ORIGINAL

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

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of	)	
	)	
	)	
Amendment of the Commission's Rules Regarding Unbundling of Local Exchange Carrier Line Facilities	)	RM 8614

DOCKET FILE COPY ORIGINAL

ERRATUM

On April 10, 1995 Bell Atlantic filed its comments in this proceeding. Exhibit 1 of that filing contained copies of testimony before the Maryland Public Service Commission.

Through an administrative error, the exhibit did not contain the correct testimony. Attached is a corrected Exhibit 1. Please associate it with the above reference docket.

Respectfully submitted,

The Bell Atlantic Telephone Companies

By Their Attorney

Edward Shakin

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April 12, 1995

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EXHIBIT 1

BEFORE THE

PUBLIC SERVICE COMMISSION

OF MARYLAND

IN THE MATTER OF THE APPLICATION	)	
OF SBC MEDIA VENTURES, INC. FOR	)	
AUTHORITY TO PROVIDE LOCAL	)	**CASE NO. 8659**
EXCHANGE TELECOMMUNICATIONS	)	
SERVICE IN MONTGOMERY	)	
COUNTY, MARYLAND.	)	

REBUTTAL TESTIMONY

OF

EDWARD J. REISNER

ON BEHALF OF

SBC MEDIA VENTURES, INC.

October 26, 1994

1 **Q. PLEASE STATE YOUR NAME, EMPLOYER, TITLE AND BUSINESS ADDRESS.**

2 A. My name is Edward J. Reisner. SBC Media Ventures, Inc. ("SBC-MV") employs me as
3 Vice President - New Services Development. My office is at 20 West Gude Drive in Rockville,
4 Maryland.

5 **Q. ARE YOU THE SAME EDWARD J. REISNER WHO FILED DIRECT**
6 **TESTIMONY IN THIS CASE ON AUGUST 3, 1994?**

7 A. Yes I am.

8 **Q. WHAT ARE YOU ADDRESSING IN REBUTTAL TESTIMONY?**

9 A. Several parties in this case have called for the Public Service Commission of Maryland
10 ("Commission") to <u>require</u> that SBC-MV unbundle its network and/or to allow resale of its
11 services. My testimony illustrates the negative impacts of forced unbundling and resale on our
12 network in terms of cost, engineering, operations and customer service.

13 **Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.**

14 A. SBC-MV's current equipment deployment plans do not lend themselves to unbundled
15 elements, e.g., links and ports. If the Commission requires SBC-MV to unbundle, we would
have to purchase additional equipment and unnecessarily increase the engineered capacity of

key network components. This would affect our capital requirements and ongoing operations costs and result in a less reliable network.

Q. WOULD SBC-MV ENGINEER ITS NETWORK DIFFERENTLY TO ACCOMMODATE UNBUNDLING?

A. Yes, SBC-MV would engineer its network differently to accommodate unbundling. The customers on whom we intend to focus are what drive our technical plans, network design and engineering of our network. As our Application for Authority to Provide Local Exchange Service in Montgomery County and our testimony states, our goal is to provide a cost effective, operationally efficient, highly reliable network that meets the service requirements of the residential market. We have not studied the market for, nor do we have plans to be, a Competitive Access Provider ("CAP"), a source of "dark fiber" or facilities for the resale or bypass market, or a provider of services to large businesses (e.g., CENTREX, ISDN, ACD Call Centers). Those services have design and engineering criteria that are not consistent with our goals.

Q. WOULD YOU ELABORATE ON THE NETWORK ELEMENTS THAT YOU WOULD ENGINEER DIFFERENTLY IF THE COMMISSION MANDATED UNBUNDLING FOR SBC-MV?

A. Our switching capacity is being engineered for our sole use in serving the residential market. This means we will equip our switch with features common to residential service and to meet

1 residential call characteristics, e.g., call holding time and calls generated during the peak busy
2 hour. SBC-MV will engineer and install switching capacity to meet our construction schedule
3 and the projected penetration rates. We will periodically install additional capacity based on
4 our construction schedule, projected penetration rates and the actual growth in our number of
5 subscribers.

6 Mandatory unbundling of switching components could change all that. It could force us to
install a switch with greater capacity and different calling characteristics than we need for our
8 own use. It could also force us to engineer growth jobs at more frequent intervals. All this
9 would increase SBC-MV's up-front and ongoing costs and capital requirements.

