Capstone Project—Project Vision and Scope

Assignment 1-3-2 Stephanie Webber, Jill Oakes, and Anita Madden

ITEC495-V1WW

Professor: Wayne Smith

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Vision and Scope Document

for

VoIP Upgrade

Version 1.0 approved

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Team 2 – Tech Solutions

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Revision History

Name	Date	Reason For Changes	Version
Stephanie Webber	10/1	Added Sections 1 & 2 and references	1.0
Stephanie Webber	10/3	Added Logo, changed date, and revised Sections 1 & 2	1.1
Jill Oakes	10/6	Added Sections 3 & 4 and references	1.2
Anita Madden	10/8	Added Sections 5, 6 & 7 and references	1.3
Anita Madden	10/8	Revised Responsibilities and References, added Gantt Graph	1.4

1. Business Requirements

Superior Engineering, Inc. is a small engineering company with approximately 50 employees. The employees of Superior Engineering, Inc. are often away from the office serving customers and supervising ongoing projects. The nature of these services presents the need for a more versatile, scalable, secure, and cost effective communication tool.

1.1. Background

Superior Engineering, Inc. has been in business for over 25 years. During that time they have grown from a mere five employees to the current 50. Of the current employees around half have job responsibilities that necessitate frequent travel. This coupled with their continued growth and desire to control their own destiny in terms of phone services is a high priority for them. Ultimately they are looking for the addition of remote services, a product that will decrease their monthly expenditures for phone services, and a product that will maintain their reputation for excellence in customer service.

1.2. Business Opportunity

Superior Engineering, Inc. has the ability to decrease its monthly operating costs meanwhile adding large scale reach ability and remote connectivity to their business offerings. The existing telephone system has similar features, but is laden with additional fees, lengthy contracts and conditions, and binds them to maintenance calls for any changes. They are overwhelmed with the miscellaneous fees and bound to inconsistencies found in existing quality, services, and dial plans.

The new VoIP solution will provide Superior Engineering, Inc. with the infrastructure to bring their business to the future. Providing them the ability to seamlessly add and/or change as the growth of the business requires. This solution will also provide for ease in management with user friendly interfaces and real-time management tools, allowing Superior Engineering, Inc. to step away from the vendors and maintain their own system.

1.3. Business Objectives and Success Criteria

The primary business objectives are to increase the response time between personnel and customers, while decreasing the cost of the services, and therefore giving the ability to provide their engineering services for less. Superior Engineering, Inc. will realize long term savings in regard to long distance, monthly maintenance fees, and eliminating additional charges for voicemail, conference calling, and multiple lines. They will gain the ability to manage internally, which will allow them to add lines, change extensions, and move phone locations as needed without incurring vendor fees. The overall costs of running the new system will be eight to ten times less than the existing phone system provided through the local vendor.

The successful implementation of this system will be measured by:

- Customer satisfaction based on return customers
- Acceptance, adaptation, and use of the system by employees after a brief training session

- Realize a return on investment based on original system operating costs and savings realized by the new system within one year.
- Elimination of Secretary in lieu of "Auto Attendant" function
- The cost and time savings of maintaining in house

1.4. Customer or Market Needs

The implementation of the new system will allow customers to contact personnel directly for the instant gratification that is desired by clients and personnel. If a client is unable to connect with a specified employee, the employee will have multiple means for retrieving the message, allowing for a much quicker response time than the usual phone interface. The high point of the new system is the lack of any adjustment by the customer in order to receive the full advantages. All costs and environment changes are done on the business level, providing the customer with better service without visible changes.

1.5. Business Risks

Superior Engineering, Inc. realizes that with any project there are risks that can be associated. Some of the risks realized are:

- Potential delays with equipment shipping/purchasing
- Network requires updating for compatibility
- Customers see the VoIP system as a security issue
- Employees resist the new system
- Non-technical employees will require considerable training
- Possible downtime when the old system is disconnected and the new system is initiated
- Any downtime could be critical based on employee project cycle

All of these risks can be classified as low or moderate. Some mitigation actions that can be taken to avoid these situations is to ensure all employees realize the benefits of the system, provide training sessions that will ease fears and not threaten the non-technical employees, doing a majority of the implementation after hours to decrease interruptions to the normal day-to-day schedules, and allowing both systems to run in unison until testing and training has been assured.

