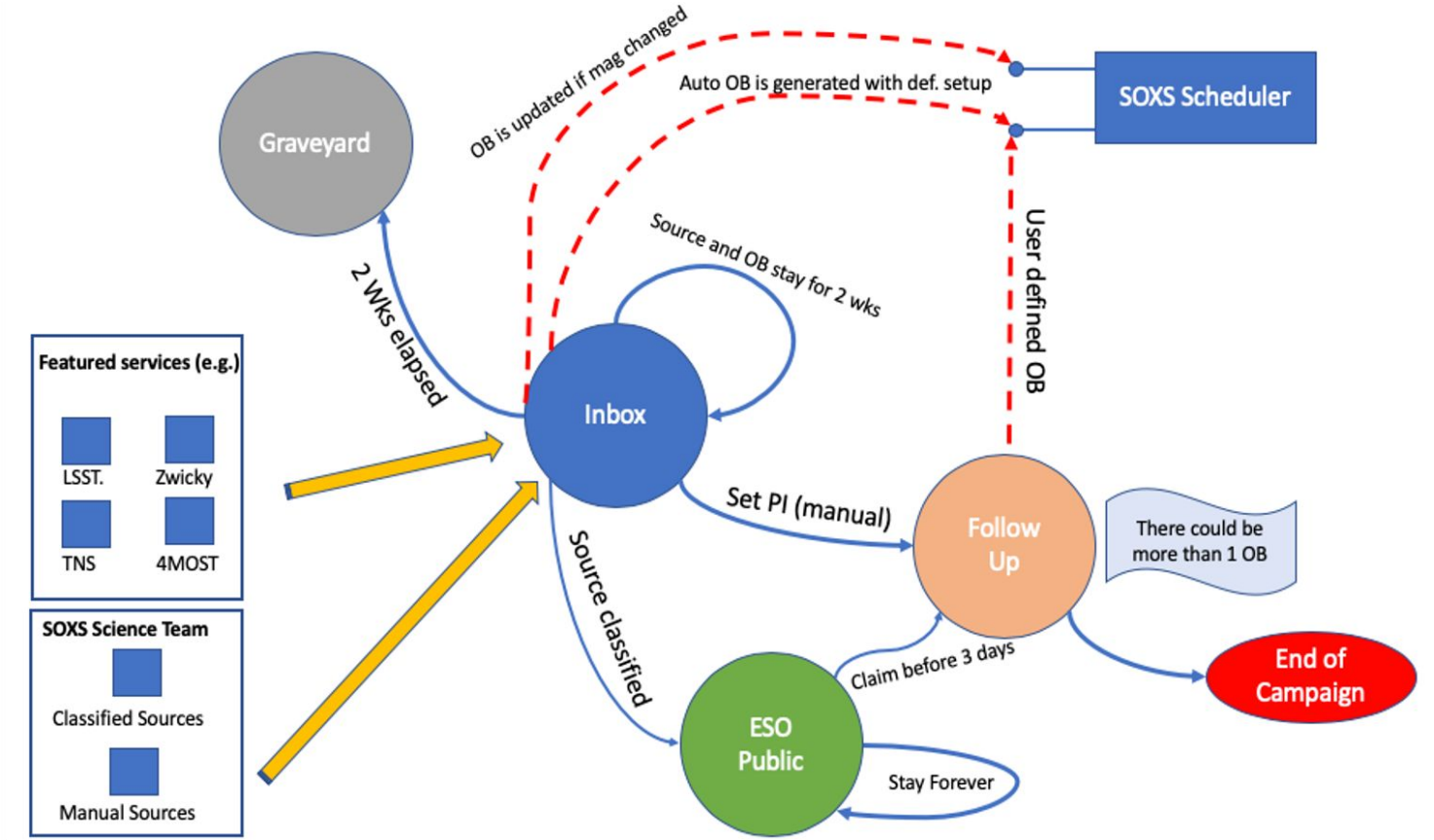
The Marshall

- We will exploit the knowledge of already well assesed surveys (PESSTO, ePESSTO) to SOXS.
- We are adapting the developed WebApp (Marshall, David Young et al) to SOXS transients management.

