**ISYS90076 - IT Infrastructure for eHealth**

**Major Report:**

**“Rapid remote site deployment”**

**(2,000 words on an eHealth infrastructure, problem-based scenario)**

**Aim:** to provide students a scenario-based, infrastructure related challenge, to identify plausible solutions to real world problems for various demands on eHealth infrastructure.

**Outcome:** A 2,000 word individual report and peer review presentation - 45 marks total (Plus 5 marks for peer presentation).

Provide a Bibliography ([APA 6th Style](http://library.unimelb.edu.au/cite/)). *Rank the top 5 sources for the report and briefly note why.*

**NB:** Make plausible assumptions as required and note in an Appendix – This and any tables, diagrams, bibliography and comments are excluded from word count.

**Title: “Rapid remote site deployment”**

**Problem**: There is an epidemic outbreak of avian flu in a remote North West Victoria location (Underbool pheasant farm – 492 Klms from Melbourne) during the summer holidays.

* The local community has been swelled dramatically by a recent influx in recreational visitors due to a dry lake being full of water and the great weather.
* However, the disease has quickly spread and there is limited opportunity to contain the spread.
* All potentially exposed people need to be quarantined and the pheasants destroyed requiring an on-site command post.
* Emergency Medical services must also be assembled onsite and online to the major Metro Hospital “MetroHealth”, within 24 to 48 hours.
* Staff barracks and a demountable medical centre, complete with isolation rooms, radiology diagnostics and PC’s/laptops has been despatched from Melbourne and will be provisioned onsite by the Military in 36 hours.
* Total users of the online systems are expected to reach around 50 people.
* Fortunately, sufficient power, town water and sewerage are available for the massive influx of health and emergency workers to combat the issue.

**Task**: From our lectures, class tutorials and your own knowledge/research, write a 2000 word report describing a **plausible** model to provision an extension of the “MetroHealth” hospital IT systems, so all clinicians and diagnostic devices are on-line, as if at the main campus. Please address the criteria below:

**Assessment Criteria:**

1. (25 Marks) “CHOSEN SOLUTION” - A detailed description of your preferred end to end networking solution to have the remote clinicians online within 48 hours including each of the following (5 Marks each):
   1. Introduction and summary of your entire solution overview. An end to end solution diagram/architecture is required.
   2. Types of PC/Laptop & Diagnostic devices to be used. Do they have any special requirements to connect/operate?
   3. Local area network architecture in the demountable hospital & staff barracks (diagram required to illustrate your design)
   4. Demountable hospital connection to nearest POP[[1]](#footnote-1) - Detail the connection from the Demountable hospital to the POP
   5. Backhaul connection to MetroHealth. Include information on the technology, how it is accessed from the PoP and how it enters MetroHealth’s internal network to provide an end to end solution.
2. (10 Marks each) **Select TWO (2)** of the following aspects of this issue and provide further information:
   1. TECHNICAL SPECIFICATIONS – Provide a more detailed specification/materials list to support your design for wireless access points (WAP’s), routers, firewalls and various proposed media types (fibre cables etc.) to enable the required end to end connectivity. Include details of device capacity/throughput/size, where possible e.g. band and speed of WAP connections, number of switch ports, link sizes 10/100/1000/10000, media types etc.
   2. SECURITY OVERVIEW - Provide a high-level overview of the security measures you would deploy to ensure security of information transfer for the full end to end process. Include details of software or hardware solutions employed, the client of edge solution as well as the concentrator/hand-off solution.
   3. SUPPORT OVERVIEW – Provide details on how your chosen solution can be supported, with either on-site and or remote management. Has your solution been designed with resilience and ease of support?
3. (5 Marks) **Peer review presentation** (5 minutes duration) to be scheduled during last 2 classes of the semester. Note: You may present on either Minor report if you choose to instead.

**Note:** A basic understanding of the common terms and definitions relevant to the topic must be demonstrated in your report.

**Submission Date**: Week 12 – **Tuesday 22/05/2018 at 11.59pm**

**Marked/Return Date**: 3 weeks (or earlier)

**Forum**: Tutorial Discussion, one on one with lecturer.

**Recommended Reading:** *Application of information technology within a field hospital deployment following the January 2010 Haiti earthquake disaster.* J Am Med Inform Assoc. 2010 Nov-Dec; 17(6): 626–630. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3000757/>

1. POP = Point Of Presence – usually refers to a point of connection into a WAN or MAN e.g. broadband backhaul. [↑](#footnote-ref-1)