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THE PROBLEMS AND PROSPECTS OF NETWORK MANAGEMENT

Allysa Ashley M. Palaming¹

¹BSICT, MIT (On Going), College of Computer Studies, Tarlac State University
Tarlac, Philippines

Geraldin B. Dela Cruz, D.I.T².

²Chief, Internal Audit and Quality Assurance Associate Professor II,
College of Engineering and Technology Tarlac Agricultural University, Camiling, Tarlac,
Philippines

Engr. Marlon V. Gamido³

³Dean of College of Computer Studies, Associate Professor IV, College of Computer Studies,
Tarlac State University, Tarlac City, Philippines

ABSTRACT

In this paper the researcher discussed the problems and prospects of network management. There are three sections of this paper, the problems and challenges in the implementing network management which explained the drawbacks and issues, the prospects of the state of the art enabling networking management technologies that explained the challenges and future situation of network management and the solutions than can offer. It also elucidated the classifications of ISO models breaks network management activities.

KEYWORDS: *Problems of Network Management, Prospects of Network Management, Network Management, Network Management and Security*

INTRODUCTION

The growth and development of technology experienced the rapid changes and innovation brought about by technological engineering and administration of network management system. With the expanding size, and many other happening in the world of technology administration of today's

systems, such administration worldwide is no longer sufficient, the others are inappropriate administration ideal models especially in network management. By analyzing the empowering innovations, this paper endeavors to discuss and reveal some insight into their problems and propose on their future prospects in network management [39]. This paper contained

several sections about the problems and prospects of network management administration.

There are sections in this paper that specify the 5 purposeful classification of network management as represented by the ISO. There was a massive development of system causation at some point of the planet. Every new system innovation, no matter whether or not it absolutely was ATM or Frame transfer or local area network or VPN or ISDN, needed another set of specialists to administer everyday system operations. Overseeing substantial, heterogeneous systems created associate emergency for a few associations and a vital demand for a robotized organize administration arrangement was felt basic.

As Goers and et al., [1] expressed that network management can operate to organize, demonstrate, utilize, exercises, arranging, outlining, execution tuning and limit demonstrating are required from the business outlook, base covering system execution, authentic utilization investigation, SLA announcing and execution administration are required from the administration point of view so as exercises, for example, observing, directing system, provisioning and stock administration are required from operations also, upkeep angle [22]. There are still problems that can be encountered brought about by the same operation that cannot be controlled by the situation.

Network management could be a procedure of observant and dominant the system to ensure that it's operational works and offers some profit to the network and its purchasers [3]. ISO has ordered the network exercises beneath 5 sensible areas. They're Fault administration, Configuration administration, Performance administration, Account administration, and Security administration (FCAPS) [24].

Finally, network management is AN administration that helps human system network in observant, work and searching when the network. Within the same fashion, network management could be a procedure of observant and dominant the system to ensure that it's operational, works, and offers some profit to the system manager and its shoppers [15].

OBJECTIVES OF THE STUDY

In this paper the researcher determined the problems and prospects of network management based on its implementation and activities. Specifically, the study answers the following sub-problems:

1. What are the classifications of ISO models breaks network management activities?
2. What are the problems and challenges of implementing network management solution?

3. What are the prospects of the state of the art enabling network management technologies?

METHODOLOGY

The researcher used the research based approach in gathering the data needed to finalize the research work. The researcher used the library approach in order to gather the relevant data of the study. In this approach the researcher managed to read at least twenty related literature concerning network management and analyze them thoroughly.

From the analysis of the related literature the researcher formulated her own title and able to identify three sub-problems. The descriptive method of research was used in answering the formulated problems. The researcher also made used of evaluative methods in order to come out with the analysis of the literature related to the posited problem.

FINDINGS AND DISCUSSIONS

Based from the related literature gathered and read by the researcher the following findings and discussions are hereby presented. In the presentation of the findings the researcher was guided by the sub-problems.

1. Classification of ISO Models

Hegering [6] portrays network management as all measures guaranteeing the fruitful and useful operations of a system within its blessings consistent with company targets. To realize this, network administration is dowered with dominant system resources, searching for system profit, observation system states, and enumerating framework standing and peculiarities. In view of this, the objectives of network management are:

1.1 Fault Management

These are the location, recuperation, and documentation of network anomalies and disappointments. Network flaws can bring about downtime, arrange debasement and thus influence the execution of the network clients. The objective of this fault management is to recognize, log, inform clients of the issue and local settle the issues to keep the network running adequately. Fault management includes deciding deficiencies in the system and give solution to the issue. Once the issue is recognized, it must be settled and the arrangement tried and conveyed on all or simply the fault system [17].

