Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Numbering Resource Optimization	CC Docket No. 99-200

FURTHER COMMENTS OF BELL ATLANTIC

John M. Goodman

Attorney for Bell Atlantic

1300 I Street, NW
Suite 400 West
Washington, DC 20005
(202) 336-7874

Michael E. Glover
Of Counsel

May 19, 2000

FURTHER COMMENTS OF BELL ATLANTIC

SUMMARY 1

1. RECOVERY OF CARRIER-SPECIFIC COSTS 2

A. The Cost of Number Pooling 3

B. Cost Savings from Number Pooling 4

C. LECs Should Be Allowed To Recover Their Number Pooling Costs 6

2. UTILIZATION THRESHOLDS 7

3. POOLING BY CMRS PROVIDERS 8

4. CHARGING FOR NUMBERS 9

CONCLUSION 11

APPENDIX A

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Numbering Resource Optimization	CC Docket No. 99-200

FURTHER COMMENTS OF BELL ATLANTIC

Summary

Bell Atlantic[1] responds to the four questions raised by the Commission in its Further Notice in this proceeding.

We encourage the Commission to continue to follow the precedent it set in its number portability rules and to allow carriers to recover their number pooling costs directly from their own end user customers if they choose to do so. Incumbent local exchange carriers could recover these costs simply by adding a few pennies to the number portability surcharge that is already on customers' bills or by extending the existing surcharge for some additional months.

The Commission should adopt the utilization thresholds proposed in the Further Notice, with the clarifications and refinements discussed below. In particular, the Commission should make it clear that a carrier need not comply with the thresholds in areas where it will soon be taking part in thousands-block pooling.

[1] Bell Atlantic-Delaware, Inc.; Bell Atlantic-Maryland, Inc.; Bell Atlantic-New Jersey, Inc.; Bell Atlantic-Pennsylvania, Inc.; Bell Atlantic-Virginia, Inc.; Bell Atlantic-Washington, D.C., Inc.; Bell Atlantic-West Virginia, Inc.; New York Telephone Company and New England Telephone and Telegraph Company.

When CMRS providers become number-portability-capable, they should be given a reasonable period of time to participate in pooling.

While charging for numbers may be an intellectually intriguing idea, the fact that numbers were "free" was not the cause of the strain on the resource in recent years. The Commission has now taken steps to eliminate the greatest cause of that strain — the fact that numbers are assigned in blocks of 10,000 — and has adopted other rules to improve number utilization efficiency. There is no reason to believe that these measures will not be effective and that there will be any need to fundamentally revamp the way numbers are allocated.

1. Recovery of Carrier-Specific Costs

Bell Atlantic largely supports the Commission's approach to pooling cost recovery, an approach that follows the model the Commission adopted for number portability cost recovery:[2] Section 251(e)(2) gives the Commission the authority to adopt a cost recovery mechanism for both intrastate and interstate costs of number pooling, and an exclusively federal recovery mechanism for number pooling will enable the Commission to satisfy most directly its competitive neutrality mandate and will minimize the administrative and enforcement difficulties that might arise were jurisdiction over cost recovery divided. Costs incurred as a result of number pooling should not be subject to jurisdictional separations, and incumbent LECs should be allowed to recover their costs under the federal cost recovery mechanism.[3] The cost categories used for number portability should also be used for number pooling, and shared industry costs becomecarrier-specific costs once they are distributed

---

[2] Order ¶ 193.

[3] Order ¶¶ 196-97.

among carriers, which should be done according to the NANPA formula.[4] Moreover, it is competitively neutral for carriers to recover their shared industry costs and carrier-specific costs directly related to thousands-block number pooling implementation.[5]

A. The Cost of Number Pooling

Bell Atlantic is not in a position to estimate with any degree of accuracy its portion of the shared industry (Type I) costs of pooling. While we do know the price of the initial software release for pooling (NPAC 3.0), the cost of the national pooling administrator will not be determined until the RFP process is completed. In addition, the cost for pooled block downloads is currently the subject of industry negotiations. With all these caveats, Bell Atlantic estimates its share of the industry costs over a five-year period to be between $25 and $35 million.

