Purchase of AIN Functionalities - In order to enable CLECs to purchase AIN functionalities, NYT must establish an ordering process that has been subjected to operations readiness testing and services readiness testing which demonstrates that NYT's ordering process will effectively meet the marketplace needs of both NYT and the CLEC purchaser. Non-disclosure agreements and procedures must be developed and executed to maintain the confidentiality of, and prevent the use by NYT of, the CLEC's customer and competitive data that will be stored in NYT's AIN SCP and SMS. In addition, NYT must provide sufficient (at least 60 days') notice of new AIN-based services or upgrades to existing services that will be available for resale or for purchase as part of the unbundled switching element.

AIN Switch Access - In order to provide CLECs with the ability for their switches to query NYT's AIN SCP using the SS7 signaling network, NYT must inform the CLECs of the interconnection requirements and allow the CLECs to use the same service creation architecture as NYT uses for itself. If a CLEC's services are screened by a NYT gateway SCP and then directed to an SCP for service logic, then in order to provide nondiscriminatory access NYT's own AIN services must be similarly screened by a gateway SCP and then directed to an SCP for service logic. Post-dial delay measurements must be established to compare query and response times for messages sent by NYT's SSP and by the CLEC's SSP to NYT's SCP.

NYT must also negotiate procedures that govern the laboratory and field testing environment for joint testing and certification of the CLECs' interconnection to NYT's AIN platform where either NYT's services or the CLECs' services are provided to a CLEC's end user, including the establishment of testing criteria, test intervals, performance levels, testing of feature interaction, and mechanisms for resolution of disputes if NYT and the CLEC disagree as to the technical feasibility of a service proposed by the CLEC.

These procedures are not a complete listing but only provide highlights of the steps that NYT must take to make AIN access available on an unbundled basis.

**Q. WHAT MUST HAPPEN ONCE THE FOREGOING PROCEDURES ARE DEVELOPED?**

A. Once these procedures and interfaces are developed, there must be a period of testing and operational experience to ensure that they work properly and permit carriers to use NYT's AIN capabilities and/or services. During this period, carriers could seek to develop and provide AIN services pursuant to NYT's procedures, and NYT would have the opportunity to work out any problems in the procedures. Regulators and carriers would also have actual experience on which to base a determination regarding whether CLECs are being offered nondiscriminatory access to NYT's AIN services, so that the nondiscrimination issue would not have to be resolved on a promissory basis, as NYT proposes now. Without this operational experience and a clear demonstration that the

procedures and interfaces actually work, NYT will be able to frustrate CLEC's ability to develop AIN services and thereby stifle competition and the development of new and competitive services.

**Q. WHAT IS THE FCC's POSITION ON THE INTERCONNECTION OF THIRD PARTY CALL-RELATED DATA BASES TO THE ILEC's SIGNALING SYSTEM?**

A. In the First Report and Order, the FCC concluded that it did not have sufficient information to make a determination of the technical feasibility of requiring ILECs to permit the call-related data bases of a third party to access their signaling system. The FCC stated that it would revisit the issue in 1997 and recommended that states review the issue. First Report and Order, ¶ 502.

**Q. WHAT IS THIS COMMISSION'S POSITION ON THE ISSUE OF ACCESS TO NYT'S SIGNALING SYSTEM BY THE CALL-RELATED DATA BASES OF A COMPETING CARRIER?**

A. In the AT&T Arbitration Order, the Commission considered AT&T's request that its call related data bases be permitted access to NYT's so-called AIN triggers and determined that such access was appropriate and in the public interest. Accordingly, the Commission ordered NYT to provide access to its AIN signaling system by the call-related data bases of third party carriers, subject to appropriate certification procedures. AT&T Arbitration Order at 26-29.

**Q. WHAT ACTION HAS NYT TAKEN IN RESPONSE TO THE COMMISSION'S ACTION?**

A. I am aware of none. NYT has not taken any action to make access to its AIN signaling system available to third party call related data bases. As in the case of the other requirements relating to access to AIN services, NYT has not established any written procedures governing access to NYT's AIN triggers. Rather, it has merely asserted concerns about network reliability issues. NYT's failure to develop written procedures gives NYT the discretion to act in an arbitrary manner and to impose procedures and costs that will discriminate against CLECs seeking to make use of NYT's AIN triggers.

