

Future GGOS Communications in combination with new observation strategies

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NEXPRes



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für
Radioastronomie

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and the Wettzell team
plus cooperation partners

Standardizing interfaces (and system software)

Communication includes ...

Interfaces
Protocols
Workflows
Data & Formats
SW/HW Techniques
Strategies
Safety & Security

...

Access points,
available functionalities

Communication rules
and styles

Communication and
operation schedule

Communication data and
storage descriptions






Communication software and
hardware in a
development process

(New) strategies to operate
sites using communication

Authenticity and reliability

Standardization
&
synergies over
services and
system borders

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-  Interfaces
- Protocols
-  Workflows
-  Data & Formats
- SW/HW Techniques
-  Strategies
-  Safety & Security

Access points, available functionalities

Communication rules and styles

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(New) strategies to operate sites using communication

Authenticity and reliability

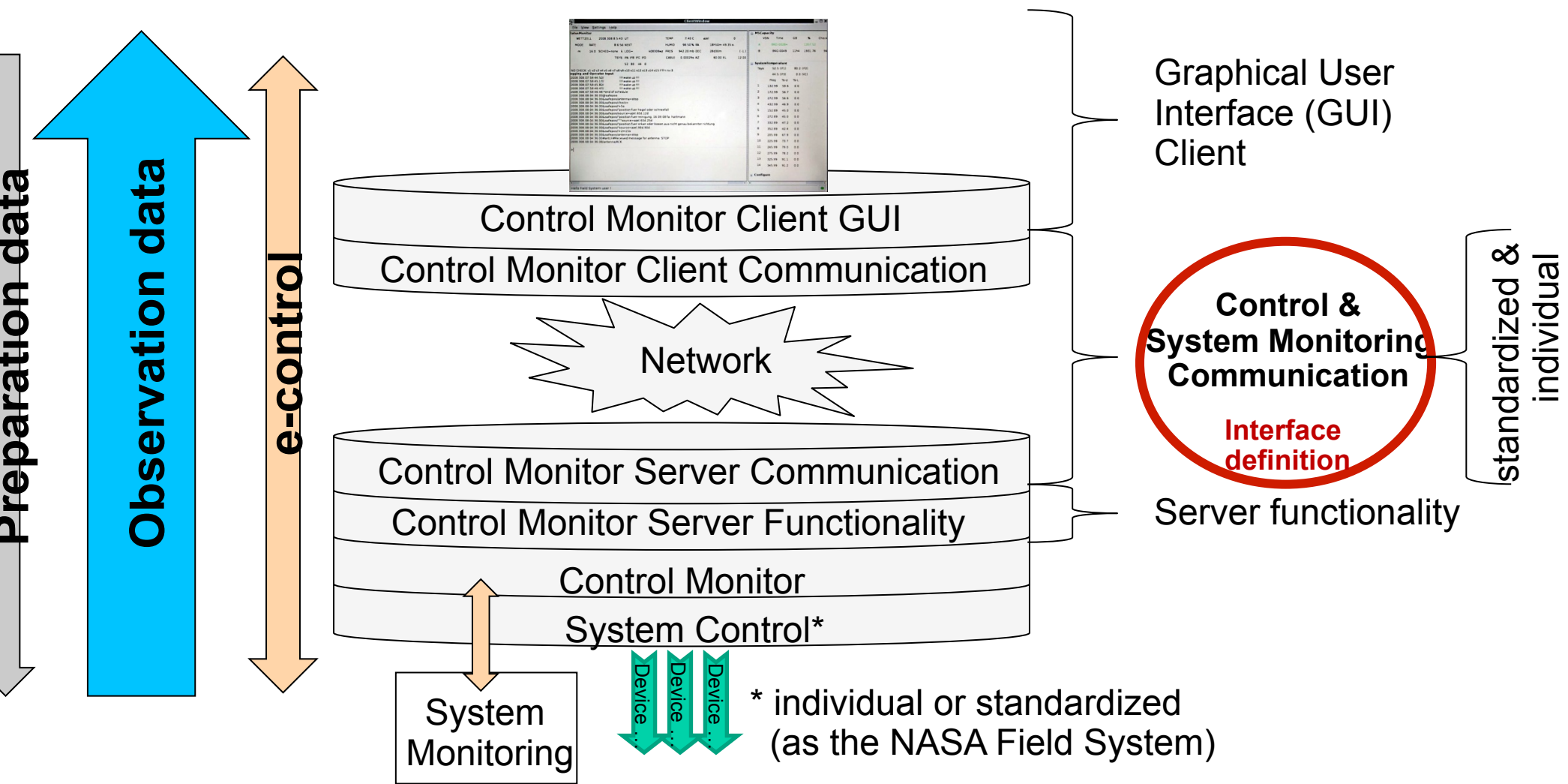
Standardization & synergies over services and system borders

...



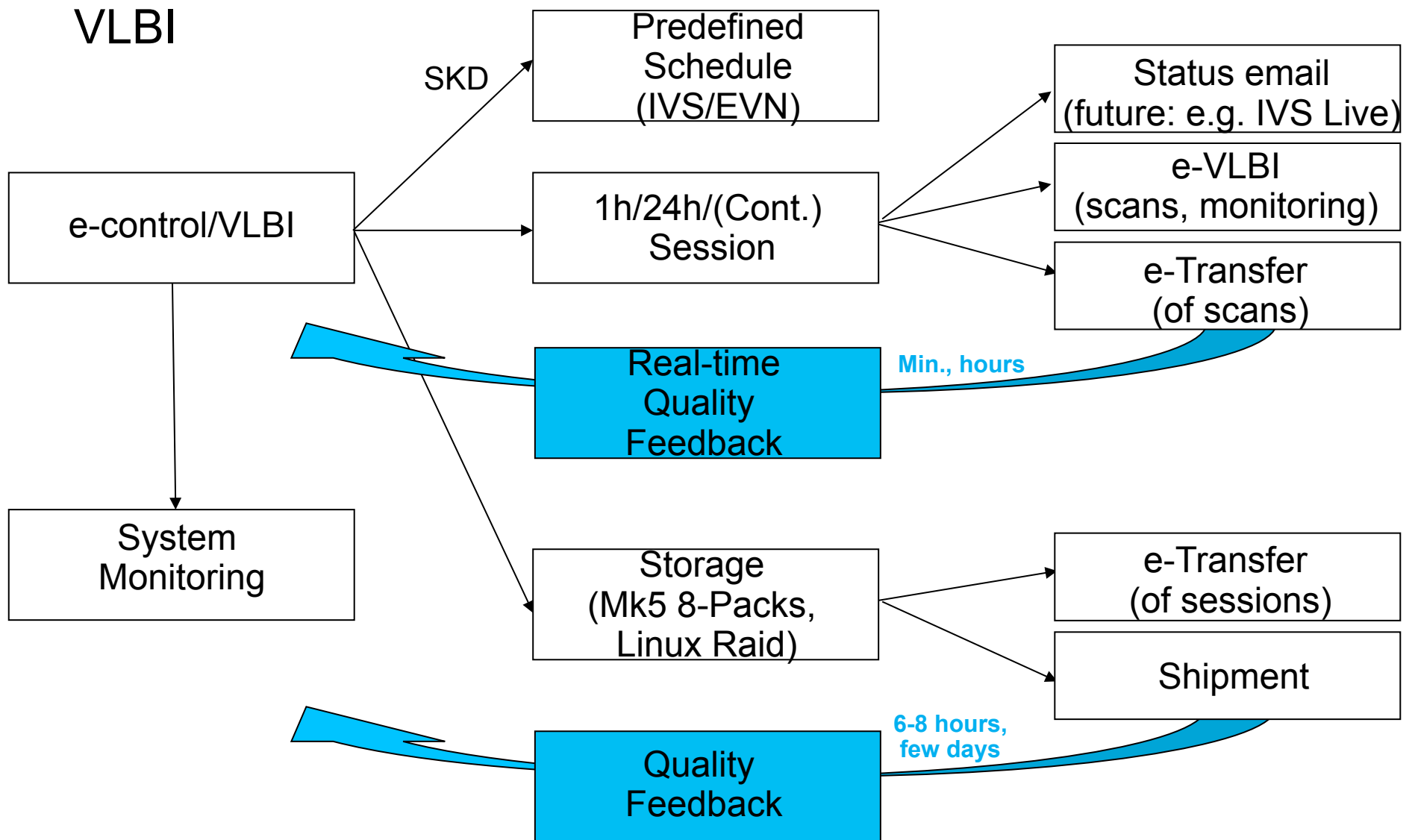
Quick overview in this presentation

Communication lines (including future e-control)

