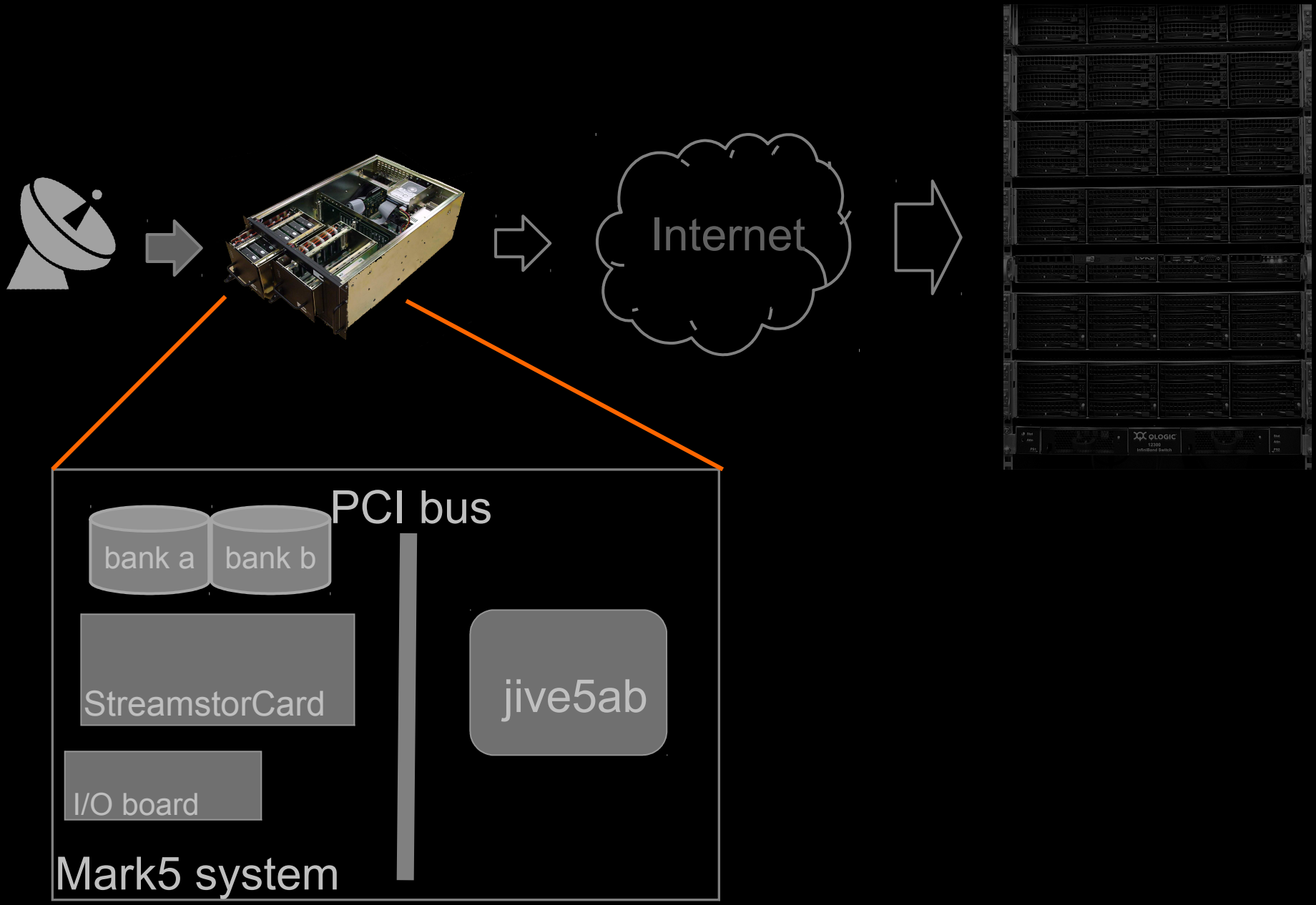
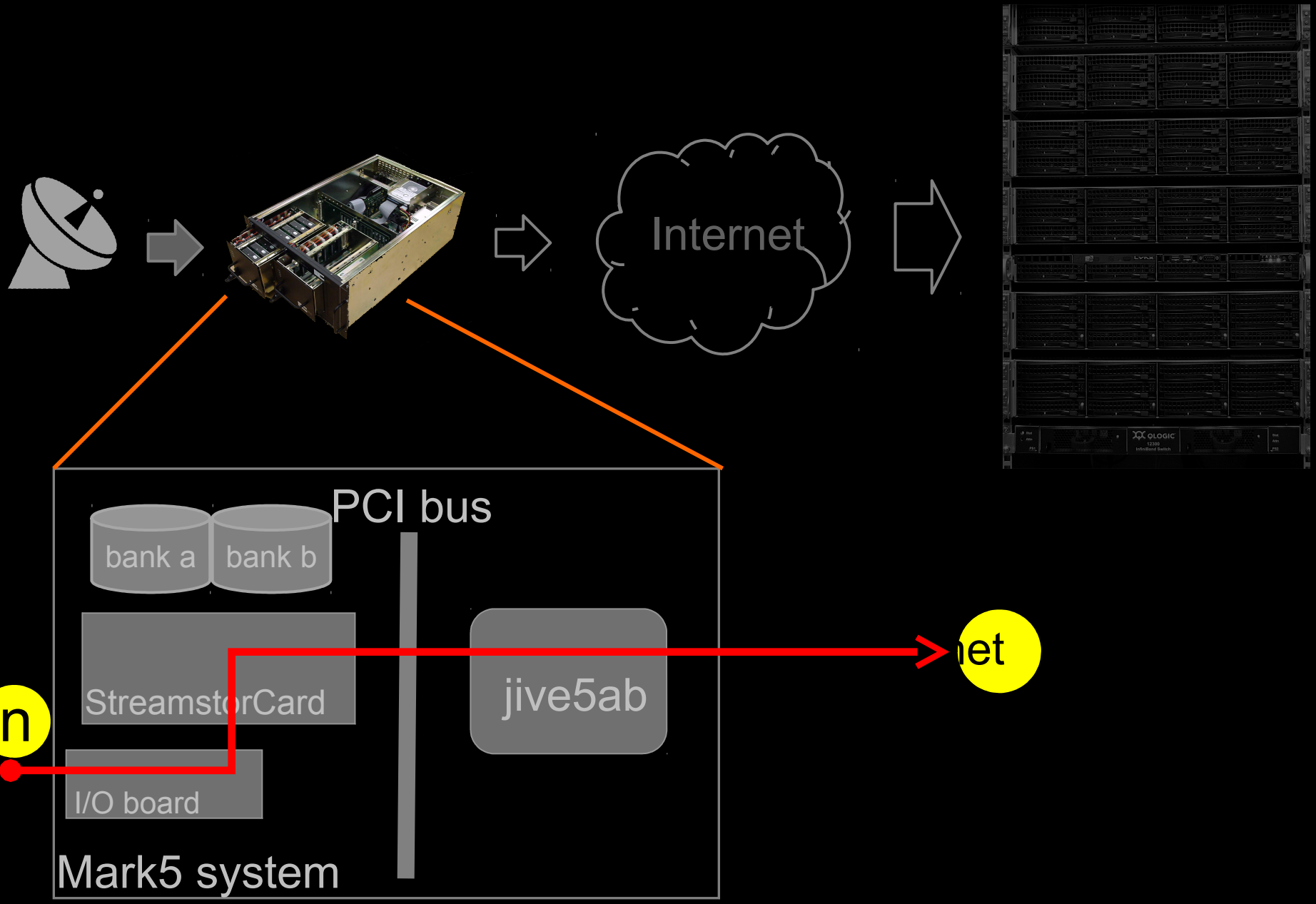
2048+ Mbps e-VLBI