10 Our method of connecting the outside plant distribution system to the central office switch
11 would have to change were we required to unbundle. SBC-MV plans to connect the switch to
12 subscribers through direct digital interconnection. This provides superior quality service by
13 eliminating wire "jumpers" (cross connections) and the traditional central office distribution
14 frames. To unbundle the outside plant from the switch, SBC-MV would have to abandon this
15 approach. Instead, we would have to install additional equipment and facilities between the
16 customer and the switch. The additional equipment required would not only increase our cost,
it would introduce additional electronic and human points of failure into the network.

1 Therefore, unbundling would reduce the quality and reliability of our service and eliminate what
2 we believe is a competitive advantage.

3 **Q. WOULD THIS ADDITIONAL EQUIPMENT AFFECT OTHER DESIGN**
4 **CONSIDERATIONS FOR YOUR CENTRAL OFFICE?**

5 A. Yes, the additional equipment required to offer unbundled network elements would increase
6 building floor space needs, generate additional demands on environmental conditioning
7 (humidity control, heating, cooling and lighting) systems, and increase the necessary backup
battery and emergency power capacity. All this causes unnecessary up-front and ongoing costs
9 and increases capital requirements.

10 **Q. HOW WOULD YOUR OUTSIDE PLANT NETWORK BE AFFECTED BY**
11 **UNBUNDLING?**

12 A. Mandatory unbundling affects engineering here also. SBC-MV is engineering its plant to
13 provide enough fiber counts and conduit space for its own use allowing for projected growth
14 and maintenance spares. We have not designed, arranged or sized our system with unbundling
15 in mind. To do so would require us to re-engineer our outside plant network, and again
16 unnecessarily increase fiber requirements. It also introduces additional failure points into the
17 Hubs and Nodes thus jeopardizing the integration of video and voice.

Q. ARE THERE OPERATIONAL, ADMINISTRATIVE AND/OR REGULATORY COST CONSIDERATIONS ASSOCIATED WITH UNBUNDLING?

A. Yes, there are. For example:

a) The increased personnel and administrative costs of developing prices and tariffs to file with the Commission.

b) The increased personnel, outside legal counsel and administrative costs of litigation to get such prices and tariffs approved.

c) The increased personnel, administrative and programming costs associated with extensive software revisions and enhancements to operations, administration and maintenance support systems.

d) The cost of additional training requirements and additional Customer Service staff.

e) The cost of the administrative infrastructure necessary to: (i) process orders for service, (ii) bill the company purchasing unbundled services, (iii) collect bills from those companies, (iv) handle trouble reports from the carrier, and (v) coordinate with the carrier.

Q. CAN YOU QUANTIFY THE ADDITIONAL UP-FRONT AND ONGOING COSTS AND INCREASED CAPITAL REQUIREMENTS SBC-MV WOULD EXPERIENCE WITH MANDATORY UNBUNDLING?

A. SBC-MV has not made its plans with unbundling in mind, so we have not quantified nor extensively identified costs. To completely identify all the functions, costs and capital requires approaching the question from the perspective of actually planning to unbundle our business - that we have not done. However, as can be concluded from the discussion throughout this testimony, the costs would certainly be significant.

BELL ATLANTIC - MARYLAND, INC.

SURREBUTTAL TESTIMONY OF DONALD E. ALBERT

CASE NO. 8659

NOVEMBER 9, 1994

BELL ATLANTIC - MARYLAND, INC.

CASE NO. 8659

SURREBUTTAL TESTIMONY OF DONALD E. ALBERT

NOVEMBER 9, 1994

I. Background and Summary

Q1. WHAT IS YOUR NAME AND POSITION?

A1. My name is Donald E. Albert. I am Director of Integrated Deployment Planning for Bell Atlantic Maryland, Washington, West Virginia and Virginia. I submitted rebuttal testimony on behalf of Bell Atlantic-Maryland, Inc. ("BA-Maryland") in this proceeding on October 26, 1994. That testimony recounts my educational background, telecommunications experience and prior testimony.

Q2. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A2. In my testimony, I discuss SBC-MV's testimony on certain technical concerns raised by link and port unbundling of SBC-MV's network, and similar technical concerns that would accompany link and port unbundling of BA-Maryland's network.

