

## **Study of the Network Status Component of the Mobile Man architecture with reference to Data Repository System**

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**Abstract—** *In this paper we have discussed the study of mobile man architecture with reference to the data repository system. Mobile Man proposes a cross-layer architecture for ad hoc networks that tries to balance the interoperability benefits of a layered architecture and the efficiency benefits of cross-layering. The information in network status component in the mobile man is integrated with the data center so as to manage the information being stored and how the various application uses it.*

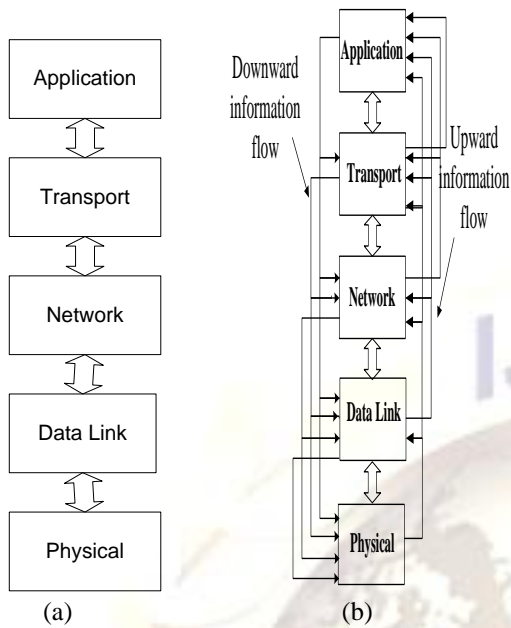
**Keywords-** *Mobile Man, Cross Layer.*

### **(I) Introduction**

Advancement in wireless networks and the ever increasing demand to offer real time applications, merger of data and limitation of resources has led to the development of several communication protocols. Traditional layered protocols such as OSI and TCP/IP have long proved to be the basis and served as strong reference models for an overwhelming number of new protocols for decades. The protocols, thus designed, are rated and implemented based on their reliability, robustness, scarce resource utilization and Quality of Service (QoS). However, the inflexibility and sub optimality of these

paradigms owing to modern day heterogeneous traffic demand has prompted researchers to digress from layered protocol. The recent interest has been in shifting from layered protocols to cross layer protocol design—the violation of layered protocol architecture—an attempt to fulfill the performance advancement innovation.

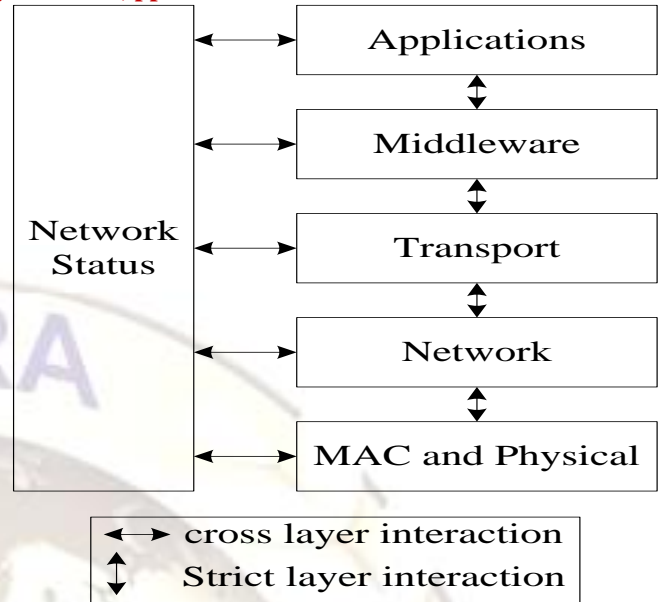
The architecture of layered protocols involves independent and transparent layers above and below each one such that modification in the layer without affecting the other layers is possible. The only requirement is that there should be a compatible interface between the layers . The basic design consideration in cross layer protocol regarding the interface compatibility and architecture division are almost same as of the layered architecture. The only difference is that the layers are not independent of each other . This means a change in any one layer can affect other related layers such that the strict layered boundaries are faded off. More over the direction of information flow service can be from and to any layers.