Pooling will also require Bell Atlantic to make a variety of upgrades and changes to its systems. While Bell Atlantic is in a better position to estimate the magnitude of these costs, we can still only provide estimates because these costs have not yet been incurred. Bell Atlantic can estimate, for example, how many hours it will take to modify a system to provide pooling, but we do not know how long it actually takes until we have done the work. Moreover, a number of the details of the national pooling framework have not yet been decided (*e.g.*, the identity of the pooling administrator), and these decisions could affect the cost of the capability. Attachment A shows Bell Atlantic's best current estimate of systems work necessary to implement thousands-block number pooling consistent with the Commission's mandate.[6] These costs will be incurred mostly in 2000 and 2001, but some continuing work will likely be necessary in later years. In addition, Bell Atlantic will

---

4 Order ¶¶ 203-04, 207.

5 Order ¶ 205.

incur labor costs to develop requirements, to deploy and enhance systems, to develop methods and procedures and training, to deploy pooling for each NPA, and to administer the operation. All these costs will not be incurred "but for" the implementation of number pooling and will be incurred "for the provision of" number pooling.[7] These costs are all over and above Bell Atlantic's number portability costs. At this time, we estimate these costs to be between $80 and 100 million.[8]

B. Cost Savings from Number Pooling

While the costs of Commission-mandated pooling are clear, the near-term benefits are less obvious and even more difficult to quantify. Pooling will, of course, postpone the exhaust of area codes, but this effect will not be seen for several years and will not be significant until even later. The Commission's national roll-out will not begin for at least 18 months or in the fourth quarter of 2001 (nine months after a pooling administrator is selected) and will continue for many months thereafter through the top 100 MSAs. Under the Commission's implementation plan, area codes that are expected to exhaust within one year of when pooling might be available will not be subject to pooling.[9] Therefore, any code that will exhaust within the next 30 months (18 months plus one year) will be excluded from the initial schedule. The Commission's pooling initiative, therefore, will not delay the need for new codes in most areas served by Bell Atlantic.[10]

---

[6] There would be additional costs to implement state-ordered pooling sooner than pooling ordered by the Commission.

[7] Order ¶ 218.

[8] Bell Atlantic would add incremental overheads in the same manner as it did for number portability.

[9] Order ¶ 162.

[10] State-ordered pooling might, in some cases, delay the need to open a new area code. The Commission has told the states that they are responsible for these costs. Order ¶ 197 ("Costs incurred by carriers to implement state-mandated thousands-block number pooling are intrastate costs and should be attributed solely to the state jurisdiction"). Therefore, whatever benefit might be derived from this pooling is relevant, if at all, in the state proceedings.

There are 41 numbering plan areas in the territory served by the Bell Atlantic telephone companies.[11] Thirty-two of these areas are expected to exhaust within 30 months (18 are in jeopardy status), and 25 of them are already subject to code relief activities. Commission-mandated pooling will bring no benefit in these areas.

Nine NPAs remain. One is not expected to exhaust in the next ten years, the period for which NANPA projects code exhaust. Pooling might delay the need for code relief in this area, but the present value benefit of any such delay (for example, dollars spent in 2115 instead of 2011) is de minimis.

NANPA projects exhaust in the remaining eight areas during the next ten years.[12] Bell Atlantic would expect that the form of relief in all these areas would be overlays. Two of these NPAs already have overlay codes (215 in western Pennsylvania and 703 in northern Virginia), and three (Delaware, the District of Columbia and 631 in Suffolk County, New York) are identifiable political units and relatively small geographic areas that would be particularly unsuited to area code splits. One of the other areas (908 in New Jersey) has recently been subjected to an area code split, creating a geographic area that cannot be readily split any further. The cost to Bell Atlantic of implementing such area code relief plans is expected to be approximately $60 million, spent between first quarter 2003 (for 215 and 908) and fourth quarter 2010 (for 814).

---

[11] As eight areas have code overlays, the 41 areas use 49 area codes. Six other area codes have been assigned but are not yet active in the network.

[12] These are DE 302, projected by NANPA to exhaust in 3Q 2004; NJ 908, 1Q 2003; NY 607, 3Q 2006; NY 631, 4Q 2006; PA 215, 1Q 2003; PA 814, 4Q 2010; VA 703, 4Q 2005; DC 202, 2Q 2004.

Bell Atlantic does not know exactly when the Commission will order pooling in these eight areas. Two are not in the top 100 MSAs,[13] and one (Delaware 302) is fairly far down the list. We also do not know when CMRS providers will be required to participate in pooling. Finally we do not know what the demand for numbers will be in the interim (as it is, in part, dependent on the activities of Bell Atlantic's competitors) and, therefore, what condition the area code will be in when pooling is introduced. The more NXXs that are left, of course, the greater the benefit of pooling. Therefore, Bell Atlantic cannot predict with precision how long pooling will extend the life of these area codes.

