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October 21, 1996

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Federal Communications Commission  
Office of Secretary

Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, N.W.  
Room 222  
Washington, D.C. 20054

Re: CC Docket No. 95-116 (Telephone Number Portability)

Dear Mr. Caton:

Attached is Southwestern Bell Telephone Company's analysis which illustrates the cost savings associated with the deployment of LRN with QoR versus LRN without QoR for our five-state territory.

If you have any questions, please do not hesitate to contact me at (202) 326-8890.

Sincerely,

*Michael W. Bennett*  
JK

Attachment

cc: Ms. Matthey (w/attachment)  
Mr. Karp (w/attachment)  
Ms. Littell (w/attachment)  
Ms. Su (w/attachment)  
Ms. McMaster (w/attachment)  
Ms. DeLuca (w/attachment)

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## Southwestern Bell LNP Incremental Cost Analysis - 1997 thru 1999

### NO QoR

	1997	1998	1999	TOTAL
ISCP Costs (includes SS7 links to STP and STP link terminations)	\$ 66,000,000	\$ 12,000,000	\$ 12,000,000	\$ 90,000,000
SSP Costs	\$ 21,260,000	\$ 35,500,000	\$ 46,910,000	\$ 103,670,000
LRN Software	\$ 17,820,000	\$ 17,680,000	\$ 21,810,000	\$ 57,310,000
QoR Software	\$ -	\$ -	\$ -	\$ -
OSS Costs	\$ 78,800,000	\$ -	\$ -	\$ 78,800,000
SMS Costs	\$ 12,600,000	\$ -	\$ -	\$ 12,600,000
STP upgrade costs	\$ 3,100,000	\$ 10,345,000	\$ 16,555,000	\$ 30,000,000
			<b>TOTAL</b>	<b>\$ 372,380,000</b>

### QoR Deployed - Look-ups on 10 Percent of Calls

	1997	1998	1999	TOTAL
ISCP Costs (includes SS7 links to STP and STP hardware)	\$ 12,000,000	\$ -	\$ -	\$ 12,000,000
SSP Costs	\$ 21,260,000	\$ 20,326,000	\$ 39,323,000	\$ 80,909,000
LRN Software	\$ 17,820,000	\$ 17,680,000	\$ 21,810,000	\$ 57,310,000
QoR Software	\$ 6,220,000	\$ 6,260,000	\$ 4,480,000	\$ 16,960,000
OSS Costs	\$ 78,800,000	\$ -	\$ -	\$ 78,800,000
SMS Costs	\$ 12,600,000	\$ -	\$ -	\$ 12,600,000
STP upgrade costs	\$ 3,100,000	\$ 10,345,000	\$ 16,555,000	\$ 30,000,000
			<b>TOTAL</b>	<b>\$ 288,579,000</b>
Dollar savings as compared with NO QoR				\$ 83,801,000
Percent savings as compared with NO QoR				23%

## Southwestern Bell LNP Incremental Cost Analysis - 1997 thru 1999

### QoR Deployed - Look-ups on 20 Percent of Calls

	1997	1998	1999	TOTAL
ISCP Costs (includes SS7 links to STP and STP hardware)	\$ 18,000,000	\$ 6,000,000	\$ 6,000,000	\$ 30,000,000
SSP Costs	\$ 21,260,000	\$ 22,574,000	\$ 40,447,000	\$ 84,281,000
LRN Software	\$ 17,820,000	\$ 17,680,000	\$ 21,810,000	\$ 57,310,000
QoR Software	\$ 6,220,000	\$ 6,260,000	\$ 4,480,000	\$ 16,960,000
OSS Costs	\$ 78,800,000	\$ -	\$ -	\$ 78,800,000
SMS Costs	\$ 12,600,000	\$ -	\$ -	\$ 12,600,000
STP upgrade costs	\$ 3,100,000	\$ 10,345,000	\$ 16,555,000	\$ 30,000,000
			<b>TOTAL</b>	<b>\$ 309,951,000</b>
Dollar savings as compared with NO QoR				\$ 62,429,000
Percent savings as compared with NO QoR				17%

