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# Consumer switching

# Proposals to reform switching of mobile communications services:

## Revised cost estimates

Publication date: 31 January 2017

# About this document

This document is designed to inform stakeholders of, and provide them with an opportunity to comment on, developments to cost estimates of our proposals to reform the process for switching mobile provider, as well as developments concerning the proposed processes themselves.

Section 1

# Introduction and background

1.1 In March 2016[1] and July 2016[2] Ofcom published consultations outlining proposals to reform the process for switching mobile provider. The key proposals to address unnecessary difficulties and costs incurred by consumers during the existing switching processes were to:

- Remove the need to speak to the current provider, either by automating the current PAC process ('Auto-PAC'), or by requiring the gaining provider to coordinate the switch on behalf of the consumer ('GPL'), and so create a faster and smoother consumer switching experience.

- Address loss of service during switching by ensuring the management of the activation, deactivation and re-routing activities undertaken during a switch. This would be achieved by enhancing the role of the Central Porting Service ('CPS'[3]) to provide 'end-to-end management'.

- Address risks of double paying that can arise when switching because of providers' requirements for consumers to serve notice periods when terminating their service. This would be achieved by requiring that notice is not charged beyond the switching date.

1.2 We estimated the costs to industry of implementing these proposals in these consultations.[4,5] The gross costs of implementing each proposal (on a 10-year undiscounted basis) were as follows: Auto-PAC: £47.8 million; GPL: £47.1 million; End-to-end management: £36.4 million; and not charging for notice beyond the switching date: £6.8 million.[6] We invited comments from stakeholders on our assessment of costs.

1.3 We received comments from several stakeholders on our assessment of costs and over the autumn of 2016 we discussed our estimates of costs with the mobile

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[1] Consumer Switching: Proposals to reform switching of mobile communications services https://www.ofcom.org.uk/__data/assets/pdf_file/0025/82636/consumer-switching-mobile-consultation.pdf

[2] Consumer Switching: Further proposals to reform switching of mobile services https://www.ofcom.org.uk/__data/assets/pdf_file/0023/83453/Consumer-Switching-Further-proposals-to-reform-switching-of-mobile-services-July-2016.pdf

[3] The Central Porting Service is our term for the entity which sits between providers to facilitate the porting of numbers between them. Currently the CPS is operated by Syniverse on behalf of the mobile providers.

[4] Consumer Switching: Proposals to reform switching of mobile communications services Supporting calculations – costs to industry, March 2016 https://www.ofcom.org.uk/__data/assets/excel_doc/0015/82221/mobile-switching-costs-to-industry.xlsx

[5] Consumer Switching: Further proposals to reform switching of mobile services: Supporting calculations, July 2016 https://www.ofcom.org.uk/__data/assets/excel_doc/0027/84573/supporting_calculations_cost_of_removing_notice_period_charges.xlsx

[6] See Figure 10 and Figure A8.4 of the March 2016 consultation, and paragraph A6.25 of the July 2016 consultation

industry. We are now considering a number of revisions to our gross cost estimates for the Auto-PAC and GPL proposals[7], which take account of comments received from stakeholders on the proposed design of the process and the associated implementation costs. We have also updated various assumptions used in the derivation of our cost estimates, to reflect feedback from stakeholders, where we consider that we have sufficient information and a reasonable basis on which to do so. We invite any further comments on these assumptions.

1.4 Our latest estimates on the gross costs for the Auto-PAC and GPL proposals, which include our estimated costs of an additional variant of Auto-PAC whereby the consumer texts their LP directly for the PAC and switching information, rather than the CPS,[8] are set out in this document and the two accompanying Microsoft Excel workbooks.

- The first workbook, available at:

  http://www.ofcom.org.uk/static/consultations/7781-making-switching-easier/costs-to-mobile-providers.xlsm

  shows costs for a notional mobile provider of each of the following types: an MNO[9], a large MVNO[10], a medium MVNO, a small MVNO, and an MVNE[11];

- The second workbook, available at:

  http://www.ofcom.org.uk/static/consultations/7781-making-switching-easier/CPS-costs.xlsx

  shows costs for the CPS, which we understand are likely to be charged back in some form to providers.

1.5 These workbooks also present updated cost estimates for our proposals in respect of notice period charges and End-to-end management, to reflect our updates to input assumptions, as well as our revised view of the mobile industry value chain and the balance of activities undertaken by small MVNOs vs MVNEs/MNOs.

1.6 We welcome any feedback from industry on the costs that we have presented by Tuesday 28 February 2017. Any comments should be emailed to Shaun Kent (Shaun.Kent@ofcom.org.uk).

1.7 We plan to publish a final statement on mobile switching reform in spring 2017. We are considering whether to extend the timelines for concluding on our End to End management proposals. In particular, we have asked a number of stakeholders to consider implementing industry-led process changes to address loss of service issues. An extended timeline would provide stakeholders with further opportunity to come forward collectively with proposals that we could consider.

