Réseau de transport d'électricité

TAO

Transmission Automatisée
des Ordres d'ajustement :

Automation of the sending of the orders for Balancing

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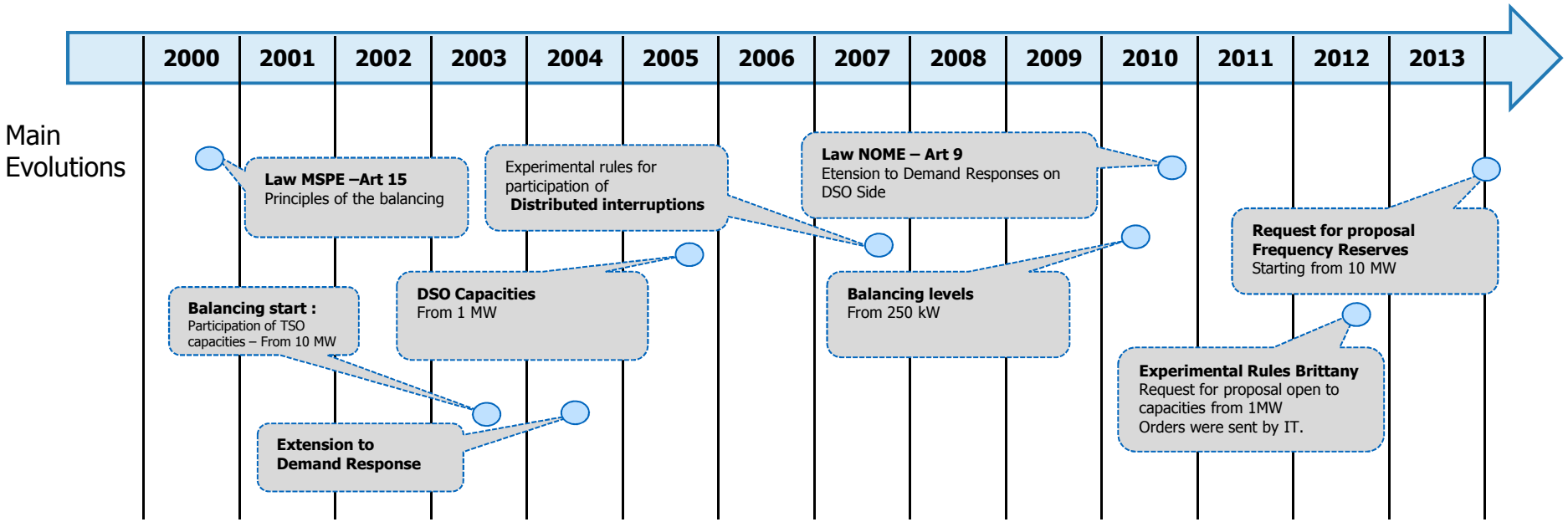
5 Planning

6 Any questions ?

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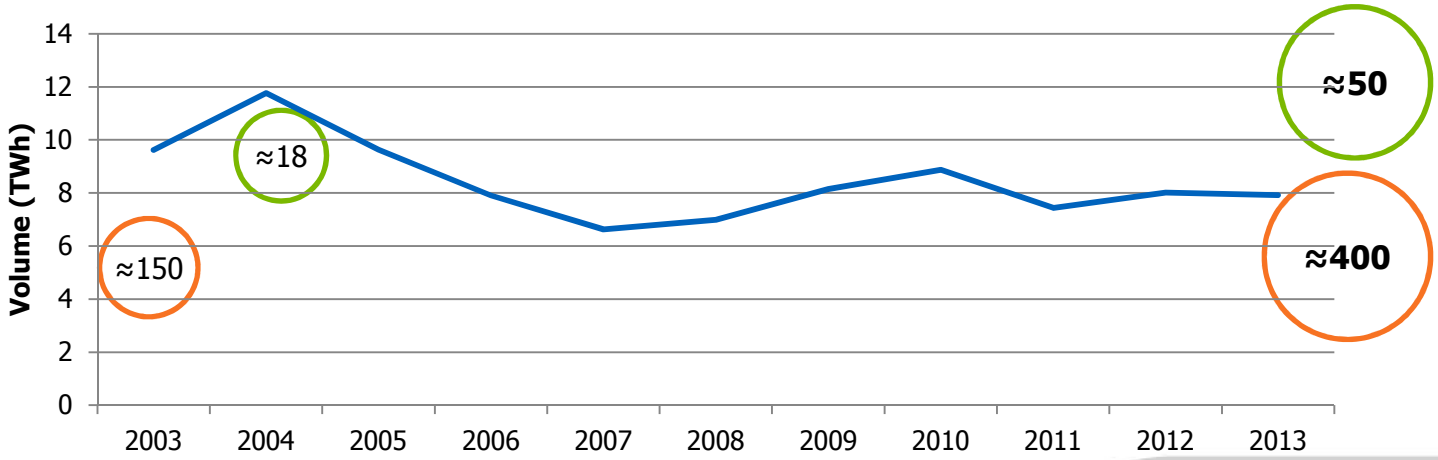
1 CONTEXT

Balancing changed since 2003



Number of Actors

Number of Entities



Rte
Réseau de transport d'électricité

Current process

National Center

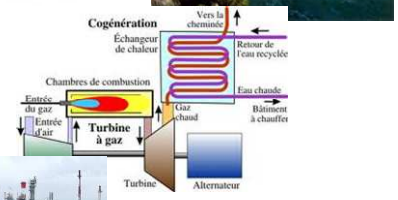
Balancing Offers

Balancing Actors

Regional center

Balancing Orders







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Requested evolutions made by parties

Lowering aggregation levels

Make it possible to use capacities lower than 10 MW

Threshold limit on actors able to receive calls (re. Frequency reserves)

Moving from 50 to 10 MW was undertaken by limiting the number of simultaneous participants able to receive a phone call (8 participants by now)

Improve registration and tracking of orders

Today, only phone calls are registered and may be used to answer a request

2 PRINCIPLES

Main objectives and solution

Ensure communciations of orders

1. Safe and quick
2. Standardised
3. Making informations available more widely

Ensure Market parties of any size to participate

(= « RO light » : Receiver of Order without capacity contracts (request of proposals) and with Mobilisation leadtime longer than 30 minutes

Prepare evolutions of Balancing

Lower participation limitation levels

Automated transmission of all orders

Increased traceability (acknowledgments, messages...)