1.2 Configuration Management

This refers to the record and maintain network configuration, update configuration parameters to confirm traditional network operations. Setup administration capability is responsible of remote administration of system gadgets. The objective of design administration is to screen arrangement data of a gadget, so that the effect on

system operation of different renditions of equipment and programming components can be followed and overseen. Case of setup administration components include: Operating framework, Ethernet interface sort and form, TCP/IP stack adaptation, and SNMP variant [38]. All these setup administration data are put away in a database for simple get to. When a problem occurs, this configuration database can be searched for clues that may help in solving the problem. Few of the setups illustrations are interface operational status, directing table sending data and so on., can be arranged remotely [28].

1.3 Accounting Management

This relates to client administration and organization, charging on utilization of system assets and administrations. The target of stock organization/account organization is to fathom the lead of the framework by having a supply of customers, framework contraptions, transmission limit utilize and separating this data to give understanding into current usage plans. In light of this investigation, utilization shares can be set to individual clients or gatherings. Optimal access gets to focuses can be reached to after a few cycles and some remedy. Once an ideal point is achieved, progressing estimation would yield data identified with charging and to an appraisal of reasonable and ideal usage of the assets [9].

1.4 Performance Management

It provides reliable and top quality network performance. This includes the character of administration provisioning and leading essential execution parameters, for instance, organize output, asset use, and delay, clog level, and bundle misfortune. Performance management function is to gauge the performance of the system segments, for example, equipment, programming and media. The objective of performance management is to gauge different parts of execution parameters relating to network execution and keep up the system at a worthy level of execution [14]. Cases of execution estimations incorporate system throughput, rate of usage, mistake rates, client reaction times and line use. Performance management includes setting execution edge parameters, for example, interface movement, TCP associations, number of bundles transmitted and got, and so forth so that surpassing these edges shows a system issue deserving of consideration or examination. Performance management can be both responsive and proactive. At the point when execution gets to be distinctly unsatisfactory, the framework responds by communicating something specific. If there should be an occurrence of proactive administration, arrange reenactment can be utilized to extend the system movement example and its development bringing about fitting measures being executed [10].

1.5 Security Management

In this area there it tends give insurance against all security dangers to network assets, its administrations, and information. What's more, certification customer security and control customer get to rights. The goal of security administration is to control the passage to network resources as demonstrated by various leveled decides so that the framework can't be hurt intentionally or unintentionally. The objective is likewise to shield touchy data from being gotten to by those without fitting approval. A security management framework ought to screen clients signing onto a system asset and avert access to the individuals who enter without fitting access codes. Security management framework can likewise work by parceling system assets as approved and unapproved regions. For instance, access to HR information for different offices is wrong and thus can be limited to just that division [11].

2. PROBLEMS OF NETWORK MANAGEMENT

Problem 1: The key challenge for network managers is to maximize the productivity edges of the network while not considerably increasing the price of network possession. The composite price of system proprietary incorporates the price of care workers to readiness, actualize, work, and regulate the system separated from capital hardware price and yearly support prices. There are many network management devices and arrangements accessible within the market to remain awake to the dynamical business need from systems, and to assist associations in addressing their inexorably puzzling and basic system frameworks [23].

Problem 2: a couple of illustrations incorporate horsepower Open read, Ciscoworks, CA Unicenter, IBM Tivoli, and Novell ZENwork. Each one of them utilizes the unified style and SNMP convention to handle the network. Network management devices have progressed to traverse heterogeneous systems, conventions, and hardware in random interchanges setting of voice, video and knowledge. an oversized portion of the things achieves this by being out of the instrumentation, with nearly no customization. Horsepower OpenView (openview.hp.com) is that the most broadly speaking sent NMS structure centered everyplace, heterogeneous IT things [12]. The NNM delineate a good deal of authoritative overhead each the NNM guide and message program area unit exceptionally out-dated, the OVO operators area unit a torment to figure with and what is more they often dissolve and produce regarding restarting the framework each currently and once more. The OVO

specialist introduces method is not exceptionally swish [33].

