

## RAIN TECHNOLOGY

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**Abstract**— This paper focuses on Rain Software Development, its specifications, design, modules and deployment on various topics. The issue of current problems of Internet access and cloud computing with aid of rain technologies Efficient system of fault tolerances in different subject matter that are not protected by cloud computing. Rain has been developed to address Rain says nodes will always be active on networks and they use various mechanisms to detect so substitute defective nodes with a safe node. We have described the way in which load sharing can always be made available in plumbing by implementingg different thingsI.

### INTRODUCTION

In partnership with NASA's reaction propulsion Laboratory and authority, Rain computer code originated over the constraints of cloud computing and was established by the CA Institute of Technology. RAIN was the name of the initial analysis cluster, that reflects a comprehensive assortment of individual knots. a corporation known as Rainfinit was supported by the RAIN analysis team in 1998. Rainfinity could be a business that primarily deals with the creation of cluster technologies for the sweetening of web information center capability and value. Usually called channel bonding, redundant assortment of freelance nodes or a sturdy array of independent nodes. In general, Rain technology has developed varied network solutions over the web, like breakdown of nodes, traffic jam, association degradation, lack of information. The RAIN will offer full automatic information recovery during a native zone network or broad space network though multiple nodes fail. It may offer a full network association in multiple interfaced interfaces and redundant storage. Some distributed file sharing systems like Gnutella and eDonkey are RAIN-like, however don't have ample practicality redundancy— if none of the users shares associate e-file copy, the file is untouchable. The emphasis of RAIN is on the development and solution of the eDonkey and Gnutella issues, with high performance fault-tolerant, compact clustering technology. Today the existing network infrastructure has a major disadvantage of a common failure point, the application and server design and bottleneck. If any nodes malfunction, the current system does not accommodate that node, nor do they have adequate computing capacity to handle traffic they generate RAIN technology. Rain is one of the best technologies in the industry.

### 2. ARCHITECTURE

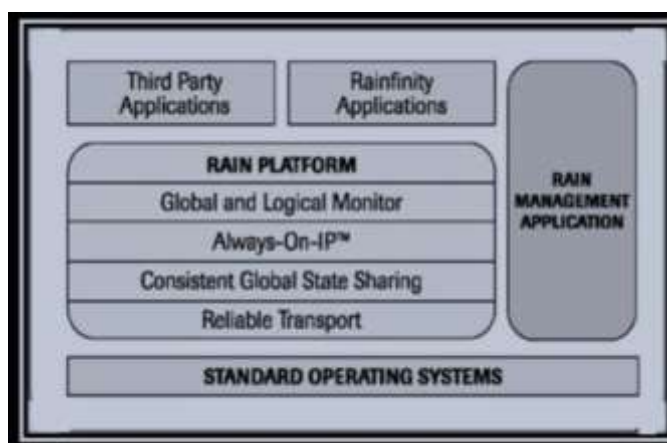


Fig. Process flow diagram

**A. Reliable transport** Trustworthy transport guarantees the efficient connectivity between cluster nodes. It service means the packages are shipped efficiently. Both network links are used to reach the destination transparently. In case of failure, it alerts the top layer so that it acts as a fault control failure detector. The module can be transferred to various computer architectures, operating systems and networking settings.

**B. Consistent sharing protocol** This approach ensures reliable group membership, efficient sharing of knowledge and centralized group decision taking for the RAIN cluster. This allows effective group connectivity between computing nodes and guarantees that they work together without confrontation.

**C. Available on IP** This framework manages pools of virtual IPs that are "always accessible. Such virtual IPs are logical addresses that can be transferred for load sharing or malfunctioning from one node to another. For any subnet that is combined with the RAIN Cluster, an unremarkable pool of virtual IPs is generated. One or many virtual IPs may be found in a stream. When a true node dies inside the cluster, in other words, the simulated data processing will be confiscated.

**D. Local and Global Fault Monitors** Fault logging detectors. Main resources on continuous or event-driven basis in and around cluster network connections. We are an integral part of RAIN, secure running of collection and the efficient use of error management facilities..

**E. Secure and Central Management.** This Rain Technology module provides an app with a browser to control and to set up all cluster nodes of RAIN united. To order to obtain a single system image of the whole network, the central management framework connects to any cluster node.

### 3. FEATURES

**A. Communication:** As we can even do the transfer and communication with other nodes because rain provides the following features.

1) **Bundled Interfaces:** Every node in the network will have an interface cards which will solve the problem of faults and increase the performance of the system.

2) **Monitoring Link:** To Link state control protocol is used by the network to store all the history of the nodes and the transfer of the data among the nodes. Which is very use full.

3) **Fault tolerant and Interconnects Topologies:** Network partitioning is always an issue when a network of computers has to function as a whole. We built network topologies that are immune to partitioning when network components break.