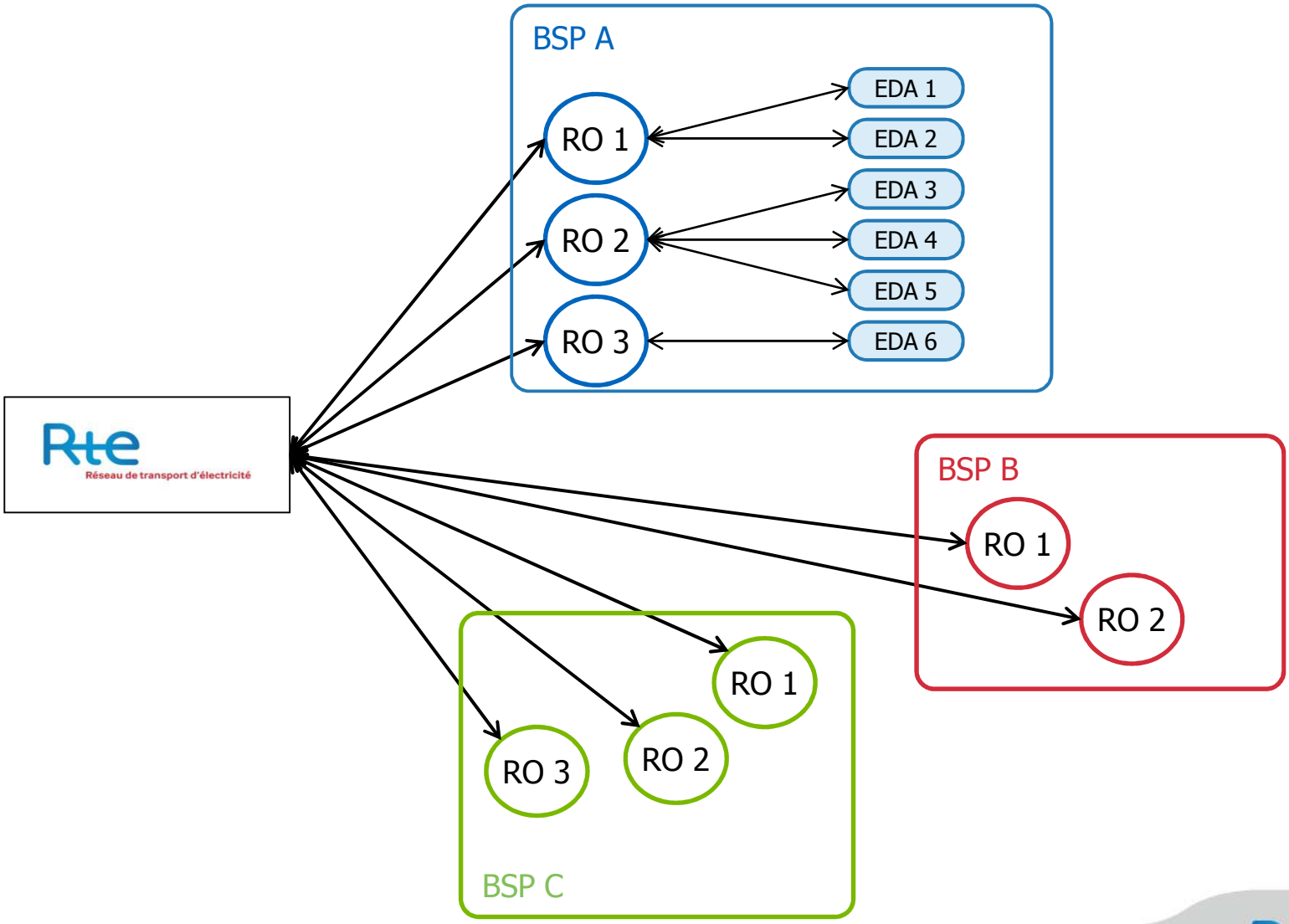
Standard protocol

Balancing actors can use Machine to Machine IT (webservices)

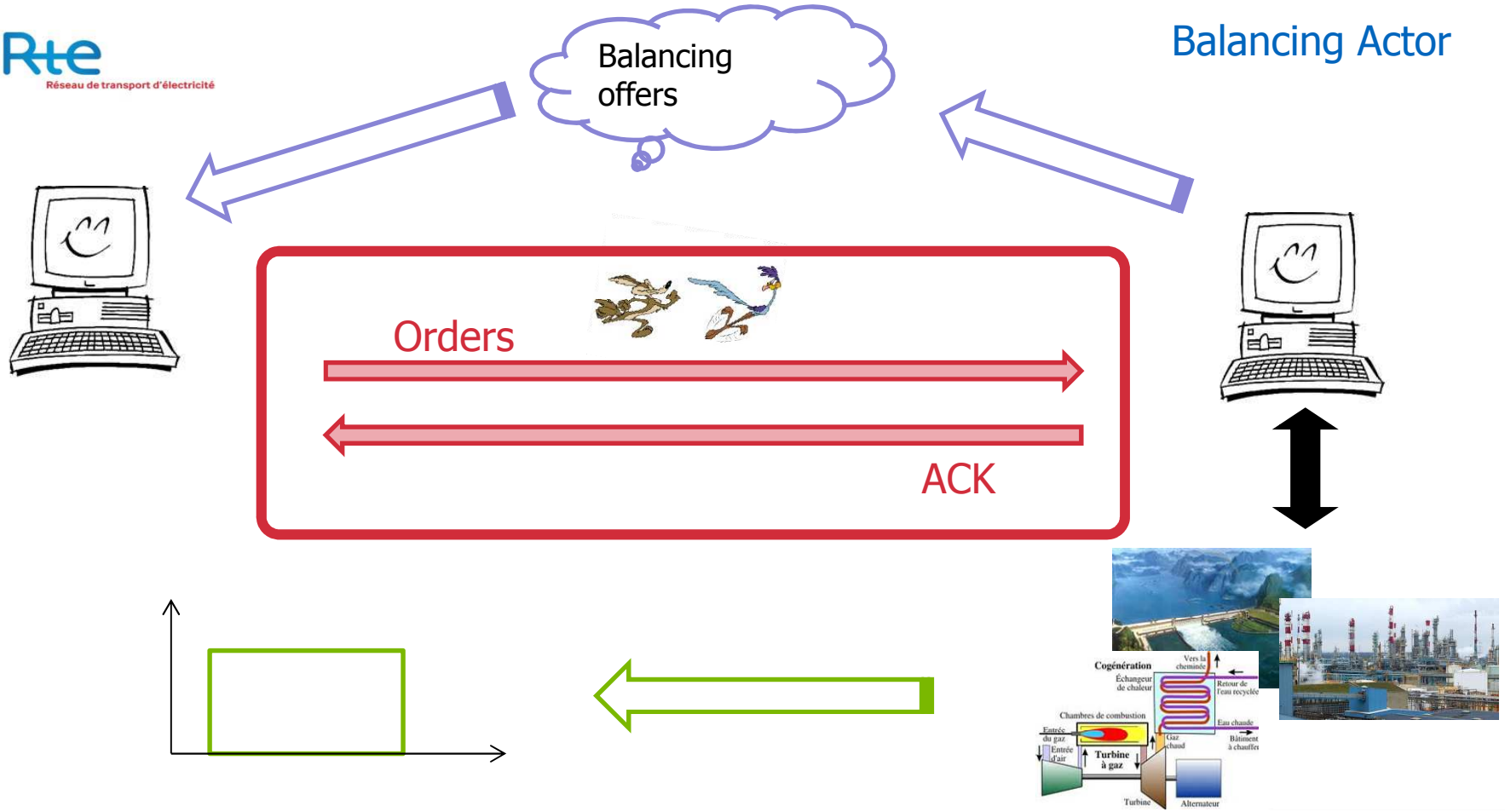
« RO light » only : Web access on a standard browser (no software development required)

