

# Inter-site issues

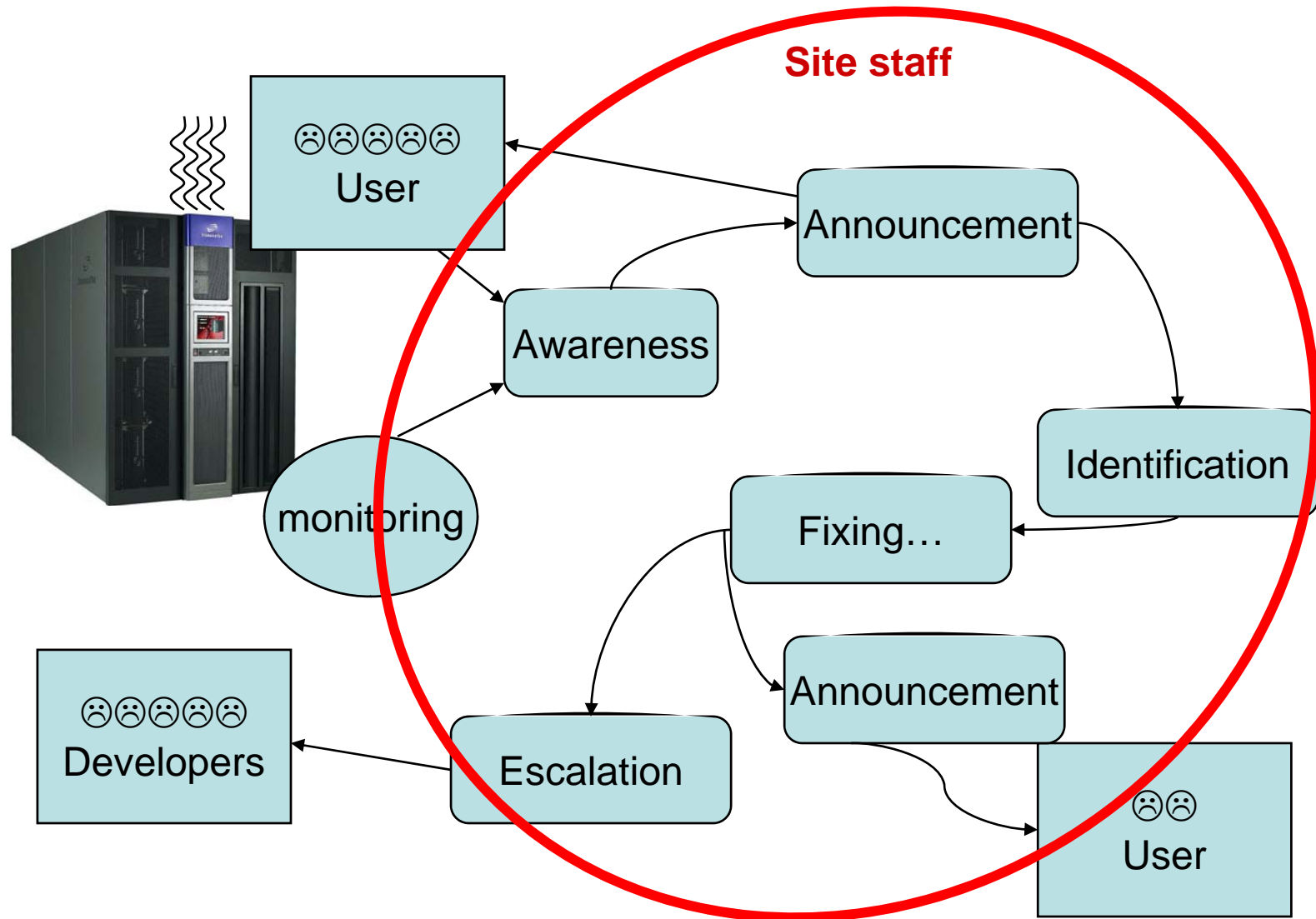
[Olof.barring@cern.ch](mailto:Olof.barring@cern.ch)

[Miguel.coelho.santos@cern.ch](mailto:Miguel.coelho.santos@cern.ch)

# Intra-site issues

- Power cuts, cooling problems
- Hardware failures
- Service problems (storage, CPU, database, monitoring,...)
  - Performance problems
  - Bottlenecks
  - Overload
- Ownership: site
- Motivation to fix: underused or wasted resources
- Contract: MoU
- Workaround: avoid site

