

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

*In the Matter of*

Commission's Draft Strategic Plan

**COMMENTS OF TROPOS NETWORKS**

Tropos Networks, headquartered in Sunnyvale, California, submits these Comments addressing the Commission's Strategic Plan.<sup>1</sup>

**I. BACKGROUND AND STATEMENT OF INTEREST**

Tropos technology delivers metro size fixed and mobile broadband access via a scalable, reliable and secure Wi-Fi infrastructure. Tropos provides wireless technology to carriers, service providers, utilities, local governments and public safety agencies. Within the last year, its technology has been put to work in more than 200 metro-scale Wi-Fi mesh networks around the world. These networks are today providing individuals and businesses low-cost broadband access, saving lives, making first responders more productive, and improving the efficiency of municipal workers.

Tropos' experience reflects the reality of what wireless broadband delivers. Tropos mesh network technology presents a fundamental means to bring about pervasive and affordable broadband access. The technology has brought meaningful competition to the broadband market. Its capability to encompass both Wi-Fi and Wi MAX technologies and its inherent and cost efficient means to accommodate upgrades, will

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<sup>1</sup> Public Notice, Public Invited to Review Draft Strategic Plan (July 5, 2005).

accelerate the spread of high speed Internet access. Tropos' own interests are advanced by a strategic plan emphasizing broadband and competition.

The Commission seeks to promote the availability of broadband to all Americans. In furtherance of this goal, it defines broadband as technologically neutral consisting of any platform capable of transmitting high-bandwidth intensive services, applications, and content. It seeks to clarify and harmonize the regulatory treatment of competing broadband services and facilitate an environment stimulating investment and innovation. Monitoring the deployment of advanced telecommunications capability provides ongoing national and international policy leadership and consumer education.

The Commission plan includes fostering sustainable competition across the communications sector and promoting and advancing universal service domestically, universal access internationally, and access by people with disabilities worldwide. It reiterates that competition can be facilitated by rules and policies promoting open and competitive entry. The strategic plan places primary reliance on market forces to stimulate competition, technical innovation, and development of new services.

The Commission's strategic goals with regard to broadband and competition are forthright in reflecting the crucial link between expanding broadband access and robust competition. Tropos believes that the strategic plan must entail pursuing those technologies and services with the greatest potential for facilities based competition. The Commission's strategic plan should comprehend explicitly that expanding broadband access depends on making it more affordable through competitive forces.

Timely and accurate statistical comparisons to other telecommunications sectors as well as their history are particularly important. The Commission's data reflects how

the pervasive availability of mobile phones, with a range of service offerings, did not emerge until there were several, not just two, providers in the market. The plan should recognize that regulatory relief to the cable and telephone industries does not alone promote facilities based competition. In the broadband market, as was the case with the mobile phone market, so long as two incumbents remain dominant, prices will not decline significantly and services will not expand.

Just as important as the details of the Commission plan is how the Commission keeps score. It is critical that the Commission define broadband and the extent of its availability in a way that reflects not only a reality but insight so reasoned decisions can be made.

## **2. THE BROADBAND MARKET AND COMPETITION**

Chief among the reasons that broadband penetration is higher abroad is that consumer costs in many international markets are far lower than in the U.S. Herein is the challenge: reducing broadband access costs for residents and small businesses.

The primary mechanism for reducing costs to consumers in any market is increasing competition. Increased competition will force the efficiencies that reduce costs.

Currently, competition in the residential and small business broadband access market is limited by the wireline nature of the technology employed. Only the telephone and cable companies have usable wires into homes and small businesses. It is economically infeasible to overlay this infrastructure with another layer of wires. Telephone and cable are, for all practical purposes, the only competitors in the broadband access markets.

The Commission's strategic plan should be amended to promote more explicitly other facilities based competition to the broadband market, not simply the services of incumbents. Two providers in a market will not make broadband more affordable, it will not expand services, it will not drive innovation. It means that two providers will divide the market. The Commission's strategy should realize these realities.

It is crucial that those technologies and services providing the greatest promise to bring competitive broadband be embraced as a priority in the Commission's strategy. The most prominent of the technologies that have emerged into the market are Wi-Fi mesh using unlicensed spectrum, broadband over power lines, and wireless licensed spectrum. Each of these technologies face particular challenges that the Commission's strategy must confront.