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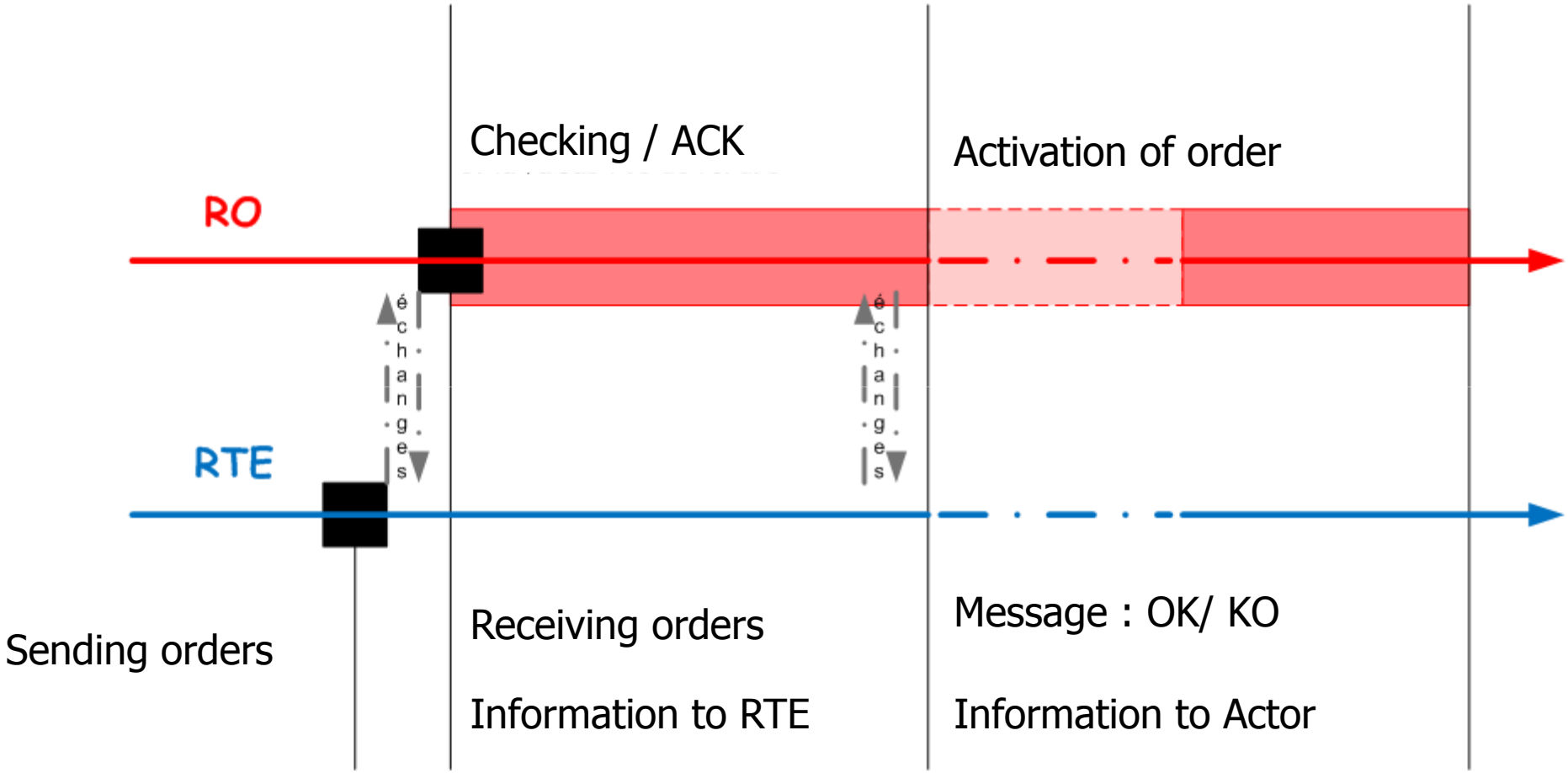
Exchanges Map