Bell Atlantic's best guess is that pooling will have a relatively greater effect in codes such as 607, 631, 703 and 814, while comparatively little in 908 and 215. Based upon these estimates, the present worth of the savings from Commission-mandated pooling is only about $8 million. It is important to note, however, that even if these estimates are 100% off — if pooling will produce twice as long a delay as we estimate — the present worth of the savings is only about $14 million.

C. LECs Should Be Allowed To Recover Their Number Pooling Costs

The Commission should not depart from the sound policy developed in its number portability proceeding and should allow incumbent LECs to recover their number pooling costs through an end user surcharge. That mechanism worked well for number portability, and it is logical and reasonable to allow them to recover their number pooling costs in the same way.

Bell Atlantic does not propose an additional end user charge. Instead, it urges the Commission to allow it to recover these costs either by extending the duration of the number portability tariff for some 13 to 18 months or by increasing its existing surcharge by

---

[13] 814 and 607 are not.

approximately eleven cents. The original imposition of the number portability surcharge did not produce a public outcry and neither should such minor adjustments to it.

2. Utilization Thresholds

The Commission correctly concluded that non-pooling carriers should have to satisfy number utilization standards before they may obtain new NXX codes in all NPAs. If the Commission promptly decides what these thresholds are, these new requirements should be in place early next year and can begin to have their desired effect. Bell Atlantic generally supports the proposals contained in paragraph 248 of the Order with the following clarifications.

Carriers that will be pooling in an NPA within 12 months of the effective date of the new threshold requirements should not be required to adhere to them during that interim period. The existing month-to-exhaust standard will be more than adequate during that time and will save the industry the expense of implementing the new procedures just to change them a few months later.

The numerator in any utilization calculation should include aging, reserved and administrative numbers in addition to assigned numbers, because numbers in all those categories are not available for assignment to customers.[14] The new Commission definitions of and regulations[15] will ensure that carriers cannot improperly warehouse numbers by hiding them in these categories. If these categories are not included in the numerator, then the calculation greatly overstates the numbers available for assignment. If utilization thresholds are based on such a formula that overstates the volume of available numbers, they would need to be significantly lower than those proposed by the Commission.

---

[14] Intermediate numbers should either be included in both the numerator and the denominator or be excluded from both, preferably the latter.

[15] Section 52.15(f)(1).

Telephone numbers are assigned to particular switches, and any utilization thresholds should apply at the switch level as well. Just as the Commission correctly concluded that rate-center-based reporting was better than NPA-wide reports — "because it more accurately reflects how numbering resources are assigned"[16] — a carrier should be able to get additional numbers when its supply is low at a particular switch even if it has other numbers elsewhere in the rate center.

The Commission proposes that the threshold starts at 50% and increases by 10% per year until it reaches 80%. Bell Atlantic is concerned that the 80% level might be too high to assure carriers a six-month supply of numbers, the inventory size the Commission found appropriate.[17] We suggest that the Commission review the situation after the threshold is at 70% before deciding to raise it again to 80%.

The Commission-adopted thresholds should be used nationwide. States should not be given the authority to change them, even within some range established by the Commission. Deferring this decision to the states would inevitably result in different rules from state to state and even among NPAs in a given state. This is the sort of patchwork numbering administration that Congress sought to avoid when it clearly gave the Commission exclusive jurisdiction.

3. Pooling by CMRS Providers

The Notice asks for comment about whether CMRS providers should be required to participate in pooling immediately upon expiration of the LNP forbearance period.[18] It would be unwise to require CMRS providers to make both of these changes at the same time. The industry needs to be sure that number portability is working correctly before adding the further layer of

---

16 Order ¶ 105.

17 Order ¶ 189.

18 Order ¶ 249.

complexity of pooling on top of it. The Commission should, therefore, allow these providers nine months to complete the transition to pooling after number portability has been implemented.

4. Charging for Numbers

While it is good that the Commission wants to consider a less "regulatory" and more market driven approach to number resource allocation, it should reject any proposal that calls for charging for telephone numbers. The lack of a charge did not cause the problems that exist today, and the actions taken by the Commission in its Order should remedy those problems without having to institute a mechanism for charging. Moreover, any system that included charging for numbers would raise a variety of thorny issues that the Commission would have to deal with.

