Block Transfer Process

Best Practices in geographic number migration to smartnumbers

Version 1.0

smartnumbers

1   Introduction

In order to provide Voice Continuity services to a customer's geographic DDI range this range must exist on the smartnumbers service. This may be achieved by issuing new DDI numbers for which the original range holder will be smartnumbers, or by migrating a customers' existing DDI range to the smartnumbers service. The migration of DDI's to smartnumbers can be achieved in one of two ways;

1. Porting Numbers. This is the more common way of moving DDI's between networks in through which DDI's are flagged in the local exchange as being ported. Calls to these numbers first hit the local exchange before being redirected over to the smartnumbers service for onward routing. However, while this may be acceptable for normal business-as-usual applications, in business continuity terms this represents a single point of failure since if the originating exchange fails then calls to these numbers will not be redirected to the smartnumbers service. As such, porting numbers to smartnumbers is not appropriate if the service being utilised is Voice Continuity.

2. Block Transferring. For customers with an entire 10k block of DDI's an alternate method of moving DDI's over to smartnumbers is through a 'block transfer'. During this process, the entire DDI range is lifted cleanly out of the local exchange and placed on the smartnumbers service. Calls to these DDI numbers will be routed directly through the PSTN to the smartnumbers service without touching the original exchange. As such, there is no single point of failure.

While the block transfer process is less common than a number port, it is still a business-as-usual process within the carrier network. This document outlines the best practices by which a customer's DDI range is able to be block-transferred in a way which;

- Eliminates any down-time so that calls will always be delivered before, during and after the migration process.
- Provides a simple, three-stage process with the ability to rigorously test the successful completion of each stage before the commencement of the next stage.
- Eliminates risk in this process both by providing checks & balances at each stage, and also by ensuring that at any stage the process can be stopped and reversed if the results are not satisfactory.

As such, the process of block-transferring numbers to provide them the resilience afforded by the smartnumbers Proactive Recovery service is easy to understand, easy to implement and is done so without risk to call delivery. The remainder of this document outlines this three-stage migration process.

2 The Block Transfer Process

2.1 Step 1 – Issue new DDI range

In this first step, a new number range is provisioned on the customer's existing ISDN's (or new ISDN's if this service is for a new site). This new number range typically comprises a block of DDI's, tied to the existing ISDN's and aligned with the existing DDI range. This alignment may be achieved by keeping the last 4 or 5 digits in common, depending on the availability of a new number range that supports 5 digit commonality. Another dependency is the number of existing DDI ranges on the ISDN circuits, since the maximum number of DDI number ranges on a single route is limited to 5.

Assuming there are no problems with the availability or provisioning of this new DDI range, this new range will serve as the 'deliver-to' DDI's that the smartnumbers Proactive Recovery service will eventually use to point calls to. Note that while these numbers are not advertised to the public they are, unlike ghost numbers associated with dual-parenting, fully diallable.

Once provisioned, the customers PBX will need to be programmed to ensure a number translation so that calls either to the existing DDI range or to the new DDI range will have exactly the same effect. By stripping off the last 4 (or 5) digits from the original dialled number, the PBX should route calls identically no matter whether the call was made to the original or new DDI range.

Risk	PBX is not programmed correctly to ensure call routing is identical across both new and existing DDI range.
Mitigation	Customer can exhaustively test this by calling numbers as required and fine-tuning the PBX to ensure call delivery is as required.
Risk	Customer already has five number ranges on the ISDN route
Mitigation	Review all number ranges and see if one can be removed.