and why it's different

Internet

Internet


Internet
PCI bus
bank a
bank b
StreamstorCard
jive5ab
I/O board
Mark5 system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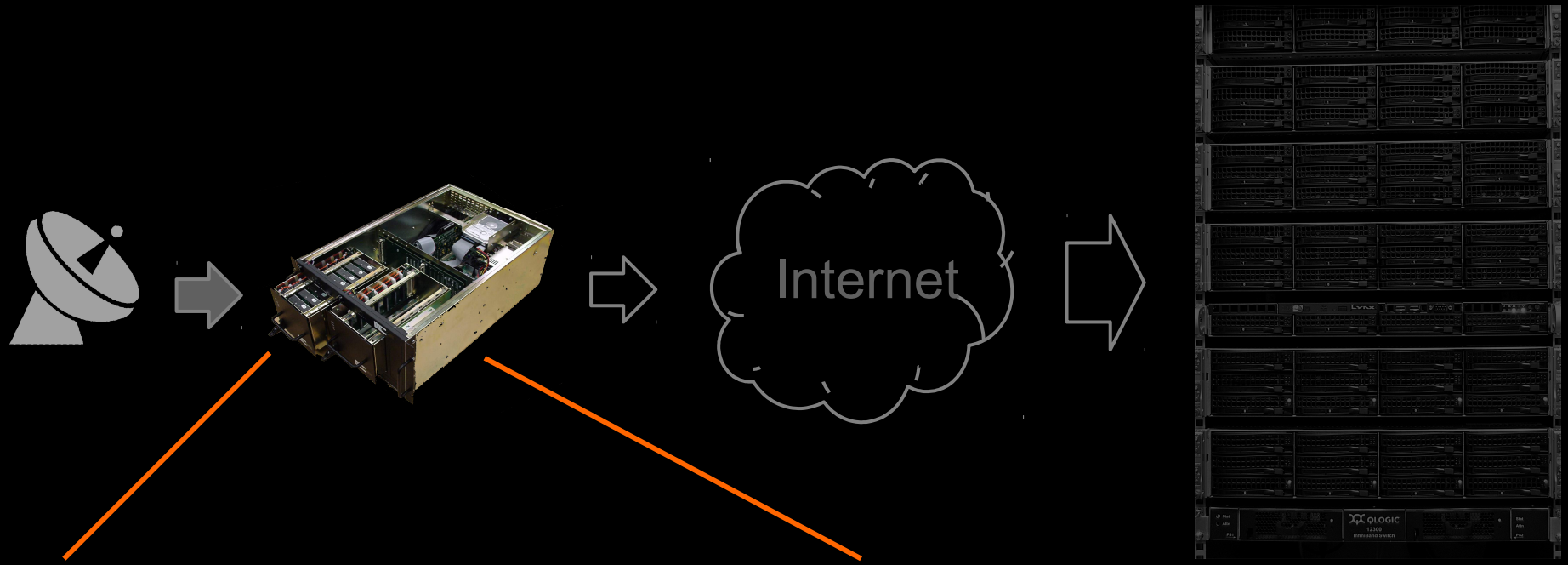
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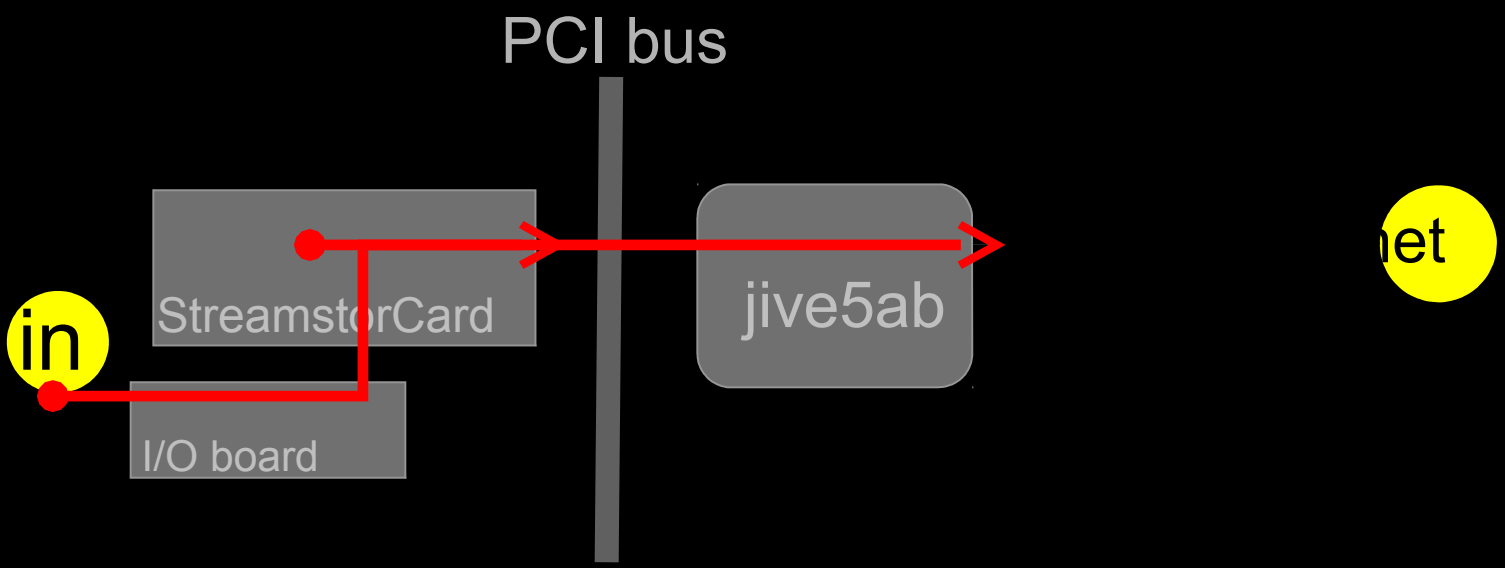
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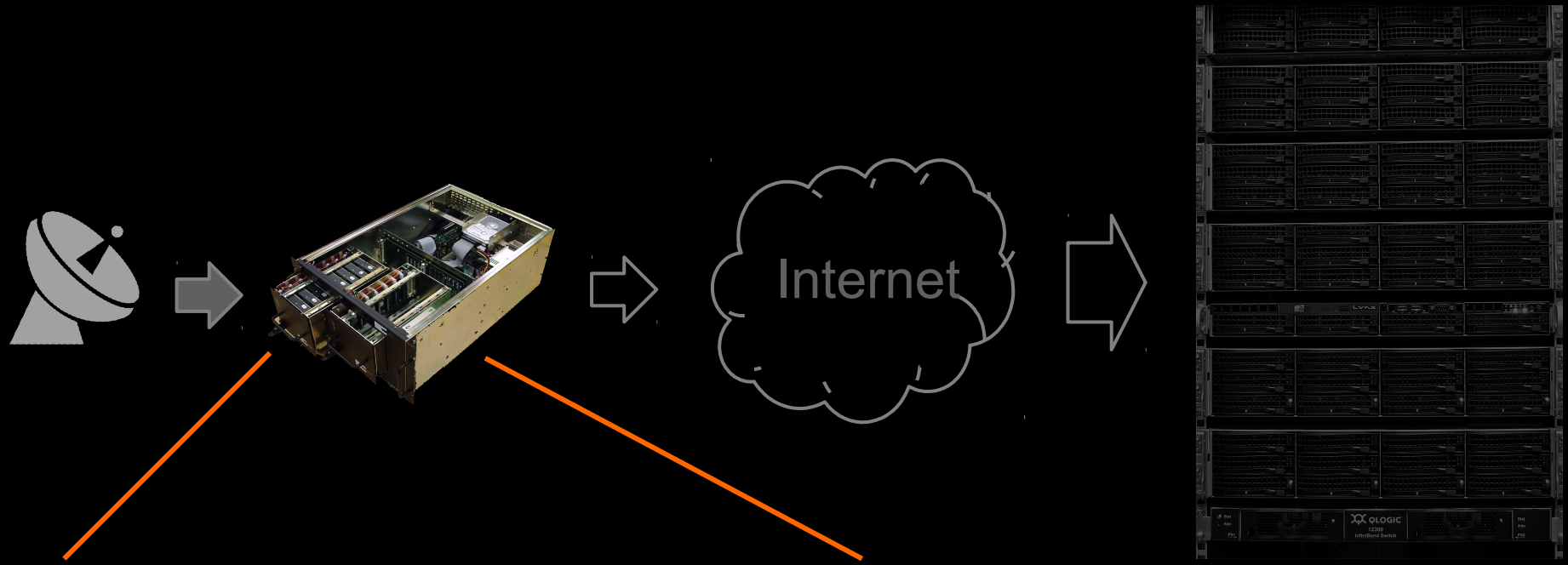
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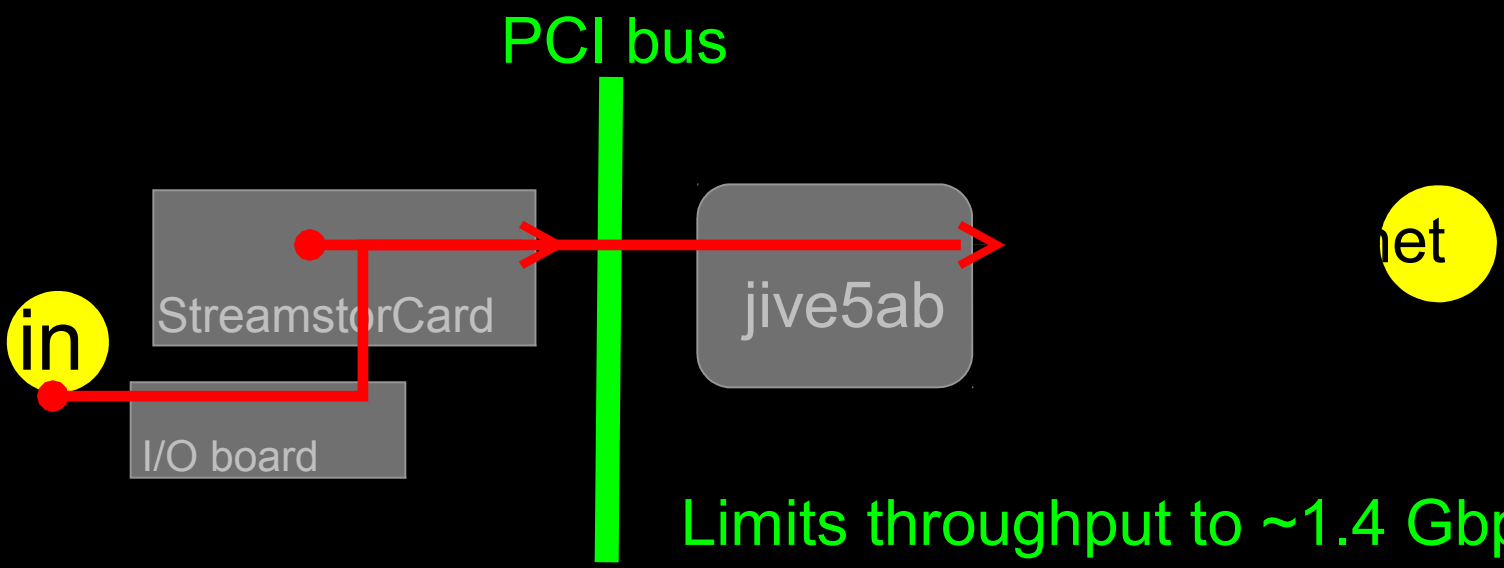
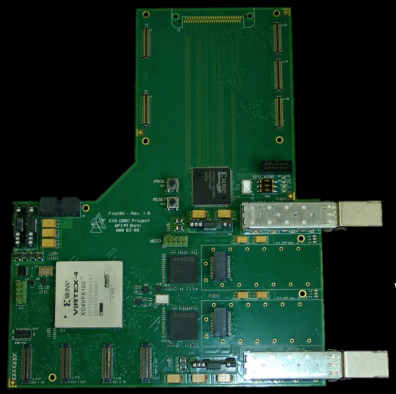