Q. **DOES THIS CONCLUDE YOUR TESTIMONY?**

A. Yes it does.

Eileen M. Halloran

Hou

Public Service Commission
Case No. 97-C-0271
Date 4-1-97
Ex. No. 13

STATE OF NEW YORK

NEW YORK PUBLIC SERVICE COMMISSION

CASE 97-C-0271

STATEMENT OF

MICHAEL M. HOU

on behalf of

AT&T COMMUNICATIONS OF NEW YORK, INC.

DATED: MARCH 30, 1997

## STATEMENT OF MICHAEL M. HOU

**Q. STATE YOUR NAME.**

A. My name is Michael M. Hou.

**Q. WHAT IS YOUR CURRENT POSITION?**

A. Since June 1996 I have served as a District Manager in AT&T's Local Service Organization in the Northeast Region. Among other things, I am responsible for defining the technical and service requirements necessary to support AT&T's resale local service offer and preparing for AT&T's market entry in New York. In that connection, I have also been AT&T's lead negotiator with NYNEX regarding operations support systems ("OSS") and other necessary NYNEX support for resale services. I have also served as the lead negotiator with NYNEX regarding Operator Services and Directory Assistance ("OS/DA") issues.

**Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF YOUR EDUCATIONAL BACKGROUND AND RELEVANT BUSINESS EXPERIENCE.**

A. I have Bachelor of Science degree in Electrical Engineering from the Massachusetts Institute of Technology. I also received a Masters of Science degree from MIT in Electrical Engineering, which included a minor in Management of Technology from the Sloan School.

After graduating from MIT, I went to work as a member of the technical staff at AT&T Bell Laboratories. Projects I supported at AT&T Bell Labs included development and management of the network architecture and technical

requirements for AT&T's calling cards, and projects involving speech recognition and verification.

In July 1994, I was promoted to District Manager. In that position, I was the market launch project manager for AT&T's first local market entry efforts in Rochester, New York, and I served as the primary negotiation interface to Rochester Telephone. AT&T's market entry in Rochester has been as a reseller of the incumbent's services.

**Q. WHAT ARE THE PURPOSES OF YOUR TESTIMONY?**

A. My testimony covers five principal areas. First, I will discuss New York Telephone's ("NYT's") current inability to provide commercially reasonable and nondiscriminatory operations support systems ("OSS") for competitive local exchange carriers ("CLECs") who wish to purchase NYT services for resale to end user customers, or who wish to purchase unbundled network elements ("UNE") from NYT. My discussion of this subject includes a response to many of the statements made on behalf of NYT in the affidavit of Mr. Stuart Miller.

Second, my testimony discusses several significant impediments NYT has attempted to impose on CLECs who wish to offer resold NYT services. These include NYT's refusals to accept "Migration As Specified" orders or to permit CLECs to modify orders until NYT responds to the initial order.

Third, I will discuss deficiencies in NYT's ability to provide OS/DA functions to competitors, both in the resale and unbundled network element environments.

Fourth, my testimony responds to the affidavit of Mr. Matthew J. Coffey and describes key omissions and deficiencies in the data NYT is proposing to collect to demonstrate that it is complying with its obligations to provide nondiscriminatory and commercially reasonable OSS support for CLECs.

Finally, I will discuss the failure of NYT to fulfill its obligations to provide nondiscriminatory access to directory assistance databases, and nondiscriminatory access to telephone numbers for assignment.

## I. NYT's Inability to Provide Commercially Reasonable and Nondiscriminatory OSS Support for CLECs

**Q. WHAT ARE OPERATIONS SUPPORT SYSTEMS?**

Operations support systems are the computer-based systems and data bases that telecommunications carriers use to provide essential customer and business support functions. These systems support a variety of carrier interactions with other carriers and customers, including those related to:

(1) pre-ordering activities, such as retrieving the customer's service record, verifying the customer's address, determining feature/service availability, assigning telephone numbers, and

establishing a dispatch ("due") date for service installation;

(2) service ordering;

(3) service provisioning;

(4) repair and maintenance; and

(5) billing.

The availability, accuracy and timeliness of the information used and maintained by operations support systems are critical to a carrier's efforts to satisfy its customers. Because the timeliness and reliability of support systems is so vital to providing and maintaining quality service to end users, the performance of these systems is extremely important. Slow or unreliable operations support systems undermine a carrier's efforts to ensure that customers get the services they want when they want them. Quite simply, a carrier cannot conduct its business effectively or efficiently without well-designed, well-developed, properly tested, and error-free operations support capabilities that are sized to support its needs.