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[7] i.e. gross of any operator cost savings.
[8] See Section 2 further below.
[9] Mobile Network Operator: a provider of mobile communications services that owns its own network and spectrum
[10] Mobile Virtual Network Operator: a provider of mobile services which does not have its own network infrastructure.
[11] Mobile Virtual Network Enabler: we use this term to refer to entities that provide outsourced management of network routing, billing and provisioning to smaller MVNOs or resellers.

Section 2

# Estimate of costs to implement an Auto PAC process

2.1 In this section we summarise the March 2016 Auto PAC proposal. We then set out the revisions we are considering making to our cost estimates following comments from stakeholders.

2.2 Under the March proposal, customers can request a PAC by sending an SMS text message to the CPS, or through their online account with their provider, or by calling their provider. They receive the PAC by return SMS (and via their online account or by phone, if they made their request using these routes). This SMS also includes information relevant to their switching decision, such as any early termination charges.[12] The consumer then passes the PAC to their new provider, who then activates the process for the switch to be completed, including the deactivation of the old service.

2.3 In March, we set out this process for both residential and business customers; however only the phone and online route could be used to port simultaneously more than one number (but fewer than 25 numbers) linked to the same account. When combined with the end-to-end management proposal, we set out that this process could also be used to arrange cancellation of the old account where there is no number port.

2.4 Schematics of the Auto PAC process are set out in the Annex. Figure A1 illustrates different variants of how a consumer may request and receive a PAC. Figure A2 illustrates the process for the switch to occur after the consumer has obtained their PAC and approaches their new provider.

## Developments to the March 2016 proposals

2.5 In March, we estimated that the total industry cost (gross of operator cost savings) associated with implementing this proposal was £47.8 million, comprising set-up costs of £13.0 million, and 10-year operational costs of £34.8 million. We have now revised these figures to a total cost of £70.5 million, comprising set-up costs of £40.2 million, and operational costs of £30.3 million. The details of the new cost estimates are set out in the accompanying workbooks.

2.6 In summary, the major changes to the cost estimates for the CPS-based Auto-PAC route that we set out in March are driven by:

a) New cost activities that stakeholders told us should have been included in our March consultation, namely:

[12] In March we proposed requiring that information about notice period requirements should also be included in the SMS, however this would no longer be necessary in a scenario where notice period charges were not charged after the switching date.

- The inclusion of training costs for IT System Administrators and Customer Service Agents (CSAs), to reflect the fact that they need training in how the new processes affect their roles. For MNOs and large MVNOs, we have based the number of employees to be trained on stakeholder comments[13]; for other providers, we have made assumptions based on their relative size. We have assumed that IT System Administrators / CSAs would require half a day's training / two hours' training respectively. We also assume that training is a one-off cost, on the basis that this training would replace pre-existing training modules and become a default training element to new joiners;

- Inclusion of a cross-industry steering group to oversee the design and delivery of the Auto-PAC process, and inclusion of inter-operator testing of the new process; and

- Functionality for the routing provider (or 'block operator') to update the CPS with routing updates, whenever a number is ported.

b) Modifications to Auto-PAC process proposals which have cost implications, namely:

   - Functionality for consumers not porting their number to request a code by text or via their online account which, when passed to the new provider,enables it to arrange for the cancellation of their old service. In March we said that the extension of our Auto-PAC process to non-porters relied on full end-to-end centralised management of the switch – we now consider that this can be achieved without this.

   - Inclusion of a new requirement for the routing provider to update the CPS when a number is deactivated or repatriated (e.g. due to the number being inactive or fraudulently ported), so that the central ported number database is accurate at all times.

c) Changes to assumptions about the cost of development and support namely:

   - Our March 2016 cost estimates did not explicitly set out assumptions about the daily cost of the resources needed to implement our changes. Our latest costs present the internal salary and external day rate assumptions on which our cost estimates are based. Based on stakeholder comments, we have revised our internal salary assumptions upwards, but we have lowered our assumptions about the cost of external vendor development for MNOs and large / medium MVNOs.

   - Revised our calculation of annual operating costs by applying a fixed ratio (15%) to the setup costs only in respect of those development activities which we consider would attract ongoing support costs. This is on the basis that some activities are one-off changes or outlays that need no ongoing support, once completed.

[13] The number of CSAs for a notional MNO (10,400) is a straight average of the number of CSAs from stakeholders who provided this information.

## Alternative Auto-PAC proposal

2.7 In light of stakeholder comments, we have also set out the estimated costs of a different variant of Auto-PAC whereby the consumer texts their LP directly for the PAC and switching information text, rather than the CPS. This variant does not require significant changes to the CPS, such as establishing and maintaining an accurate central ported number database, or to the repatriations process. We have also assumed that it would not require cross-industry steering group costs. However, it does require providers to automatically (rather than manually) request a PAC from the CPS, upon receipt of a PAC request SMS from the consumer, and for providers to combine this PAC with the relevant ETC information and send on to the consumer in SMS format.