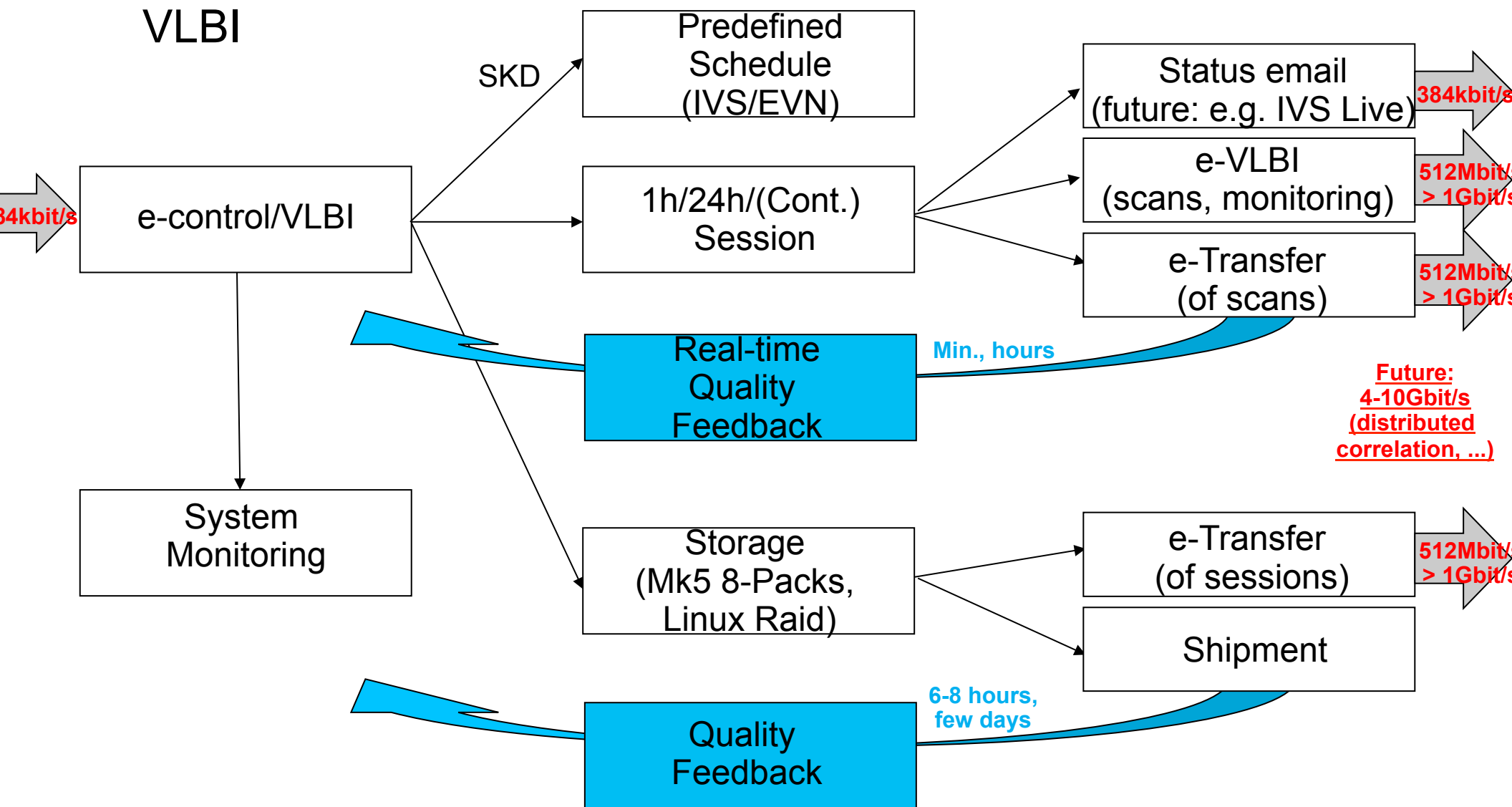


System workflows (and technical similarities)

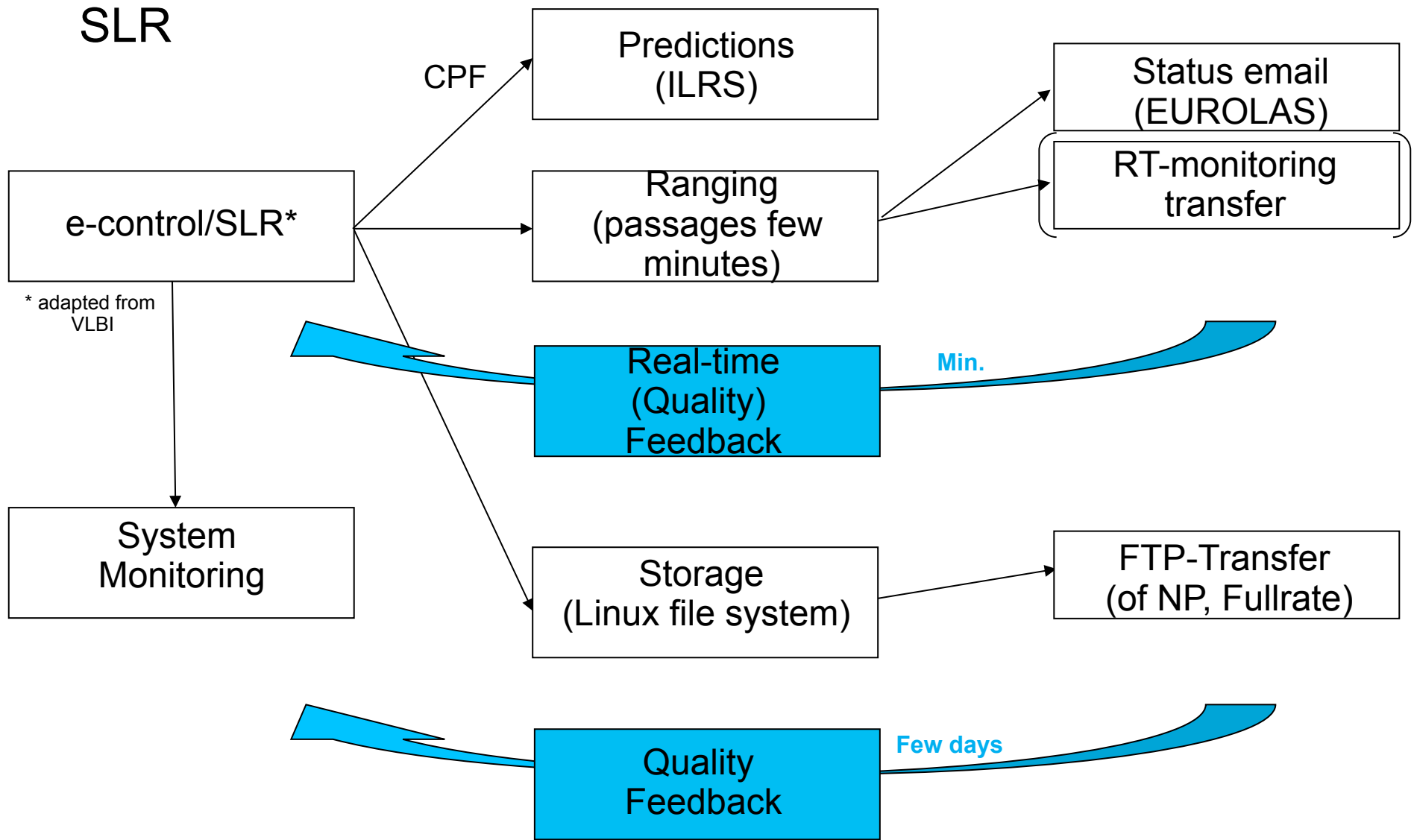
The workflows on a technical point of view



