



**BETA THETA PI**

**Alpha Tau Chapter  
Technology Grant Application  
Wireless Networking Project Plan**

**Version 3.0**

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# 1 Introduction

## 1.1 Document Overview

The purpose of this document is to give a clear understanding of the goals, benefits, and costs associated with the wireless networking plan. The plan will provide clear justification for the use of educational funds for this particular project.

The intended audience of this document is the Alpha Tau chapter at large, the Alpha Tau chapter housing corporation board, the Beta Theta Pi general fraternity, and the Information Services department of the University of Nebraska-Lincoln. While the official Beta Theta Pi Foundation Technology Grant Application Form lists a letter describing the educational use of the grant and vendor invoices or estimate proposals as two of the required items for the use of educational funds, we believe this form of document more fully explains our proposed use of funds.

## 1.2 References and Applicable Documents

In the course of this proposal there are many other documents which may be referenced. This section is intended to provide a better understanding of where to find those documents. Referenced documents include:

- Beta Theta Pi Foundation, Technology Grant Application Form
- Technology Grant Application, Appendix A
  - Pictures of current networking setup, pgs 10-11
  - Estimate from Information Services, pgs 16-17
  - Letter of Support from Dr. James Griesen, pg 21
- Floor plan of the Alpha Tau chapter house at 1515 R Street
- UNL Information Services Wireless Networking Information Page, <http://www.unl.edu/is/networking/wireless.htm>

## 1.3 Definitions, Abbreviations, and Acronyms

For the sake of brevity, many terms and names are shortened in this document. This section provides a clear reference of all abbreviations used in the document. Terms used in this document include:

- Alpha Tau, local chapter, or the chapter – the Alpha Tau chapter of Beta Theta Pi at the University of Nebraska-Lincoln
- Education fund – the Beta Theta Pi Foundation education fund for the Alpha Tau chapter
- House corporation, house board, local alumni, or alumni – the housing corporation board members for the Alpha Tau chapter
- WNPP – wireless networking project plan
- BTC – Beta Technology Consortium

## 2 Scope and Goals Summary

The scope of this project is to provide wireless networking capabilities to the Alpha Tau chapter house. The current condition of networking capabilities is outlined in section three of this document. Essentially, the chapter is looking to add wireless networking to facilitate learning in many areas of the chapter house, and to alleviate the demand for more physical network connections in the near future.

Alpha Tau would like to provide wireless networking throughout the educational areas of the chapter house. Other areas of the chapter house may receive wireless networking due to signal leakage, but the goal is the coverage of all educational and study areas.

The goal of the project is to facilitate learning, specifically:

- Increase the flexibility of areas such as the library and basement in terms of network access
- Integrate the Alpha Tau wireless network with the rest of campus
- Encourage the use of online information tools like Blackboard and the Beta website
- Free up and reduce the demand for existing physical network connections by allowing laptop users to roam wirelessly
- Allow non-Betas studying in Beta to be able to access the internet
- Allow Betas to access chapter technology resources such as the file server and printers from a wider area

The University is in the process of implementing a wireless network covering much of the UNL campus. The department responsible for the University network, Information Services, has agreed to allow us to install a wireless network as long as we purchase the equipment they want and allow them to manage the access points. This is the preferred arrangement for Alpha Tau; we will own the equipment, but the University will handle authentication and security, and will allow for integration of the house wireless network into the rest of campus. This means once a user is registered to use the campus wireless network they will be able to use the network in the library, student union, etc. without any changes, and vice-versa.

We expect the wireless network to be used by more than the current chapter members. We envision wireless access being used by chapter members, student organizations with ties to Beta, students affiliated with Beta or friends of Betas, Beta alumni, Beta Educational Consultants, and generally the university as a whole. We see the benefits of this new room going well beyond just the chapter members, and we believe this gives clear justification for the use of the educational fund for this project.

## 3 Current Conditions

A wired network was installed in the Alpha Tau chapter house many years ago. This network consists of:

- Approximately 124 network ports providing network access throughout the Alpha Tau house (enough ports are provided in bedrooms to allow one port per person)
- Cisco 80-port Ethernet switch, leased from the University

- DSL modem providing 2 megabits of connectivity to the University network

Appendix A includes figures that show the current network setup of Alpha Tau.

## **4 Requested Items**

This section is intended to outline a list of items requested by Alpha Tau, each item's associated cost, detailed descriptions of each item, and a total cost for the project.

### **4.1 Furnishings**

No furnishings are requested for this project.

### **4.2 Equipment**

Equipment requested for the wireless network includes:

- **7 Cisco access points, \$807.00 each, \$5649.00 total**
- **14 Cisco 2.4 Ghz b/g antennas, \$24.30 each, \$340.20 total**
- **14 Cisco 5 Ghz a antennas, \$24.30 each, \$340.20 total**
- **400 feet Cat 5 plenum cable, \$0.2295/foot, \$91.80 total**
- **7 Cat 5 modular plugs, \$0.70 each, \$4.90 total**
- **70 feet wiremold, \$2.945/foot, \$206.15 total**
- **7 Cisco power injectors, \$62.50 each, \$437.50 total**
- **Labor and shop supplies, \$525.00**
- **Tax, \$565.93**

The subtotal for all equipment is \$8,650.68.

### **4.3 Additional Costs and Total**

Additional costs to the project would include any charges from Information Services for installation, depending on how much work we are allowed to do ourselves. Electrical power for the devices is provided via the Ethernet cabling, so electrical work will not be necessary.

In total, the project is expected to cost \$8,650.68. Since all numbers are currently estimates, and additional unexpected things may happen in the project, we request \$8,800.00 from the education fund. This amount will be kept separate from other funds, and any excess money not used in the project will be returned to the education fund for future use.

## **5 Organization Plan**

The idea for this project was conceived over the course of many meetings of the Beta Technology Consortium. The BTC was founded in the fall of 2003 to be a group of individuals led by the chapter technology chair to help recommend technology improvement plans in the house, and to help in the development and maintenance of the chapter website. The BTC is firmly behind this plan for wireless networking.

The project is being headed by the chapter technology chair, Mark Antonson. Greg Walklin, the former chapter president, has also been responsible for helping Mark bring this project forward through administrative support and editing of this document. Additionally, the BTC has given much input to this project.

## **6 Project Plan**

The plan for this project is as follows:

- Rough-draft of project proposal without details completed February 12<sup>th</sup>, 2005
- Met with Bob Northrup to discuss project February 23<sup>rd</sup>, 2005
- Met with Dr. James Griesen to discuss project and request letter of support completed March 4<sup>th</sup>, 2005
- Letter of support from Dr. Griesen received March 28<sup>th</sup>, 2005
- Met with the housing corporation to discuss project and gain preliminary approval May 30<sup>th</sup>, 2005
- Met with Quality Communications, subcontractor for Information Services, August 25<sup>th</sup>, 2006
- Project proposal finished with all item estimates and project costs September 26<sup>th</sup>, 2006
- Met with the housing corporation to approve final project plan and receive formal resolution September 29<sup>th</sup>, 2006
- Submit completed application to the Beta Theta Pi Foundation by March 1<sup>st</sup>, 2007
- Work to be completed spring/summer 2007