Prodapt powering global telecom

Robotic Process Automation In Number Portability
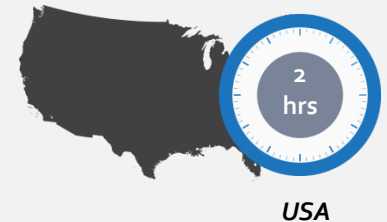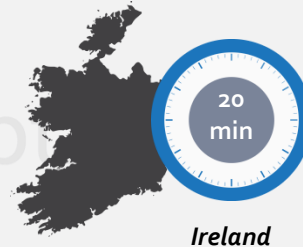
Mobile Number Portability

MNP is a facility which allows subscribers to retain their number even after switching operator, services or location.

MNP implementation started in late 1990s from mature European markets like Netherlands and UK. The objective was to facilitate competition amongst operators on other networks. Now it has been embraced by more than 70 countries.

Benefits of MNP

Empowers customer to be lifelong owner of his mobile number while switching to best service provider. This saves them from additional hassle of updating contact books, informing friends, families etc.

Increases competition among operators for customer retention fostering better service quality, increased gamut of services, improved prices etc.

In some countries, where directory number resources (i.e. number ranges) were exhausted, the infrastructure to facilitate MNP allowed number planning administrators to assign number more efficiently

Time taken to import number varies widely across countries

Few seconds

New Zealand

20 min

Ireland

2 hrs

USA

to more than a month in few other countries

Costs involved

Setup Cost – Cost of setting up NPDB (NP database), NP gateway server, Software development, Network upgrade, CRM upgrade etc.

Maintenance Cost – cost for the agreed procedure, activating the ported number, provisioning routing information

Call routing cost – Irrespective of number is ported or not, NPDB needs to be queried every time impacting network signaling and resources. This affects the network traffic and adds to the cost.

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POTS Line Number Portability

Plain Old Telephone System is a voice-grade telephone service using analog signal transmission over copper loops.

Started in **1876**, this was the only service provided by CSPs till the introduction of **Integrated Service Digital Network (ISDN)** in 1980s. POTS still remains the basic form of residential and small business communication in major part of the world. It is called as Location Number Portability.

1 The NPA-XXX of a number used to identify the State and rate center of original operator, the Service provider and the carrier type

2 NPA-NXX is the address of the switch serving the Telephone number. When a number is posted, a 10-digit LRN number is associated with it

3 Calls are now routed on the basis of NPA-NXX of the LRN number

POTS line Number Portability

- It is also called as Local Number Portability

- It allows the user to switch their fixed line service provider while keeping the original telephone number

- LNP relies heavily on Location Routing Number (LRN) which is a unique 10 digit number assigned to each switch.