Wi-Fi mesh networks represent the facilities based competition broadband desperately needs. Its development is market based and is a reaction to high prices, limited technology and confined services. The technology leverages the advantages of Wi-Fi, its high throughput, low cost, and pervasive wireless devices. Its efficiency eliminates the need for per node wiring and the large infrastructure historically required.

The technology provides for a self-organizing system allowing nodes to be added or subtracted as needed thereby remedying virtually immediately any faults in wireline backhaul that arise or interference that is encountered. The consumer uses a laptop computer or other device with the breadbox like antenna equipment posted on lamp posts and traffic lights to obtain connectivity. The result is low installation and operating costs delivered by metro-scale Wi-Fi mesh networks that allows nomadicity, the ability to

carry a device from place to place. Wireless mesh networks provides reliability, security, and redundancy without digging up the streets or requiring zoning variances.

The challenges wireless broadband face relate to a fundamental of Commission's strategy, that of working with local governments<sup>2</sup> and a historic role of the Commission-ensuring access to infrastructure. Municipal participation in promoting broadband is critical as local government owns or controls the street lamps, traffic lights and other infrastructure. Analogous to the Commission's and local government's instrumental role in expanding cable services by access to utility poles and rights of way, the strategic plan should promote municipal participation as it fosters tangible facilities based competition.

The potential of unlicensed spectrum to deliver broadband services is also challenged by current spectrum allocations. Virtually all of the present unlicensed spectrum allocations and pending Commission proceedings relate to unlicensed use above 2 GHz. Many unlicensed bands in that range are already too congested with other devices. Relegating unlicensed allocations to higher frequencies imposes enormous costs. The characteristics of the spectrum at lower frequencies (i.e., longer wave length, holding energy over longer distances) allow signals to transmit into buildings, reducing costs even more. As the waves are capable of carrying enormous amounts of information, the substantial efficiencies inherent in the spectrum will promote wireless broadband's own efficiencies to reach the consumer more effectively. If unlicensed spectrum allocations are restricted to current higher frequencies, wireless costs increase significantly because more infrastructure is needed. The result will hurt industry return

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<sup>2</sup> To meet the objective of promoting broadband to all Americans, "the Commission shall work in partnership with state, local, and tribal governments; consumer groups; and industry. Draft Strategic Plan, Objective 1, page 2.

on investment, embed high long term costs into consumer charges and thwart the objective of high speed Internet access for all Americans.

The strategic plan should signal a clear commitment to fostering wireless broadband development through spectrum management, most significantly that of transitioning the broadcast analog spectrum. An allocation by the Congress and the Commission of that spectrum, currently envisioned for auction, will make an emphatic and tangible difference to the goal of competitive broadband.

### **3. THE NEED FOR ACCURATE AND REALISTIC DATA**

The Commission's analysis of markets and technology is critical to sound decisions. It is from the Commission's data and analysis that one comprehends the pervasive affordability of mobile phone service and how it is traced to tangible competition. It is important that data be meaningful and that it keep pace with emerging technology.

Tropos endorses the Commission's commitment to refine its analysis of broadband markets from both the technical and usage directions.<sup>3</sup> The first is recognizing that transmission speeds significantly in excess of 200 kilobits per second are necessary to meet higher levels of service and that new entrants, such as Tropos, are meeting this demand. A strategic plan that values analyzing and publishing data must insist that the varying levels of broadband service with regard to capacity and speed be delineated.

Similarly, the Commission should differentiate more precisely the capacity and speeds that users experience in receiving and transmitting information. US offerings

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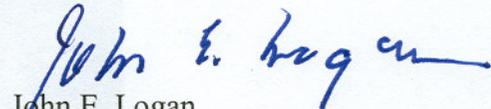
<sup>3</sup> *Availability of Advanced Telecommunications Capability in the United States - Fourth Report to Congress* (FCC 04-208) (September 9, 2004) at pages 10-13.

promotes those technologies already emerging as facilities based competitors. The Commission's strategic plan should resolve to further municipal government participation in broadband rollout and that quality spectrum be available for wireless broadband. It is these elements that the Commission's strategic plan should put forward for debate and resolution.

Respectfully submitted,

Tropos Networks

Bert Williams, Vice President  
Tropos Networks  
555 Del Ray Avenue  
Sunnyvale, California 94585  
408.331.6800



John E. Logan  
Attorney for Tropos Networks  
1050 Connecticut Avenue, NW  
Tenth Floor  
Washington, D.C. 20036  
202.772.1981

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