A Review Report Better Approach to Mobile Adhoc Network

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Abstract—The approach of the B.A.T.M.A.N algorithm is to divide the knowledge about the best end-to-end paths between nodes in the mesh to all participating nodes. Each node perceives and maintains only the information about the best next hop towards all other nodes. Thereby the need for a global knowledge about local topology changes becomes unnecessary. Additionally, an event-based but timeless (timeless in the sense that B.A.T.M.A.N never schedules nor timeouts topology information for optimizing it's routing decisions) flooding mechanism prevents the accruement of contradicting topology information (the usual reason for the existence of routing loops) and limits the amount of topology messages flooding the mesh (thus avoiding overly overhead of control-traffic). The algorithm is designed to deal with networks that are based on unreliable links.

Keywords:—Collective intelligence, UDP, Ethernet, VPN etc.

1. INTRODUCTION

B.A.T.M.A.N.'s crucial point is the decentralization of the knowledge about the best route through the network — no single nod has all the data. This technique eliminates the need to spread information concerning network changes to every node in the network. The individual node only saves information about the "direction" it received data from and sends its data accordingly. Hereby the data gets passed on from node to node and packet get individual, dynamically created routes. A network of collective intelligence is created.

B.A.T.M.A.N. provides a new approach for the route discovery that can considered somewhere between the ideas of AODV and OLSR. All nodes periodically broadcast so called Originator Messages (OGM) that contain the node's address, a sequence number, and a TTL. The tuple source address and sequence number makes the packet identifiable and enables duplicate detection. When a nodes receives an OGM it updates its routing table that mainly contains the following information:

- Originator address: source address of the sender of the OGM

- Current sequence number: sequence number of the last OGM; used to detect duplicates and outdated information

Sliding windows: one sliding window list of sequence numbers is stored for each originator and each previous hop, i.e., neighbor that forwarded or originated the OGM

2. RELATED WORK

In early 2007 the batman developers started experimenting with the idea of routing on layer (Ethernet layer) instead of layer. To differentiate from the layer 3 routing daemon the suffix "adv" (spoken: advanced) was chosen. Instead of sending UDP packets and manipulating routing tables, it provides a virtual network interface and transparently transports packets on its own. The batman-adv kernel module is part of the official Linux kernel since 2.6.38.
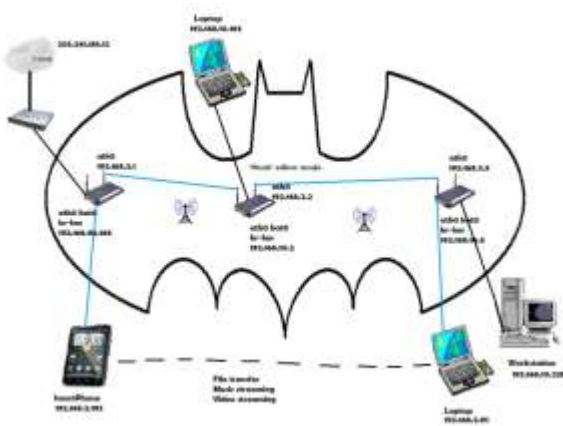

Figure 1: Assembling of various nodes in BATMAN format.

Collective intelligence is share or group intelligence that emerge from the collaboration, collective efforts, and competition of many individuals and appears in consensus decision making. The term appears in sociobiology, political science and in context of mass peer review and crowd sourcing applications.

It may involve consensus, social capita and formalisms such as voting system, social media and other means of quantifying mass activity. Collective IQ is a measure of collective intelligence, although it is often used interchangeably with the term collective intelligence.

It can be understood as an emergent property from the synergies among:

1) data-information-knowledge; 2) software-hardware; and 3) experts (those with new insights as well as recognized authorities) that continually learns from feedback to produce just-in-time knowledge for better decisions than these three elements acting alone.[3] Or more narrowly as an emergent property between people and ways of processing information.[4] This notion of collective intelligence is referred to as Symbiotic intelligence by Norman Lee Johnson.[5] The concept is used in sociology, business, computer science and mass communications: it also appears in science fiction.

Pierre Lév defines collective intelligence as, "It is a form of universally distributed intelligence, constantly enhanced, coordinated in real time, and resulting in the effective mobilization of skills. I'll add the following indispensable characteristic to this definition: The basis and goal of collective intelligence is mutual recognition and enrichment of individuals rather than the cult of fetishized or hypostatized communities.

According to researchers Lév and Kerckhov, it refers to capacity of networked ICT (Information communication technologies) to enhance the collective pool of social knowledge by simultaneously expanding the extent of human interactions.[7]

Collective intelligence strongly contributes to the shift of knowledge and power from the individual to the collective. According to Raymon and Her, open source intelligence will eventually generate superior outcomes to knowledge generated by proprietary software developed within corporations (Fle 2008).

Meanwhile media theorist Henry Jenkin sees collective intelligence as an 'alternative source of media power', which is closely related to convergence culture. He draws attention to education and the way people are

learning to participate in such knowledge cultures outside of formal learning settings. Henry Jenkins criticizes schools which promote 'autonomous problem solvers and self-contained learners' while remaining hostile to learning through the means of collective intelligence.