This is especially important for new market entrants such as CLECs, because consumers often perceive there is a risk in changing to a new supplier. For carriers such as AT&T, which has built a reputation for excellent customer service, it would be devastating if it were required to enter the New York market with customer service levels that are inferior to NYT's. In the local services market -- both

in the resale and UNE environments -- AT&T's ability to provide quality customer service is heavily dependent upon the ability of its internal OSSs to communicate and interoperate with NYT's OSSs with at least the same levels of quality as NYT retail operations.

Accordingly, the establishment of efficient interfaces and procedures for the exchange of information between NYT's OSSs and the internal OSSs of AT&T and other CLECs is absolutely essential for the development of competition in the local services market. AT&T and other CLECs entering the local market on a large scale will be especially dependent upon their ability to obtain local services and unbundled network elements from NYT in a commercially reasonable manner. This, in turn, requires the efficient exchange of information between AT&T and NYT for all of the OSS functions described above. Because so much of the information required by competitors resides exclusively in NYT's OSSs, NYT is in a unique position to control its competitors' ability to compete effectively in the local services market in New York.

Competition requires that NYT develop systems that are useful for all types of competitors, both large and small. This is no small task, and involves significant levels of complexity for even the smallest CLEC reseller. Based on my discussions with other CLECs, including both large and small carriers, NYT's development of its OSSs and the interfaces

thereto does not approach the level necessary to support even small CLECs on a commercially reasonable basis.

Large potential competitors' needs for nondiscriminatory access to NYT's operations support systems are more complex than the needs of small start-up CLECs who are entering the market on a more limited or narrowly-focused scale and initially expect to do business in relatively small volumes. Smaller CLECs may be able to enter a local market without the need for their own advanced electronic operations support systems. In contrast, a large CLEC like AT&T has a large pre-existing customer base in the long distance market that is already being served through use of advanced operations support systems. In order for AT&T to maintain its reputation for providing quality service to all customers who request it, AT&T must be prepared from the outset to serve large numbers of customers and to handle orders of all levels of complexity. Further, because AT&T already has extensive existing OSSs of its own which have their own business rules and procedures, AT&T must deal with the complexities of integrating its own OSSs with NYT's. Thus, NYT must make its OSS systems available on a commercially reasonable and nondiscriminatory basis not only to small CLECs but also to large potential competitors like AT&T who will enter on a broad-scale basis and that have pre-existing systems.

**Q. IS NYT OPERATIONALLY READY TO PROVIDE OSS SUPPORT TO CLECs SUCH AS AT&T IN AN EFFICIENT AND COMMERCIALLY REASONABLE MANNER?**

A. No.

**Q. WHAT DO YOU MEAN BY "COMMERCIALLY REASONABLE" IN THIS CONTEXT?**

A. Commercially reasonable OSS support for CLECs requires that NYT provide electronic interfaces to its pre-ordering, ordering, provisioning, maintenance, billing, and collection systems that:

(i) are at least at parity with the support NYT provides for its own internal operations or to its own retail customers, in terms of timeliness, accuracy, reliability and quality; and

(ii) can currently be physically provided in commercially significant quantities.

As described above, the latter requirement is particularly important, because NYT's OSS systems can act as a "choke point" and preclude larger CLECs from marketing to competitively significant numbers of customers.

**Q. WHAT DO YOU MEAN BY "OPERATIONALLY READY"?**

A. As a first prerequisite to establishing that it is providing nondiscriminatory access to its operations support systems, NYT must show that its proposed OSS interfaces are all in a state of full "operational readiness" to handle the demands of CLECs in commercially reasonable quantities and

on a nondiscriminatory basis. Operational readiness is achieved when a carrier's systems are demonstrably able to provide usable, reliable results in accordance with their intended function and design. Operational readiness cannot simply be unilaterally declared by NYT (or, for that matter, by AT&T or another CLEC seeking to interact with NYT's OSSs), because each firm is only one part of the process. Both parties must work together to establish the electronic interactions that are required to perform the end-to-end functions CLECs need to serve customers.