2.8 The third panel of Figure A1 in the Annex is a schematic of this alternative approach for requesting and receiving a PAC and ETC ('LP Variant').

2.9 We have estimated that the total cost of this variant is £51.0 million, comprising set-up costs of £27.8 million, and operational costs of £23.3 million. The details of the new cost estimates are set out in the accompanying workbooks.

## Residential and business products

2.10 For each variant of Auto-PAC, we have presented cost estimates under two scenarios:

- A scenario in which the obligation to provide an Auto-PAC (via SMS and online) is only applicable to consumers purchasing residential products; and
- A scenario in which the obligation to provide an Auto-PAC (via SMS and online) applies to consumers purchasing both residential and business products.

2.11 In terms of implementation costs, the first scenario is different to the second scenario in two main respects. We understand that there are a large number of small MVNOs who only serve business customers and would therefore not have to incur the majority of the implementation costs of our Auto-PAC proposal under the first scenario.[14] However, the first scenario would mean certain additional costs, such as to ensure the necessary functionality to distinguish between those customers on business and residential products, and to reject requests which arise from business accounts. Overall, the total industry cost in the "residential-only" scenario is lower.

[14] We have assumed that they still incur certain costs as a result of our proposals, relating to training and ensuring the central ported number database is accurate at all times.

Section 3

# Estimate of costs to implement a GPL process

3.1 In this section we summarise the March 2016 GPL proposal. We then set out the revisions we are considering making to our cost estimates following comments from stakeholders.

3.2 Under the March GPL proposal, consumers no longer need to contact their old provider when switching. Instead, they contact their new provider (the 'gaining' provider, 'GP') with a request to switch. The GP sends a request to the CPS, which identifies their current provider from the CLI, and requests details of any Early Termination Charge, outstanding handset liability, credit balance and notice period from them. The CPS then texts these details to the customer, and asks them to confirm their switch by sending "1" in a text reply. This confirmation can take place in real time, either while the customer is in the store, or while on a call to the GP, or on their website.

3.3 The GP can then immediately conclude the contract and arrange for the old service to be cancelled, and the old number to be ported if required. The customer is provided with up to 24 hours to validate, and thererore the GP may need to re-contact the customer to conclude the contract and arrange the cancellation/port, once it is alerted by the CPS that the CLI has been validated.

3.4 In March, we estimated that the total cost of implementing this proposal was £47.1 million, comprising set-up costs of £14.3 million, and 10-year operational costs of £32.8 million. We have now revised these figures to a total cost of £80.0 million, comprising set-up costs of £44.4 million, and operational costs of £35.6m. The detail of the new costs is set out in the accompanying workbooks.

3.5 In summary, the new cost activities, the process modifications, and the changes to development cost and support assumptions (that we set out in the previous section for the Auto-PAC process) also apply to GPL.

3.6 In addition, we have made the following GPL-specific process changes which have cost implications:

a) Modifications to GPL process, namely:

- We have increased the cost associated with initiating the switching request, arising from functionality required for the GP to identify the appropriate message (depending on whether the consumer wants to port their number or just cancel their old service, or whether they are an existing or new customer); the functionality required to enable the GP to keep open an order while waiting for the consumer to validate their CLI (we allow up to 24 hours for this); and the functionaility required to automatically initiate a switch request once a customer has activated their new SIM.

- We have included a backstop route for consumers who are unable to make or receive texts from the CLI that they want to port. Under this backstop route, the customer would phone their LP, who validates their identity using

password/account details (as per the current PAC process) and then confirms their consent to switch to the CPS.

3.7 We have assumed that bulk ports would use the GPL process, rather than continuing to use the existing PAC process, and we have included costs under GPL for developing the functionality for the GP to create multiple porting requests.

3.8 We have not included 3rd party retailers in the cost estimates. We recognise that there may be cost implications for third party intermediaries and retailers under our GPL process. We have not estimated these costs, and welcome stakeholder comments on this point.

3.9 The revised GPL process flow underlying our present set of cost estimates is depicted in Figure A3 of the Annex, together with the backstop route in Figure A4.

Section 4

# Mobile value chain

4.1 In our March 2016 consultation, we assumed that 68 operators would be required to make investments to implement the proposed reforms, split in the following way: 4 MNOs, 15 large MVNOs, 16 medium MVNOs and 33 small MVNOs.[15]

4.2 We have since received stakeholder comments that there is a much larger number of smaller MVNOs who would be required to make changes to comply with our proposed reforms.[16] At the same time, we also understand that there are a number of Mobile Virtual Network Enablers (MVNEs) which provide small MVNOs with a large amount of the routing, billing and provisioning systems that would be affected by our proposed reforms, and would therefore be expected to make changes on behalf of the small MVNOs they provide services to.