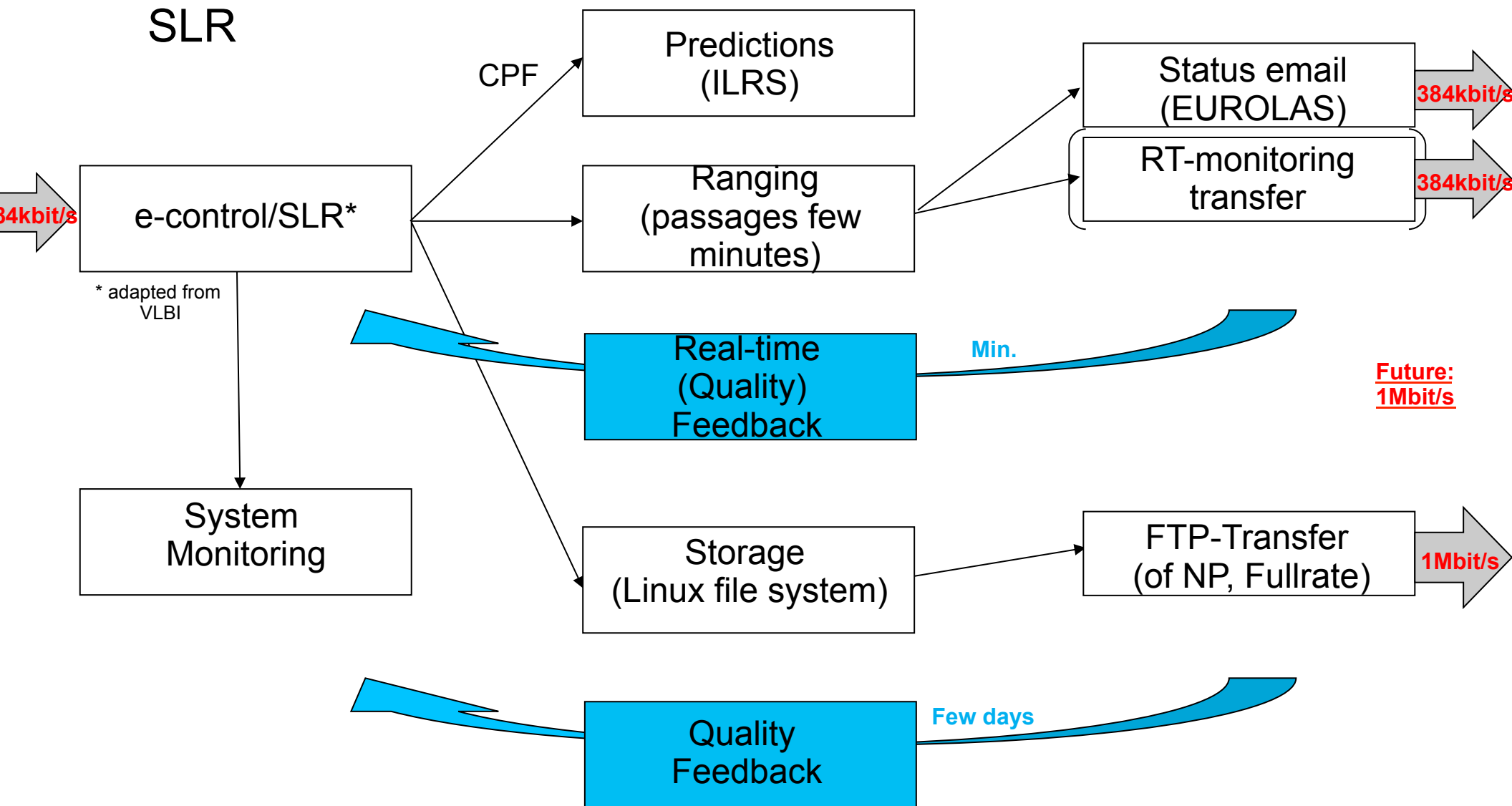
The workflows on a technical point of view