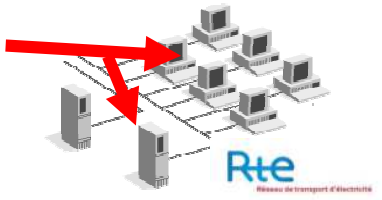
Digital architecture



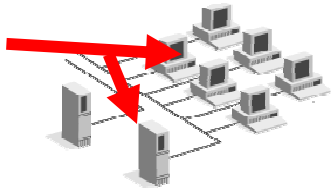
Time frame of exchanges



Security concerns



Intrusion
on RTE Side



Intrusion
on actor side



Viral attacks



Hacking

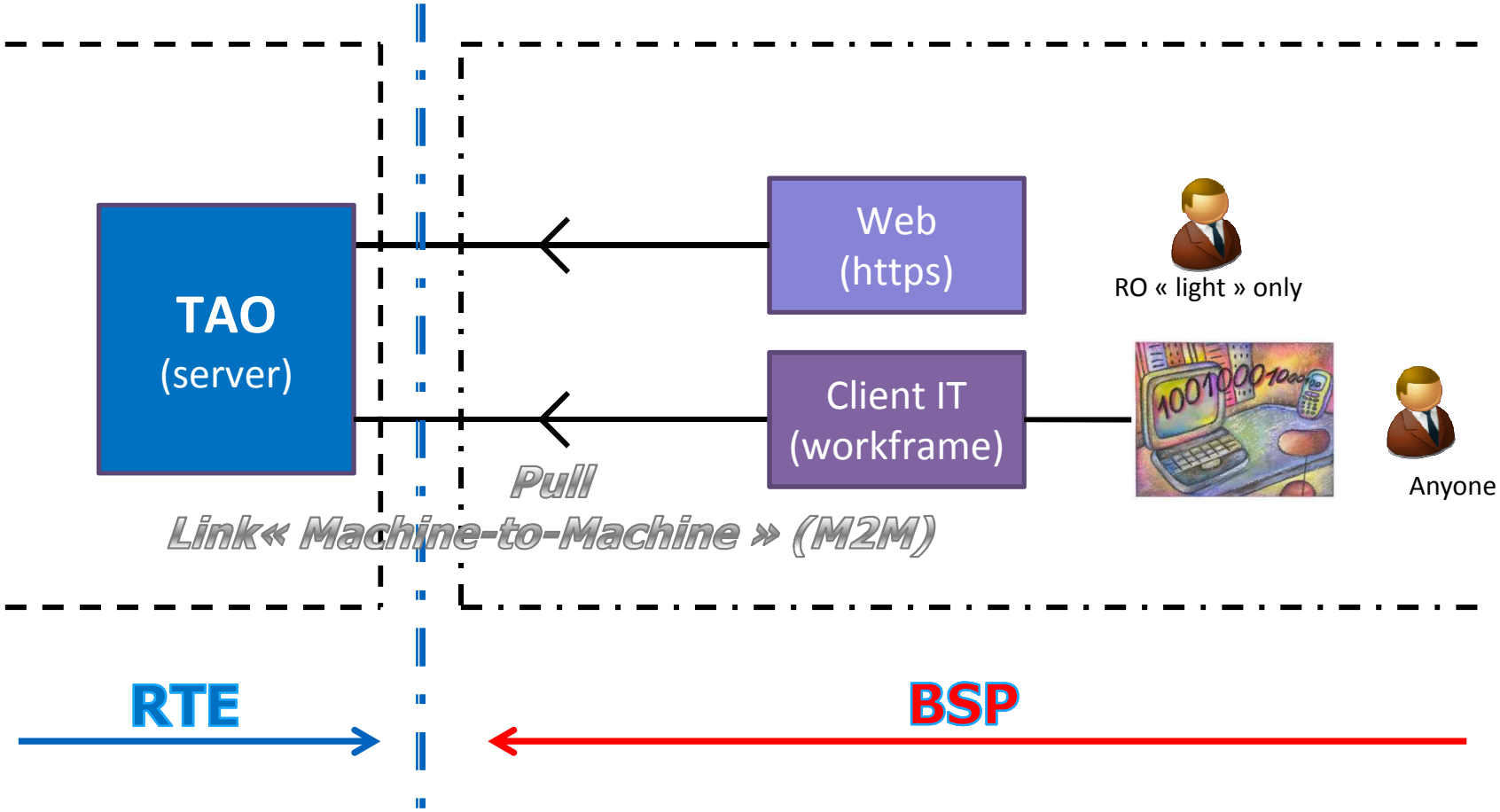


Data Loss

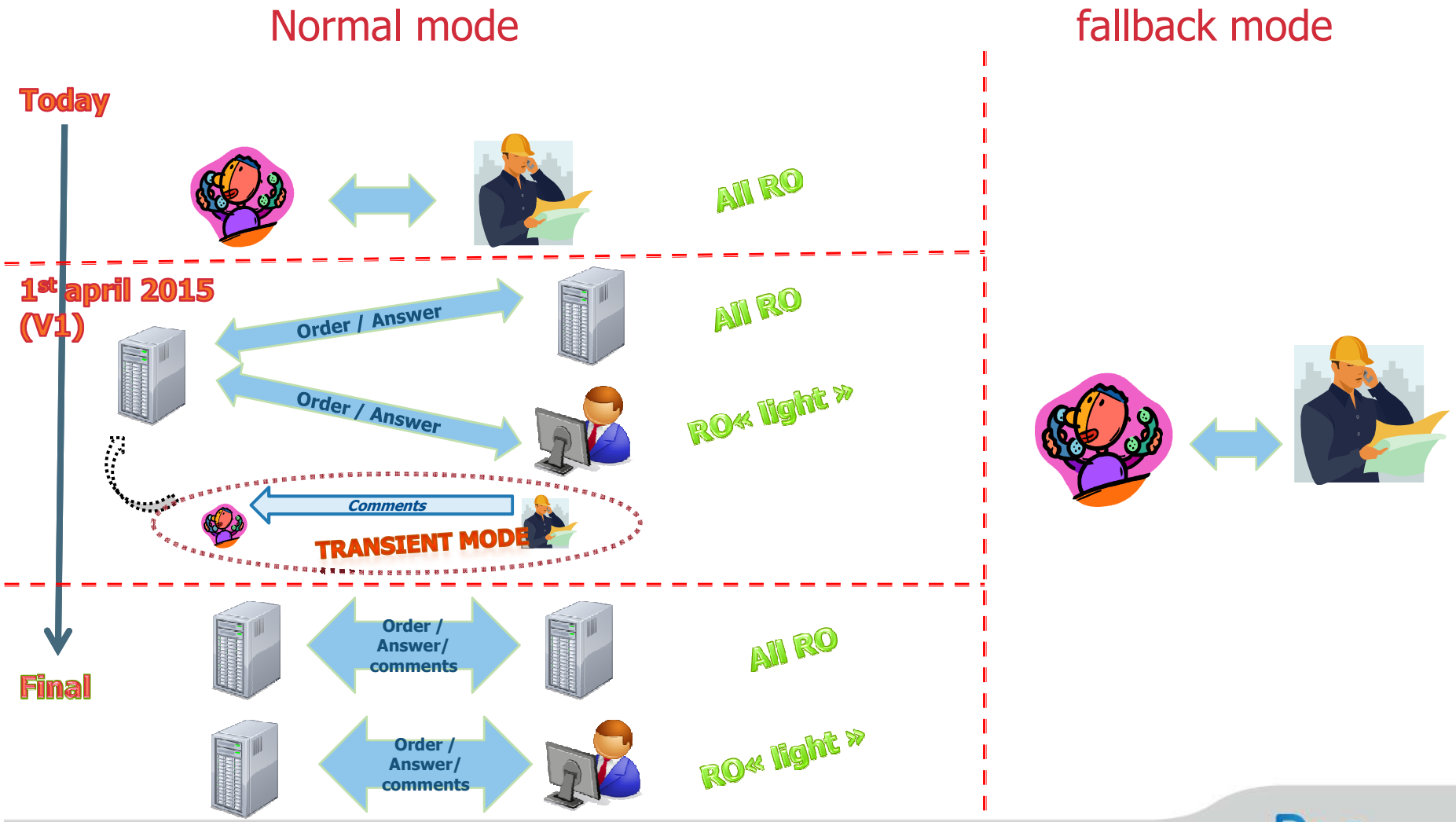
3

TECHNICAL SOLUTIONS

2 ways to access / 2 momentums



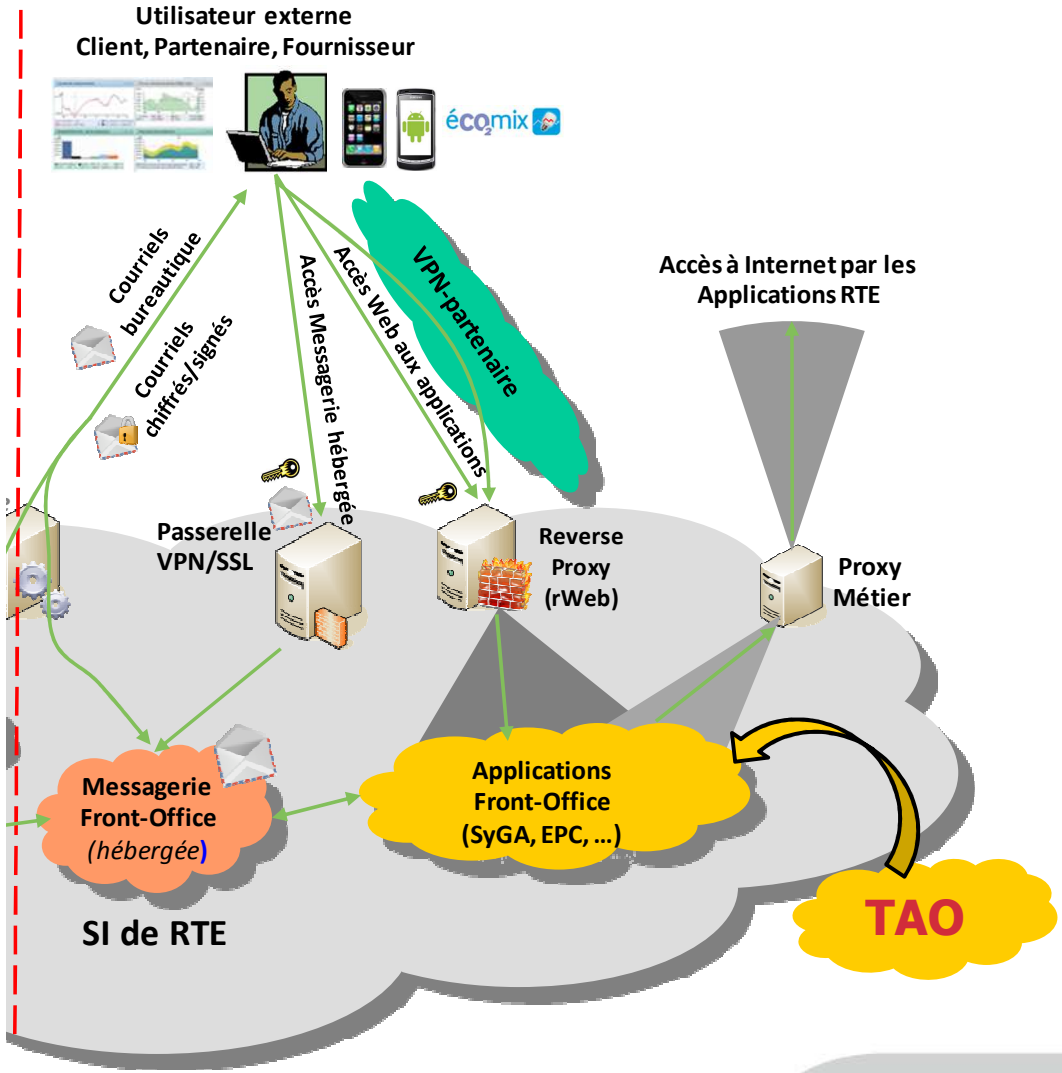
3 steps
…a major milestone on 1st april 2015