Screenshot


NTT
date added to marshall
x 10
1 2 3 4 5
showing transients 1-10 of 1302 with decDeg < 30 in the inbox list
overview
comments 0
photometry
context
ticket history
dryx
create new ticket
TARGET SELECTION QUEUES
inbox (1652)
snoozed (0)
review for followup (0)
OBSERVATION QUEUES
classification targets (0)
+ followup targets (0)
= all targets (0)
CLASSIFICATION & ASTRONOTE QUEUES
queued for classification (0)
queued for astronote (0)
identity
PS1-12arr
list: inbox
pessto id: 202
object info
ra & dec:
15:31:50.85 +15:24:46.23
[232.96191 15.41284]
galactic coords:
23.81076 51.02786
pre-disc non-detection:
unknown
discovery date:
1538 days ago
(2016-04-27)
date added to marshall:
5 days ago
(2020-07-08)
host info
no context stamp
lightcurve
discovery magnitude:
21.13 PanSTARRS w-band
2016-04-27
+1538d
latest magnitude:
21.08 PanSTARRS w-band
2020-04-28
+76d
actions
OB

Source workflow in the Marshall



Current feeders (not exhaustive or definitive list)

- ZTF via Lasair-ZTF (prototype LSST alert broker)
- PanSTARRS PS1 & PS2
- ATLAS. 2 units, soon to be 4 units.
- ASASSN
- OGLE
- MASTER
- Gaia Alerts
- LSST via Lasair-LSST