The workflows on a technical point of view

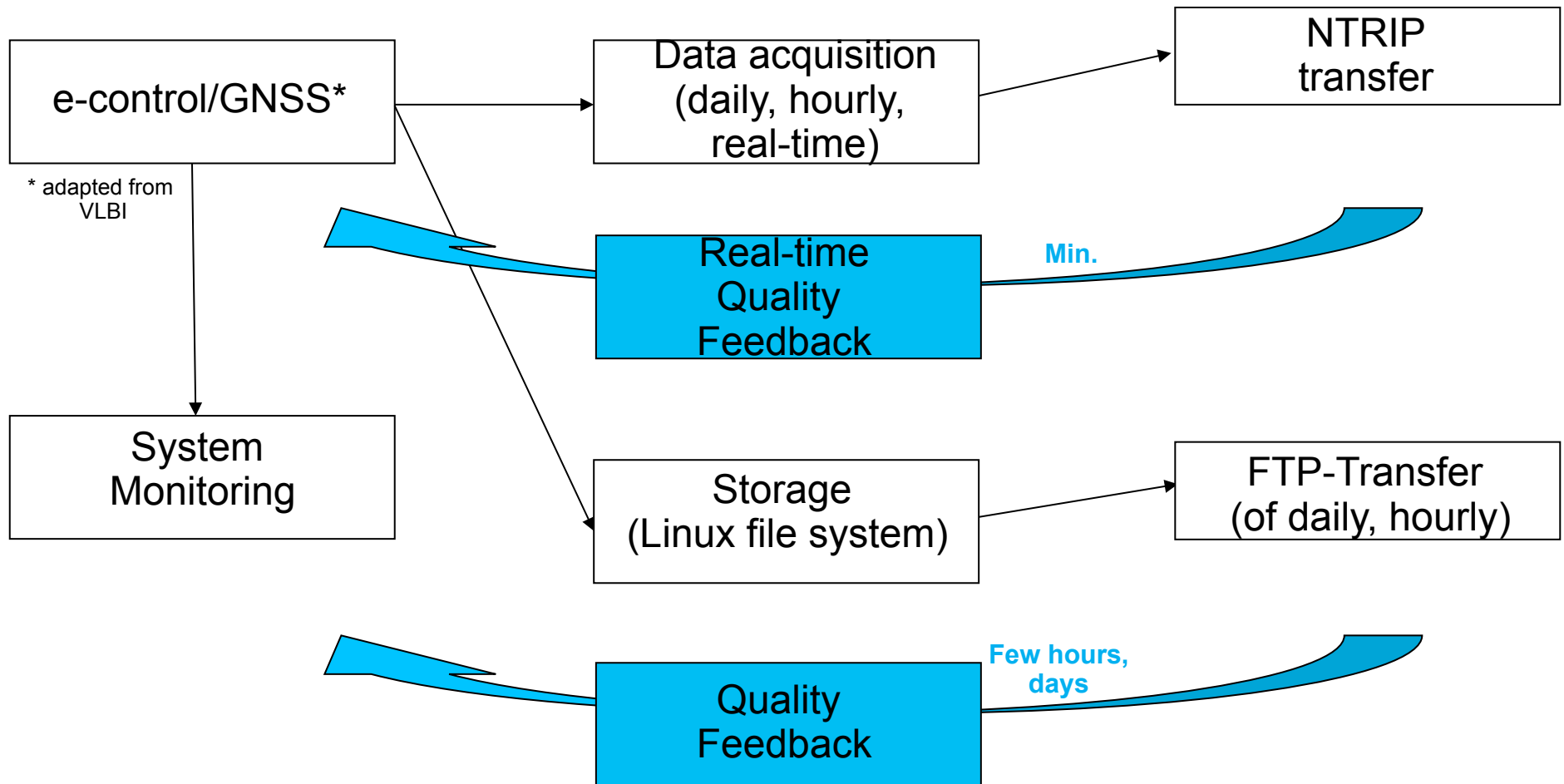


The workflows on a technical point of view



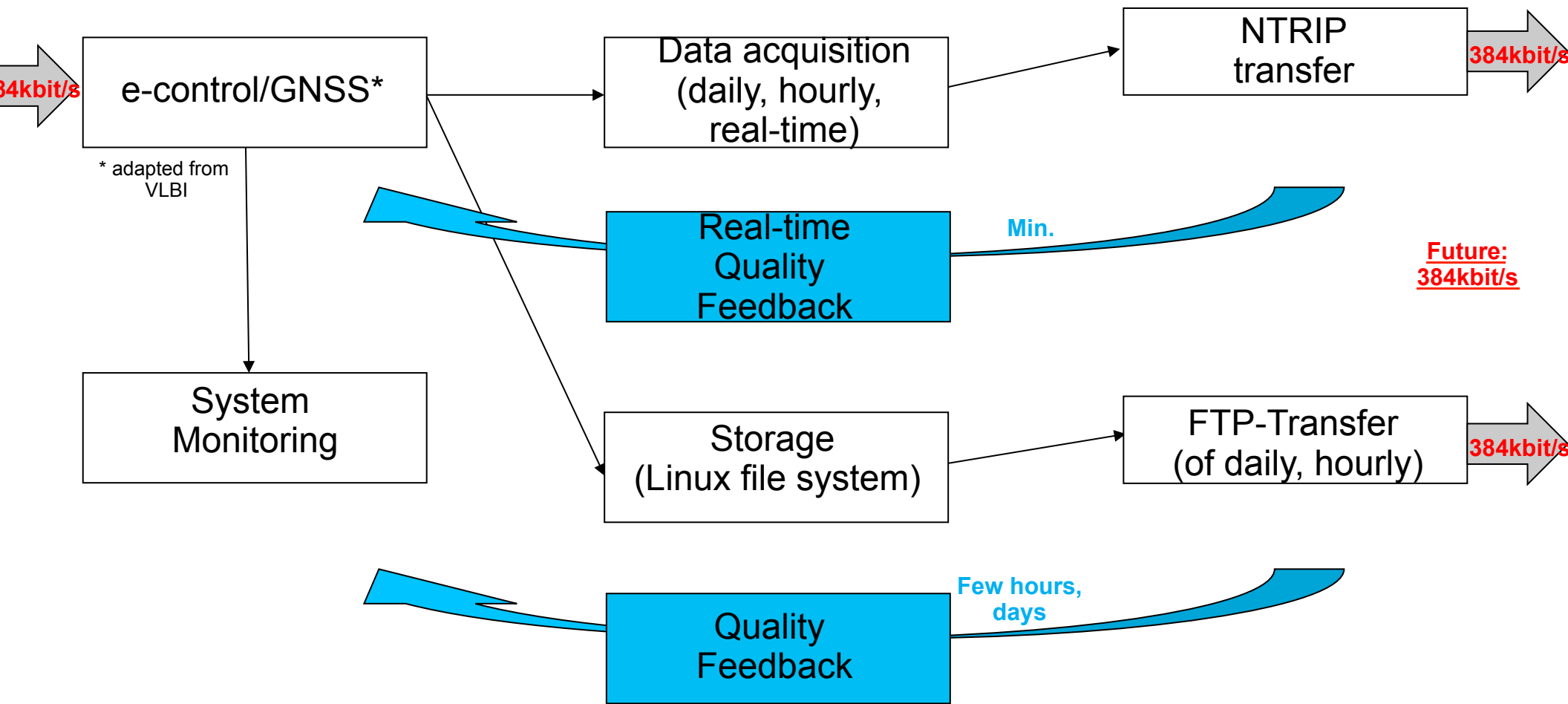
The workflows on a technical point of view