PCI bus
StreamstorCard
jive5ab
in
I/O board
et
Limits throughput to ~1.4 Gbps!

Internet



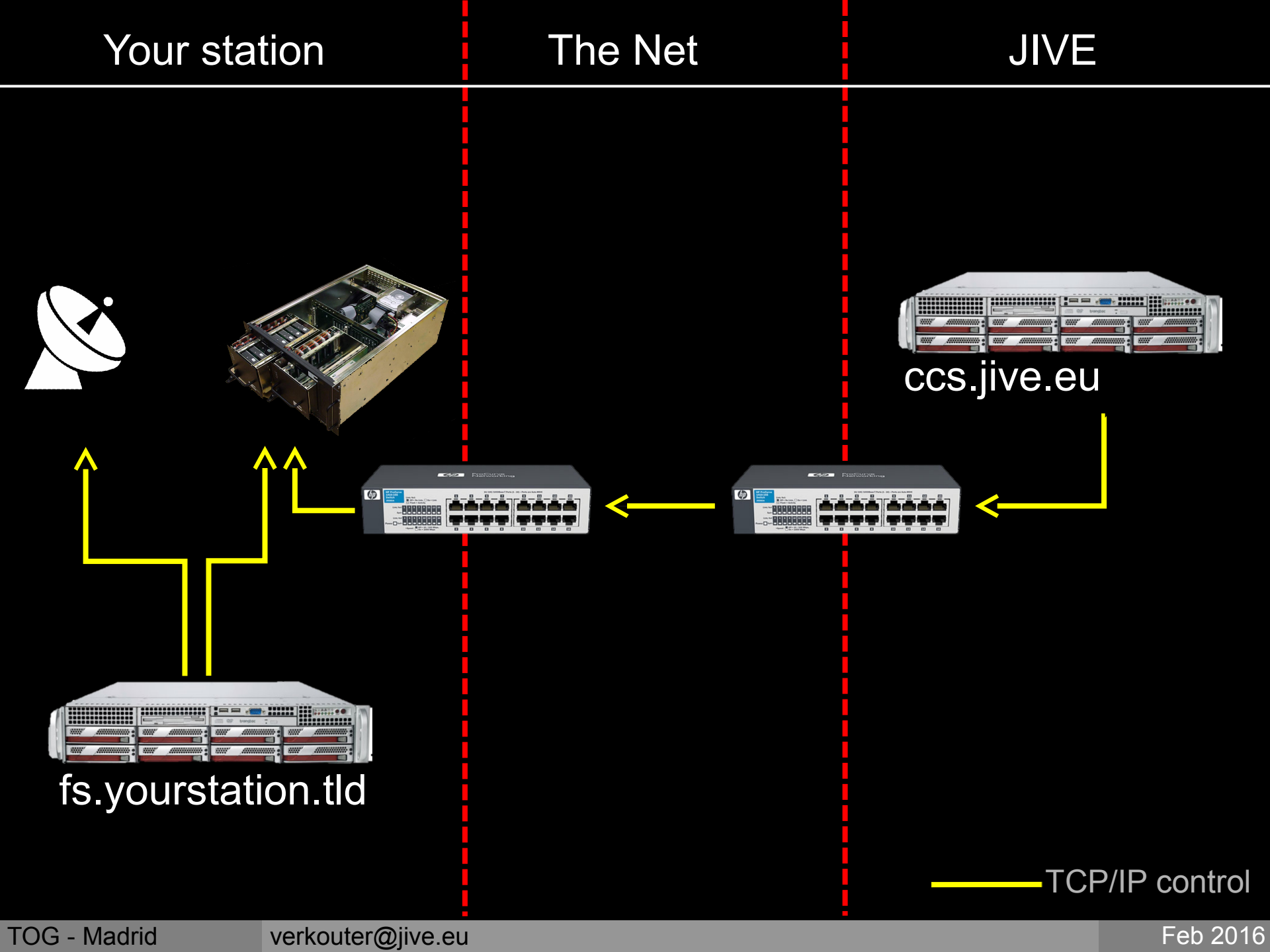
2 × 2048 Mbps VSI/H

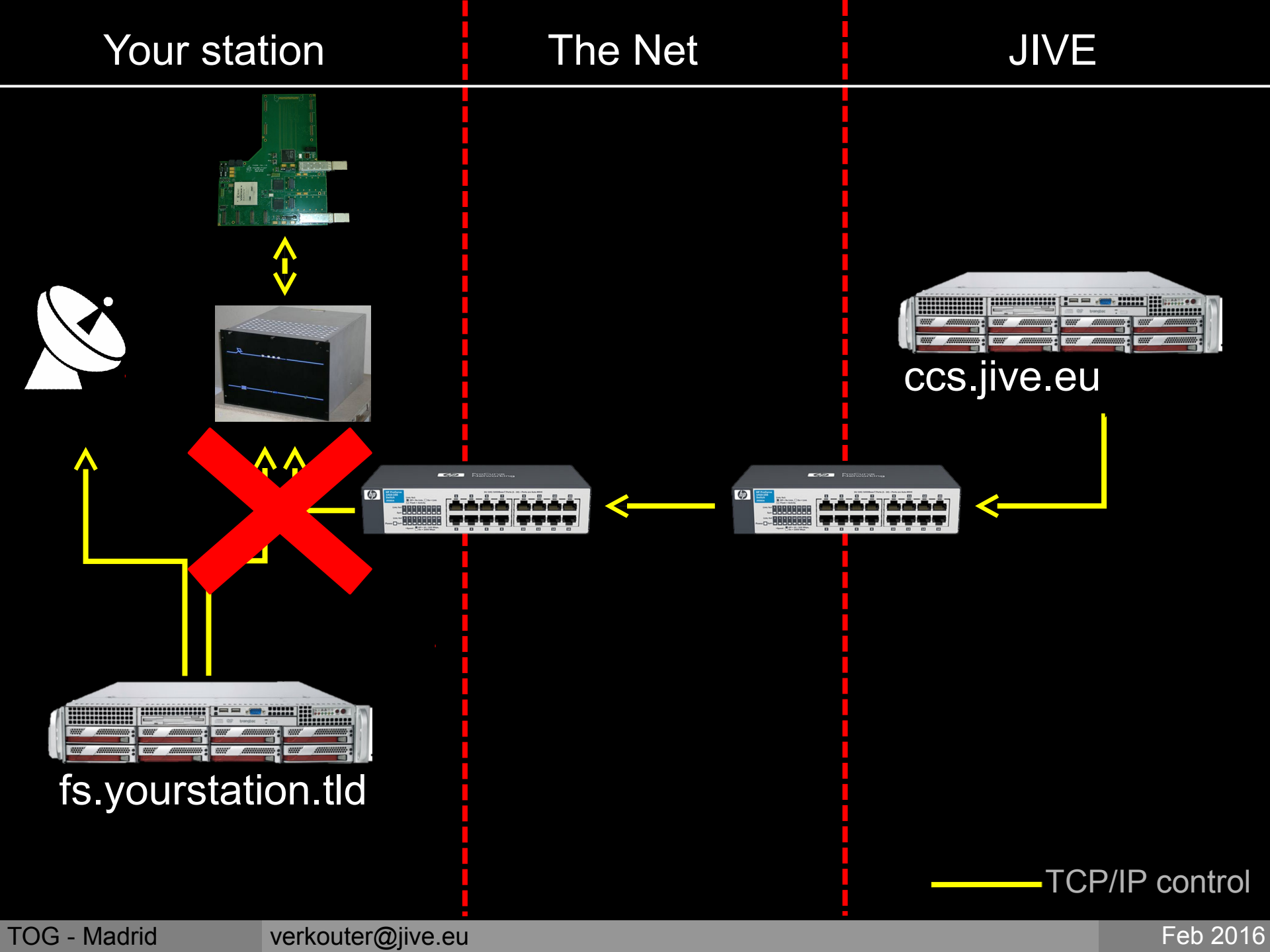
2 ×10Gbps ethernet

Who does what in e-VLBI

Field System	JIVE
time sync	formatter (which channels)
frequency setup	start/stop transfer
antenna	(re)configure network
~~recorder~~	(re)configure destination
...	

JIVE must have direct access to sender!


