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GARANZIE NELLE
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Case study on mobile portability: Italy

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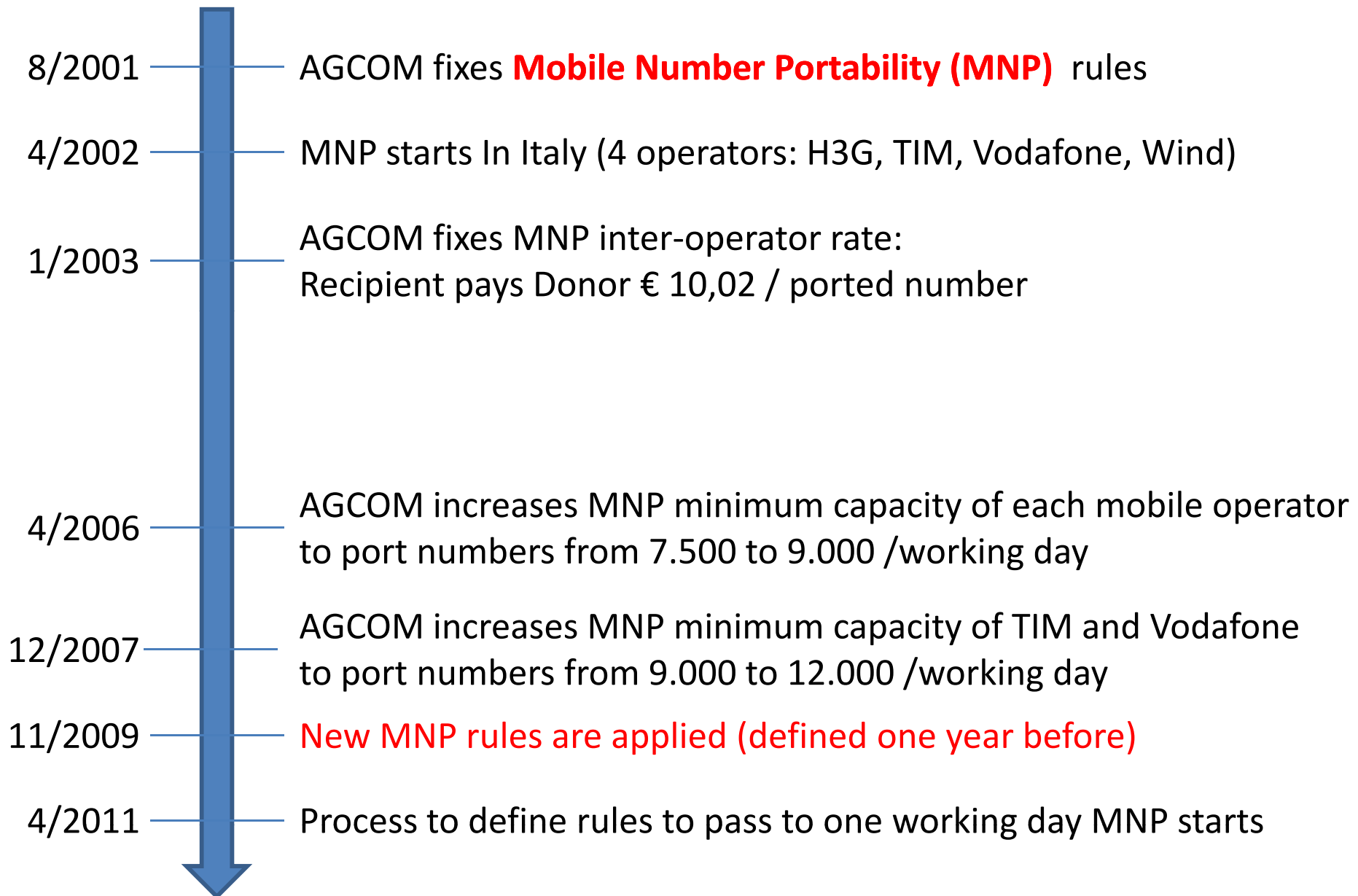
AGCOM

**Workshop on the Regulation of Number Portability beyond EU Borders
Barcelona 09 - 10 June 2011**

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History



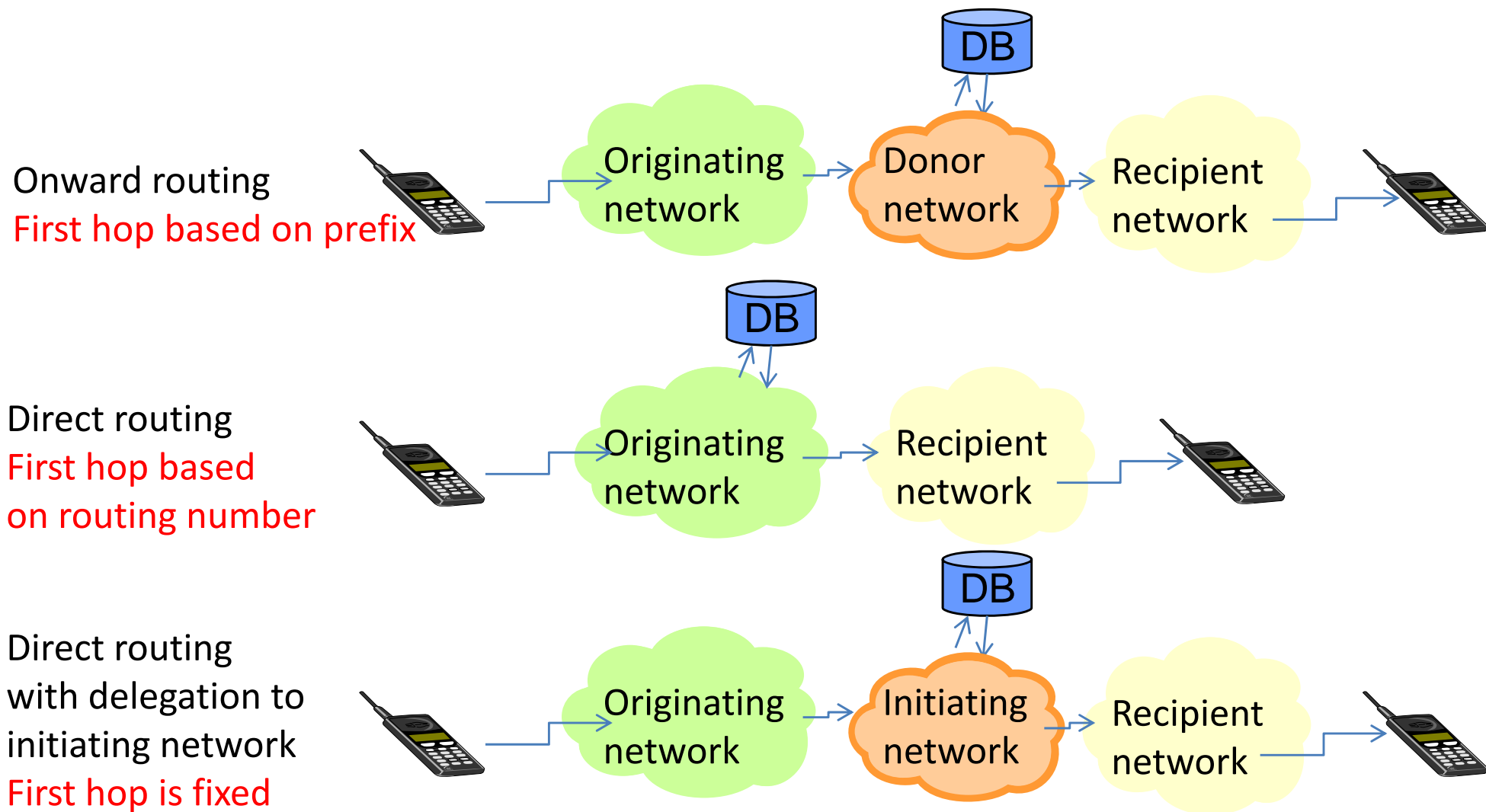
Regulation methodology

- Two main deliberations n. 19/01/CIR and n. 78/08/CIR, respectively of 2001 and 2008, both in Italian (www.agcom.it).
- Regulation rules fix the main aspects and they foresee a “**framework agreement**” among mobile operators
 - 2001: only mobile network operators
 - 2008: also mobile virtual operators
- **Call handling** is specified in a “**technical specification**”, that is the result of an agreement among operators. Communication Ministry and AGCOM participate at the relevant meetings (in Italian www.sviluppoeconomico.gov.it)
- Details on technical aspects **during the portability process** are in the “**framework agreement**”

Technical solution

- In Italy, all public numbers are portable
- **During the call** (i.e. call handling)
 - Mobile Number Portability (MNP) uses Direct Routing
 - National traffic: All Call Query (both in mobile and fixed network)
 - Traffic from abroad: Onward Routing, optionally international carrier operator may check the number portability DB. In this case, the call does not pass through the number holder operator
 - Geographic number portability uses Onward Routing
 - Non-Geographic number portability uses Direct Routing (All Call Query)
- **During the portability process**
 - Recipient leads the process

