Cloud computing has emerged as a fresh technological and commercial paradigm in recent years. Many researches has been conducted but Cloud-based applications are still facing challenges with distribution of the workload. Many researches has been conducted for load balancing but due to the availability of multiple resources and virtual machines in cloud computing efficient allocation of tasks has become a crucial process. Task Scheduling plays vital role in load balancing. Cloud computing uses dynamic resource provisioning and de-provisioning and data centers are pressurized due to increased demand in cloud computing. One of the key characteristics of cloud computing is elasticity, as it automatically distributes incoming load to multiple virtual machines. In order to improve load balancing, our proposed ARTIS (Autonomous Real Time Intelligent System) model will introduce efficient resource provisioning and de-provisioning. In order to prevent under loading and overloading of resources we proposed a model that is using the fuzzy logic approach to load balancing. The effectiveness and accuracy of our proposed model are validated using a Simulator in Matlab. The simulation results have demonstrated that our proposed intelligent cloud-based load balancing system empowered with fuzzy logic, outperforms other methods that have been previously published.