Q3. HAVE YOU REVIEWED THE TESTIMONY PROVIDED BY SBC-MV IN THIS PROCEEDING RELATING TO THE TECHNICAL ASPECTS OF UNBUNDLING ITS NETWORK?

A3. Yes.

Q4. PLEASE SUMMARIZE THAT TESTIMONY.

A4. In his Rebuttal Testimony, Mr. Reisner discusses concerns associated with a forced unbundling of SBC-MV's network. Specifically, Mr. Reisner states that SBC-MV's plans to interface subscribers to a host digital switch through direct digital connections would have to be significantly modified to accommodate unbundled links and ports. These modifications would increase network complexity through additional equipment requirements and would negatively impact SBC-MV's network in terms of cost, engineering, operations, and customer service.

Q5. DO SIMILAR TECHNICAL CONCERNS ARISE IF BA-MARYLAND WERE REQUIRED TO UNBUNDLE ITS LINKS AND PORTS?

A5. Yes.

Bell Atlantic-Maryland's standard practice is to deploy Digital Loop Carrier (DLC) systems with digital interfaces terminated on a digital switch. This integrated Digital Loop Carrier system design is effective in minimizing cost and maximizing operational efficiencies. The requirement to unbundle network services would require Bell Atlantic - Maryland to increase its deployment of less efficient and less effective Digital Loop Carrier systems with analog interfaces. Much like SBC-MV, these additional Digital Loop Carrier systems with analog interfaces would increase

network complexity and would result in higher equipment costs for BA-MD subscribers that are served by these systems, as well as for Co-Carrier links.

Q6. WHAT IS DIGITAL LOOP CARRIER?

A6. Digital Loop Carrier is a technology which provides an efficient means for transmitting telephony services between a customer location and the serving central office. Efficiencies are gained through the use of digital encoding techniques which convert individual voice frequency telephone lines into digital signals, in conjunction with time division multiplexing that allows 96 of these digitally encoded telephone lines to be transmitted over four Level One Digital Signals (i.e. 4 DS1s). DS1 signals can be transmitted through conditioned copper facilities (i.e. T1), however, additional operational benefits can be realized when DS1s are carried via fiber optic systems.

Q7. EXPLAIN THE DIFFERENCE BETWEEN A DIGITAL LOOP CARRIER SYSTEM WITH DIGITAL INTERFACES TO A DIGITAL SWITCH AND A DIGITAL LOOP CARRIER SYSTEM WITH ANALOG INTERFACES TO A DIGITAL SWITCH.

A7. As described in the answer to Question #6, Digital Loop Carrier systems utilize digital encoding and time division multiplexing techniques to aggregate telephone services into

digital pipelines (i.e. DS1s). When a Digital Loop Carrier (DLC) system with direct digital interfaces is used, these pipelines are directly terminated on digital switch peripherals (Refer to Attachment #1). This arrangement is also referred to as integrated Digital Loop Carrier.

In contrast, unbundling requirements would dictate that Digital Loop Carrier systems with analog interfaces be utilized. When Digital Loop Carrier (DLC) systems with analog interfaces are required, digital pipelines must be demultiplexed and undergo a digital to analog conversion within a Digital Loop Carrier (DLC) Central Office Terminal to facilitate an appearance on the Main Distributing Frame (MDF) within the central office (Refer to Attachment #1). At this point local loop links can be provided to Co-Carriers, but all Bell Atlantic-Maryland dial tone subscribers resident upon this Digital Loop Carrier system must once again undergo analog to digital conversion and time division multiplexing within an analog switch peripheral before entering the digital switch.

Q8. WHY IS DIGITAL LOOP CARRIER DEPLOYED.

A8. Bell Atlantic-Maryland is rapidly evolving all elements of the network to digital technologies due to the cost benefits and improvements in service quality that these technologies

can support. This initiative is most evident in the switching network where a cost efficient upgrade strategy has enabled Bell Atlantic-Maryland to provide digital switching to 88% of all Network Access Lines. In addition, current modernization plans will enable Bell Atlantic-Maryland to achieve 100% digital switching by 1998.