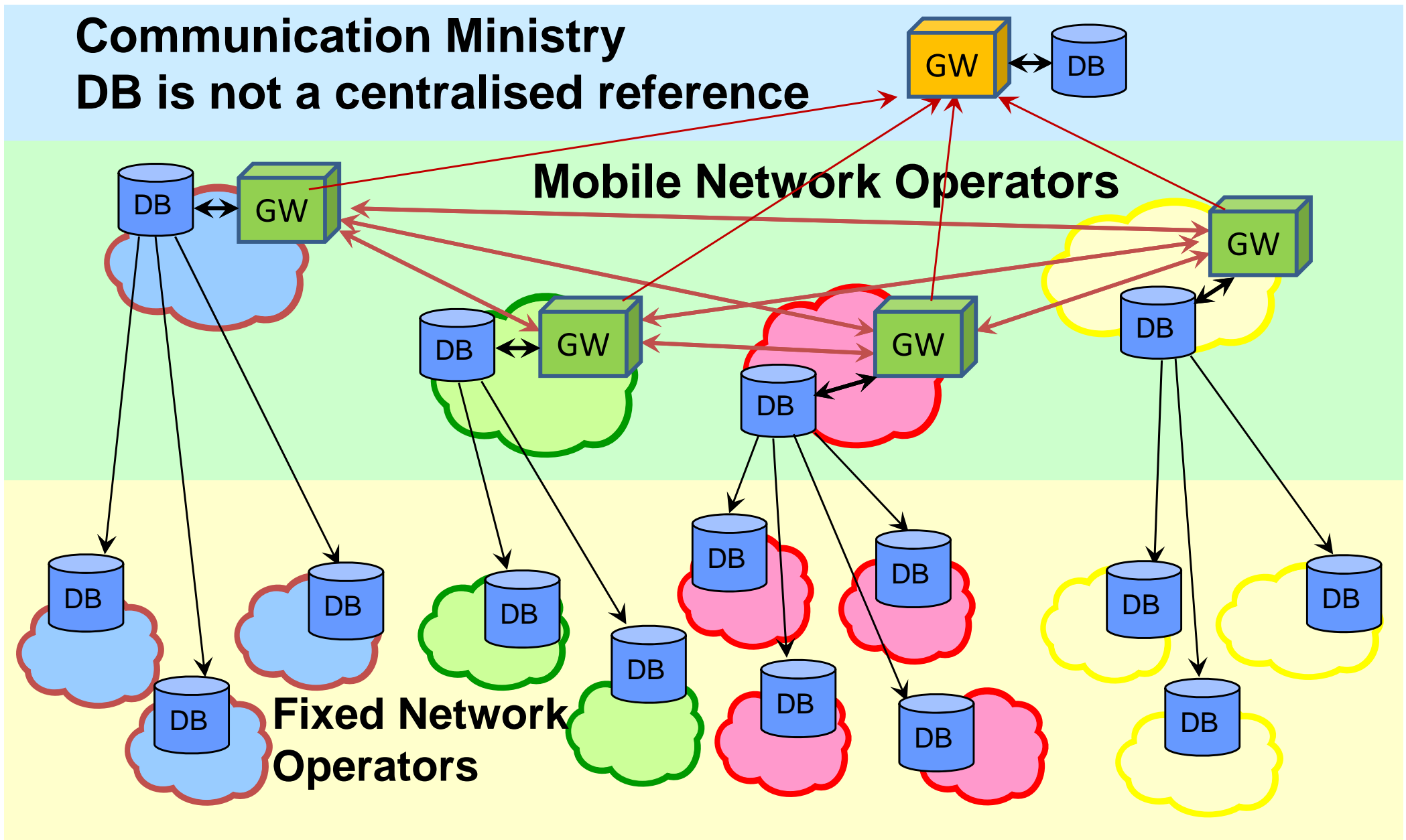
Technical solution



DB = Number Portability Database:

It is constituted by two fields: ported number → routing number
 Routing number identifies the network serving the ported number

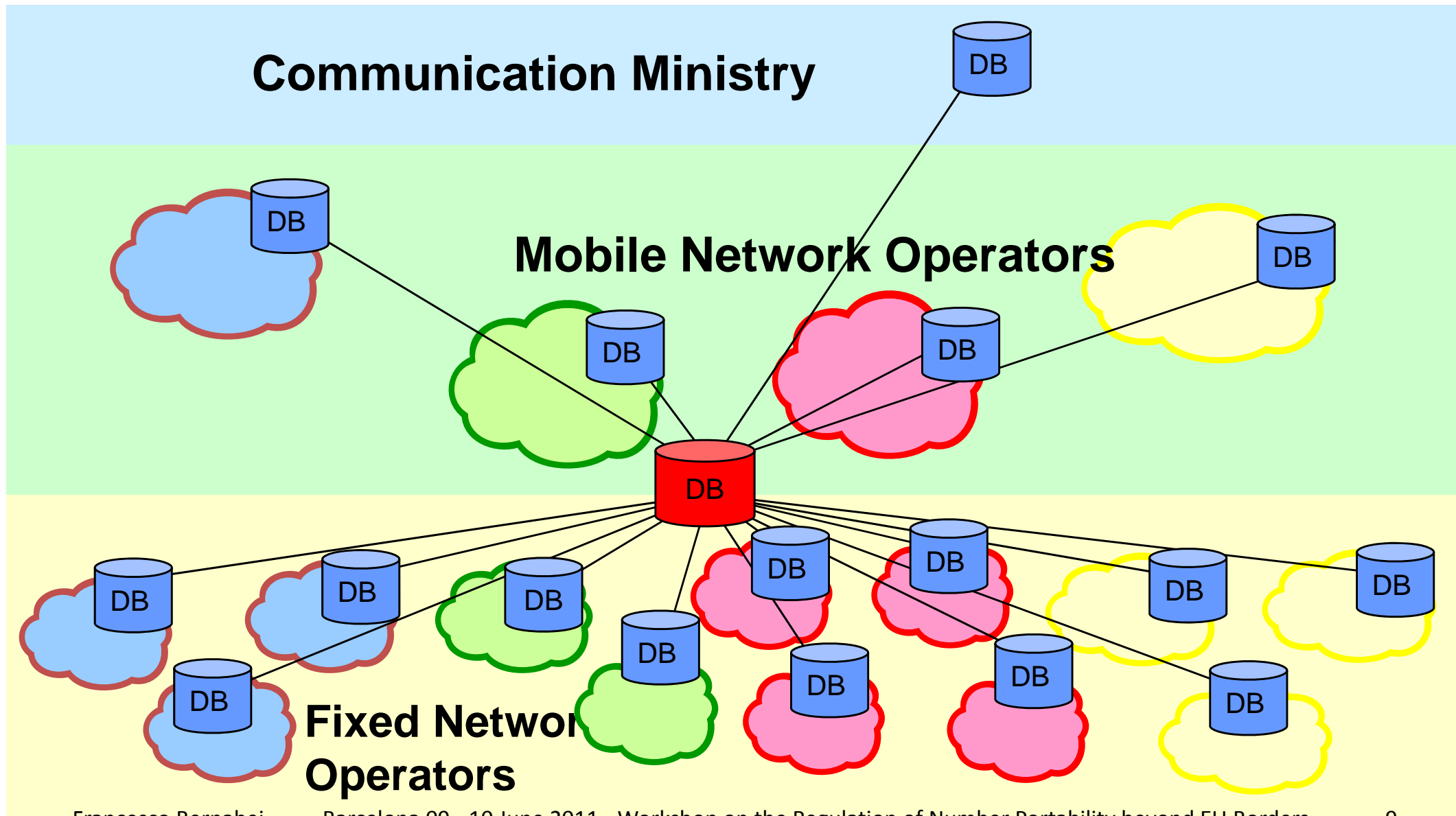
Database architecture: distributed



Database architecture: distributed

- Advantages of a distributed database
 - Simple solution with limited costs for the “normal” operation
 - There is no need for paying for MNP process
- Disadvantages of distributed database
 - More complexity to control errors and to identify responsible operator
 - Complexity increases with the numbers of operators that directly exchange data among themselves.
 - If the Databases are not aligned, the client does not receive communications from the clients of the operators that have not update their own databases
- In Italy, a transition from 4 to 5 mobile operators is in place. In fact, only one virtual operator has so far chosen to install an its own gateway
- AGCOM has already stated that if the situation evolves towards a wrong behaviour, a centralised reference database could be introduced

Database architecture with a centralised reference database



MNP Process - client point of view

- Client asks the number portability to the Recipient and he must subscribe **in writing** a contract with the Recipient, also providing his own document
- In order to get the number portability, the client has to get a (Subscriber Identity Module) SIM of the Recipient
 - typically, either the client already has one or he has to buy a SIM card of the recipient while he is subscribing the portability contract;
 - usually, the SIM card is activated with a “new” number; so, the client can use the new card almost immediately, even if he can continue to use the old SIM managed by the donor.
- At the moment, after **three working days** in the early morning, he receives the portability with a maximum of two hours of loss of service.
 - When his old SIM does not receive more service from the donor, he has to substitute it with the new one given by the recipient.

MNP Process - client point of view

Price for subscribers

- AGCOM does not fix retail prices for the MNP
- Operators have fixed prices till 10 € for ported number, but never it has been applied. MNP is free of charge for subscribers
- On the contrary, typically special offers reserved only for clients asking for MNP are applied
- Retention: the donor operator cannot refuse a request for portability based on any reason related to its contract with the end user. The user may be asked to pay effective costs for terminating the contract, when a minimum period is stated in the contract and this is not expired
- Retention: the donor and/or the client cannot stop a request of number portability

MNP Process - client point of view

tariff transparency

- Before MNP introduction, the first digits identify the operator of the number to be called, so the clients knew the tariff (on-net: same operator, or off-net: other operator).
- With MNP introduction this is not any longer true. Clients need a specific service.
- **456** service: just dialling the code 456 before the mobile number to be called - e.g. to ask for the tariff transparency service for the number **352 1234567**, you have to dial:

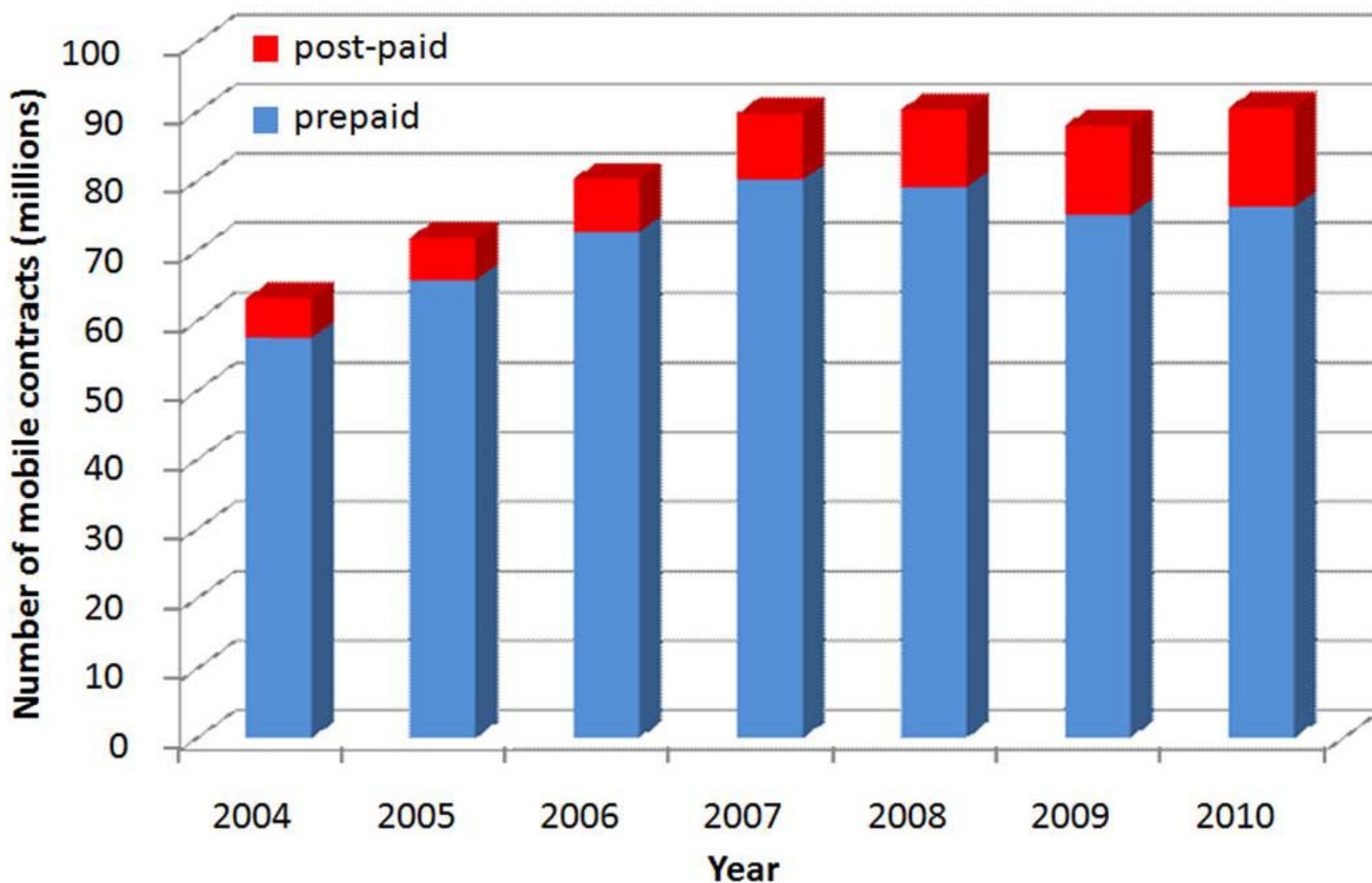
456 352 1234567

the answer could be either

- the name of the operator serving the mobile number to be called or
- whether the mobile number to be called belong to the same operator of the calling party (on-net call) or other operator (off-net call)
- after the tariff transparency information, some operators provides **call completion**: i.e. without having to hang up the operator establish a new communication without dialing again the number
- At least one operator also allows the possibility of activating an information service automatically for each call direct to ported number
- In addition, some operators provide other means of service delivery: via **SMS**, via **Web**

MNP Process - client point of view

type of contracts



MNP Process - client point of view

transfer the unspent credit

- In Italy, the most of the contracts are pre-paid ones
- By Law, donor must give back unspent credit at the end of the contract, except effective cost for the relevant operation
- When a client asks for MNP and he has a **prepaid contract**:
 - the donor gives back the unspent credit or
 - the donor transfers the unspent credit to the recipient in maximum 3 days
 - end users pay a fee to the donor operator:
 - H3G: 1.6 €
 - TIM and Vodafone: 1.5 €
 - Wind and the virtual operators: 1 €
 - bonus and/or promotions are not given back or transferred

MNP Process - client point of view

conclusions relative to new regulation

- The porting time is decreased (3 working days)
- The number MNP requests is increased
- User claims received by AGCOM are drastically reduced

MNP process by new regulation - operator behaviour

- Process description
- Request acceptance
- Validation, options: partial validation, ad-hoc projects, real-time check
- Cut-over
- Wholesale pricing
- Inter-operator penalties

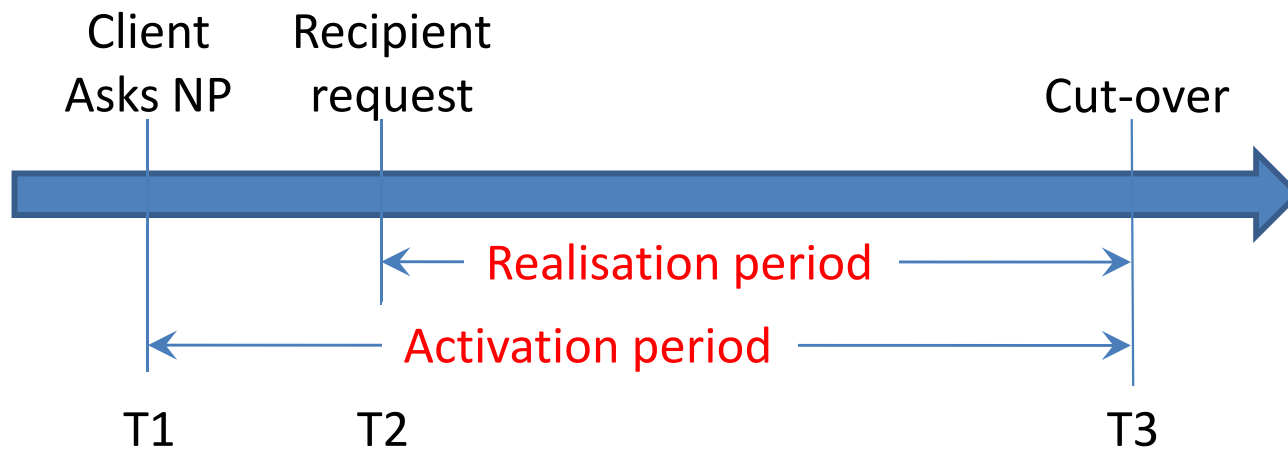
MNP Porting time

- **MNP process**

T1 - Client asks the number portability to the recipient operator

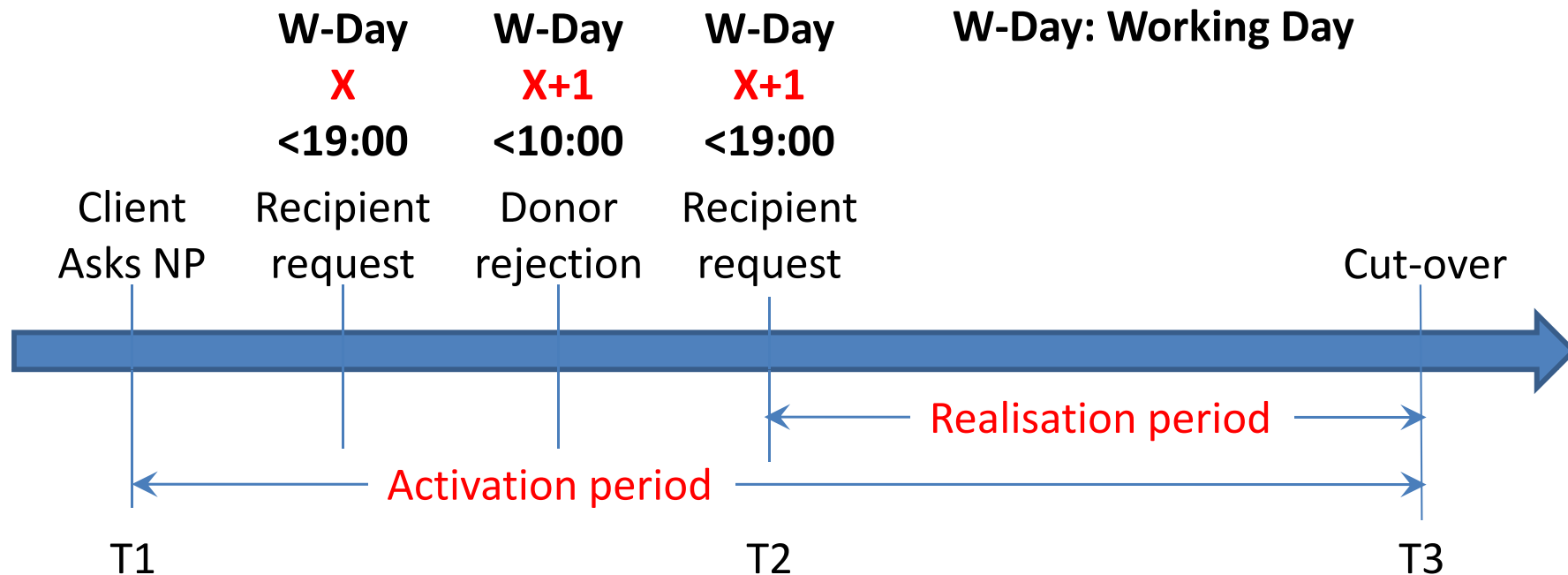
T2 - Recipient operator activates the procedure

T3 - Cut-over (i.e. number portability databases are updated)



- No rules regarding activation period
- The time limit for the realisation period of a “correct request” is 3 working days