Also integration with reporting & alert services: TNS, ATels, GCNs

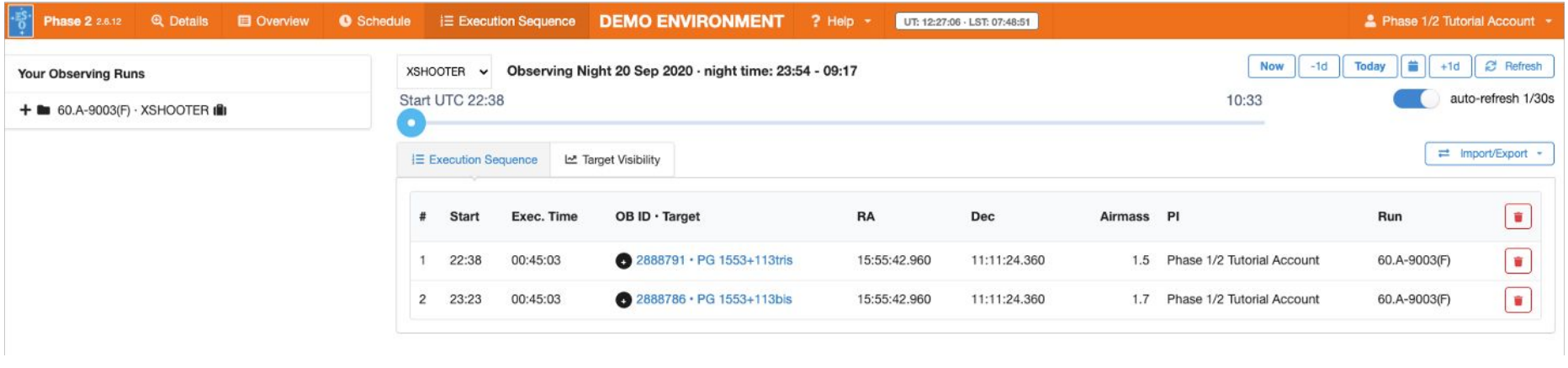
P2 automation

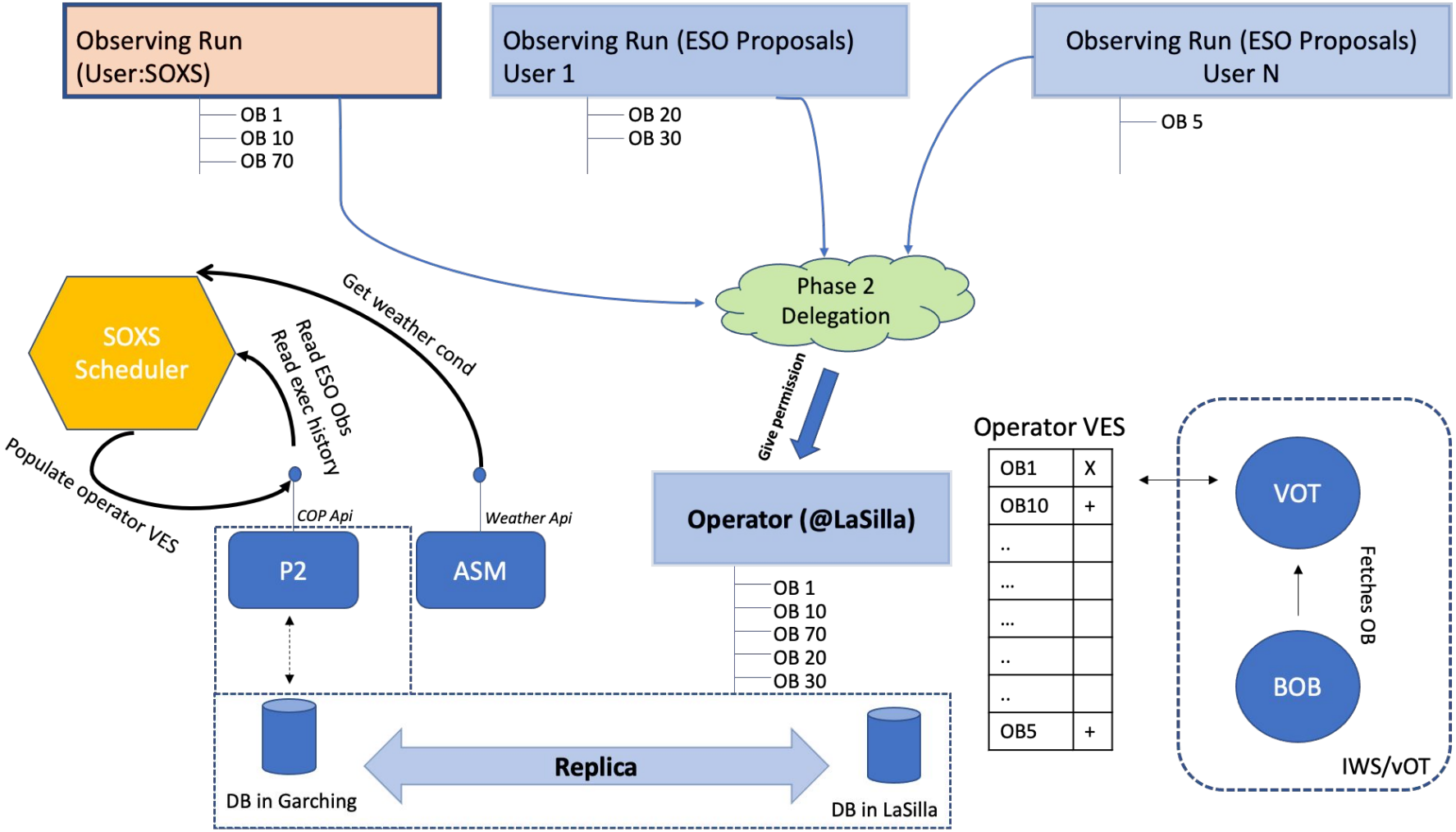
OB Creation (AutoOB from classification)

OB Creation (Followup)

Regular proposals (ESO)