A digital upgrade strategy has also been undertaken in the local loop portion of the network (i.e. connections between subscribers and the local serving central office). This upgrade has been pursued through the deployment of Digital Loop Carrier systems which have been utilized where cost efficiencies can be realized in the outside plant, as well as in the switch. Specifically, Digital Loop Carrier systems have been constructed in almost every instance where relief in the feeder plant is required due to growth in network access lines. As of end of year 1993, this deployment strategy has resulted in the use of Digital Loop Carrier systems to provision in excess of 15% of the total network access lines provided by Bell Atlantic-Maryland.

Q9. WHY DOES UNBUNDLING OF LINKS AND PORTS CAUSE BA-MD TO DEPLOY MORE DIGITAL LOOP CARRIER WITH ANALOG INTERFACES AND LESS WITH DIGITAL INTERFACES.

A9. Since Co-Carriers would be purchasing individual voice grade links, any links provisioned over Digital Loop Carrier systems must be de-multiplexed and converted to individual analog signals prior to hand-off. Subsequently, any Co-Carrier links provisioned over Digital Loop Carrier systems must be provided service via a Digital Loop Carrier system with analog interfaces. Therefore, BA-MD's deployment of Digital Loop Carrier systems with analog interfaces would increase, and deployment of Digital Loop Carrier systems with digital interfaces would decrease.

Q10. WHY DOES THIS CAUSE AN INCREASE IN COST FOR BA-MD TO PROVISION SERVICES TO A CO-CARRIER, AS WELL AS SERVICES REMAINING WITH BA-MD.

A10. It is evident from this discussion that a significant hardware cost penalty is associated with the analog interconnection of Digital Loop Carrier systems. This cost penalty is the result of the multiple analog to digital conversions which must be performed by the Central Office Terminal and analog switch peripherals. Additional hardware cost penalties are incurred with analog interfaces due to the fact that analog switch peripherals are more costly, on

a per subscriber basis, than digital switch peripherals. It is also apparent that analog interconnection significantly increases the complexity of the network design through additional hardware requirements (i.e. Central Office Terminal) and a greater number of connections to the main distributing frame (i.e. 96 voice frequency circuits versus 4 DS1s). This increase in complexity directly relates to increased engineering and operations costs, as well as a greater potential for network failures.

Therefore, with the rapid deployment of digital facilities in both the switching and distribution network, and the clear benefits associated with direct digital interfaces between these networks, it is logical that Bell Atlantic-Maryland would pursue a strategy which maximizes digital interconnection. It is also logical that Bell Atlantic-Maryland would oppose any initiative (i.e. Unbundling) which dictates that more costly and complex analog interfaces be used between a Digital Loop Carrier system and a digital switch.

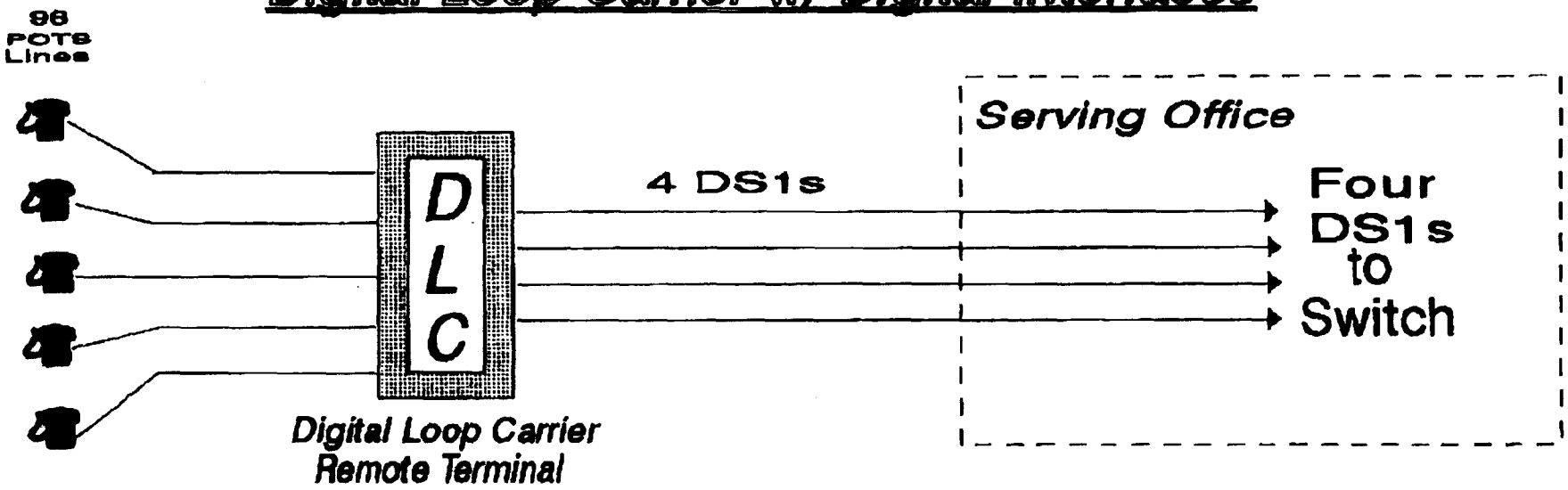
Q11. WHAT CONCLUSIONS SHOULD THE COMMISSION DRAW FROM YOUR SURREBUTTAL TESTIMONY?

