Calc Redirection : A Structure for Direction Finding Aided Traffic Monitoring

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ABSTRACT

The framework for routing in network is aided by the monitoring of router supported is a previous thought. In Existing work the process of each flow over the network is aggregated by the nodes to maintain the traffic flow throughout the nodes. A simple scenario involves routers implementing uniform sampling or an approximation of it, with network operators being interested in monitoring a subset of the traffic. This is cost effective and time consuming. We propose a new wireless adhoc sensor network where nodes will be continuously monitored for feasible path transmission which is not fixed (this point will overcome the previous paper) will be generated by genetic approach for transmission and also find out the shortest path for transmission. We use genetic approach algorithm for optimizing the network flow for having best and feasible paths with respect to bit shifting for all the available weights. The function values and their respective derivatives to the attributes feasibility are used to go next level in proper way. This method is very effective at finding optimal to a wide variety of problems, because it does not impose limitations required by traditional methods such as gradient search, random search etc. It has advantages over traditional non linear solution techniques that cannot always achieve an optimal solution. The method is very different from remaining optimization algorithms. In this paper the IP address will be tracked by router for each communication..

Keywords

Genetic Algorithm, monitoring, log

I. INTRODUCTION

Networking approaches are complicated in regular business managements , and industries. The optimized network models exhibits an insightful , and continuous updations with current trends with the treatments of multiple objective genetic approach for network optimization issues in many metrics such as engineering and computer science , research operation, tele communication and manufacturing. Our main aim is maximize the network lifetime by minimizing the total energy usage of individual sensors by forming optimal data collection sequence using genetic approach.

This work is totally related to routing the network flow in the feasible way and not categorized under any frame work. So this will frame first WSN with weighted paths and ip's. So to overcome the regular approach for transmission we will approach an unique way of finding the feasible path. And once the path is found from our approach the source and destinations ip's will be logged with packet information. Next time if same path found for the similar packets transmission our system will check the log information and stops the duplicate transmission. We propose Genetic approach for finding the feasible path and shortest path. This approach finds the best feasible path from network and gives shortest path for communication. Once the path is chosen fit separately the variation must be random in nodes to increase their generation of next feasible path.

II. LITERATURE REVIEW

All To manage the network traffic is is critical and vital for the administrators , managers of the complicated networks. But the existing network tracers or monitoring tools or infrastructures cannot figure out these objectives. At present there are 3 main methods for network transmitted packets and classifications , one is depends on well known TCP and UDP with allotted port numbers second one is deep packet inspection mechanism and third one is methods of traffic flow. The first and second methods having some short comings. But the third method can be selecting different network pattern recognition mechanism.

Genetic algorithm is deferent from ancient approaches of regular optimization techniques. Genetic algorithm uses a discovered and auto selected that uses like chromosomes, which are data structures and discovers using selection, reassembling and mutation operations. The genetic algorithm identifies the individuals paths with the optimizing fitness path values, and those with lower fitness path value will naturally get discarded from the selected nodes. Successive generations improve the fitness of individuals in the population until the optimal solution is met.

III. METHODS

Genetic approach: We are proposing genetic approach to get best feasible path and shortest path for transmission. This algorithm will take input as possible paths from transmission path. And once the possible paths are found then the will be converted in the 4-bit binary form. They will be merged according to the chunks sequence and the bits will be swapped and negated. After that these binary values will be back to normal decimal values and they will be compared with the original chunks weights to get the feasible paths. Here the result weights will be considered in the 3 conditions. ***(1)***The first condition is all the paths will be same as original paths chunks. ***(2)***The second condition is 0 values will not be considered. ***(3)***Third condition is the none of the chunks weight should not more than the maximum weight in network.

This log information i.e routing table will be monitored by main router which will re-establish the path if regular flow of transmission for that particular flow will not match the threshold.

Wsn generation:

Input← no of nodes(n)

Output← wireless sensor network(W_s)

1. *count← 0*
2. $\lambda \leftarrow n$
3. *Rn*← $Rootnode$
4. $\sum_{0}^{n} Ip \leftarrow 0$
5. *For each l in n*
6. *Loop start*
7. *IPGen(l) // function 0f which will generate the unique IP.*
8. *WeightGen(l , l+1) // function which will generate the weights*
9. *Rn*← Ip *Gen*
10. $W_s \varepsilon R_n$
11. *End loop*
12. *Count++*

Weightgen is a function where weight will be generated and assigned between two nodes. The generated weight will be in routing table for every communication. In the above format. According to the frequency of the communications from selected source to destinations, each every communications will be allotted with unique identifier to have reduce redundancy. So when ever next communication comes into picture our router will check the routing table to overcome retransmission and duplications.