Problem 3: the final arrangement is amazing to actualize and also the price makes it less fitted to littler associations. On the off likelihood that the system may be a dominantly Cisco-based system, and will be restricted lowest live of labor, then CiscoWorks (CW) is that the instructed instrument [20]. It does not understand all the non-Cisco gadgets and its reaction is to an excellent degree moderate. It depends on associate degree exclusive CDP (Cisco Discovery Protocol) convention and unless one is aware of concerning CDP, it's troublesome to research and direct the item. CA Unicenter (www.ca.com) Network and Systems Management empowers purchasers to ensure the accessibility and execution of mission-basic administrations by giving a coordinated perspective of occasions and warnings of their whole IT foundation within the business procedures and administrations [13].

Problem 4: As applications traverse stages and servers, the network is that the string that connections application segments along. The operating and responsiveness of a network square measure basic to application accessibility and execution. This item is expensive and silent only for large undertakings. It needs profound comprehension of the innovation and conventions, so creating the instrument advanced [8]. SolarWinds Orion Network Performance observance equipment is in addition most typically utilized SNMP-based network management item. Straightforward to introduce, it's well disposed of UI nevertheless the capability is affected to simply Fault Management. Keeping in mind the top goal to bolster full quality, it should be incorporated with completely different things from the same organization, which can find you being expensive for a venture. Therefore on open and see each one of the elements, the instrument has to promote customization. Nagios (www.nagios.org) may be a UNIX system based mostly Open supply instrument that is most broadly speaking utilized these days [18].

Problem 5: In spite of the fact that the essential establishment is basic and simple to introduce yet a large portion of the apparatus design must be done physically. The GUI is not easy to understand and requires organizing abilities as well as Linux executive aptitudes. The Web GUI, many-sided quality of the instrument, does not make a certifiable IT NMS arrangement [19]. Be that as it may, it is an Open source device and thus accessible for nothing. These business items are costly as well as have a tendency to be hard to introduce, arrange, regulate, and keep up. Likewise, the arrangement is

costly. In spite of the fact that the network management items and arrangements have been accessible for a long time, it is watched that, because of their high cost and multifaceted nature: many organizations have neglected to convey; many organizations have sent fractional arrangement with a low-end observing frameworks; many organizations have not sent any formal checking innovation; and many organizations have relinquished the endeavor to send them [5].

2.1 SOLUTION

The essential method of characterizing a company technique, for proactive network management arrangement, is, to start with, the fault administration exercises and afterward bit by bit move to performance management, then configuration management and finally to attain the target of proactive network management [16].

Network management ought to conquer the cost and unpredictability worries that have shielded associations from actualizing them by a straightforward GUI, fast and simple usage, diminished general venture, solid industry gauges premise, operational model with server center management encounter, basic authorizing, innovation to bolster Internet-empowered innovation, a solitary interface for 24 x 7 control [30].

Regardless of utilizing the most recent gigabit network equipment, endeavors are tormented with discontinuous data transfer capacity issues, execution issues, and dissensions from clients of moderate system reaction. Organization request solid system upkeep increase benefits that assistance to complete their work done [4].

3. PROSPECTS OF NETWORK MANAGEMENT

The analyst has distinguished an arrangement of empowering advancements that are usually perceived to be potential possibility for conveyed organize administration. Talk each of them thusly, analyzes their potential advantages to network administration, examine their disadvantages, and hypothesize on their prospects. These enabling headways as showed all together, concerning the level of organization capacity it introduces on organization administrators [27].

The researcher trusts that appropriating insight to the administration is an unavoidable example in system administration and one that is essential to the accomplishment of future system administration arrange. The examinations first game plan based system administration. It will be trailed by coursed enlisting, Web-based systems, and Java, which all uses static remote articles to empower undertaking offloading from master to boss. Starting there, you can present code transportability, in which

masters are more organization capable, as administrators are made adaptable and demonstrate the limit of independent organization planning [2].

Above and beyond in that heading is astute administrators, where taking care of units take part with each other on circulated introduce, expecting the piece of managers and pros then again. Eventually, dissect the utilization of the dynamic framework and fiscal hypotheses to network administration. The past pushes organization endeavors thoroughly to network contraptions, and the later manages without the necessity for framework organization establishment [21].