OB Manager and Scheduler



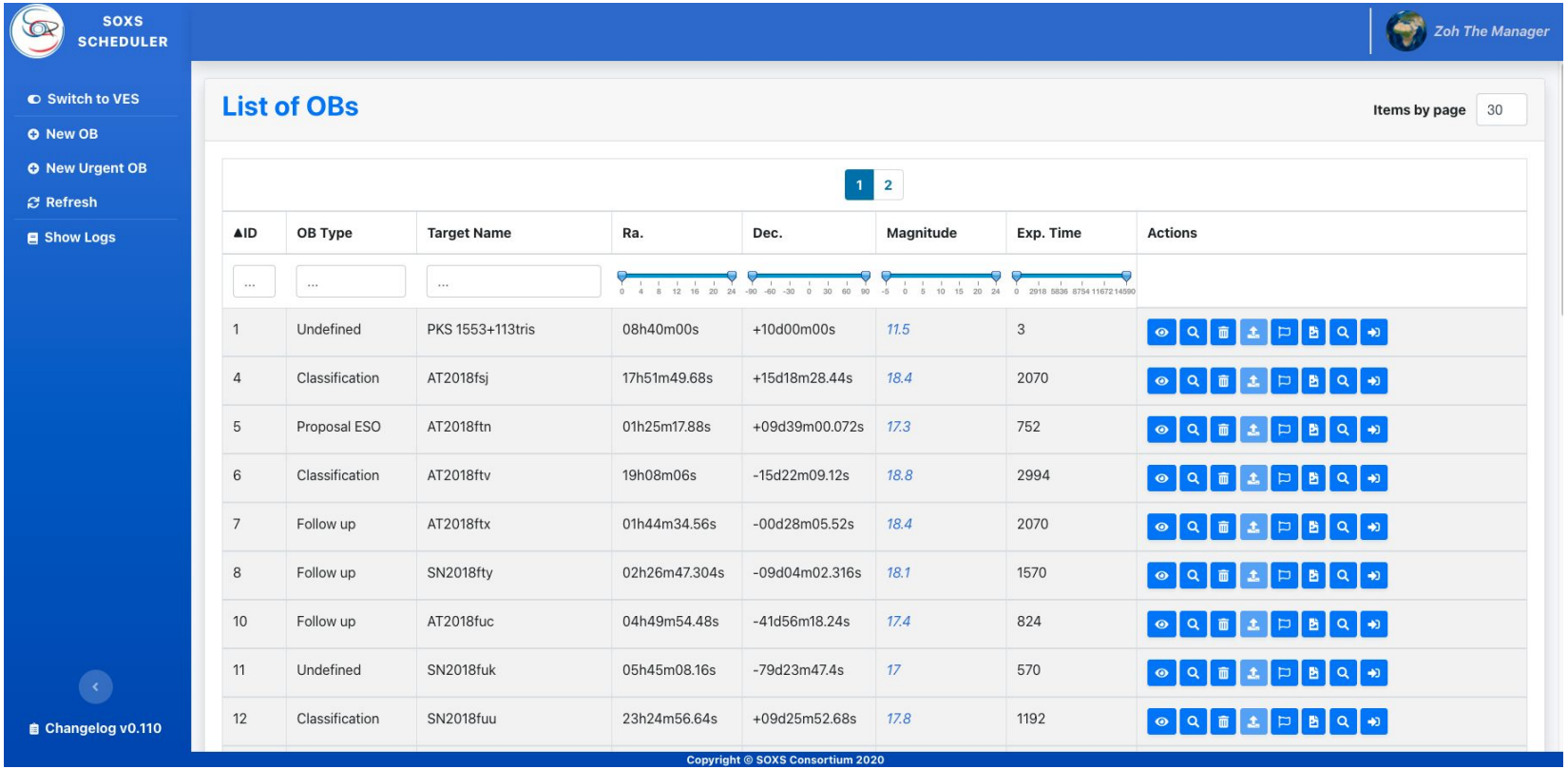

Observing Run
(User:SOXS)
OB 1
OB 10
OB 70
Observing Run (ESO Proposals)
User 1
OB 20
OB 30
Observing Run (ESO Proposals)
User N
OB 5
Phase 2
Delegation
Give permission
SOXS
Scheduler
Get weather cond
Read ESO Obs
Read exec history
Populate operator VES
COP Api
Weather Api
P2
ASM
Operator (@LaSilla)
OB 1
OB 10
OB 70
OB 20
OB 30
Replica
DB in Garching
DB in LaSilla
Operator VES
OB1 X
OB10 +
..
...
...
..
..
OB5 +
VOT
Fetches OB
BOB
IWS/vOT

Considerations on operations

- We are not considering Containers OB (not foreseen in LaSilla) in terms on group, time link, ecc.