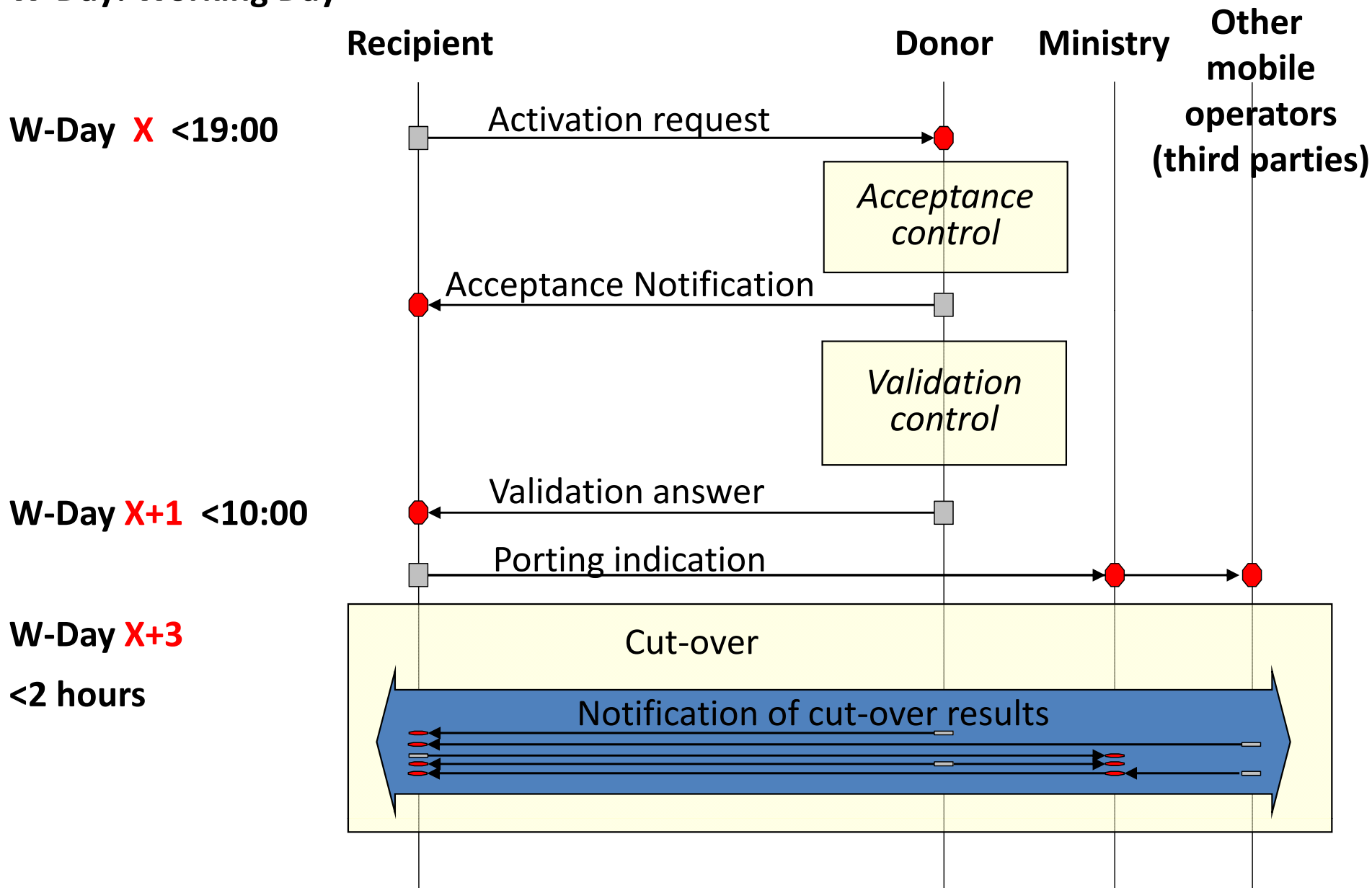
MNP Porting time



- In case of a donor rejection (e.g. due to errors on data provided by the client), the activation period could increase of one extra working day (or more) for each rejection, while the realisation period is constant and it is equal to three working days.

MNP process

W-Day: Working Day



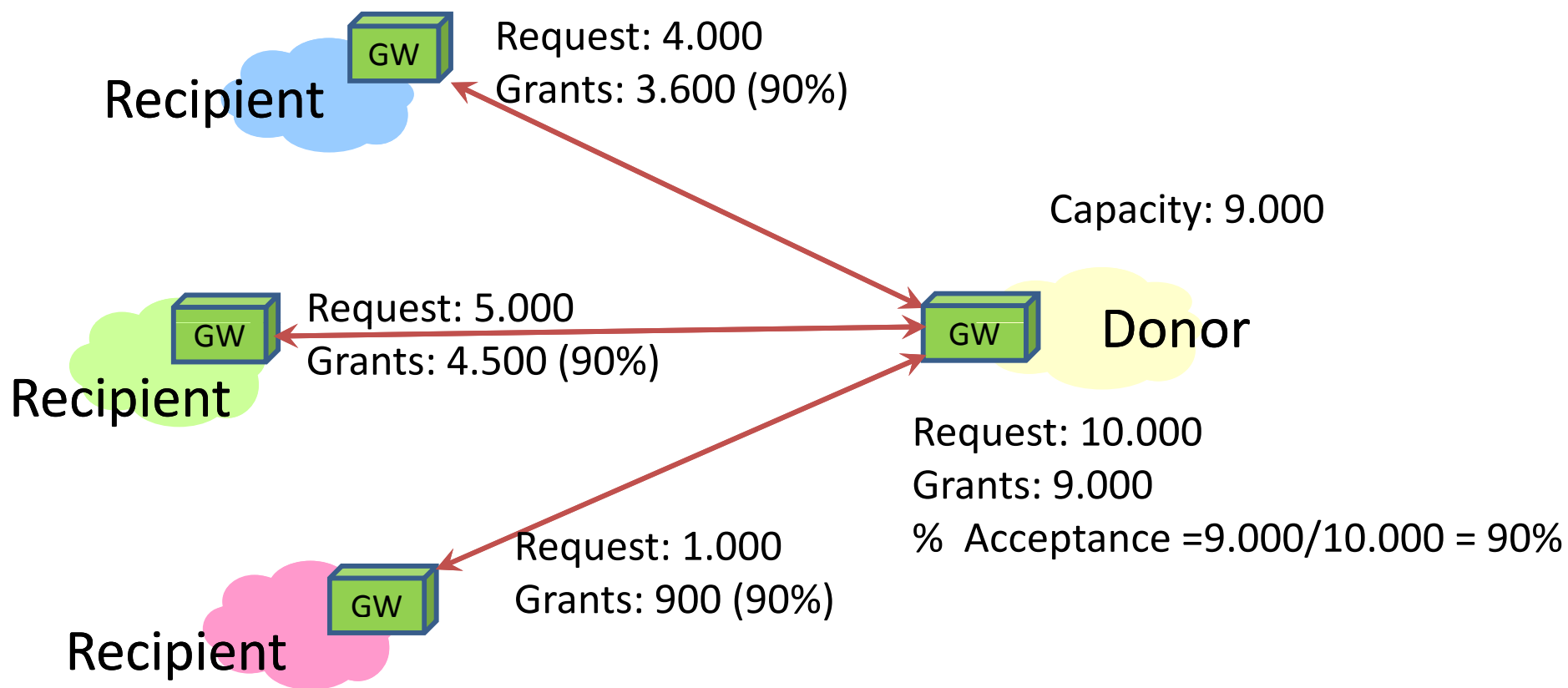
MNP process

- Two controls are done by the donor
 - **Acceptance control** has the aim to accomplish with engineering dimension of the donor systems: it limits the maximum number of operations to do during the validation control activities.
 - **Validation control** has the aim to limit errors in porting wrong numbers

Acceptance Control

- The request acceptance is limited by the “**donor capacity**”.
- Each donor analyses each day no more than a given number (capacity) of requests coming from the other operators
- Each operator has its own capacity as Donor
- How “**donor capacity**” works: each single day,
 - if the total number of requests arriving to the donor is under its own capacity, all the requests are granted
 - if the total number of requests arriving to the donor overcomes its own capacity, grants (equal to the capacity) are given proportionally to the number of requests coming from each recipient
 - from each single recipient, the request acceptance is on the basis of arrival order (first in first out methodology)
 - minor correction to the rule:
 - a low number of requests (2% of the donor capacity) are in any case guaranteed to each recipient

Acceptance Control



All the clients have the same probability that their requests are accepted, independently from the chosen recipient

Acceptance Control

- **How “donor capacity” evolves:** the mean value of the total number of requests received from each donor is evaluated in a period of two months. The donor capacity is **automatically and permanently increased** if this mean value (of the last two months) is greater than 80% of the donor capacity

Operator	Initially Nov 2010	Now
H3G	9.000	9.000
Telecom Italia	12.000	18.000
Vodafone	12.000	15.000
Wind	9.000	12.000
Virtual operators	500	500 Postemobile: 1.500

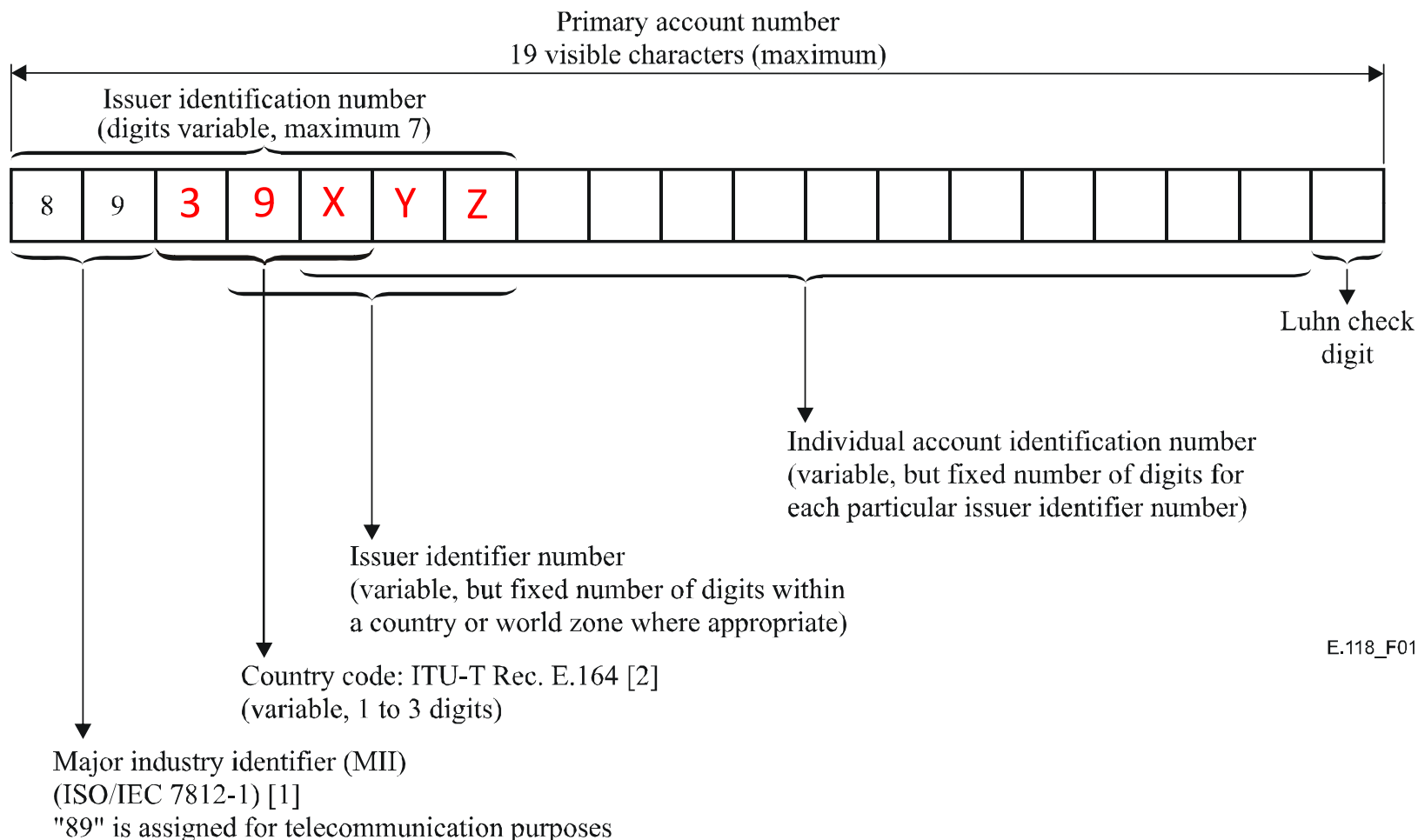
- In the past, AGCOM intervention to resolve huge backlog was needed, now only momentary capacity scarcity could occur
- **Even with high portability volumes, is donor capacity really necessary?**