GNSS



The workflows on a technical point of view

GNSS



New control strategies

New observation strategies



Local

- Standard operations
- Local operator

New observation strategies



Local

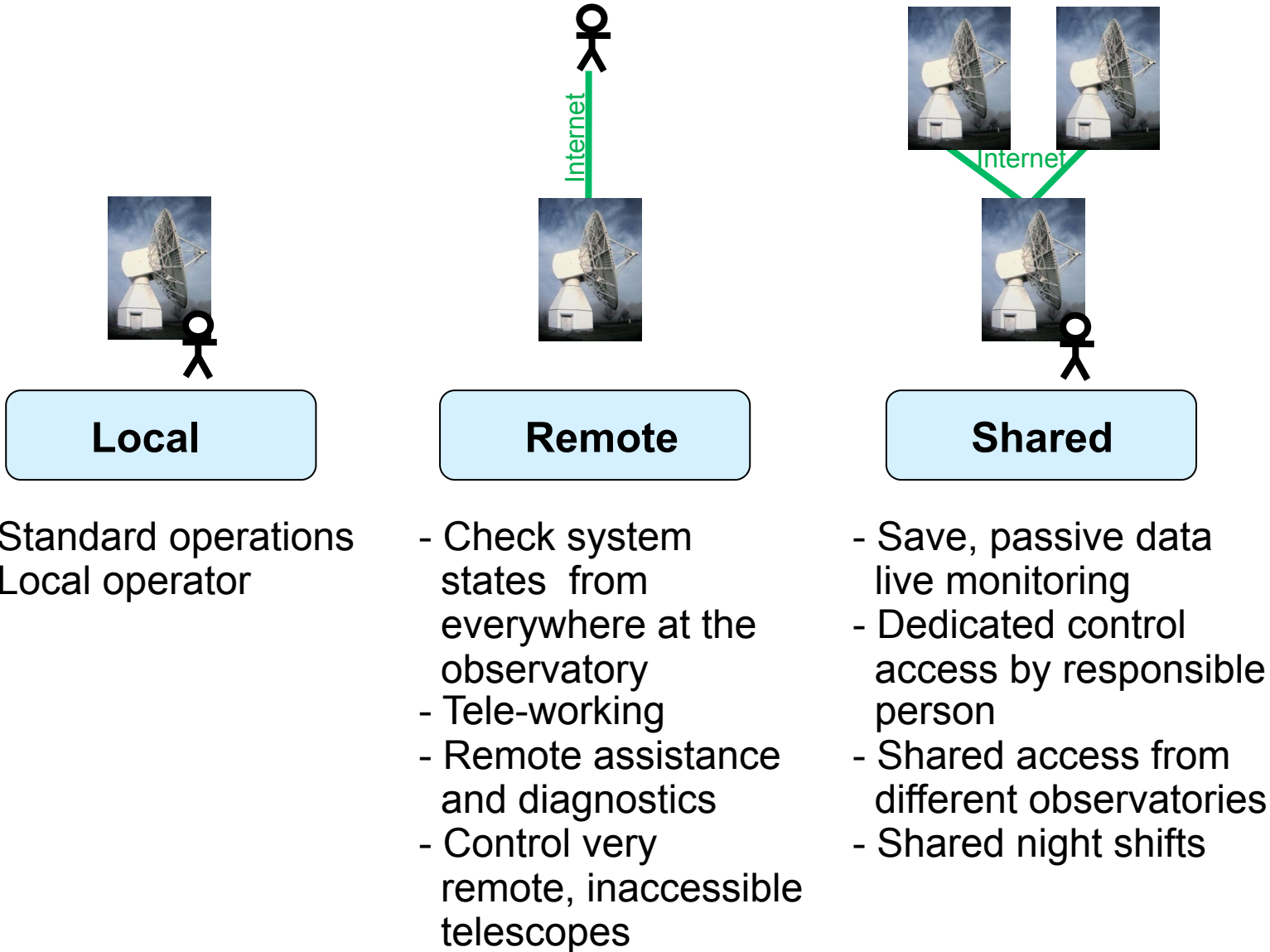
- Standard operations
- Local operator



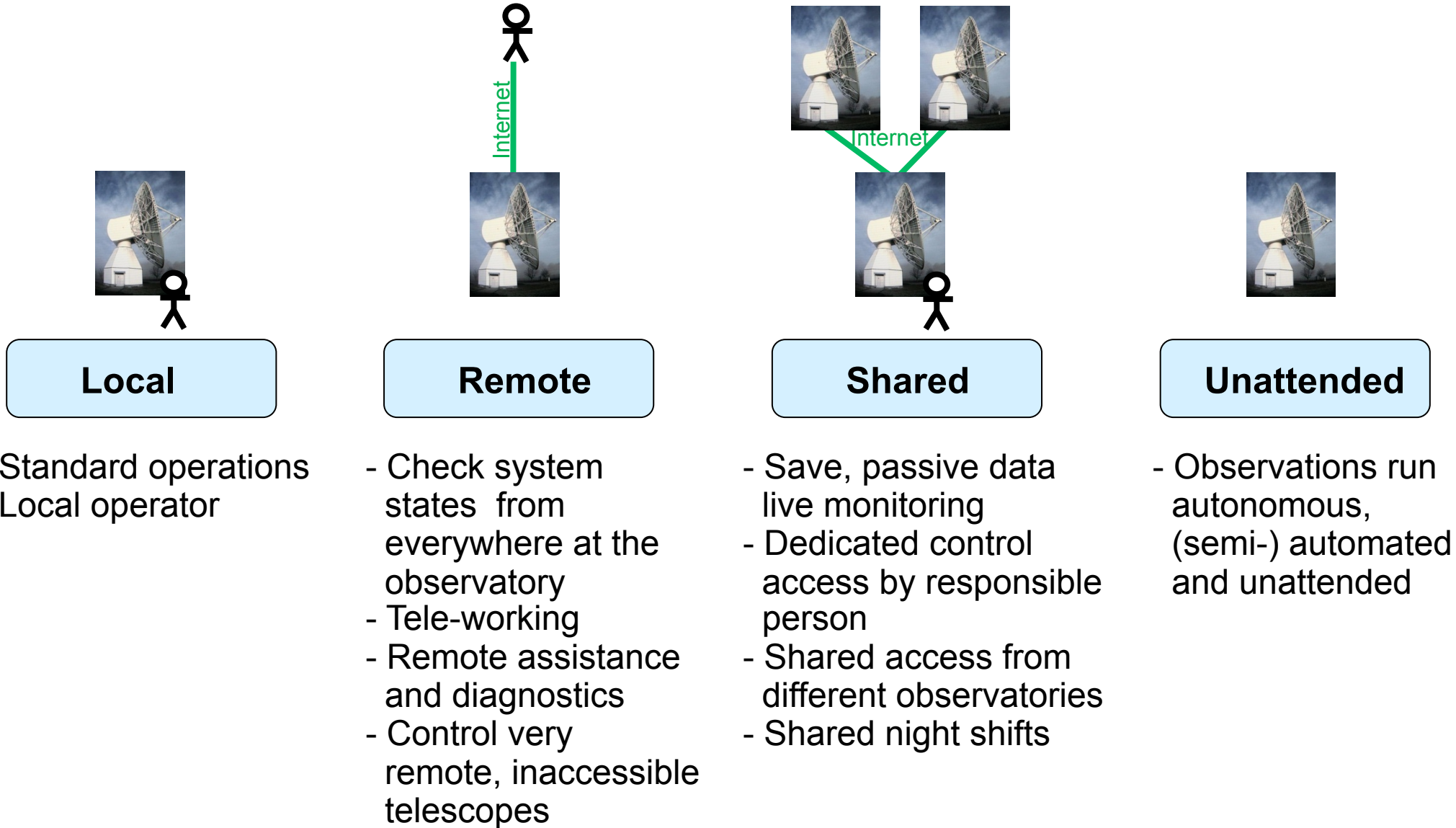
Remote

- Check system states from everywhere at the observatory
- Tele-working
- Remote assistance and diagnostics
- Control very remote, inaccessible telescopes

