ST. JOSEPH'S COLLEGE

JAKHAMA

P.B. No. 39, Kohima, Nagaland – 797 001

(Autonomous status granted by UGC notification No.F.22-1/2017 (AC) Dtd.11th Oct.2018)

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NAAC Grade A (CGPA: 3.12)

Date: 27/10/2023

REPORT OF COLLABORATION WITH PANACEA SERVICES

To enable a learning environment that supports achievement and growth with modern methods and latest technologies, the college has a state-of-the-art IT infrastructure using Microsoft Server Technology with dedicated high-end servers to manage the work stations. To manage all administrative office related works the college has developed customised software called **CAMPUS VAULT.** This software was developed in collaboration with Panacea group. It has the features to accommodate individual student profile, list and details of students according to the department and class section. The software keeps the data report of students' attendance, leave, absentees, bunking of class, hour based attendance of students, payment of instalment fees, fine, and other payments.

The college developed customized Software called **SJC EXAM SYSTEM.** It was developed by Concept Flux and installed on 16th October, 2023. It has all the features to keep record of the students pertaining to Academic & Exam matters, mark-sheets, list of students who appeared exam, not appeared, cleared, not cleared, backlog students, passed out students, and declared results of students.

The college has Wi-Fi facility with Internet Broadband speed of 30Mbps both in the Arts Block and Science Lock. The teachers have access to Wi-Fi and students are provided access as and when needed. The buildings of the various blocks are interconnected using wireless radio technology to avoid network cables running across the campus. The PG Block has a separate dedicated Internet Broadband of 30Mbps and has Wi-Fi facility available in the classrooms.

For library information, Soul 3.0 from Inflibnet has been implemented and the patrons use the OPAC from the thin client systems. NComputing has been the preferred technology for desktop virtualization in the college.

Biometric Attendance System has been the model for recording attendance of Staff and also their details. There are three devices installed on each block that is Arts, Science and PG Block and are monitored from one administrative point. The data are collected through network system. The Staff can punch from any of the devices according to their location. It is not necessary that they have to punch on a specific device.

The College has well designed website, https://stjosephjakhama.ac.in/ , powered by NK Square Team, Kohima in 2023, where all the information about the college is accessible.

Microsoft Exchange Server for on premises Mail Box for the college official email is an ongoing project.

Chronicles:

Microsoft Server Technology: Server Standard 2016 – implemented on 2019 by Panacea

Server Standard 2022 – implemented on 2023 by Panacea

Exchange Server 2019 – ongoing project by Panacea

Campus-Vault: implemented on 2019 by Panacea

Essl Biometric Technology – implemented on 2016, 2019, 2021 by Panacea

Wi-Fi Campus – implemented on 2021, 2022, 2023 by Panacea

PA System of the College – by Panacea on 2022

NComputing Technology: L-Series L400 – implemented on 2023 by Panacea

Dr. Fr. George Keduolhou Angami
Principal
Principal
St. Joseph's College (Autonomous)
Jakhama Nagaland

PANACEA SERVICES

Solutions through Optimism

Proof of Concept

Implementation of Microsoft Exchange Server

(Licensed Mailbox Server System)

St. Joseph's College (Autonomous) Jakhama

Contents

Introduction

Microsoft Exchange Server is a mail server and calendaring server developed by Microsoft. It runs exclusively on Windows Server operating systems. It uses the standard SMTP protocol to communicate to other internet mail servers.

Exchange Server is licensed both as on-premises software and software as a service (SaaS). In the on-premises form, customers purchase client access licenses (CALs). In SaaS, Microsoft charges a monthly service fee.

Key Features:

1. **Collects your contacts in one place**: Microsoft Exchange recognises user's professional network spans different platforms and mediums. It lets users find the same person across networks and collect their data on one contact card, avoiding unnecessary duplication.

2. **Data loss prevention features**: This feature ensure that your private date is secure, as users cannot mistakenly send sensitive information to unauthorised people.

3. **Apps for office integration**: An extension model allows users to access plugins easily and create a more powerful communication tool.