Your station
The Net
JIVE
ccs.jive.eu
fs.yourstation.tld
TCP/IP control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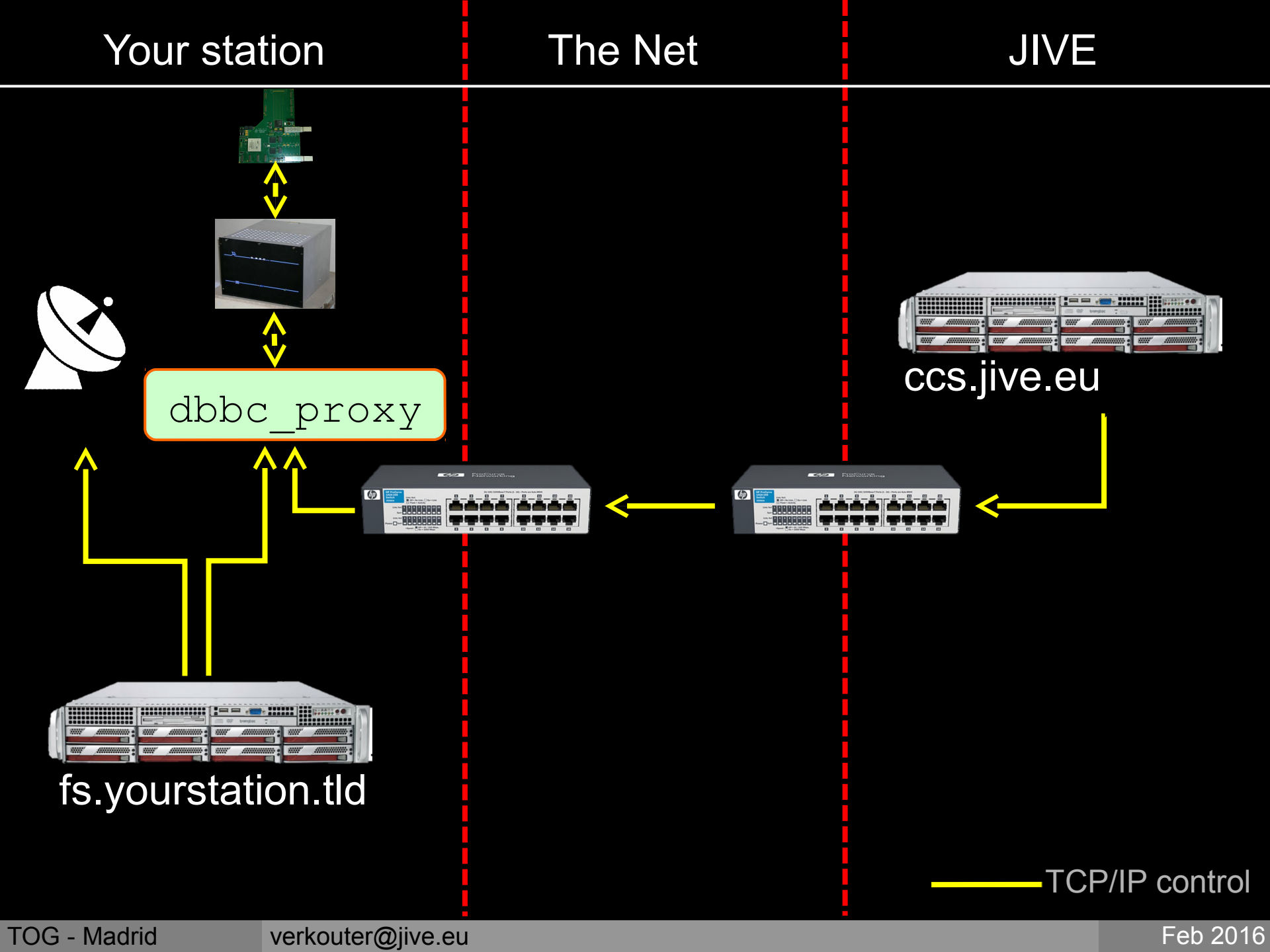
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dbbc_proxy
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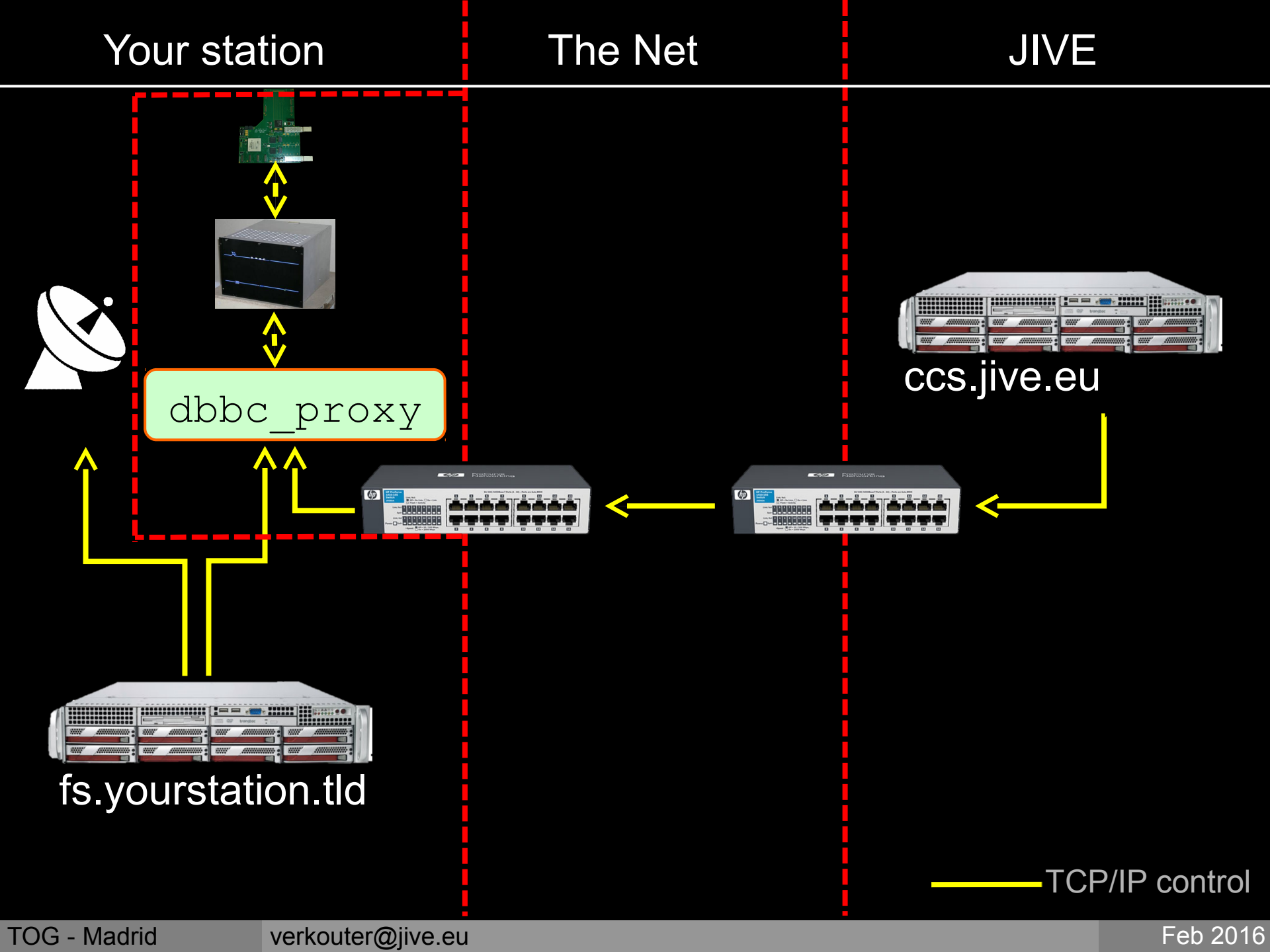
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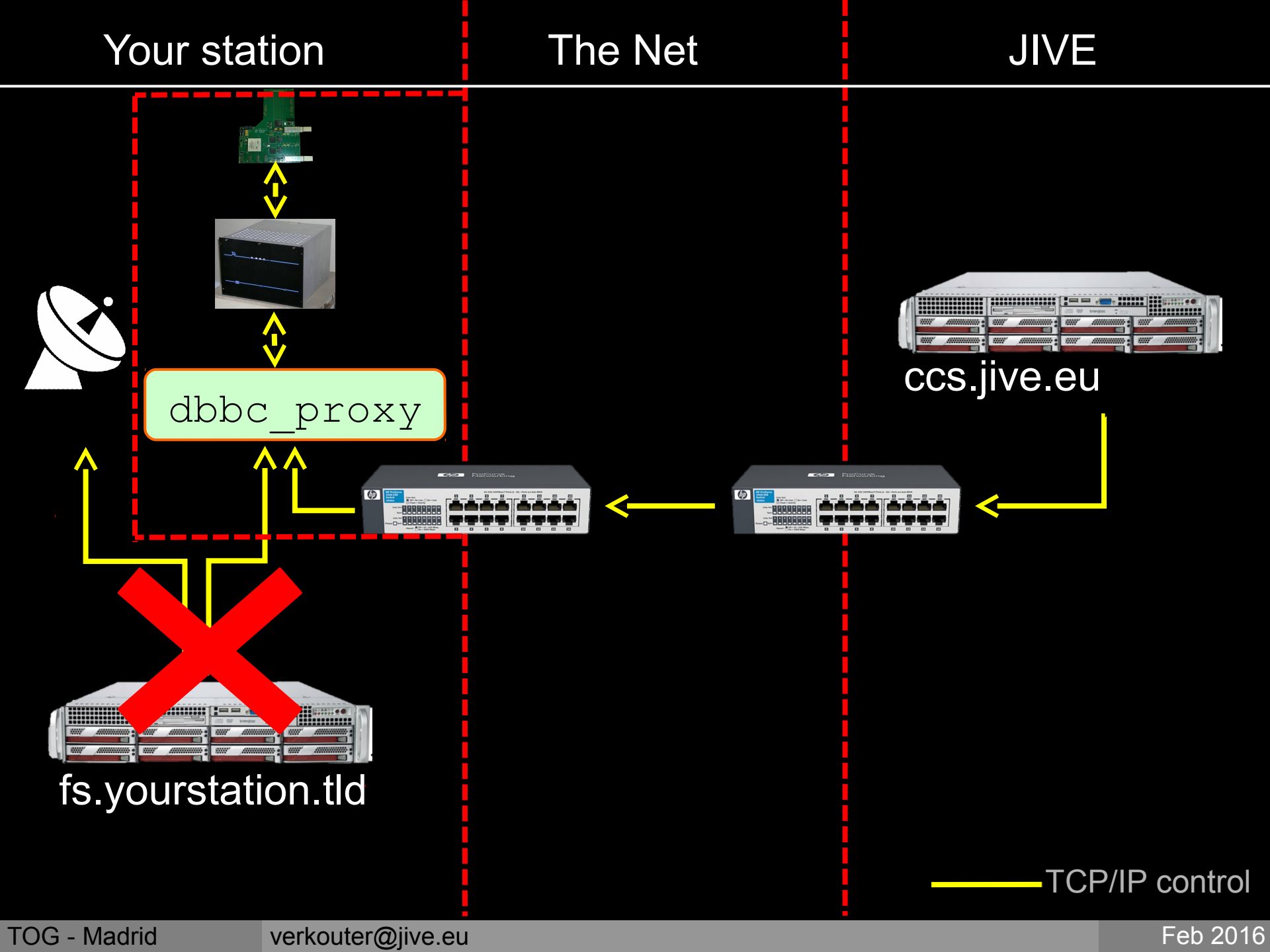