3.1 Policy-based Network Management

The management system is entrusted with: the change of human-friendly management objectives to linguistic and irrefutable standards overseeing the capacity and status of the network, the interpretation of such guidelines to mechanical and gadget subordinate setups, and the dissemination and implementation of these arrangements by management bodies. The mechanized interpretation process will shroud the many-sided quality of developing low-level gadget subordinate setups got from the abnormal state arrangements, and along these lines encourage the crossing over of business targets to network designs. The most basic preferred standpoint of technique based system administration is that it propels the robotization of working up organization level focuses over broad assortment of framework devices. Java dissent serialization and remote procedure that permits interfacing consistently mishandled for system administration. [5].

3.2 Distributed Object Computing

Its adjustment to network administration is gone for offering help for conveyed organize administration engineering, coordination with existing heterogeneous system administration arrangements, and gives improvement apparatuses to appropriated arrange administration segments. Firstly, DOC is used to arrangement scattered framework organization systems, evident in regulation capacities done by Telecommunication Information Network Architecture Consortium (TINA-C) [7], Joint Inter Domain Management (JIDM) [26], and researches assignments, for example, MESIS [2]. Another ideal position of this unit of concerns is the ability to give distinctive organization correspondence traditions got to by method for a summed up Abstract Programming Interface (API), developing interoperability of heterogeneous framework organization traditions, for instance, SNMP for IP frameworks and Common Management Information Protocol (CMIP) for media transmission frameworks. Appropriated protest figuring gives conveyance of administrations and

applications in a consistent and area straightforward route, by isolating article dispersion multifaceted nature from system administration usefulness concerns.

3.3 Web-based Network Management

Web innovation evacuates the requirement for restrictive administration reassures; it gives uniform administration data get to by means of web programs; information displaying in HTML shape is less demanding than characterizing Interface Definition Languages (IDLs); except for inserted web servers, electronic administration does not require devoted runtime condition and leaves little system gadget impression; web innovation has developed safety efforts that can be abused; HTTP based information transport is innately solid. In correlation, Web-based organization stages use web development as the inside advancement in the arrangement of new framework organization stages, with its own particular organization tradition, data model, and plan. Concerning framework organization, the essential issues Web-based framework organization tries to address are: stage heterogeneity, nonattendance of organization bolster accessibility, and high cost of organization stage plan and upkeep. The specialist characterizes web mixture as how much web innovation is joined into a system administration stage [34].

3.4 Java-based Network Management

On account of this wide materialness, numerous Java-based improvement situations have been proposed and outlined, supporting system administration applications. Ultimately, Java programming is anything but difficult to create, as there exists numerous improvement supporting condition and devices. Other than the undeniable execution misfortune coming about because of Java's deciphered nature, Java class stacking can be very moderate, particularly if dynamic class downloading is required. Java challenge serialization and remote methodology conjuring are consistently mishandled for framework organization. Thirdly, dynamic code downloading permits dynamic dissemination of java articles. Java, being a minimized and question arranged programming vernacular, is the instrumentation for a wide variety of system administration framework organization norms, stretching out from scattered figuring to electronic administration, to sagacious administrators. Java Remote Method Invocation (RMI) is not sorting out resource discerning in its operation and tends to squander nice assessment framework resources on each procedure or strategies. Firstly, sending Java-based programming arrangements are generally shoddy contrast with other administration programming arrangements [25].

3.5 Code Mobility

In the event that the required information is disseminated over various diverse specialists, the portable operator can move from specialist to specialist, performing information preparing and monitoring produced mediator information. Moreover, to keep portable specialists from antagonistically influencing system assets, security measure are regularly set up which either confine the operations a versatile operator can perform on nearby assets, or give some kind of get to entryway. Baldi and Picco [29] characterized three code-versatility ideal models in light of collaboration amongst administrations and assets: Code on Demand (COD), Remote Evaluation (REV), and Mobile Agent (MA). On account of versatile specialist, the chief holds the administrations through handling parts and the operator holds the assets. As far as code versatility, there exist two sorts: powerless portability and solid versatility. The terms portable code and versatile specialist are regularly utilized conversely, and some of the time mean diverse things.