4.3 In light of this, for the purposes of estimating the implementation costs of our proposed reforms, we have adopted the simplified value chain set out in Figure 1 below.

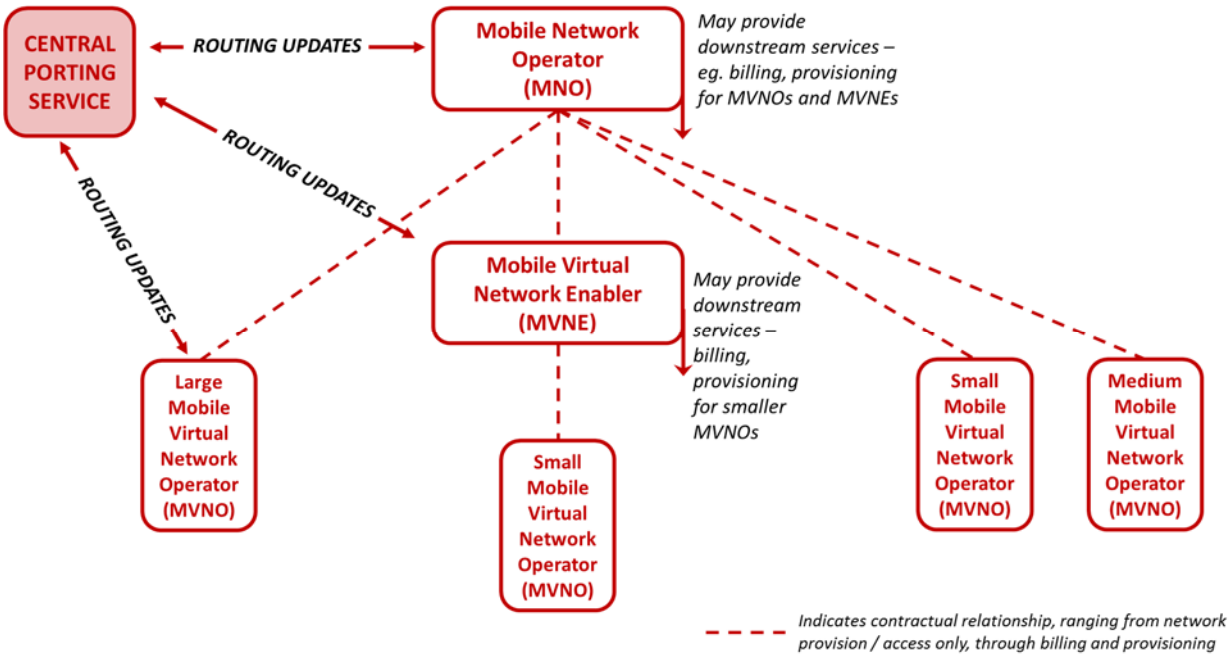



*Figure 1: Simplified Mobile value chain (for the purposes of switching)*

4.4 All of the entities in this value chain will be affected by our proposed reforms, however, the costs they incur will depend on their role, technological capabilities and operational processes. We recognise that these vary widely. For example:

[15] Paragraph A8.28, March 2016 consultation
[16] We use the term small MVNO to refer to any provider of mobile services who does not provide their own billing / provisioning.

- The CPS manages and distributes routing files to losing and gaining providers, and to routing providers (or 'block operators' – i.e. holders of mobile number ranges).

- Smaller MVNOs often communicate with the CPS via a standard web browser, and may use manual processes to execute porting requests. By contrast, MNOs, larger MVNOs and MVNEs tend to perform these functions through integrating automated application programming interfaces (APIs) into their back office systems.

- As set out above, smaller MVNOs and resellers often use MNOs or MVNEs to provide them with management of network routing, billing functions and provisioning on an outsourced basis. To facilitate such smaller MVNOs' and resellers' compliance with our proposals, we have assumed that MNOs and MVNEs would develop the functionality to deliver real-time information on ETCs and outstanding handset liabilities on behalf of smaller MVNOs, when this is requested by the CPS. In other words, we do not assume that these smaller providers adapt their own back-office IT systems in order to comply, which would be considerably more costly.

4.5 The accompanying Excel workbooks set out our full assumptions about the number of entities in each layer of our revised value chain, and which cost activities are incurred by each entity in the value chain.

## Impact of value chain on cost estimates

4.6 In our July consultation, we set out estimated costs for a proposal to place an additional requirement on providers not to charge notice beyond the date a consumer switches and/or ports their mobile number. We estimated that the total cost of implementing this proposal was £6.8 million, comprising set-up costs of £3.7 million, and 10-year operational costs of £3.1 million.[17]

4.7 We have updated these July cost estimates to reflect our revised view of the mobile value chain, as well as changes to assumptions about the cost of development and support set out in section 2 (Auto-PAC) above. The accompanying workbook sets out our updated estimates.