### QoR Deployed - Look-ups on 30 Percent of Calls

	1997	1998	1999	TOTAL
ISCP Costs (includes SS7 links to STP and STP hardware)	\$ 18,000,000	\$ 6,000,000	\$ 6,000,000	\$ 30,000,000
SSP Costs	\$ 21,260,000	\$ 25,946,000	\$ 42,133,000	\$ 89,339,000
LRN Software	\$ 17,820,000	\$ 17,680,000	\$ 21,810,000	\$ 57,310,000
QoR Software	\$ 6,220,000	\$ 6,260,000	\$ 4,480,000	\$ 16,960,000
OSS Costs	\$ 78,800,000	\$ -	\$ -	\$ 78,800,000
SMS Costs	\$ 12,600,000	\$ -	\$ -	\$ 12,600,000
STP upgrade costs	\$ 3,100,000	\$ 10,345,000	\$ 16,555,000	\$ 30,000,000
			<b>TOTAL</b>	<b>\$ 315,009,000</b>
Dollar savings as compared with NO QoR				\$ 57,371,000
Percent savings as compared with NO QoR				15%

## **Categories of Number Portability Costs**

- **ISCP (Intelligent Service Control Point) costs:** Databases that will process number portability queries and return a response containing the Location Routing Number needed to route the call. This cost also includes the additional equipment at the Signal Transfer Point (STP) needed to connect the ISCPs to the SS7 network; and the links between the ISCPs and the STPs.
- **SSP (Signal Switching Point) costs:** Costs due to increased utilization of the switch processor, additional memory, and other processor upgrades.
- **LRN and QoR Software:** Right-to-use fees for Location Routing Number and Query on Release software
- **OSS Costs:** Upgrades to service negotiation, provisioning and assurance systems. These upgrades include operating and application related software and a minimal amount of hardware.
- **SMS Costs:** These costs are for a Local SMS (Service Management System) that will update records in the ISCPs and interface with the regional SMS. Costs include development of the SMS application software and the required hardware.
- **STP Costs:** Upgrade costs for number portability.

**Note:** This is a cash flow study. All costs are incremental and do not include any allocation of existing investment.

## QoR Cost Savings Study Assumptions

- 1) All NXX's are open for portability when portability is introduced in the MSA or geographic area.
- 2) Portability is introduced throughout the 100 top MSA's within SWBT territory by year end 1998. Portability is introduced throughout the rest of SWBT territory by year end 1999.
- 3) Traffic data: 1.6 originating calls per line in the busy hour, 60 % of originating calls are interoffice/intralata. This data was used to estimate the number of queries originating in the SWBT network. The additional query load on the ISCPs due to non-participating carriers was assumed to be equal to the originating queries. Non-participating carriers could include CMRS providers, local service providers operating outside the MSA boundaries, local service providers with an LNP exemption, and long distance carriers (IXCs).
- 4) Incremental signaling per call: The additional signaling units generated by the TCAP query and response associated with an LNP query was estimated at 100 octets for the query and 100 octets for the response.
- 5) Serving arrangement: The network architecture consists of ISCP databases deployed as mated pairs. The ISCP platforms deployed for the first three MSAs have a capacity of 375 queries per second. The ISCP platforms deployed for the other top MSAs and the remaining SWBT territory will have a capacity of 900 queries per second. These query rates are based on double failures calculations.
- 6) The A-links will be engineered at .4 erlang, and operate at 56 kbps (kilobits per second).
- 7) Annual access line growth varied according to the forecast for growth in a particular area or switch.
- 8) Switch replacements that were necessary for number portability were the same for all deployment strategies.
- 9) Data from the SSP-STP A-links was used to estimate the impact of number portability. Based on this data, the current number of SSP-STP links are sufficient to handle the additional SS7 traffic. This assumption may not be correct for all areas.
- 10) The impact to the DMS100 processor was estimated using data provided by Nortel. This impact is expressed as the increase in percent processor utilization throughout the SWBT network.

## **QoR Cost Savings Study Methodology**

The number of busy hour call originations was run through an EXCEL based spreadsheet used to estimate the number of queries generated by different deployment strategies. The query volume can be used to size the number of ISCP platforms required. Using the query volume and the octets per message, the additional SS7 traffic can then be used to size the links and STP additions.

Costs for these network additions were calculated using prices from equipment suppliers, recent data from similar jobs, and internal company estimates. Supplier pricing was available for the LRN software, QoR software, DMS100 processor utilization increases, other SSP hardware requirements and the generic upgrade software and hardware. Recent jobs and internal data were used for the ISCPs, Local SMS hardware and software, STP upgrades, and SWBT engineering, installation, and translations. The OSS costs include estimates from OSS suppliers and internal data.