ORIGINAL

SPRINT
DOCKET NO. 990649-TP
FILED AUGUST 21, 2000

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

REFILED DIRECT TESTIMONY

OF

STEVEN M. MCMAHON

Q. Please state your name, business address, employer and current position.

A. My name is Steven M. McMahon. My business address is 6360 Sprint Parkway, Overland Park, Kansas 66251. I am presently employed as Senior Manager-Network Costing for Sprint/United Management Company. I am testifying on behalf of Sprint-Florida, Inc. and Sprint Communications L.P. (hereafter jointly referred to as "Sprint" or the "Company").

Q. Please describe your educational background and business experience.

A. My qualifications and business experience are summarized in Exhibit SMM-1.

Q. Have you testified previously before state regulatory commissions?

A. Yes, I have testified before state regulatory commissions in Ohio and Indiana.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to address issues #8 and #11 as identified in Appendix A of this Commission's "Second Revised Order on Procedures" issued March 16, 2000 for this proceeding. Generally, I will discuss how certain "Non-Recurring Charges" (NRCs) should be determined with respect to NRC cost study methodology.

<u>**Issue 8:**</u> **What are the appropriate assumptions and inputs for the following items to be used in the forward-looking non-recurring UNE cost studies?**

(a) network design;

(b) OSS design;

(c) labor rates;

(d) required activities;

(e) mix of manual versus electronic activities;

(f) other.

A. The forward-looking, non-recurring UNE cost studies should reflect as closely as possible the actual costs incurred in performing the required activity rather than developing a single "average" charge. This would include the amount of time required by an efficient provider to complete the activity and the cost to perform the activity, using most current loaded labor rates. Consequently, CLECs would pay non-recurring charges that relate directly to work actually performed on their behalf which, in turn, would ensure that the ILEC neither over, nor under-recovers, non-recurring costs.

To facilitate discussions, Exhibit SMM-2 depicts typical network configurations that an ILEC encounters when provisioning Unbundled Loops (UBLs). As can be seen, new services are usually provisioned over Next Generation Digital Loop Carrier (NGDLC) systems or via copper cable pairs from the Main Distribution Frame (MDF) in the Central Office (C.O.).

In conjunction with these typical facility configurations, an efficient provider would develop NRCs based upon the availability of "fully automated" Operational Support Systems (OSS) for a CLEC to submit

Local Service Requests ("LSRs") to the Company. Other automated processes would include order routing, facility assignment, switch activation and technician dispatch.

Q. Would you describe in more detail how non-recurring charges should be developed for unbundled network elements?

A. Yes. Overall, the purpose of an NRC study is to determine the cost of initiating, changing and providing unbundled element services for CLEC customers. These charges should be based on the amount of time required to complete an activity and the cost of performing that activity. Current wage rates and/or prices paid to contractors for performing the related work activities should be utilized.

An NRC study should consist of four main steps:

1. Identifying the work activities or tasks performed to complete service order, installation, and other related service functions for each unbundled element.

2. Identifying the work times related to performing each function above.

3. Identifying the labor rates for each work group that completes the activity and multiplying that amount by the time identified to complete the activity.

4. Grouping the costs by appropriate activities to develop a cost by unbundled network element.

<u>Issue 11:</u> What is the appropriate rate if any, for line conditioning, and in what situations should the rate apply?

Q. What are ILECs doing to make their voice networks ready to support xDSL services?

A. xDSL services are known to interfere with certain other high speed data services. Sprint and other ILECs are implementing plans to proactively make their networks capable of supporting xDSL services. Such plans include the identification and segregation of particular binder groups for conflicting services. Binder Groups are sub-groups of 25 cable pairs within the cable. An efficient forward-looking network service provider will implement such binder group management plans in a proactive manner, and not on a service order-by-service order basis.

Q. Is this effort just for the benefit of Alternative Local Exchange Companies (ALECs)?

A. No, these efforts provide significant benefits to the ILECs, the ALECs and the public, through lower costs, wider availability of enhanced services and reduced barriers to market entry.

Q. What does line conditioning entail?

A. Line Conditioning (a.k.a. Loop Conditioning) is the process that may be used in conjunction with Loop Qualification for the provisioning of an XDSL-capable loop. After the receipt of loop make-up data, it is the ALEC's option to request Loop Conditioning. This includes the necessary work in the outside plant needed to provide a facility that will allow for transmission of high-speed digital service, such as DSL. This work may include the removal of multiple Load Coils, Repeaters and/or Bridged Taps.