4.8 We have taken a similar approach in updating our cost estimates for End to end management. These too are set out in the accompanying workbook. We note that the cost of End to end management would be higher than is set out in the workbook, were it be implemented alongside the additional Auto-PAC LP variant, as this reform does not include some cost activities that are a prerequisite for End to end management.

[17] Paragraph A6.25, July 2016 consultation

Section 5

# Revised estimated costs

5.1 Our revised estimate of implementation costs (undiscounted, and gross of any provider cost savings) is set out in Figures 2 and 3 below. For Auto-PAC, we have presented costs for two variants – the CPS-based route and the LP-based route – as discussed in Section 2. We have also presented costs under two scenarios: one in which providers are required to provide a PAC by SMS or online to customers purchasing both residential and business products; and one in which they are only required to do so for customers purchasing residential products. The total industry cost is lower under the "residential-only" scenario, for the reasons explained in Section 2.

5.2 The figures shown below are the cost per provider in each category. The total cost row shows the overall cost to industry, taking into account all providers in each category. Total costs comprise setup costs and 10 years of ongoing costs on an undiscounted basis (i.e. not in net present cost terms).[18]

**Figure 2 – Revised cost estimates (residential and business), 10-year undiscounted, gross of any operator cost savings, £ million**

| Reform | Auto-PAC CPS-based route | Auto-PAC LP-based route | GPL | *Memo: Number of providers* |
|---|---|---|---|---|
| CPS | 4.8 | 0 | 5.6 | *1* |
| MNO | 3.3 | 2.4 | 3.9 | *4* |
| Large MVNO | 1.7 | 1.2 | 2.0 | *11* |
| Medium MVNO | 0.9 | 0.8 | 1.1 | *6* |
| MVNE/MVNA | 1.3 | 1.0 | 1.5 | *8* |
| Small MVNO | 0.08 | 0.06 | 0.08 | *232* |
| **Total cost (10 years)** | **70.5** | **51.0** | **80.0** | |

[18] For our impact assessment, we will consider the net present cost of each proposed reform.

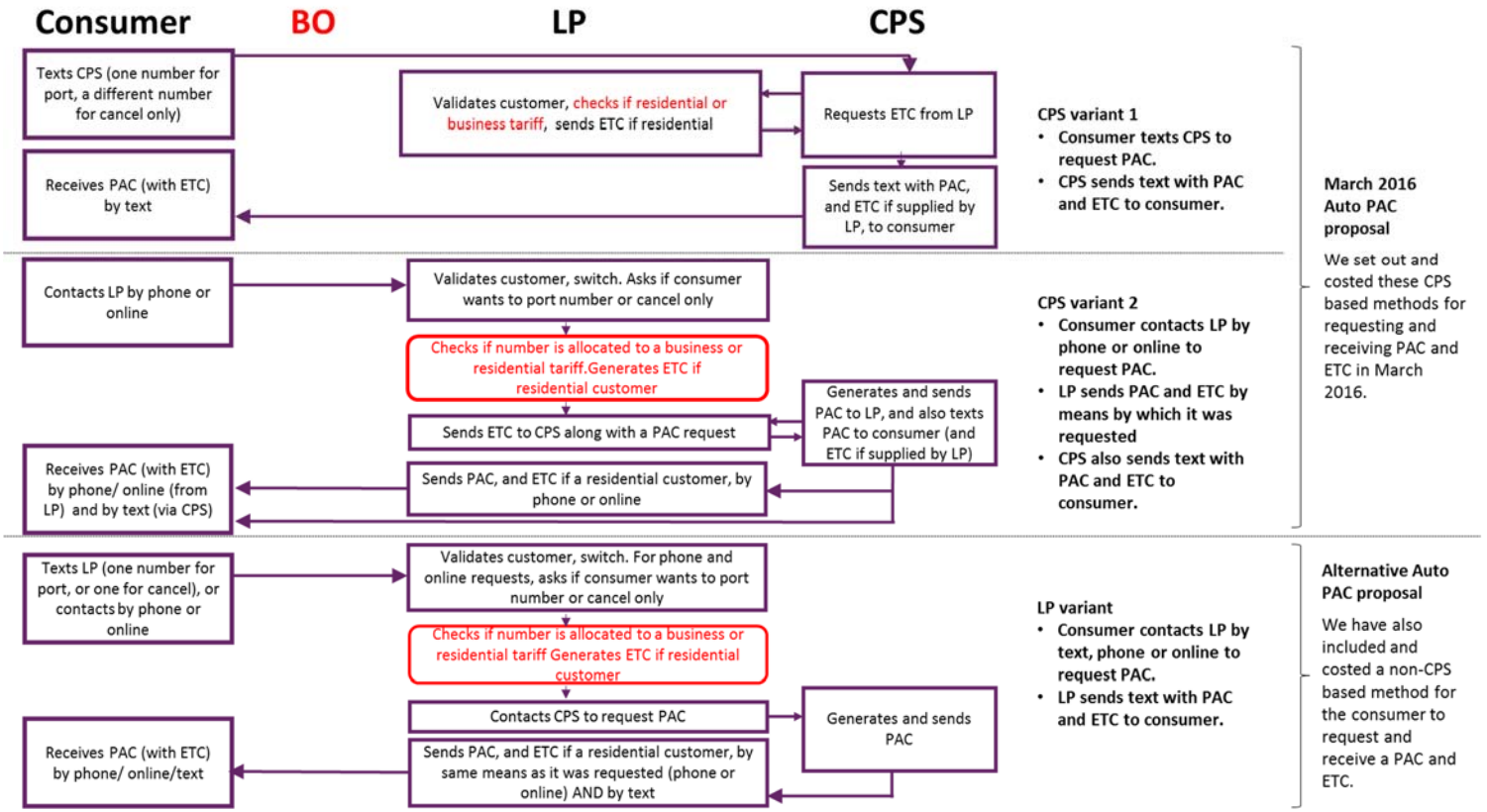
**Figure 3 – Revised cost estimates (residential-only), 10 year undiscounted, gross of any operator cost savings, £ million**