To start with, the strain on numbering resources is not the result of the fact that carriers do not have to pay for them — rather, it was produced largely by the introduction of local competition before the implementation of number pooling and by the unexpected growth in consumers' use of the resource (primarily for wireless services and computer and fax lines). Poor utilization of numbers was not caused, as the Notice suggests, by "administrative allocation rules that fail to recognize the economic value of numbers."[19] Stated differently, there is no reason to believe that charging for numbers would have resulted in more nearly optimal number utilization in the past or that it will in the future.

In addition, the Commission seems to believe that obtaining more numbers is costless for carriers. This is not true today, and the cost of obtaining more numbers will increase in the future. Today, a carrier does not have to write a check to get more numbers, but it does incur costs to fill out the forms and then to activate the numbers it receives. In the future, pooling carriers will have to

---

[19] Notice ¶ 226.

pay a fee to the pooling administrator to obtain number blocks, as well as incur the not insignificant charges associated with the downloading of the pooled blocks.

The Commission is correct that it would not be possible to replace the existing system in the near term.[20] The existing system should not be changed unless a strong case can be made that the industry and the consumers it serves will be better off. That case should include some demonstration that charging for numbers will delay the need to expand the North American Numbering Plan. Bell Atlantic does not see how such a case can be made at this time.

In its recent order in this proceeding, the Commission adopted a variety of new rules to ensure that numbers are used more efficiently — from thousands-block pooling to recordkeeping and administative requirements. These changes will be put into place in the coming months and should benefit the public. It is not at all clear that after this is done that any additional benefit could be derived from charging for numbers.

While the benefits are dubious, the questions and problems are clear and significant. If carriers must pay for numbers, won't the cost consumers pay for service increase and won't that increase fall disproportionately on residential consumers? Does the Commission even have the legal authority to auction or charge for telephone numbers? Who would administer the system which, unlike one-time spectrum auctions, would have to be continuous and on-going? If carriers have to pay for numbers, will they then "own" them and is that inconsistent with notions of number portability? And will carriers be able to charge customers for numbers, which will then give customers a legal interest in them?

If the Commission were to adopt a charging mechanism, against the virtually unanimous recommendation of the industry, its plan should include the following features. First, a carrier's

payments for numbers should be deducted from its universal service obligation. Second, all carriers should be permitted, but not required, to recover their number costs from their end user customers in any manner they choose.

Conclusion

The Commission should promptly adopt rules that permit local exchange carriers to recover their pooling costs by adding to or extending the duration of the number portability surcharge and that impose utilization thresholds on carriers that are not involved in pooling.

Respectfully submitted,

_____

John M. Goodman

Attorney for Bell Atlantic

Michael E. Glover
Of Counsel

1300 I Street, N.W.
Washington, D.C. 20005
(202) 336-7874

Dated: May 19, 2000

---

[20] Notice ¶ 227.

ATTACHMENT A

Operating Support System Modifications For Number Pooling

OSS Name	System Function	Reason for Modification	
The ASMS and LSMS systems interface with the NPAC for "porting" of telephone numbers. Modifications to the ASMS system enable Bell Atlantic to "pre-port" thousands blocks assigned to it. Changes to both systems enable Bell Atlantic to use Efficient Data Representation (EDR), without which Bell Atlantic would incur significant memory and processing upgrade costs for its call routing SCPs. Neither of these modifications would have been necessary absent number pooling.			
ASMS Advanced Service Management System	Sends information to the NPAC and receives error information and other messages from the NPAC.	Modification to use pooling indicators and to implement efficient data representation for range attributes for telephone number pooling.	Enables the use of NPAC 3.0 efficient data representation for pre-porting telephone numbers received from the Pooling Administrator. **Without these modifications ASMS would not be able to pass these new NPAC transactions as a range to the NPAC. New pooling indicators and transactions also necessitate modifications.**
LSMS Local Service Management System	Accepts broadcast messages from the NPAC and is a source of information on ported and pooled telephone numbers	Modification to receive EDR broadcast messages from the NPAC	Enable the use of NPAC 3.0 efficient data representation broadcast messages from the NPAC. **Without these modifications LSMS would not be able to use EDR transactions.**
The following systems are used to manage and report on telephone numbers and must be modified to permit them to perform their functions at the thousands-block level. The changes were required by the requirement to provide thousands-block-level data in order to qualify for the assignment of additional telephone number resources in a number pooling environment. Absent the requirement to do pooling, these changes would not have been made.			
TN Tracker Telephone Number Tracker	Provides forecast data and utilization reports	New system required for developing forecast data and utilization reports in a pooling environment (thousands block detail)	New system to maintain historical data of telephone number utilization at the thousands block level. This system will provide forecast data for telephone numbers at the thousands-block level of detail as required by the pooling administrator prior to the assignation of additional telephone number resources. **Without this system, Bell Atlantic would be unable to provide the thousands-block forecast data required by the Pooling Administrator and would, therefore, be unable to seek additional telephone number resources to meet customer needs.**
Bell Atlantic CAS Bell Atlantic Code Administration System	Supports Bell Atlantic Code Administration group in managing day-to-day functions associated with CO Code request and assignment activity.	Modification to support the management of telephone numbers at the thousands-block level required by number pooling.	Changes provide Bell Atlantic with 1) a mechanized process to manage the request and assignment of thousands-blocks; 2) the capability for increased frequency of processing LERG data in a number pooling environment; and, 3) the functionality to electronically transmit and receive data among Bell Atlantic, NPAC administrator and the Pooling Administrator.