Q. What is the purpose of "loading" cable pairs?

A. Load Coils are placed at regular intervals on copper cable pairs that are 18,000 feet or longer. Their purpose is to improve the transmission quality for voice grade services on these longer pairs by reducing the signal loss caused by the capacitance of the telephone cable. Copper pairs that are less than 18,000 feet long do not have to be loaded in order to provide voice grade services.

Q. Will digital services, such as xDSL, work on a pair that has Load Coils?

A. No. Load Coils will block the transmission of digital services including xDSL-based services for both copper-fed and NGDLC-provisioned, xDSL-capable loops. This is the reason that forward-looking networks are designed with loops that are short enough to avoid the need for Load Coils.

Q. When you discuss "removing" a Load Coil or "unloading" a pair, what work is actually involved?

A. Generally, the Load Coil is not actually removed, it is just disconnected from the cable pair. This involves snipping off the 4 wires that connect the coil to the cable pair and then reconnecting the two ends of the cable pair. In larger cables, this may involve removing a connector that splices twenty-five pairs at a time, pulling out the Load Coil wires and replacing the connector.

The actual work time involved in making the connections is no more than a minute or two, but set-up time can be significant, particularly when working in manholes. This is why an efficient ILEC will unload multiple pairs at one time when working on loops under 18,000 feet in length, instead of unloading only the pair required for the current order.

Q. Please explains the purpose of Repeaters in the voice network.

A. A repeater is generally used to amplify a signal over a copper loop. Without such amplification, the signal will decay over distance. Actually, the type of

Repeaters that are found in cable plant are not used for voice grade circuits. They are specialized modifications to the voice network that are installed to support digital services such as T1 and ISDN. The existence of a repeater will interfere with xDSL signals.

Q. Please define Bridged Tap and describe it's impact on xDSL services.

A. Bridged Tap is any piece of the cable pair that is not in the direct path between the customer and the switching device. In the illustration seen on exhibit SMM-3, sections "A" and "B" are considered to be Bridged Tap. Bridged Tap is an issue because it degrades the quality of any type of signal. This issue is magnified when xDSL is placed on a loop. For voice transmission on a non-loaded Revised Resistance Design (RDD) cable pair, Bridged Tap cannot exceed 6,000 feet. Sprint's utilizes industry standard Carrier Serving Area (CSA) guidelines which limits total Bridged Tap to 2,500 feet, with no single bridged tap may exceed 2,000 feet.

In this example, let's say that sections of the cable pair "A" and "B" are both 2,000' long. So, the total Bridged Tap is 4,000'. This is acceptable for voice but not for xDSL. In order to be used for xDSL, we would need to eliminate 1,500' of the Bridged Tap. In this example, you could accomplish this by cutting the pair off at the customer's location, eliminating Bridged Tap "B". Only enough Bridged Tap to get the total under 2,500 feet has to be removed. So it would not be necessary to remove both "A" and "B".

Q. Why does Bridged Tap exist in the embedded network?

A. In the embedded network, there may be insufficient distribution pairs to permanently assign pairs to each address. A pair may be made accessible so that it could potentially be used at several different addresses if it were needed. This is called "multiple" plant.

Q. What work is actually involved in "removing" Bridged Tap?

A. As in Load Coils, no plant is actually removed. The two wires of the cable pair are simply cut off and capped. In splices in larger cables, this may require removing a connector that splices twenty-five pairs at a time, pulling out the bridged pair and replacing the connector. Sprint's position is that excessive Bridged Tap can be removed the majority of the time at the customer's serving terminal (where the customer's drop wire connects to the distribution cable).

Q. Please describe how proposed Loop Conditioning costs should be developed.

A. Loop conditioning costs should be based upon current, <u>actual</u> costs incurred by an efficient provider. For Load Coil removal on loops over 18,000 feet, and all Bridged Tap and Repeater removals, the costs should be determined on a per location basis, dependent upon the type of outside plant facilities work would need to be performed in (Underground-Ug, Aerial-Ae or Buried-Bu) to provision the UNE order.

