Parish Computing and Network Standards

Purpose

This document provides guidelines for parish networks and internet service. The goal of these standards is to define a comprehensive parish computing standard, and to provide recommendations for smart growth. This document will outline standards for these network types:

1. Small Parish: Minimum Standard

2. Midsize Parish Network: Recommended Standard

3. Large Parish Network: Recommended Standard

Audience

These standards are provided by request to parish and diocesan employees, management, contractors and any other parties who maintain a network(s) which have a business need to interact with parish IT systems.

Standards

Large network internet and service characteristics:

- Star topography, layer 3, switched Ethernet
- 1 GBpS backbone
- At least two distinct, load balanced business class internet connections
- An enterprise class firewall configured to security standard
- Bandwidth totaling at least 200 mbps. / 100 mbps.
- A SLA defining 8 hour or less resolution to down or critical issues.
- A separate SLA for each connection.
- IT will service and maintain the connections and the network. IT will work with providers as defined in the SLA.

Mid-sized network internet and service characteristics:

- Star topography switched Ethernet
- 1 GBpS backbone
- Two distinct internet connections
- A business class or better firewall configured to security standard
- Bandwidth totaling 30 mbps. / 5 mbps.
- A SLA defining 8 hour or less resolution to down or critical issues.
- IT will service and maintain the connections and work with providers as defined in the SLA.

Small network internet and service characteristics:

- Star topography switched Ethernet
- 1 GBpS backbone
- A firewall configured to security standard
- At least one business class internet connection
- Bandwidth totaling at least 60 mbps. / 10 mbps.

- SLA defining 8 hour or less resolution to down or critical issues.

Remote office internet and service characteristics:

- At least one internet connections (2 recommended*)
- Bandwidth totaling 10 mbps. / 3 mbps.
- SLA defining 12 hour or less resolution to down or critical issues.
- IT will not service or maintain the connections unless specifically requested and approved.

Residential office internet and service characteristics:
- One internet connection
- Bandwidth totaling 10 mbps. / 1 mbps.
- A SLA is recommended to support the connection.
- IT will not service or maintain residential office networks

Infrastructure Standard:

Always use switches, never hubs. Configure the network for growth by ensuring that it is a star topography Ethernet network that meets current wiring specifications.* Whenever possible try to build redundancy into the network. Two switches are always better than one, and ensure fault tolerance which will become more important as the network grows.

Principal of computing simplicity: This principal requires that all systems, software and services be designed in the simplest way possible. The Principal of computing Simplicity also requires that the decisions being made are carefully considered with regard to the future, taking growth into consideration. A metric is required to make these decisions while adhering to the principal. This is usually a "percentage likelihood." As an example. If a switch is being added to the network several questions should be asked: will a simple switch do the job? What is the percentage likelihood that the network will be sub-divided into VLANs that require layer 3 switching? Will one switch meet business requirements? What is the percentage likelihood of a switch failure impacting business operations? Etc. It is helpful to have an IT professional to assist in asking these questions. The principal of computing simplicity ensures that the easiest and most functional solution is implemented, but also provides for smart growth and good stewardship of resources.

Current recommendation: Category 6 or better Ethernet cabling, or fiber.

Security Standard:

All nodes within the network should be password secured. A timeout lock should also be enabled whenever possible. Passwords should be eight characters in length, contain alpha and non-alpha characters, as well as special characters.

Principal of least privilege: the principle of least privilege (also known as the principle of minimal privilege or the principle of least authority) requires that every module (such as a firewall, a user, or a program,) must be able to access only the information and resources that are necessary for its legitimate purpose. A firewall, for example should be configured with all inbound ports closed, until such time as a business need identifies a requirement for inbound access. At that time only the ports required should be opened, and only to a specific IP address, range or service.

Anti-Malware software should be installed on all computers

Operating Systems, hardware and software:

Use a current operating system* (Windows 10, Mac OSX, supported versions of Linux, etc.) that is supported by a company who updates the operating system when security vulnerabilities are discovered. For mobile devices such as smart phones and tablets: Never use a jail broken or rooted operating system.

Set up your system to receive updates automatically. Set up Windows Update or Mac Software Update to download and install automatically. For mobile devices, use the native app store to download and install operating system and application updates on a regular basis.

Whenever possible use fully hosted applications, I.e. Office 365. Hosting offers many advantages to networks of all sizes, including reduction of hardware and administrative overhead, ease of access, and scalability. If hosting is not an option, ensure that the software being selected is supported by a vendor that offers hosting as an option, or that can help you to move the application(s) and data to a hosted environment, in the future.

Current Recommendation: Windows 10 or greater, Mac OSX 10.10 or greater

Backup:

In all parish network types: all business critical data should be backed up on at least two devices which are stored off site. Whenever possible use a service such as that which is provided by barracuda.com to make backup simple and comprehensive.

Complete backups should be run weekly in all network types. Incremental or differential backups should be run daily.

Test backup restoration at least quarterly.

Support:

Often overlooked, support may be the most critical consideration with regard to the parish network of any size. Always consider who will support the network and how. Ensure that there is a specific agreement with the support vendor defining a SLA that meets business need. If you are utilizing the services of a parishioner, ensure that the knowledge he or she possesses about your network is well documented to ensure a smooth transition to another support vendor(s) as needed.

Definitions:

Core Network: The LAN, WAN, VOiP, and / or Wireless network segments where all nodes come together

SLA: Service Level Agreement. An agreement to provide service and support in a structured way within a defined period of time.

Bandwidth: Capacity for total information flow over a telecommunications medium over a given time. Expressed in terms of download capacity / upload capacity

Gbps: Billions of bits per second; a measure of bandwidth on a digital data transmission medium such as optical fiber . With slower media and protocols, bandwidth may be in the Mbps (millions of bits or megabits per second) or the Kbps (thousands of bits or kilobits per second) range.

Mbps.: Megabits per second. A megabit is Equal to one million of bits per second and is a measure of bandwidth.

Management
Ownership of this policy falls to the IT Lead. For any questions about this policy please contact him/her at 919.821.9766 or IT.Support@raldioc.org

Review
Management is responsible for keeping this document current. The standards defined herein will be reviewed annually or as circumstances arise.