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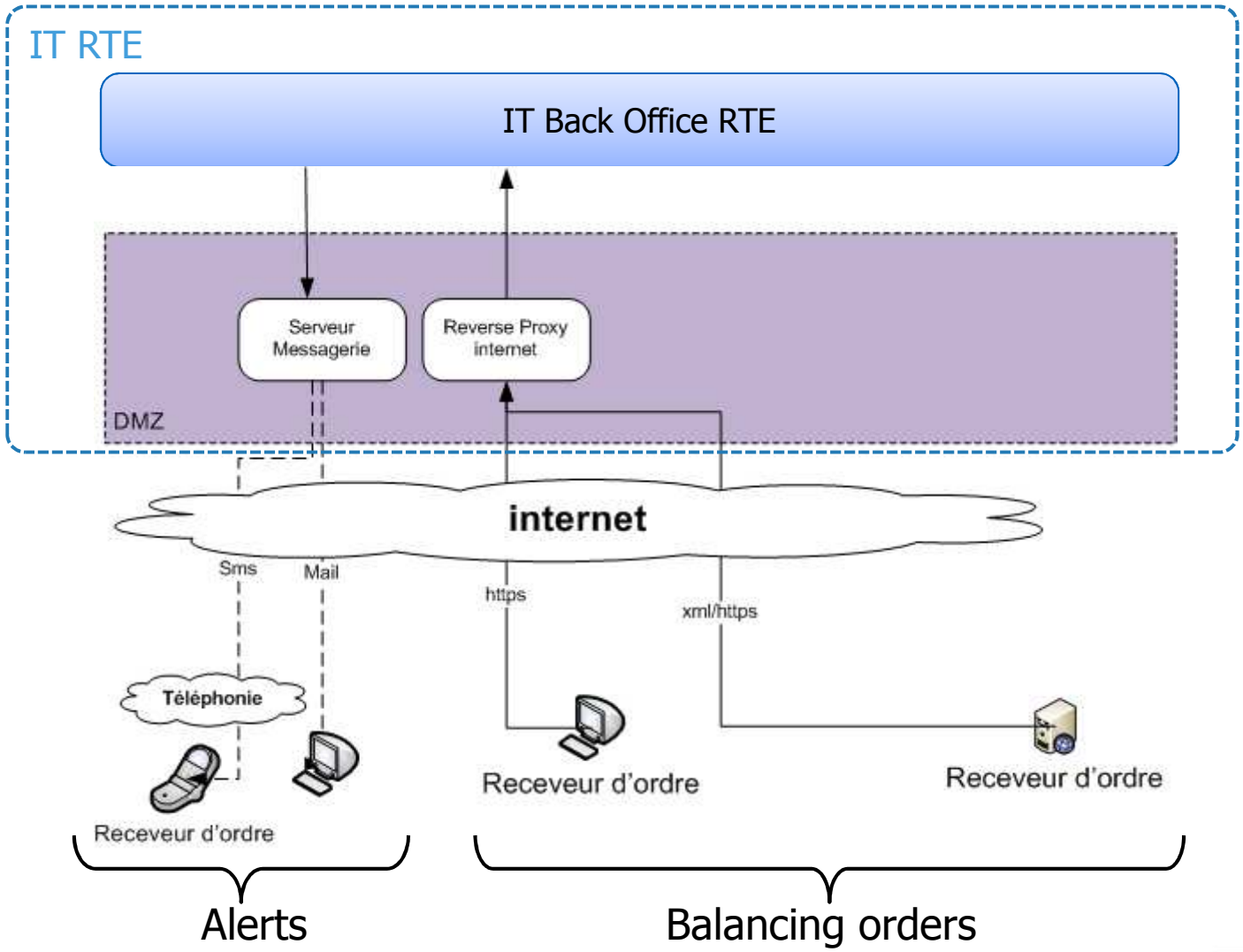
IT architecture