A11. For the same reasons that SBC-MV should not be required to unbundle its network, Bell Atlantic - Maryland cannot

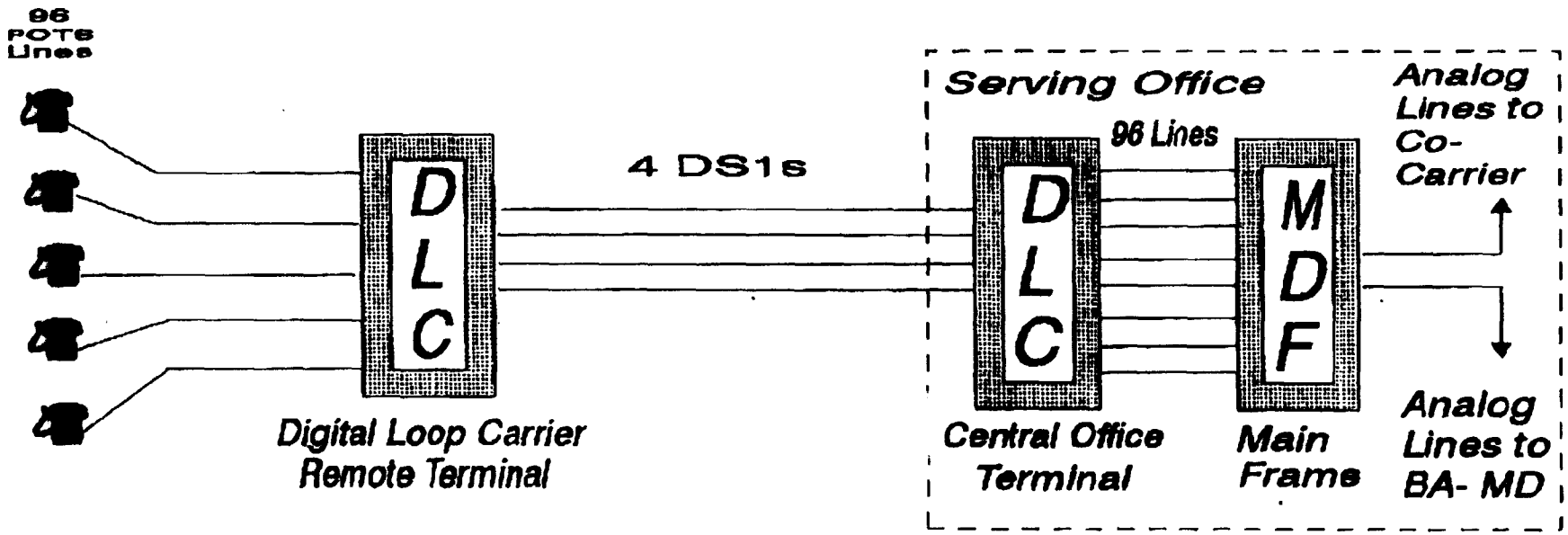
unbundle its network, without replacing more efficient facilities with higher cost less efficient facilities.

Therefore, the Commission should not require Bell Atlantic - Maryland to provide unbundled links. Finally, if Bell Atlantic is required to provide unbundled links, despite the inefficiencies in the network, all of its competitors should be required to do the same.

Digital Loop Carrier w/ Digital Interfaces



Digital Loop Carrier w/ Analog Interfaces



Attachment #1

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing "Erratum" was served this 12th day of April, 1995 by first class mail, postage prepaid, on the parties on the attached list.

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