Thus, the fact that NYT states that it "offers" interfaces is insufficient. In this context, an "interface" is the common point of interconnection between two carriers' separate operations support systems which enables those systems to communicate and interact with each other in an agreed-upon manner. Specifications documents are a necessary prerequisite for an interface, but they generally deal only with the form and format of information transfers. After the interface is defined through the specifications, the CLEC must still undertake systems development activities to design (or, in AT&T's case, to modify) its own OSS capabilities to complement NYT's systems. These CLEC systems must then be tested with NYT's to ensure that the two systems are communicating and interacting with each other on an accurate, reliable and timely basis.

As US West recently told the FCC in its Petition for Waiver filed on December 11, 1996,[1] carriers' development of operationally ready electronic interfaces between two operations support systems is "extremely complex." Such work requires not only a considerable period of time, it also requires thorough collaboration, testing and actual operation to ensure accurate, reliable and timely communications and interaction between the carriers' systems.

A number of cooperative steps between carriers are needed to assure proper interaction, including:

(i) documentation of systems requirements,

(ii) interface specification refinement,

(iii) system design,

(iv) system development,

(v) system testing,

(vi) integration testing,

(vii) training, and

(viii) implementation.

If any of these steps is skipped or abbreviated, serious problems such as order rejection, errors in processing and misbilling are likely to arise, which in turn delay or prevent a CLEC from acquiring or serving customers.

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[1] US West Petition for Waiver, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, CC Docket No. 96-98 (filed December 11, 1996), p. 4 & attached affidavit of Robert H. Van Fossen.

In the systems requirement phase, the parties determine the business functions that the system must address. In this phase, it is inevitably necessary to resolve questions concerning which data elements need to be passed and the application of business rules for these elements. Hundreds of questions regarding data elements and the ways data are used in the carriers' systems are the norm, and they require coordinated review by both parties.

The systems requirement phase is followed by interface specification refinement. During this time, the data elements and business rules are "mapped" to interface specifications and transactions. This is a very detailed step in which both parties must agree which data elements are mandatory or optional for each of the numerous types of transactions that will occur over the interface. Several iterations are typically needed before the parties find that all questions are resolved and no further definition of the specifications is required. Furthermore, in order to assure accurate and reliable performance based on the agreed-upon and refined specifications, no further changes should be made without mutual agreement.

After the specifications have been refined and agreed to by the parties, they are ready to begin their individual systems design. During this phase, each carrier must create a system architecture that reflects the agreed-upon technical specifications and mapping of data elements to

interface specifications, and it must also incorporate any internal integration requirements.

Systems design is particularly complicated where a new interface must be designed for two existing systems, each of which has its own business rules. In such cases, mere knowledge of an interface's technical specifications will not assure effective communications and interactions between the systems. It is also necessary to have a thorough knowledge of and agreement on the "business rules" or business practices and procedures that are programmed into the existing systems.

Failure to take the parties' business rules into account creates substantial problems. For example, the "migration as specified" issue described below is based on a lack of agreement on the business rules and data elements necessary to place service orders, and the change in service orders issue described below is based upon a disagreement regarding the business procedures for EDI transactions.

After the interface is designed, actual systems development (i.e., programming) can begin. Systems development is the step in which programmers and data base developers create computer code for the various components of the system architecture.

System testing validates the system specifications, design and programming. First, each party must test its own internal systems against its internal specifications.

However, when one carrier's systems are modified for the purpose of working with another carrier's systems (which is the case here), it is also imperative that the parties jointly test the two complementary systems to ensure that they can communicate and interact properly with each other. This is referred to as end-to-end or full "integration testing."

Integration testing serves to demonstrate that both parties' systems perform according to the technical specifications, including the proper mapping of data elements to the interface specifications and the proper application of the parties' business rules. Accordingly, before this type of testing can occur, the parties must establish agreed-upon testing processes and criteria.

Integration testing is the parties' opportunity to test the entire spectrum of systems communications and interactions to determine whether they will operate as intended and without adversely affecting actual customers in the marketplace. Thus, the purpose of this testing is to enable the parties to identify problems or inadequacies in the systems or interface design or interface specifications. This assessment is critical, because even seemingly minor changes may require significant additional work and further testing.

Concurrently with the systems design, development and testing phases, carriers must develop methods and procedures

materials and train personnel on how to operate and maintain the interface, so their systems can effectively interact with each other.

After all of these steps are completed, the parties can enter the implementation phase and begin to operate in a "live" environment with actual customers. Incumbent LEC OSS support can only be deemed operationally ready when the implementation phase has been successfully completed, demonstrating that the incumbent's systems can support commercially reasonable volumes of CLEC requests.

