



IT Discovery Report

Preparatory School

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Discovery

The following tables were captured while Scadco conducted a capability assessment.

Network Infrastructure Discovery

Score: 56/170 

	Description	Speed
Internet	Business Fibre Uncapped (Centracom)	300MB 300MB
Wired	Ubiquiti UniFi & D-Link	1Gbps
WiFi	Ubiquiti UniFi AC	300Mbps
Redundancy & Power	Mecer UPS	1Kva
Firewall	FortiGate 100D UTM	1Gbps

Assessment results

Network Infrastructure – Internet

Score: 7/15 

- a. The business fibre router installed is a Cisco enterprise class router which has been professionally installed by the fibre provider and is managed by them. Support and warranties are covered in the service level agreement with Centracom.
- b. There is currently no secondary link installed for internet redundancy which is a high risk to productivity and critical business and education functions. It is recommended that a secondary link is installed and that the firewall is configured to manage both links to sustain network security integrity and internet connectivity to user devices and services.
- c. The network cabinet is powered by an online UPS with a automatic start generator in the event of a power failure. The server cabinet and server room are secured with keys.

Wired Network

Score: 14/45 

- a. The wired network has been expanded to all building structures in which a user would need connectivity.
- b. A detailed network map of the network design is available on the Teams site and is updated regularly.
- c. The network equipment purchased and installed are standardized and are controlled by a network management system that manages both wired and wireless networks from a single interface.
- d. Links between buildings are connected with fibre and installed as per industry standards.
- e. There is no core switch installed as the current topology is not designed for this scenario, it is recommended that the network design is reviewed and modified as per proposal in [Appendix B: Future Network Design](#)
- f. Unsecured points open the possibility of network access breaches to anyone with a device and a flylead.
- g. Network switches are housed in secured network cabinets and follow industry standards for cabling and cabling management.

Wireless Network

Score: 15/30 

- a. Ubiquiti UniFi wireless access points are used and installed in zones to reach the maximum amount of devices. Access points are installed according to the manufacturers recommendations and are managed by a network management system.

- b. Not all access points supports the 802.1 AC standard, newer units support AC and AC+. Projects are in progress to replace EOL equipment.
- c. WPA2 Personal is configured to a single SSID that shares the wired network’s subnet. It is recommended that SSIDs for faculty, students and guests are created and use WPA2 Enterprise with RADIUS authentication over separate VLANs.

Capacity

Score: 4/10

- a. The current network has a DHCP scope with 450 IP addresses on a single subnet.
- b. The network management system reports that under the current capacity, devices get fair bandwidth on the wired and WiFi networks.

Redundancy & Power

Score: 3/25

- a. The WAN/LAN is supported by UPS power in form of online UPS. There is currently no central management system in place for UPS monitoring and configuration
- b. UPS are spec’d correctly for their location and can power the network in the event of a power failure, online UPS also ensure that clean power is delivered to the network equipment.

c. Firewall

Score: 13/45

- a. A FortiGate 100D is currently running as the firewall. The FortiGate is licensed and updated to the latest virus definitions.
- b. The FortiGate is not updated to the latest version of the FortiOS firmware (4.5.7 > 6.0.4)
- c. The FortiGate security score is not available on the current firmware, update the firmware to start firewall security analysis.
- d. The web filter with HTTPS inspection is active but is not tested periodically by the IT team and reported to management that security is in fact operational, it is suggested that a schedule is setup to run a security test at least once per school term.

Server Infrastructure Discovery

Score: 68/95

	Description	Specification
Server	-	-
Redundancy & Power	-	-

Server Infrastructure

Score: 10/20

- a. The current servers are enterprise class hardware that are recommended by HP to serve the environment. The servers have redundant PSU installed to ensure for redundancy.
- b. RAID is configured in RAID 5 on a local SAS array.
- c. iLO has not been configured to report to the IT ticketing system if a hardware error is identified by the server’s monitoring instruments, it is advised to have this capability configured.

User Devices Discovery

	Description
Users	Faculty – 100 Students – 1800 Other Staff – 20
Desktops	CC1 - CC2 - Media - Staff Centre -
Laptops	Faculty - Other -
Tablets	Tablet Lab 1 - Tablet Lab 2 -

Environment

Score: 27/40



- User, administrator, services and application passwords are managed by a group policy controlled password policy. It has been softened to allow for users to keep passwords for longer and reuse previous passwords, it is suggested that the password policy be hardened to improve security.
- System passwords are stored in an encrypted vault that is restricted to the network administrator.
- Access control to network cabinets and IT office are protected by keys. The IT office is not locked when technical analysts are out on call as the office is used by other staff, this poses a security risk as there may be sensitive information or equipment in the IT office.
- Power is delivered to Online UPS on the network which ensures power is stable in the even of a power surge or failure.
- Cabling on the campus varies on the location and period that the cables were installed, cabling has been improved as infrastructure grows.