IT User Acces on RTE

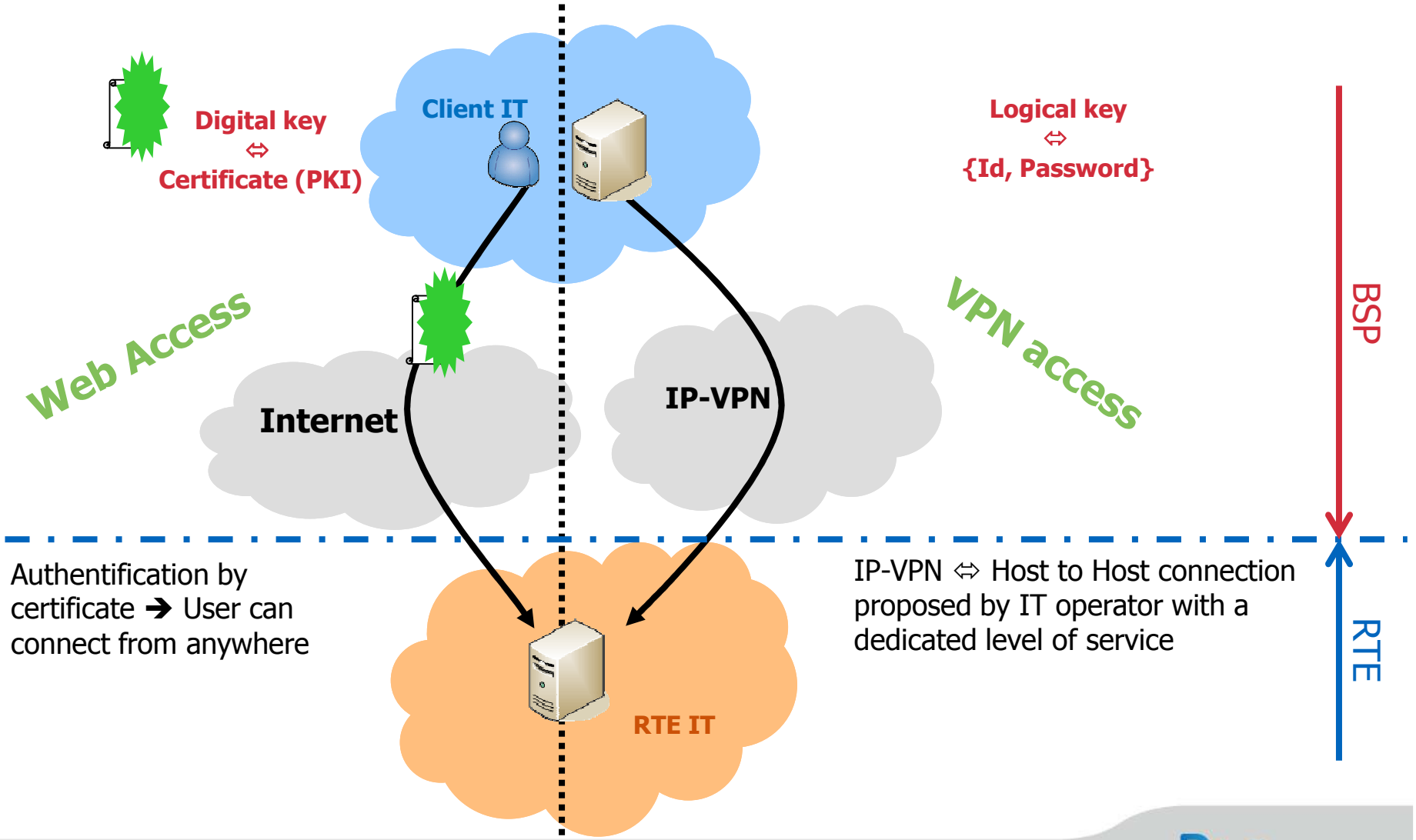


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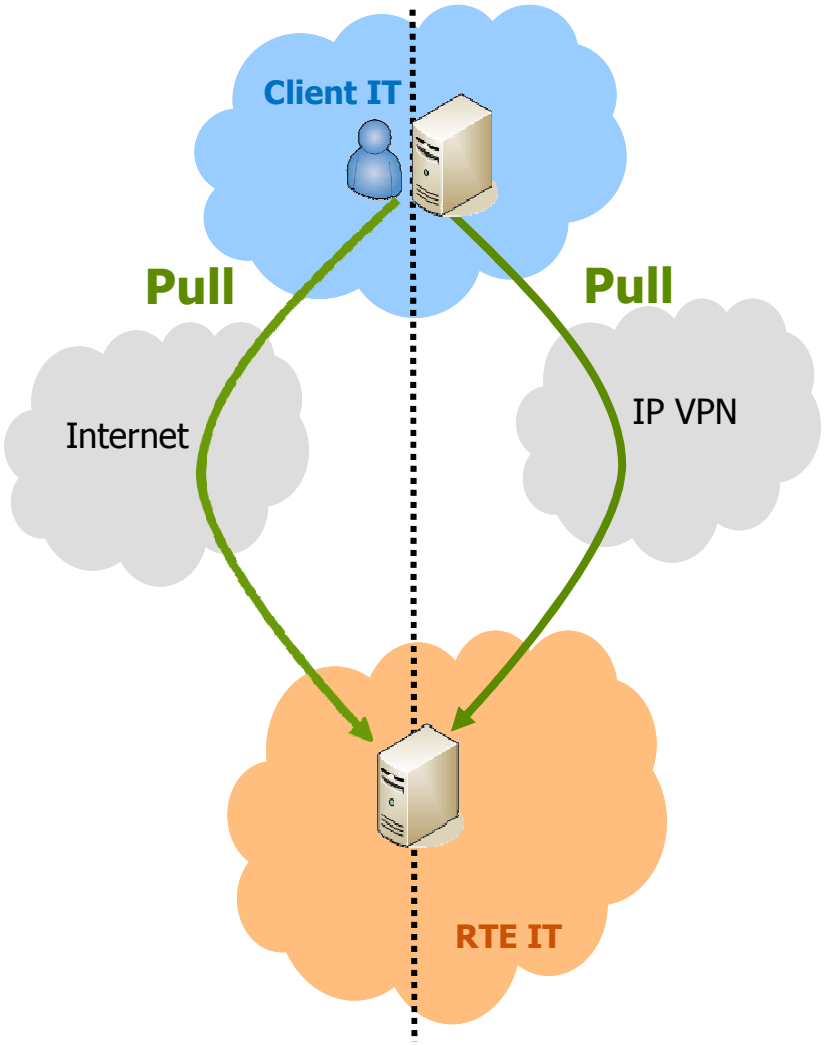
TAO architecture



How to connect ?



M2M connection- Pull / IP VPN



Link using M2M & Pull

- Open to any RO
- Client connects to RTE IT (server) and downloads datas

IP VPN :

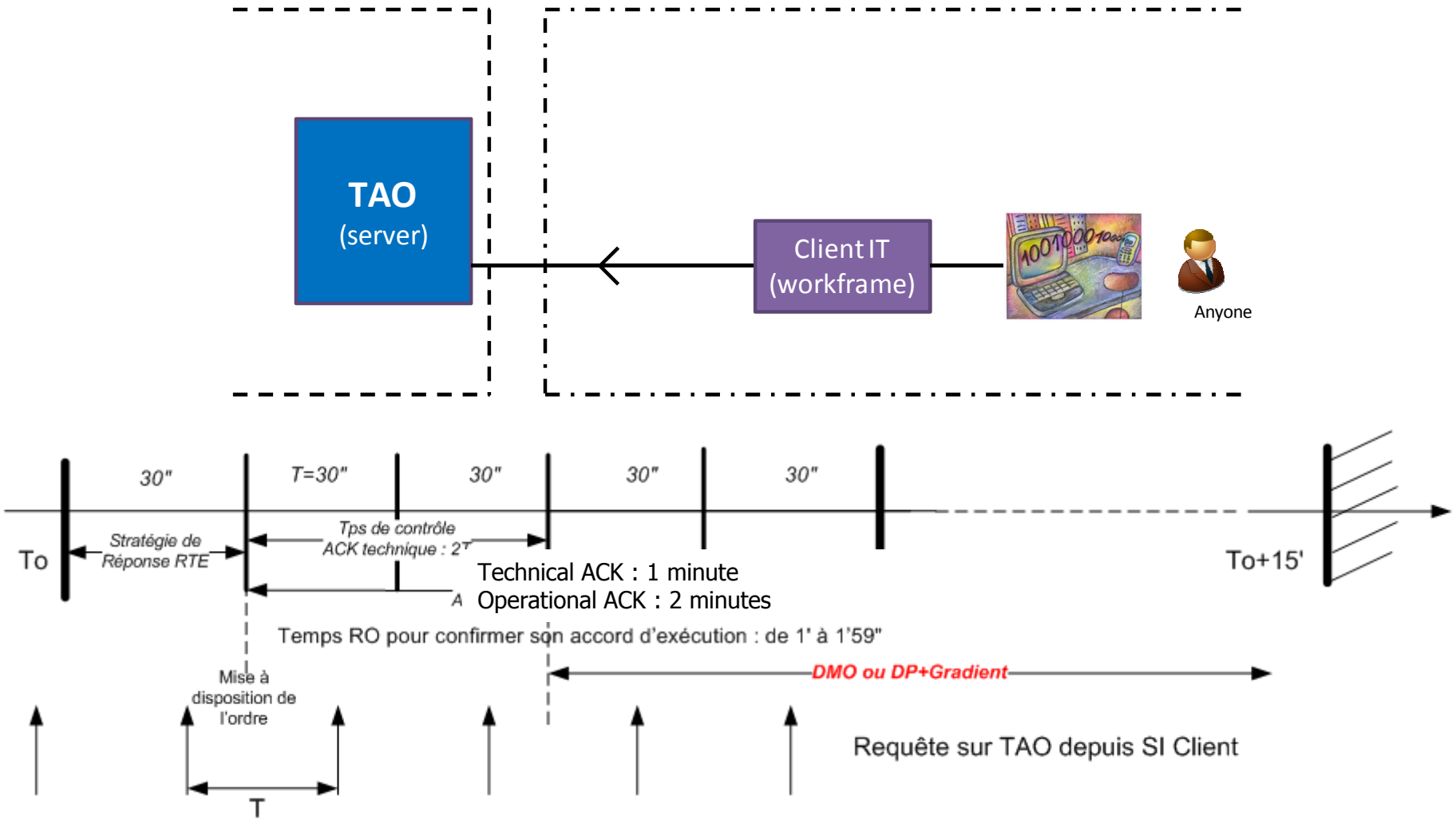
- Open to any RO
- Responsibilities of BSP