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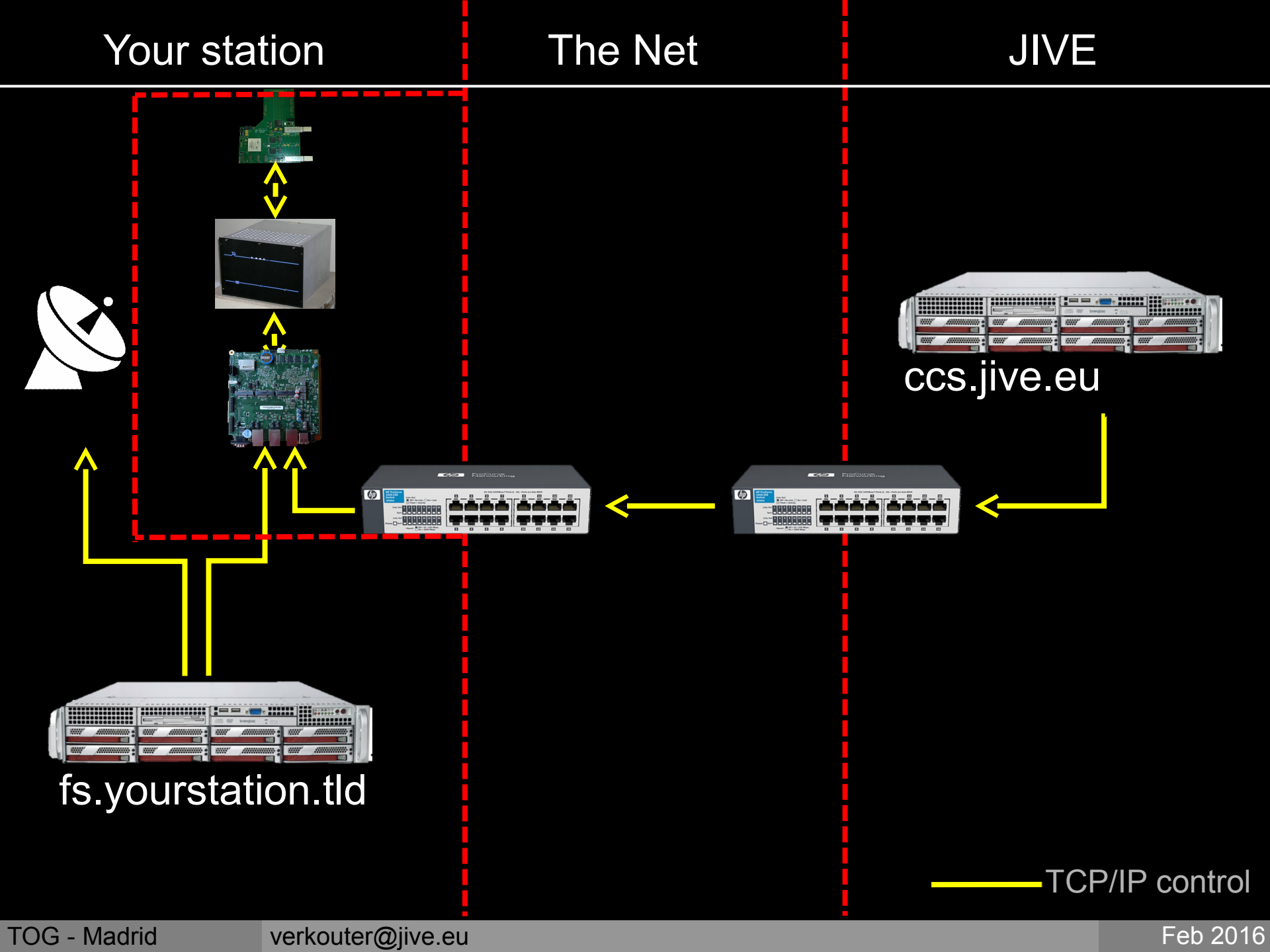
Your station
The Net
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TCP/IP control

PC Engines (.CH)

APU platform

- AMD CPU
- 3 ethernet ports

eth0: 10.88.0.*

eth2: 192.42.120.*

eth1: 192.168.178.*

Configure O/S to not route between nets!