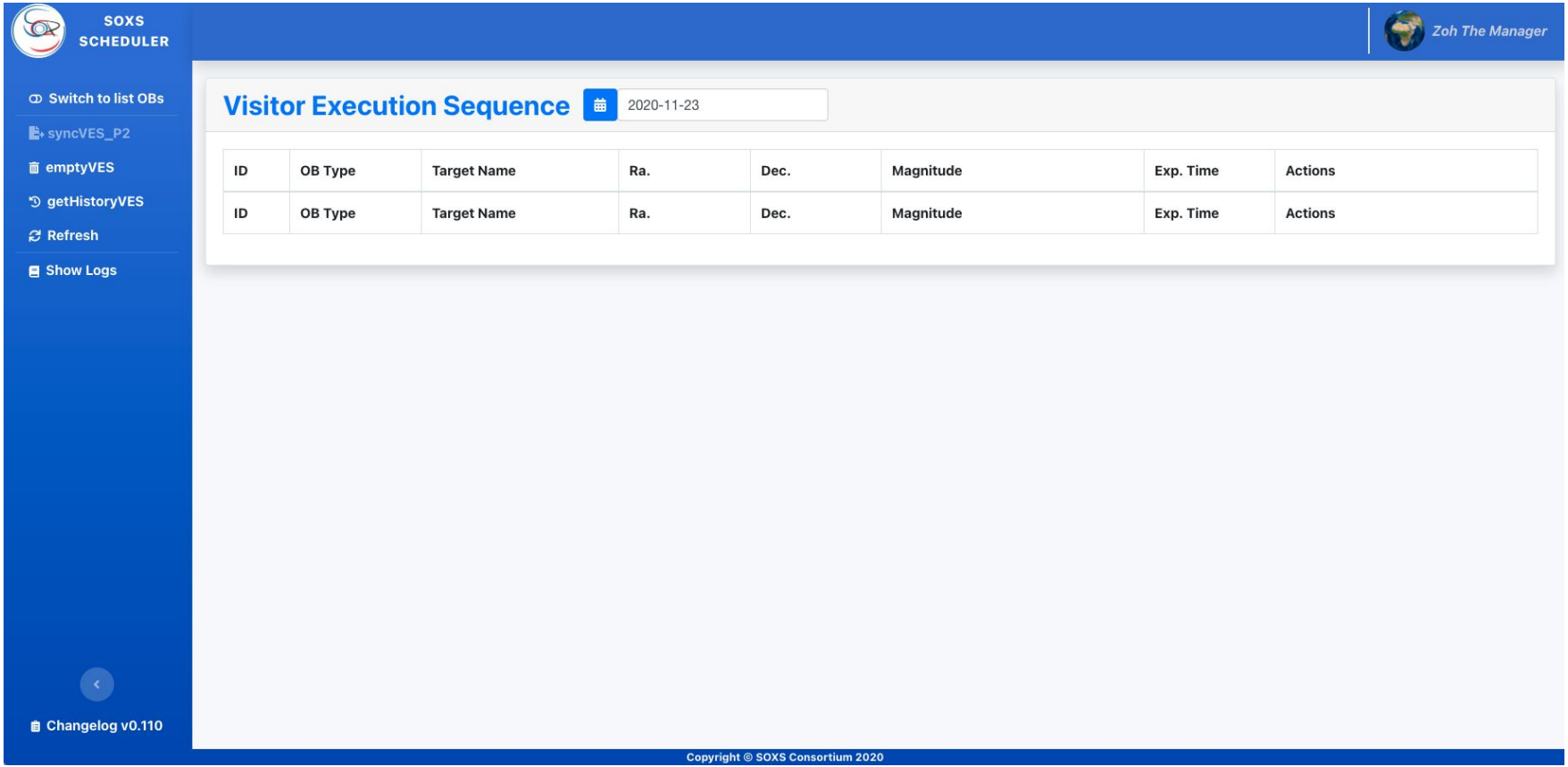
- We will have **lots** of ToO.