Decoding NPA-NXX

NPA – Number Plan Area (Area Code)
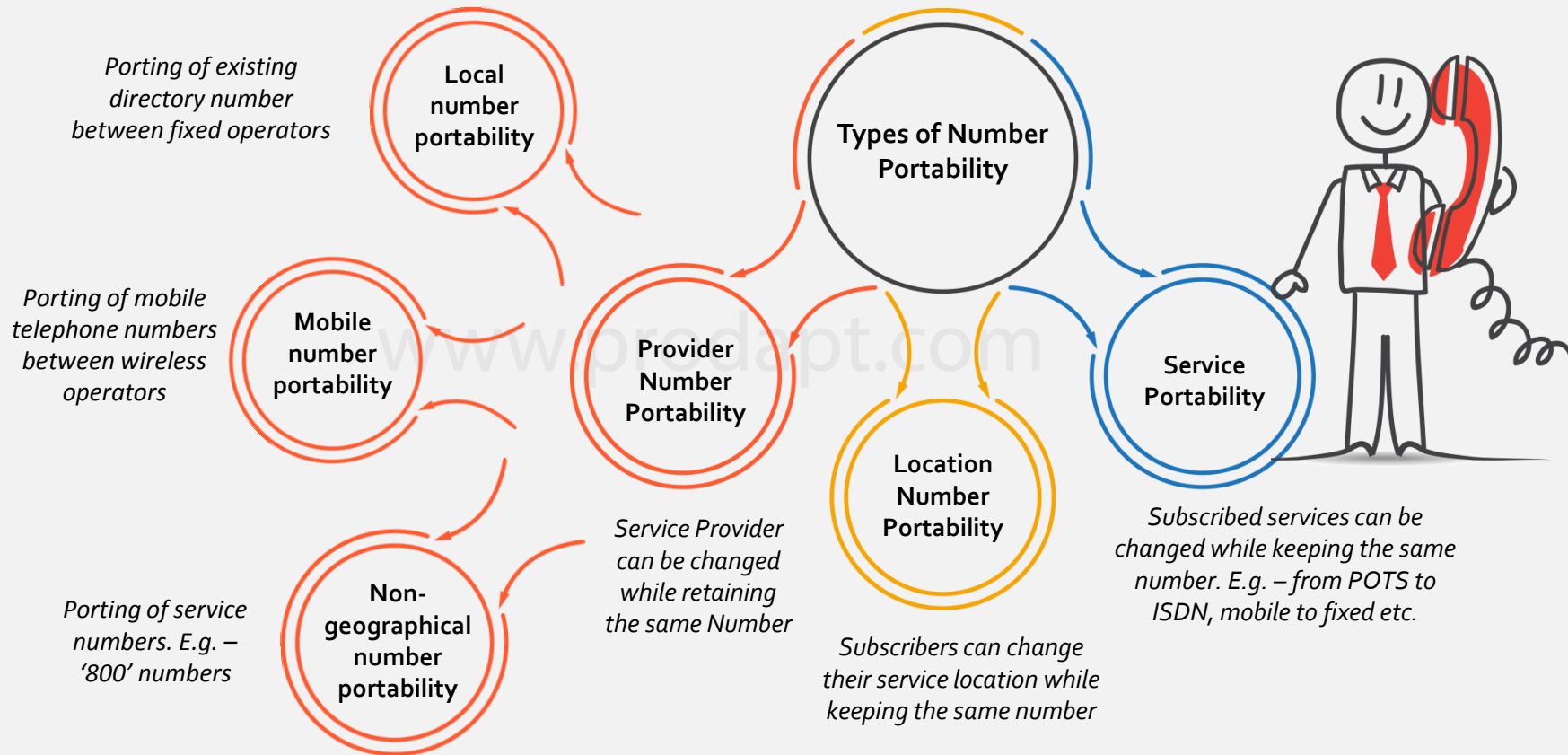
N can be any number between 2 to 9

NXX – Prefix (Central Office Code)

P,A can be any number between 0 to 9

XXXX – Line Number

X can be any number between 0 to 9

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Types Of Number Portability

Types of Number Portability

Porting of existing directory number between fixed operators

Local number portability

Porting of mobile telephone numbers between wireless operators

Mobile number portability

Provider Number Portability

Porting of service numbers. E.g. – '800' numbers

Non-geographical number portability

Service Provider can be changed while retaining the same Number

Location Number Portability

Subscribers can change their service location while keeping the same number

Service Portability

Subscribed services can be changed while keeping the same number. E.g. – from POTS to ISDN, mobile to fixed etc.

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Mechanisms of Number Portability

Signaling Relay

Direct Relay

New Network

Donor Network

Home Location Register

Re-route

New Routing Digits

Originating Network

Route

Donor Network

Check

Internal GB

Originating Network

1 Calling

Gateway Mobile Switching Center

6 Trunk Set up

Ported Number

5 Mobile station Routing Number

2 Get Mobile Station Routing Number

3 Get Mobile Station Routing Number

Mobile switching Center

Signaling Replay

Home Location Center

4 Routing Mobile Station Routing Number

Recipient N/W

- When the Call is dialed to ported number, it goes to the donor network, which transfers it to the recipient network