This methodology would enable the recovery of costs that vary with the different types of plant conditions encountered when performing loop conditioning activities. For instance, it is more time-consuming to perform loop conditioning activities in underground manholes than it is to perform the same procedures within aerial or buried outside plant (OSP) facilities. Unlike the aerial and buried OSP environments, a single technician cannot perform (loop conditioning) work activities in the underground as a minimum of two laborers are required for safety reasons. The time required for pumping out water and purging potentially dangerous gases are also not required when working in the aerial and buried OSP facilities. Since manholes are many times located and accessed within city streets, there are additional costs associated with setting up traffic control as opposed the aerial and buried environments where utility trucks can usually pull off and away from the roadways.

An efficient service provider's NRC cost model would also assume that in both aerial and buried plant facilities, the majority of cable pair access locations would involve quick and easy access to the cable pairs via "ready access" splice enclosures. The utilization of such enclosures is common industry practice - even in buried plant environments as these cable pair access locations are normally brought above ground into a pedestal.

There are significant labor cost differences associated with accessing cable pairs as required to perform loop conditioning activities when working in these different OSP environments.

Perhaps most importantly, NRCs for load coil removal on loops under 18,000 feet in length requires a different cost study approach. Because cable pairs are generally loaded in groups of 25, and are not needed at all on loops less than 18,000 feet in length, separate costs should be determined based upon a more efficient load coil removal process. Sprint considers it to be reasonable to spread the fixed costs of accessing the cable pairs across all the pairs that would be unloaded in a 25 pair binder group. The incremental labor costs associated with unloading 24 more cable pairs should be added to a single engineering and travel charge and then divided by 25 to determine the cost per pair for the entire binder group.

ILECs that cover more urban areas, with greater customer densities and larger cable sizes should employ a cost model that assumes even greater efficiencies, such as performing load coil removal in greater quantities such as 50 or 100 pairs at a time.

Q. Does this conclude your testimony?

A. Yes, it does.

Q. Please state your name, business address, employer and current position.

A. My name is Steven M. McMahon. My business address is 6360 Sprint Parkway, Overland Park, Kansas 66251. I am presently employed as Senior Manager - Network Costing for Sprint/United Management Company. I am testifying on behalf of Sprint-Florida, Inc. and Sprint Communications L.P. (hereafter referred to as "Sprint" or the "Company").

Q. Please describe your educational background and business experience.

A. In 1981, I received a Bachelor of Arts degree in Economics from the University of Michigan in Ann Arbor, Michigan. In 1988, I received a Masters Degree in Business Administration from Ashland University in Ashland, Ohio. In addition to my formal education, I have attended numerous industry seminars and have completed a wide variety of technical training courses.

I have over 19 years of experience in various roles with Sprint including Planning and Engineering for the Local Loop, Interoffice Transmission and Central Office disciplines in rural, urban and suburban environments. My first 16 years were spent in various construction, engineering and planning roles within United Telephone (Sprint) of Ohio (local operations). I have been with Sprint/United Management Company (Corporate Operations) the past 3 1/2 years.

I was employed by United Telephone (Sprint) of Ohio in 1981 as a Management Trainee specializing in Outside Plant Engineering and Construction in Mansfield, Ohio. This included hands-on experience working as a member of Outside Plant construction line, cable splicing and cutover crews. I then accepted the position of Construction Supervisor and was responsible for supervising and construction of telephone plant in the north central Ohio area.

In 1983, I accepted a position as Interoffice Transmission Facility Planner. I was responsible for planning the type, amount and timing of relief and/or establishment of new facilities and equipment for the provisioning of interoffice circuits. This included the coordination of joint transport and access facility plans with connecting local exchange companies and Interexchange Carriers.

I worked on United Telephone's (Sprint's) Ohio network projects engineering staff from 1985 to 1988 with responsibility for project management, engineering, procurement and implementation of central office digital telecommunications and data equipment including central office digital switches, voice intercept and line testing systems.

From 1988 to 1990, I held the position of Network Engineering Control Center Supervisor. Responsibilities included the coordination of work order installation and contract labor administration.