Operating Support System Modifications For Number Pooling

OSS Name	System Function	Reason for Modification
		Without these modifications, Bell Atlantic would not have a process for requesting thousands-blocks of numbers, tracking requests, and providing internal Bell Atlantic notification associated with thousands-block activity within the Bell Atlantic region. This would result in inadequate number inventory for Bell Atlantic customers.
The following provisioning systems were modified to enable the use of pooled telephone numbers in Bell Atlantic systems. Provisioning system modifications are generically driven by the need to identify pooled telephone numbers as distinct from ported telephone numbers. The fundamental reasons are: 1) pooled-out telephone numbers must be marked as such in our system to avoid assigning those telephone numbers in error; and, 2) pooled-in telephone numbers are assigned to Bell Atlantic and ported telephone numbers are "borrowed" – provisioning systems need to know that "non-native" telephone numbers (telephone numbers for which another switch is the code holder) do not "snap back" to the code holder when disconnected. Additionally, Bell Atlantic provisioning systems need to be able to send a request to the NPAC for a "pooled" block when that block is opened. Finally, when using pooled telephone numbers, provisioning data streams, which carry LRN technology identifiers, need specific "pooling indicators" to prevent a porting activity from being generated through ASMS to the NPAC. As the telephone numbers have already "pre-ported", additional messaging to the NPAC would unnecessarily load the network and unnecessarily incur additional NPAC charges.			

Operating Support System Modifications For Number Pooling

OSS Name	System Function	Reason for Modification	
SOAC / Range Subscription Service Order Analysis and Control System.	Main service order sequence, control and coordination system for service provisioning. System is primary interface with internal OSSs and the ASMS.	Modification to pre-port telephone numbers received from the pooling administrator.	To process pooling indicators and USOCs on service orders for customers receiving pooled-in telephone numbers. The reason for distinct pooling identifier is 1) to indicate Bell Atlantic is the block holder (as opposed to porting indicators on service orders where the originating SP is the block holder) and 2) to prevent SOA messaging to the NPAC as the telephone number has been pre-ported. Range subscription (SOA Activation) allows the pre-porting of thousands-blocks from LiveWire through SOAC to ASMS to the NPAC as an EDR record. Modification also enables SOAC to communicate with subtending provisioning systems to assign facilities, transmit data to the switch that will provide customer service, administer telephone numbers and communicate order information to field personnel. SOAC is also the interface for information delivery to the ASMS. **Without SOAC modifications, pooled-in telephone numbers would "snap back" to the code holder as opposed to being returned to Bell Atlantic inventory, NPAC would receive unnecessary subscription information causing NPAC to double process each telephone number and the industry to incur the cost of two porting subscriptions. Without range subscription Bell Atlantic would be unable to pre-port using EDR functionality.**
SOP Service Order Processor	Service order system receives orders from front-end service order entry systems and passes to SOAC for assignment and provisioning	Modification to accept, recognize and interpret new pooling indicators	These modifications allow the input of the new pooling indicators and the passing of these indicators to SOAC and then to downstream systems. **Without these modifications service orders with pooled-in telephone numbers could not be issued or provisioned.**