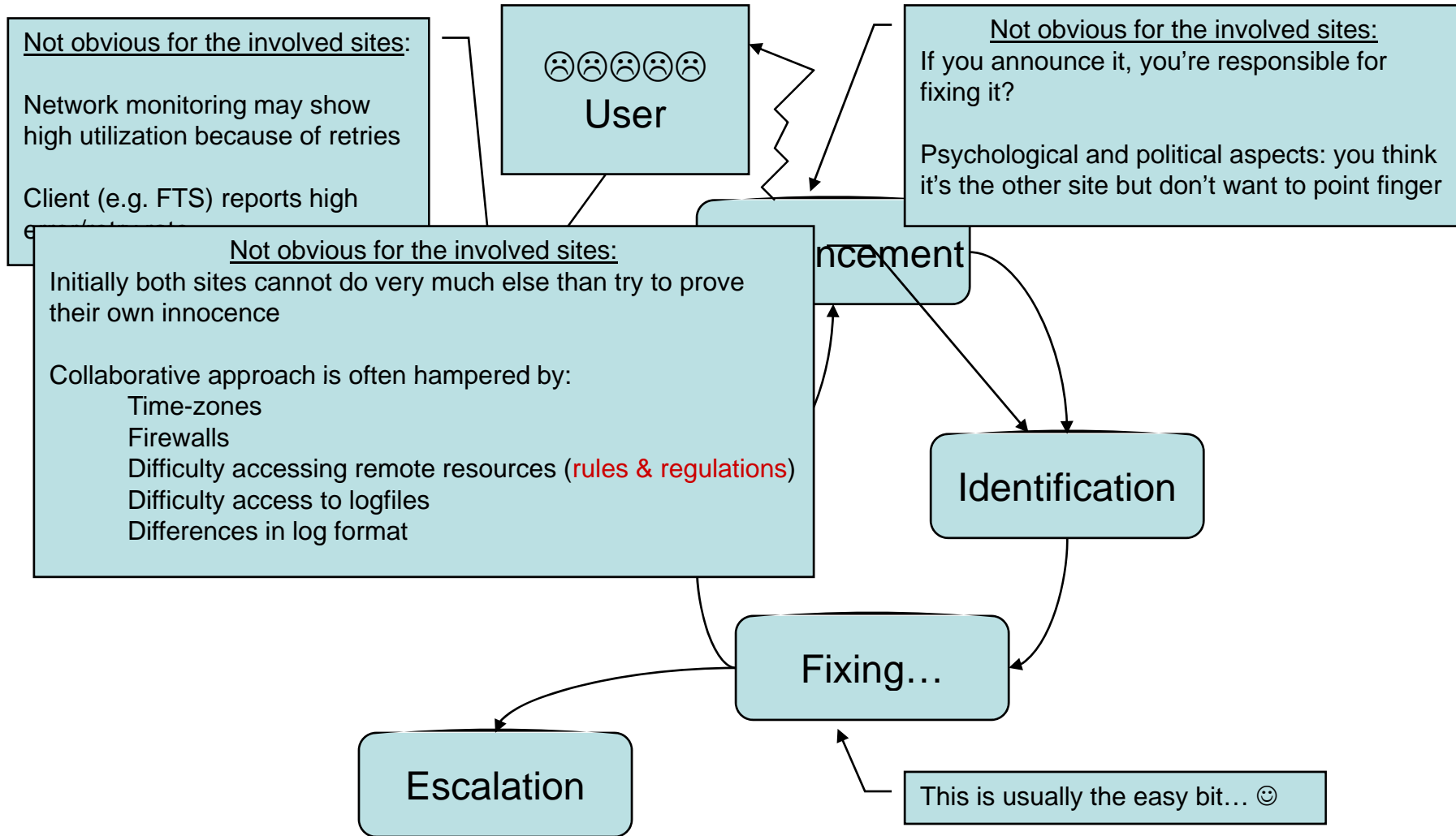
# Site issue lifecycle



# Inter-site issues

- Issue involves more than one site
- WAN network problem
- Service problems (file transfer, db synchronization...)
  - Performance bottlenecks
  - Errors
  - Overload
- Ownership: unknown/none
- Motivation to fix: underused or wasted resources
- Contract: none
- Workaround: avoid sites?

# Inter-site issue lifecycle



# Examples (I)

- (2006) Tier-2 -> Tier-0 CMS phedex transfers were debugged by CASTOR Ops team at CERN because it was a 'CASTOR problem'.

At the end most problems were related to firewall settings on the sources (Tier-2s).

A throughput problem was caused by a faulty module on the HTAR firewall at CERN.

# Examples (II)

- (2007) Tier-0 -> Tier-1 ATLAS DQ2 transfers investigated because of several unclear error messages reported by FTS concerning the 3rd-Party Grid-ftp transfer.

*[GRIDFTP] an end-of-file was reached*

Error transmitted by the dCache client when file system is full.

*[GRIDFTP] the server sent an error response:*

*451 451 Local resource failure: malloc: Cannot allocate memory.*

After a timeout caused by inactivity on the data channels the CASTOR Grid-ftp server (at VDT level) tries to read the rest of the file into memory and fails on the malloc

# Error reporting

## **\*\*\* Failures Report\*\*\***

**\*\*\* Error "451 Local resource failure: malloc: Cannot allocate memory." - 2410 requests**

\*\*\*\*.sara.nl - 2179 errors

\*\*\*\*.in2p3.fr - 175 errors

\*\*\*\*.bnl.gov - 56 errors

**\*\*\* Error "426 Data connection. data\_write() failed: Handle not in the proper state" - 228 requests**

\*\*\*\*.sara.nl - 161 errors

\*\*\*\*.bnl.gov - 67 errors

**\*\*\* Error "425 Can't open data connection. data\_connect\_failed() failed: a system call failed (Connection refused)." -69 requests**

\*\*\*\*.sara.nl - 69 errors

**\*\*\* Error "421 Timeout (900 seconds): closing control connection." - 20 requests**

\*\*\*\*.sara.nl - 11 errors

\*\*\*\*.bnl.gov - 8 errors

\*\*\*\*.in2p3.fr - 1 errors



# How to improve (1)

- Awareness of the problem
  - Inter-site monitoring
    - Global repository of FTS error reports
    - SAM probes for inter-site problems?
      - SE – SE criss-cross
- Announcement of the problem
  - ... yeah?

# How to improve (2)

- Identification of the problem
  - Remote access
    - Permanent access not feasible...
      - Personal login → combinatory problem with many sites and people involved at the sites
      - Generic/anonymous login not acceptable
    - Temporary access expiring after X hours?
  - Is there a need for a ‘site transfer responsible on duty’ assigned at each site?
    - Probably only working hours coverage so the timezone is still an issue
    - However, it could be useful to know who to contact whenever you want to investigate some problem involving yours and some other site