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Description of VOIP Technology in Reference to 3CX Implementation Software

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— Introduction

In a world increasingly dominated by the use of the internet, it is not surprising to find technologies that can facilitate communication through the internet. Voice over Internet Protocol (VoIP) is one of such technologies that allows for phone communication using the internet broadband connection as opposed to the traditional analogue telephone systems. VoIP allows the caller to connect with other users who are on the internet. The caller can make and receive calls using traditional telephone lines, usually at a service fee. In order to implement the VoIP, it is necessary that both the caller and the receiver have VoIP dedicated tools including implementation software and special adapters on their computers.

Due to the lower fees applied in VoIP connections, consumers find this mode of communication preferable in their places of work. While there is a steady uptake of VoIP use in many places, the potential threats have also increased for a typical user. VoIP vulnerabilities are not isolated from other threats facing internet users. However, the emergence of new security concerns including attacks and scams are particularly important to the effective implementation of IP telephony. The purpose of the present paper is to describe VoIP technology in reference to 3CX as the implementation software. Specifically, the paper addresses project viability and risk management, project planning and team structure, VoIP technology, and VoIP server implemented in 3CX.



— Project Viability/Risk Management

Effective implementation of VoIP technology requires specific tools and protocols that must be available for it to work. The reason is that in most cases, VoIP is implemented through traditional phones. Among the tools that must be present, there are dedicated routers that can allow high-speed source of the internet and ordinary phone to be attached to the system. This should also be configured using the protocols provided by the VoIP service provider. In many cases, dedicated routers are not dependent on special software to implement. They only require a traditional phone. In this case, dedicated adapters may be used whenever the internet broadband is accessible. USB adapters can also allow placement of VoIP calls on a traditional phone. The standard modular phone jack allows for attachment of ordinary phones to the broadband internet, and the included software set up the VoIP call automatically.

Apart from the devices described above, there are also soft phones, which are reliant on software-controlled VoIP. These allows for placement of VoIP calls from a computer using headset, sound, and microphone cards. Users of software-controlled VoIP are able to connect with each other at no cost. The advantage of using software-controlled VoIP is that most computers normally have the necessary components to get started. VoIP dedicated phone usually connects directly to the available computer network as well as local wireless network. The user, however, must have a service plan and provider in order to implement the connection.

The risk management approach to implementation of VoIP should be



focused on the spam over the internet telephony, identity theft, and spoofing. These are the normal risks that other internet users are exposed to. It is easier and cheaper to send commercial based messages through VoIP, which makes it possible to send unsolicited calls in large numbers. It is facilitated through the wide range of tools that people attacking the internet may possess. Another important issue is confidentiality of VoIP communication, which can be addressed through configuration by the service provider. The general risk management approaches to VoIP include denying the attackers the opportunity to have full control of the operating system. VoIP implementation software such as 3CX have features that can help to manage the risks associated with usage of VoIP calls. The principle is to help in preventing any possible flaws in VoIP configuration from being exploited. Among the popularly recommended practice to prevent VoIP call risks, there is use of anti-spyware and anti-virus programs, ignoring files attachments to instant messages, verification of authenticity of downloaded files, use of firewalls, and secure configuration of browsers, among other practices.

— Project Planning/Team Structure

The implementation of VoIP technology must be informed by the needs that the user wants to meet. Planning should include the tools and devices required to offer robust services to the user. It should also consider the service provider and the service plan that the user wants to have in the implementation process. Consideration of the available software and the capacity to maintain a secure system over the internet should also be given priority. The availability of broadband internet to allow for high-speed internet connection will ensure that VoIP



communications are not interrupted in the middle.

The team structure for implementing VoIP calls on a 3CX phone system requires a collection of relevant and appropriate tools. It is also essential to highlight the protocols that are going to be applied in configuring the system to be secure and robust against possible attacks. The availability of broadband internet, adapters, and dedicated routers, as well as the prerequisite skills, should enhance the user experience with VoIP over 3CX software. The software operates on Windows platforms, which are supported with features that allow traditional phones to connect to the internet. Using 3CX software to stage VoIP calls on traditional phones allows for dependence on soft phone clients including iOS and Android to ensure immediate contact with the service provider. The operating systems also offer tools to install and manage the 3CX software, with tools to manage the calls on web-based interface provided in the 3CX Management Console. In addition, it provides an opportunity to add extensions, without the need for physical or remote access to the server.

— VOIP Technology and Service Scenarios

VoIP technology is usually thought of as involving voice calls only. However, the technology can be used in a range of multimedia communications that allow users to have a global architecture supported by IP telephony standards. The IP telephony standards are integrated with 3CX software to achieve video conferencing scenarios adopted in a broad area. VoIP technology facilitates the accessibility of broad area allowing users to communicate easily, without worrying about accessibility. It also facilitates the achievement of value added



services including sharing of voice mail and data applications.

The integration of 3CX software supports value addition on VoIP services on a traditional telephony system and hence improves the quality of user experience. Using 3CX also ensures that VoIP technology is interoperable with other technologies and achieves seamless connectivity by the end user. 3CX software enables use of VoIP technology in areas of telecommuting allowing for interaction and collaboration of employees. Telemedicine is another scenario where high-quality video images are delivered to remote physicians. The technology is also applied in distance learning where lectures and educational processes take place between people located in different parts of the world.

— VOIP Server as 3CX Software

The VoIP server implemented through 3CX software has particular features and characteristics. These features include internet protocols such as the PSTN implemented through H.320 or H.323, with dedicated components in the server. The components required include the PBX, which is a version of 3CX software to control and manage all incoming calls, and a H.323 gateway connected to PBX on one end on IP network on the other end. The built-in gatekeeper is responsible for routing all calls to the IP network as well as makes decisions when to route the off-net calls. It also has a call manager that performs 3CX functions for IP telephony. The last component is the end stations acting as the user terminals represented by IP phones, videoconferencing stations, and regular DECT phones.



— Conclusion

The above description of VoIP technology indicates that 3CX software can enhance the experiences of the users by providing effective ways of communicating through the internet. Proper and effective planning and risk management enhance the process of implementing VoIP technology to achieve better experiences by the user. This can be done at the VoIP server point where 3CX software is integrated in the server components.