| Reform | Auto-PAC CPS-based route | Auto-PAC LP-based route | GPL | *Memo: Number of providers* |
|---|---|---|---|---|
| CPS | 4.8 | 0 | N/A | *1* |
| MNO | 3.4 | 2.5 | N/A | *4* |
| Large MVNO | 1.7 | 1.3 | N/A | *11* |
| Medium MVNO | 0.9 | 0.8 | N/A | *6* |
| MVNE/MVNA | 1.3 | 1.0 | N/A | *8* |
| Small MVNO (residential) | 0.08 | 0.06 | N/A | *69* |
| Small MVNO (business-only) | 0.02 | 0.01 | N/A | *163* |
| **Total cost (10 years)** | **62.8** | **43.2** | **N/A** | |

# Annex

## Auto PAC and GPL process diagrams

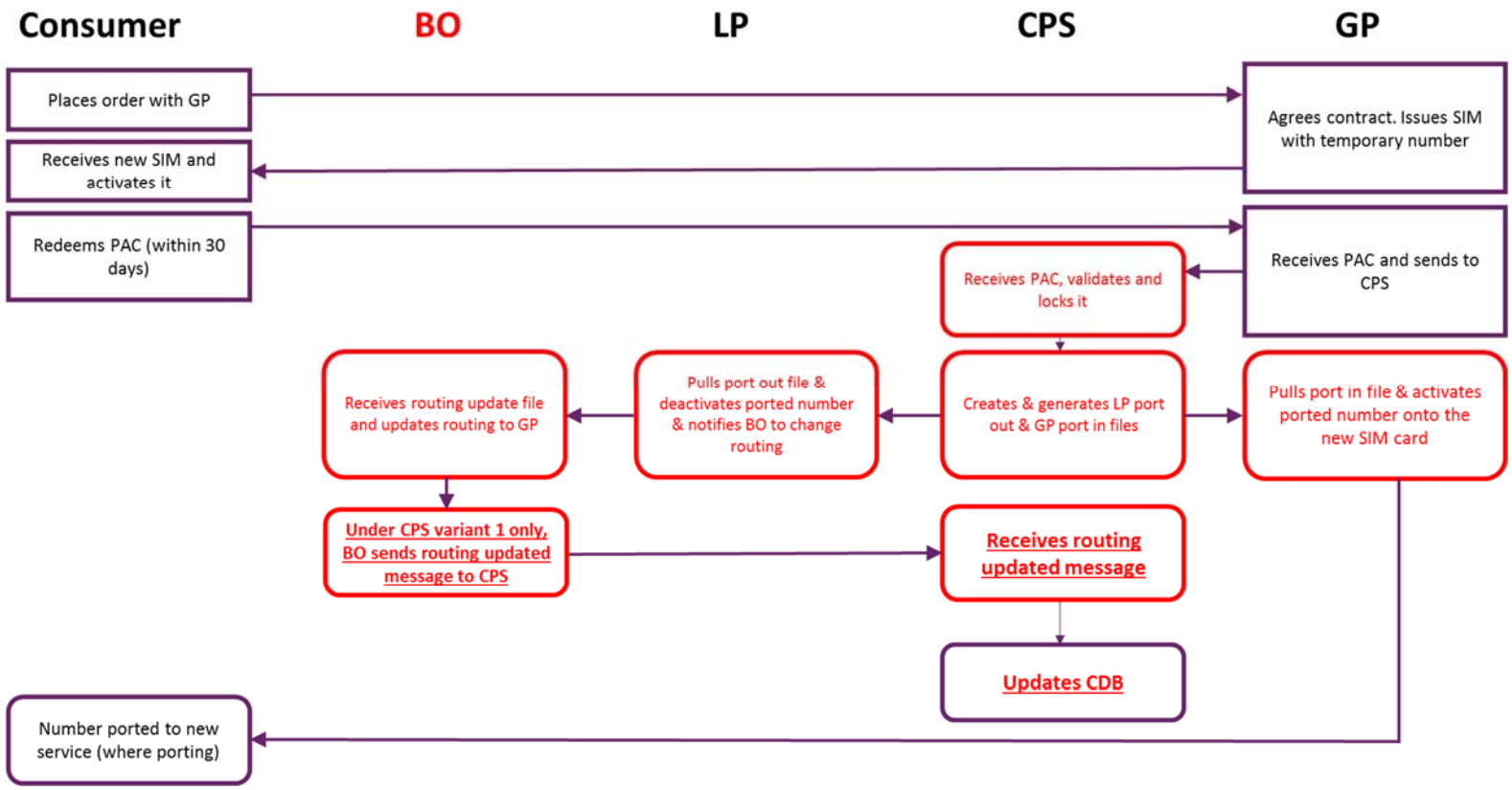
*Figure A1: Auto PAC Process: Costed methods for requesting and receiving PAC and ETC*