**B. Membership of Groups:** If any node of the group fails, the work of the group shall be handled immediately by another member of the group. Rain Technology's Strong Group Management provides the various features of load sharing, handling network congestion, and controlling node or connection loss effectively.

**C. Storing the Data:** Fault tolerance of data storage over many disks is accomplished by redundant storage systems such as RAID (Redundant Individual Disk Array). If any node or disk crashes, the backup data stored in another node will provide details on the failed node.

### 4. TOPOLOGIES USING RAIN TECHNOLOGY

In order to minimize the number of nodes and delete extra nodes, Rain helps to build the topic structure. The solution can be given by reduction of the total number of nodes in the client-server network. Since the total number of nodes is small, the transfer time from the source node to the target node is minimised. Third, it will be the latency effect, and within a shorter period of time the data can be transmitted.

**4.1 Topology Star:** In the topology of the planets, all the nodes are connected to the central HUB or turn in the diagram. All the nodes in the network interact with each other via the central HUB as shown in the following chart.

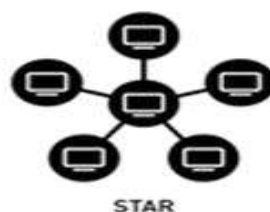


Fig. Star Topology

**4.2 Topology Star Usage:** We will put a switch on each network node, and each node can be linked to a few other nodes in the network, in the diagram, apart from the middle node, so that if the middle node do not work properly, the node can interact with the rest of the network node by making use of different accessible path. If the main node fails, the node-2 will connect with the other node-1 and node-3 routes. Suppose that any one node-2 connection fails even then node-2 will connect with the rest of the network. Second node will be mismatched if two of the outgoing connection and the central hub malfunction..

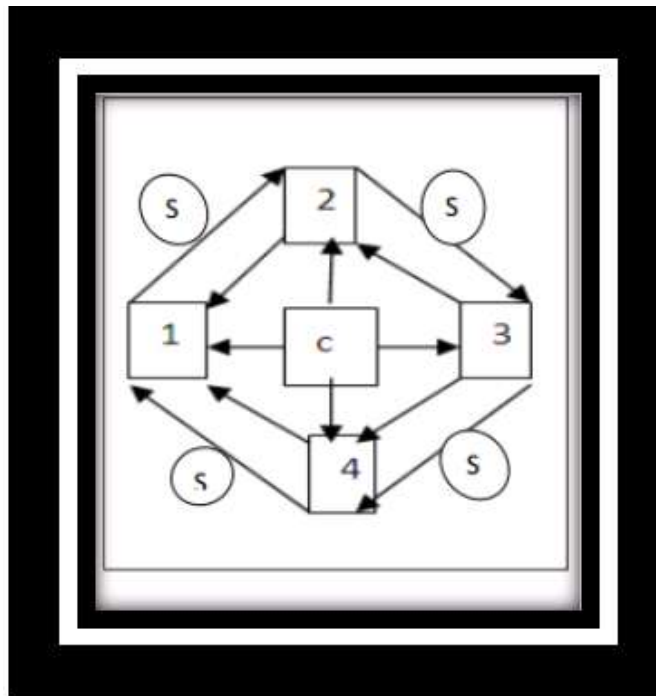


Diagram of Topology Star with Rain Technology

**4.3 Topology Ring:** In this type of topology each node is connected to the neighbours in the ring as in the diagram.

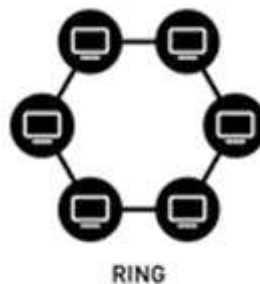


Diagram of Topology Ring

Ring topology have several disadvantages, they are

1. The system fails if any one fails.
2. **Scalability:** When we add additional nodes to the network, then the token needs more time to enter the target node, thereby slowing the time increase.

**Topology Ring usage:** Here C is the processing node where nodes are linked to other nodes of the network which are linked to the switch using a diameter system such a way, in place of any failure and connection loss, they may interact with each other. The nodes are linked to another node that is at the far path, that make us to decrease the pause in transmitting the token.