**FIGURE 1:** BASIC COMMUNICATION PROTOCOL CONCEPT

**(2) PREVIOUS WORK**

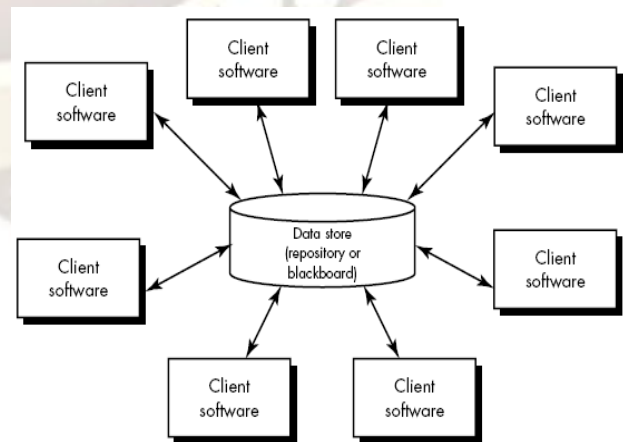
The “Mobile Man” cross layer architecture proposed is an example of shared database architecture. Mobile man is basically cross layer design for mobile ad hoc network (MANET). Mobile man presents a core component termed Network Status which is placed beside the normal layer allowing the access by each layer for data sharing. This approach aims to optimize overall network performance by increasing local interaction among protocols, decreasing remote communications and consequently saving network bandwidth..Mobile Man proposes a cross-layer architecture for ad hoc networks that tries to balance the interoperability benefits of a layered architecture and the efficiency benefits of cross-layering.Mobile man preserves the original essence of the layered architecture.The Network Status provides function as a repository of information collected by the various network protocols.It stores all the relevant variables ,relating to energy management, security etc to be accessed by different protocols at different levels. Each layer in the layered architecture access information from the networks status component through various interfaces.



**Figure 2:** MOBILE MAN Cross Layer Design Architecture

**(3) Proposed Work**

Our area of interest is the Network Status Component which is a node local memory where information gathered at different layers of the network stack is shared among different protocols and used to adapt the behavior of the node depending on the particular circumstance (e.g., traffic type, channel perturbations, network status, node selfishness and/or maliciousness, among the others) the node operates in and management of the information with in it. We are integrating the information repository system within the Network Status Component to manage the various information that are being stored and continuously accessed by the various layers.



**Figure 3:** Repository

Above is the typical Data Centered style. A data store (e.g., a file or database) resides at the center of this architecture and is accessed frequently by other components that update, add, delete, or otherwise modify data within the store. Data-centered architectures promote integrability. That is, existing components can be changed and new client components can be added to the architecture without concern about other clients.

Now the layer which wants to communicate through the network status component to other layer provides its data to it and which in turn passes to the recipient layer. Any application which want to communicate provides its information to the network status component. This Data Centered style keep all the data is order inside the network status component and will its makes management much easier.

The management of the information inside the network status component can be done in two ways :

**1.Passive Approach :-** In Passive approach the information within the component is handled in very normal way. The application or layer which wants to access the information directly contacts the network status component which in turn allow the application to access the data. The application which is accessing the data may modify the data or as well can add some other information to it. If at the same time any other application wishes to access the same data it will use the copy of the data which was stored earlier before access of the other application.

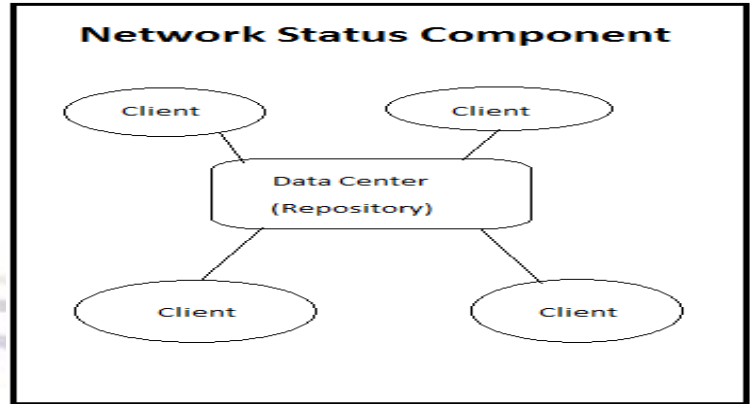
**Advantage :-** i) Application doesn't not have to wait for the data in case if it is presently being accessed by any other application.

**Disadvantage :-** i) This approach may cause redundant information to be used by the application.

**2.Active Approach:-** In Passive approach the information within the component is handled in very critical way. The application or layer which wants to access the information directly contacts the network status component which in turn allow the application to access the data but it locks the data as soon as it is allocated to be used to some application. The locking continues till the application is using the data. As soon as the application releases the data the network status component also releases the lock. During the time of lock if another application request for the same data network status component debar the application from access and put that application in a wait stage.

**Advantage :-** i) Due to locking mechanism redundant information is not being used by any application.

**Disadvantage :-**i) Application have to wait some times for a long period before it can access the data.



**Figure 4.** Repository inside network Status Component

#### (4) Conclusion

So after detailed study of the network status component of the mobile man architecture for cross layer design with reference to the data center repository,we find that it is much easier to manage the information with the help of the data center inside the network status component and also to manage the various application that continuously access the component for the data.

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