Validation control

- Validation is one of the key elements to have a successfully procedure
- Validation is necessary in order to protect subscribers from loss of service due to wrong switching to another provider
- Validation is done from the donor on the basis of a series of controls fixed by AGCOM
- Operators cannot add any further control
- The control is based mainly on
 - Validation is based on **Fiscal Code** (post-paid contract)
or **Serial code of SIM** (pre-paid contract)
- Protection against slamming:
 - Clients have to subscribe in writing a contract with the recipient
 - In case of mobile service, portability against user will is not useful, the client has not the recipient SIM card
 - In case of portability against user will, the previous situation has to be restored, the client can ask for a compensation

Validation control: SIM serial number

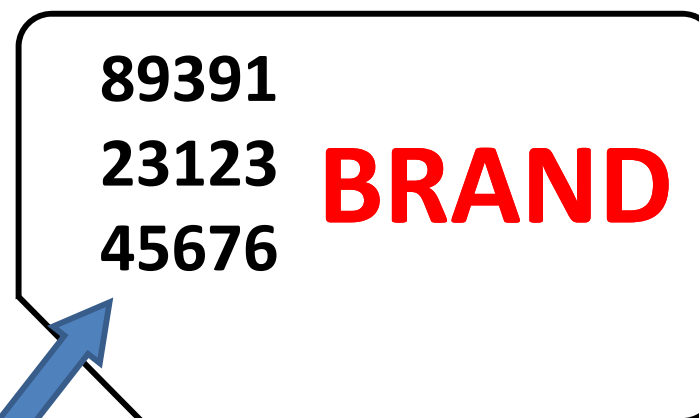
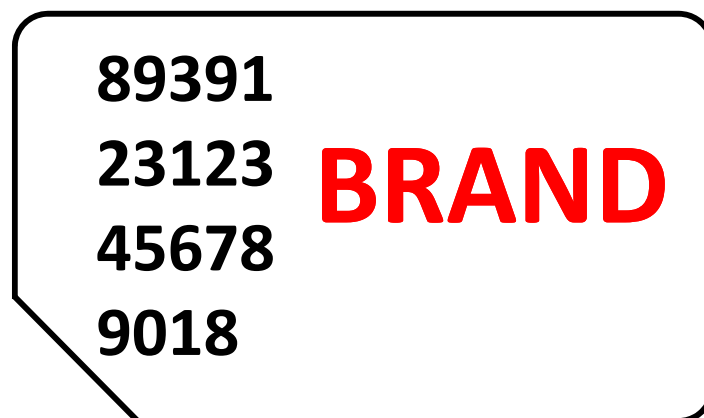
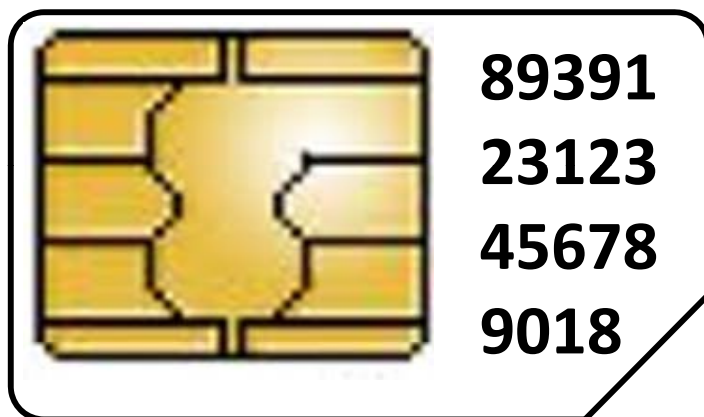
- SIM serial number: ITU-T E.118 recommendation - The international telecommunication charge card



SIM serial number does not contain mobile number

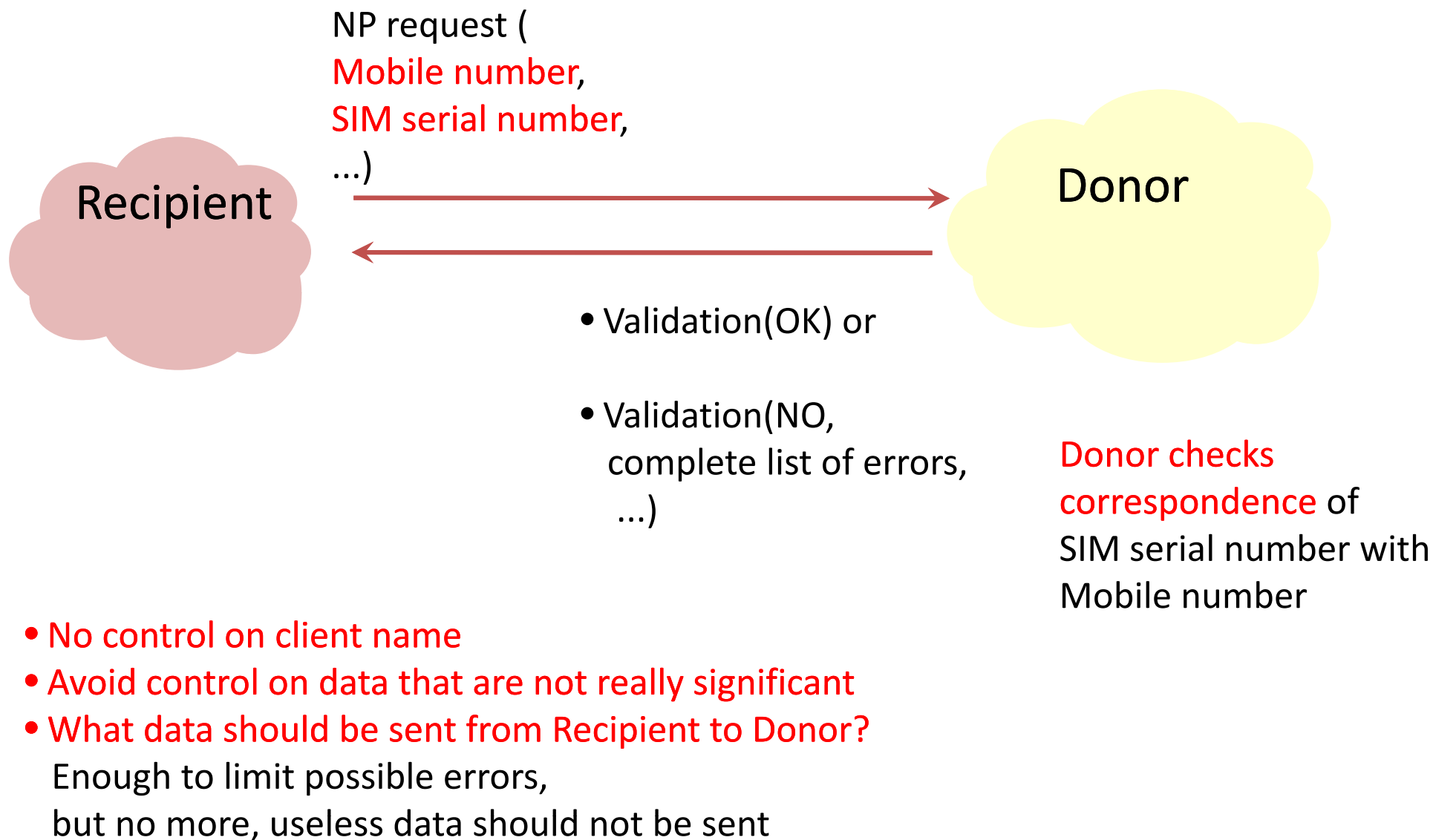
Validation control: SIM serial number

- The serial number (E.118) is stamped on the SIM card
- Anyway on the market, SIM serial number with less than 19 digits are present



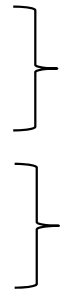
No- standard serial number

Validation control



Data included the request from recipient to donor

- Recipient code
- Recipient network code
- Donor code
- Donor network code
- New routing number
- **List of numbers to be ported**
- Optionally, in case of prepaid contract, **SIM serial number**
- Optionally, in case of post-paid contract, **client fiscal or VAT code**
- Optional flags:
 - **partial validation** already done from the recipient
 - request belong to an **ad-hoc project**
 - client made denunciation to the police for **robbery or loss of SIM**
 - client requested to **transfer the unspent credit** (prepaid contract)



may be different in case of virtual operator

may be different in case of virtual operator

Validation

In case the request is rejected the complete list of errors is sent back from the Donor to the Recipient: this limits the number of request re-submissions

The rejection causes can be:

- Request without mandatory data or with wrong value
- Presence of already positively validated request (request duplication)
- Number not belonging to the donor (request sent to the wrong operator)
- Mobile service not active from more than 30 days
- Mismatch on SIM serial number (prepaid)
- Mismatch on Fiscal/VAT code (post-paid)
- Suspended SIM due to Judge ordinance (payment delay is not a reason to reject portability without a Judge ordinance)
- Service not active due to robbery or loss of SIM without relative flag

Validation – daily mean value valuated on Jan and Feb months

Rejection causes	2008	% req	2011	% req
Request cancellation*	5.462	28,4%	-	
Presence of already positively validated request (new)			38	0,1%
Mismatch on SIM serial number (prepaid)	1.115	5,8%	1.378	3,8%
Mobile service not active at the Donor*	661	3,4%	440	1,2%
Suspended SIM*	624	3,2%	10	0,0%
Mismatch on Fiscal/VAT code (post-paid)	465	2,4%	887	2,4%
Number not belonging to the donor	315	1,6%	665	1,8%
Donor contract type error*	301	1,6%	-	
Request without mandatory data	152	0,8%	209	0,6%
Presence of contemporary requests*	66	0,3%	-	
Service not active due to robbery or loss of SIM*	22	0,1%	11	0,0%
Serial Number absent	3	0,0%	286	0,8%
Fiscal code absent	1	0,0%	-	
No portable number (additional number)*	1	0,0%	-	
ad HOC Project number error	0	0,0%	-	
Mean of total rejections	9.188	47,7%	3.923	10,8%
Mean of total requests	19.263		36.198	