Requirement for mobilisation leadtime ≤ 30' :
✓ M2M-Pull

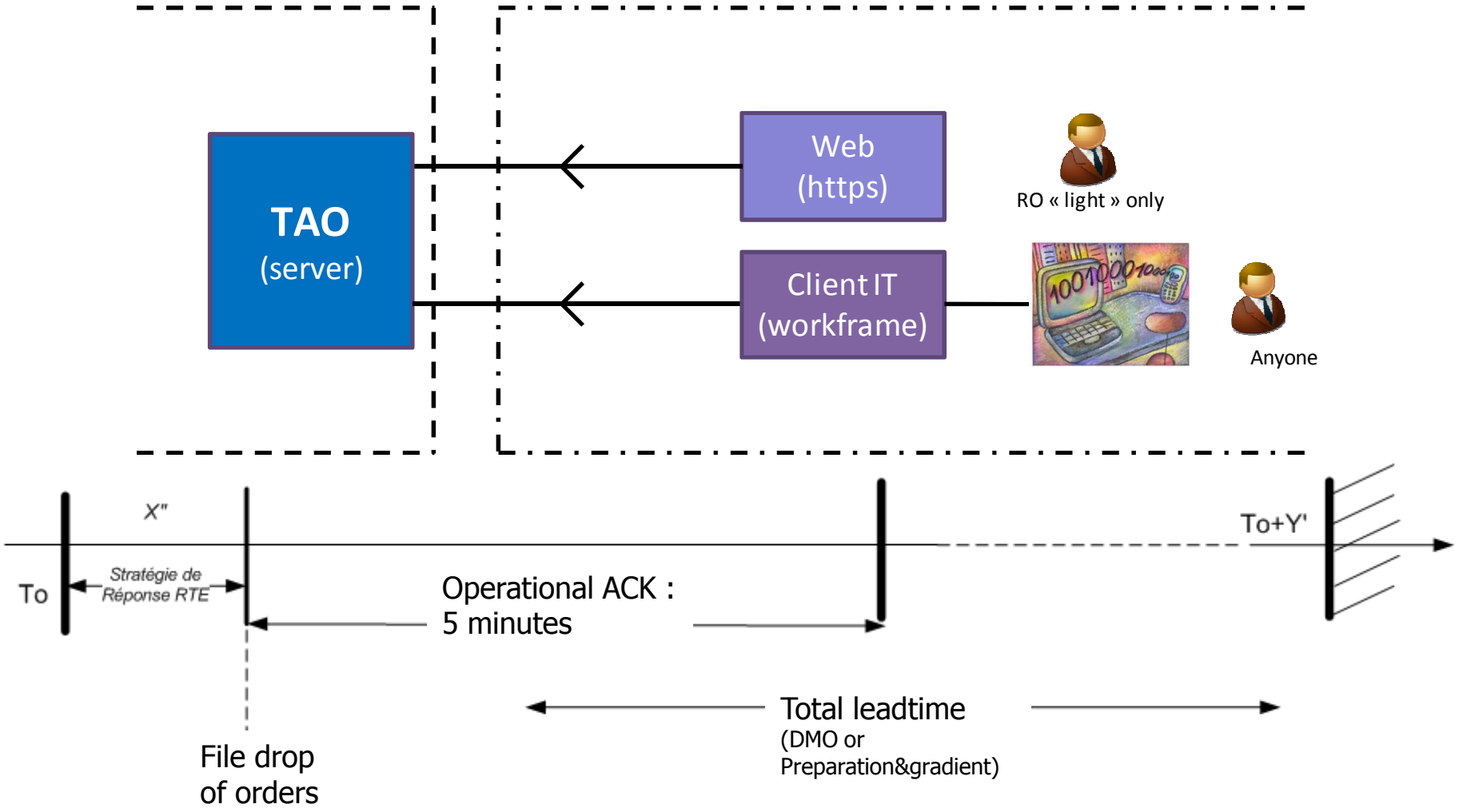
Requirement for contracted FFRm reserves
✓M2M-Pull + IPVPN

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Time frame : short leadtime (≤ 30 min)



Time frame : long leadtime (>30 min)



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Web access : digital mock-up

(« RO light » only)

Main characteristics

Entities name
End/begining of the order
Reason of order
Power Values to be produced (principal and ancillaries services)
Due time of answer