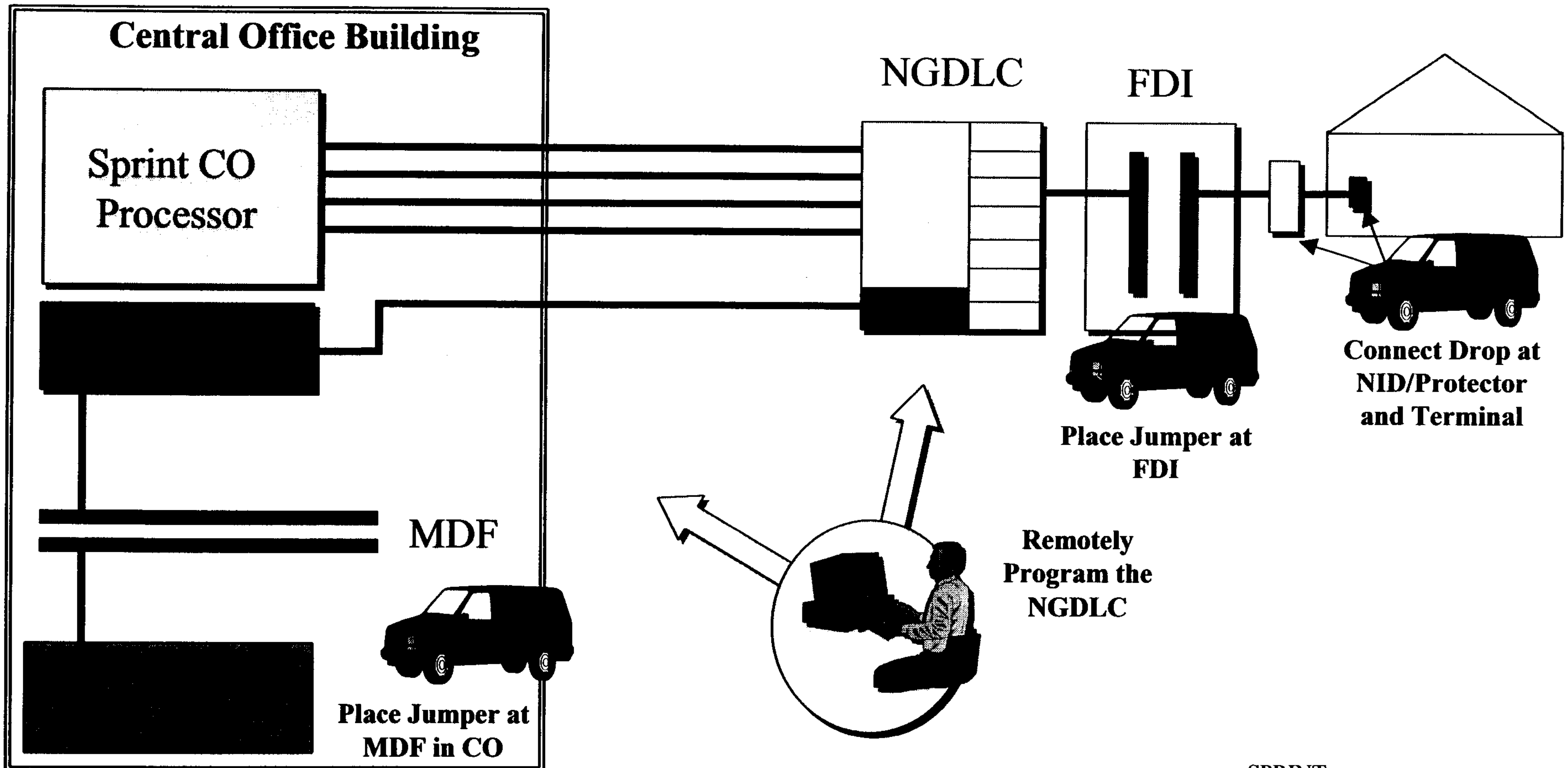
From 1990 to 1997, I held network planning staff positions within United Telephone (Sprint) Ohio. I was responsible for the creation of network architectural plans which specified Central Office, Interoffice Transmission and Outside Plant technology requirements. I also served as a Network Costing subject matter expert and provided testimony and cost support for legal filings with the Public Utility Commissions of Ohio and Indiana involving Extended Area Service requests, inquiries and public hearings.

Since 1997, I have held corporate staff positions within Sprint/United Management Company in Kansas City.