4. **Single interface for eDiscovery**: This reduces the cost of managing complex compliance functions.

5. **Quick Management of Messaging System**: This allows specialist users with special permissions to perform specific task, speeding up the overall process of managing the data.

6. **Save most important data in one place**: This enables you to control your storage and compliance demands while keeping your users productive.

7. **Move to the cloud your way**: This gives you the choice of on boarding to the cloud overnight allowing your end users a seamless communication experience.

8. **User Collaboration**: Team and project communication becomes easier.

9. **Intuitive Inbox Experience**: This enables desktop, browser as well as mobile interfaces.

10. **Eliminate email threats**: Built-in defences stop email threats from reaching your inbox.

Scenario

A prestigious catholic institution of higher learning is in requirement of its own mail server with official email address. The college has around 13 Departments of speciality and an administrative department with also a library which all need their own separate official email.

Microsoft Exchange Server is the recommended software for an educational institute because it is user friendly and almost every person is familiar with Microsoft products and also Microsoft provides very good technical support if the institute ever face any problems.

A high configuration system has to be assigned as the dedicated mailbox Server without having to function as any other server roles in the college IT Infrastructure.

Minimum Requirements

Hardware Specifications for Server:

i)   Processor – Intel (R) Xeon CPU @ 4.0 GHz
ii)   RAM – 16 GB DDR4 or more
iii) SSD – 1TB or more
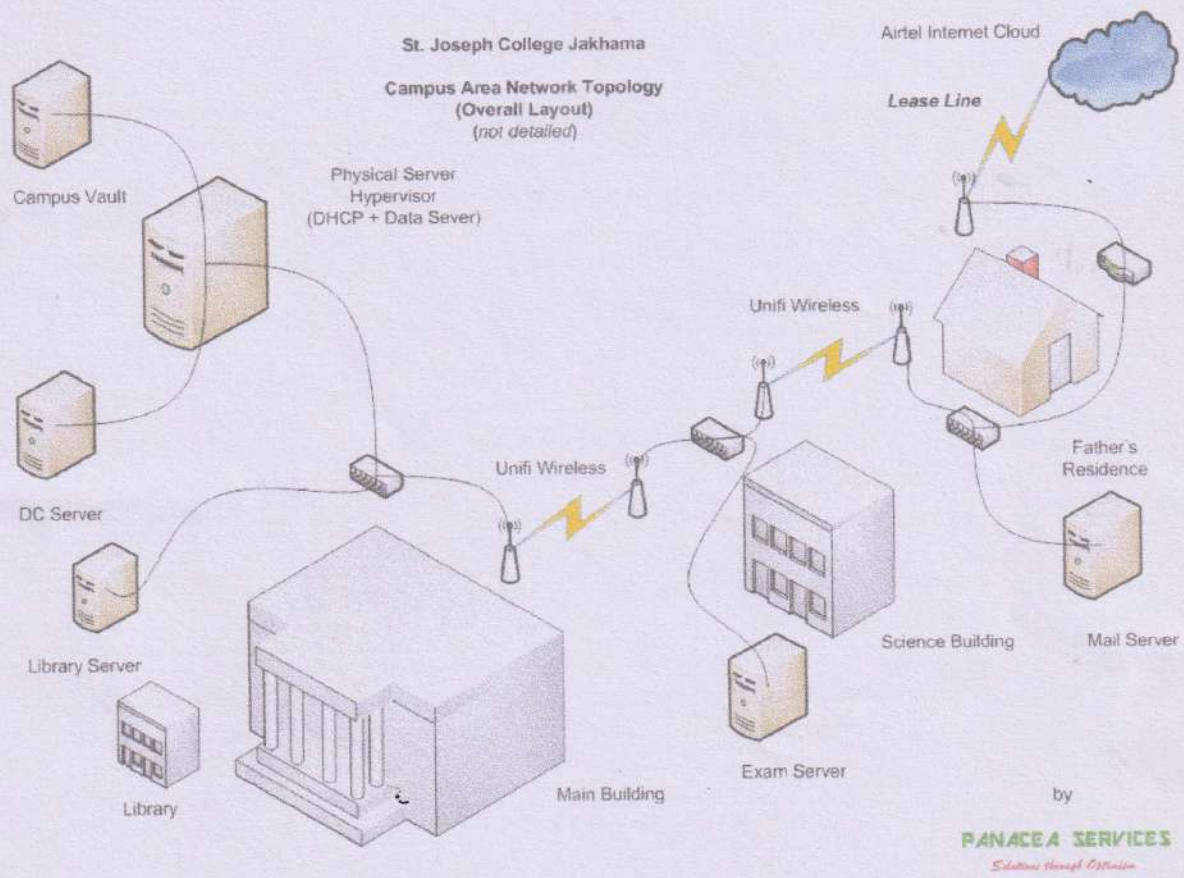
Power Management:

i)   UPS – Online 1KVA or higher

Software:

i)   Windows Server Standard 2022
ii)   Microsoft Exchange Server 2019

Network:

i)   Internet Access
ii)   LAN connection

Design

St. Joseph College Jakhama

Campus Area Network Topology
(Overall Layout)
(not detailed)

Campus Vault

Physical Server
Hypervisor
(DHCP + Data Sever)

DC Server

Library Server

Library

Main Building

Unifi Wireless

Unifi Wireless

Exam Server

Science Building

Airtel Internet Cloud

Lease Line

Unifi Wireless

Father's
Residence

Mail Server

by

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Solutions through Optimism

Implementation

Install Microsoft Windows Server Standard 2022 and configure the prerequisite roles for Mailbox Server.

Install Microsoft Exchange Server 2019 and configure the policies.

(Detailed report will be furnished in Work Completion Report)

Conclusion

By implementing this technology, the college will have its own mail server and its own official email address and the college will have the liberty to manage their own data eliminating the threat of disclosing content of data to other third party.

By purchasing on-premises software license and client access licenses (CALs), the college need not have to pay monthly service fee.

In Exchange Online Plan 1 the college will have to pay Rs. 315 + GST 18% = Rs. 372 for 1 user per month with 50 GB mail box. So for 50 users = Rs. 18,600/- per month which will cost Rs. 2, 23,300/- annually.

In Exchange Online Plan 2 the college will have to pay Rs. 630 + GST 18% = Rs. 744 for 1 user per month with 100 GB mail box. So for 50 users = Rs. 37, 200/- per month which will cost Rs. 4, 46,400/- annually.

Opting for on-premises license will benefit even though the initial one-time investment may seem to cost a lot but it can last for more than 10 years until the technology becomes obsolete.

The old college server that controls the campus IT infrastructure was installed in the year 2012 and it is still continuing to provide support to this day.

For Panacea Services

Date: 20.11.23

Proof of Concept

Upgradation of IT Infrastructure

(NComputing Technology integration with Library Information System)

St. Joseph's College (Autonomous) Jakhama

Contents

Introduction

NComputing is a desktop virtualization company that manufactures hardware and software to create virtual desktops (sometimes called zero clients or thin clients) which enable multiple users to simultaneously share a single operating system instance.

Features:

1. The NComputing L-series access devices with vSpace™ desktop virtualization software dramatically cut your computing costs by enabling up to 30 users to share a single PC, server or virtual machine.

2. Each user's get their own virtual desktop with a rich, multimedia computing experience that is practically indistinguishable from running on a full PC.

3. IT staff and end users do not need special training because this end-to-end solution is easy to manage and is compatible with standard desktop applications.

This user manual covers three distinct L-series products: L130, L230 and L300. The entry-level L130 provides all of the basic features needed for a good virtual desktop experience, complete with keyboard, mouse, monitor and speaker connections. The L230 adds a USB port for connecting storage devices, a microphone port, and more colour depth for an even better user experience. The L300 delivers the best possible virtual desktop experience with the addition of a high-performance video acceleration system that supports full screen motion video, higher screen resolutions and more USB peripheral ports. The following table summarizes the key differences between the products in the L-series family.