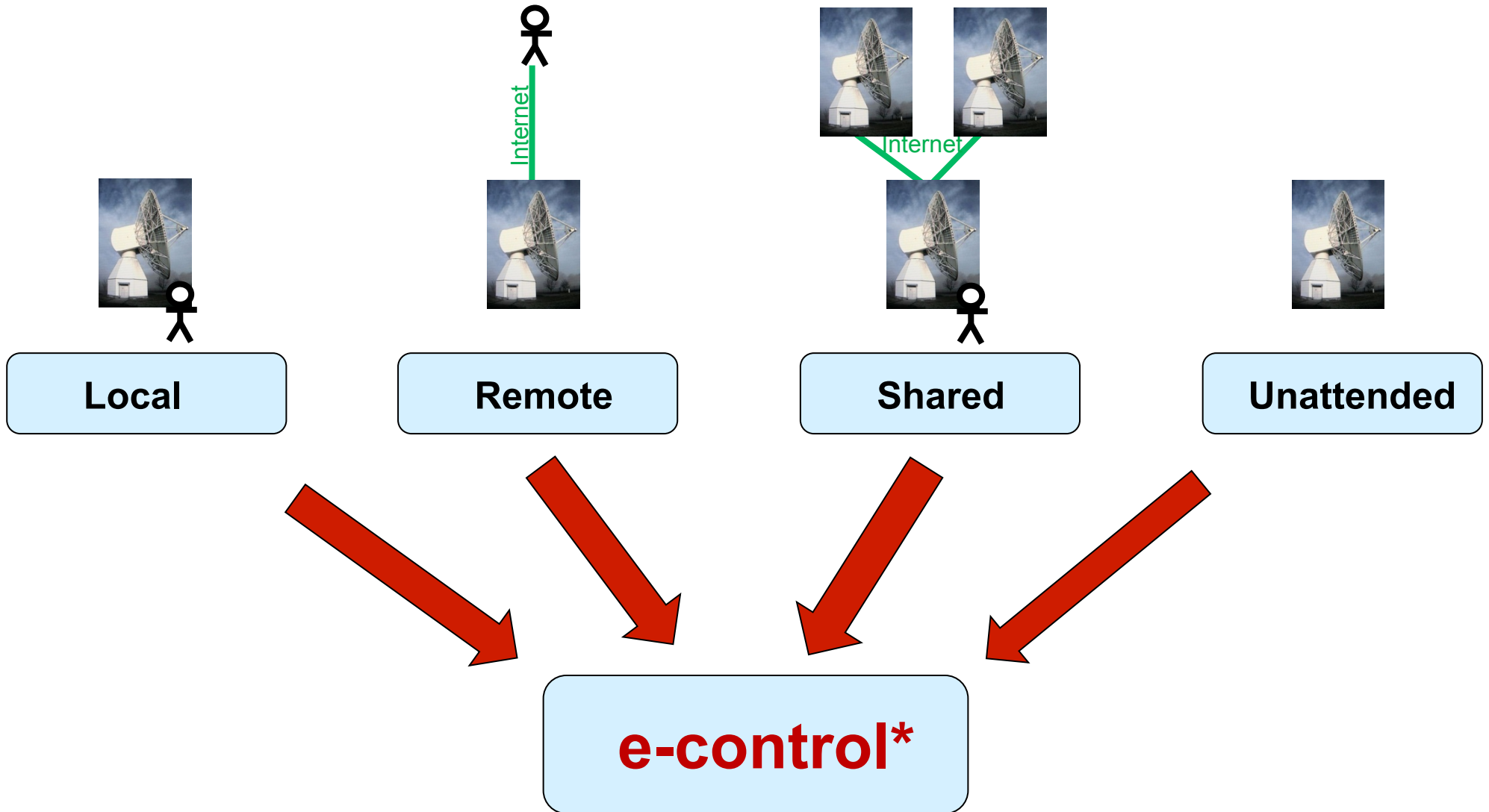
New observation strategies



New observation strategies



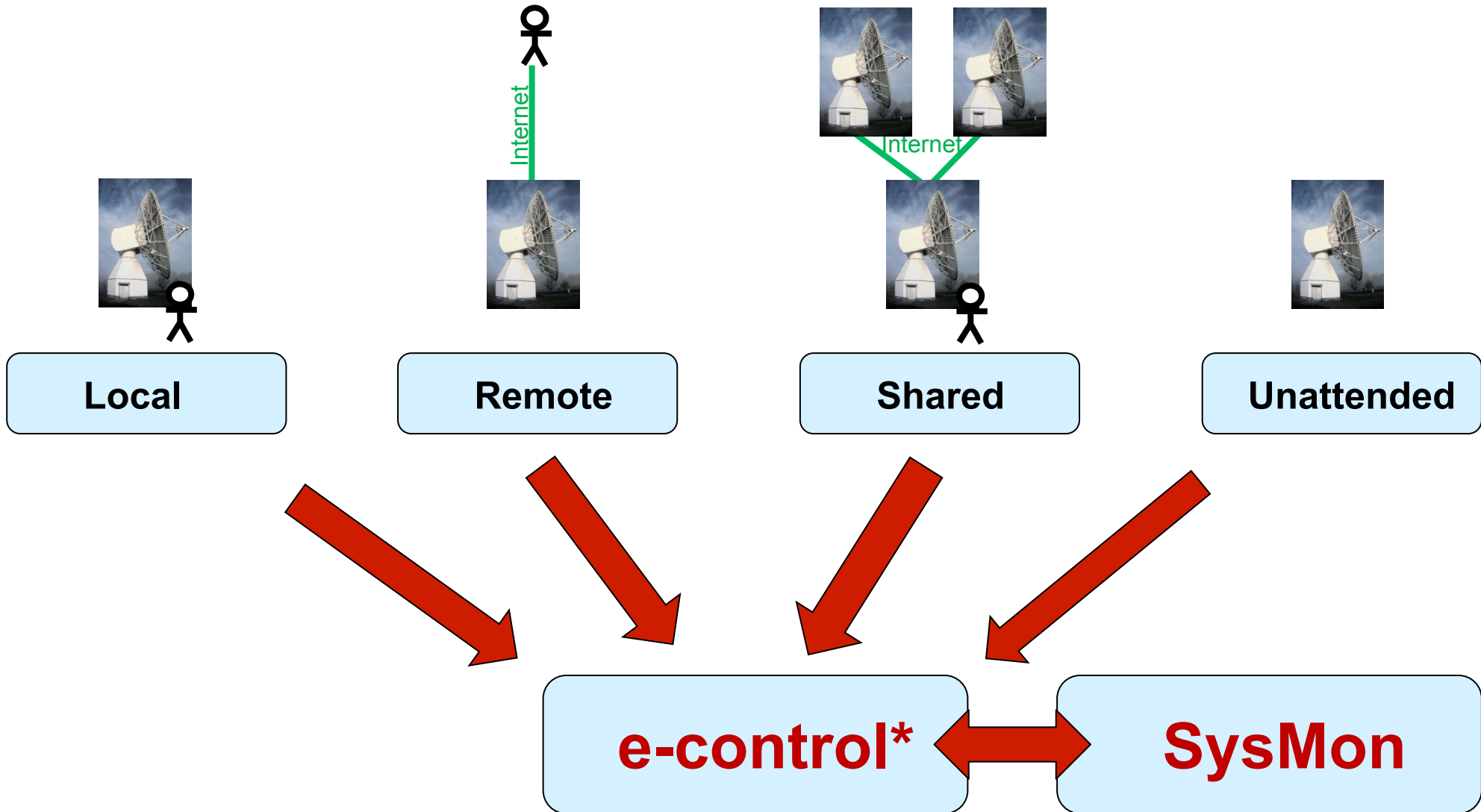
New observation strategies



*** per system with individual restrictions and only with reliable, well educated personnel staff on site**

e-control and SysMon

New observation strategies for VLBI telescopes Wettzell, O'Higgins/Antarctica and TIGO/Concepción



*** per system with individual restrictions and only with reliable, well educated personnel staff on site**

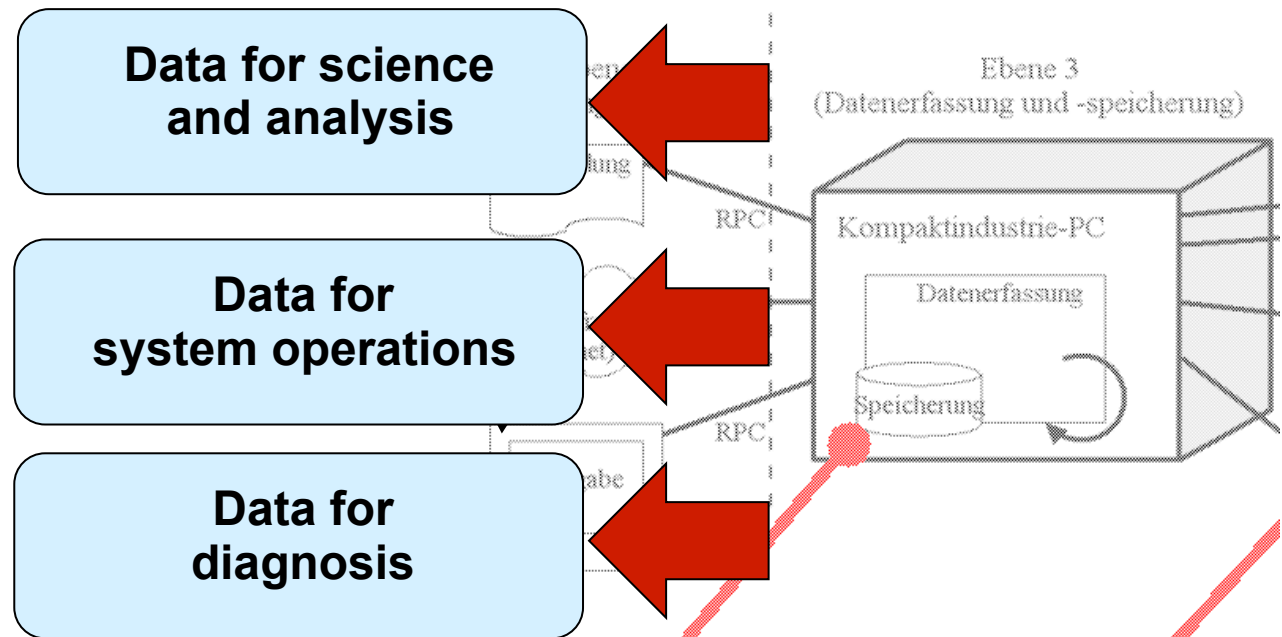
System Monitoring: SysMon

Local safety for people and systems in combination with reliability in operations