2. Vision of the Solution

Our vision is that the solution provided for Superior Engineering, Inc. will have a wide reaching, reliable, and easy to use VoIP phone system enabling them to compete and progress into the future of engineering. This new VoIP system will allow for advanced methods of communication allowing for additional company revenue and increased customer satisfaction.

2.1. Vision Statement

Our vision is of Superior Engineering, Inc. having the most complete communication system that will meet or exceed present and future goals or initiatives. This system should simplify communication between engineers and customers by providing remote access, conference call ability, voicemail, voicemail to email, call forwarding with email transfer, and to set the stage for future video conference capabilities. All these added functions with the ability to see real time reports on extension usage and in house manageability, full network integration, while laying the groundwork for the future with ease of scalability.

2.2. Major Features

The new VoIP solution will have the following features:

- Auto-Attendant
- Microsoft Outlook Integration
- Voicemail-to-email
- Conference bridges
- Customer Resource Management (CRM) Integration
- Detailed Reporting
- HUD Communications Management Application
- Call Center Capabilities
- 24/7 Technical Support

2.3. Assumptions and Dependencies

- **Assumption:** The proposed system requires the purchase and acquisition of hardware and software for the VoIP network.
    - ❖ **Dependency:** Establishing a relationship with compatible phone and server vendors will aid the requirements of the project.
- **Assumption:** Existing network structure is robust enough to handle the addition of the new system.
    - ❖ **Dependency:** A full analysis of existing network structure will be performed to ensure system compatibility.
- **Assumption:** The new system will fully replace the existing POTS.
    - ❖ **Dependency:** After the new system is installed and bug free, the current phone service will be terminated.

- **Assumption:** Additional training will be necessary for staff to maintain the new system in house.

  - ❖ **Dependency:** Training time will be made for all required staff.

3. Scope and Limitations

The new VoIP phone system will provide the latest phone system technology to Superior Engineering, Inc. This system will reduce the expenses for infrastructure and maintenance, while providing a secure, reliable phone system, with many new features. The existing phone system has met the needs of Superior Engineering, Inc. up to this point. The new system provides a cost effective upgrade which will provide additional features and allow for continued growth with little or no additional cost.

3.1. Scope of Initial Release

The initial release of the new system will include implementing a cost effective, secure digital communication phone system that includes an auto-attendant, multiple line phones for users, Microsoft Outlook integration, voicemail, voicemail-to-email, conference bridges, CRM integration, management reporting, HUD Communication Management application, call center abilities, remote access, call forwarding, call transferring, and 24 hour technical support. The phone system will be integrated into the existing network structure. Once completed, the phone system will run parallel to the existing phone system to allow for ease of transition.

3.2. Scope of Subsequent Releases

Future releases will include:

- Fax and videoconferencing over an IP network
- As the organization grows it is a simple integration for additional business locations

3.3. Limitations and Exclusions

The VoIP phone system will provide Superior Engineering Inc. with a secure, user friendly, reliable phone system. It will not provide vendor support for technical difficulties, and will not have video conference capabilities at this time.

4. Business Context

This project will mainly affect the employees of Superior Engineering, Inc. in terms of use and will have an impact on the organization as a whole. It will deliver a product that will decrease monthly expenditures regarding phone services, gain additional features while still providing the resources to maintain their reputation for customer service without breaking the bank and with as little disruption as possible.

