

Editors' Introduction

WELCOME to the Fall/Winter 2010 issue of the Internetworking Indonesia Journal. We are pleased to bring you this regular issue of the IJ which contains a broad range of papers, include those written by graduate students. As described in the goals of the IJ, among others the journal seeks to be a publishing venue for graduate students (such as Masters/S2 and PhD/S3 students) as well as working academics in the broad field of ICT and Internet development. This includes graduate students from Indonesian universities and those studying abroad.

Consistent with another goal of the IJ, the current issue of the journal has papers written in Bahasa Indonesia. From the outset the IJ has sought to promote the culture of writing and of excellent authorship in Indonesia. It is for this reason that the IJ is "bilingual" in that it accepts and publishes papers in both English and Bahasa Indonesia. We believe that by publishing papers in Bahasa Indonesia, we provide students and other authors the opportunity to develop formal writing skills for technical papers in Bahasa Indonesia.

The first paper in the current issue deals with the use of a *cyclic redundancy check code* (CRC code) in the extension header of an IPv6 packet. The paper proposes the introduction of a new IPv6 header extension whose contents would be a CRC code computed over the relevant fields of the packet. One aim of this approach is to obviate the need for error detection at the underlying Data Link layer of the intermediate nodes. The paper reports a number of results from tests using a simple IP network topology. Although introducing this new extension header costs additional computation at the sender and receiver, the authors claim that overall benefits is derived by from the intermediate nodes (routers) not needing to perform error detection at their Data Link layer prior to routing/forwarding packets.

Mobile ad hoc networks (MANET) is the topic of the second paper. More specifically, the paper deals with the issue of cluster-head selection in a stable manner. The dynamic nature of the members of a wireless ad hoc network poses a number of interesting questions, including that of reliable routing. With each node in an ad hoc network acting also as wireless router, the nodes need to have the ability to self-organize into a given network architecture, such as a cluster network architecture. This in-turn necessitates the selection of certain nodes to become cluster-heads. This paper proposes a new approach to the selection of such cluster-heads. The approach is based on the well-known *weighted clustering algorithm* (WCA), and introduces a *mobility prediction scheme* which looks not only at the mobility of a given node

but also at the relative mobility of its neighbors. The prediction algorithm uses the node link expiration time as the basis for the prediction scheme.

The third paper, written in Bahasa Indonesia, focuses on the security issues around the planned use (by the Indonesian government) of the 16-digit *Single identity Number* (SIN) for every resident of Indonesia. The aim of the SIN is, among others, to expedite access by residents to government services by replacing non-digital credentials and other identity documents. The paper looks at the possible use of a two-dimensional bar code called the *Quick Response* (QR) code to conveniently represent the SIN. This barcode would then be easily readable (eg. at local government offices) by using code-reader devices that are attachable to PC computers or mobile phones. The paper also considers the use of biometric scans to authenticate the user as the legitimate holder of a given SIN. Finally, the paper offers some broad suggestions regarding the implementation of such a SIN-based system, including the creation of the SIN values and its associated card, and the verification of the card and SIN at the point of service.

Providing affordable computer-accessibility to sufferers of quadriplegia is the topic of the fourth paper. For handicapped persons in developing nations, the cost of devices and related equipment represents a major issue. As such, this paper looks into the possible development of affordable devices using cheap off-the-shelf components. The particular device in this case is a mouse controller, which can be operated by detecting the user's head movement.

The fifth paper, which is also written in Bahasa Indonesia, addresses quite a different topic from the previous papers, namely that of a learning management system. Following the unified theory of acceptance and use of technology, the paper reports some research results from experiments conducted at the Sanata Dharma University using the Exelsa system. The research found that performance expectancy, social influence and facilitating conditions represented significant factors influencing the behavioral intention of the students employing the Exelsa system.

The last paper is one written by a graduate student on the topic attribute oriented induction and its influence in the design of databases within data mining. The paper provides an illustration of the steps required to arrive at database tables from concept hierarchies as the point of departure. The paper provides a basic algorithm to convert a non-rule based concept hierarchy into database tables.

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