SOXS Webapp for Science team

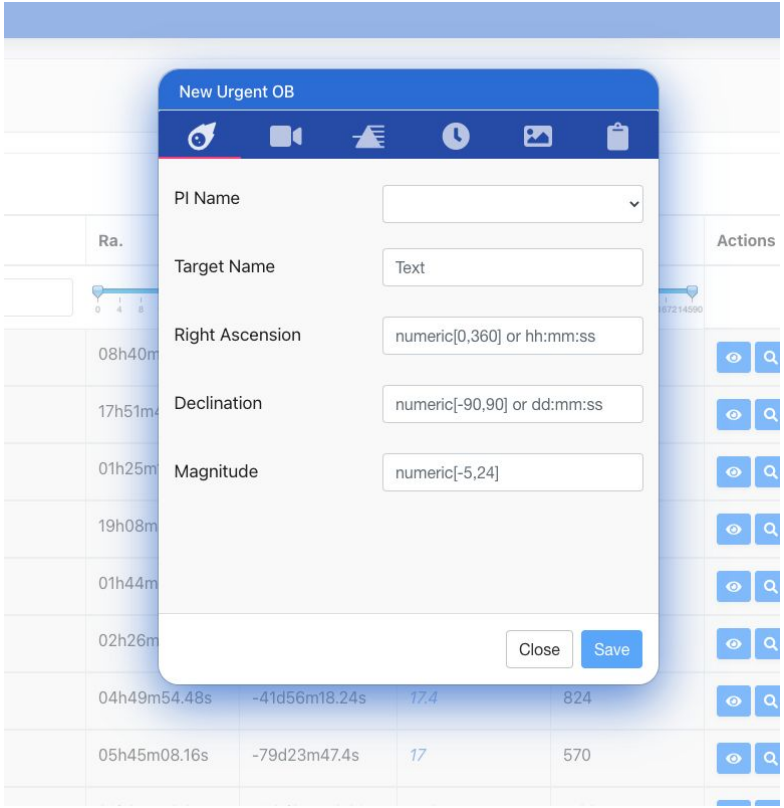


▲ID	OB Type	Target Name	Ra.	Dec.	Magnitude	Exp. Time	Actions
1	Undefined	PKS 1553+113tris	08h40m00s	+10d00m00s	11.5	3	
4	Classification	AT2018fsj	17h51m49.68s	+15d18m28.44s	18.4	2070	
5	Proposal ESO	AT2018ftn	01h25m17.88s	+09d39m00.072s	17.3	752	
6	Classification	AT2018ftv	19h08m06s	-15d22m09.12s	18.8	2994	
7	Follow up	AT2018ftx	01h44m34.56s	-00d28m05.52s	18.4	2070	
8	Follow up	SN2018fty	02h26m47.304s	-09d04m02.316s	18.1	1570	
10	Follow up	AT2018fuc	04h49m54.48s	-41d56m18.24s	17.4	824	
11	Undefined	SN2018fuk	05h45m08.16s	-79d23m47.4s	17	570	
12	Classification	SN2018fuu	23h24m56.64s	+09d25m52.68s	17.8	1192	