3.6 Intelligent Agents

The use of shrewd authorities thoroughly disproves the necessity for conferred head components, as keen administrators can play out the system administration assignments in a passed on and made frame, through between pro exchanges. Wooldridge and Jennings [35] portrayed three compositional sorts for savvy administrators: deliberative authorities, responsive experts, and cream administrators. Different examiners recognize brilliant chairmen are the predetermination of system administration since there are some basic reasons for excitement for utilizing sharp experts for system administration. As applications using clever specialists emerge in system administration, the issue of dealing with these astute operators additionally turns out to be progressively essential. In any case, cross breed operators are generous in size, substantially bigger than either deliberative specialists or responsive specialists. Cross breed specialists are arrangements of both deliberative operators and responsive operators. A deliberative operator can run forms working on these images to create general astute activities. By and by, receptive operators are more responsive than deliberative specialists.

3.7 Active Networks

Such an answer gives full adaptability, gadget insightful, specialist organization astute, and client shrewd; it gives the way to circulated handle overall system gadgets; it is interoperable crosswise over stages by means of gadget autonomous dynamic code; it encourages client advancement and client based administration customization; it quickens new

administration and system innovation arrangement, bypassing institutionalization process and merchant agreement; it takes into consideration fine grained asset assignment in view of individual administration qualities. Some present works are done on examining dynamic frameworks for framework organization, for instance, the Virtual Active Network (VAN) recommendation [29] and the administrator based element framework outline [30]. Just charging client for administration organization may not be attractive since it demoralizes the client from modifying the dynamic hubs in the system. [31], a dynamic system is another way to deal with system design in which the system hubs, for example, switches and switches, perform redid calculation on messages coursing through them.

3.8 Economic Theory

Arrange administration utilizing monetary hypothesis proposes to display the system benefits as an open market show. Not very many works have been done on this topic, and a large portion of them are centered on utilizing financial hypothesis as operator coordination demonstrates [32]. Utilizing market demonstrate for overseeing systems is an original thought. Utilizing monetary hypothesis for overseeing multi-specialist frameworks could be a reasonable option, because of its effortlessness and self-supporting nature. Numerous basic issues carried out with these tests cast questions on the materialness of financial hypothesis to network administration [37]. Be that as it may, the use of financial speculations to network administration is just at early trial organized. Thus cash qualities and its exchange forms utilized as a part of market model must be secure. Besides, monetary arrangement for the market display must be outlined in a manner that it energizes reasonable rivalry, and emphatically relates asset dispute and its related cost. Arrange chairmen would in a roundabout way control the system progression by prompting motivators and characterize total monetary strategies. The subsequent system is automatic and self-changing, without the nearness of any formal system administration framework [36].

SUMMARY

Network supervisors and executives ought to have the capacity to adequately utilize the device to perform organize observing, execution network management and design gadgets remotely from one essential issue to oversee organize gadgets in different destinations.

This usage brought about diminished downtime of system gadgets, higher execution of systems lastly quicker, more unsurprising reaction times because of proactive network management system.

Disseminated question figuring, for example, CORBA, and Java based system administration gives the way to administration errand circulation in the system, by means of conveying static dispersed articles.

Policy-based network management permits chiefs to incompletely assign administration undertakings to operators as solid approaches. In spite of the assorted qualities of these empowering innovations, their utilization in system administration explores goes for circulating knowledge in the system. Intelligent agent push disseminated insight significantly facilitate by characterizing self-governing operators that are fit for settling on complex administration choices. Code versatility and dynamic systems assign administration errands to administration operators through element portable code downloading. The role of such intelligent agents isn't any longer confined to either the manager or the agent, because the intelligent agents will alter these functions more and more, per their on their selected tasks or to their satisfaction.

Web arranges administration offloads the preparing, introduction, and show of gadget data to web entryways or installed web servers. She trusted that appropriated knowledge is a standout amongst the most imperative patterns in the administration of present and future huge scale complex systems.

FUTURE WORK

This work explained the problems and prospects of network management, therefore the researcher would like to challenge the readers to make a further research on the problems and prospects of network management using different variable as possible. This paper would like also encourage future network management administrator to make a further study on the prospects and its planning implementation to bring the workable solutions. Do remember that the problems need to be addressed and solved based on what is being plan. Although solving such problem requires financial cost, it is a need to be solved in its proper way. That's what development and progress brings.

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