- Does not require centralized database

- Efficient when the quantity of ported numbers and operators are low
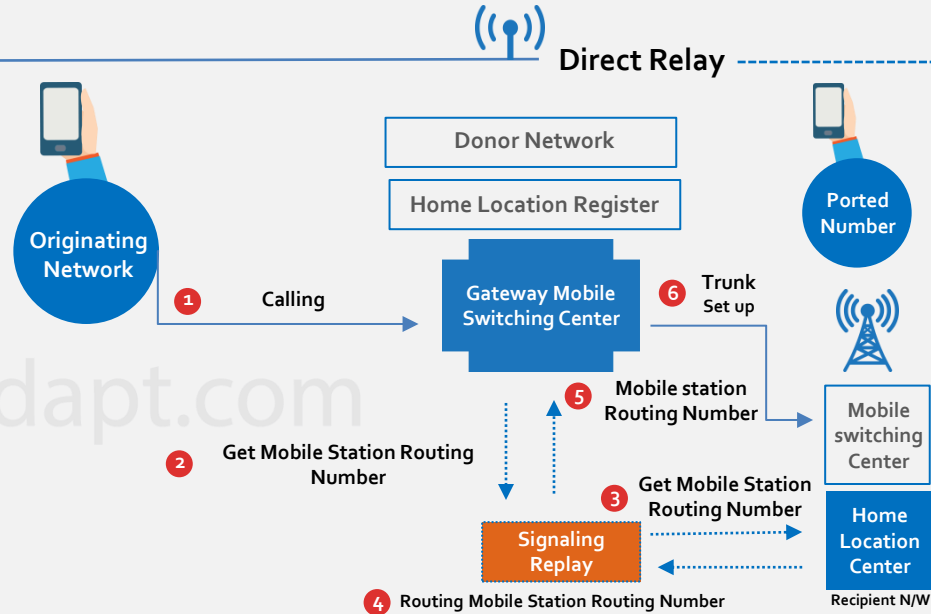
- Originating network contacts Gateway Mobile Switching Centre(GMSC). GMSC contacts HLR and upon detecting that the number is ported out, takes Mobile Station Routing Number from it. With the help of this MSRN, it establishes trunk call to recipient's GMSC

- Not an efficient approach as originating, donor as well as recipient network are busy to establish call

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Mechanisms of Number Portability

All Call Query

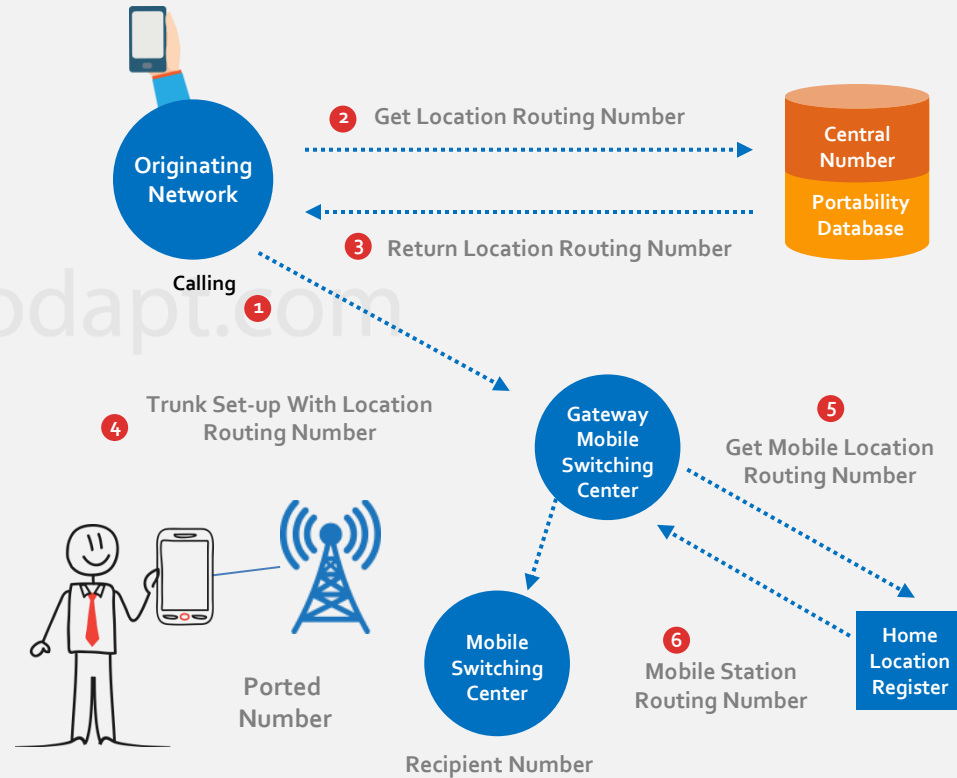A direct routing scheme which makes use of Centralized Number Portability Database