* = rejection cause eliminated or modified

Colour in red % request rejected > 2%

Validation

- How did AGCOM get these results?
 - Request cancellation has been prohibited (even if requested by the client himself). Donor activities and promotion aimed to avoid MNP is considered against fair competition and it is not in the interest of the user globality
 - Invert the logic of request validation
 - with old regulation, in presence of two requests for the same number, the last one was considered - because it represents the client will
 - now the first one is considered - because it represents the client commitment. The client can ask for a further portability when the first one is completed, this is also justified by the time reduction, from 5 to 3 working days
 - Solutions that foreseen contact between the client and the donor **before the MNP presentation to the recipient** have been avoided (like personal code given by the donor or donor permission, in fact they may imply donor activities and promotion with the aim to avoid MNP)
 - Useless data transmission has been eliminated
 - No so significant rejections have been eliminated or modified

Partial validation

- **Problem:** analysing the statistics on reject causes, AGCOM observed that a lot of them was due to the mismatch on SIM serial number. Likely many times a wrong SIM serial number is entered.
- **Constraint:** the solution should avoid “portability code” given by the donor.
- **Solution:** The recipient has the possibility (as an option) to do a partial validation, avoiding some control from the recipient, such as SIM serial number and service status checks. It simplifies/reduces donor activity.
- **How the process works:**
 1. Dealer (**Recipient**) provide to the client a “portability code” during the portability request subscription
 2. Recipient send an SMS to the client asking for confirmation
 3. Client send back the “portability code”Alternatively, the recipient can make a registered call to the client.

If the client does not answer the normal portability process is carried out

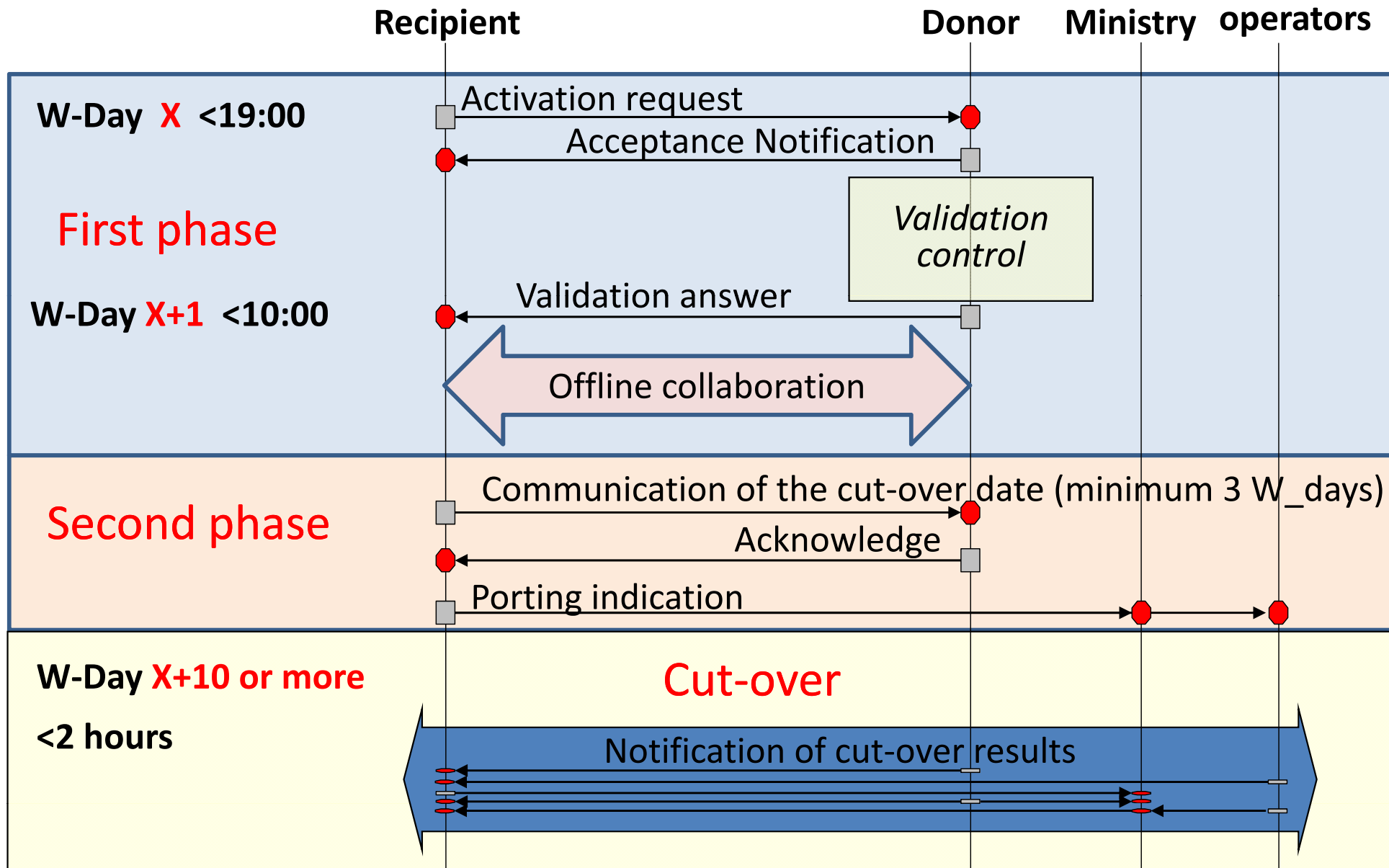
Ad-hoc Project

- It is an option decided by the user on the basis of its own necessity in order to guarantee the synchronization in porting multiple numbers and to better organize the porting (e.g. verification of SIM volume, SIM distribution, ...)
- It is particularly useful for the clients in case of high volume of porting
- It is not possible to utilize partial validation
- The number of SIM belonging to ad-hoc projects are not taken into account in the donor capacity
- There is no limit for the numbers that can belong to a single ad-hoc project
- There are mechanisms to avoid that more huge ad-hoc projects have to be handled in the same day

Ad-hoc Project

W-Day: Working Day

**Other
mobile
operators**

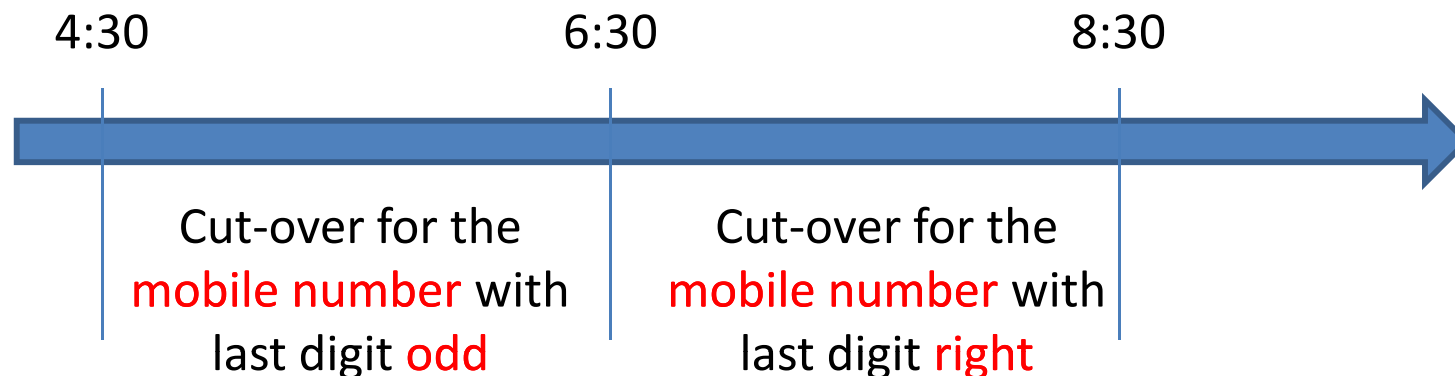


Validation evolution

- In the AGCOM resolution, it is stated that a real time validation process could be introduced in the future
- In fact, the validation process defined is simple enough: it is based mainly on checking the correspondence between mobile number and SIM serial number or Fiscal/VAT code
- Possible future solution:
 1. Client goes to the dealer shop (**recipient**) for subscribing the portability request
 2. Client data are registered in the recipient system and sent to the Donor
 3. Donor in real time answers “ok” or provides complete list of errors
 4. Possible errors are immediately corrected by the dealer
 5. Eventually before exit from the dealer shop, the client is sure that the day after the NP is effectively done

Cut-over

- During the cut-over, all operators (mobile and fixed) update their own MNP databases
- It is quite important to limit the loss of service for the client
- Previously, a single window of 2 hours was defined.
- Operators say that the number to be ported in 2 hours was too much, so a second window has been introduced.
- Each operator must update its own number portability database in windows of 2 hours.