3. WORKING

B.A.T.M.A.N. does have elements of classical routing protocols: It detects other B.A.T.M.A.N. nodes and finds the best way (route) to these. It also keeps track of new nodes and informs its neighbors about their existence.
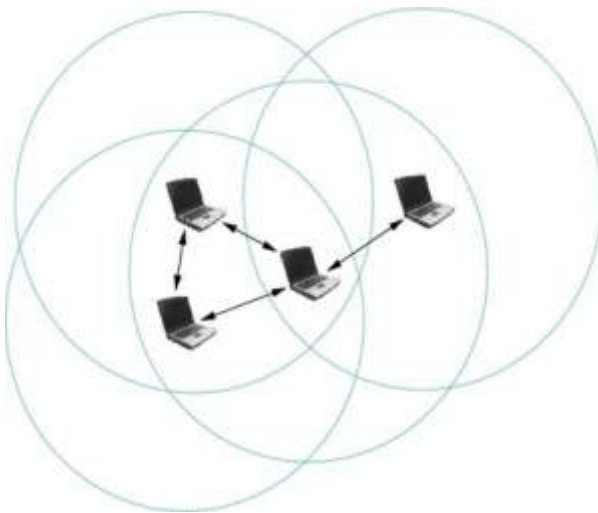

Figure 2: Communication devices in adhoc network.

In static networks, network administrator or technicians decide which computer is reached via which way or cable. As radio network undergo constant changes and low participation-thresholds are a vital part of the "Freifunk"-networks' foundation this task has to be automated as far as possible.

On a regular basis, every node sends out a so-called "broadcast" (a general message to all) thereby informing all its neighbours about its existence. The neighbors then relay this message to their neighbours and so on and so forth. This carries the information to every node in the network. In order to find the best way to a certain node, B.A.T.M.A.N counts the originator-messages received and logs which neighbour the message came in through.

Like distance-vector protocols, but unlike link-state protocols, B.A.T.M.A.N does not try to determine the whole way, but, by using the originator-messages, only the package's first step in the right direction. The data is handed over to the next neighbor in that direction, who in turn uses the same mechanism. This process is repeated until the data reaches its destination.

Besides for radio networks, B.A.T.M.A.N can also be used with common cable connections, such as Ethernet.

A Network Administrator is an individual that is responsible for the maintenance of computer hardware and software systems that make up a computer network including the maintenance and monitoring of active data network or converged infrastructure and related network equipment.

Network Administrators are generally mid-level support staff within an organization and do not typically get involved directly with users. Network Administrators focus upon network components within a company's LAN/WAN infrastructure ensuring integrity. Depending on the company and its size, the Network Administrator may also design and deploy networks.[1]
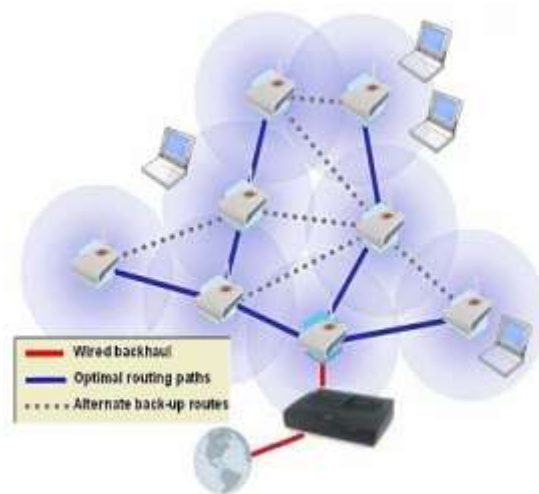

Figure 3: Packet Exchanging in adhoc network

The actual role of the network administrator will vary from place to place, but will commonly include activities and tasks such as network address assignment, management and implementation of routine protocols such as ISIS, OSPF, BGP, routing table configurations and certain implementations of authentication (e.g.: challenge response, etc.). It can also include maintenance of certain network server: file server, VP gateways, intrusion detection system, etc.

4. PROPOSED WORK

At that point the network node that needs a connection broadcast a request for connection. In future work nodes forward this message, and record the node that they heard it from, creating an explosion of temporary routes back to the needy node. When a node receives such a message and already has a route to the desired node, it sends a message backwards through a temporary route to the requesting node. The needy node then begins using the route that has the least number of hops through other nodes. Unused entries in the routing table are recycled after a time.

5. CONCLUSION

There are two types of radio networks currently in use around the world: the one-to-man broadcast network commonly used for public information and mass media entertainment; and the two-way radio type used more commonly for public safety and public services such as policy, fire, taxicab, and delivery services. Cell Phones are able to send and receive simultaneously by using two different frequencies at the same time. Many of the same components and much of the same basic technology applies to all three.

The Two-way type of radio network shares many of the same technologies and components as the Broadcast type radio network but is generally set up with fixed broadcast points (transmitters) with co-located receivers and mobile receivers/transmitters or Tran-ceivers. In this way both the fixed and mobile radio units can communicate with each other over broad geographic regions ranging in size from small single cities to entire states/ provinces or countries. There are many ways in which multiple fixed transmit/receive sites can be interconnected to achieve the range of coverage required by the jurisdiction or authority implementing the system: conventional wireless links in numerous frequency bands, fibre-optic links, or microwave links. In all of these cases the signals are typically backhauled to a central switch of some type where the radio message is processed and resent (repeated) to all transmitter sites where it is required to be heard.

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