4.1. Stakeholder Profiles

Stakeholder	Major Value	Attitudes	Major Interests	Constraints
Superior Engineering, Inc. Executives	Reduce monthly phone service expenditures	See product as avenue to significantly reduce costs by eliminating additional fees	Provide versatile, scalable, secure, cost effective communication tool	Initial investment (purchase hardware and software, cabling)
Management	Reporting functions, user functions	Product will provide additional features to enhance production and improve turn-around time	Provide usage reports, Auto-attendant feature, voicemail to email options	System requires internal maintenance. Loss of human aspect for customers calling in
Engineers	Remote services	Increase response time with personnel and customers	Call forwarding, remote access to voicemail, voicemail to email	Highly dependent on Intranet being available
Sales, Marketing, & Human Resources	Reporting functions, user functions Remote access	Increase response time with customers, enhance production	Reporting functions, Call forwarding, remote access to voicemail, voicemail to email	Highly dependent on Intranet being available

4.2. Project Priorities

Dimension	Driver (state objective)	Constraint (state limits)	Degree of Freedom (state allowable range)
Schedule	V&S document completed by 10/11, Network Analysis completed by 10/11, Purchase Equipment,etc by 10/12, Hardware, software and cabling to be installed by 11/1, Testing completed by 11/30, Training completed by 11/30, New system functional 12/01, Old system terminated 12/15	Installation issues as well as delays with receiving equipment may cause delays	New system will be completely functional by 12/30
Features	Auto-attendant **Multiple lines** Microsoft Outlook integration **Voicemail** Voicemail-to-email Conference bridges CRM integration **Reporting** **HUD Communication Management application** Call center abilities **Remote access** Call forwarding Call transferring **24 hour technical support**	Programming or Software issues	High priority features (those in bold) must be fully functional by 12/01

Quality	System will increase user productivity, and increase personnel and customer communication	Unexpected downtime during transition could impact acceptance.	90-95% of users must be comfortable with use after brief training. Customer returns will continue
Staff	System./Network Administrator IT Support	Team size limited to 2 people.	IT staff skills and knowledge base fulfill the requirements to successfully implement product
Cost	$20,000.00	Price changes, additional equipment.	Budget overrun up to 10% acceptable without executive review

4.3. Operating Environment

Superior Engineering, Inc.'s 50 employees, both onsite and off-site, as well as their customers and business partners will be utilizing this product every time a phone call is placed. The majority of phone calls fielded by the system will happen Monday - Friday between the hours of 8am and 5pm. Un-interrupted service is crucial to the organization as they are dependent on their phone service to have continuous contact internally as well as with external clients and associates. Superior Engineering, Inc.'s network infrastructure will ensure that the data transferred during calls is secure. The VoIP system will provide a reliable, secure, user friendly form of communication while reducing the monthly phone service expenditures. Superior Engineering, Inc. will gain additional features that will improve productivity as well as provide an avenue for increased personnel and customer communication.

5. Human Resources

The Human Resources section defines how the team members will participate in completing the project according to Superior Engineering, Inc's requirements. Additionally, team members will be identified with appropriate titles and responsibilities. Each team member's skills, attributes, roles, and responsibilities will be identified. In addition, the means of communication between team members will be clarified.

5.1. Team Charter

On Monday, September 21, 2009, Team 2 met in FranklinLive to discuss team structure, skills, and the types of communication that would be used between team members. Team members consisted of Stephanie Webber, Jill Oakes, and Anita Madden. Team 2 agreed on a business name, Tech Solutions. Furthermore, Stephanie Webber volunteered to lead the team and Jill Oakes and Anita Madden agreed with this decision. Team 2-Tech Solutions agreed all decisions will be made by the team as a whole. Since Stephanie Webber was voted in as Team Leader, she will submit completed work to Professor Wayne Smith, and will handle all communications between the team and both Professor Smith and our selected business practitioner.

The team mutually decided all aspects of the project will be equally divided between team members. Each team member will be responsible for assigned sections of the Vision and Scope document along with other determined aspects of the project. Stephanie Webber is initially responsible for completing sections 1 and 2, Jill Oakes for completing 3 and 4, and Anita Madden for completing 5, 6, and 7. All members are to contribute to section 8 for references used.

