Kelvin Delgado

New York City College of Technology

TCET 4140

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Homework #3

**“Enterprise Network Management”**

By Richard "Zippy" Grigonis, Feature Articles

Published: February 2007

The article, “Enterprise Network Management”, is about the need for new application to help manage the growing needs of Network Management. According to Grigonis, “Network Management is a big term that ultimately encompasses all factors related to a network, be it an enterprise or a service provider network: Security, monitoring, planning, topology mapping, analysis of network performance to safeguard against traffic congestion of real-time communications applications the list goes on and on”

The article mentions Lou Nardo, Director of Product Management atQovia, a provider of IP telephony monitoring and management solutions, saying that “The Enterprise Network Management field is at a point where it needs to adapt to changes in the way IP networks are used,” says Nardo. “The rapid emergence of real-time applications as mission critical enterprise systems is applying enormous pressure on IT Operations organizations to keep up. Systems management vendors will need to find new approaches and solutions.”

In his article, Grigonis mentions applications that can help manage the growing needs of Network Management. One of the applications is NetXplorer by Allot Communications which provides intelligent IP service optimization solutions based on deep packet inspection (DPI) technology. Allot’s President and CEO, Rami Hadar, says “Our proposition is based on three elements, first, there’s knowledge resulting from monitoring. Many organizations, both enterprises and service providers, are not aware of what their pipes are carrying at any particular moment. We break down the pipe into applications and show the enterprise the distribution of how much VoIP traffic is there, how much peer-to-peer traffic is there, how much SIP traffic is there, how much gaming traffic goes on, how much downloading, and so forth.”

Another application that can help manage the growing needs of Network ManagementGrigonis mentions is ServicePATH Service Intelligence System by “Trendium a global provider of service assurance and performance management software deployed in both Fortune 500 and service providers.” **“**ServicePATH is a framework software platform that can be abstracted into a number of different solutions and is focused more on the Tier 1 operators and big service providers with complex back ends and hundreds of different types of network elements and OSS and BSS systems with which to integrate.”

Grigonis references many other applications that can help manage the growing needs of Network Management. Grigonis concludes saying “as networks become more dynamic and complex, the ability to view of everything important occurring in a network at any given moment… will become more important than ever, perhaps beyond the capabilities of mere mortals.” This article is based on the principle that if network management is growing then there needs to be new applications to meet the demand.

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**“The Cognitive Network”**

By Antonio Liotta

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The article, “The Cognitive Network”, is about the need to shift from packet-switched Internet to smarter routing algorithms to handle diverse data flows and prevent failures for future internet needs. In the current internet “information flows through the network using a four decade-old scheme known as packet switching, in which data is sliced into small envelopes, or packets. Different packets may take different routes and arrive at different times, to be eventually reassembled at their destination”, according to Liotta. Packet switching groups all transmitted data regardless of content, type, or structure of packets. There are several disadvantages to this design. “Packet switching requires a lot of computational muscle. Table queries and packet buffering consume about 80 percent of a router’s CPU power and memory.” Liotta mention that routers ignore the fact that many incoming packets may be headed for the same terminal and does not group them, this cause a problem when traffic increase leding to the problem of packet switching.

According to Liotta, future internet will require routing and forwarding protocols that are more like the autonomic nervous system. “One of the biggest challenges is designing algorithms that can learn not only how to minimize the use of resources such as processing power, memory, and radio spectrum but also how to maximize the quality of a user’s experience.” Autonomic protocols will help improve the existing network by improving the way information is transmitted and received by arranging the packet by priority according to content, type and travel path. Some packet will have higher priority as VOIP or video then let’s say email because VOIP and video require a steady stream of information for quality of services.

Today demand on the internet needs newer smarter application then packet switching to handle the large demand of internet traffic. “Back then most shared content, including e-mail and Web browsing, involved small sets of data transmitted with no particular urgency. It made sense for routers to process all packets equally because traffic patterns were mostly the same.” Network traffic today consists of bigger and longer data packet. According to the article, today’s internet requires routing and forwarding protocols that are smarter. More people are connected to the internet then over before with mobile dives, phones, and laptops. More people are streaming YouTube video, watch movie and TV shows with Netflix, listening to music with Pandora and uploading photos to social networks.