Access Devices

Score: 31/35



- Some laptop and desktop devices are end-of-life. Out of warranty devices may have an impact on productivity in the event of faulty hardware
- Devices are insured against theft and accidental damage.
- Devices are standardized in most cases. Keeping devices standardized simplifies the environment for users, technical staff, replacement part stores and warranty replacement/repair.
- There are not enough spare stock in devices and parts to allow for quick swap out for users to get back to work.
- Devices are tracked and assigned to users via Scadsys Assets.
- HP business class laptops are fitted with TPM chips to ensure that stolen devices are protected against data theft.

Productivity Software Discovery

Software	Description	Version
Microsoft Office	Productivity software	365 (Latest)
Sage Pastel	Accounting Software	14
SASAMS	Government Reporting System	2019 (Latest)
Scadsys	School Management System	2019 (Latest)

Productivity Software

Score: 13/15



- Microsoft Office versions are not standardized, this impacts productivity and security breaches. Microsoft Office versions 2013, 2016 and 365 are in use in the environment which creates a problem for compatibility, functionality and training.
- Sage Pastel is running an unsupported version of Pastel Partner (4 versions behind the latest). Pastel is not a secure system due to legacy issues with the software e.g. SMB drive map is required for users to run the application with permissions set to allow write access to the Everyone group. This is seen as a security risk and flaw in the system which cannot be resolved by Sage, the solution would be to either run Pastel over remote desktop on a local session or to assign finance devices to a VLAN for network segregation.
- SASAMS is a mandatory government reporting tool which is used to capture data required by the department of education for statistical purposes. The system is a legacy system that uses an MS Access database. The system also poses security risks to personal information. The solution would be to run the system on a virtual machine and use remote desktop to connect to a session on the LAN.
- Scadsys EMIS performs management and operations functions for various departments and serve as the school's central database. Scadsys runs on .NET using a HTTPS webservice to connect to a MS SQL Server on premise. It is recommended that due to faculty, parents and students using Scadsys remotely that it is hosted in the cloud to allow for higher availability.

Management Software Discovery

System	Description	Version
Network Management	Ubiquiti UniFi Controller FortiOS	Latest 4.5.7
Server Operating System	Micorosft Windows Server	2012 R2
Access Device OS	Microsoft Windows	10 Pro 10 Education
Anti-virus	Windows Defender ESET Server Security	Latest
Incident/Request Management	Scadco Hosted IMS – Scadsys/osTicket	Hosted Service (Latest)

Management Software - Network Management

Score: 13/15



- Ubiquiti UniFi is the management tool for LAN and WLAN networks. The network map resides in the network controller to keep up to date with active equipment on campus.
- Internet management is managed by FortiGate 100D. Notifications are configured to report to the incident management system.
- Incidents and requests are logged on the Scadco IMS which manages SLA performance and ensures issues/resolved are tracked and resolved.

Server Operating System

Score: 33/50



- The servers are running Windows Server 2012 R2 which is not ideal as upgrade licensing and server hardware is compatible to run an upgrade project. A backup schedule is setup with external and offsite backup locations present. Cloud backups for VMs have not been implemented at this stage.
- Physical servers make use of Microsoft Hyper-V hypervisor to run multiple virtual machines for the domain controller and application servers.

- c. Standard security practices are partly followed and need to be fully resolved to reduce risk to data security.
- d. Servers are not updated with the latest server patches.
- e. Configurations have been documented in the disaster recovery plan but have not been reviewed in the last 12 months and have not been tested. The DR plan must be reviewed and tested periodically as an outdated plan increases risk of data loss.
- f. ESET server anti-virus is installed on host servers and virtual machines.

Access Device Operating System

Score: 23/30



- a. Windows 10 Pro/Education is standardized with no Windows XP device. Microsoft requires that all devices must be updated to at least Windows 8 to be deemed secure.
- b. Access devices are managed by Active Directory and users have full administrative rights on devices. Users can also edit and remove other user's files by opening local profiles.
- c. Updates are run as per update policy which allows for devices to update based on user acceptance.
- d. No data or Operating system backup solutions are present. A Microsoft OneDrive implementation is in progress to perform user data backups.

Anti-virus

Score: 12/30



- a. Access devices and servers have anti-malware applications installed and are updated. There is no central management in place to monitor threats on user devices.
- b. Mobile devices (Android) are not managed by MDM or have anti-malware policies in place.



