

ITFS – Instructional Television Fixed Service

Background

- ITFS is reserved spectrum in the 2.4-2.6 GHz frequency range that is licensed (regulated) by the FCC and that has been allocated for instructional use
 - At least 5% of the spectrum must be used for instructional purposes
 - Some licensees operate their own broadcast stations, while others lease up to 95% of it out to companies in return for revenue, but still 5% must be used for educational purposes
- Insofar as spectrum goes, the ITFS spectrum is “prime real estate,” with the optimal balance between capacity and penetration
- Over the past couple of years, the private sector “took a run” at getting this spectrum reallocated by the FCC for sale, but were unsuccessful due to lobbying efforts by the educational sector
- CSU is a licensee of the G channels in the Fort Collins area, covering a radius of approximately 30 miles from Milner Mountain, with call letters WNC-612
- CSU lease and Sprint
 - In the past, we leased our spectrum to Choice TV of Colorado for broadcast of TV channels, with some broadcast capacity reserved for our educational use (channel 25) – this never heavily penetrated the market, and currently the spectrum is lying fallow
 - Choice TV of Colorado was purchased by Sprint; and the lease agreement expires in March 2005
 - Sprint has offered to continue to lease the spectrum from us, and upgrade the system for two-way Internet access
 - Two years ago, Sprint agreed to lease the spectrum from us for 15 years for a net present worth of \$700,000, but Gerry wanted \$1 million net present worth, and negotiations stalled
 - CSU has not agreed to accept interference from other G channels in Denver/Boulder and Greeley areas
 - Currently, the terms of Sprint’s offer are: 15 years; three payments of \$5,000 each at years 1, 5 and 10; and \$0.15 per subscriber per month. A market analysis suggests at most a penetration to 15,000 households, or at most \$2,250 per month, but it might take the better part of a decade to achieve this level of penetration.
 - Sprint has told us that they would not build out in Fort Collins for at least two years
 - Sprint would charge a subscriber about \$40 per month

Alternatives

- Lease the spectrum to Sprint
 - For 15 years
 - For a shorter term, to allow standards to emerge and equipment to be built to those standards, probably two years
- Purchase NextNet equipment and operate a two-way system ourselves

Discussion about Operating the Spectrum Ourselves

- There is pent-up demand for higher speeds than modem services, that typically are limited to speeds of about 25-30 kbps at a cost of \$4 per month
- Equipment exists to operate in the ITFS spectrum, NextNet, for which at present there is no competition
- As the spectrum is regulated, we would be guaranteed no interference
- We would need an engineering study and an FCC law firm to file an application for us to use the spectrum – a one-time cost (unless the FCC rearranges the spectrum)
- This likely will be a good solution for CSUPD mobile high-speed connectivity

Risk Analysis

- There may be risk in allowing the spectrum to lie fallow
- There is risk if there are either too many or too few subscribers
 - Too many leads to congestion during periods of heavy use
 - Too few does not generate sufficient revenue to expand the system

The Business Plan

- What – install one unit initially on the top of Westfall Hall:
 - Start with one 360° antenna, can sectorize (180°, 90°) later
 - Serve about 800-1,200 users per sector
 - Reach - “Not Line of Sight,” but does depend on intervening medium
 - Inside antennas: 1-2 miles
 - Outside antennas: 5-6 miles
- Expenses (approximate)
 - 1-time costs: ~\$200,000
 - Recurring annual costs: \$6-11k, depending on whether we retain an FCC lawyer
- Revenue per subscriber
 - \$50 one-time connection fee
 - \$30 per month
- Payback periods: 3 years for subscriber equipment, and 2 years for central equipment
- Cash on hand - \$160,000 in the modem pool account
- Need \$40,000 more to get started

Discussion

- The success of the business plan depends upon the number of subscribers
 - If the number of subscribers is sufficient, the system can be expanded
 - If the number of subscribers is moderate, the system would not be able to be expanded, but useful to those subscribers
 - If the number of subscribers is few, then we would have used \$200k for little benefit to the University community
- We have had discussions with CSU staff and students in the University Technology Fee Advisory Board (UTFAB) who indicate they would be eager to participate
- Approach the UTFAB for the \$40k to begin an experiment?
 - UTFAB has about \$80k of additional funds to allocate for FY 06