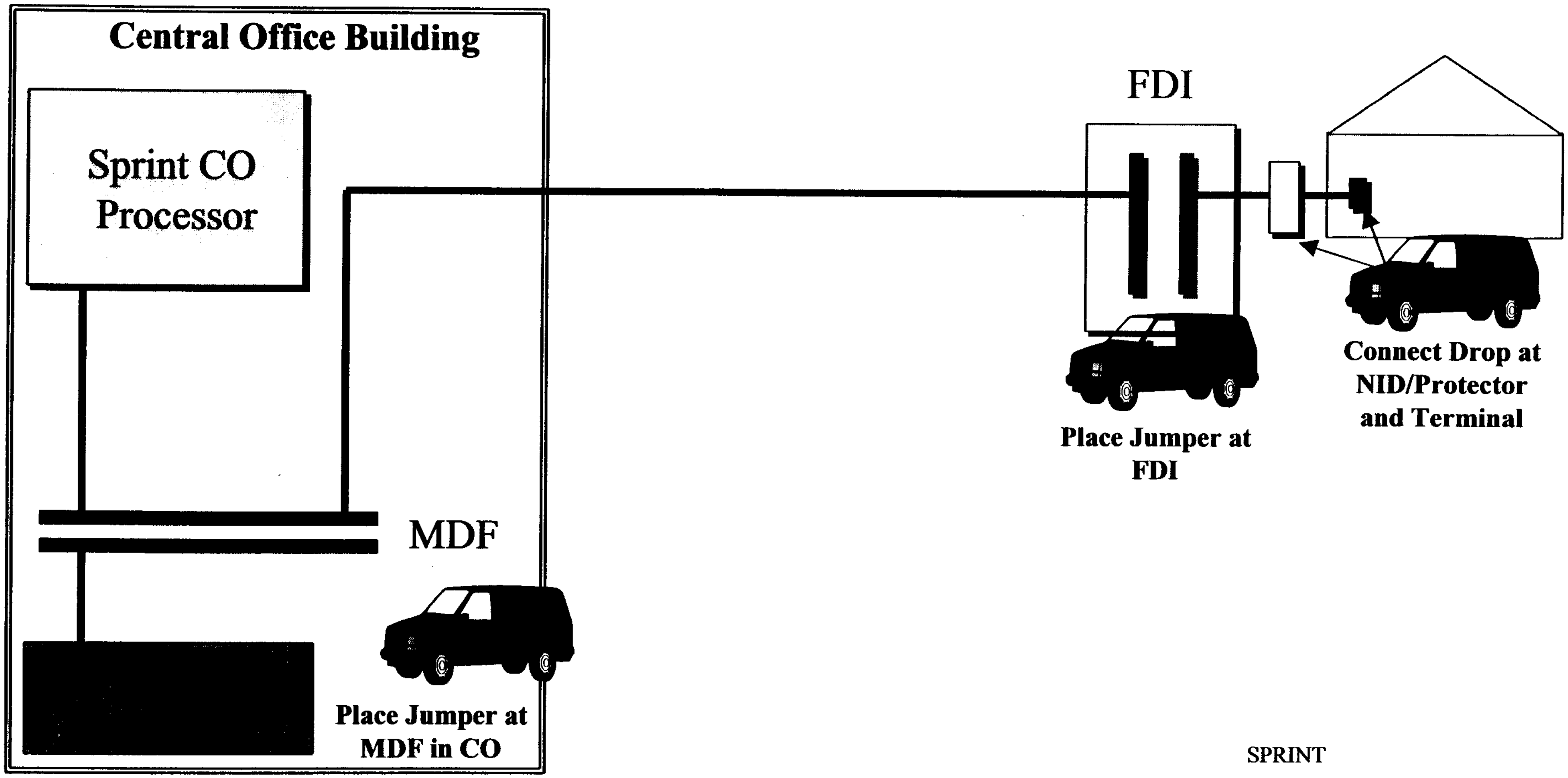
As the corporate Frame Relay Product Manager, I coordinated efforts to standardize the tariff structure for this product offering within the 18 states that comprise Sprint's Local Telephone Division.