The current agreement with Microsoft is currently being transitioned from OVS-ES to CSP model to allow for access to new licenses for Education. The volume license agreement covers for Microsoft Windows, Core CAL and Office on all faculty devices, computer centres and computer labs and student devices. Windows Servers and SQL Server are also covered in the volume license agreement.

Access to licenses are available on the Microsoft VLSC (Volume license service center) and is password protected.

Microsoft Education Licensing

For education customers who license software in greater quantity and manage software across multiple devices, Microsoft Volume Licensing programs can provide the most cost-effective way to acquire licenses.

Microsoft offers both “subscription” and “perpetual” Volume Licensing programs for education customers. This guide covers the subscription licensing.

Subscription Licensing

With subscription licensing programs, you have the right to run a selection of products, and any upgrades or downgrades of those products, for a designated term. A subset of products, including specific application, system, and Client Access License (CAL) products, designated by Microsoft as “desktop platform products,” are licensed on an organization-wide basis. For these “desktop platform products,” you place an order for a quantity that is equal to the number of FTE employees in your organization once per year. This way even if the number of devices or users grows, you remain fully licensed throughout the designated term, and you only need to report an increase in the number of your FTE employees on your annual order. EES offers the simplicity of licensing desktop platform products organization-wide through an annual count of people instead of PCs/devices and the flexibility to add additional products in any quantity.

Enrollment for Education Solutions (EES) Introduction

Enrollment for Education Solutions is an easy, cost-effective offer that provides qualified academic customers a simplified way to acquire Microsoft software and services under a single, subscription agreement. It offers benefits such as assured coverage for desktop platform products with one annual count of employees, the ability to easily add additional products in any quantity, self-service tools for simplified asset management, and immediate access to benefits such as product upgrades through Microsoft Software Assurance so that you can boost the productivity of your faculty and staff and optimize the return on your technology investments. EES offers participating institutions the benefits of the following:

- **Easy Compliance:** Through the simplicity and predictability of counting FTE employees just once per year, you can be confident you are fully covered for the desktop platform products you selected regardless of yearly fluctuations in employees or devices.
- **Customized Solutions:** Easily add Additional Products either organization-wide, department-wide, or for individual licenses at any time during your subscription term so that you can deliver the right mix of technology and services to your faculty, staff, and students. A broad selection of Microsoft software products,

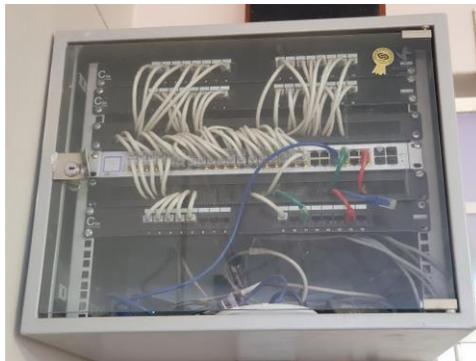
such as Microsoft Visio drawing and diagramming software, Microsoft Project, Office 365, the Windows Server operating system, and Microsoft Exchange Server are available as Additional Products through EES.

- **Simplified Asset Management:** Self-service tools such as the Microsoft Volume Licensing Service Center (VLSC) enable you to easily track and manage your software assets and Software Assurance benefits from one convenient, online location.
- **Cloud on Your Terms:** Access to Microsoft 365 Education A3, plus the ability to subscribe to additional Microsoft Online Services through your EES means you have the flexibility to move users back and forth between on-premises software and cloud services, match and adjust online service plans to meet your users' needs, and add and adjust Online Services as needed so you can transition to the cloud on at your pace.
- **Low Administration:** Subscription licensing eliminates the need to track licenses for the selected desktop platform products on every PC, which enables your IT staff to be more productive because they no longer have to track multiple licenses across the organization.
- **Lower Total Cost of Ownership (TCO):** Realize the maximum value from your licensing investment with included benefits such as access to current technology, Work at Home Rights (WAH) for faculty and staff, product evaluation rights, Software Assurance for Microsoft Volume Licensing, and Microsoft 365 Education A3.
- **Student Advantage Benefit:** When you license Microsoft 365 Education A3 organization-wide for all of your faculty and staff employees, you qualify for no-cost Microsoft 365 Education A3 subscription licenses for your students through the Student Benefit Option.

Appendix B: Future Network Design

Appendix C: Site Photos

Networking Infrastructure





User Devices



Statement of Authenticity

This report remains valid until superseded by a revised report endorsed by the signatory below. The report will be reviewed on request but can be changed at any time as agreed upon by both the customer and author.

M.J Struwig

Director, Scadco

Date: _____