**Q. DOES YOUR OPINION THAT NYT'S OSSs ARE NOT OPERATIONALLY READY APPLY BOTH TO NYT'S OSS SUPPORT FOR RESOLD LOCAL SERVICES AND TO ITS OSS SUPPORT FOR UNBUNDLED NETWORK ELEMENTS?**

A. Yes, as I describe below.

**Q. ARE YOU AWARE OF ANY EVIDENCE THAT WOULD SUPPORT A CLAIM THAT NYT'S ELECTRONIC INTERFACES ARE OPERATIONALLY READY TO PROVIDE CLECs WITH PARITY ACCESS TO NYT'S OSS?**

A. No. Neither the information submitted in NYT's draft 271 Application to this Commission nor any data available to AT&T show that NYT is operationally ready to provide AT&T (or any other CLEC) with parity access to NYT's electronic systems.

**Q. COULD YOU DETAIL THIS CONCLUSION?**

Yes. To begin with, NYT has not provided any baseline data on the speed, accuracy or reliability of data accessed

from its electronic OSS systems when those systems are used to provide service to NYT's internal operations or to its end user customers. Nor has NYT provided any comparisons of its OSS service provisioning for CLECs with its provisioning of OSS services to itself or its end users. Just as important, NYT has not provided significant data on the present and planned future capacities of any of its OSS systems. The AT&T arbitration award requires the parties to negotiate direct measures of quality ("DMOQs") relating to NYT's performance of OSS and other functions in the near future,[2] but no agreements on OSS standards (i.e., carrier-to-carrier metrics) have been reached to date.

Moreover, the test of "comparability of access to OSS functions" proposed by NYT in the affidavit of Mr. Stuart Miller (pp. 16-17) is inadequate to determine whether CLECs are receiving full parity access to OSS systems, which is required under the FCC's orders.[3] In addition to the

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[2] Opinion and Order Resolving Arbitration Issues, Case Nos. 96-C-0723 and 96-C-0724, issued November 29, 1996, Opinion No. 96-31, p. 46.

[3] Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Second Order on Reconsideration, CC Docket No. 96-98, FCC 96-476, released December 13, 1996, ¶ 9 ("By January 1, 1997, to the extent that an incumbent LEC provides electronic pre-ordering, ordering, provisioning, maintenance and repair or billing to itself, its customers, or other carriers, the incumbent LEC must provide at least equivalent electronic access to requesting carriers in the provision of unbundled network elements or services for resale that it is obligated to provide pursuant to an agreement approved by the state commission" (emphasis added)).

measures of "availability of access, functionality and response to OSS transactions" proposed by NYT, data is needed on the response times for queries, the accuracy of the information provided, the availability and reliability of NYT's systems, and the capacity/throughput of NYT's interfaces for CLECs. Mr. Miller's statement (p. 9) that the data made available to CLECs in connection with pre-ordering is obtained from the same databases used by NYNEX, at most, deals with the issue of whether the information CLECs will obtain is as accurate as that received by NYT representatives. It does not demonstrate that a CLEC representative's experience will be comparable to his or her NYT counterpart with respect to the availability of access to such information and time it takes to retrieve that data. This again shows that parity and nondiscrimination cannot be demonstrated by assertion; rather, it must be shown through actual measures of performance.

Similarly, NYT offers no evidence on what Mr. Miller (p. 19) describes as the "ultimate" measure of comparability, i.e., the "relative amount of work (e.g., orders) that can be completed by a [C]LEC service representative population, with comparable skills training and processes, against an equivalent NYNEX New York service representative performing the same work." The fact that, as Mr. Miller states (p. 19), NYT "intends to test [this measure] regularly" in the future does not demonstrate NYT's

ability to provide parity access now. Similarly, Mr. Miller's statement (p. 18) that NYT "is committed to modifying its systems or taking other corrective actions" when there is "non-comparable" access to its OSS systems does not show that there is parity access today, especially given the absence of information about NYT's ability or readiness to fulfill that "commitment." Indeed, Mr. Miller does not conclude that NYT is currently able to provide CLECs with parity access to its OSS systems. Rather, he merely states (p. 19) that NYT "believes that, excluding factor outside of NYNEX New York's control (e.g., [C]LEC computer failures), as to most functions, the two populations [of NYT and CLEC service representatives] can complete substantially the same work in substantially the same time period" (emphasis added).