If conflicts arise, team members will strive to resolve the conflict. If the team cannot resolve the conflict, Professor Wayne Smith will be asked to assist in resolving the issue. If a team member creates a delay in the project, the team will meet to discuss the situation and how the problem can be resolved. Dependent on the severity of the situation, the offending member may lose responsibility in the project. If meetings are missed the team member will lose the right to select what portion of the project they would like to cover.

The team will determine when a meeting is needed to discuss the project. The team has agreed to correspond via email between meetings and a once daily check has been agreed upon by all members.

5.2. Technical Skills and Attributes

Name	Skills	Attributes
Stephanie Webber	Linux, VB, SQL, Windows, Outlook, Office	Detail Oriented, Perfectionist
Jill Oakes	Microsoft Office Products, Visio	Detail Oriented, Organized, Dedicated
Anita Madden	Scripting, SQL, Windows server/workstation, Outlook, Networking	Patient, Multitasking, Dedicated, Self-motivated

5.3. Roles and Responsibilities

Name	Role	Responsibilities
Stephanie Webber	Project Manager	Driving the schedule and scope of the project, communication with stakeholders, limiting cost overruns, and gaining project approval
Jill Oakes	Minute-taker, Hardware Specialist	Record meeting minutes, install and maintain software/hardware
Anita Madden	Software Specialist/Programmer	Setting up switches/routers, server administration including Outlook & voicemail integration, formation of call plan

5.4. Communication Strategies

Tech Solutions will be communicating through FranklinLive, e-mail, Franklin chat room, and by phone if necessary. Meetings will include all members of the team. Meetings through FranklinLive or chat room will be scheduled based on the stage of the project and when e-mail is not sufficient. Because of geographical locations, team members will not meet face-to-face. If a team member will be late for a meeting, the member needs to contact the team to let them know. All communications and assignment submissions to Professor Wayne Smith will be completed by Stephanie Webber.

6. Project Management

The project management section explains the deliverables to the customer, Superior Engineering, Inc. and Professor Wayne Smith. Furthermore, section 6 clarifies the support and dependencies for the project to be successful. The estimated timeline for the project is indicated in detail to keep the team on track and to inform Superior Engineering, Inc. when each phase is anticipated to begin and finish.

6.1. Deliverables

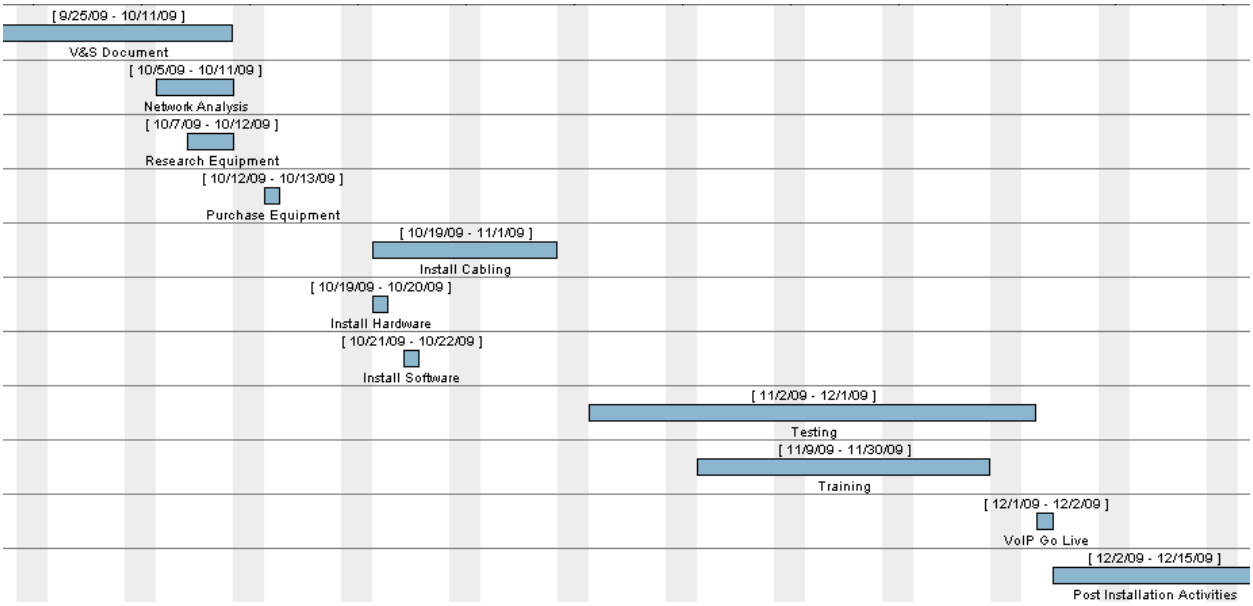
When the implementation of VoIP is complete, Superior Engineering, Inc.'s POTS will be obsolete. The VoIP implementation will be a cost effective and a secure digital communication phone system. The system will include an auto-attendant, multiple line phones for users, Microsoft Outlook integration, voicemail, voicemail-to-email, conference bridges, CRM integration, management reporting, HUD Communication Management application, call center capabilities, remote access, call forwarding, call transferring and 24 hour technical support. All equipment and software will be installed and operating to the customer's satisfaction. System and user manuals, as well as a design layout schematic of the new system will be provided to the VoIP administrator.