PC Engines (.CH)

APU platform

- AMD CPU
- 3 ethernet ports

eth0: FS

eth2: JIVE

eth1: DBBC

Configure O/S to not route between nets!

dbbc_proxy

- serializes access to DBBC/FiLa10G
- written in Python
- security measures:
  - daemon
  - privilege separation
  - may run as specific user (not root)
  - prevents against buffer overflow
  - sending ≥ 1500 bytes terminates connection
- introduces small delay between FS / DBBC comms
  - tested at Ef, Hh, Ys: no observable issue(s) yet

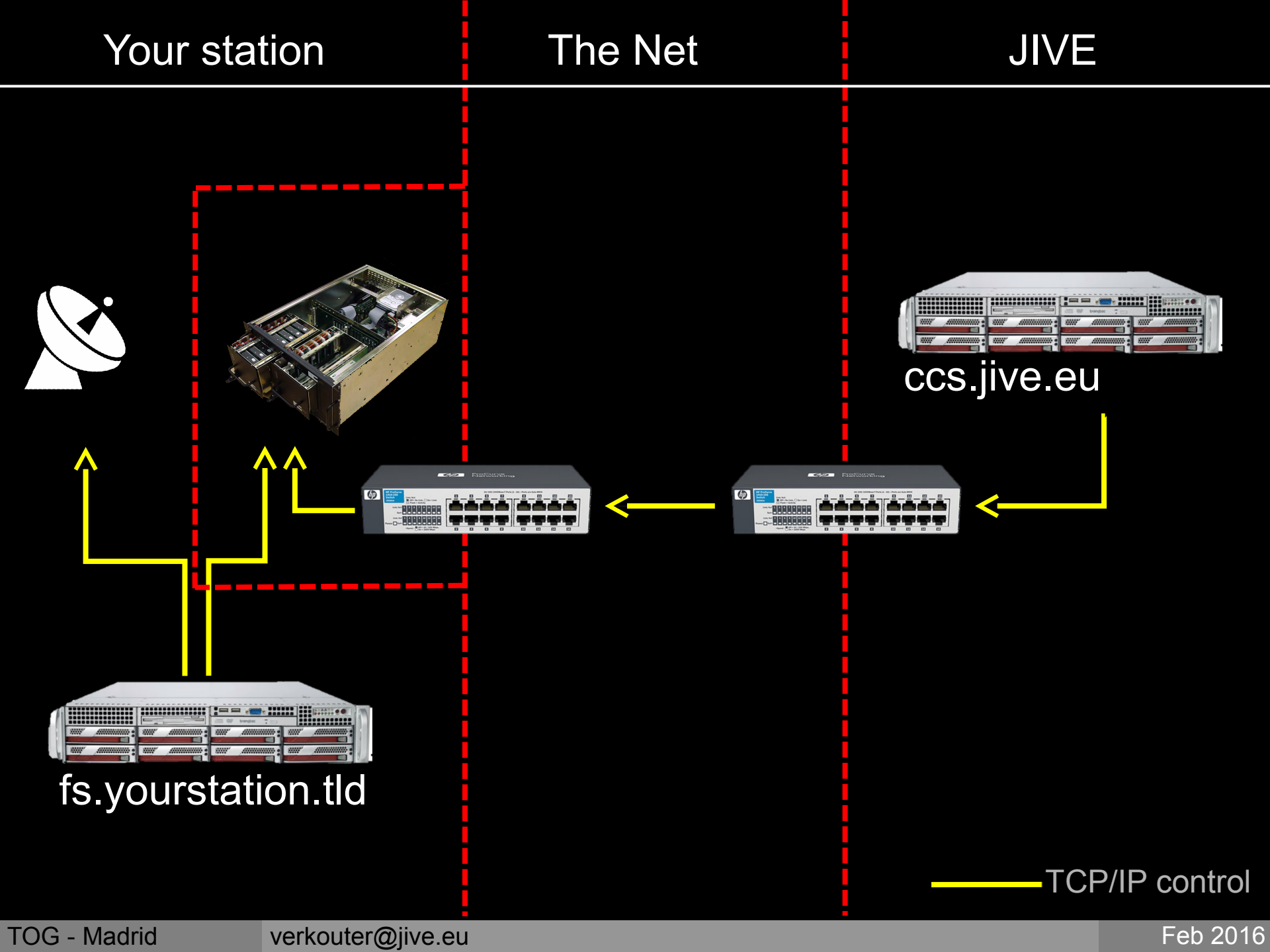
Fin

Your station

The Net

fs.yourstation.tld

TCP/IP control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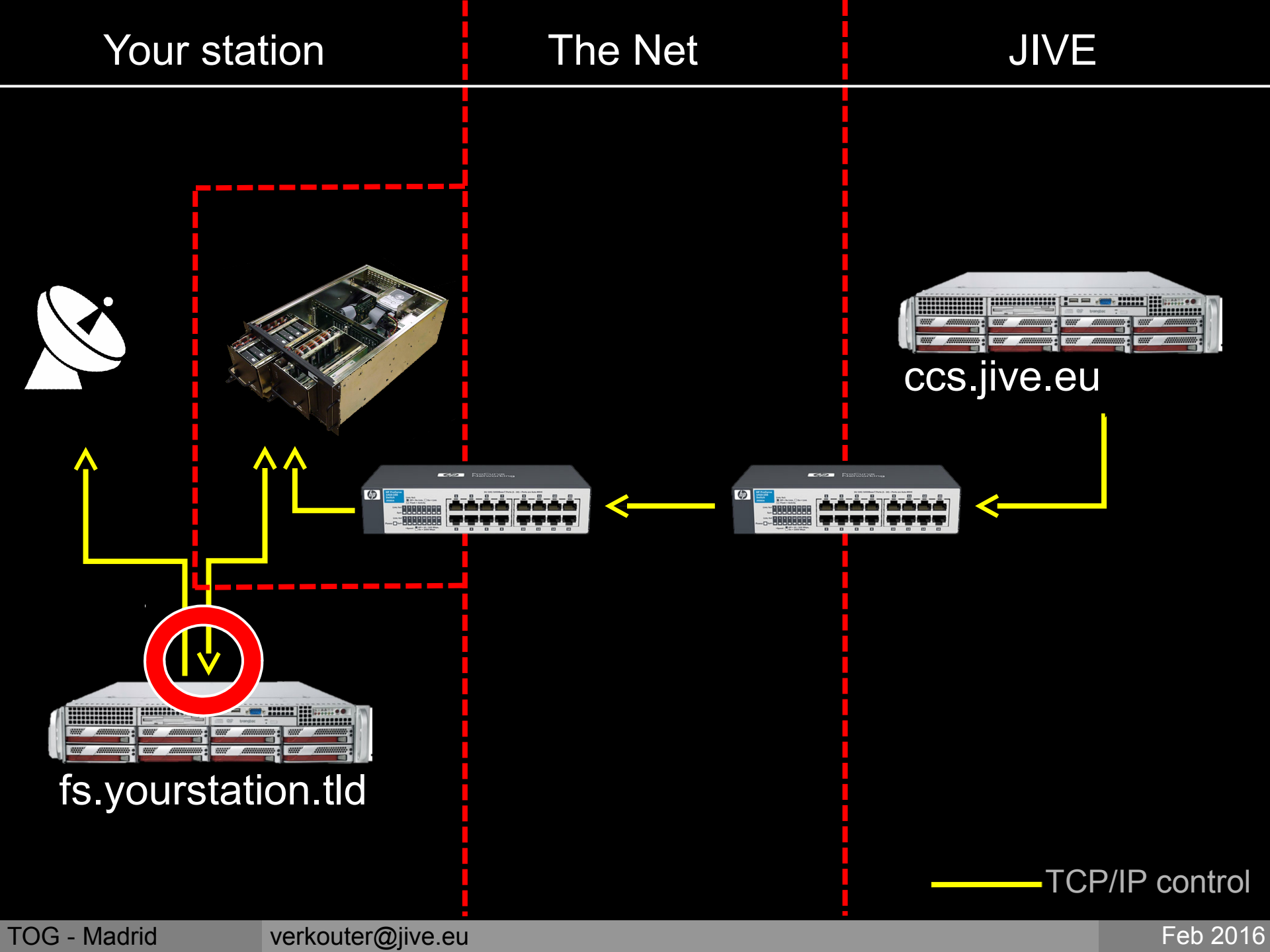
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TCP/IP control