Operating Support System Modifications For Number Pooling

OSS Name	System Function	Reason for Modification	
LIVEWIRE	Performs telephone number administration, central office equipment assignment and inventory functions.	Modification required to 1) expand LiveWire telephone number data fields to show pooling identifiers for downstream systems such as SSNS, Service Express, LiveWire Gateway, 2) to enable LiveWire to interface with LERG at the thousands-block level, 3) to enable LiveWire to process a more granular level of detail	These LiveWire system modifications were necessary to: 1) protect blocks from assignment in Bell Atlantic systems during validation process, 2) allow the validation of thousands-blocks for donation to pools, 3) enable the sharing of pooling data among all provisioning and telephone number inventory systems (telephone number Tracker, Switch, SSNS, Service Express, LiveWire Gateway) that interface with LiveWire and 4) prevent assignment of donated telephone numbers to Bell Atlantic customers. **Without these modifications: 1) Bell Atlantic would be unable to assure that telephone numbers donated to a pool weren't subsequently assigned in Bell Atlantic's network; 2) Bell Atlantic's telephone number inventory systems would not be able to interpret and use the thousands-level data from the LERG; 3) Telcordia systems that interface with LiveWire would be unable to provision pooled-in telephone numbers.**
SWITCH	Performs central office equipment assignment and inventory functions.	Modification to protect telephone numbers that have been donated to the pooling administrator	The modifications to this system are to mark telephone numbers when they are donated to the pooling administrator so they cannot be assigned by Bell Atlantic and to add new pooling indicators to telephone numbers and display telephone number pooling indicators on inquiries and reports. **Without these modifications, Bell Atlantic could assign donated telephone numbers to Bell Atlantic customers. Additionally, service orders using pooled-in telephone numbers would be unable to be assigned to the appropriate central office.**

Operating Support System Modifications For Number Pooling

OSS Name	System Function	Reason for Modification	
MARCH	System that receives service order information from SOAC and activates CO switch translation with provisioning data for the switch serving the customer.	Modification to eliminate the Cause Code 26 (CC26) messages. This requirement was identified in the T1S1.6 number pooling standards.	Number pooling introduces the new concept of pre-porting (not applicable to number portability), which causes the inappropriate release of CC26 (fast busy) when routing calls to pre-ported unassigned pooled telephone numbers. T1S1.6 requires that calls to pooled but unassigned telephone numbers receive the appropriate intercept messaging. In a number pooling environment, dialing an unassigned pooled telephone number will route to the appropriate switch where an intercept message will tell the customer to check the telephone number and dial again. MARCH database personnel require PCs and other office peripheral equipment to enable the caring for new intercept treatment processing associated with number pooling. MARCH system hardware is needed to accommodate additional memory capacity required to store new MARCH intercept records. **Without the ability to suppress CC26 on calls to unassigned pre-ported numbers, the calling party would receive a fast busy signal, which would not indicate that a non-working number has been dialed. Failure to suppress inappropriate CC26 messages not only affects Bell Atlantic customers but other service provider customers as well who dial an unassigned number that has been pre-ported to Bell Atlantic.**
CALL MEDIATOR	Call Mediator is an automated error resolution handler which supports provisioning.	Modification to allow Call Mediator to identify the appropriate call intercept treatment for service orders which do not flow through on pooled-in telephone numbers.	Number pooling introduces new error types associated with the unique identification of pooling indicators on service orders that use pooled-in telephone numbers. Call Mediator needs modification to build in logic for handling number pooling-related errors in the provisioning flow. **Without these modifications, customers with pooled-in telephone numbers would be subject to delays in provisioning intervals (due to required manual intervention) as compared with customers assigned Bell Atlantic "native" telephone numbers.**

