[proprietary end]

9. Mr. Casto also argues that because "AT&T has sold very little [sic] OPT-E-MAN services to unaffiliated carrier customers...it shows that the retail market for Ethernet services has developed and is highly competitive even without the availability of OPT-E-MAN as an input." *Casto Declaration* ¶ 18. Mr. Casto's reasoning is exactly backwards. TWTC and other carriers have not purchased OPT-E-MAN under AT&T's federal tariff because AT&T's high tariffed prices **[proprietary begin]** **[proprietary end]** prevent carriers from competing in the downstream Ethernet retail service market. To the extent that TWTC has been able to deploy Ethernet services at retail in AT&T's region, it has done so using 1) its on-net facilities; 2) TDM loops purchased from AT&T; and 3) an extremely limited number of competitive facilities. As TWTC has only deployed loops to approximately 27 percent of the buildings in which its customers are located, it must rely upon AT&T TDM facilities, which, as I discuss below, are becoming increasingly unviable as a wholesale input for retail Ethernet. As a consequence, TWTC has only been able to serve a small subset of the market that it could otherwise reach if it could obtain finished Ethernet services from AT&T on reasonable terms and conditions.

10. **[proprietary begin]**

See Casto Declaration ¶

29.

See Taylor Declaration ¶¶ 32, 36-38.

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[6] Attached hereto as Exhibit 1.

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[proprietary end]

17. Mr. Casto argues that, even if AT&T's wholesale prices for finished Ethernet are too high to allow TWTC to compete, TWTC can simply purchase AT&T's TDM special access under its 2005 agreement with AT&T and TWTC can supply its own Ethernet electronics. *See Casto Declaration* ¶¶ 19-22. For this reason, Mr. Casto argues that AT&T's finished Ethernet loops are not a necessary input for TWTC's Ethernet services. As I explained in my initial declaration, TWTC does in fact purchase some TDM circuits from AT&T to provide Ethernet services at retail. *See Taylor Declaration* ¶ 43. However, in many situations, Ethernet over AT&T-provided TDM circuits is not a viable option to serve the customer because of the additional costs and inefficiencies involved. I explain these costs and inefficiencies below.

18. *First*, as I explained in my initial declaration, Ethernet over TDM requires the purchase of additional, unneeded electronics. *See Taylor Declaration* ¶¶ 26, 43. When TWTC (or any other CLEC) purchases a TDM loop, that circuit comes with TDM electronics. Although TWTC does not pay a separate charge for these TDM electronics, the fixed cost of these electronics is surely incorporated into the monthly recurring charge

for the circuit.[8] TWTC must then place Ethernet customer premises electronics (the "Overture" box) on top of the existing TDM electronics to enable TWTC to offer Ethernet service. The Overture solution adds an additional **[proprietary begin]** **[proprietary end]** in cost per circuit depending upon the configuration and capacity of the circuit. TWTC is therefore essentially paying "double" for the electronics to provide Ethernet over TDM: once for the TDM electronics and once for the Overture equipment to convert the TDM signal to Ethernet.[9]

19. *Second*, in order for TWTC to provide Ethernet over TDM in areas that are not close to the AT&T/TWTC point of interconnection ("the POI") (which is usually located in a large AT&T central office in a downtown area) TWTC must not only pay for the TDM loop, but also pay substantial mileage charges for transport from the local serving office ("LSO") in the distant area to the AT&T/TWTC POI. As offered by AT&T under both its month-to-month tariff and its volume discount offers, the transport circuit has both a fixed capacity charge and a substantial variable mileage charge component.[10] **[proprietary begin]**

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[8] As Mr. Casto correctly explains with respect to the cost of Ethernet electronics, when a wholesaler provides finished Ethernet service "it is the wholesale Ethernet provider that purchases and deploys Ethernet electronics, the costs of which are then included in the overall rate for the finished Ethernet access service." *Casto Declaration* ¶ 21. The same is true of TDM services.

[9] Mr. Casto asserts that, in my discussion of TDM loops as inputs to Ethernet service, I observed that TWTC must purchase Ethernet electronics when in fact, Mr. Casto asserts all carriers seeking to provide Ethernet service must purchase such electronics. *See id.* But the point is not that TWTC must purchase Ethernet electronics when relying on TDM loops, but that TWTC must purchase *TDM electronics in addition to* Ethernet electronics.