From 1999 to the present, I have been managing a group that is responsible for network and operations costing for unbundled network elements, collocation, line sharing, non-recurring charges and other product offerings. I have been charged with developing and implementing cost study methods related to Total Service Long Run Incremental Cost (TSLRIC) and Total Element Long Run Incremental Cost (TELRIC) methodologies. In addition, I am responsible for filing written comments, serving on industry work groups and participating in technical conferences related to TSLRIC/TELRIC costing methodology and the filing of network costing studies within Sprint Local Telephone Division.

Installing UBLs in an NGDLC - New Service



Installing UBLs on a Cable Pair - <u>New Service</u>



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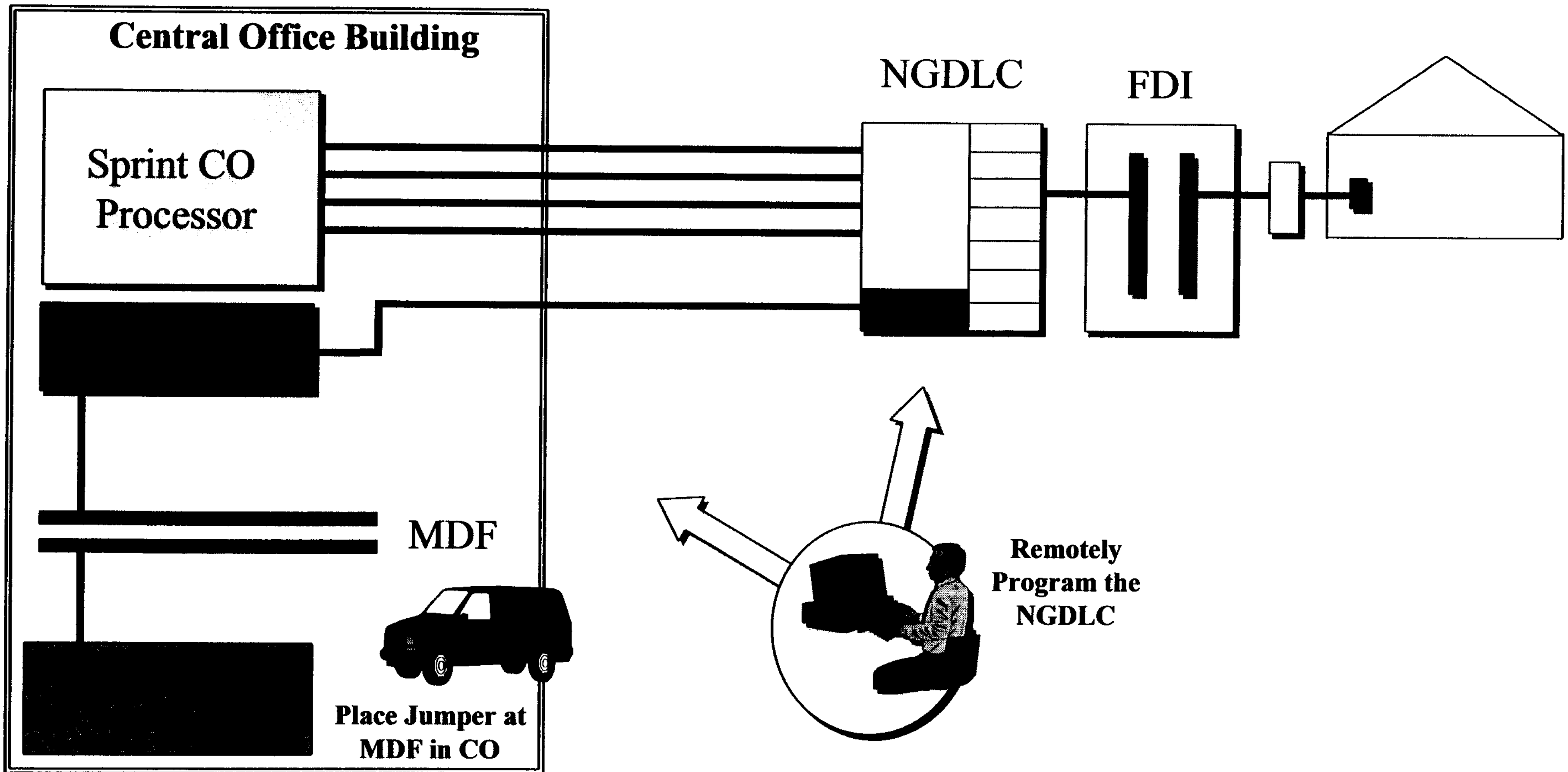
Installing UBLs in an NGDLC - Migrate, CT or DCOP