Routing technique is used to find the best feasible path for retransmission of the selected nodes and data. Basically whenever the source(N*n*) and destination (N*m*) is selected normally in our proposed system the router node will first check the if there is already any transmission is happened in that path, if so it will check that data and transmission frequency if it finds aggregation of 70% less then system will reconstruct the path for the source and destination. So the path reconstruction will be next best feasible path for the same source and destination. For this particular scenario we follow an unique approach called drifting to get the best feasible path. Normally drifting in this case is % calculation to get best feasible path in consideration with 2 attributes (weights , threshold). So our drift algorithm will find the best feasible paths if threshold is not matching. A dynamic vector will maintain the weights between all nodes, so that by using this vector the next best path will be derived and will be considered for transmission.

Genetic Algorithm:

Input: Path for transmission

Output: Feasible Paths(F_P) and shortest path(S_P)

Initialization:

1. $\sum P_P \leftarrow 0$ //All possible paths
2. $\sum C_h \leftarrow 0$ //Available paths
3. $\sum P_W \leftarrow 0$ //Available weights for chunks
4. $n \leftarrow 0$ //Total no of chunks
5. $\int fp \leftarrow 0$ //feasible paths
6. $\sum B_i \leftarrow 0, \sum B_0 \leftarrow 0, \sum D_C \leftarrow 0$
7. For each path P in P_p
8. Loop starts
9. For each node n in P
10. $C_h \leftarrow CHUNK(n, n+1)$
11. End loop
12. For each C in C_h

13. $P_w \leftarrow P_w$(GETWEIGHT $(\Sigma_{\downarrow} n^{\uparrow}(n+1) C_{\downarrow} h$)) //Available weights
14. End loop
15. Loop start
16. For each W in P_w
17. Loop start
18. $B_i \leftarrow$ BINARY(w)
19. End loop
20. For each b in B_i
21. $B_0 \leftarrow$ GENETIC(b)
22. End loop
23. $D_C \leftarrow CONVERT$ (B_0) //function for conversion from binary to decimal
24. $F_p \leftarrow D_C$ //All feasible paths
25. $S_p \leftarrow F_p$ //Shortest path

Above algorithm generates the available feasible paths with weights. Now we have 3 conditions to be considered in this case to get the best feasible paths.

Conditions

1. All the generated weights after the above calculation should be same weights as the original network weights.
2. None of the generated weight should be 0 value.
3. All the individual chunks generated values should not cross the maximum valued weight in the network.

IV.RESULTS AND DISCUSSION

Place We proposed genetic algorithm to find the feasible paths in the given transmission path. Normally network is with nodes and constructed for transmission for all nodes to communicate. Once path is given example (source node ***a*** and destination node is ***d*** . So first this algorithm will take an initiative to get the possible paths(for the particular path from a to d).

Example:

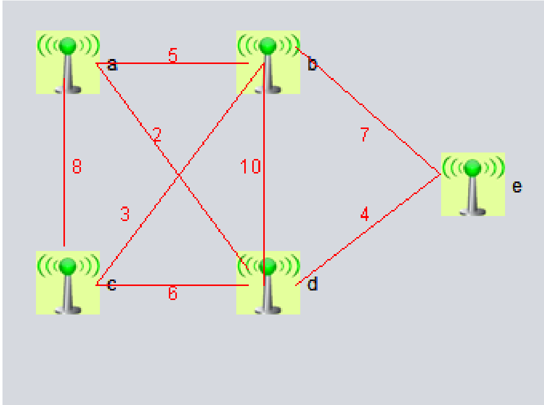


Fig 1: Nodes formation

	A	B	C	D	E
A	X	5	8	2	C
B	5	X	3	10	7
C	8	3	X	6	C
D	2	10	6	X	4
E	C	7	C	4	X

C=chunks

Fig 2: Log table

In this case the possible paths are ***{ad , abd , acd , abed , acbed , abcd , acbd}***. Now genetic technique will take the inputs as weights between these possible paths with chunks. For example in the above set we have seven possible paths are available and if we take 4^{th} path abed then available chunks are ***{ ab , be , ed }*** with weights from network ***{ 5 , 7 , 4}.***