Wholesale pricing

- Before deliberation n. 78/08/CIR, recipient operator paid 10,02 € for ported mobile number to donor operator
- Now, no operator can charge anything to the other operators for the mobile number portability process

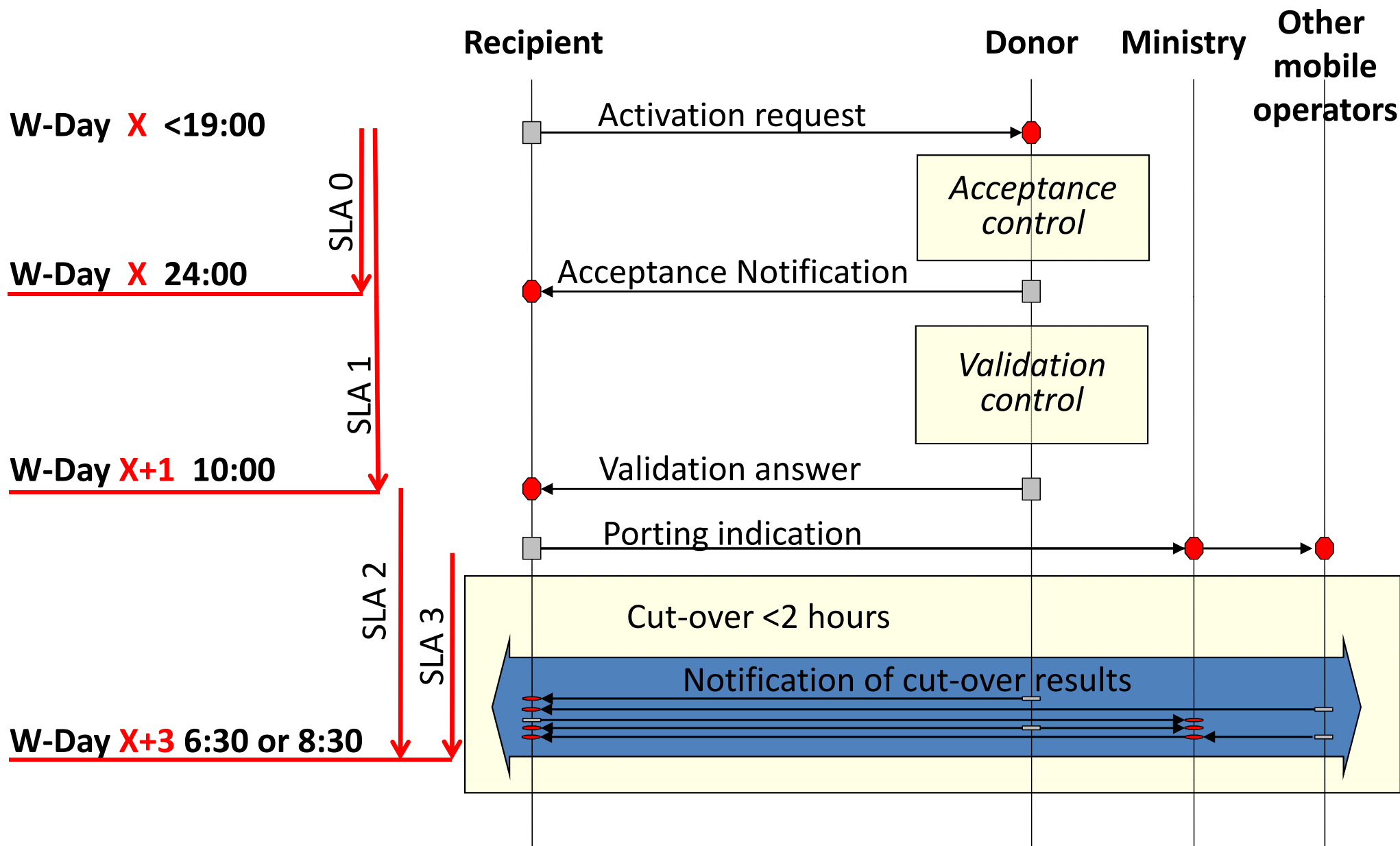
Inter-operator Penalties

- The aims are:
 - to increase the number portability efficiency and
 - to reduce bad behaviour having the goal to impede the number portability
- The operator causing a delay with respect to maximum time corresponds to the recipient a penalty
- A series of penalty among operators has been introduced in case of delays for the various actions due to the different parties in the MNP process. **Service Level Agreements (SLAs)** have been fixed.

	SLA 0	SLA 1	SLA 2 / SLA 3
Who pay	Donor	Donor	Donor / Third party
Message type	Negative acceptance notification	Validation answer	Positive cut-over notification
When	Time limit exceeded and for each solar day	Time limit exceeded and for each solar day	Time limit exceeded and for each solar day
Penalty	10 € for each request	50 € for each request	10 € for each request

MNP process

W-Day: Working Day

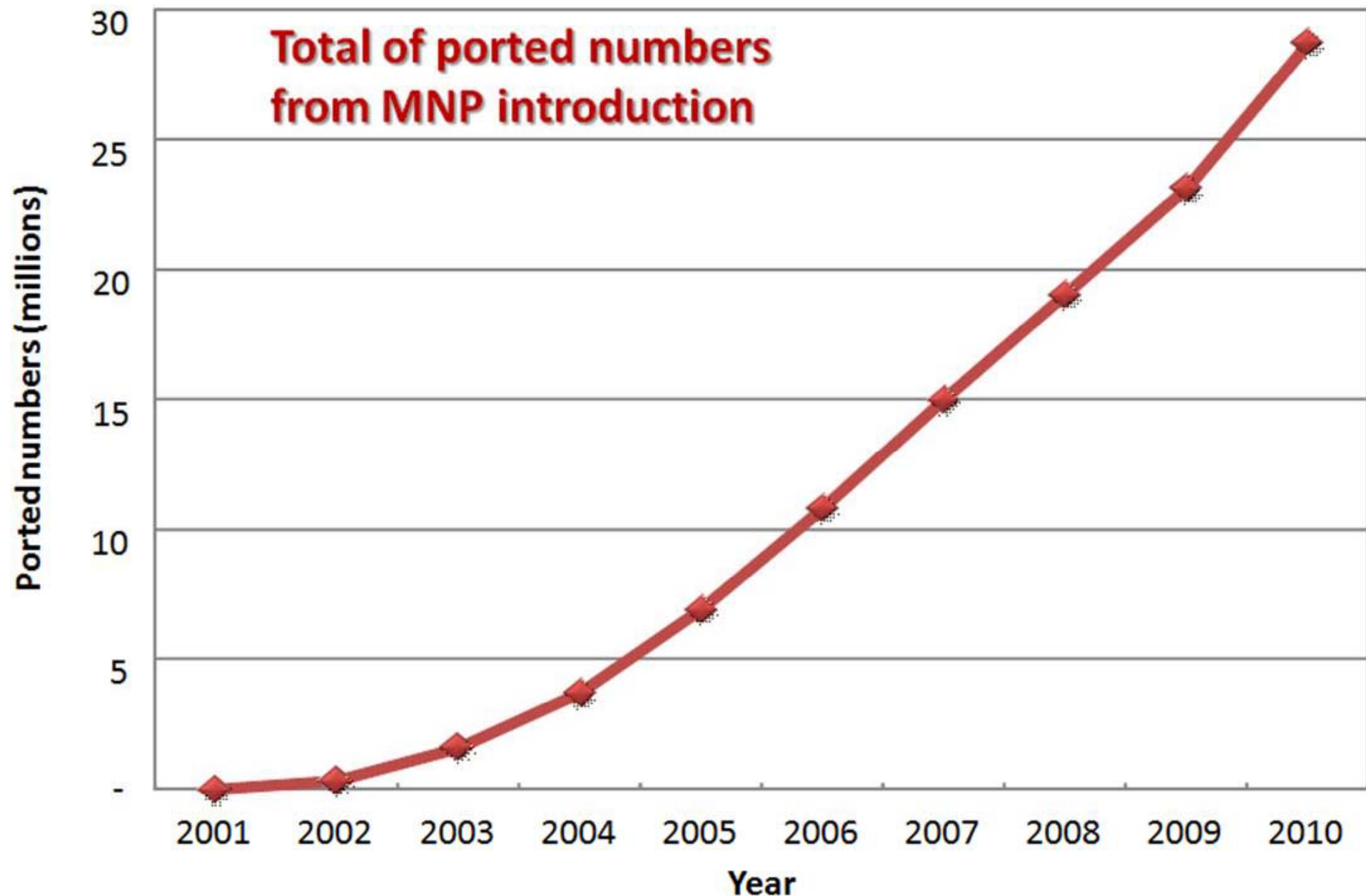


Inter-operator Penalties

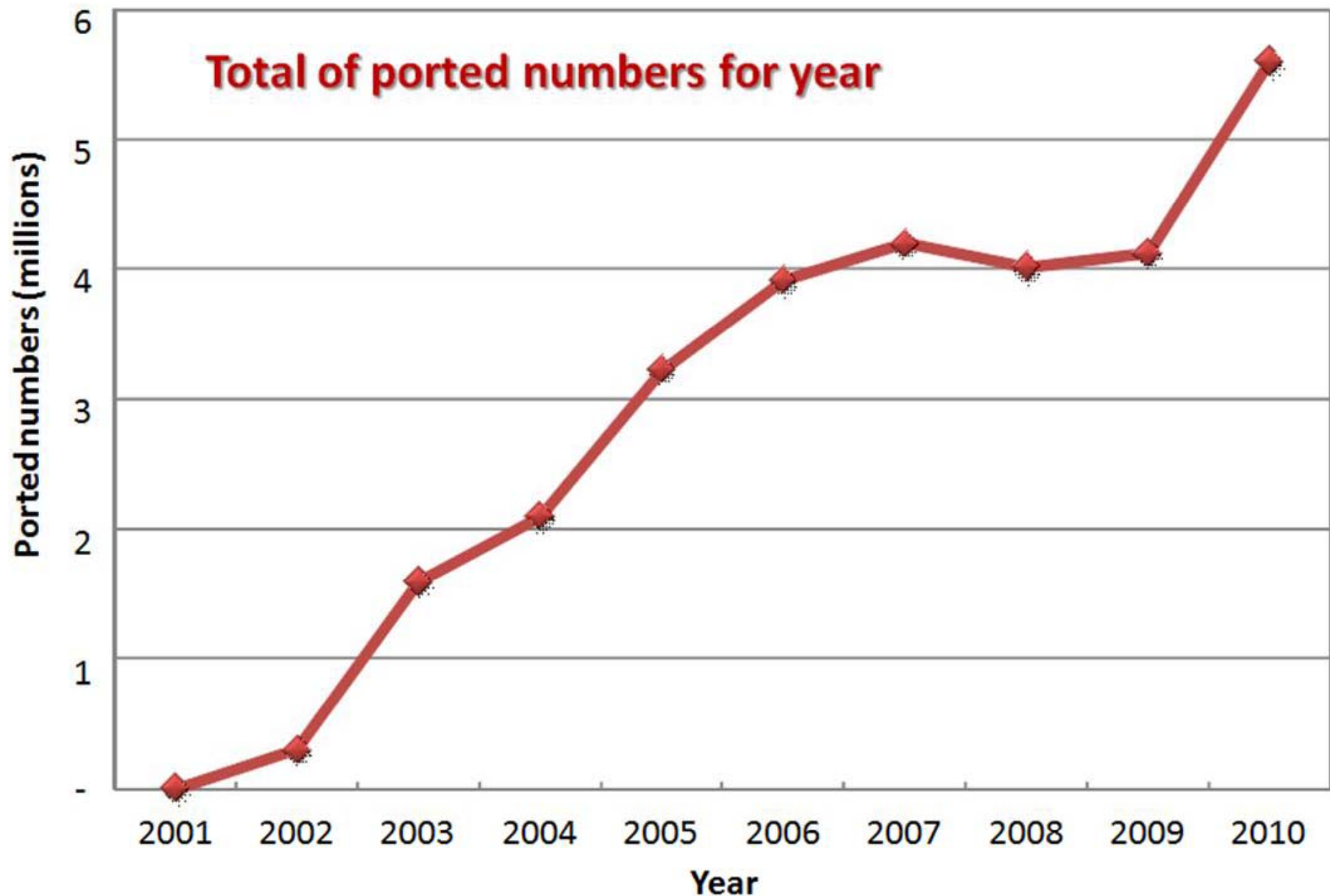
- Penalties is under revision with current public consultation (deliberation n. 30/11/CIR)
 - to exclude penalties in case of exceptional **system maintenance** (information is given in advance)
 - to exclude penalties in a limited number of days (e.g. 4 in a year) in case of a **system fault** that does not allow to answer to a high number of requests of the same type (information is given in the same day as soon as system fault is detected)
 - to review penalty values in particular to take into account the customer base size. In fact, for same Service Level Agreements the damage caused is proportional the size of the customer base