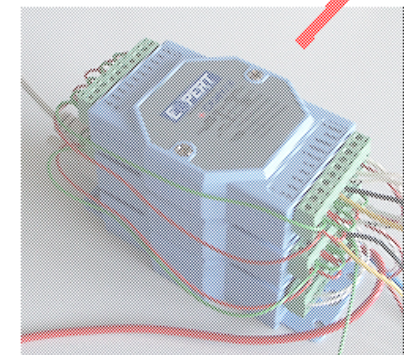
Meteo, WVR, Clock offsets, ...
=> low sampling rates
=> as scheduled

Power supply, wind uploads, emergency stops, rack temp., ...
=> medium sampling rates
=> permanently

Servo currents, contouring errors, ...
=> high sampling rates
=> on demand



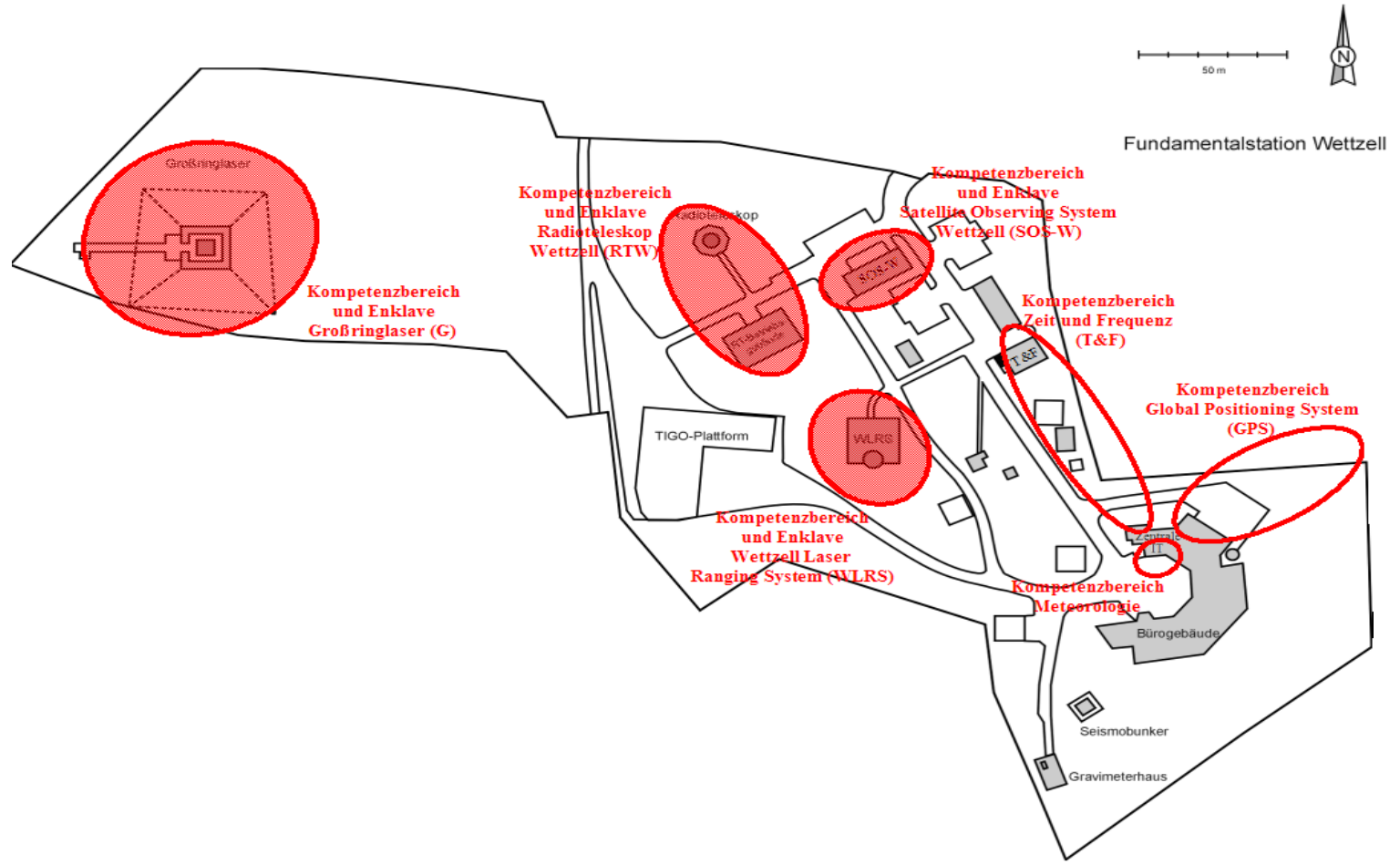
See also:
IVS VLBI2010 Monitoring and Control Interface Collaboration Group
=> Co-operations?



