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Homework 3

**Reflection on “Enterprise Network Management”** By Richard "Zippy" Grigonis

When it comes to network management, not all networks are created equal. There are a number of factors contributing to why one company's network performance might differ from another company's. Network events like latency, throughput, packet loss, and retransmission are all contributing factors to slowing the network down. No matter how complex the network is, network performance management can help to better manage network functionality and reliability. While it is certainly possible to manage the network manually, it requires considerably more time and financial resources.

 “Enterprise Network Management”, article, is focused on the needs of fast growing infrastructure of the enterprises for new application to enhance the Network Management tasks such as : “Security, monitoring, planning, topology mapping, analysis of network performance to safeguard against traffic congestion of real-time communications applications” Lou Nardo, Director of Product Management atQovia argues that new approaches and solutions required in order to keep up with The rapid emergence of real-time applications in enterprise network management systems.

Such applications as NetXplorer by Allot that are designed to Centralize Visibility and Management of all Network Traffic and Enhanced Network Policy Control can help to manage the growing needs of Enterprise Network Management in Richard Grigonis opinion. In the realm of network management needs with rapidly increasing traffics overflown with time sensitive packets beginning with VOIP and ending with Cloud Based Processing scalable management system such as Allot NetXplorer serves an essential task of supplying vital network intelligence that enables network operators to understand how their bandwidth resources are being consumed by applications and users on the network, and to define traffic management policies that link service and performance parameters to business goals and to user expectations.

Another application that Grigonis mentions is Ciscos ServicePATH. **“**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.”

The article concludes that it will become more important than ever to have the ability to manage every detail of the network and monitor usage of the network with enterprise networks becoming more and more dynamic and complex. Authors main concern in this article is that the network management tools has to evolve in the same temp as the expanding networks themselves.

**Reflection on “The Cognitive Network”** By Antonio Liotta

Current demand for internet trafic in the world is growing due to the high take up of voice and bandwidth-intensive applications such as streaming and interactive video, plus the growing number of mobile devices equipped for Internet access. The other big problem is the problem of uncertainty, the idea that no one can predict what could come from around the corner that could demand even more bandwidth. The groundbreaking analysis identifies a critical issue facing the Internet – we must take the necessary steps to build out network capacity or potentially face Internet gridlock that could wreak mayhem on Internet services. 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.

Today’s internet rely on almost half a century old packet switching system that entails packaging data in specially formatted units called packets that are typically routed from source to destination using network switches and routers. Each packet contains address information that identifies the sending computer and intended recipient. Using these addresses, network switches and routers determine how best to transfer the packet between hops on the path to its destination. Packet switching is the alternative to circuit switching protocols used historically for telephone (voice) networks and sometimes with ISDN connections. Earlier in this century packet switching was considerate the best solution due to more efficient use of overall network bandwidth due to flexibility in routing the smaller packets over shared links. Packet switching networks were cheaper to build as less equipment was needed given this ability to share which eventually became the catalyst for the global implementation of Packet switching. However packet switching system suffers from one important disadvantage which is longer delays in receiving messages due to the time required to package and route packets. For many applications, delays are not long enough to be significant, but for high-performance applications like real-time video, VOIP additional data compression and QoS technology are often required to achieve the required performance levels. Liotta Argues that “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.” He also mentions 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 leading to the problem of packet switching.

Liotta argues that today’s demand requires smarter applications that will handle the increasing demand for the internet in the future. He proposes that the ability of such applications to arrange packets by urgency based on the information of their origin, type and level of urgency might significantly benefit the efficiency of the routing process. The times when routers process all packets equally because traffic patterns were mostly the same are gone. With exponentially increasing numbers of network nodes and internet thirsty applications and devices streaming large amount of data on a daily basis todays internet requires routing and forwarding protocols that are smarter.