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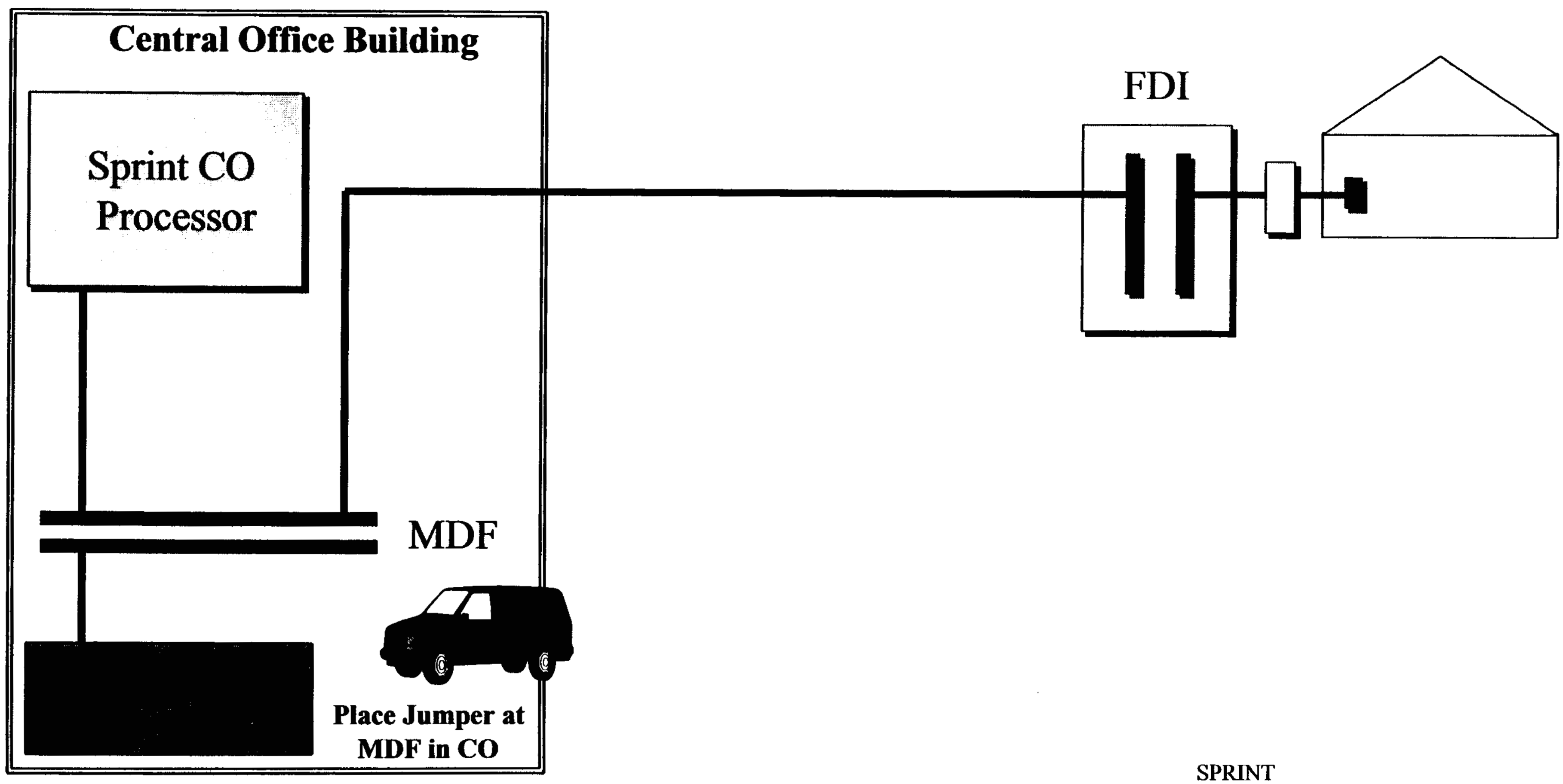

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EXHIBIT SMM-3

Bridged Tap Illustration