Operating Support System Modifications For Number Pooling

OSS Name	System Function	Reason for Modification	
The following systems allow Bell Atlantic reps to access the Bell Atlantic provisioning systems. Given the need to identify pooled-in telephone numbers, Bell Atlantic representatives must know when the unique pooling identifiers must be placed on the service order. Without the pooling identifiers at the front end of the service negotiation process, none of the underlying provisioning systems would be able to use pooled-in telephone numbers.			
Service Express	Service order entry system for business customers.	Modification required to allow Service Express to recognize and interpret new Pooling indicators.	These changes deliver instructions to business service negotiators to support the ordering process and place the appropriate pooling information on the service order to pass to downstream systems. **Without these modifications, Bell Atlantic Telcordia systems could not provision service for pooled-in telephone numbers.**
LiveWire Gateway	Web GUI interface to LiveWire to support pre-ordering.	Modification to allow delivery of pooling indicators to service negotiators.	To enable service negotiators to recognize that an offered telephone number is a pooled-in telephone number and thereby trigger the placement of the pooling indicators on the service order. **Without the pooling indicators, systems could not provision the service for pooled-in telephone numbers.**
SSNS **Sales Service Negotiation System**	Mechanized retail service order entry system used by Bell Atlantic customer service employees.	Modification to recognize and process pooling indicators and deliver instructions to service negotiators to support the order negotiation process.	SSNS places the appropriate pooling information on the service order to pass to downstream systems. **Without these modifications, pooling indicators would not be placed on the service orders and other systems could not provision service for pooled-in telephone numbers.**
The following systems allow CLEC reps to access the Bell Atlantic provisioning systems. Given the need to identify pooled-in telephone numbers, CLEC representatives must know when the unique pooling identifiers must be placed on the service order. Without the pooling identifiers at the front end of the service negotiation process, none of the underlying provisioning systems would be able to use pooled-in telephone numbers.			
XEA Xpress Electronic Access	Processes carrier initiated requests by which end user customers may select preferred carrier (PC) to carry interLATA/intraLATA calls.	Modification to allow XEA to recognize and process pooling indicators.	These changes support customer selection of PCs on pooled telephone numbers. Additionally, the changes expand XEA processing of LERG data to the thousands-block level and increase the frequency of processing. **Without these modifications, XEA would not be able to support PCs on pooled-in telephone numbers.**
Pre-Ordering Support Systems	Collection of databases and applications supporting products and services, example BMEX (Bell Atlantic	Modification required to allow the Pre-Ordering Support Systems to recognize and process	These changes support the linking of Bell Atlantic products and services with customer orders on pooled-in telephone numbers. **Without these modifications, customers with pooled-in**

Operating Support System Modifications For Number Pooling

OSS Name	System Function	Reason for Modification	
	Mechanize Exchange)	pooling indicators.	**telephone numbers would not have access to the same products and services as customers with Bell Atlantic assigned telephone numbers.**
TIS WEB GUI Telecom Industry System (TIS) Web Graphical User Interface (GUI)	System for allowing CLEC / Reseller access to Bell Atlantic systems which house customer information	Modification to allow these systems to recognize pooling indicators	CLECs and reseller interfaces need access to pooling indicator information in order to enable a seamless integration with the Bell Atlantic systems that underlie the interface. These changes recognize and process pooling indicators, and place the appropriate pooling information on the service orders to pass to Request Manager. **Without modification, pooling indicators would not be placed on the service orders and the underlying Bell Atlantic systems could not provision service for pooled-in telephone numbers.**
Request Manager	Interface between TIS Web GUI and downstream systems	Modification to allow Request Manager to recognize and process data with pooling indicators.	Request Manager is a middleware/translator program that takes information from the TIS Web GUI and communicates it to downstream systems. **Without these modifications, pooling indicators would not be placed on the service orders, and the downstream Bell Atlantic systems could not provision the service for pooled-in telephone numbers**.
Request Broker	Verifies service orders received from Competitive Local Exchange Carriers	Modification to allow Request Broker to recognize and process data with pooling indicators.	Request Broker is the system responsible for Service Order Validation. The system changes enable Request Broker to recognize and validate pooling indicators on service orders with pooled-in telephone numbers. Request Broker then forwards that information to the SOP for provisioning. **Without these modifications, pooling indicators would not be placed on the service orders and the downstream Bell Atlantic systems could not provision service for pooled-in telephone numbers.**
Maintenance personnel and systems need to know when routing is based on LRN capability in order to accurately identify and eliminate the potential causes of network troubles. Provisioning systems populate the underlying maintenance system databases and therefore the maintenance systems need to be modified to accept the pooling identifiers.			