This is considered the most efficient method for large interconnected networks, with many operators and large quantity of ported numbers

The originating network directly queries the central ported database to determine the routing number required to call the recipient operator

After getting the number the call is directly routed to the recipient network

In the recipient network, call is directly forwarded to GMSC of recipient network, which trunks it to Mobile switching Center

The donor network is not involved in the process which makes it most resource efficient approach

Originating Network

Calling

2 Get Location Routing Number

Central Number

Portability Database

3 Return Location Routing Number

1

4 Trunk Set-up With Location Routing Number

Gateway Mobile Switching Center

5 Get Mobile Location Routing Number

Ported Number

Mobile Switching Center

6 Mobile Station Routing Number

Home Location Register

Recipient Number

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Challenges in implementing MNP, Solutions through RPA and Benefits
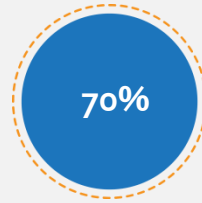
Benefits

90-92%
reduction in errors caused by manual intervention

70-80%
of workforce can be reduced and moved to other intelligence heavy jobs

70%
reduction in the time needed to complete the process

95%
first touch resolution i.e. no. of events successfully completed in first attempt and sent to next step

Challenges in MNP

Order download from multiple customer portals Manual intervention required:
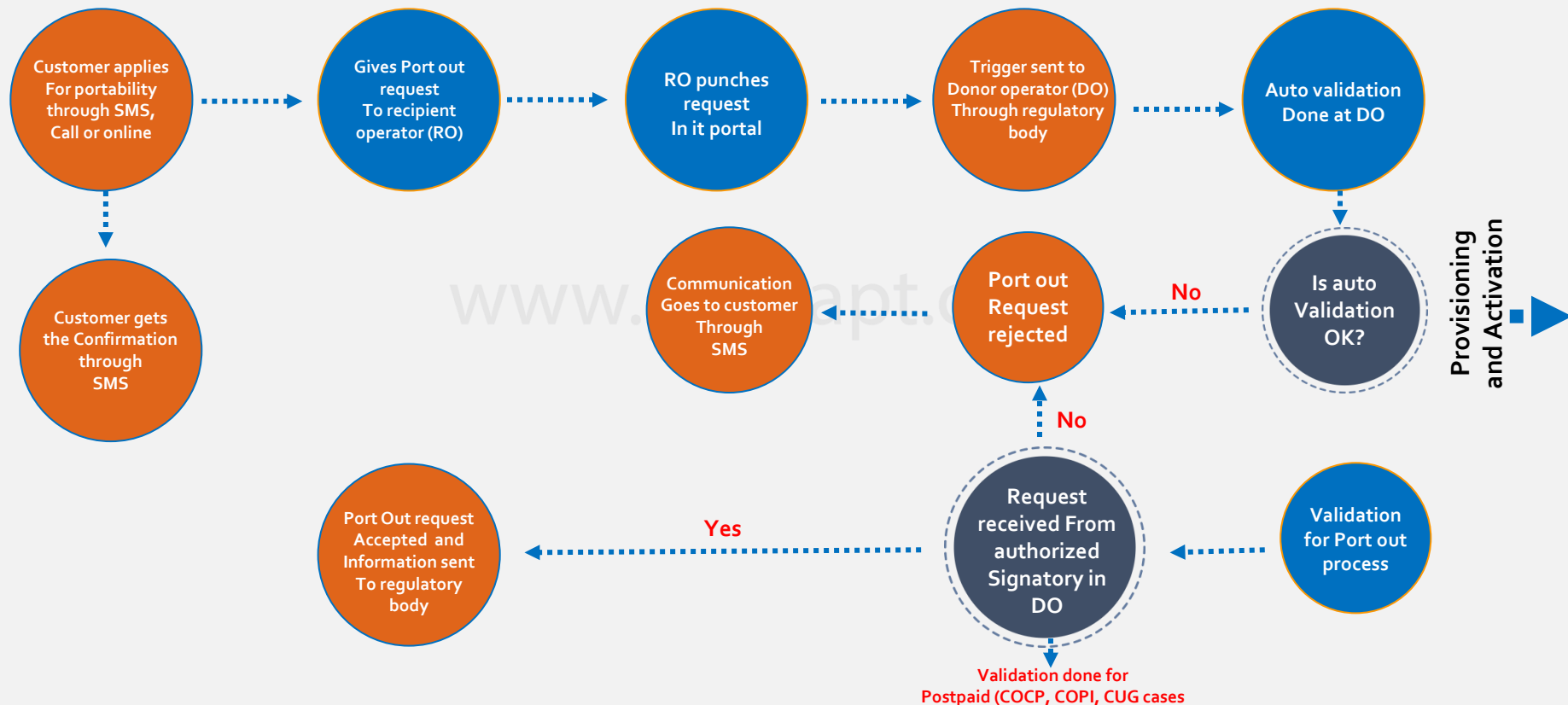
- Account number & Account telephone number validation
- Search & verify portable area
- Order creation in legacy application