System security

On site security

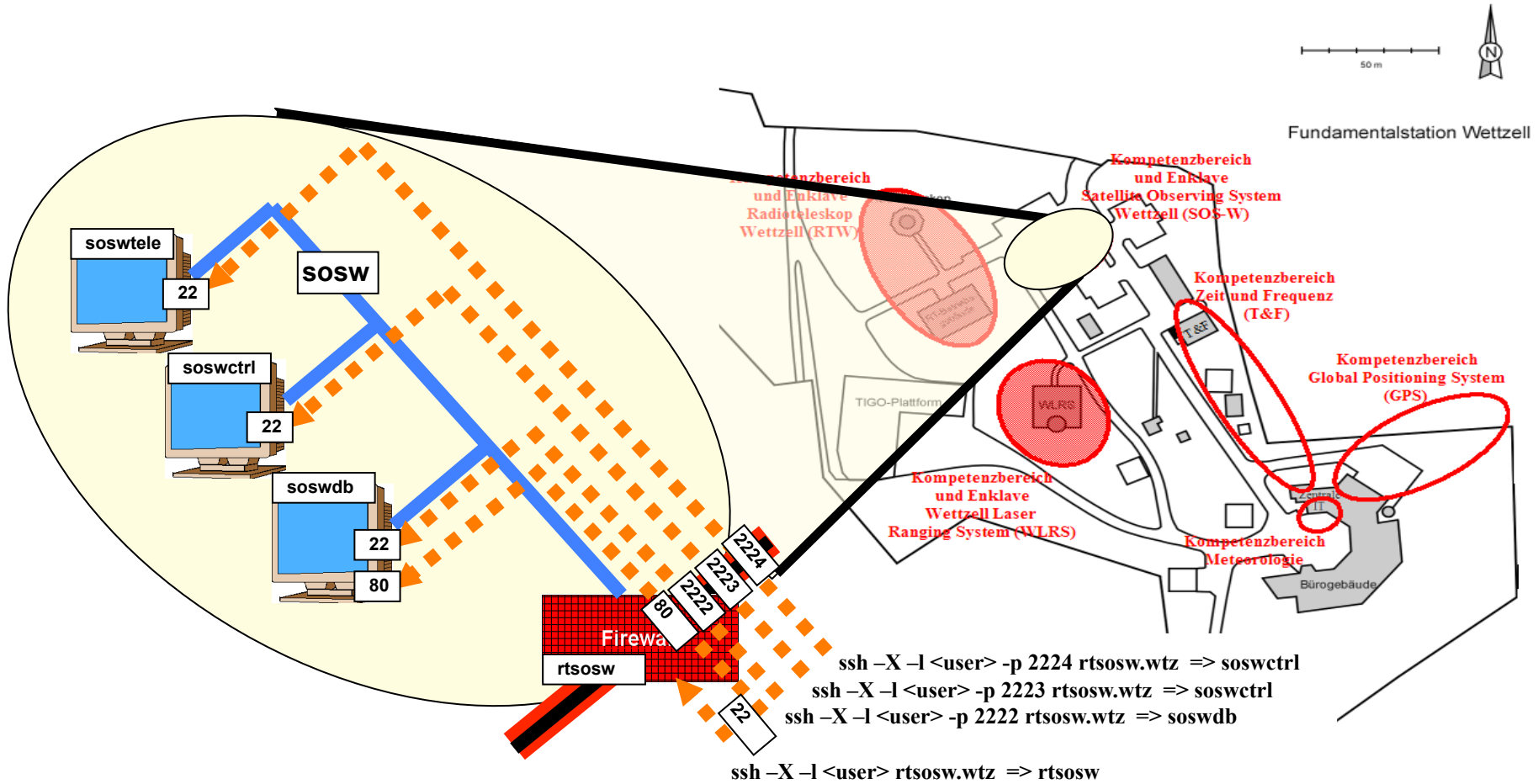
System and observatory enclaves



Ursprünglicher Stationsplan von Dr. Klügel, FS Wettzell

On site security

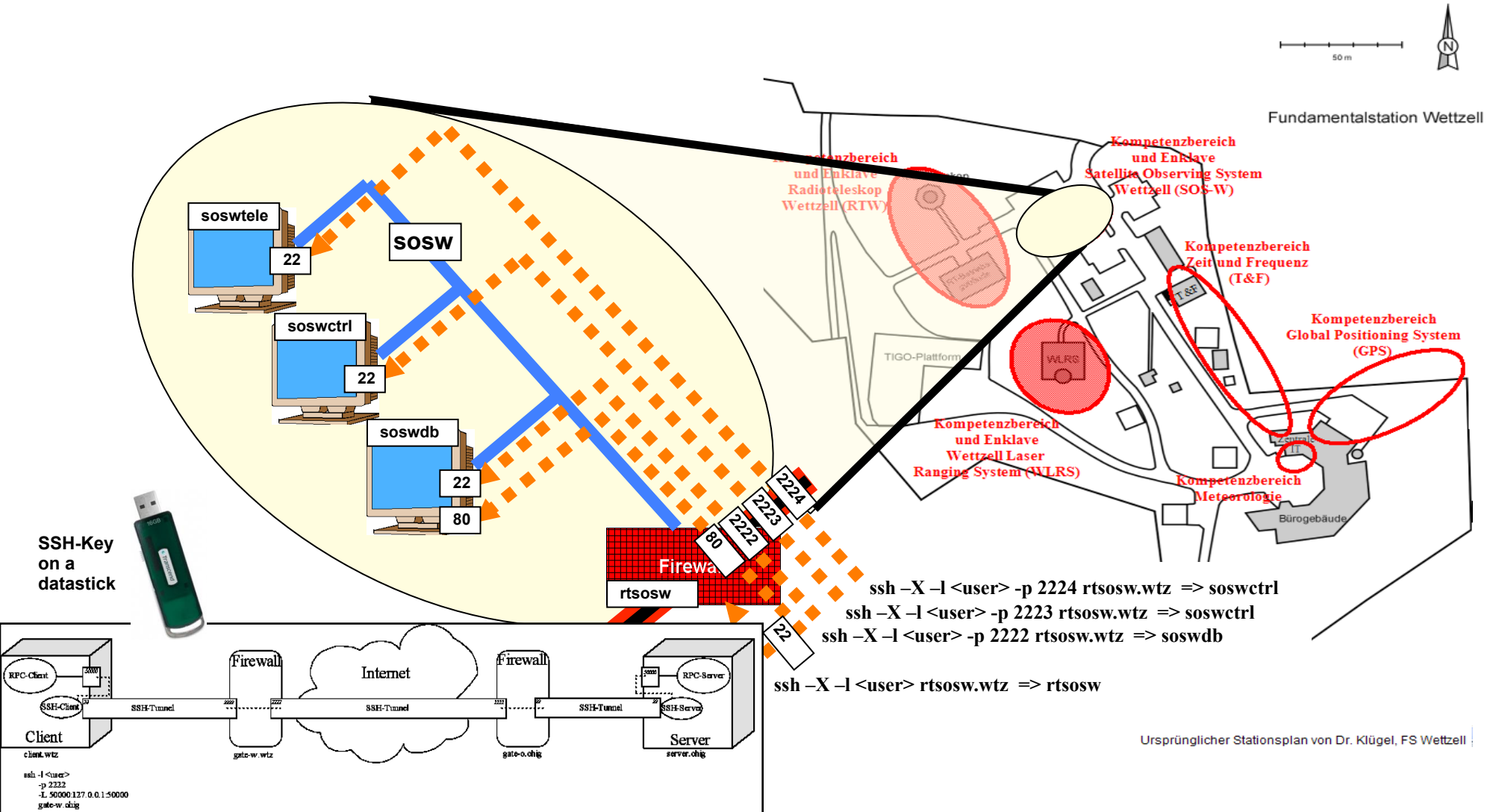
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Ursprünglicher Stationsplan von Dr. Klügel, FS Wettzell

On site security

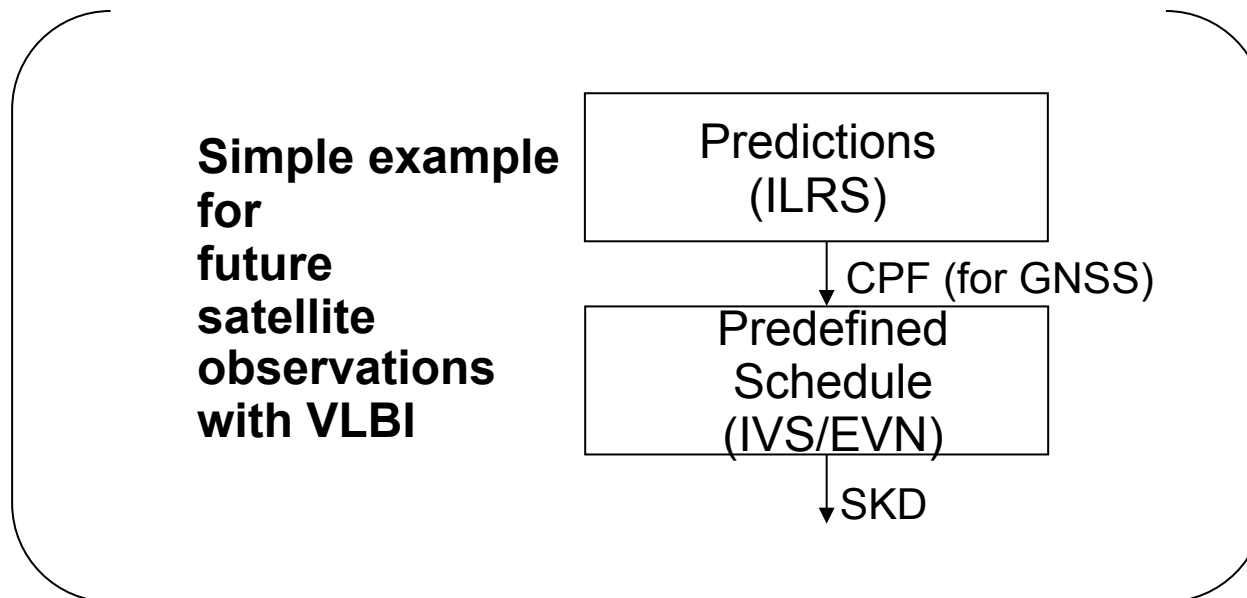
System and observatory enclaves



Suggestion

Cooperate ...

e.g. by establishing a cooperation group comparable to the MCI group but over service and system borders



Thank you!



New control centers ...

... and everything also in a pocket!



Similar to: Hase, Hayo; et. al.: Twin Telescope Wettzell (TTW) – a VLBI2010 Radio Telescope Project. IVS General Meeting 2008