Team 2-Tech Solutions, will deliver a Vision & Scope document to Professor Wayne Smith on or before October 11, 2009. Project Status Report, 1-3-4, will be submitted to Professor Wayne Smith on or before November 1, 2009. On or before November 15, December 13, and December 19, 2009, a Project Whitepaper, a Project Write Up, and a Final Project Presentation will be delivered and given to Professor Wayne Smith, respectively. Their quality will be judge based on feedback from Professor Wayne Smith and Karl Linderoth our teams' business practitioner. For revision control and all project artifacts, Google Docs and a created Google Site for Team 2-Tech Solutions will be utilized.

6.2. Dependencies

To implement VoIP successfully, certain steps need to be completed first. Analyzing transmission speeds of the network, network cable layout, and existing servers will be the first step to determine what equipment requires purchasing for the VoIP implementation. After determining what equipment needs to be purchased, vendors need to be contacted for the best prices for the best equipment. Hardware, software, and cabling will need to be installed. After installation of all technology, testing of the system is a critical step in finding bugs in the system. After debugging the new VoIP system, training users is the next critical step to the implementation of the new system. When the system is running satisfactory, the old telephone system can be disconnected and disposed of.

6.3. Schedule



7. Educational/Program Outcomes

The outcome of this project will facilitate Superior Engineering, Inc. in providing an exceptional communication tool to employees and customers. Employees will be more efficient in their daily routines, and customers will be satisfied with the excellent customer service. Due to the many advantages of VoIP, Superior Engineering, Inc. will have a ROI and possibly grow their engineering business to its potential.

The outcome of this project at the college-level capstone experience will provide Team 2-Tech Solutions with a broader understanding of the requirements and facets recognized during real-world projects. They will come away with a fuller knowledge of every step in the project process, and also shine light on the unexpected occurrences that may happen along the way. It will give them valuable experience in problem solving and team work skills. Overall, they will come away from this project with a well rounded viewpoint of the Information Technology field, and be prepared to take on the outside world.

7.1. General Education

Walking step-by-step through the VoIP project, each member of the team can either share their experience or opinion, or can learn from other team members' experiences or opinions. Each member will benefit from working on the project as a team to increase team experience for real world projects and learn empathy by working with different personalities.

Since the project has many tasks, each team member is responsible for researching and corresponding on one or several tasks. Besides communicating with and convincing each other, the team members will present the project to an audience of instructor and peers, and have ongoing correspondence with a business practitioner allowing for a broad range of audiences and purposes for communication. By providing a convincing project argument for upgrading Superior

Engineering, Inc.'s POTS to a VoIP, the team can acknowledge they have successfully communicated the project across various audiences.

The POTS to VoIP system project planning and implementation documentation will require Team 2-Tech Solutions to research and apply critical and analytical skills to determine the best available system type for the organization.