Solutions

- Order fetching from multiple portals
- Search and data aggregation from various web & Citrix based application
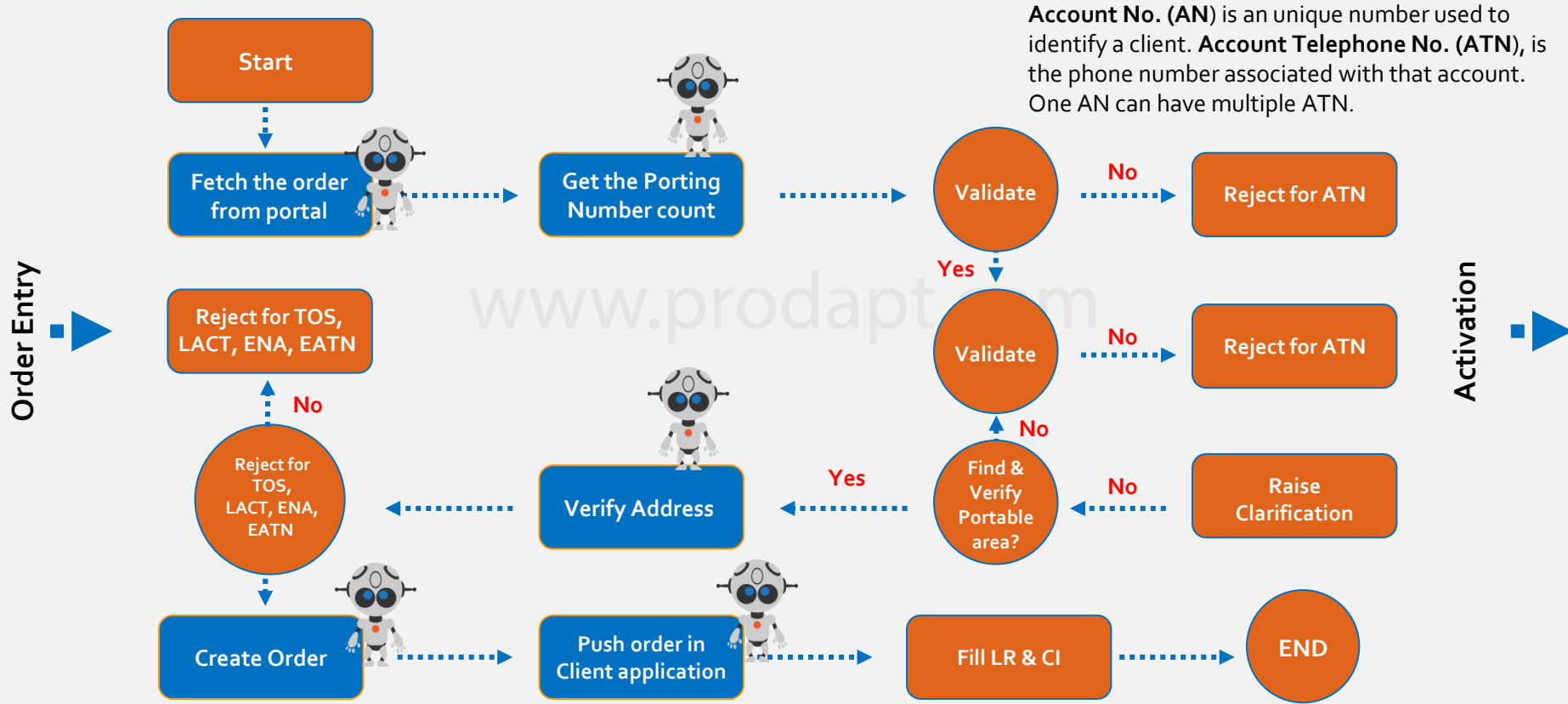- Automated order entry in legacy application