SOXS Webapp - Managing the VES



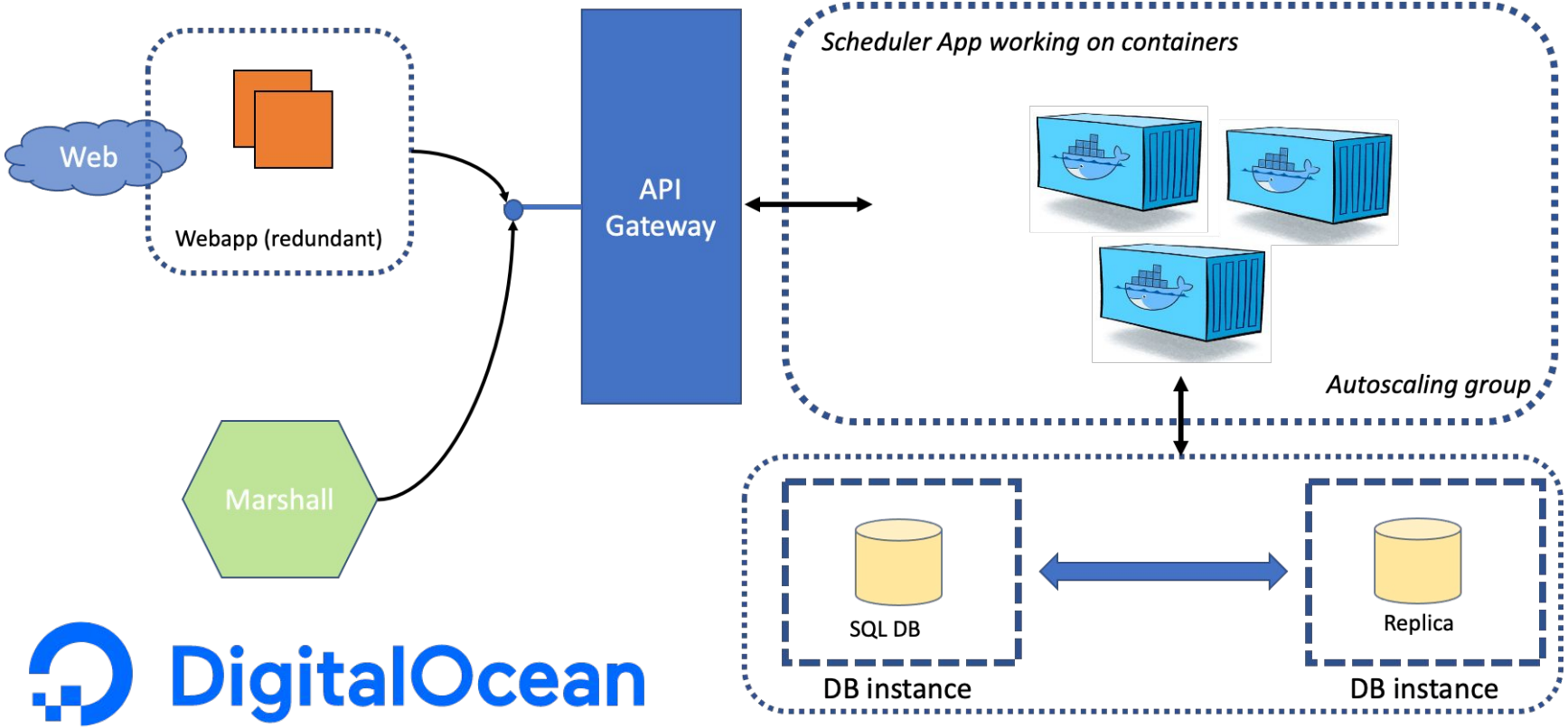
Urgent OB



OB is created automatically and put in the VES for execution

Alarm triggered via SMS, EMail and console to the operator on the mountain

High Availability architecture



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Open point and questions

1. We had discussion with classification WG about the possibility to include different feeders for the Marshall (that best suite the need from the WG). This will include discussion at technical and PI level for agreement

2. Using of the previous surveys data on transient for “on-the-fly” guess classification of transients entering the Marshall. This will require ML models (training, validation , etc.). Good point for contributing to the Classification WG.

Thanks