The affidavit of Mr. Gary S. Butler also lacks specific data. In his brief section on resale issues, Mr. Butler (p. 42) states only that NYT will provide resellers with three different status notices. He does not, however, state when those notices will be provided, nor does he indicate whether these timeframes are identical to those experienced by NYT retail service representatives. Furthermore, the affidavit of Mr. Matthew J. Coffey, which is presented (p. 3) "to describe the approach NYNEX has taken in developing comparability measurements," fails to include any carrier-to-carrier metrics that would compare the experience

of CLEC representatives with NYT retail representatives, even in the resale environment.

**Q. NYT SUGGESTS THAT ITS ABILITY TO DESIGN ITS SYSTEMS HAS BEEN AFFECTED BY A LACK OF VOLUME ESTIMATES FROM CLECS. DO YOU AGREE?**

A. No. Mr. Miller's statement (p. 15) that NYT has not received specific volume projections from CLECs is incorrect, at least with respect to AT&T. I have personally informed NYT representatives on at least three occasions of AT&T's volume projections for orders, provided that NYT was able to resolve specific problems so that AT&T would be able to place such orders.

On October 11, 1996 I discussed AT&T's ordering needs for resold services with Mr. Sean Sullivan, NYT's Director-Project Management, Resale Services. During those discussions, I informed Mr. Sullivan that, assuming NYT addressed certain system issues within 60 days, including the need for a complete mapping of data elements to transactions EDI (because AT&T intended to use EDI as its ordering interface), AT&T would begin system testing by December 1996 and that AT&T's order volumes would ramp up rapidly.[4] NYT's receipt of AT&T's specific estimates was confirmed by a letter from Mr. Sullivan to his supervisor, Mr. Peter Koroczkai, NYT's Managing Director - Resale

[4] As described below, not all of these problems were rectified as promptly as anticipated.

Services, dated the same day, a copy of which was provided concurrently to AT&T.

In addition, in February 1997 AT&T received a letter from NYT's Georgine Horton, Director of Account Management, Resale Services, requesting order projections for resold services and stating that such projections were required of CLECs pursuant to NYT's resale tariff. On February 24, 1997 I responded in writing to that request. In that letter, I provided Ms. Horton with AT&T's current volume projections for resale, provided that NYT was able to resolve the "Migration as Specified" problem discussed below and that NYT concurred with AT&T on OSS system specifications for resale services. In a phone conversation the next day with Mr. Jonathan Smith, NYT's Director - Marketing, Resale Services, I reiterated these volume projections.

**Q. IN ADDITION TO NYT'S FAILURE TO DEMONSTRATE THAT IT IS PROVIDING PARITY ACCESS TO ITS OSS SYSTEMS, ARE THERE OTHER REASONS WHY NYT IS NOT PROVIDING COMMERCIALLY REASONABLE OSS SUPPORT FOR RESALE?**

A. Yes. According to Mr. Miller (pp. 4-6), NYT offers CLECs three interface methods for its electronic systems. The first is called the Web Graphical User Interface ("Web/GUI"), the second is called Electronic Interface Format ("EIF"), and the third is called Electronic Data Interchange ("EDI"). Mr. Miller states that all three are available for ordering resale services, but that only the

Web/GUI and EIF are available for pre-ordering and maintenance. Based on my experience and the facts discussed below, none of these interfaces is currently operating in a commercially reasonable manner consistent with the definition I stated above.

**Q. DOES THE WEB/GUI PROVIDE CLECS WITH COMMERCIALLY REASONABLE OSS SUPPORT?**

A. No, for several reasons. First, as a purely mechanical matter, NYT's Web/GUI requires CLEC representatives to log into multiple service layers to access NYT's Web server. This requires the CLEC representatives to perform more functions than NYT representatives to retrieve the same information from, or do the same work with, NYT's OSS systems, and it leads to additional delays in serving customers.

More important, the term "electronic interface" is generally understood to mean a method through which one electronic <u>system</u> communicates and interoperates directly with another electronic <u>system</u>. NYT's Web/GUI does not conform to this definition, because it does not involve the automated interoperation of NYT's OSSs with the CLEC's OSS systems. Thus, although there is a common perception that the Internet Web is a highly evolved and technologically advanced means of exchanging data between electronic systems, in reality it is not.