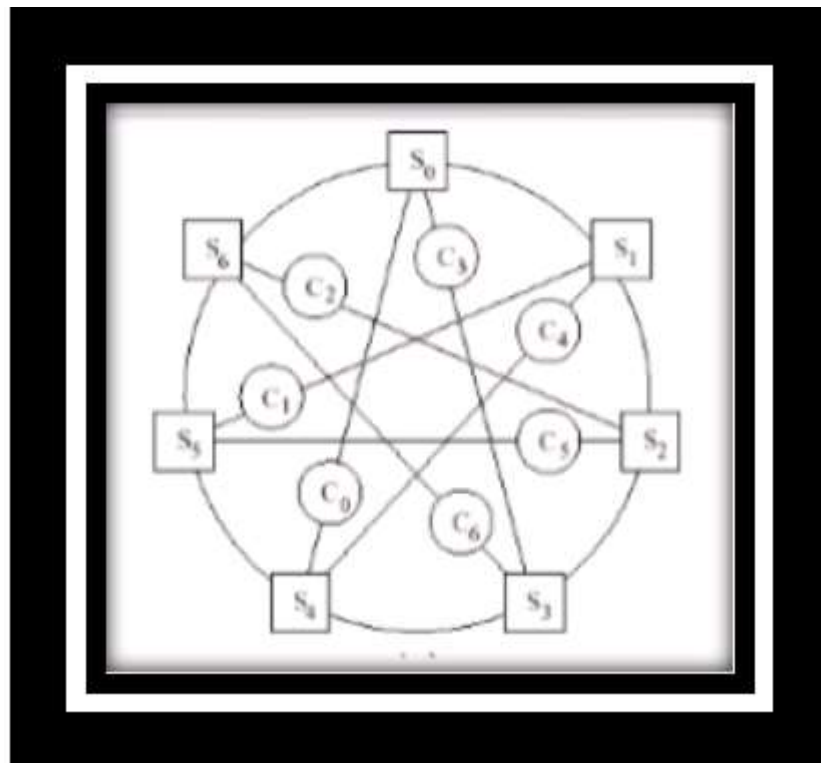


Fig. Ring Topology using Rain

As in the diagram each node is connected to all other node and any damage in one can not do anything because there will be paths between the nodes via another nodes.

**4.6 Topology Bus Using Rain:** Nodes in Bus to are linked by a long path wire as well, as depicted in the diagram below. Therefore, every node in the bus topology will connect with the rest of the network using either a switch or a spinal cord. The node is attached to a separate switch so that it can touch all the node of the network as shown in the figure.

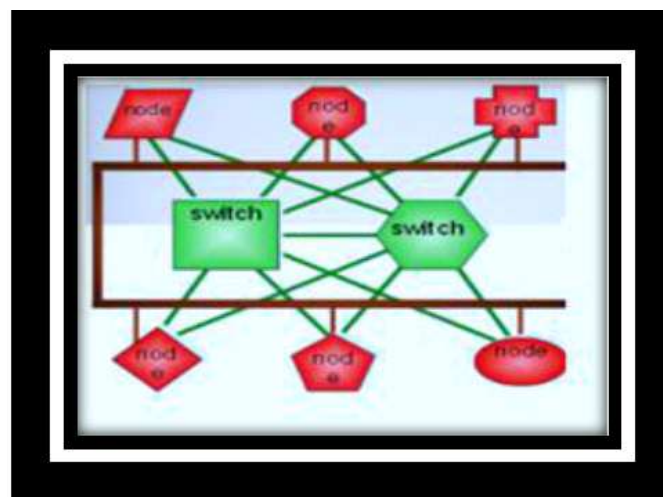


Diagram of topology bus with Rain Technology

## 5. ADVANTAGES

1. It technique can be used in various topology applications to improve the robustness of each topology. All nodes are involved in the whole of topology and are able to handle load balancing. This technology enables users to minimize the connections and it also reduces the cost.

2. There will not be any end point for the clusters in the rain technology. Rain's engineering doesn't add new node

3. Rain technology has no definition of the relationship between master slave or client servers. Through client architecture the application network sends the web page request to the server and the connection between the web page fails, if the Application is down. Therefore, this issue does not exist in the rain concept network.

4. This rain technology is good in the balancing the load and also due to very good group management in it.

## 6. PROJECTS WHERE RAIN TECHNOLOGY IS USED

RAIN TECHNOLOGY is used among the following:-

**SNOW:** The it is a web server made during the rain project it is very good performance.

**Video RAIN:** RAIN Video is a series of videos that have been written and encoded for all the network nodes with distributed storage.

**RAIN Wall:** Rain Wall is a perfect solution which provides security and protects from the attacks.

**Check RAIN:** The control of regeneration is a distributed control pointing mechanism, which uses the distributed store control point and the rollback / recovery mechanism of the RAIN.

## 7. CONCLUSION

In contrast, the rain technology can be inferred as the remedy for Cloud Computing's drawbacks, the rain technology has proven to be the best technology as opposed to the cloud computing we use rain technology for all forms of fault tolerance topology but cloud unable to do that. In the series and time-to-time transfer of data through, data link layer rain technology helps. Although the Rain technology can be solved with SNOW technology, some drawback lies. This scalable web server cluster (SNOW) is built within the RAIN Project. SNOW is a powerful web server network.

## 8. REFERENCES

*Basic format for books:*

J. K. Author name, Title of chapter in the book," in Title of His Published Book, xth ed. City of Publisher, (only American states), Country: Abbrev. of Publisher, year, ch. x, sec. x, pp. xxx-xxx.