7.2. Information Technology

Since the project involves Voice over Internet Protocol, analyzing the existing network is a prerequisite. Researching hardware and software for the project will aid in the decision of the appropriate information technology needed for the project. If incorrect technology is purchased for the project, the network may not be able to handle the additional network load or any future additions to the network infrastructure. The purchased technology will be considered successful by the reliability of the VoIP and all its components.

When implementing new technology in a business, evaluating policies and procedures is a requirement. By updating the appropriate policies and procedures to reflect the new technology, administration states what is inappropriate and will not be tolerated. The team will discuss the system's security with the appropriate personnel. In addition, all security risks, threats, and vulnerabilities and how to avoid future security issues will be discussed. By implementing the appropriate policies and procedures, employees understand the importance of the security of the new system.

Tech Solutions will provide training to Superior Engineering, Inc's employees on using the new communication tools. Documentation will be available online for future reference. Through the training, the team will help employees understand the benefits and ease the use of the new system. The training will prove VoIP superior to the POTS. During testing, the team will select employees randomly based on daily use to aid in testing the new system. By involving employees to help with testing, the employees feel they are part of the project. Also, the team can understand the necessities the employees need every day.

8. Annotated Bibliography

Dunte, M. & Ruland, C. (2007). Secure voice -over-ip. *IJCSNS International Journal of Computer Science and Network Security, 7*(6), 63-67. Retrieved September 25, 2009 from http://paper.ijcsns.org/07_book/200706/20070610.pdf

This reference was applied in sections 3 and 4 as it provided an overview of VoIP, its pros and cons, features, and possible hindrances.

Fluke Networks (2009). Learn about VoIP. Retrieved on September 29, 2009 from *http://www.flukenetworks.com/fnet/en-us/learnAbout/VoIP*

This resource provided excellent information to consider when getting acquainted with VoIP systems and what they will require. This was a good source for understanding business costs of acquisitioning hardware/software.

Fonality (2009). Trixbox Pro products by Fonality. Retrieved on September 28, 2009 from http://www.trixbox.com/products/trixbox-pro?utm_source=trixboxOrg&utm_medium=link&utm_content=products-pro&utm_campaign=fonalitysites

This manufacturer's website contains many helpful links and information regarding hardware, software, and available services for a VoIP implementation.

Friedman, M. (2005). Five steps to take before implementing VoIP. Retrieved September 28, 2009, from http://www.networkcomputing.com/data-networking-management/five-steps-to-take-before-implementing-voip.php#

This reference provided a general overview of VoIP, as well as future VoIP products and services. This information was very useful in developing the future release section.

Voice and Unified Communcations: What is VoIP. Retrieved October 2, 2009, from http://www.cisco.com/en/US/prod/voicesw/networking_solutions_products_genericcontent0900aecd804f00ce.html

This resource provides a great deal of information on why a business would want to convert an old telephone system to VoIP and the many benefits of VoIP.

Voice over internet protocol. (2007). International Engineering Consortium. Retrieved September 25, 2009 from http://www.iec.org/online/tutorials/acrobat/int_tele.pdf.

This reference provided a general overview of VoIP, as well as future VoIP products and services. This information was very useful in developing the future release section.

VoIP phone systems buyer's guide. (2009). Retrieved September 25, 2009 from http://small business.yahoo.com/r-article-a-2050-m-7-sc-30-voip_phone_systems_buyers-guide-i.

This reference was beneficial for the business context portion as it provided reasoning as to why a VoIP would be beneficial to an organization. This reference also provided a great deal of information related to features and functions.

Yedwab, K. (2004). An 11-step program for enterprise VoIP implementation. Retrieved on September 29, 2009 from Telephony Online at http://telephonyonline.com/access/analysts/telecom_step_program_enterprise/

This article provides a helpful list of items that are essential to the successful planning and implementation of a VoIP system across an enterprise. This is an excellent source to gain understanding of unknown aspects of this type of project.