

2010 Paper 9 Question 6

Digital Communication II

- (a) A network consists of a central hub router, with links (spokes) to a set of routers at outlying sites. A network designer is trying to choose which routing protocol to deploy.
- (i) Illustrate the operation of Link State and Distance Vector routing algorithms over this simple topology. [6 marks]
 - (ii) What are the overall packet counts for each protocol in the whole network from turning the system on until all routers know where all destinations are? [2 marks]
- (b) Another network consists of a set of sites with routers, connected in a long line.
- (i) Illustrate the operation of Distance Vector routing when one link at one end fails. [6 marks]
 - (ii) What are **two** common techniques to improve the performance of the protocol in these scenarios? [4 marks]
- (c) Why do path vector protocols not have this problem? [2 marks]