[10] *See* SBWT FCC Tariff No. 73 § 7.3.10 (for DS1s); *id.* § 39.5.2 (for DS3s).

[proprietary end]

20. Ethernet over TDM also increases TWTC's costs because TWTC must purchase much more TDM capacity than it needs to provide the Ethernet service. For example, a DS3 provides approximately 45 Mbps of bandwidth. If a customer demands a 50 Mbps Ethernet loop (a level of service offered by both AT&T and TWTC), TWTC must purchase two DS3s from AT&T. Because of bandwidth loss that occurs when TDM is converted into Ethernet, the customer does not receive 90 Mbps of bandwidth. Rather, assuming a 512 kbps frame (essentially a packet) size, two DS3s only provide 66.5 Mbps of Ethernet bandwidth. Indeed, using Ethernet over TDM results in between a 4 to 30 percent bandwidth loss from the TDM circuit. Under TWTC's pricing flexibility contract with AT&T, two DS3s of capacity costs TWTC $1,674.12 assuming no interoffice mileage. If there were five interoffice miles, two DS3s would cost an astronomical $3,024.12 per month ($1,674.12 + $900 (fixed interoffice charge) + ($90 x 5) (interoffice mileage charge)). **[proprietary begin]**

[proprietary end]

21. If a customer demands a 100 Mbps Ethernet circuit, TWTC must purchase an OC-3 circuit (155.52 Mbps) which will only provide 146 Mbps per second of actual throroughput given a 512 kbps frame. This is because three DS3s are generally not suitable to provision a 100 Mbps Ethernet circuit since, assuming a 512 kbps frame, three

DS3s actually provides less than 100 Mbps of Ethernet bandwidth. An OC-3 circuit under the current AT&T/TWTC discount contract costs $1670 assuming no interoffice mileage. If there were five interoffice miles, an OC-3 would cost $3,656 ($1670 + $886 (fixed interoffice charge) + ($220 x 5) (interoffice mileage charge)). **[proprietary begin]**

[proprietary end]

22. The inefficiencies are highest at the lowest (10 Mbps) Ethernet capacity. A single 45 Mbps DS3 circuit costs $836.06 per month under the AT&T/TWTC contract assuming no interoffice mileage. If there were five interoffice miles, the cost would be $1512 per month ($837 + $450 (fixed interoffice charge) + ($45 x 5) (interoffice mileage charge)) under AT&T's contract tariff. **[proprietary begin]**

23.

[proprietary end]

24. *Fourth*, reliance on TDM loops introduces additional points of potential failure into the circuit. Moreover, identifying the source of service problems is slower,

more complex and likely more costly when TWTC must rely on two sets of equipment rather than one. If there is a problem with service quality and a circuit provisioned with both TDM and Ethernet electronics goes down, TWTC must send its technicians to the site and AT&T must also send its technicians to the site to determine whether the failure was caused by TWTC's equipment, AT&T's equipment, AT&T's circuit, or some combination of these. Because these locations are often far from the areas where TWTC has built a substantial portion of its network facilities, maintenance calls can take several hours, adding substantial cost and delay to restoring the customer's service. Indeed, unlike AT&T, TWTC only has a handful of technicians in each metropolitan area that it serves, and trouble on multiple distant circuits forces TWTC to hire more technicians. By contrast, if TWTC purchases a finished Ethernet loop, as Mr. Casto explains, only AT&T has the responsibility for visiting the customer site if the service goes down. *See Casto Declaration* ¶ 12. In addition, where TWTC self-deploys its own Ethernet loops, service repair and maintenance truck-rolls are generally much less costly in terms of labor and time because TWTC can only deploy loop facilities close to its existing network, decreasing the distance that must be traveled by the techs and increasing their utilization.

25. As a result of these additional costs and inefficiencies, TWTC can only serve a small subset of the market when relying on TDM transmission inputs than it could otherwise serve if it could obtain finished Ethernet loops on reasonable terms and conditions. **[proprietary begin]**

[proprietary end]

26. Mr. Casto also misconstrues or is non-responsive to several of the points I made in my initial declaration. **[proprietary begin]**

See Taylor Declaration ¶ 35.

See Casto Declaration ¶ 33.

[11]

27.

See Casto

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[11] *Taylor Declaration* ¶ 35.