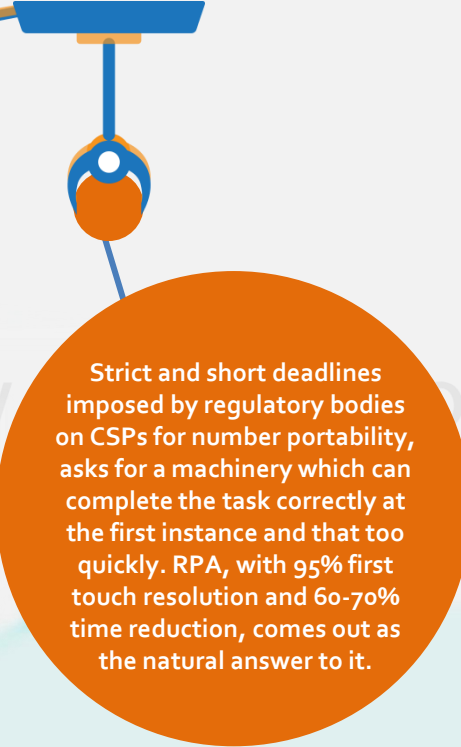**Prodapt.**

Implementing RPA in Mobile Number Portability

Customer applies For portability through SMS, Call or online

Gives Port out request To recipient operator (RO)

RO punches request In it portal

Trigger sent to Donor operator (DO) Through regulatory body

Auto validation Done at DO

Customer gets the Confirmation through SMS

Communication Goes to customer Through SMS

Port out Request rejected

No

Is auto Validation OK?

No

Provisioning and Activation

Port Out request Accepted and Information sent To regulatory body

Yes

Request received From authorized Signatory in DO

Validation for Port out process

Validation done for Postpaid (COCP, COPI, CUG cases

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Implementing RPA in POTS line Number Portability

Account No. (AN) is an unique number used to identify a client. Account Telephone No. (ATN), is the phone number associated with that account. One AN can have multiple ATN.

Order Entry

Start

Fetch the order from portal

Get the Porting Number count

Validate → No → Reject for ATN

Yes

Validate → No → Reject for ATN

No

Reject for TOS, LACT, ENA, EATN

No

Reject for TOS, LACT, ENA, EATN

Yes ← Verify Address ← Find & Verify Portable area? ← No ← Raise Clarification

Create Order

Push order in Client application

Fill LR & CI → END

Activation

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Key Takeaways

At least 9 out of 10 escalation requests come because of manual entry errors. If automated by RPA, major cost can be saved on re-work and penalties.

Strict and short deadlines imposed by regulatory bodies on CSPs for number portability, asks for a machinery which can complete the task correctly at the first instance and that too quickly. RPA, with 95% first touch resolution and 60-70% time reduction, comes out as the natural answer to it.

MNP has increased competition in the telecom market. This is benefitting consumers with better rates, increased range of services and improved services quality.

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THANK YOU!

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