MNP evolution

Ported numbers from MNP introduction



MNP evolution: Ported numbers for year

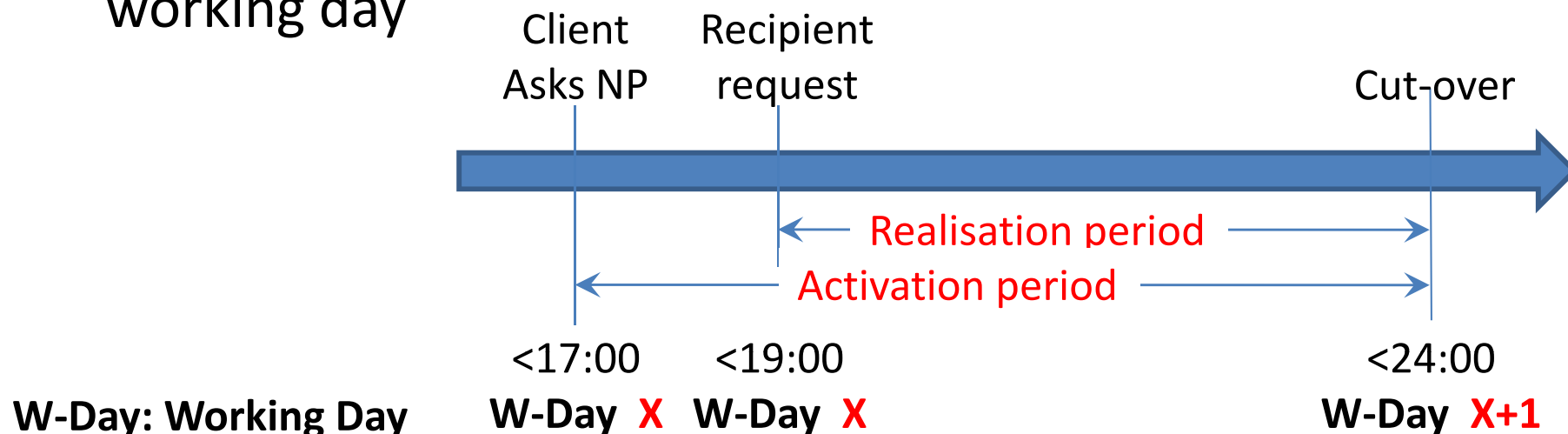


MNP monitoring

- In Italy, **clearing house is not used**. So, same questions are directed to more subjects (donor, recipient and third party) to have a confirmation of the answer correctness
- Monitoring is done by means of monthly reports, containing information on:
 - NP requests directed to each donor, to verify donor capacity increases
 - Market requests received by each recipient subdivided for donor
 - Backlog: the number of portability remaining at the end of the month
 - Deep analysis of rejections divided by cause and recipient/donor
 - Same analysis in case of partial validation
 - Total number of NP executed in each month for each couple (donor, recipient) and separately for normal NP and ad-hoc projects
 - For ad-hoc projects also the number of requests (so, request dimension is valued)
 - Total number of NP executed by the introduction of MNP
 - Mean time to execute single NP (activation and realisation periods)
 - Penalty paid/due divided for type and recipient/donor

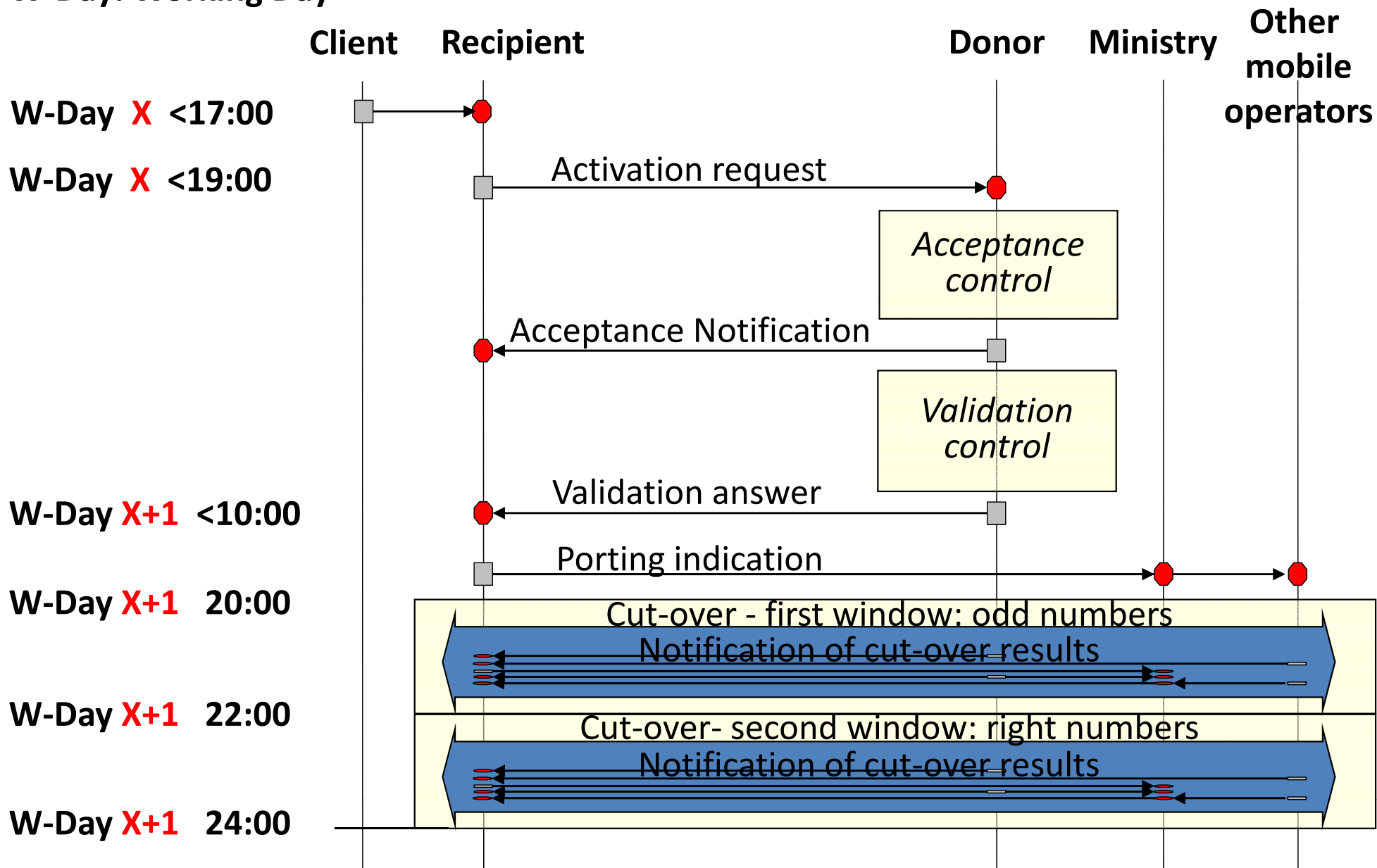
How introduce one working day

- The time from the validation and the cut over (that now takes 2 working days) should be reduced
- An obligation for the recipient should be introduced, in particular for the time between number portability request subscription and request submission from the recipient to the donor.
- In the public consultation the time limit for the client to present the request is hypothesized at 17:00. After this limit, the request is considered as presented in the successive working day



Hypothesis for MNP process

W-Day: Working Day



Client compensation

- Now, the client can ask for a compensation in case of problems in MNP, but a litigious is needed.
- It is foreseen a compensation of 2,5 € per each day of delay
- In the public consultation (deliberation n. 30/11/CIR), it is foreseen the possibility to introduce an automatic client compensation
- Rational
 - Recipient is the responsible from the user point of view
 - If the real responsibility is of another operator, the recipient is automatically compensated by inter-operator penalties
- Compensation proposal:
 - 2,5 € per each w-day of delay (first two w-days of delay are excluded)
 - at the third w-day of delay a compensation of 7,5 € is due

Universal service European directive 2009/136/EC of 25 November 2009

Directive	Italy
Inter-operator Pricing: pricing between operators and/or service providers related to the provision of number portability is cost-oriented	No inter-operator charge for MNP process
Client Pricing: if any, do not act as a disincentive for subscribers against changing service provider	Typically, client do not pay for MNP
One working day portability: Porting of numbers and their subsequent activation shall be carried out within the shortest possible time. In any case, subscribers who have concluded an agreement to port a number to a new undertaking shall have that number activated within one working day	Now 3 working days. Public consultation to realize the portability in one working day is going on
Loss of service: In any event, loss of service during the process of porting shall not exceed one working day.	Now, two windows in order to assure maximum 2 hours of loss of service

Universal service European directive 2009/136/EC of 25 November 2009

Directive	Italy
Relation with contract: competent national authorities may establish the global process of porting of numbers, taking into account national provisions on contracts, ...	Presence of contract cannot be an obstacle to obtain MNP
No porting against client will: ... subscribers are protected throughout the switching process and are not switched to another provider against their will	MNP is asked in writing. Validation process is carried out. Restore and compensation is foreseen
Client compensation: ... an obligation to compensate subscribers in case of delay in porting or abuse of porting by them or on their behalf.	Compensation by litigation is present. An automatic one is in the public consultation
Contract termination: ... Member States shall ensure that conditions and procedures for contract termination do not act as a disincentive against changing service provider.	A law states that customers have the right to terminate a contract in maximum one month, paying effective costs for closing it

- Thank you for your attention

Questions?

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