	L130	L230	L300
Maximum Screen Resolution (Wide)	1440x900	1440x900	1920x1080
Maximum Screen Resolution (Standard)	1280x1024	1280x1024	1680x1050
Maximum Color Depth	16-bit	24-bit	24-bit
Mouse & Keyboard Ports	PS/2	PS/2	USB 1.1
Speaker Port	Yes	Yes	Yes
Microphone Port	No	Yes	Yes
USB Peripheral Ports	None	1 x USB 1.1*	2 x USB 2.0*
Video acceleration for full-screen video support	No	No	Yes

*NComputing L-series access devices use remote USB 1.1 or 2.0 to provide transparent USB redirection.

Scenario

The College is currently having a centrally managed IT infrastructure, using windows active directory technology.

There is a requirement for a technology by which the college can cut down the cost of maintaining 200+ computers.

So, NComputing technology comes into picture; where it will be integrated with Microsoft active directory Technology.

Minimum Requirements

The minimum recommended system specifications for a vSpace installation can be very minimal. The host PC may only need 1-2 GB of memory, a 2.4 GHz single-core processor, and less than 100 MB of free hard drive space to run a few users. However the number of users, intended application suite and overall performance expectation will ultimately determine how powerful a computer must be in order to deliver the desired multi-user experience.

Minimum Host Hardware Configuration (L130 or L230)						
Host Configurations		Number of Users				
		1-3	4-7	8-10	10-20	20-30
Most Applications	CPU* (minimum or Equivalent)	2.4 GHz or Dual Core	3.0 GHz or Dual Core	Dual Core	Fast Dual Core	Fast Dual or Quad Core
	Host Memory	1-2 GB	2 GB	3 GB	3-4 GB	4 GB

* CPU recommendations are for Pentium class of processor or newer

The table below gives recommended specifications for a vSpace host computer, based on number of users and the type of applications used. NComputing recommends you test your environment in advance of deployment to ensure it meets your expectations.

Recommended Host Hardware Configuration (L300)						
Host Configurations		Number of Users*				
		1-3	4-7	8-10	10-20	20-30
Productivity Applications	CPU** (minimum or Equivalent)	Core™ 2	Core 2	Core 2	Core i5	Core i7
	Host Memory	2 GB	3 GB	3 GB	4 GB	4 GB
Multimedia Applications	CPU** (minimum or Equivalent)	Core 2	Core i5	Core i7	Core i7	Core i7
	Host Memory	2 GB	3 GB	3 GB	4 GB	4 GB

* For the L-Series access terminal, the maximum number of users is 30. The number of users a customer's installation will support depends upon the host's configuration and performance expectations of the customer. Performance results are highly dependent upon the individual host hardware, memory, video card, applications being used, OS and network conditions within any LAN/WAN. Host requirements will vary, please test your multi-user environment before deployment. For more information on supporting multiple simultaneous multimedia streams see the document "Configuring an L300 Multiuser Environment".
** CPU recommendations are generation of processor or equivalent
Note: This table is only a guideline; actual use may vary based on system utilization.

For each L-series device you will need:

- ☐ Keyboard and mouse (PS/2 for L130/L230 or USB for L300)

- ☐ Monitor

- ☐ A category 5/6 network cable to connect to your existing Ethernet network

- ☐ Optional: speakers, headphones, microphones and USB peripherals

Design

St. Joseph College Jakhama

Library Information System
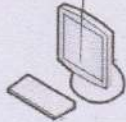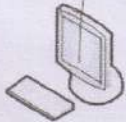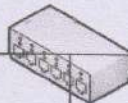(Overall Layout)
(not detailed)

NComputing

Vspace Server

INFLIBNET

Library Server

Hub Device

Multifunction
Printer

Thin Clients (Desktop Vistualization)

by

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Implementation

1. Networking of Computer Centre (Wiring CAT 6 Network Cables)
2. HUB Centre with Wall Mount Rack (6 Units)
3. Keystone Outlet for every terminal
4. V Space Console Management Server
5. Integration of N Computing Technology with Microsoft Active Directory