Declaration ¶ 35.

[proprietary end]

28. Mr. Casto points to a joint TWTC/SBC press release in an attempt to show that TWTC willingly and gladly signed their 2005 special access agreement. He notes that TWTC stated at the time that the contract "strengthens Time Warner Telecom's ability to compete effectively for the nationwide business market." *Casto Declaration.* ¶

42 & n.31. It is true that TWTC was able to provide services to more locations under that discount plan than under the extremely high rates that TWTC was forced to buy previously. But this is an obvious point. **[proprietary begin]**

[proprietary end]

29. Mr. Casto is correct that signing the contract was better than not signing the contract, but this says little about whether the terms of that contract are just and reasonable or sufficient to allow TWTC to expand the scope of its service offerings.

[proprietary begin]

See id. ¶ 43.

[proprietary end] Because of the absence of alternatives to AT&T's ubiquitous network, TWTC has had to agree to unreasonable terms and conditions in order to obtain prices that permit TWTC to use AT&T's facilities in limited cases.

30. **[proprietary begin]**

See Taylor Declaration ¶¶ 39-41.

31.

Casto Declaration ¶

36.

32.

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[12] *See* Tariff F.C.C. No. 1 § 7.5.22 *et seq.*

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See Taylor Declaration ¶ 38.

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[proprietary end]

34. TWTC also has obtained substantial anecdotal evidence that AT&T is able to undercut TWTC's Ethernet rates even further because it sometimes offers its retail customers the *intrastate* rate for its Ethernet services. Because many states have largely deregulated their special access services, TWTC in many cases has neither the right to obtain these prices nor does it know what these prices are. However, anecdotal evidence

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indicates that AT&T's intrastate rates are, in many cases, substantially below their interstate rates.

35. **[proprietary begin]**

See Casto Declaration ¶ 40.

36.

See Taylor Declaration ¶

38.

37.

See Casto Declaration ¶ 39.

See Taylor Declaration ¶ 34.

[proprietary end]

38. As I explained in my initial declaration, because TWTC *must rely on* ILEC local transmission facilities to reach customer locations to which TWTC cannot

efficiently deploy its own facilities, TWTC must work with the ILEC to gain class of service and appropriate prioritization of IP packets as they traverse the ILEC's facilities. Otherwise TWTC cannot provide IP VPN service to customers served by AT&T's facilities. *See id.* ¶¶ 29-30. **[proprietary begin]**

39.

Casto Declaration ¶ 38.

40.

[proprietary end]

I hereby declare under penalty of perjury that the foregoing is true and accurate to the best of my knowledge and belief.

Executed on July 25, 2006

Graham Taylor

EXHIBIT 1

Charts Redacted in Public Version

ATTACHMENT B

Declaration of Stan M. Besen and Bridger M. Mitchell

REDACTED-FOR PUBLIC INSPECTION

JOINT DECLARATION

STANLEY M. BESEN AND BRIDGER M. MITCHELL

CRA INTERNATIONAL

JULY 19, 2006

Table of Contents

1. Introduction

1.1. Qualifications

1. Stanley M. Besen is a Vice President at CRA International, Washington, D.C. Dr. Besen has served as a Brookings Economic Policy Fellow, Office of Telecommunications Policy, Executive Office of the President; Co-director, Network Inquiry Special Staff, Federal Communications Commission; Coeditor, RAND Journal of Economics; and a Senior Economist at the RAND Corporation. He currently serves as a member of the editorial board of Economics of Innovation and New Technology. Dr. Besen has taught at Rice University, where he was the Allyn M. and Gladys R. Cline Professor of Economics and Finance; at Columbia University, where he was the Visiting Henley Professor of Law and Business; and at the Georgetown University Law Center, where he was Visiting Professor of Law and Economics. Dr. Besen has published widely on telecommunications economics and policy, intellectual property, and the economics of standards, and has consulted to many companies in the telecommunications and information industries. He holds a Ph.D. in Economics from Yale University.

2. Bridger M. Mitchell is a Vice President at CRA International, Palo Alto, California. He is an expert in competition and pricing in the telecommunications industry and is the author of five books and numerous articles in professional journals. He has researched regulatory issues involving the theory and practice of telecommunications pricing, competition, and equal access in local telephone markets, interconnection of