Who does what in e-VLBI

Who does what in e-VLBI

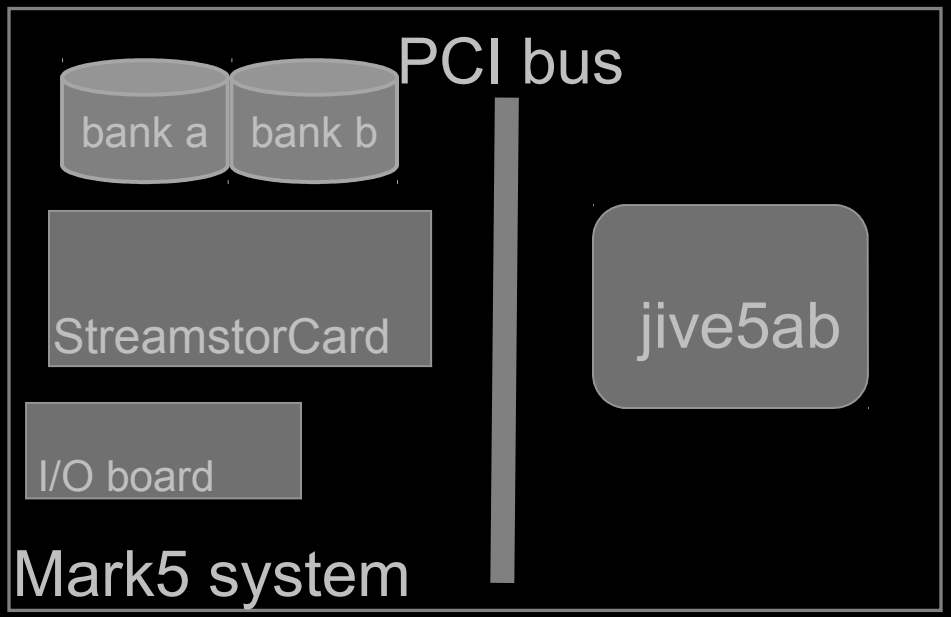
- network/routing issues
- SFXC cluster node reassignment
- prevent international networks from DoS
- ...

JIVE must have direct access sender!