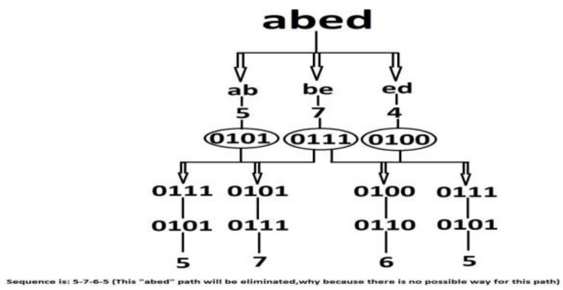
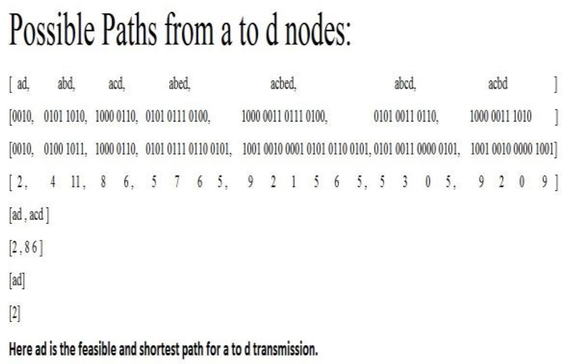


Figure 3: Feasible paths for abed

Now for all paths sequentially the chunks will be framed and with weights and then binary (4-bit) information will be generated and in the above case with ***abed*** the generated binary information is as follows ***{0101 , 0111 , 0100}.*** Take binary values 0111 and 0100 which are second and third paths weights in ***abed*** path and chunks' are ***be*** and ***ed*** (7,4). Now from first weight of binary value we take first 2-bits from first weight and last 2-bits form second weight and now the binary value after merging is 0100. After the take first 2-bits from second weight and last 2-bits from first weight and after merging the value is 0111 now if we merge these outputs the binary value would be ***0100 0111***. Now the third bit will be negated in these two binary values which results ***0110 0101*** which is of ***{6,5}***. Now if the result is changed from ***{7,4}*** which is original, so the whole path will not come under feasible path, So abed will be ignored from feasible paths list. So we consider only paths which are same after doing genetic approach. So then the feasible best path will be found.

Now the feasible path for ad is ad only. After the transmission of the packets from source(a) to destination(d) the transmitted path and ip's information and packets information will be maintained in the log for avoiding the duplication of transmission in the same path same set of packets. Once the path is established for transmission our system will check for the log if any duplicate path which is already transmitted in that path. So if system found that transmitted path and next it checks for the current transmission packets with the transmitted packets for that particular path in this case system will check for ad for our work example. The practical output is shown in below picture.


Possible Paths from a to d nodes:

[ad, abd, acd, abed, acbed, abcd, acbd]

[0010, 0101 1010, 1000 0110, 0101 0111 0100, 1000 0011 0111 0100, 0101 0011 0110, 1000 0011 1010]

[0010, 0100 1011, 1000 0110, 0101 0111 0110 0101, 1001 0010 0001 0101 0110 0101, 0101 0011 0000 0101, 1001 0010 0000 1001]

[2, 4 11, 8 6, 5 7 6 5, 9 2 1 5 6 5, 5 3 0 5, 9 2 0 9]

[ad , acd]

[2 , 8 6]

[ad]

[2]

Here ad is the feasible and shortest path for a to d transmission.

Figure 5: Example for from a to d transmission

In the above practical example the ***ad*** transmission if the feasible paths generated by above calculation are ***{ ad , acd }*** with ***{2 , 8 6}*** , So now best feasible paths are ***{ ad , acd }***. So now the best path is ad with weight 2 which is shortest path communication.

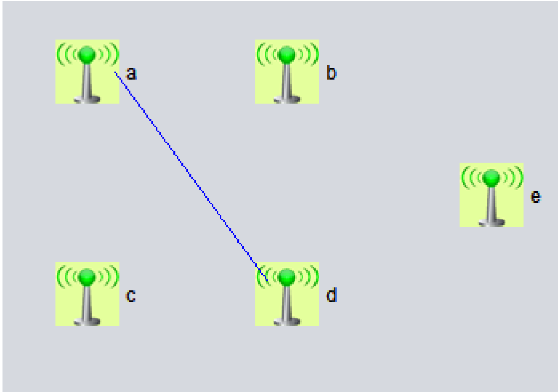


Figure 4

This Figure 5 shows all possible paths from a to d and find out the feasible and shortest path for a to d transmission.

V. CONCLUSION AND FUTURE WORK

In our work we briefed about the approach of applying genetic algorithm into network routing . An elaborated overview of network path finding and routing techniques are discussed. The entire architecture is totally briefed in this. The network architecture also introduced. Factors with minimum weight paths with respect to weights are discovered. The development of genetic algorithm is unique as it considers both shortest path and feasible paths are considered. Future work includes dynamic weightage generation and also dynamic number of peers in the mess network is proposed. Taking multiple attributes from various security parameters auto router generation mechanism is in this future work.

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