Operating Support System Modifications For Number Pooling

OSS Name	System Function	Reason for Modification	
NSDB/WFA Network Services Data Base/Work Force Administration.	System used by field technicians to access service order and maintenance trouble report data.	Modification to process pooling indicators	Modification enabled systems to identify, process and track number pooling data fields to ensure that provisioning and repair personnel are able to differentiate between pooled-in numbers and non-pooled numbers. **Without the modifications to the systems, personnel working on orders would not be able to locate the facilities associated with pooled-in telephone numbers. Installation and maintenance personnel would not know the telephone number had LRN technology. This could delay the installation of service as well as trouble resolution of maintenance problems**
STARMEM / PARIS	System used by CLEC and Bell Atlantic repair personnel to troubleshoot customer repair reports by analyzing customer billing records, switch records and LMOS data.	Modification to provide unimpaired level of service to customers with pooled-in telephone numbers.	STARMEM required number pooling modifications to enable it to continue to conduct on-line integrated testing by being able to locate physical network locations, billing and LMOS records for customers with pooled-in telephone numbers. **Without modifications, Bell Atlantic and CLEC repair personnel would not be able to locate and analyze information on pooled-in lines and make repairs in a timely manner.**
Predictor	Maintenance system that tests lines for potential trouble before they become service affecting.	Modification to wire center NPA-NXX tables as thousands blocks are turned over to the pool administrator.	Pooling requires that Predictor be modified so as to enable STARMEM to perform switch queries. Currently, Predictor uses a simple NPA-NXX look-up to obtain access to the switch information associated with a TN. Predictor has to be modified to look at a more complex NPA-NXX-X table to obtain access to switch information associated with a TN. Lastly, this more complex database table must be developed. Pooling requires that Predictor be modified to enable STARMEM to perform switch queries. Currently, Predictor uses a simple NPA-NXX look-up to obtain access to the switch information associated with a TN. **Without these modifications, Predictor would not be able to support service recovery and service automated feature repair on pooled-in telephone numbers.**
CaseWorker Platform	Trouble administration and maintenance tool	Modification to allow CaseWorker to recognize	Changes allow CaseWorker to process and display the new pooling indicators.

Operating Support System Modifications For Number Pooling

OSS Name	System Function	Reason for Modification	
		and process data with pooling indicators.	**Without this functionality maintenance attendants would not be able to recognize or process troubles on pooled in telephone numbers.**
The following systems changes enable Bell Atlantic to bill customers who use pooled-in telephone numbers. These changes are necessitated by the fact that the billing systems require data feeds from the Local Exchange Routing Guide. As the LERG is being modified to provide data at the thousands-block level, and as those data feeds need to be processed more often in a number pooling environment, Bell Atlantic will have to modify its billing systems to accept the thousands block level data and care for the increased frequency of processing.			
CRIS Customer Record Information System	Renders monthly bills to end user customers and performs revenue settlement transactions among carriers. Retains a master file of customer billing information.	Modification to enable CRIS to recognize and interpret new pooling indicators.	To enable CRIS to recognize pooled telephone numbers and the serving switch location for accurate bill rendering on distance sensitive charges. The need for this change was driven by billing and rating applications that are distance dependent (within a rate center) and need to be able to associate a telephone number with a switch. CRIS must expand processing of LERG data elements to accommodate thousands-block levels and the increased frequency of processing. **If CRIS could not recognize pooling indicators, Bell Atlantic would not be able to render bills on pooled-in telephone numbers since our applications would interpret these telephone numbers as assigned to another carrier. Without modification to processing we would not be able to read the thousands-block information in the LERG.**
Billing Express	Renders monthly bills to end user customers	Modifications to allow Billing Express to recognize and interpret pooling indicators.	Billing Express has to be modified to expand processing of LERG data elements to accommodate thousands-block levels and the increased frequency of processing. **Without these modifications, Billing Express would not recognize the pooling indicators, and Bell Atlantic would not be able to render bills on pooled-in telephone numbers. Without expanded processing capability, Billing Express would not be able to read the thousands-block data from the LERG.**
CABS Carrier Access Billing System	Renders bills for access service customers	Modifications to allow CABS to recognize and interpret pooling indicators.	CABS has to expand its processing capability to include the processing of LERG data elements at the thousands-block level. Additionally, CABS had to be modified to allow for an increased frequency of processing.

Operating Support System Modifications For Number Pooling

OSS Name	System Function	Reason for Modification
		Without these modifications, CABS would not be able to determine the appropriate CLEC for billing. Without expanded processing capability, CABS would not be able to read the thousands-block LERG data.
ITORP IntraLATA Toll Originating Responsibility Plan	System used for calculating charges between Bell Atlantic and other LECs for termination of intraLATA calls	Modifications to allow ITORP to recognize and interpret pooling indicators.	ITORP has to expand its processing capability to include the processing of LERG data elements at the thousands-block level. Additionally, ITORP has to be modified to allow for an increased frequency of processing. **Without these modifications, ITORP would not be able to associate charges with the appropriate LECs.**