Inside the Mark5

net

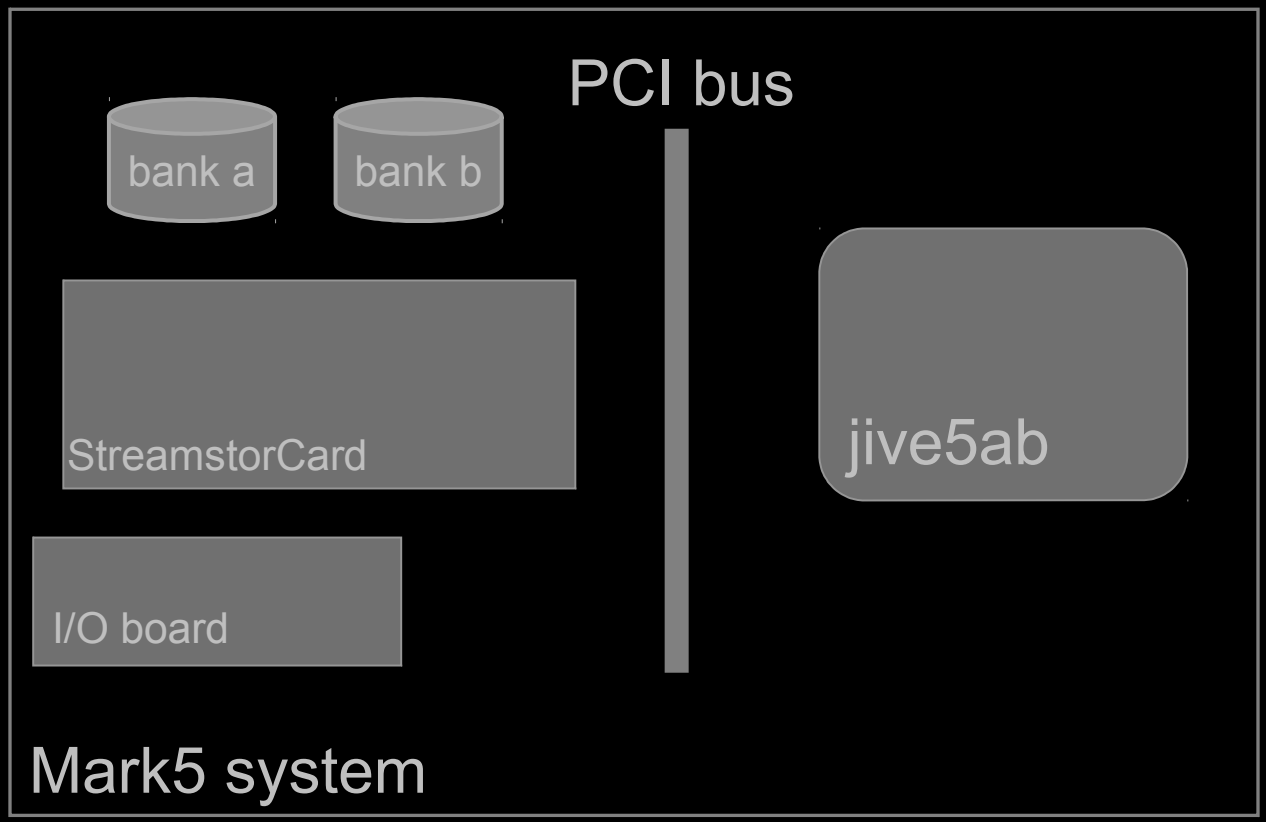
in



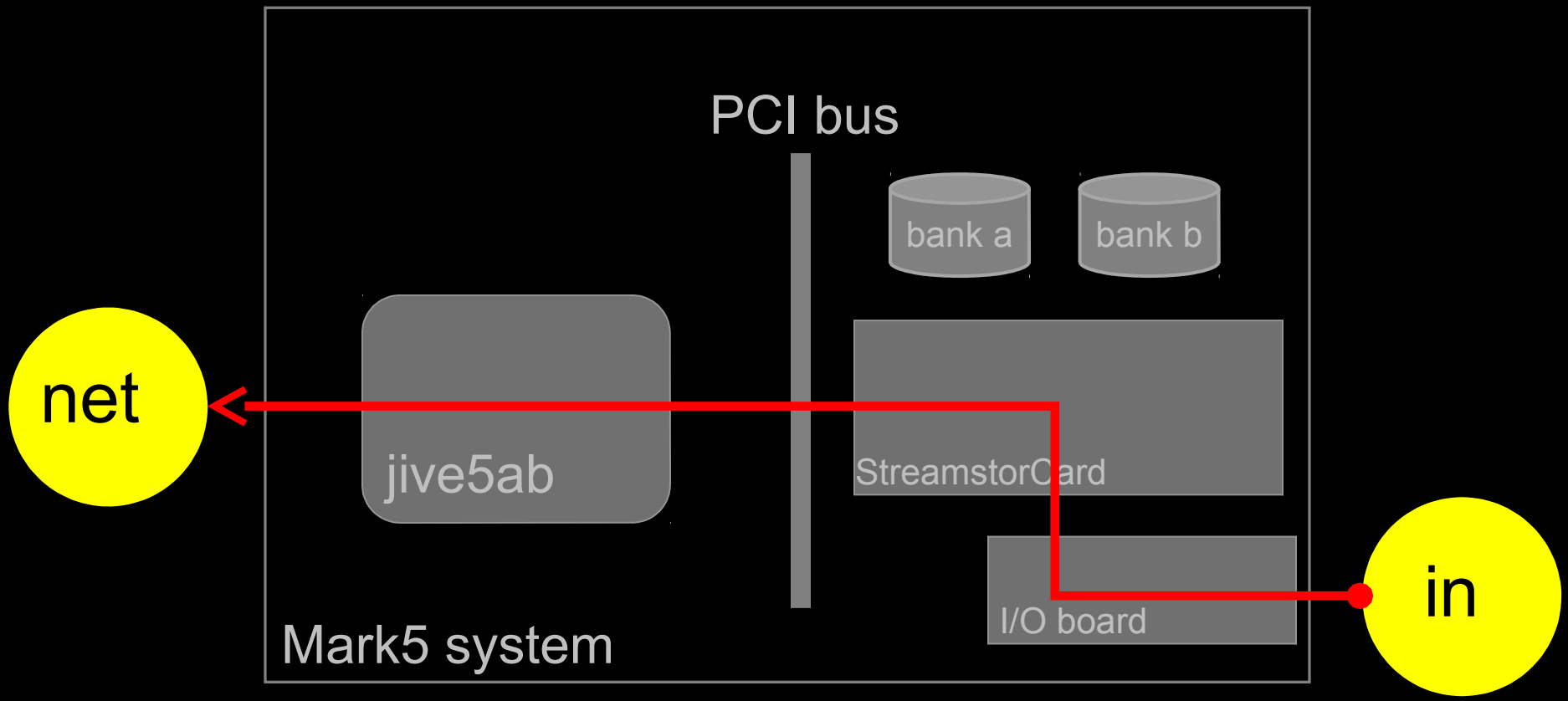
Inside the Mark5

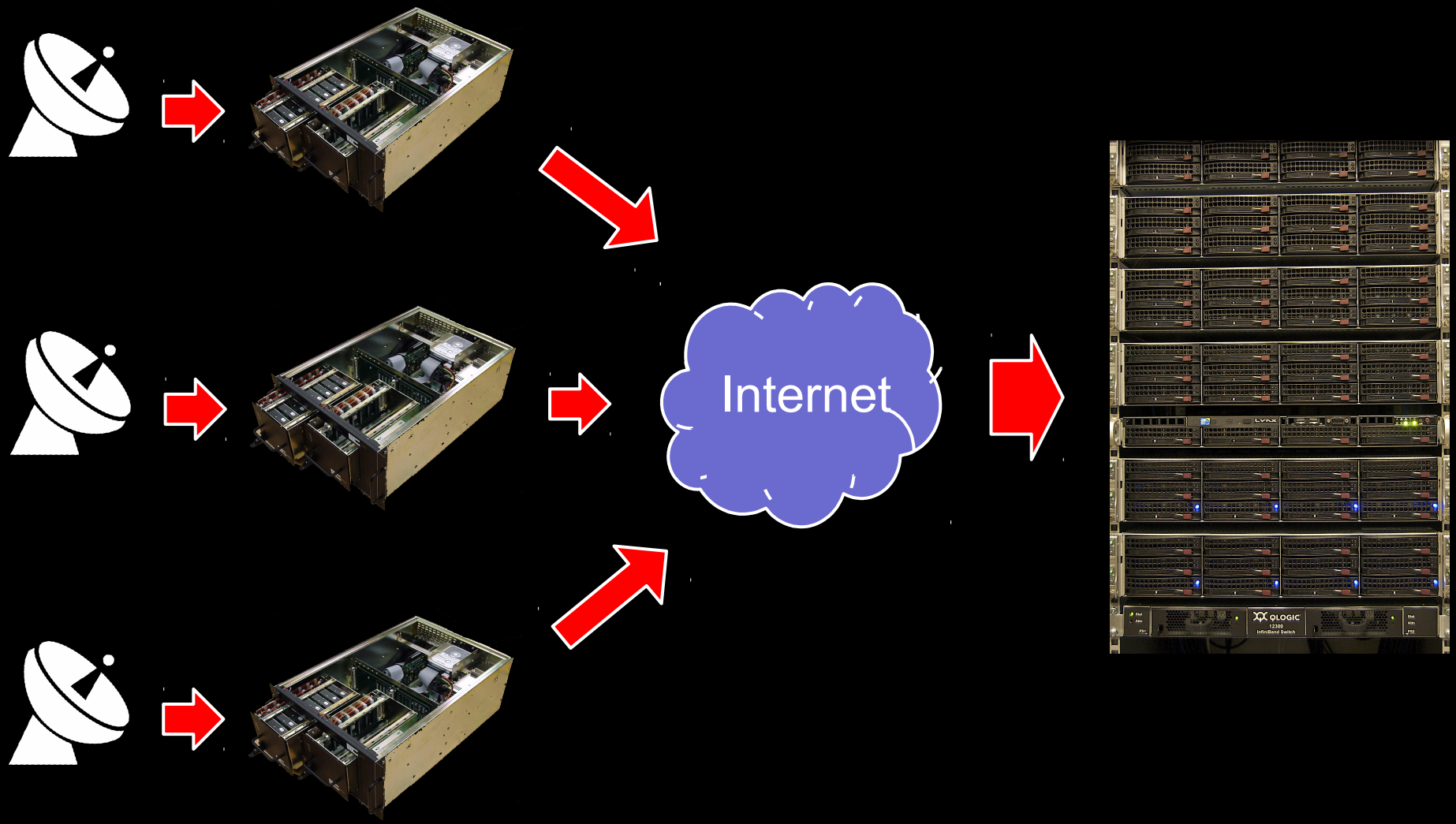
net

in



Inside the Mark5




Internet
QLOGIC
12300
InfiniBand Switch

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TCP/IP control

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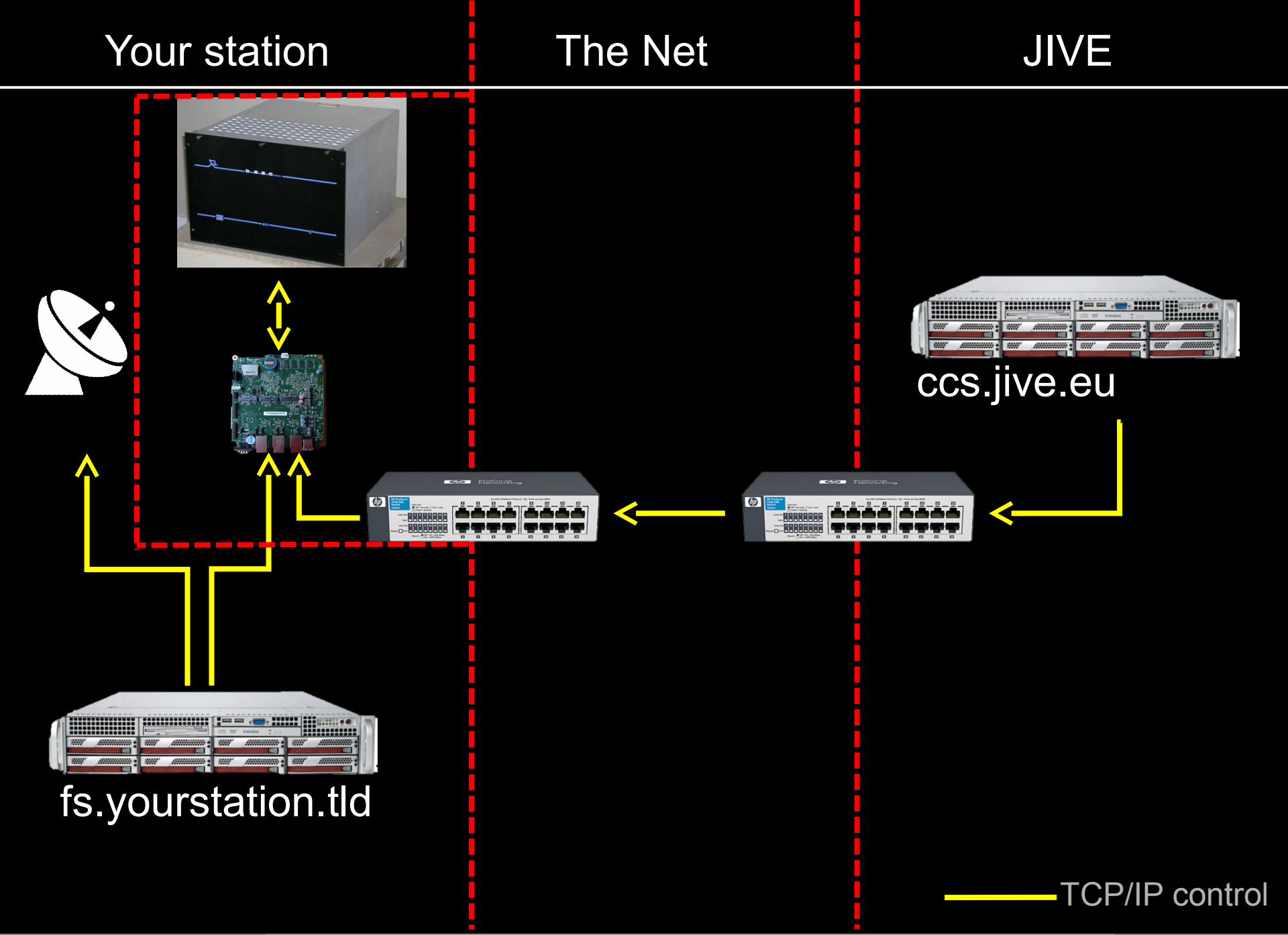
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