2.2 Step 2 – Build the new smartnumbers services

Whereas Step 1 involved building new DDI ranges on the customer premises, Step 2 involves building new smartnumbers within the smartnumbers Proactive Recovery service itself. Since smartnumbers can be configured very precisely in terms of the callers and called-parties experience it is recommended that before these services are built across an entire 10k DDI range, either;

- A small block of 10 – 20 new smartnumbers are created with the exact configuration required by the customer. The customer should test these numbers exhaustively, both from the caller and called-parties perspective and then sign off that the smartnumber configuration is exactly as required.
- A small block of the customers' existing DDI's are identified and which are then ported over to the smartnumbers service. Again, these numbers should be tested exhaustively to ensure that smartnumbers are correctly configured. The benefit of using existing DDI's is that the testing process will be real-world, although the cost of using real DDI's will be an additional 30 day lead-time required to port these numbers over.

In both cases, it is recommended that after a period of testing, the customer formally signs off that the particular configuration of smartnumber options is exactly as required. It is this configuration that will be applied to a new 10k DDI range that the carrier will provide for testing purposes. These new smartnumbers would be provisioned to map one-for-one to the new DDI range as created in Step 1 and would route calls accordingly.

Calls to these new smartnumbers would therefore have the same effect as if a caller was calling the equivalent new DDI number, created above, directly.

This gives the customer the opportunity to fully test all of the functionality of the smartnumber services, delivering calls exactly as they will be delivered in live operation. At this point the smartnumber service is live, and fully billable. The number range for these new smartnumbers are not important, since they are created simply for testing purposes and will not be used once the service goes live. Once the service goes live the test numbers will be decommissioned.

Risk	Calls to the new smartnumber do not terminate on the equivalent new DDI number created in Step 1.
Mitigation	Carrier will exhaustively test these new smartnumbers to ensure they are delivering calls directly to the new DDI range as required.
Risk	New smartnumbers are not configured precisely as required
Mitigation	Customer will have chance to test and sign-off the configuration.

2.3   Step 3 – The Network Block Transfer

Once all parties are satisfied that Steps 1 and 2 have been completely successfully, the carrier will then arrange for a block-transfer of the customers' existing DDI range. This is a network-wide automated process whereby each of the 100 tandem switches that comprise the PSTN are reprogrammed so that calls to the customers original DDI's are to be routed to the smartnumbers service and not to the local exchange.

This network-wide rollout usually takes 1 – 2 hours to complete, and would therefore be done at a weekend. However, during this rollout period there would be no loss of service, since on a call-by-call basis the PSTN will route calls either to the original exchange or to the smartnumbers service. In either case, calls will be delivered without impact. Furthermore, calls that are in progress would not be affected.

As each of the 100 carriers' tandem switches are modified, calls made from that geographic area would terminate on smartnumbers and thereafter route to the new DDI range created in Step 1.

Risk	Callers try to make calls during the 2 hours required to complete the network-wide block transfer
Mitigation	Depending on the location of the caller, the call will be routed via a tandem switch that has been updated or one that hasn't. In the case of the former, the call will be routed via smartnumbers while in the case of the latter it will be routed via the local exchange. In both cases the call will be completed successfully..

3   Timescales

Assuming the block transfer will be for a range of 10,000 DDI's the likely timescales for each of the tasks are the following;

Step 1	Order of new DDI range	6 – 8 weeks
Step 2	Order of new temporary smartnumber range	6 – 8 weeks
Step 2	Porting of small DDI block for testing (if required)	22 working days
Step 2	Provisioning of 10,000 smartnumbers	6 – 8 weeks
Step 2	Ordering additional smartnumber network capacity	12 weeks
Step 3	Ordering the Block Transfer process	6 weeks

While many of these tasks may be undertaken in parallel, it is not recommended that Step 3 is commenced until Steps 1 & 2 are completed. This is because any request to change an agreed block transfer date may itself result in a further 6 week delay.

It is therefore recommended that a minimum of 18 – 20 weeks is set aside to properly manage all aspects of the block transfer process. Should the requirement be for 2 or more 10K blocks, then the timescales outlined above will not be significantly different assuming that this requirement is known from the outset.

Should all other aspects of the service be in place, and all that is required is the block transfer process itself, then once approved this should take around 6 weeks to complete.