*Notes:*

- *Text in red indicates the revised process needed were business products to be excluded from Auto PAC*
- *We use "ETC" in these charts as shorthand for switching information, which includes airtime Early Termination Charge, outstanding handset liability, and outstanding credit balance*

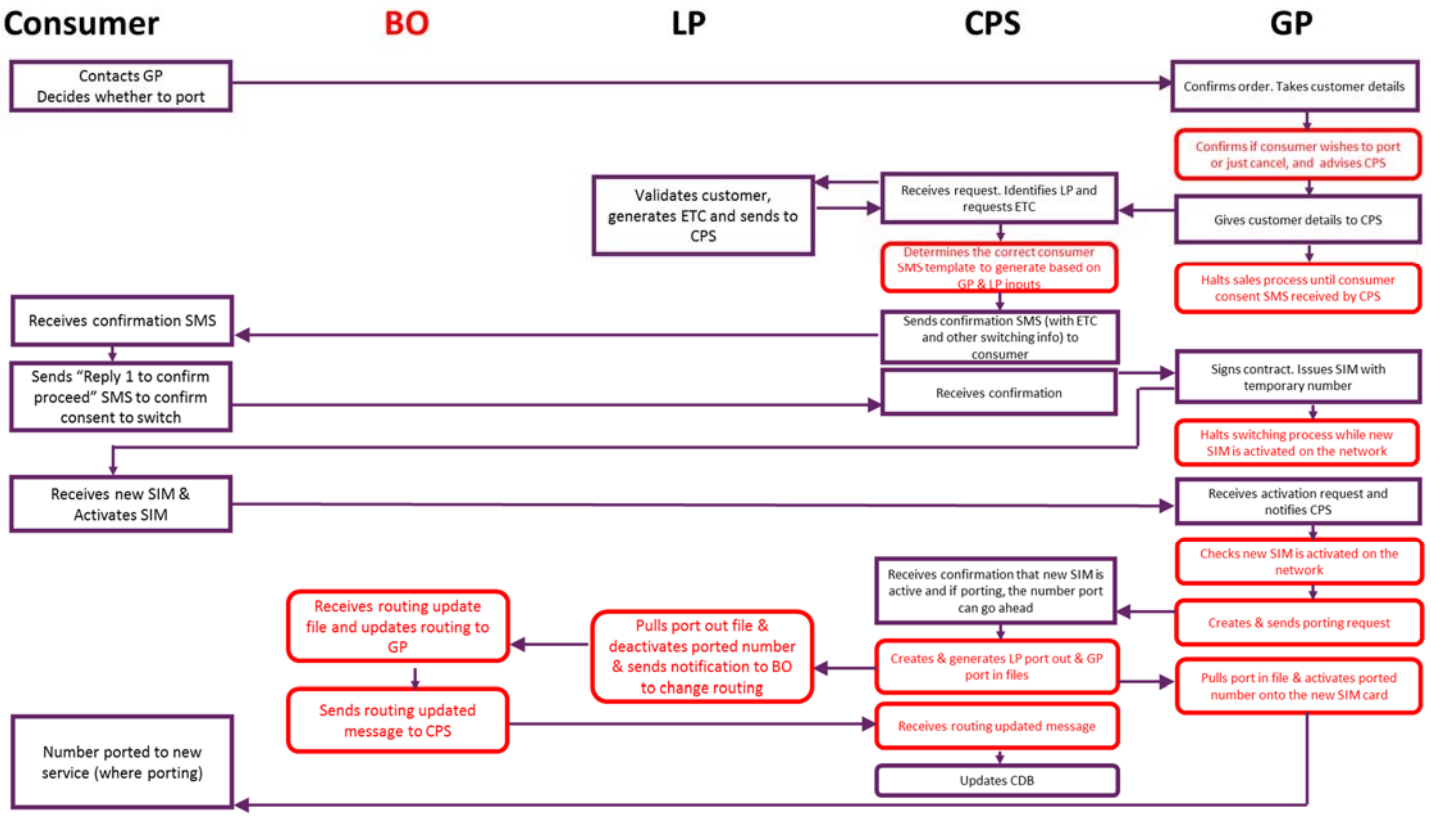
*Figure A2: Auto PAC Process – Common process for all CPS and LP variants, ie. after consumer has received a PAC and ETC*