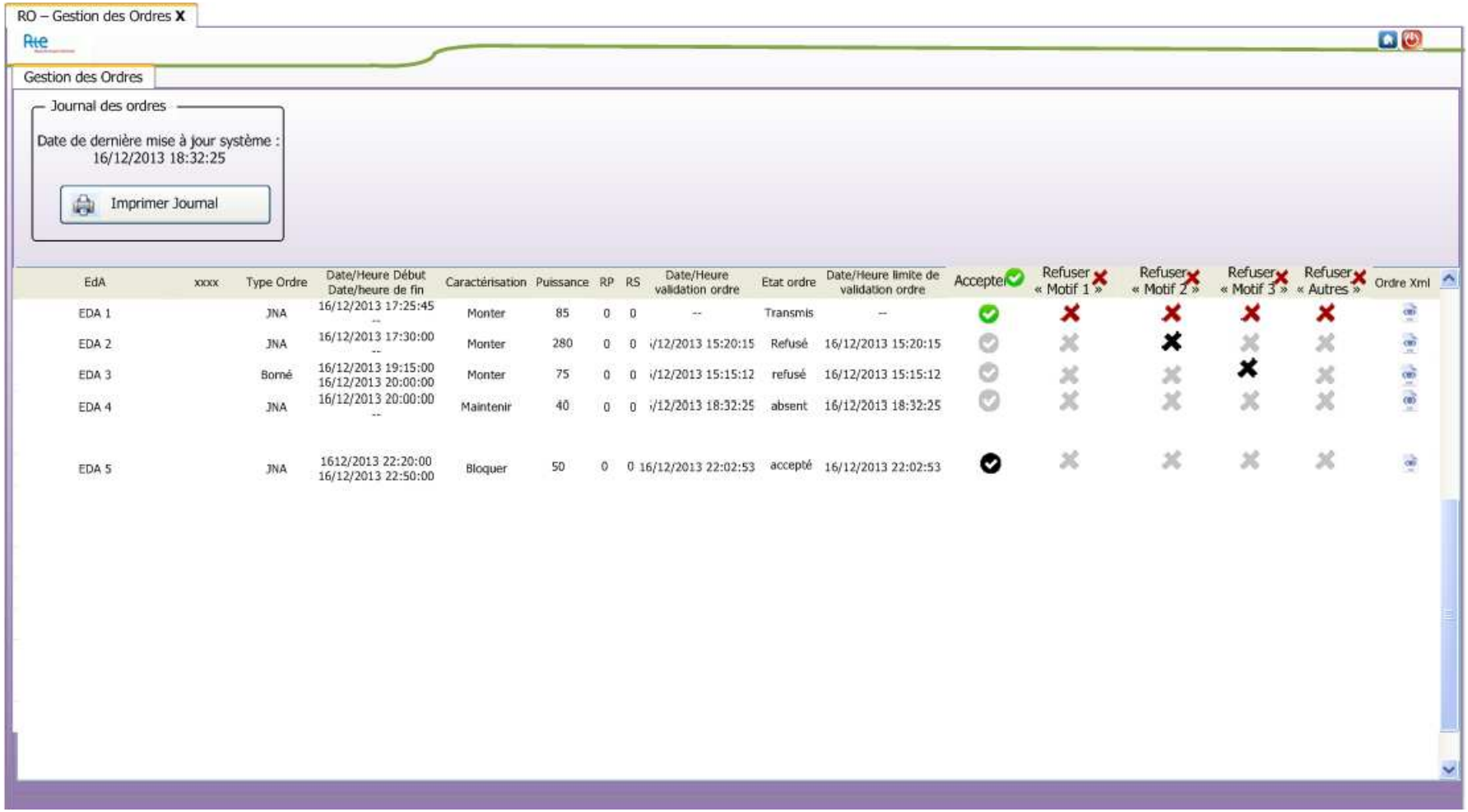
Send back answers

4 cases of denial (to be discussed)

File drop of xml

Download xml files

Digital mock-up (1st proposal)



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XML structure model (½)

XML Files are made of 5 blocks

Block 1
- Id order [digits]
- Immediate start[Boolean]
- Until told to stop (JNA) [Boolean]
- Name of balancing entities EdA [String]
- Secondary level for frequency reserves [Boolean]
- Name of the receiving entity [String]
- Name of BSP [String]

Block 2
- Id order [Digital]
- Type order [String]
- Implicite code [String]
- Short leadtime[Digital]
- Date/hour of start [JJ/MM/AAAA hh:mm:ss]
- Date/hour of end [JJ/MM/AAAA hh:mm:ss]
- Characterisation [String]

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XML structure model (2/2)

XML Files are made of 5 blocks

Power values and ancillary services (ie: cross border = 100,0,0)

Block 3
- Power value [Digital]
- Power unit value [String]

Block 4
- Primary service for frequency power reserve value [Digital]
- Power unit value [String]

Block 5
- Secondary service for frequency power reserve value [Digital]
- Power unit value [String]

Blocks contents are subject to evolution following discussion with BSP

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CONSEQUENCES

Needed evolutions

Contracts shall be adapted according to this new connection

- Balancing rules - § D.5.2.3
- Code de Dialogue
- IT rules

Organizations shall be adapted also,regarding

- RTE relationships in order to take advantage of this new protocol and standard links
- Phone shall be used for downgraded mode

Written orders

Continuation of Code de Dialogue for Implicit Entities (Production located in France only)

Adding new items in the Code to extend it to "Explicit Entities"

To be discussed

Ex :

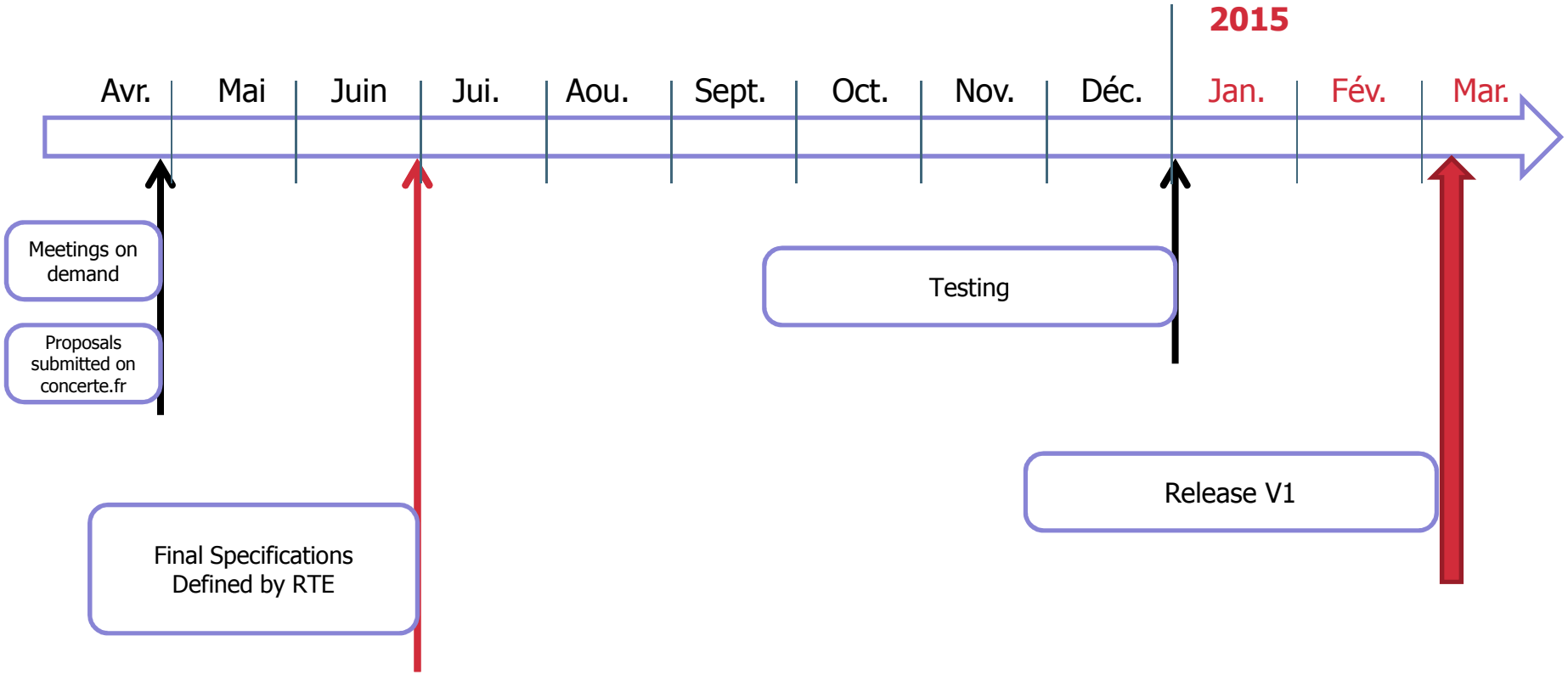
Message	
Go up to	
Go down to	

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5

PLANNING

Planning



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Contacts

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