*Notes:*

- *Text in red indicates porting and routing activities.*

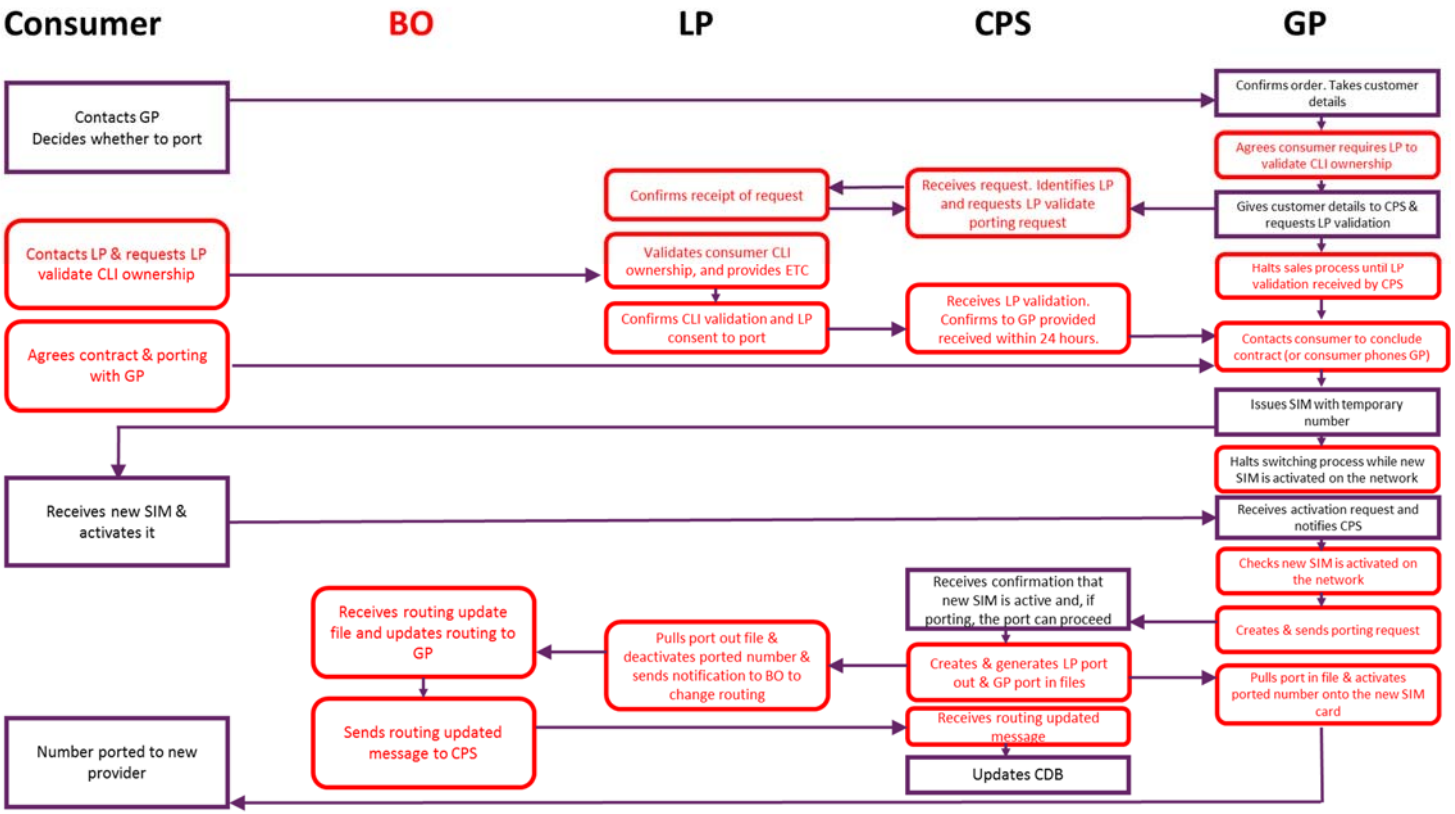
*Figure A3: GPL Process: Consumer validates CLI ownership by text*




*Notes:*

- *Text in red indicates revisions or additions, compared to the process we described in March 2016*

*Figure A4: GPL Process: Backstop route - LP validates consumer CLI ownership*




*Notes:*

- *Text in red indicates revisions or additions, compared to the process we described in March 2016*